

The initial mini-howto would create a zfs filesystem and make it available as an iscsi target for clients (initiators) and is based on <http://blather.michaelwlucas.com/archives/53>. Mine omits chap. Changed so the zfs filesystem is made available via infiniband and srp.

Using infiniband will significantly increase disk I/O compared to tcp/ip-based protocols like iscsi and nfs. Latency is lower. Perform these initial tasks so openindiana can make use of infiniband and srp.

Feel free to contact me if you find any errors, find some inconsistencies, some parts are unclear or need help, to 'kometen at gmail dot com'.

Install the following package.

```
s45-zfs~#>pkg install storage-server
```

Enable COMSTAR

```
s45-zfs~#>svcadm enable stmf
```

Enable SRP target

```
s45-zfs~#>svcadm enable ibsrp/target
```

Give the infiniband an ip-address. Found the information at this link:  
<http://forums.overclockers.com.au/showthread.php?p=13089548>

```
# dladm create-part -l ibp0 -P 0xFFFF pFFFF.ibp0
# ifconfig pFFFF.ibp0 plumb
# ifconfig pFFFF.ibp0 10.0.0.1/24 up
```

1. Create filesystem

```
s45-zfs~#>zfs create -V 100G data/iscsi/infiniband
```

2. Create a logical unit and make it visible in SCSI Target Mode Framework (STMF). Use GUID in item 6.

```
s45-zfs~#>sbdadm create-lu /dev/zvol/rdisk/data/iscsi/infiniband
Created the following LU:
```

| GUID                             | DATA SIZE    | SOURCE                                |
|----------------------------------|--------------|---------------------------------------|
| 600144f0be61890000004e54e2a70006 | 107374182400 | /dev/zvol/rdisk/data/iscsi/infiniband |

3. Issue the following command to get the target name. It's prefix is eui.GUID. Use this when creating the target-group member (tg-member) in step 4.

```
s45-zfs~#>stmfadm list-target -v
Target: eui.0002C903000F7362
  Operational Status: Online
  Provider Name      : srpt
  Alias              : -
  Protocol           : SRP
  Sessions           : 1
  Initiator: eui.0002C90300583A06
    Alias: 0002c903000f7362:0002c90300583a06
    Logged in since: Tue Sep 11 14:14:13 2012
```

4. Create a target group with the same name as the filesystem and add the iscsi-target from item to the target group. If you get the error 'stmfadm: STMF target must be offline' do a '*svcadm disable stmf*' and repeat step #4 and then '*svcadm enable stmf*'.

```
s45-zfs~#>stmfadm create-tg infiniband
s45-zfs~#>stmfadm add-tg-member -g infiniband eui.0002C903000F7362
```

5. Create an initiator-group which identifies the client and add the initiatorname as defined on the client. You need the GUID (aka. WWN name). On windows with the OFED installer from [openfabrics.org](http://openfabrics.org) you can issue the command `ibv_devinfo`. Get the line `node_guid` and grab the value and remove the colon (:) in between. Prepend it with eui.

```
s45-zfs~#>stmfadm create-hg infiniband
s45-zfs~#>stmfadm add-hg-member -g infiniband eui.0002C90300583A06
```

6. Add the host- and target-group to the view.

```
s45-zfs~#>stmfadm add-view -h infiniband -t infiniband
600144f0be61890000004e54e2a70006
```

On windows the new device should show up automagically. If not, verify you have a subnet manager. Then try to ping the `openindiana-server`. If it's up verify the `infiniband-service` is started. Reload it once. Verify that the 'Infiniband SRP Miniport' is up and running. Look in Computer Management, Device Management, Storage controllers. Disable and enable it once.

<http://hub.opensolaris.org/bin/view/Project+srp/srptconfig>

## Basic COMSTAR Quick-Start Guide for SRP

- Examine the IB Configuration to make sure your IB devices are visible as expected:

```
-bash-3.2# cfgadm -lv
Ap_Id          Receptacle Occupant  Condition Information
When   Type    Busy  Phys_Id
hca:3BA0001002E48    connected  configured ok      VID: 0x15b3, PID: 0x6278,\
#ports: 0x2, port1 GUID: 0x3BA0001002E49, port2 GUID: 0x3BA0001002E4A
unavailable IB-HCA    n      /devices/ib:3BA0001002E48
ib              connected  configured ok      InfiniBand Fabric
unavailable IB-Fabric n      /devices/ib:fabric
[...snip...]
```

- Enable COMSTAR:

```
svcadm enable stmf
```

- Enable SRP Target:

```
svcadm enable ibsrp/target
```

- Your SRP-based SCSI Target should now be available to STMF:

```
-bash-3.2# stmfadm list-target -v
Target: eui.0003BA0001002E48
Operational Status: Online
Provider Name   : srpt
Alias          : -
Sessions       : 0
```

- Define at least one COMSTAR logical unit (LU) backing store using `sbdadm`:

```
-bash-3.2# mkdir /storage
-bash-3.2# touch /storage/file
-bash-3.2# sbdadm create-lu -s 2m /storage/file
Created the following LU:
      GUID          DATA SIZE      SOURCE
-----
600144f0da29a32c000049b1e4cc0001  2097152    /storage/file
```

- Define at least one **View** to make the LU visible to the target and initiator you are dealing with. By creating a "default view", we make the LU available to all combinations of SCSI initiator and SCSI target.

```
-bash-3.2# stmfadm add-view 600144f0da29a32c000049b1e4cc0001
-bash-3.2# stmfadm list-view -l 600144f0da29a32c000049b1e4cc0001
View Entry: 0
Host group : All
Target group : All
LUN       : 24
```

- Now your initiator should be able to view the storage, connect to the target, and see the LU. See below for a brief how-to of how to do this using the OFED initiator on Linux and on VMWare ESX. Once the initiator has connected, the target can see the incoming connection:

```
-bash-3.2# stmfadm list-target -v
Target: eui.0003BA0001002E48
Operational Status: Online
Provider Name   : srpt
Alias          : -
Sessions       : 1
Initiator: eui.0003BA0001002EA5
Alias: 492e000100ba0300:0003ba0001002ea5
Logged in since: Fri Mar 6 21:18:37 2009
```