Hitachi Data Ingestor

6.4.2

KVM Installation Guide

This document provides information about installing and configuring the Hitachi Data Ingestor software (HDI) on KVM.

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Preface

About this document

This document provides information about installing and configuring the Hitachi Data Ingestor software (HDI) on KVM. Throughout this document, instances of HDI installed on KVM are referred to as VMA. This guide is intended to provide the information about applicable virtual machine environment as well as instructions for setting up HDI on KVM.

Intended audience

Readers should have basic knowledge of:

- KVM and virtual machine operation with virt-manager
- Hitachi Data Ingestor for Single Node

Product version

This document is applicable to the Hitachi Data Ingestor 6.4.2 or later.

Revision History

Revision	Date	Description
1	Mar. 19, 2018	Newly Created

Related documentation

This guide is based on the following documents:

- Hitachi Data Ingestor Installation and Configuration Guide
- Hitachi Data Ingestor Single Node Administrator's Guide
- Hitachi Data Ingestor Single Node Getting Started Guide

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Overview

KVM is a virtual platform environment that runs on Linux. VMA is executed as a guest OS on KVM. VMA and HDI in a single-node configuration both provide the same functionality.

Overview of system configuration

VMA and HDI in a single-node model have different hardware requirements. Instead of physical hardware, VMA requires a Linux host on which KVM is installed. Figure 0-1 shows the system configuration of VMA.

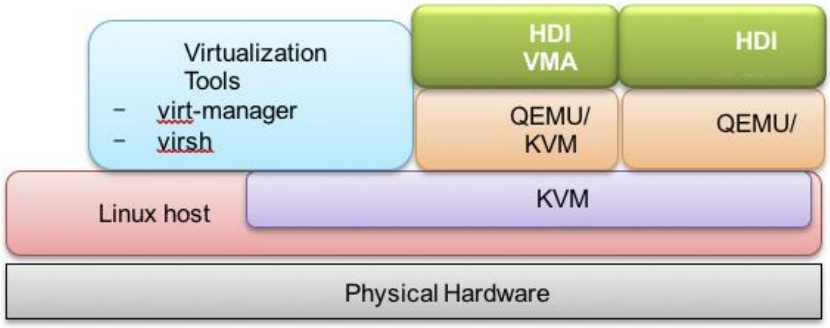


Figure 0-1 System configuration components

Host machine configuration

A host must satisfy the following hardware requirements. Table 0-1 shows the system requirements for the host machine.

Table 0-1 System requirements for the host machine

Item	Configuration
Processor	x64-based processor (Intel 64, AMD64) Intel-VT or AMD-V is enabled, and data execution prevention (DEP) is enabled
Host OS	• SUSE Linux Enterprise Server 12 SP3 • Red Hat Enterprise Linux 7.4
Memory for the host OS	12 GB or more

	* Number of guest OSs to be executed simultaneously × 8 GB + 4 GB or more
Storage for the host OS	Amount of storage used by the host+64 GB or more * 64 GB is the minimum requirement for a single guest OS.
Network adapters	2

Virtual machine configuration

Error! Reference source not found. shows the virtual machine configuration.

Item	Configuration	Notes
Number of processors	2 or more	Select Hypervisor default or qemu64 as model.
Memory	8192 MB or more	
IDE controllers	1	
Number of virtual disks		
OS LU	1	Create this item as VirtIO Disk1(mandatory).
Shared LU	1	Create this item as VirtIO Disk2(mandatory).
User LUs	1 to 21(*2)	Create this item as VirtIO Disk3 ~ 23. At least 1 user LU is required.
Virtual disk capacity (*1)		
OS LU	26 GB or more	
Shared LU	36 GB or more	
User LUs	2 GB to 128 TB	
Disk type		

OS LU Shared LU	Raw	Other disk types, such as qcow2, are not supported.
User LUs	Raw or qcow2	Other disk types are not supported.
Network Adapters	2	Select virtio or e1000. Other devices are not supported.
CD/DVD Drives	1	Create this item IDE controller. Map the ISO image.
Note2: *1: Virtual disk capacity cannot be extended after installation. Estimate the required capacity of user LUs before installation. *2: PCI bridges are not supported. Note that if you attempt to add a virtual disk to the last free slot of a PCI while VMA has stopped (the typical case would be when you attempt to add the 21st user LU), virt-manager automatically adds a PCI bridge to that slot. We recommend that you add an LU while VMA is running.		

HDI VMA characteristics

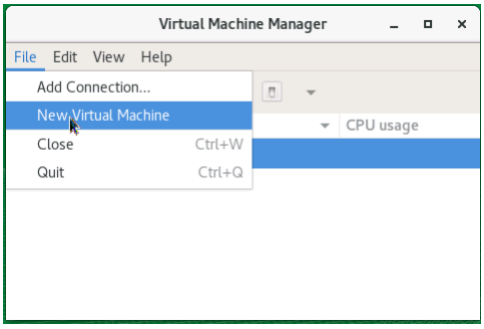
HDI VMA has the following characteristics in comparison with an HDI single node model:

- Tagged VLAN, link aggregation, line redundancy cannot be set in VMA. These functions can be set in the host.
- Software performance varies depending on the load on the Linux host.
- Negotiation mode cannot be changed when “virtio” is chosen as the NIC type of VMA.
- The speed of "Ethernet Interface" in the Network tab of VMA is always displayed as "--".
- The link speed of "Network Interface" displayed when the hwstatus command of VMA is executed is always displayed as "-".
- Media type, Negotiation mode, Speed, and Duplex in the List of Data Ports window of VMA are always displayed as "-".
- Less hardware disruption or failure monitoring capability than HDI single node.

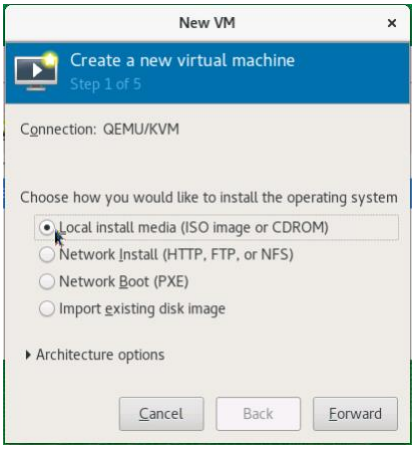
Installation procedure

This section describes the procedure for creating an HDI VMA on KVM.

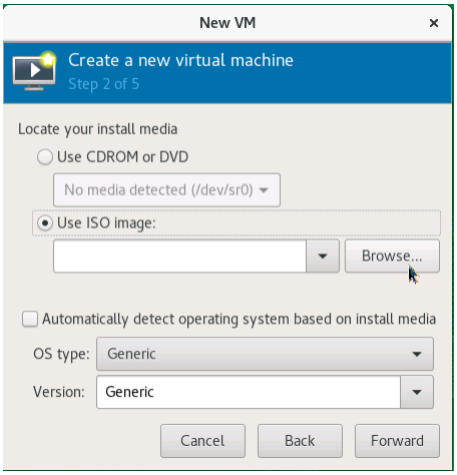
1) Start Virtual Machine Manager (virt-manager) and select [New Virtual Machine].



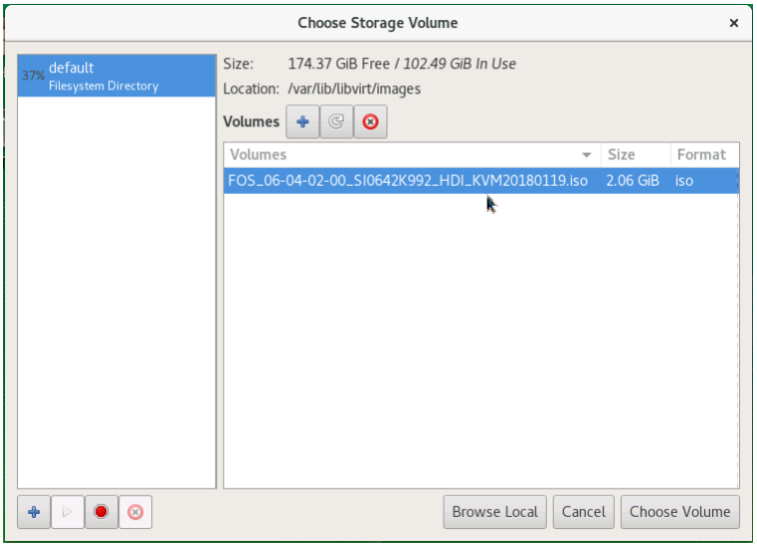
2) Select [Local install media (ISO image or CDROM)] and then click [Forward].



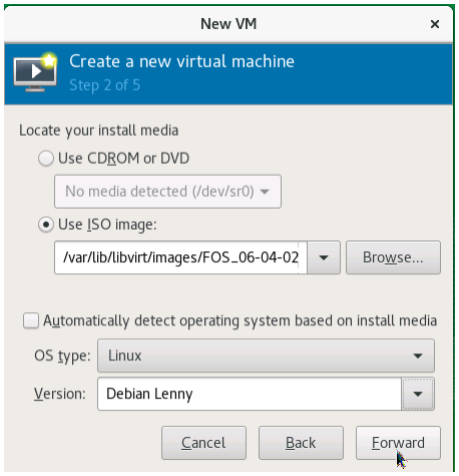
3) Select [Use ISO image:] and click [Browse...].



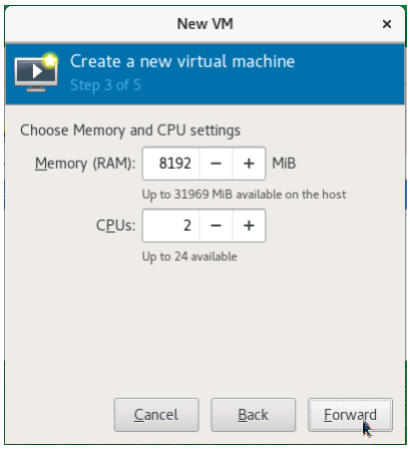
4) Select ISO image and click [Choose Volume]. In this case, the ISO image is stored in default pool (/var/lib/libvirt/images/).



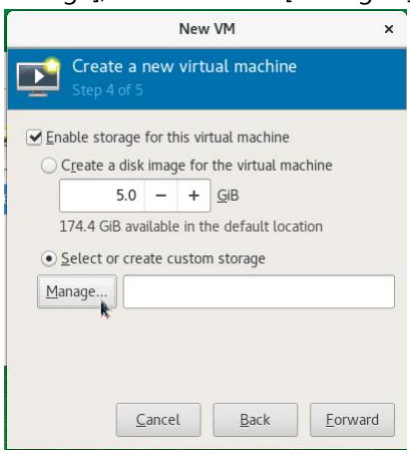
5) Select "Linux" as [OS type] and select “Debian Lenny” as [Version], and then click [Forward].



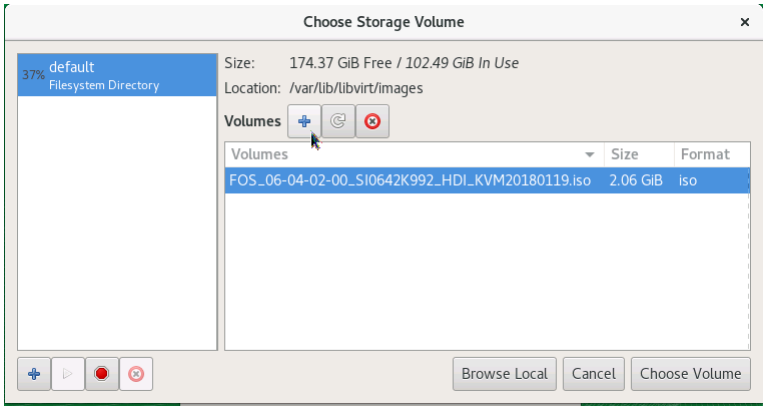
6) Specify [Memory (RAM)] and [CPUs], and then click [Forward].



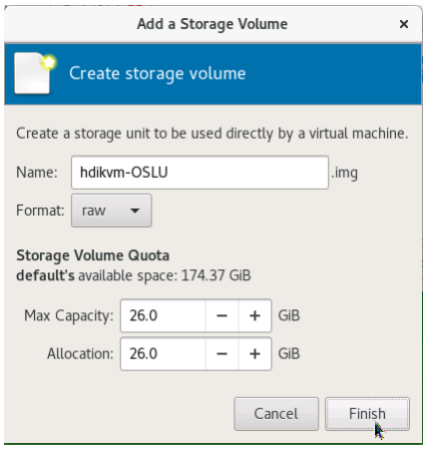
7) Check [Enable storage for this virtual machine] and select [Select or create custom storage], and then click [Manage...].



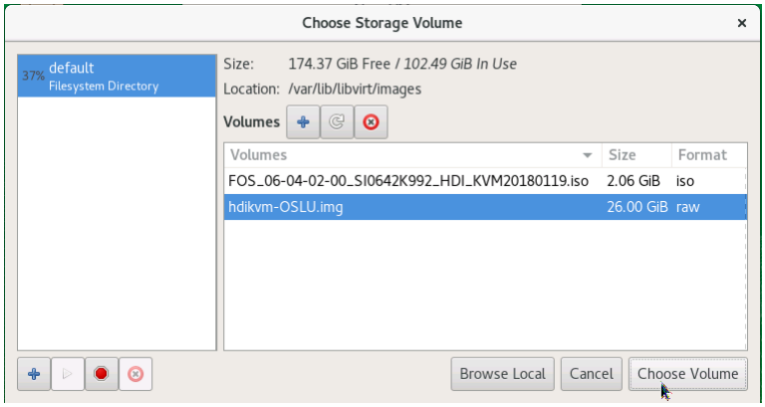
8) Click [+] button to create new volume.



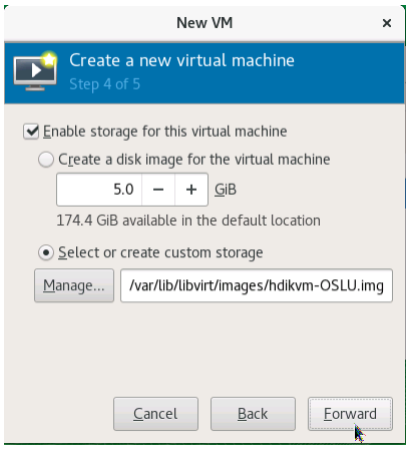
9) Input [Name] for OSLU image and select “raw” as [Format]. Input 26 GiB to [Max Capacity] and [Allocation], and then click [Finish].



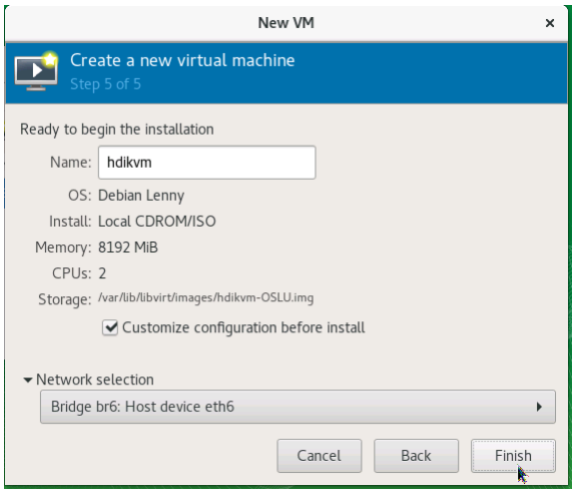
10) Select the created volume and click [Choose Volume].



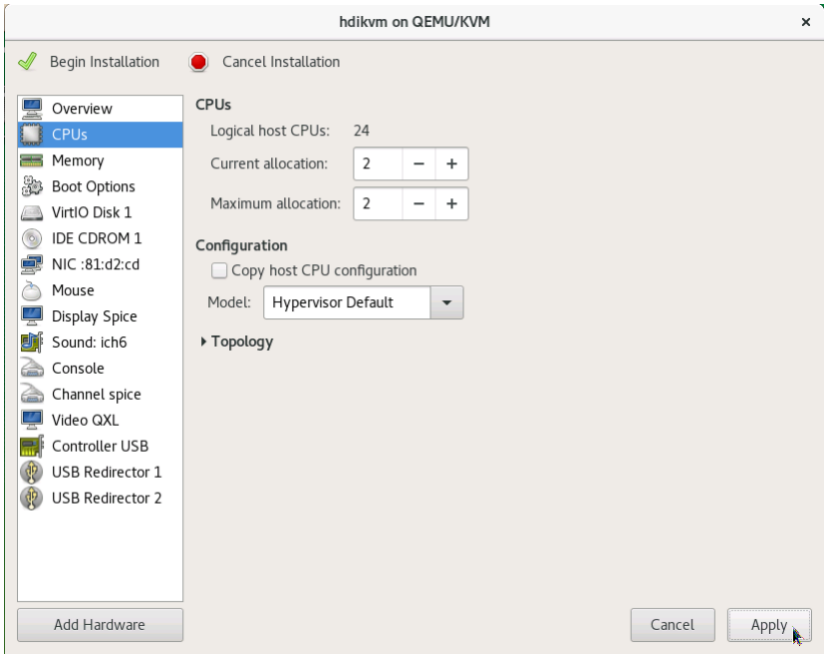
11) Click [Forward].



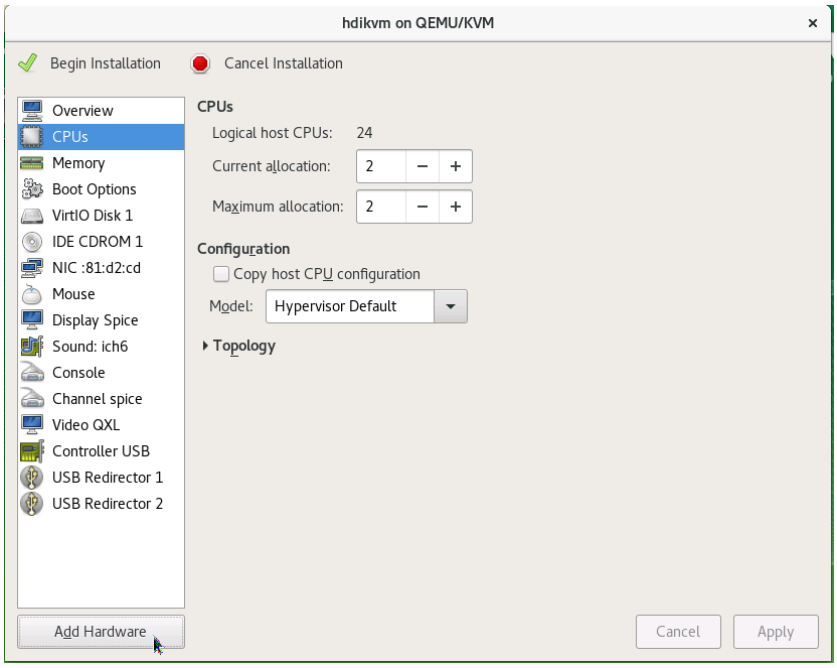
12) Input virtual machine name to [Name], check [Customize configuration before install], select network device which is used for “Management LAN (mng0)” from [Network selection], and then click [Finish].



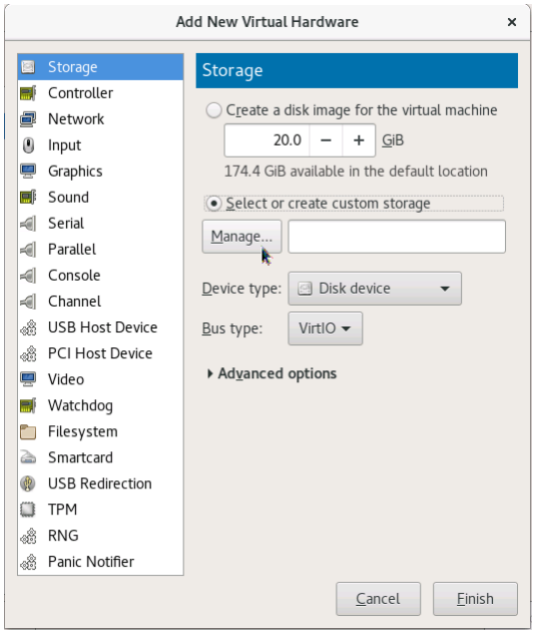
13) Select [CPUs] component, choose “Hypervisor Default” as [Model], and then click the [Apply].



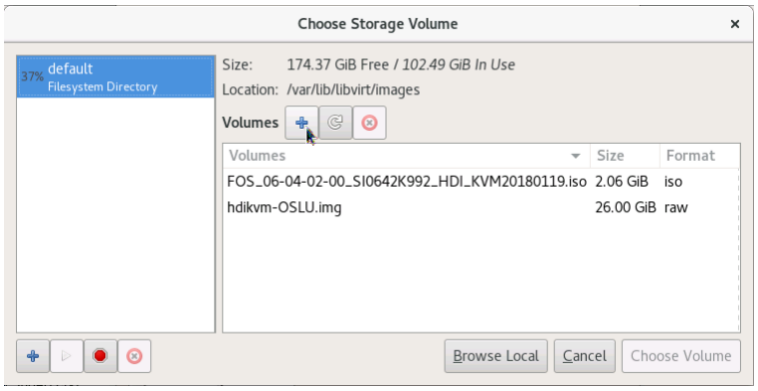
14) Click [Add Hardware] to create Shared LU.



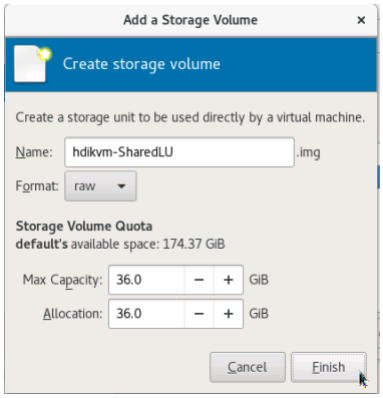
15) Select [Storage] component and check [Select or create custom storage], then click [Manage...].



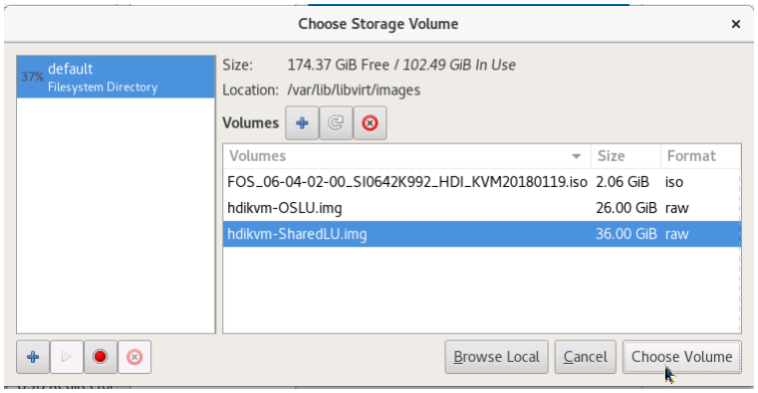
16) Click [+] button to create new volume.



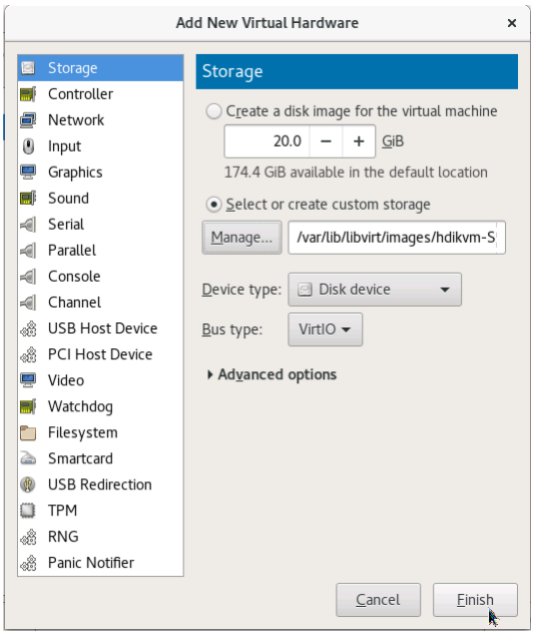
17) Input volume name to [Name] for Shared LU and select "raw" as [Format]. Input 36 GiB to [Max Capacity] and [Allocation]. Then click [Finish].



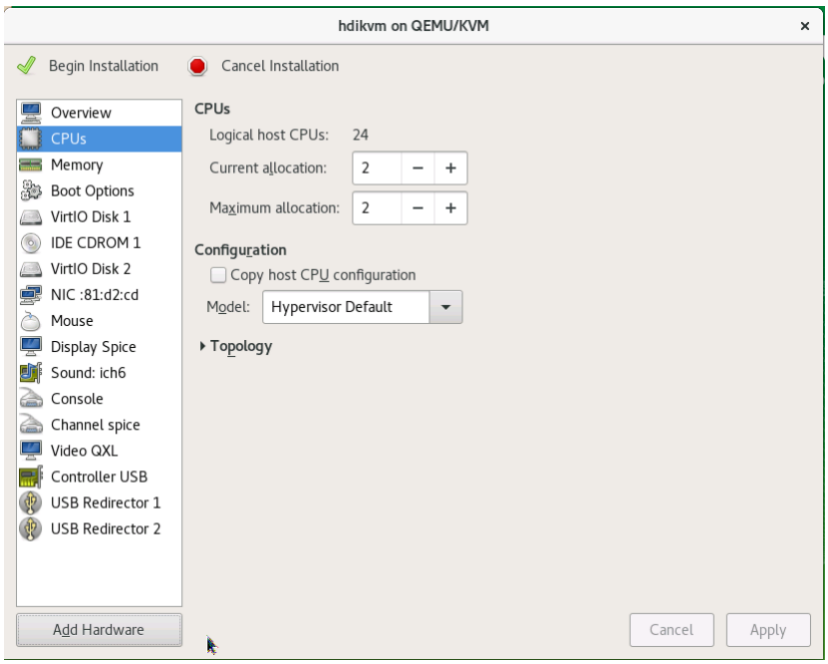
18) Select the created volume and click [Choose Volume].



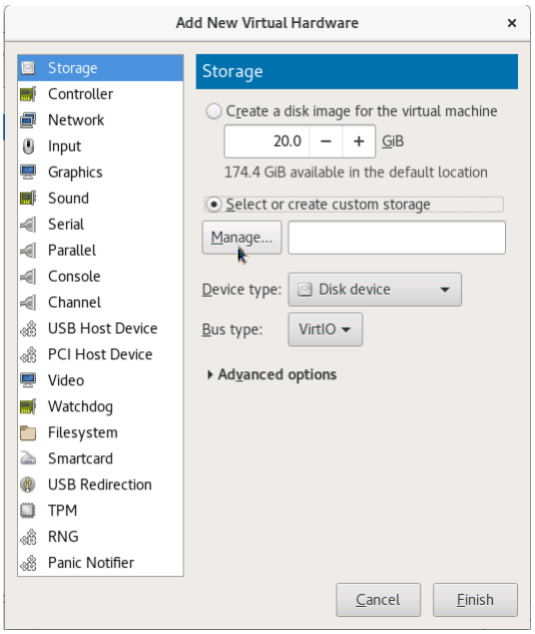
19) Click [Finish] to add the created Storage Volume.



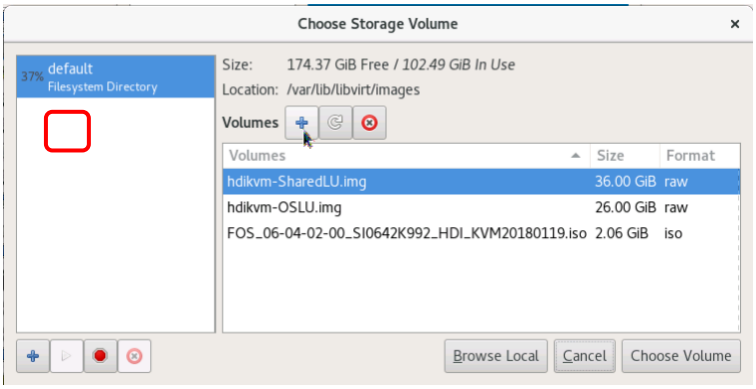
20) Click [Add Hardware] to create User LU.



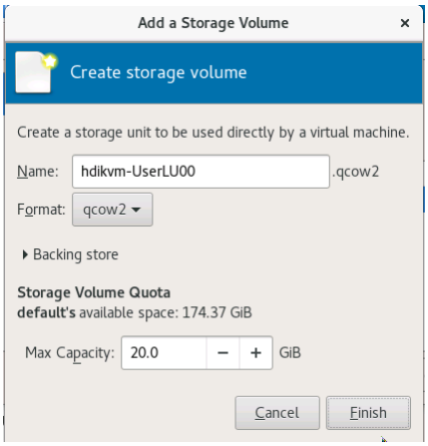
21) Select [Storage] and check [Select or create custom storage], then click [Manage...].



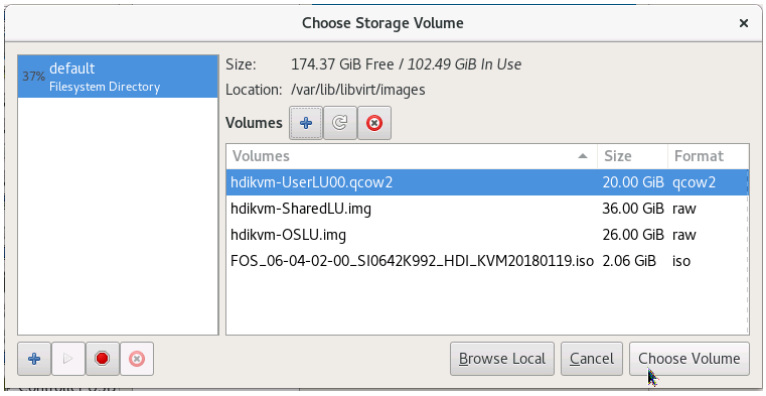
22) Click [+] to create a new volume for User LU.



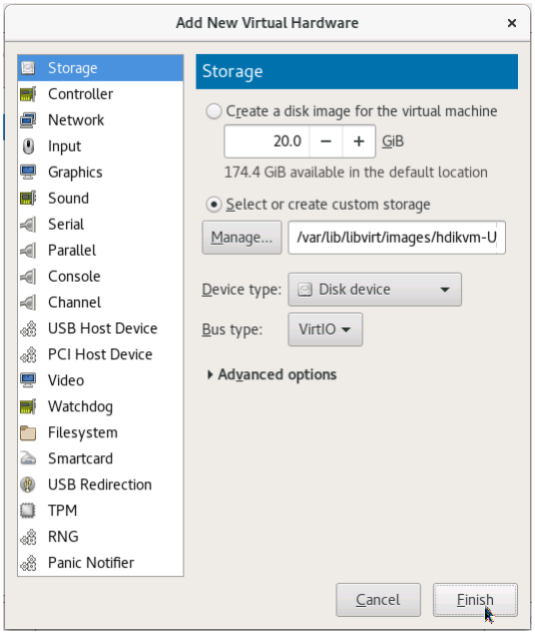
23) Input User LU name to [Name] and select “raw” or “qcow2” as [Format]. Specify the LU size (2 GiB or more) to [Max Capacity]. And then click [Finish].



24) Select the created volume and click [Choose Volume].

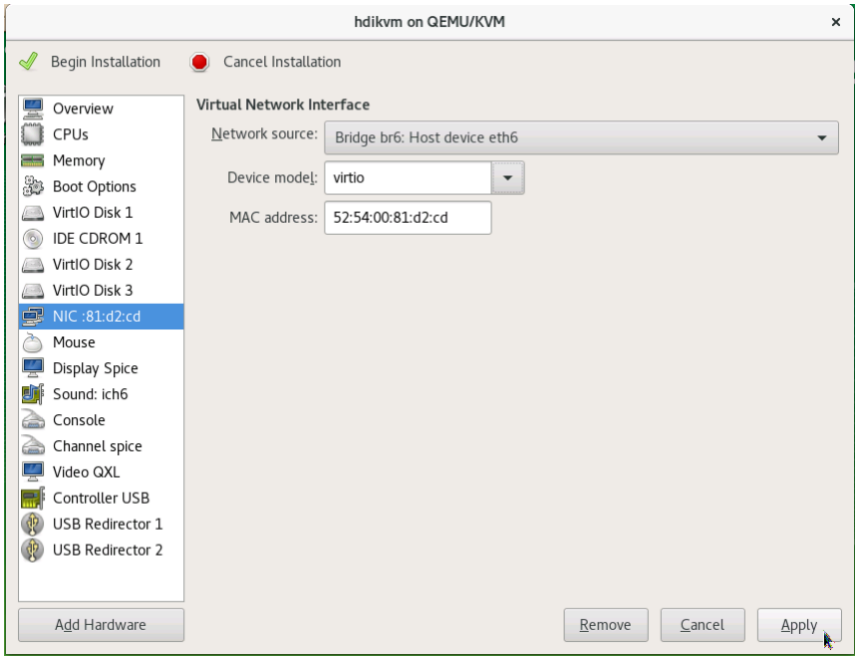


25) Click [Finish] to add the created Storage Volume.

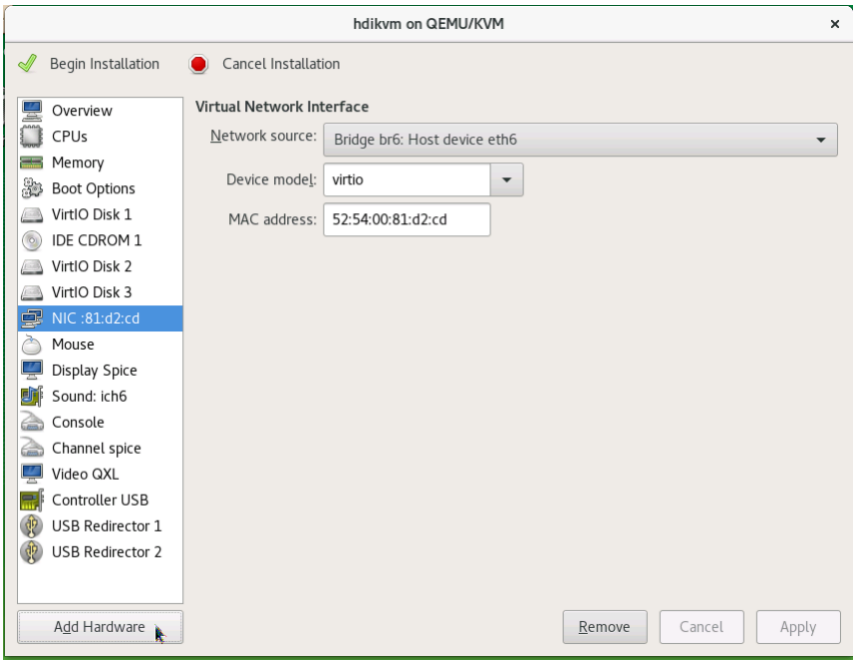


26) If you want to add more User LUs, repeat the same procedure from 20) to 25).

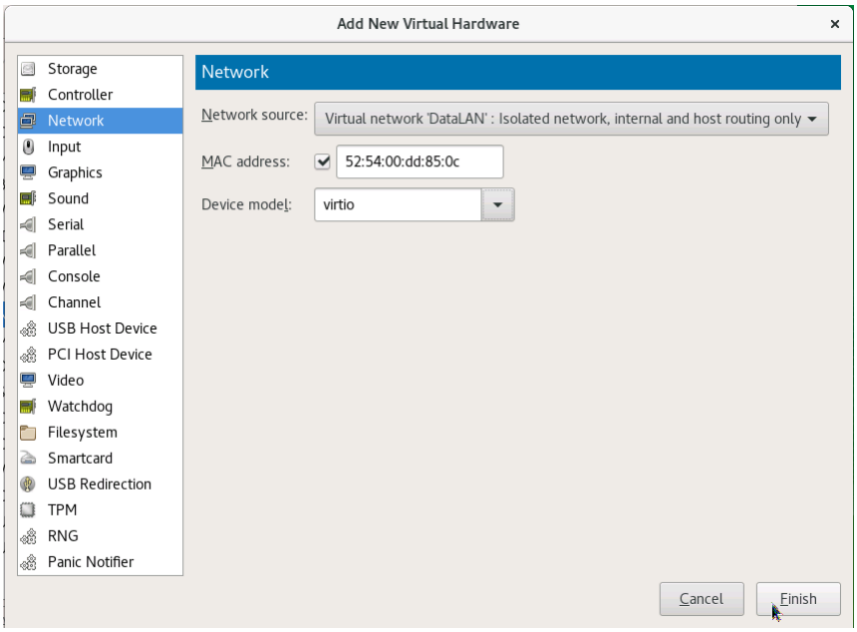
27) Select [NIC: xx:xx:xx] which was created the 12). Select “virtio” or “e1000” as [Device model], and then click [Apply].



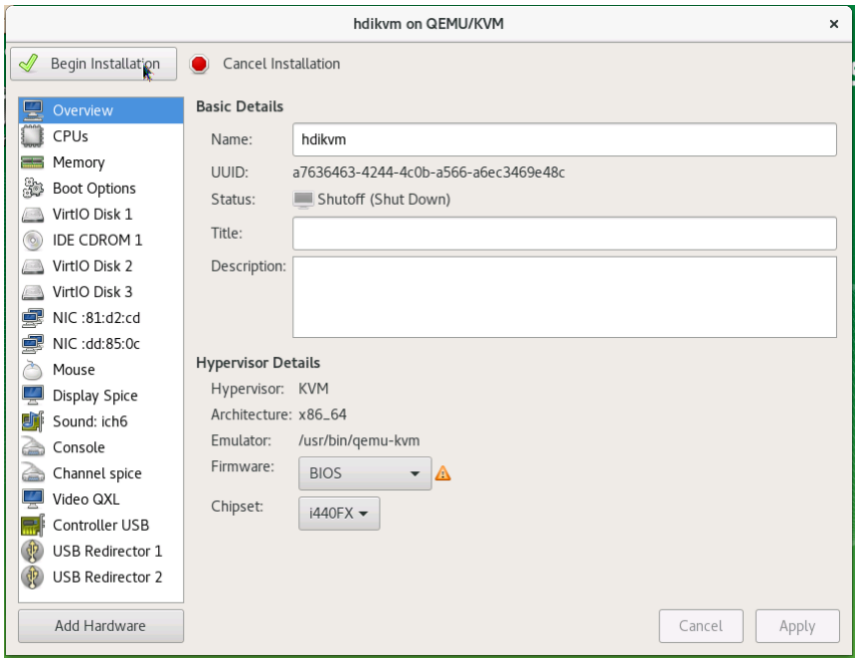
28) Click [Add Hardware] to add Network Interface for Data LAN(eth0).

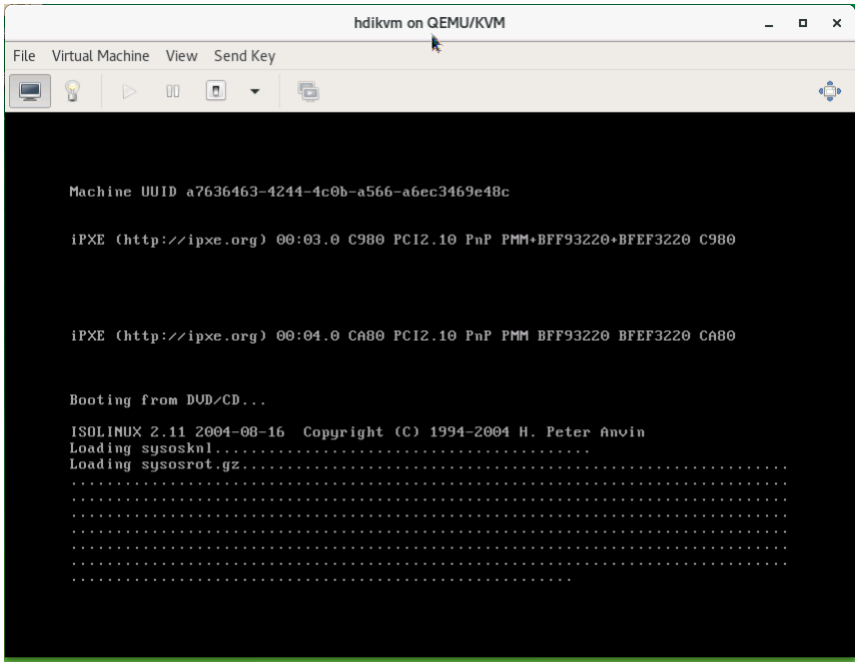


29) Select [Network] component and select [Network source] for data LAN. Select [Device model] that must be the same model as the model which you chose in 27). Then click [Finish].

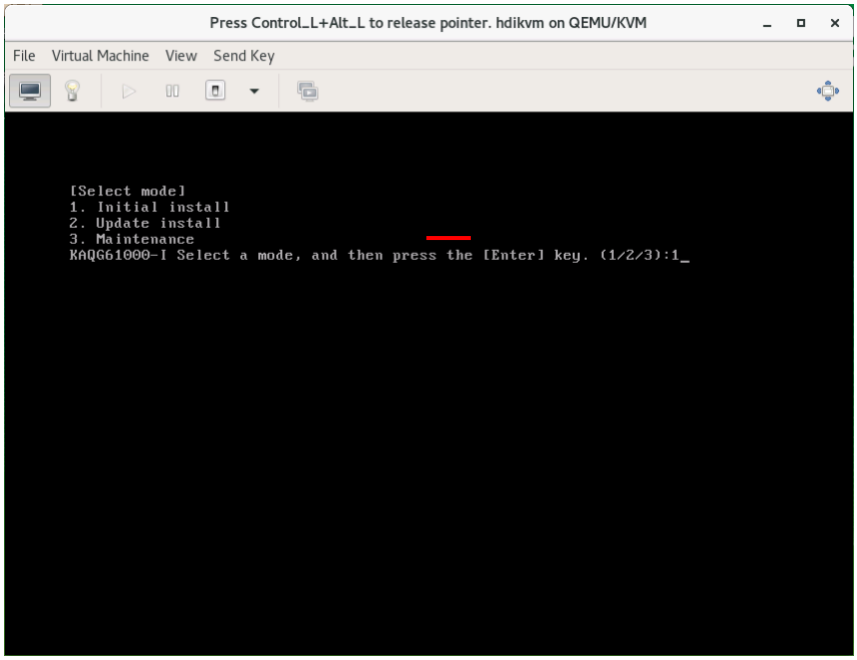


30) Click [Begin Installation] then HDI installation process will be started.

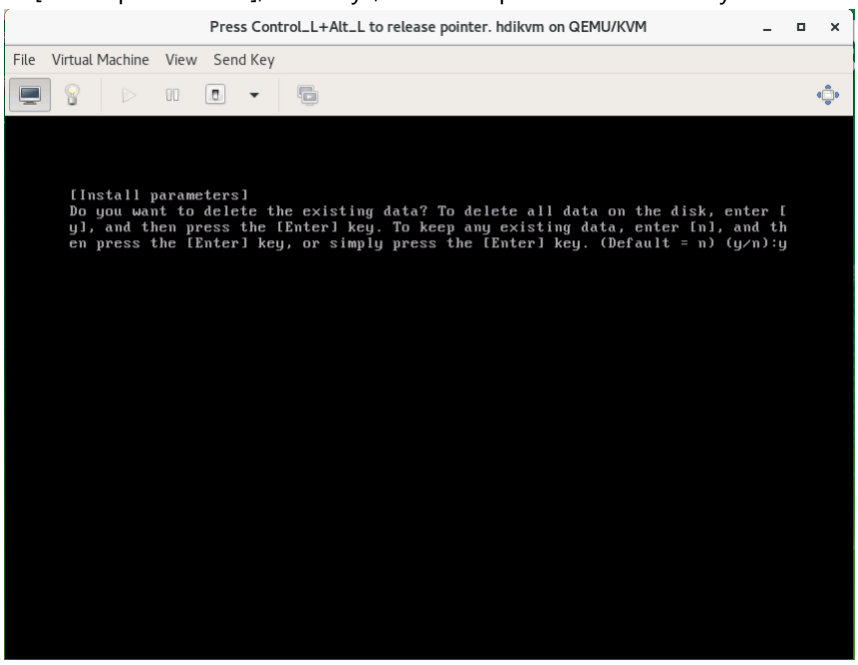




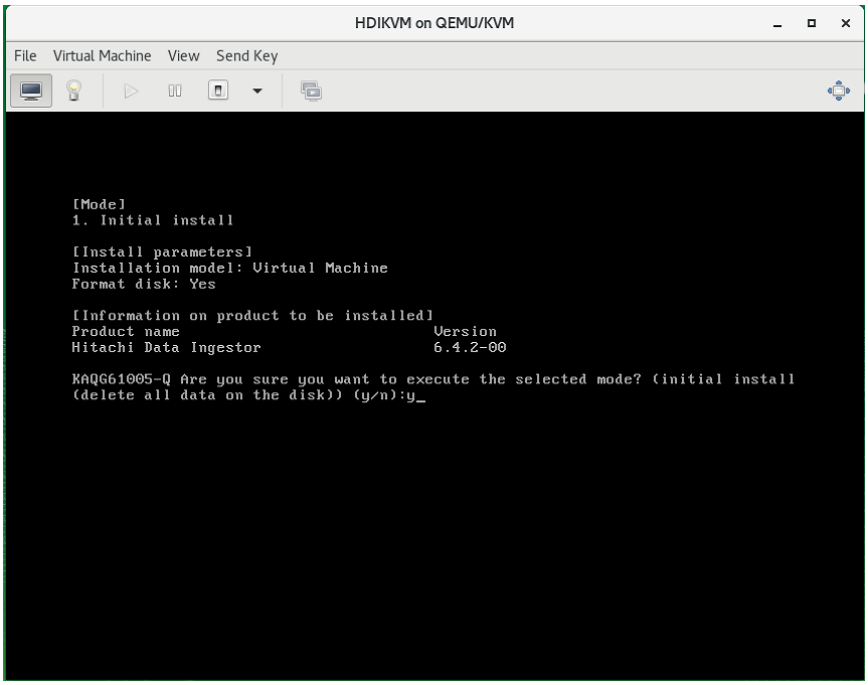
31) In [Select mode], enter "1" (Initial install), and then press the return key.



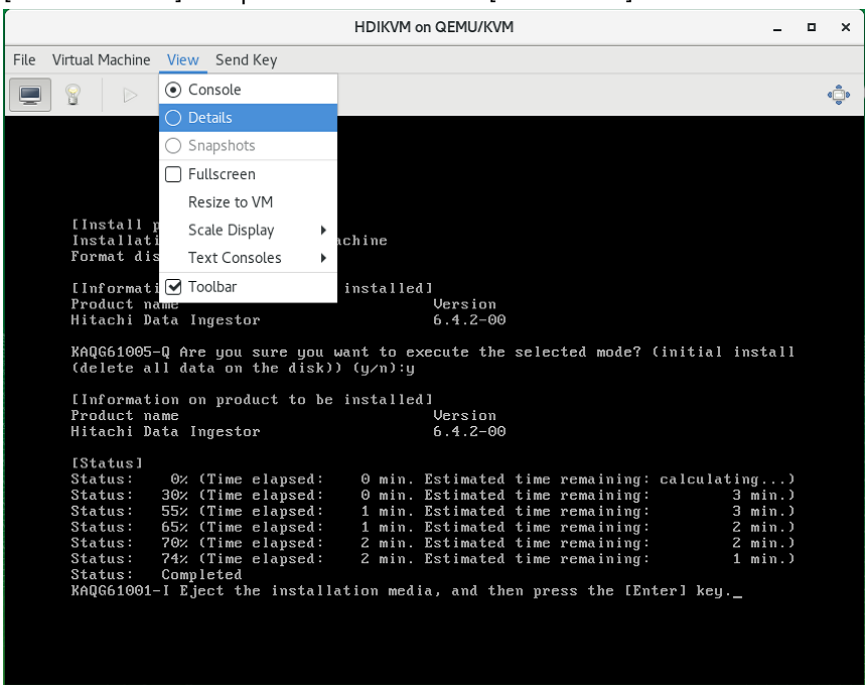
32) In [Install parameters], enter "y", and then press the return key.

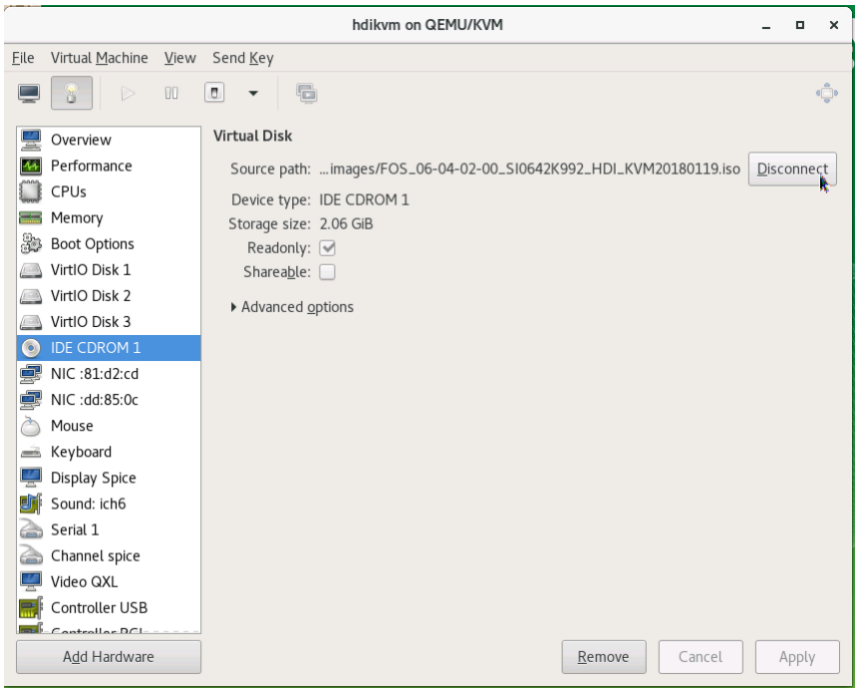


33) In the final confirmation screen, check the [Installation model:] is "Virtual Machine". Enter "y", and then press the return key.

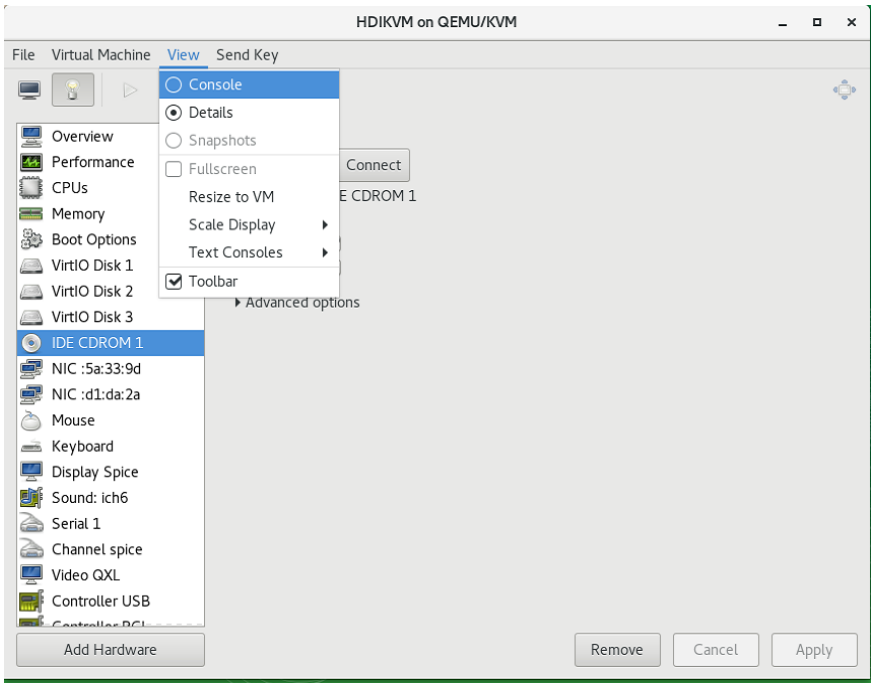


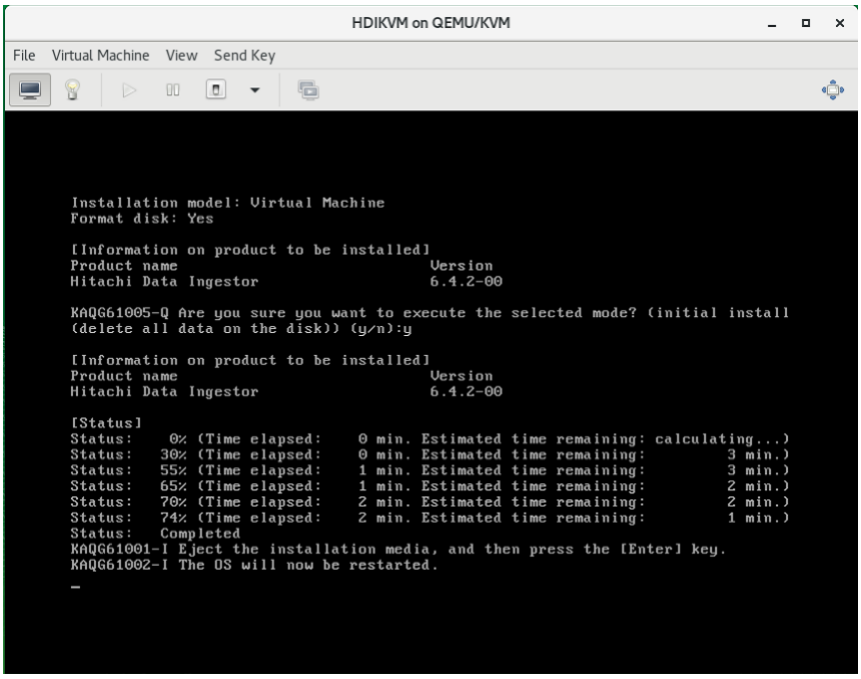
34) After installation has been completed, "KAQG61001-I" message is displayed. Press Control_L+Alt_L to release pointer. And Select [View] > [Details] from the menu. Select [IDE CDROM 1] component and click the [Disconnect] to remove the ISO image.



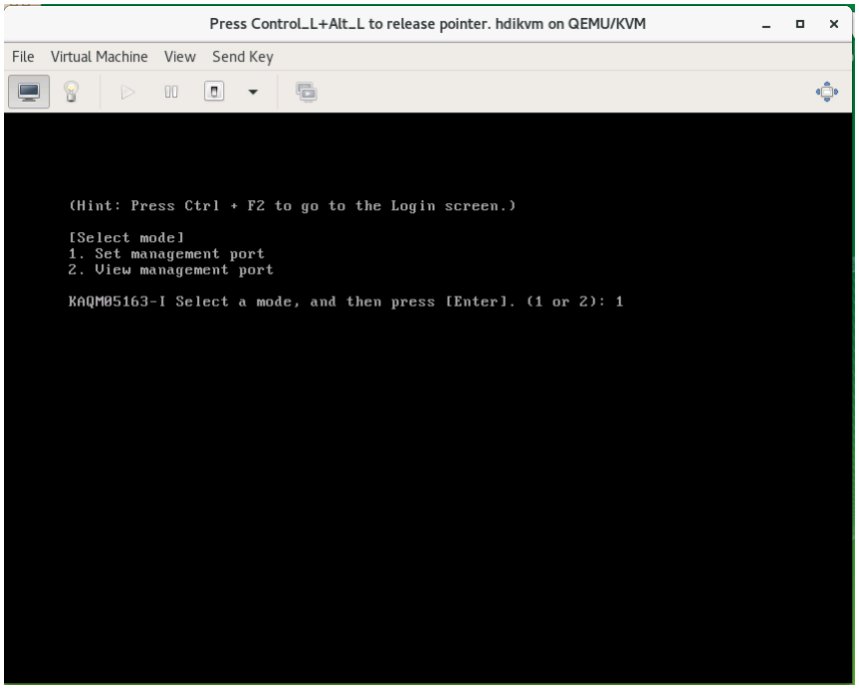


35) Select [View] > [Console] from the menu. Press the [Enter] key on the console. Then the OS will be restarted.

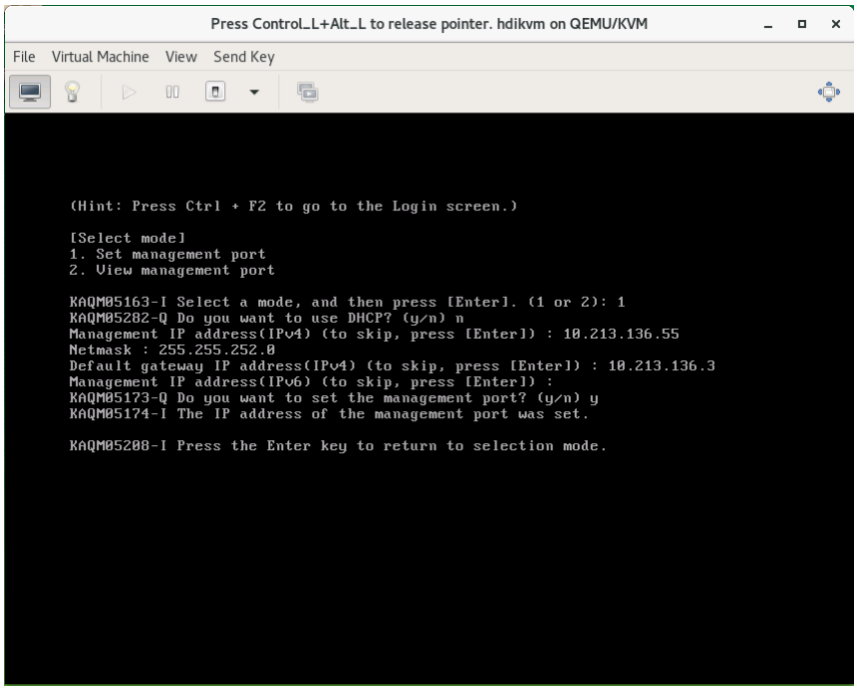




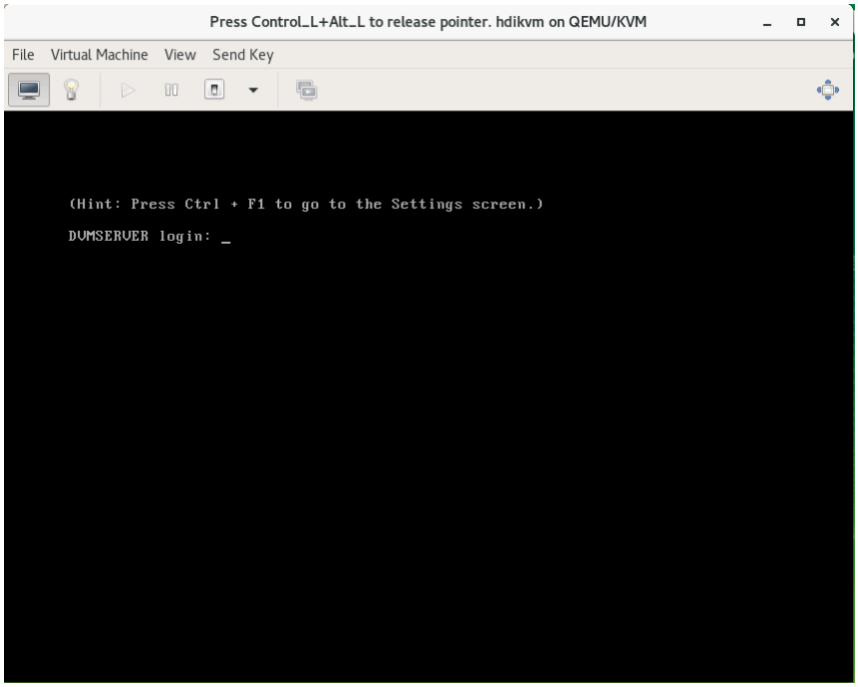
36) After the virtual machine restarting, the network setting wizard will be displayed. Select "1" to configure the management LAN, and then press the [Enter] key.



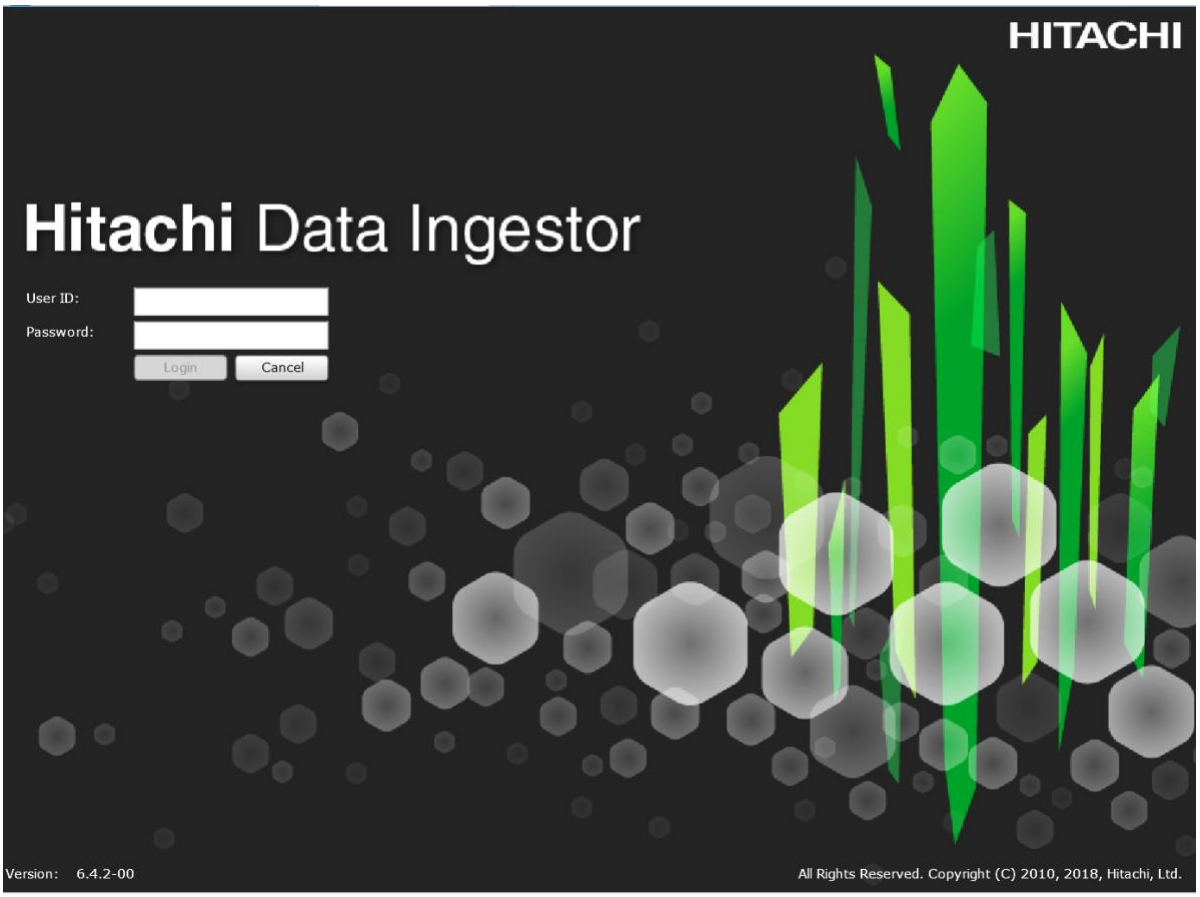
37) Enter the necessary information according to the network setting wizard. Enter "y" at the end of the wizard, and then press the [Enter] key.



38) After the settings are completed, the window returns to the management LAN network setting wizard. Press the [Ctrl] + [F2] keys to display the login prompt.



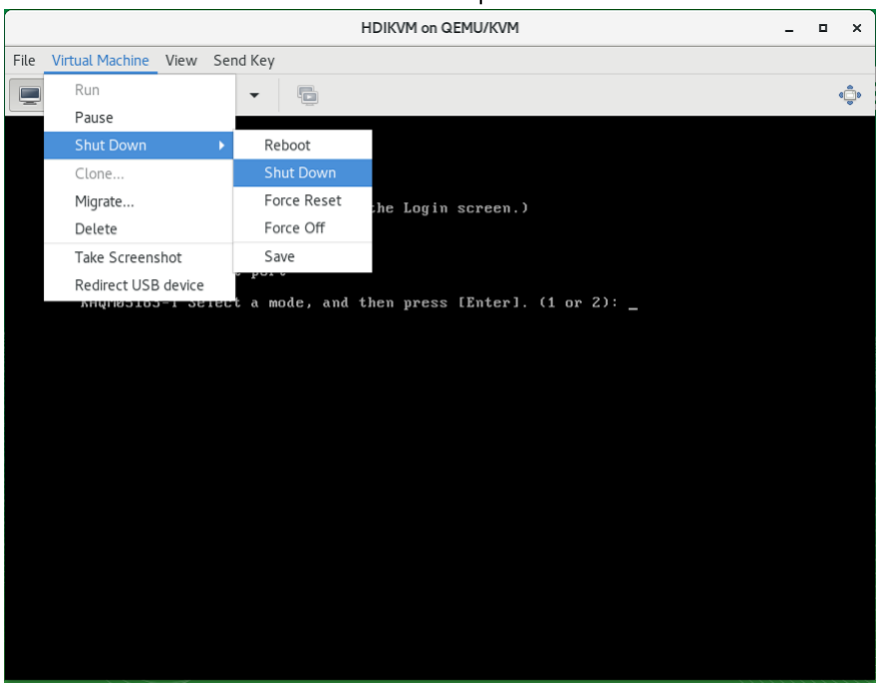
Access the HDI from a browser with the IP address which you specified.


HITACHI
Hitachi Data Ingestor
User ID:
Password:
Login
Cancel
Version: 6.4.2-00
All Rights Reserved. Copyright (C) 2010, 2018, Hitachi, Ltd.

Update installation of HDI

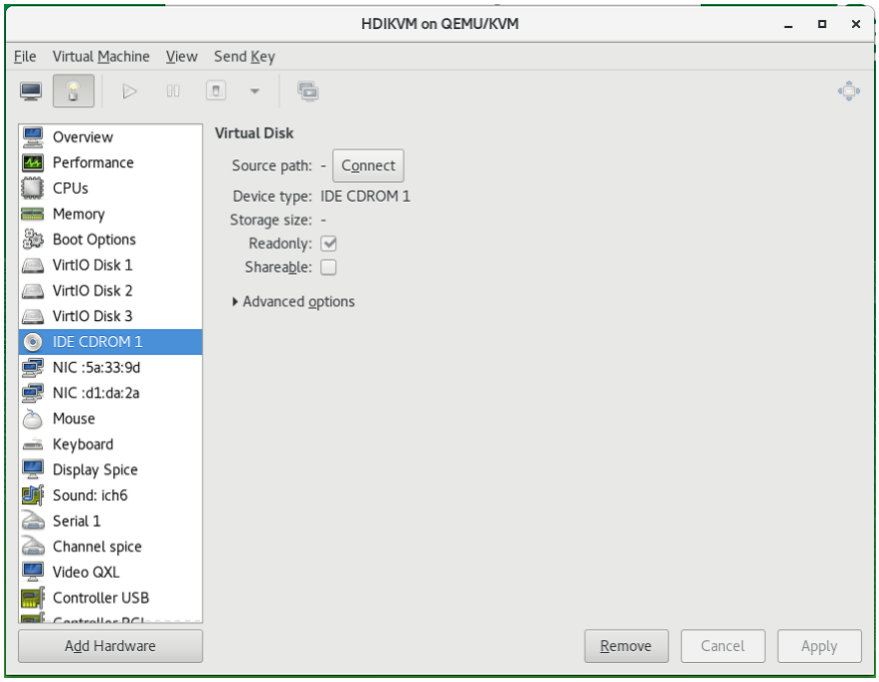
This section describes the procedure for updating a HDI VMA on KVM.

1) Shutdown the VMA which needs to be updated.

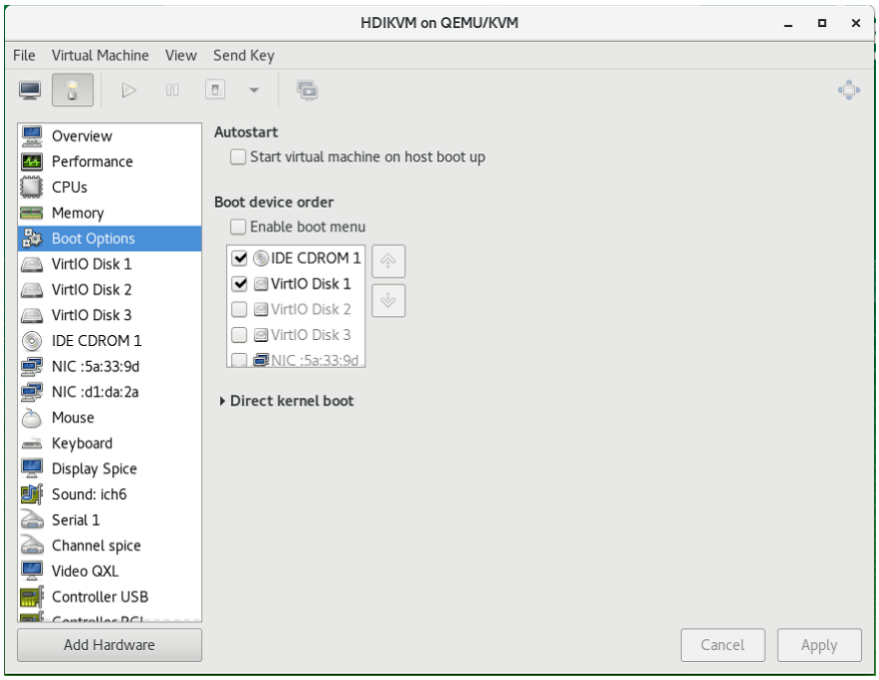


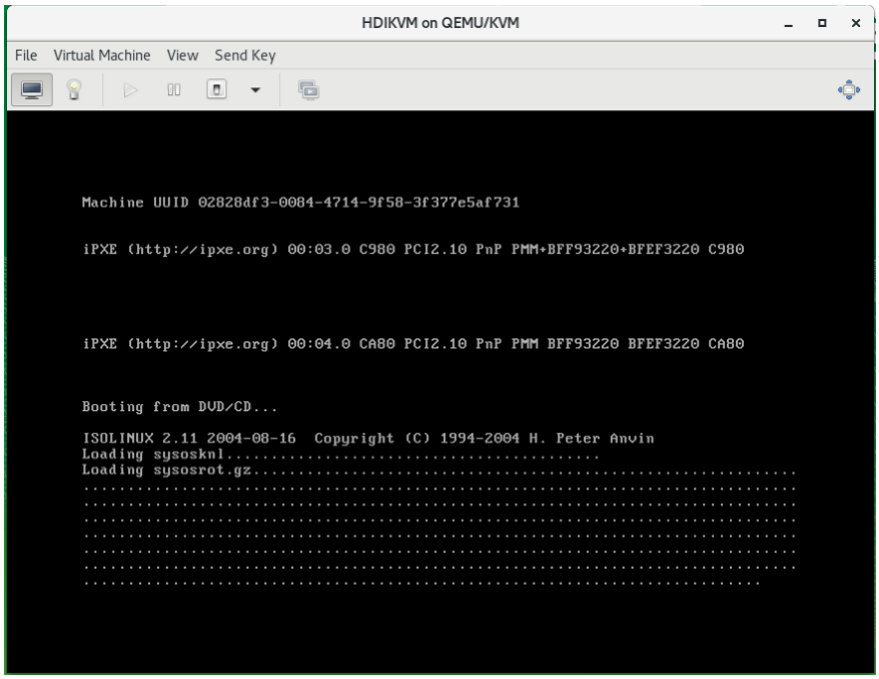
[Note] The VMA will shut down after 2 or 3 minutes.

2) Connect new FOS ISO image to CD-ROM on the virtual machine.



3) Change "IDE CDROM1" to first boot device at the [Boot Options]. Then start the virtual machine.





4) Perform chapter 0 (31) to (35) for update installation. Note that in Chapter 0 (31), you need to enter "2" to select [2. Update install], and then press the [Enter] key.

Note: If the version in the installation confirmation screen displayed in Chapter 0 (33) is different from the version to be installed, press the [Ctrl] + [C] keys to interrupt the installation. When the message "KAQG61006-Q Are you sure you want to cancel the installation? (y/n):" appears, enter "y", and then press the [Enter] key. When the KAQG61001-I message appears, remove the installation medium, and then press the [Enter] key. This allows the node OS to be shut down. Prepare the installation medium with the correct version and perform the operation again.

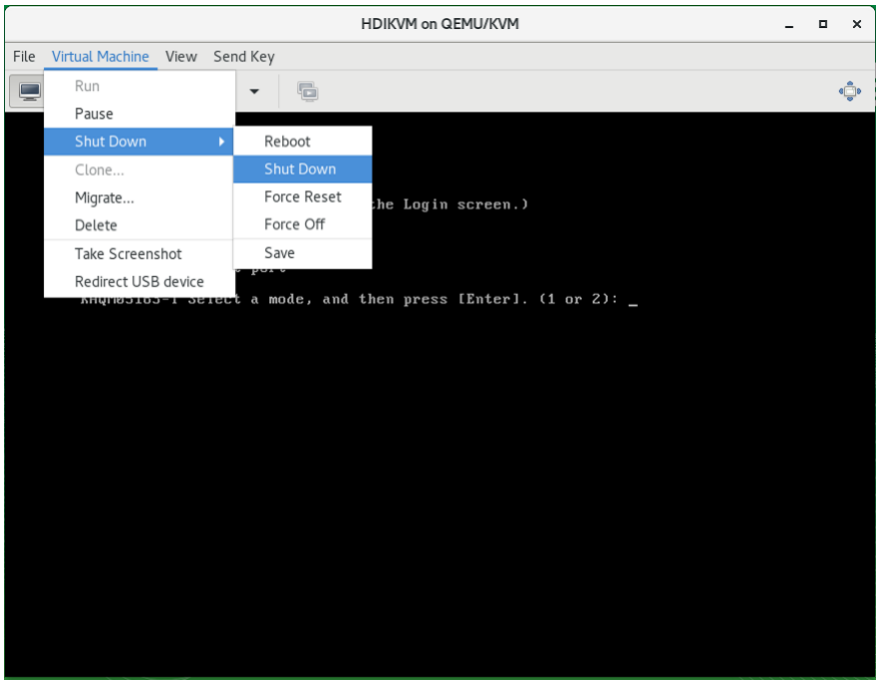
Creating a template of VMA and cloning

Creating a template of VMA

The following procedure is how to create a template of HDI VMA.

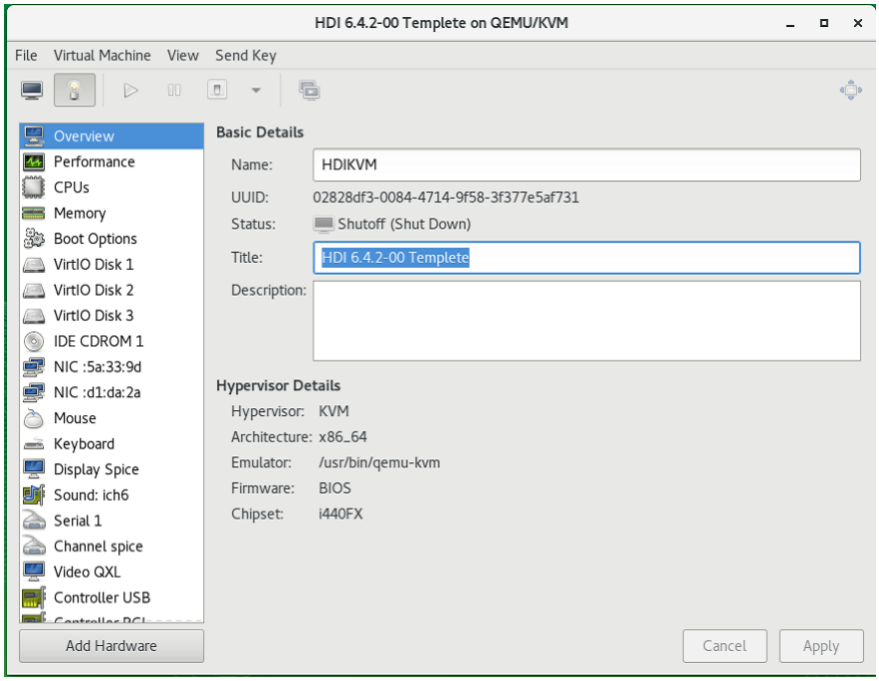
1) Perform Chapter 0 from (1) to (35).

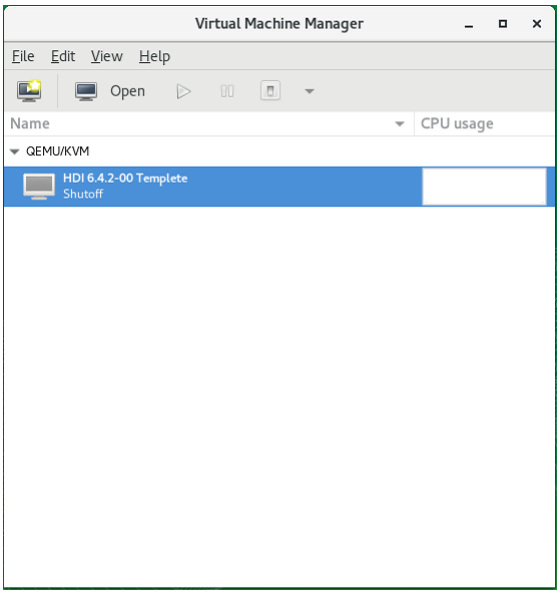
   After the virtual machine restarting, the network setting wizard will be displayed. Shut down the VMA before setting the network.



[Note] The VMA will shut down after 2 or 3 minutes.

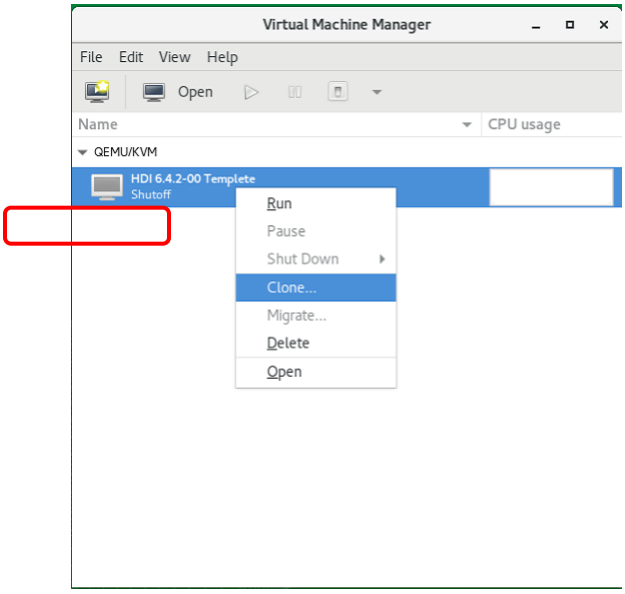
2) Edit the VMA [Name] and [Title] properly

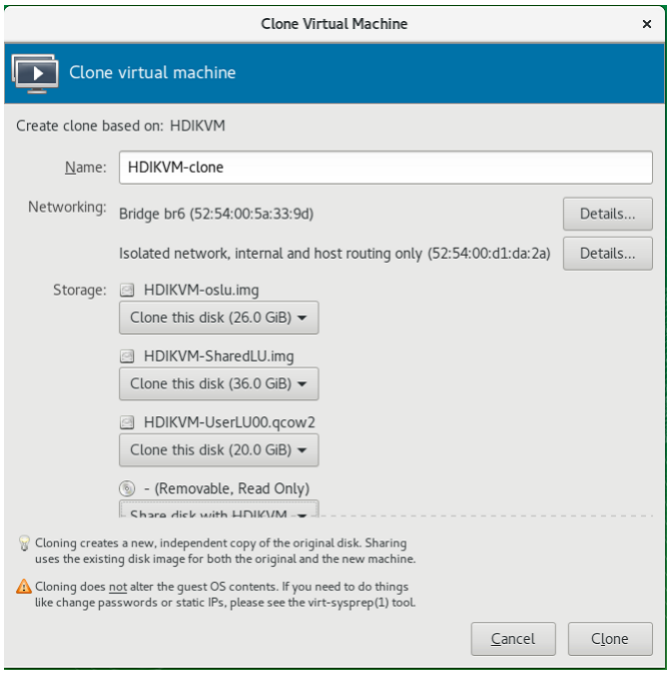




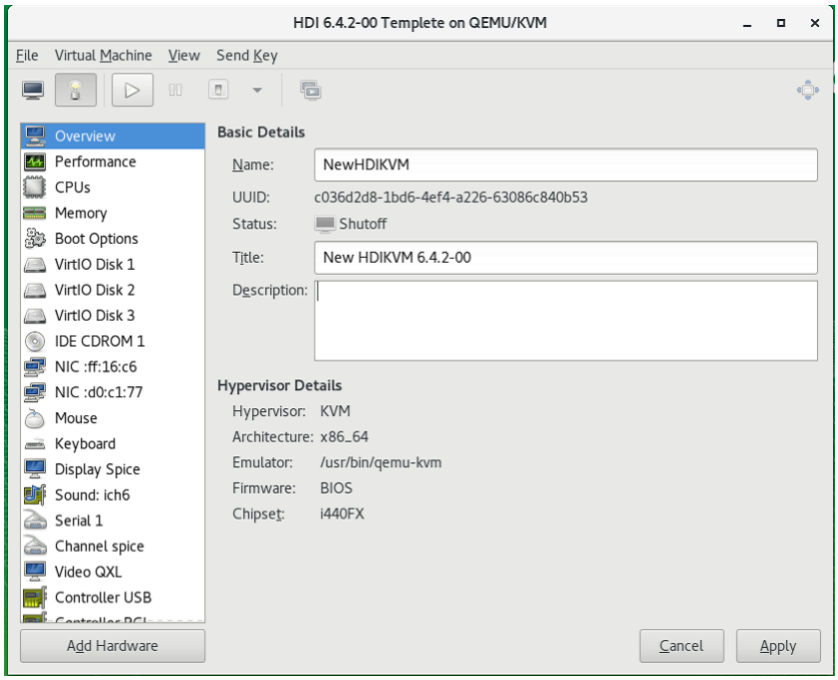
Clone the template VMA

1) Select the template VMA and right click. Select [Clone], and then operate the launched dialog along the message.





2) After cloned, edit the [Name] and [Title]. Then run the VMA.



3) Perform Chapter 0 from (36) in order to setup the cloned VMA.

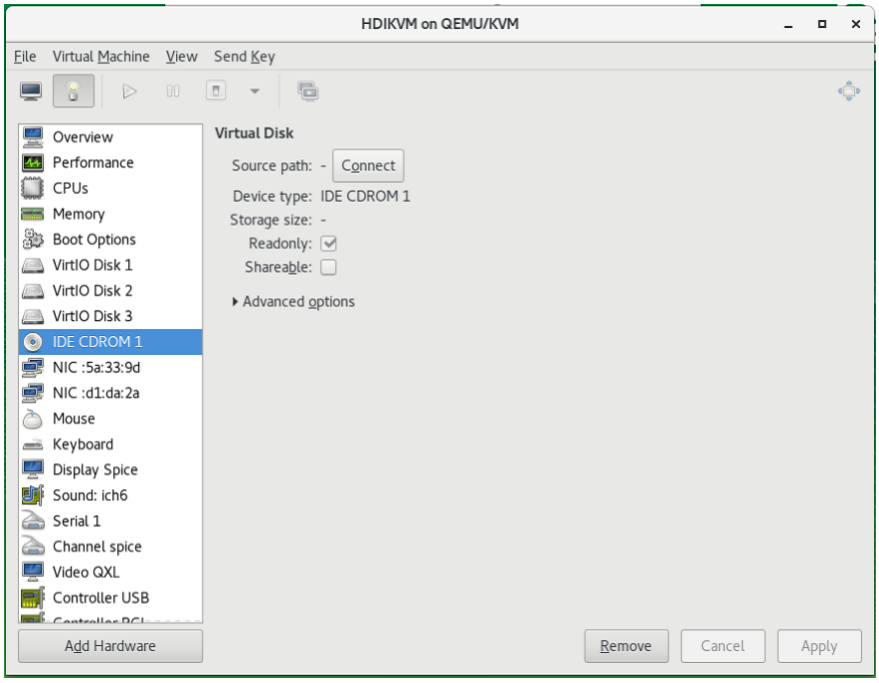
Live migration

Live migration is a function to move a running or stopped virtual machine from a single physical server to another server while retaining its availability to users. For detail information such as requirements and operations, see documents which are provided by the host OS distributer.

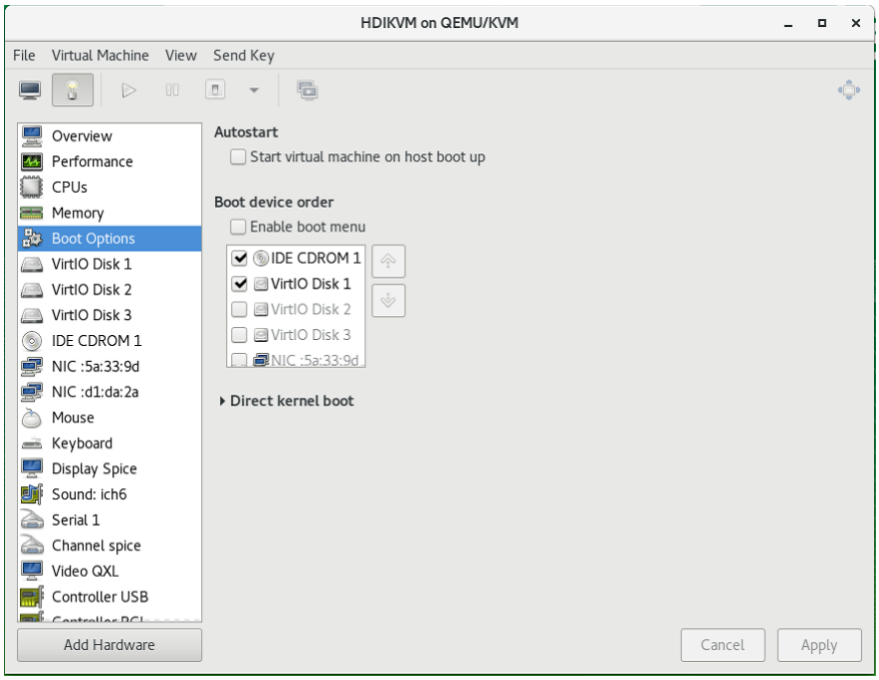
Restoring VMA

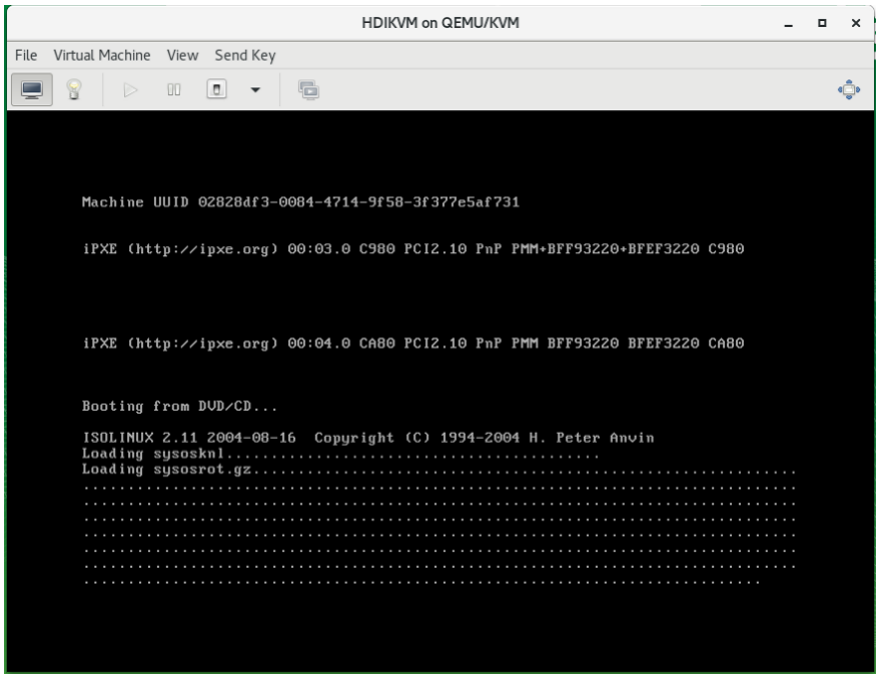
This section explains how to restore the HDI VMA from the system configuration that was backed up by the procedure which is described at “Backing up system configuration” in “Single Node Administrator's Guide”.

1) Connect FOS ISO image to CD-ROM on the virtual machine which need to be recovered.

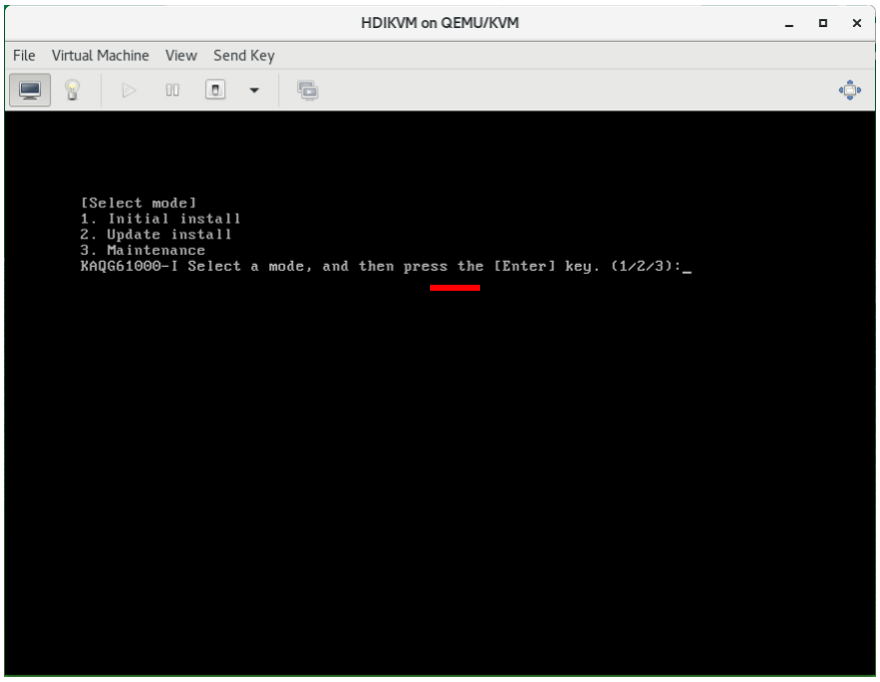


2) Change “IDE CDROM1” to first boot device at the [Boot Options]. Then start the virtual machine.

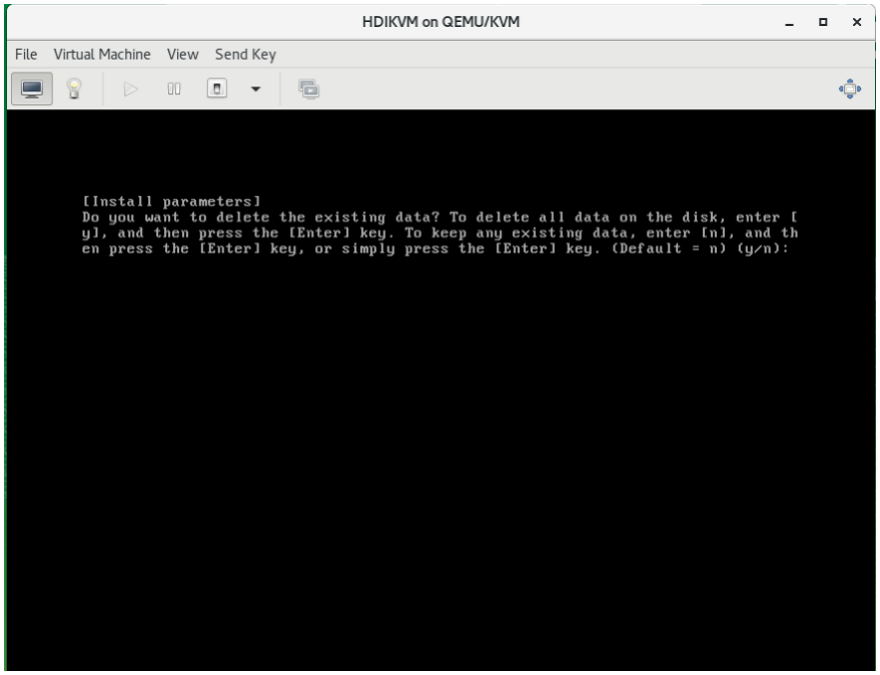

HDIKVM on QEMU/KVM
File
Virtual Machine
View
Send Key
Overview
Performance
CPUs
Memory
Boot Options
VirtIO Disk 1
VirtIO Disk 2
VirtIO Disk 3
IDE CDROM 1
NIC :5a:33:9d
NIC :d1:da:2a
Mouse
Keyboard
Display Spice
Sound: ich6
Serial 1
Channel spice
Video QXL
Controller USB
Add Hardware
Autostart
Start virtual machine on host boot up
Boot device order
Enable boot menu
IDE CDROM 1
VirtIO Disk 1
VirtIO Disk 2
VirtIO Disk 3
NIC :5a:33:9d
Direct kernel boot
Cancel
Apply

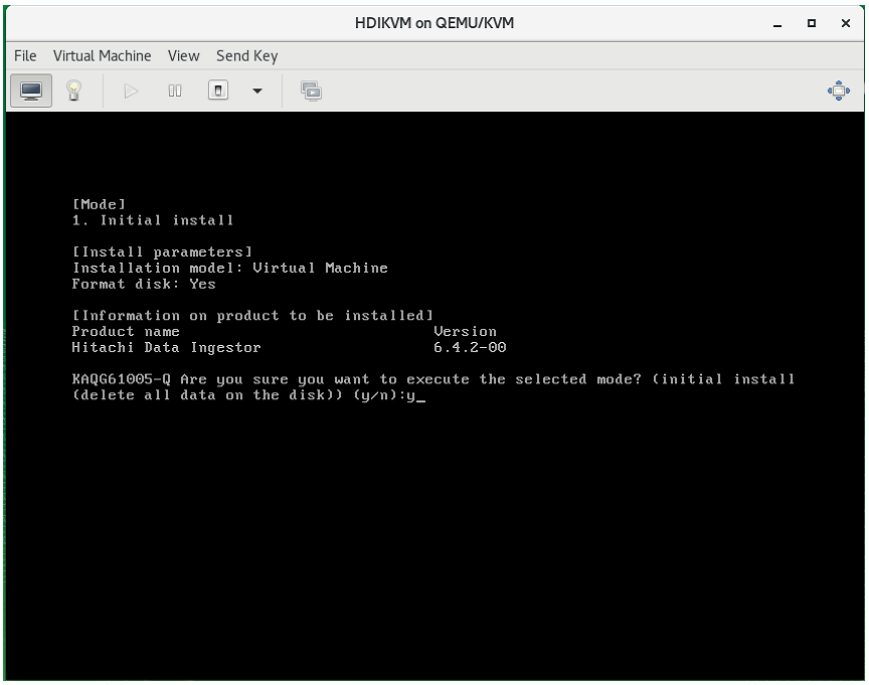

HDIKVM on QEMU/KVM
File
Virtual Machine
View
Send Key
Machine UUID 02828df3-0084-4714-9f58-3f377e5af731
iPXE (http://ipxe.org) 00:03.0 C980 PCI2.10 PnP PMM+BFF93220+BFEF3220 C980
iPXE (http://ipxe.org) 00:04.0 CA80 PCI2.10 PnP PMM BFF93220 BFEF3220 CA80
Booting from DVD/CD...
ISOLINUX 2.11 2004-08-16 Copyright (C) 1994-2004 H. Peter Anvin
Loading sysosknl...
Loading sysosrot.gz...

3) In [Select mode], enter “1” (Initial install), and then press the return key.

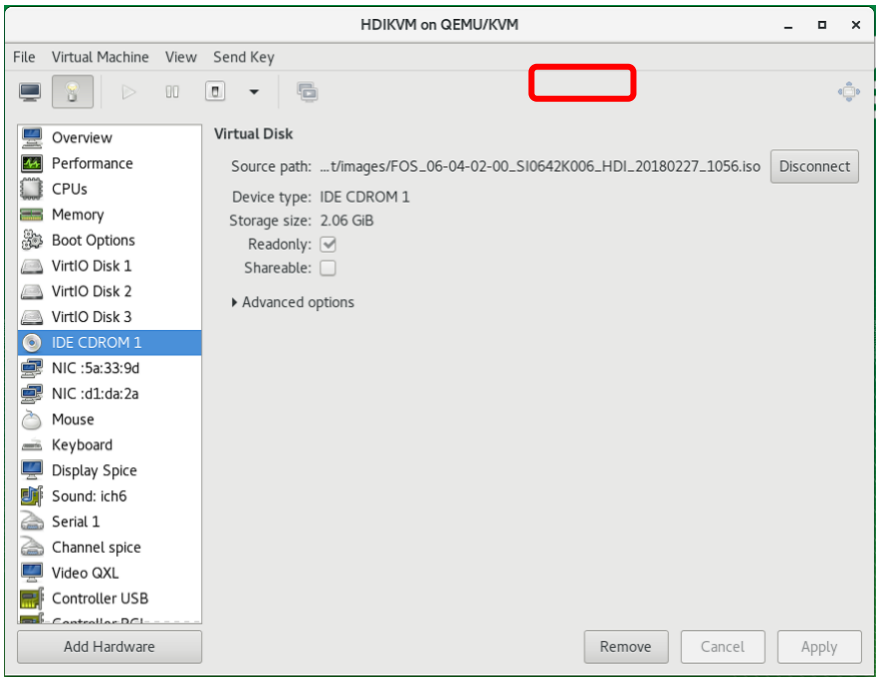


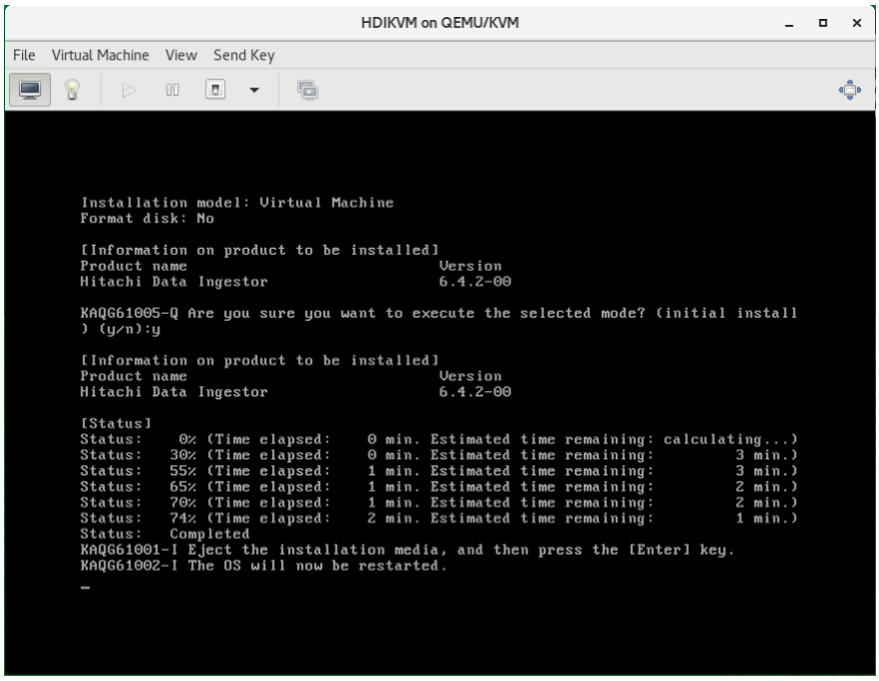
4) In [Install parameters], when you restore the system configuration information and user data by a lump for some failures, enter "y". Then press [Enter].
When you want to restore only the system configuration information for the failures, enter "n". Then press [Enter].
If the input parameters are correct, enter “y” at the confirmation message to perform the installation.



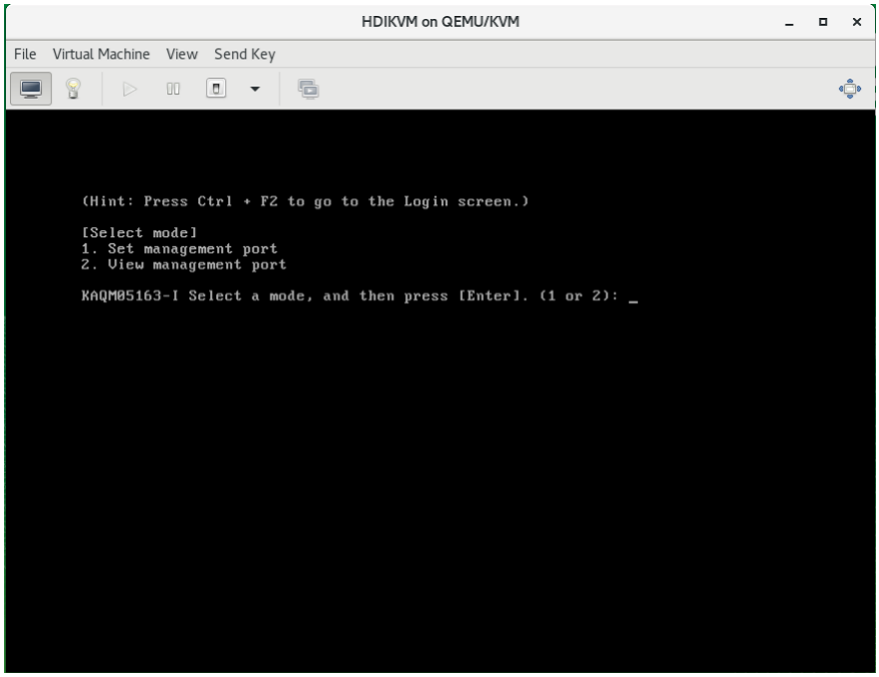


5) After installation has finished, disconnect the ISO image from CD-ROM. And then reboot the OS.





6) Set the management port with the same information as previously



See “Restoring system configuration information” subsection in “Single Node Troubleshooting Guide” to restore system.

Appendix

NFS access turning

Multiple NFS daemons run on HDI in parallel. By default, the virtual CPU on which NFS daemons run is in the fixed mode (cpupool_mode=1). You can change the mode to the non-fixed mode (cpupool_mode=0), which does not fix the virtual CPU on which NFS daemons run. This enables the best use of multiple virtual CPUs and improves access performance. The following describes the procedure to change the mode.

(1) Use the following command to change the operating mode for NFS daemons:

```
$ sudo nfsoptset cpupool_mode=0
$ echo $?
0
$
```

(2) Make sure that the operating mode for NFS daemons has changed.

```
$ sudo nfsoptlist cpupool_mode
cpupool_mode = 0
$ echo $?
0
$
```

(3) Restart the NFS service.

```
$ sudo svctl -s nfs --restart
KAQM16131-Q Are you sure you want to restart the specified service?
(y/n) y
$ echo $?
0
$
```

(4) Make sure that the NFS service has the Running status.

```
$ sudo svstatus –s nfs
Service name : NFS
Status       : Running
Information  : -

$ echo $?
0
```

HDI's NFS Share as a storage pool of KVM

To use another HDI's NFS share as a storage pool of KVM, specify "none" for Anonymous mapping of the NFS share. The default is root only.

```
$ sudo nfslist
List of File Shares:
The number of NFS share(1)
    Shared directory                          : /mnt/fs01/nfs_pool
        Public destination host/network       : *
        Permission mode / Synchronous writing : rw_sync
        Anonymous mapping                     : none
        Anonymous UID                         : 65534
        Anonymous GID                         : 65534
        Transmission port restriction         : do_not_perform
        Subtree check                         : do_not_perform
        Access check with lock request        : do_not_perform

$
```

Hitachi Vantara

Corporate Headquarters
2845 Lafayette Street
Santa Clara, CA 95050-2639 USA
www.HitachiVantara.com
community.HitachiVantara.com

Regional Contact Information
Americas: +1 866 374 5822 or info@hitachivantara.com
Europe, Middle East and Africa: +44 (0) 1753 618000 or info.emea@hitachivantara.com
Asia Pacific: +852 3189 7900 or info.marketing.apac@hitachivantara.com