Step-by-Step Guide

Open-E JovianDSS Off-site Data Protection and High availability
The aim of this document is to demonstrate how set up a backup of data residing on both JovianDSS High-Availability Cluster nodes to local-backup and to a remote backup-server over the LAN with Off-Site Data Protection Service.

Off-Site Data Protection Service creates rotational auto-snapshots of a dataset or zvol according to a retention-interval plan, and optionally asynchronously replicates snapshots delta to the local or remote destinations. Asynchronous replication of rotational-auto-snapshots delta to local or remote destinations, where destination is:

1. Another dataset or zvol within the same ZFS pool.
2. Dataset or zvol on different ZFS pool.
3. Dataset or zvol on a remote node.

Retention plans:

The ODPS retention-interval plan consists of a series of retention periods to interval associations: "retention_every_interval,retention_every_interval,retention_every_interval,...".

Example: 1hour_every_10min,3day_every_1hour,1month_every_1day

Both intervals and retention periods use standard units of time or multiples of them, with full names or a shortcut according to the following list: second|sec|s, minute|min, hour|h, day|d, week|w, month|mon|m, year|y

Rotational auto-snapshots on both source and destination are created according to retention plans. It is possible to have different retention plans for source and destination pool.
To set up a JovianDSS Off-site Data Protection and HA, perform the following steps:

1. Hardware configuration
2. Create new Pools:
   2.1. Create new Pool on node-a.
   2.2. Create new Pool on node-b.
   2.3. Create new Pool on backup-local server
   2.4. Create new Pool on backup-remote server
3. Create new shares
4. Create new target
5. Create new NAS volume (dataset)
6. Create new iSCSI volume (zvol)
7. Configure CLI access
8. Issuing odps commands
9. Odps commands examples
10. Testing of auto-snapshot functions
11. Testing data restore
12. Disable the running tasks using odps commands
1. Hardware configuration

High-Availability Open-E JovianDSS production server
Backup on local pool
Backup on system in same location
Backup on remote site

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2.1. Create new Pool on node-a

Go to menu Storage on node-a and create **Pool-0**.

**NOTE:**
The focus of this document is ODPS. This is why it will not show Pool creation step-by-step. Please refer to the JovianDSS **Quick Start Guide** for details.

This document also does not show the HA-Cluster setup step-by-step. Please refer to the **Open-E JovianDSS High Availability Cluster (SAS, FC) Step-by-Step Guide**.
2.2. Create new Pool on node-b

### Pool-1 on node-b

- **IP Address:** 192.168.0.61

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Please create **Pool-1** on node-b
2.3. Create new Pool on backup-local server

(JovianDSS – backup-local)
IP Address: 192.168.0.62

Please create Pool-0 on the backup-local server.
2.4. Create new Pool on backup-remote server

Please create **Pool-0** on the backup-remote server.

(JovianDSS – backup-remote)
IP Address: 192.168.0.64
3. Create new share

In the pool menu select **Shares** and click on the **Add dataset** button.

(JovianDSS – node-a)
IP Address: 192.168.0.60
3. Create new share

In **Add new dataset**, enter the name **vol00** and click on the **Apply** button.

(JovianDSS – node-a)
IP Address: 192.168.0.60
In the pool menu select Shares and click on the Add share button.

(JovianDSS – node-a)
IP Address: 192.168.0.60

3. Create new share
3. Create new share

Next, in Share wizard enter the name of share, and click Next button.
3. Create new share

(JovianDSS – node-a)
IP Address: 192.168.0.60

In Access protocols, please set **Enable SMB service**, and click **Next** button.
3. Create new share

(JovianDSS – node-a)
IP Address: 192.168.0.60

New share data with the SMB service is active.
4. Create new target

In the pool menu select **iSCSI targets** and click on the **Add new target** button.

(JovianDSS – node-b)
IP Address: 192.168.0.61
4. Create new target

Enter the **Target name** and click the **Next** button.

(JovianDSS – node-b)
IP Address: 192.168.0.61
4. Create new target

In order to create a new volume assigned to the target click on the **Add new zvol** button.
Enter the zvol name `zvol00` and size and click on the Add button.
4. Create new target

(JovianDSS – node-b)
IP Address: 192.168.0.61

Now, click on the Next button.
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4. Create new target

(JovianDSS – node-b)
IP Address: 192.168.0.61

In Access tab, click on the Next button.
4. Create new target

(JovianDSS – node-b) IP Address: 192.168.0.61

In Summary, click on the Add button.
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4. Create new target

(JovianDSS – node-b)
IP Address: 192.168.0.61

New iSCSI target with the assigned zvol00 is up and running.
5. Create new NAS volume (dataset)

In Dataset properties, enter the name `vol00` and click on the **Apply** button.

(JovianDSS – backup-local) IP Address: 192.168.0.62
5. Create new NAS volume (dataset)

(JovianDSS – backup-local)
IP Address: 192.168.0.62

New vol00 is active.
6. Create new iSCSI volume (zvol)

(JovianDSS – backup-local)
IP Address: 192.168.0.62

If the zvol details are not shown, please click on the arrow icon.

In the pool menu select iSCSI targets and click on the Add new zvol button.
6. Create new iSCSI volume (zvol)

Enter the zvol name `zvol00` and size and click on the Add button.

(JovianDSS – backup-local)
IP Address: 192.168.0.62
6. Create new iSCSI volume (zvol)

New zvol00 has been created.

(JovianDSS – backup-local)
IP Address: 192.168.0.62
Next, go to System Settings. In CLI access enter password and click Apply button. Please make these settings the same for all nodes.
8. Issuing ODPS commands

In Command Prompt run plink.exe (ssh Windows-client from putty.org)

Please refer to the JovianDSS Quick Start Guide for details.

In order to check proper CLI configuration, please issue same command for all nodes accordingly:

plink.exe -pw admin -P 22223 -l cli 192.168.0.60
plink.exe -pw admin -P 22223 -l cli 192.168.0.61
plink.exe -pw admin -P 22223 -l cli 192.168.0.62
plink.exe -pw admin -P 22223 -l cli 192.168.0.64
8. Issuing ODPS commands

The `help` command output shows all currently available JovianDSS CLI commands.

In order to list ODPS command syntax and examples, enter:

```
plink -pw admin -P 22223 -l cli 192.168.0.60 odps
```

```
Available commands:
attach_volume_to_iscsi_target
check_mk_agent
create_clone_for_given_snapshot
create_iscsi_target
create_pool
create_snapshot
create_volume
delete_clone
delete_iscsi_target
delete_pool
delete_snapshot
delete_volume
detach_volume_from_iscsi_target
detach_volumes_for_given_snapshot
detach_volumes_for_given_snapshot
detach_volumes_for_given_volume
detach_volumes_for_given_volume
detach_volumes_for_given_pool
detach_volumes_for_given_volume
detach_volumes_for_given_pool
help	node_bind

to see help for selected command
```
8. Issuing ODPS commands

The command `odps set` show current settings of the Off-site Data Protection Service.

**Node-a (192.168.0.60)**
- show already attached backup nodes
  - 192.168.0.62 (backup-local)
  - 192.168.0.64 (backup-remote)

**Node-b (192.168.0.61)**
- show already attached backup nodes
  - 192.168.0.62 (backup-local)
  - 192.168.0.64 (backup-remote)
9. Odps command examples

## plink (ssh) using key file with “-i” option (please refer to Quick Start Guide in order to learn how to generate the key)

```
plink.exe -i node-a.ppk -P 22223 -l cli 192.168.0.60 odps
```

(it will list all available commands and usage examples)

## plink (ssg) using password with “-pw” option

```
plink.exe -pw admin -P 22223 -l cli 192.168.0.60 odps
```

## node 192.168.0.60

```
plink.exe -pw admin -P 22223 -l cli 192.168.0.60 odps attach-backup-node 192.168.0.62 node-password admin
```

## node 192.168.0.61

```
plink.exe -pw admin -P 22223 -l cli 192.168.0.61 odps attach-backup-node 192.168.0.62 node-password admin
```

## NOTE: the following command must be entered as single line. The vol and zvol on destination mode must be created before creating the odps task.

```
plink.exe -pw admin -P 22223 -l cli 192.168.0.60 odps create-task source=Pool-0/vol00
    plan=4h_every_1min,2w_every_1h destination=192.168.0.62:Pool-0/vol00
    plan=1d_every_1min,2w_every_5min,3m_every_1h
    destination=192.168.0.64:Pool-0/vol00 plan=3w_every_5min,6m_every_1d mbuffer
```

Task has been successfully created
8. Issuing ODPS commands

The `odps set` on node-a (192.168.0.60) show attached backup-local server and configured backup-task with source: Pool-0/vol00 and 2 destinations:
192.168.0.62:Pool-0/vol00
192.168.0.64:Pool-0/vol00
8. Issuing ODPS commands

The `odps status` command show most recent `odps` events.

(JovianDSS – node-a)
IP Address: 192.168.0.60
8. Issuing ODPS commands

The `odps set` on node-b (192.168.0.61) show attached backup nodes and configured backup-task with source: Pool-1/zvol00 and 2 destinations: 192.168.0.62:Pool-0/zvol00 192.168.0.64:Pool-0/zvol00
10. Testing of auto-snapshot functions

Once odps task is running, in the pool menu in Snapshots tab, a icon show that snapshots are created. Please click on the icon in order to list created snapshots.

(JovianDSS – backup-local)
IP Address: 192.168.0.62
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10. **Testing of auto-snapshot functions**

Auto-Snapshots created on backup-local server (192.168.0.62)

(JovianDSS – backup-local)
IP Address: 192.168.0.62
10. Testing of auto-snapshot functions

(JovianDSS – backup-local)
IP Address: 192.168.0.62

Auto-Snapshots created on backup-local server (192.168.0.62)
10. Testing of auto-snapshot functions

Auto-Snapshots created on backup-remote server (192.168.0.64)
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10. Testing of auto-snapshot functions

(JovianDSS – backup-remote)
IP Address: 192.168.0.64

Auto-Snapshots created on backup-remote server (192.168.0.64)
11. Testing data restore

In case of required data restore or a disaster recovery of an iSCSI volume, go to backup-local server and select **Attach to target** function in order to make the *zvol00* available on the network.
11. Testing data restore

(JovianDSS – backup-local) IP Address: 192.168.0.62

Select previously created target.
11. Testing data restore

In case of required data restore or a disaster recovery of an NAS volume, go to backup-local server Shares tab and select Add share function in order to make the dataset available on the network.

(JovianDSS – backup-local) IP Address: 192.168.0.62
11. Testing data restore

(JovianDSS – backup-local)
IP Address: 192.168.0.62

Enter required share name.
11. Testing data restore

Click **Next** button.

(JovianDSS – backup-local)
IP Address: 192.168.0.62
11. Testing data restore

Click **Next** button. Next, in Summary, click on the **Add** button.

(JovianDSS – backup-local)
IP Address: 192.168.0.62
12. Disable the running tasks using `odps` commands

While testing data restore, please disable the running tasks using `odps disable-task` command.
Thank You!