

Configure Local Disk for DHCP Service

OPERATING INSTRUCTIONS

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1 Introduction

This document describes the following two parts:

- Procedures on how to configure the DHCP local disk after deploying new IPWorks on KVM.
- Procedures on how to configure the DHCP local disk after upgrading IPWorks deployed on KVM.

1.1 Prerequisites

This section describes the prerequisites which must be fulfilled before configuring the local disk.

1.1.1 Conditions

Before stating the configuration, IPWorks must have been installed or upgraded to the latest version successfully.

1.2 Related Information

Trademark information, typographic conventions, and definition and explanation of abbreviations and terminology can be found in the following documents:

- Trademark Information
- Typographic Conventions
- Glossary of Terms and Acronyms





2 Configure DHCP Local Disk for New IPWorks on KVM

When IPWorks is deployed on KVM successfully, before starting the DHCPv4 server, users can do the following to add and configure the local disk for DHCP service:

1. Add the local disk for PL-3.

a. Log on to the host machine of PL-3.

b. Create a QCOW2 image file on the host machine.

The QCOW2 file is recommended to be created in the folder `run`. Users can create the file according to their own requirements and the file size is recommended to be not less than 10 GB.

For example:

```
cluster1-b-1:/ # cd /root/auto_deployment/images/IPW2/run/
```

```
cluster1-b-1:~/auto_deployment/images/IPW2/run# qemu-img create -f qcow2 newdisk.qcow2 20G
```

```
Formatting 'newdisk.qcow2', fmt=qcow2 size=21474836480 encryption=off cluster_size=65536 lazy_refcounts=off refcount_bits=16
```

c. Get the domain name of PL-3.

For example:

```
cluster1-b-1:/ # virsh list
```

Id	Name	State
1	IPWSC-1	running
2	IPWPL-3	running

d. Shut down the domain PL-3.

For example:

```
cluster1-b-1:/ # virsh shutdown IPWPL-3
```

```
cluster1-b-1:/ # virsh list --all
```



Id	Name	State
1	IPWSC-1	running
-	IPWPL-3	shut off

- e. Add new disk configuration into PL-3.

Ensure to set **driver name** as `qemu`, **type** as `qcow2`, **source file** as the folder path where the new file is located, **target dev** as `vdb`, and **bus** as `virtio`.

For example:

```
cluster1-b-1:/ # virsh edit IPWPL-3
```

Add the following text into the config file of IPWPL-3.

```
.....
<disk type='file' device='disk'>
  <driver name='qemu' type='qcow2' />
  <source file='/root/auto_deployment/images/IPW2/run/newdisk.qcow2' />
  <target dev='vdb' bus='virtio' />
</disk>
.....
```

- f. Start the domain PL-3.

For example:

```
cluster1-b-1:/ # virsh start IPWPL-3
```

Domain IPWPL-3 started

2. Configure the local disk on PL-3.

- a. Log on to PL-3, and check if the new disk is added into PL-3 with command `fdisk -l`.

For example:

```
PL-3:~ # fdisk -l
```

```
Disk /dev/vda: 1 MiB, 1048576 bytes, 2048 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x3490c1e4
```

```
Device      Boot Start    End Sectors  Size Id Type
/dev/vda1   *          0   2047     2048    1M 17 Hidden HPFS/NTFS
```




```
Disk /dev/vdb: 20 GiB, 21474836480 bytes, 41943040 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

- b. Format the new disk on PL-3 with command **mkfs.ext4 /dev/vdb**.

For example:

```
PL-3:~ # mkfs.ext4 /dev/vdb
```

```
mke2fs 1.42.11 (09-Jul-2014)
Creating filesystem with 5242880 4k blocks and 1310720 inodes
Filesystem UUID: e31f13da-020f-4ef4-b1db-d5d893e908e0
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632,
    4096000
```

```
Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done
```

- c. Mount the new disk to directory **localdisk** on PL-3.

For example:

```
PL-3:/ # mount -t ext4 /dev/vdb /localdisk
```

- d. Check that whether the disk is mounted in the folder **localdisk**.

For example:

```
PL-3:/localdisk # df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
root	3.0G	2.6G	510M	84%	/
devtmpfs	16G	8.0K	16G	1%	/dev
tmpfs	16G	732K	16G	1%	/dev/shm
tmpfs	16G	11M	16G	1%	/run
tmpfs	16G	0	16G	0%	/sys/fs/cgroup
tmpfs	3.2G	0	3.2G	0%	/run/user/0
169.254.100.101:/.cluster	30G	2.2G	26G	8%	/cluster
/dev/vdb	20G	44M	19G	1%	/localdisk

- e. Create the file **dhcpd.leases** on PL-3 with command **touch**.

For example:



```
PL-3:/ # touch /localdisk/dhcpd.leases
```

```
PL-3:/ # ll /localdisk/dhcpd.leases
```

```
-rw-r--r-- 1 root root 0 Nov 14 14:10 dhcpd.leases
```

3. Repeat Step 1 and Step 2 to add and configure the local disk for PL-4.



3 Configure DHCP Local Disk for Upgraded IPWorks on KVM

After IPWorks deployed on KVM is upgraded successfully, users can do the following steps to add and configure the local disk for DHCP service.

1. Configure the DHCPv4 service MO.

- a. Log on to the SC node.

```
# ssh <Username>@<MIP_OAM_IP>
password:<Password>
```

Note: To get the OAM IP address, check oam in /etc/hosts.

- b. Start an ECLI session.

```
# /opt/com/bin/cliss
```

For details on how to use ECLI, refer to [Ericsson Command-Line Interface User Guide](#).

- c. Configure the DHCPv4 service MO.

```
> dn ManagedElement=<Node Name>,IpworksFunction=
1,IPWorksDHCPRoot=1,DHCPv4Service=1

(DHCPv4Service=1)>configure

(config-DHCPv4Service=1)>arguments="-lf /localdisk/dhcpd.leases ipw_sig_sp"

(config-DHCPv4Service=1)>commit

(DHCPv4Service=1)>show -v

DHCPv4Service=1
arguments="-lf /localdisk/dhcpd.leases ipw_sig_sp"
authenticationLevel=NONE <default>
dhcpServiceId="1"
EnableAutoReconfig=false<default>
lowTPSThreshold=0
reconfigThreshold=0 <default>
```

2. Log on to the SC node and stop DHCP service on PL-3.

```
#ipw-ctr stop dhcp pl-3
```



3. Log on to IPWorks CLI on the storage server.

```
# ipwcli
```

```
IPWorks> Login: <Username>
```

```
IPWorks> Password: <Password>
```

4. Place the server in the Partner-Down mode.

If one of the failover partners needs to be taken offline for an extended time period for system or other maintenance, after shutting down that server, place the other failover server into the partner-down mode so that it can access the entire lease pool (after the maximum client lead time expires).

IPWCLI (partnerdown command) is used to do the operation. For example:

```
IPWorks> select dhcpserver dhcp2
```

```
Selected 1 object(s).
```

```
IPWorks> partnerdown
```

```
The DHCP server 'dhcp2' was set to the partnerdown state.
```

```
IPWorks>
```

When the offline server is ready to back online, ensure that the return of the server is done properly so that it can synchronize with the running server. Start the offline server while the server previously set to partner-down mode is running and ensure that no network problem prevents communication. In this way, the two servers can synchronize properly and address assignments are done safely.

If the offline server is back online and cannot communicate with the server that was in the partner-down mode, it can resume leasing activity but both servers could assign the same address to different clients.

5. Add the local disk for PL-3.

- a. Log on to the host machine of PL-3.
- b. Create a QCOW2 image file on the host machine.

The QCOW2 file is recommended to be created in the folder `run`. Users can create the file according to their own requirements and the file size is recommended to be not less than 10 GB.

For example:

```
cluster1-b-1:/ # cd /root/auto_deployment/images/IPW2/run/
```



```
cluster1-b-1:~/auto_deployment/images/IPW2/run# qemu-img
create -f qcow2 newdisk.qcow2 20G
```

```
Formatting 'newdisk.qcow2', fmt=qcow2 size=21474836480
encryption=off cluster_size=65536 lazy_refcounts=off
refcount_bits=16
```

- c. Get the domain name of PL-3.

For example:

```
cluster1-b-1:/ # virsh list
```

Id	Name	State
1	IPWSC-1	running
2	IPWPL-3	running

- d. Shut down the domain PL-3.

For example:

```
cluster1-b-1:/ # virsh shutdown IPWPL-3
```

```
cluster1-b-1:/ # virsh list --all
```

Id	Name	State
1	IPWSC-1	running
-	IPWPL-3	shut off

- e. Add new disk configuration into PL-3.

Ensure to set **driver name** as **qemu**, **type** as **qcow2**, **source file** as the folder path where the new file is located, **target dev** as **vdb**, and **bus** as **virtio**.

For example:

```
cluster1-b-1:/ # virsh edit IPWPL-3
```

Add the following text into the config file of IPWPL-3.

```
.....
<disk type='file' device='disk'>
  <driver name='qemu' type='qcow2'/>
  <source file='/root/auto_deployment/images/IPW2/run/newdisk.
  <target dev='vdb' bus='virtio'/>
</disk>
.....
```



- f. Start the domain PL-3.

For example:

```
cluster1-b-1:/ #virsh start IPWPL-3
```

```
Domain IPWPL-3 started
```

6. Configure the local disk for PL-3.

- a. Log on to PL-3, and check if the new disk is added into PL-3 with command **fdisk -l**.

For example:

```
PL-3:~ # fdisk -l
```

```
Disk /dev/vda: 1 MiB, 1048576 bytes, 2048 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x3490c1e4
```

Device	Boot	Start	End	Sectors	Size	Id	Type
/dev/vda1	*	0	2047	2048	1M	17	Hidden HPFS/NTFS

```
Disk /dev/vdb: 20 GiB, 21474836480 bytes, 41943040 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

- b. Format the new disk on PL-3 with command **mkfs.ext4 /dev/vdb**.

For example:

```
PL-3:~ #mkfs.ext4 /dev/vdb
```

```
mke2fs 1.42.11 (09-Jul-2014)
Creating filesystem with 5242880 4k blocks and 1310720 inodes
Filesystem UUID: e31f13da-020f-4ef4-b1db-d5d893e908e0
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2
    4096000
```

```
Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
```



Writing superblocks and filesystem accounting information: done

- c. Mount the new disk to directory localdisk on PL-3.

For example:

```
PL-3:/localdisk # mount -t ext4 /dev/vdb /localdisk
```

- d. Check that whether the disk is mounted on the folder localdisk.

For example:

```
PL-3:/localdisk # df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
root	3.0G	2.6G	510M	84%	/
devtmpfs	16G	8.0K	16G	1%	/dev
tmpfs	16G	732K	16G	1%	/dev/shm
tmpfs	16G	11M	16G	1%	/run
tmpfs	16G	0	16G	0%	/sys/fs/cgroup
tmpfs	3.2G	0	3.2G	0%	/run/user/0
169.254.100.101:/cluster	30G	2.2G	26G	8%	/cluster
/dev/vdb	20G	44M	19G	1%	/localdisk

- e. Log on to PL-3, and move files dhcpd.leases and dhcpd.leases~.gz to the folder /localdisk.

```
PL-3:/localdisk # mv /etc/ipworks/PL-3/dhcp/dhcpd.leases /localdisk/
```

```
PL-3:/localdisk # mv /etc/ipworks/PL-3/dhcp/dhcpd.leases ~.gz /localdisk/
```

7. Log on to the SC node and start DHCP service.

```
#ipw-ctr start dhcp pl-3
```

8. Log on to the IPWorks CLI on the storage server.

```
# ipwcli
```

```
IPWorks> Login: <Username>
```

```
IPWorks> Password: <Password>
```

9. Use the IPWorks CLI to check whether the DHCPv4 server is running normally.

```
IPWorks>show status dhcpv4server
```

```
[DhcpV4Server dhcp1] (169.254.100.3) On 11/30/18 at 11:20:54 server is 'running normal'
```



```
[DhcpV4Server dhcp2] (169.254.100.4) On 11/30/18 at 11:20:54 server is 'run
```

```
IPWorks>exit
```

Continue Step 10 after running `normal` is displayed.

10. Repeat Step 3 to Step 9 to add and configure the local disk for PL-4.



Reference List

Ericsson Documents

- [1] Ericsson Command-Line Interface User Guide
- [2] Trademark Information
- [3] Typographic Conventions
- [4] Glossary of Terms and Acronyms