

Home Setup
(always working progress)

Setup of iscsi san

Creating block/luns
(parity, non-parity)

Assigning luns to windows/mac host

Creating Shares

Storage stats

personally crimped cables

```

root@      solaris11      /zstor2tb# stmfadm list-hg
Host Group: mac-group
Host Group: win-group
root@      solaris11      :/zstor2tb# stmfadm list-hg -v
Host Group: mac-group
Member: iqn.2003-12.com.small-tree:expensive-rotten-fruit
Host Group: win-group
Member: iqn.1991-05.com.microsoft: [REDACTED]

```

```

root@      debian:/# vi /etc/fstab
root@      debian:/# mount -a
root@      debian:/# ls /mnt/zstor/
data-vol1  data-vol2  data-vol3  data-vol4  data-vol-temp

```

```

LU Name: 600144F012F08A000000055396F84001B
Operational State       : Online
Provider Name           : sbd
Alias                    : mac-v000-no-chap-auth
View Entry Count        : 1
Data File                : /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-000
Meta File               : not set
Size                    : 107374182400
Block Size              : 4096
Management URL          : not set
Vendor ID               : SUN
Product ID              : COMSTAR
Serial Num              : not set
Write Protect           : Disabled
Write Cache Mode Select: Enabled
Writeback Cache         : Enabled
Access State            : Active

```

// list the created iscsi block level luns
you can see the lun mappings / correlations

```
root@ solaris11: /zstor2tb# sbdadm list-lu
Found 20 LU(s)
-----
GUID                                DATA SIZE                                SOURCE
-----
600144f012f08a0000005533024a0001  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-005
600144f012f08a000000553302610002  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-006
600144f012f08a000000553302740003  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-007
600144f012f08a000000553302830004  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-008
600144f012f08a0000005533028f0005  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-009
600144f012f08a00000055331a880006  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-005
600144f012f08a00000055331afe0007  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-006
600144f012f08a00000055331b1e0008  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-007
600144f012f08a00000055331b3f0009  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-008
600144f012f08a00000055331b74000a  10737418240                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-009
600144f012f08a000000553371be0011  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-001
600144f012f08a000000553371cd0012  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-002
600144f012f08a000000553371d90013  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-003
600144f012f08a000000553371e50014  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-004
600144f012f08a0000005533ca8a0015  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-000
600144f012f08a0000005533ca980016  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-001
600144f012f08a0000005533caa20017  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-002
600144f012f08a0000005533caae0018  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-003
600144f012f08a0000005533cab90019  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/win-vols/vol-004
600144f012f08a00000055396f84001b  107374182400                             /dev/zvol/rdisk/zstor2tb/iscsi-san/mac-vols/vol-000
```

```
root@ solaris11: /zstor2tb# stmfadm list-lu
LU Name: 600144F012F08A0000005533024A0001
LU Name: 600144F012F08A000000553302610002
LU Name: 600144F012F08A000000553302740003
LU Name: 600144F012F08A000000553302830004
LU Name: 600144F012F08A0000005533028F0005
LU Name: 600144F012F08A00000055331A880006
LU Name: 600144F012F08A00000055331AFE0007
LU Name: 600144F012F08A00000055331B1E0008
LU Name: 600144F012F08A00000055331B3F0009
LU Name: 600144F012F08A00000055331B74000A
LU Name: 600144F012F08A000000553371BE0011
LU Name: 600144F012F08A000000553371CD0012
LU Name: 600144F012F08A000000553371D90013
LU Name: 600144F012F08A000000553371E50014
LU Name: 600144F012F08A0000005533CA8A0015
LU Name: 600144F012F08A0000005533CA980016
LU Name: 600144F012F08A0000005533CAA20017
LU Name: 600144F012F08A0000005533CAAE0018
LU Name: 600144F012F08A0000005533CAB90019
LU Name: 600144F012F08A00000055396F84001B
```



```

root@      solaris11      :/zstor2tb# zfs list zstor2tb
NAME      USED  AVAIL  REFER  MOUNTPOINT
zstor2tb  3.85T  5.01T   104K   /zstor2tb
root@      solaris11      :/zstor2tb# zfs list zstor320gb
NAME      USED  AVAIL  REFER  MOUNTPOINT
zstor320gb 728G   1.00T   140K   /zstor320gb

```

```

pool: zstor2tb
state: ONLINE
  scan: none requested
config:

```

NAME	STATE	READ	WRITE	CKSUM
zstor2tb	ONLINE	0	0	0
raidz3-0	ONLINE	0	0	0
c0t5000CCA221E7E1DBd0	ONLINE	0	0	0
c0t5000CCA221E77A36d0	ONLINE	0	0	0
c0t5000CCA222D2930Fd0	ONLINE	0	0	0
c0t5000CCA229C2152Ed0	ONLINE	0	0	0
c0t5000CCA229DDFB3Cd0	ONLINE	0	0	0
c0t5000CCA369F456E6d0	ONLINE	0	0	0
c0t50014EE25DB0C362d0	ONLINE	0	0	0
c0t50014EE2085B9A64d0	ONLINE	0	0	0
spares				
c0t5000CCA222D22B8Ed0	UNAVAIL			
c0t5000CCA222D62480d0	UNAVAIL			

```
errors: No known data errors
```

```

pool: zstor320gb
state: ONLINE
  scan: resilvered 726G in 1h28m with 0 errors on Sun Apr  5 23:36:32 2015
config:

```

NAME	STATE	READ	WRITE	CKSUM
zstor320gb	ONLINE	0	0	0
raidz2-0	ONLINE	0	0	0
c9t5001E678B0589FE1d0	ONLINE	0	0	0
c9t5001E678B0589FE2d0	ONLINE	0	0	0
c9t5001E678B0589FE3d0	ONLINE	0	0	0
c0t50014EE0AB52FCF5d0	ONLINE	0	0	0
c0t50014EE156F34C8Bd0	ONLINE	0	0	0
c0t50014EE1029F6FA5d0	ONLINE	0	0	0
c0t50014EE1591D38AFd0	ONLINE	0	0	0
c0t50014EE2B15A5E1Cd0	ONLINE	0	0	0

```

spares
  c0t50014EE25C049A06d0  UNAVAIL
  c0t50014EE1591F92C7d0  UNAVAIL

```

// data transfer in progress

zstor2tb/pool-fs-backup	1.43T	5.01T	122K
zstor2tb/pool-fs-backup/data-vol-temp	512G	5.01T	512G
zstor2tb/pool-fs-backup/data-vol1	249G	5.01T	249G
zstor2tb/pool-fs-backup/data-vol2	99.4K	5.01T	99.4K
zstor2tb/pool-fs-backup/data-vol3	705G	5.01T	705G
zstor2tb/pool-fs-backup/data-vol4	99.4K	5.01T	99.4K
zstor320gb	728G	1.00T	140K
zstor320gb/data-vol-temp	104K	1.00T	104K
zstor320gb/data-vol1	104K	1.00T	104K
zstor320gb/data-vol2	104K	1.00T	104K
zstor320gb/data-vol3	722G	1.00T	722G
zstor320gb/data-vol4	104K	1.00T	104K

zstor2tb	1.85T	5.01T	104K
zstor2tb/iscsi-san	2.41T	5.01T	114K
zstor2tb/iscsi-san/mac-vols	552G	5.01T	94.4K
zstor2tb/iscsi-san/mac-vols/vol-000	100G	5.08T	34.1G
zstor2tb/iscsi-san/mac-vols/vol-001	100G	5.09T	22.6G
zstor2tb/iscsi-san/mac-vols/vol-002	100G	5.09T	22.6G
zstor2tb/iscsi-san/mac-vols/vol-003	100G	5.11T	134M
zstor2tb/iscsi-san/mac-vols/vol-004	100G	5.11T	134M
zstor2tb/iscsi-san/mac-vols/vol-005	10.3G	5.02T	44.0M
zstor2tb/iscsi-san/mac-vols/vol-006	10.3G	5.02T	39.8K
zstor2tb/iscsi-san/mac-vols/vol-007	10.3G	5.02T	39.8K
zstor2tb/iscsi-san/mac-vols/vol-008	10.3G	5.02T	39.8K
zstor2tb/iscsi-san/mac-vols/vol-009	10.3G	5.02T	39.8K
zstor2tb/iscsi-san/nix-vols	103G	5.01T	94.4K
zstor2tb/iscsi-san/nix-vols/vol-001	103G	5.11T	39.8K
zstor2tb/iscsi-san/test-vols	1.23T	5.01T	94.4K
zstor2tb/iscsi-san/test-vols/vol-001	103G	5.11T	39.8K
zstor2tb/iscsi-san/test-vols/vol-002	1.03T	6.04T	39.8K
zstor2tb/iscsi-san/test-vols/vol-003	1.03G	5.01T	39.8K
zstor2tb/iscsi-san/test-vols/vol-004	103G	5.11T	39.8K
zstor2tb/iscsi-san/win-vols	552G	5.01T	94.4K
zstor2tb/iscsi-san/win-vols/vol-000	100G	5.11T	41.3M
zstor2tb/iscsi-san/win-vols/vol-001	100G	5.11T	43.7M
zstor2tb/iscsi-san/win-vols/vol-002	100G	5.11T	51.0M
zstor2tb/iscsi-san/win-vols/vol-003	100G	5.11T	43.0M
zstor2tb/iscsi-san/win-vols/vol-004	100G	5.11T	52.0M
zstor2tb/iscsi-san/win-vols/vol-005	10.3G	5.02T	614K
zstor2tb/iscsi-san/win-vols/vol-006	10.3G	5.02T	605K
zstor2tb/iscsi-san/win-vols/vol-007	10.3G	5.02T	723K
zstor2tb/iscsi-san/win-vols/vol-008	10.3G	5.02T	538K
zstor2tb/iscsi-san/win-vols/vol-009	10.3G	5.02T	12.0M


```
root@      solaris11      :/zstor2tb# stmfadm list-state
Operational Status: online
Config Status      : initialized
ALUA Status        : disabled
ALUA Node          : 0
```

```
root@      solaris11      :/zstor2tb# stmfadm list-target
Target: iqn.1986-03.com.sun:02:target-chap-authentication
Target: iqn.1986-03.com.sun:01:target-no-chap-authentication
root@      solaris11      :/zstor2tb# stmfadm list-target -v
Target: iqn.1986-03.com.sun:02:target-chap-authentication
  Operational Status      : Online
  Provider Name           : iscsit
  Alias                   : -
  Protocol                 : iSCSI
  Sessions                : 2
    Initiator: iqn.1991-05.com.microsoft: [REDACTED]
      Alias: -
      Logged in since: Thu Apr 23 23:40:41 2015
    Initiator: iqn.2003-12.com.small-tree:expensive-rotten-fruit
      Alias: -
      Logged in since: Thu Apr 23 22:51:18 2015
Target: iqn.1986-03.com.sun:01:target-no-chap-authentication
  Operational Status      : Online
  Provider Name           : iscsit
  Alias                   : -
  Protocol                 : iSCSI
  Sessions                : 2
    Initiator: iqn.1991-05.com.microsoft: [REDACTED]
      Alias: -
      Logged in since: Thu Apr 23 23:40:39 2015
    Initiator: iqn.2003-12.com.small-tree:expensive-rotten-fruit
      Alias: -
      Logged in since: Thu Apr 23 22:18:45 2015
```

```
root@      solaris11      :/zstor2tb# stmfadm list-tg
Target Group: test-tg
Target Group: test-tg1
root@      solaris11      :/zstor2tb# stmfadm list-tg -v
Target Group: test-tg
  Member: iqn.1986-03.com.sun:01:target-no-chap-authentication
Target Group: test-tg1
  Member: iqn.1986-03.com.sun:02:target-chap-authentication
```

```

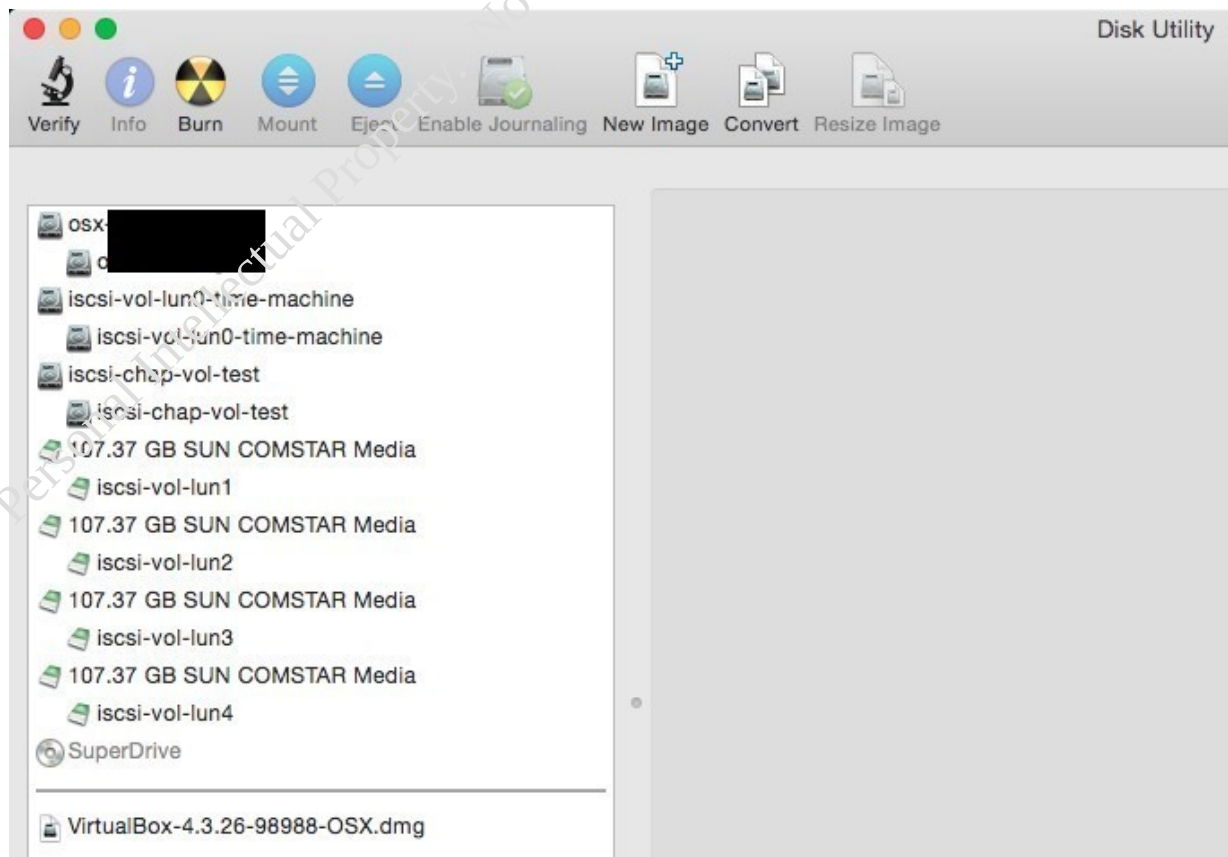
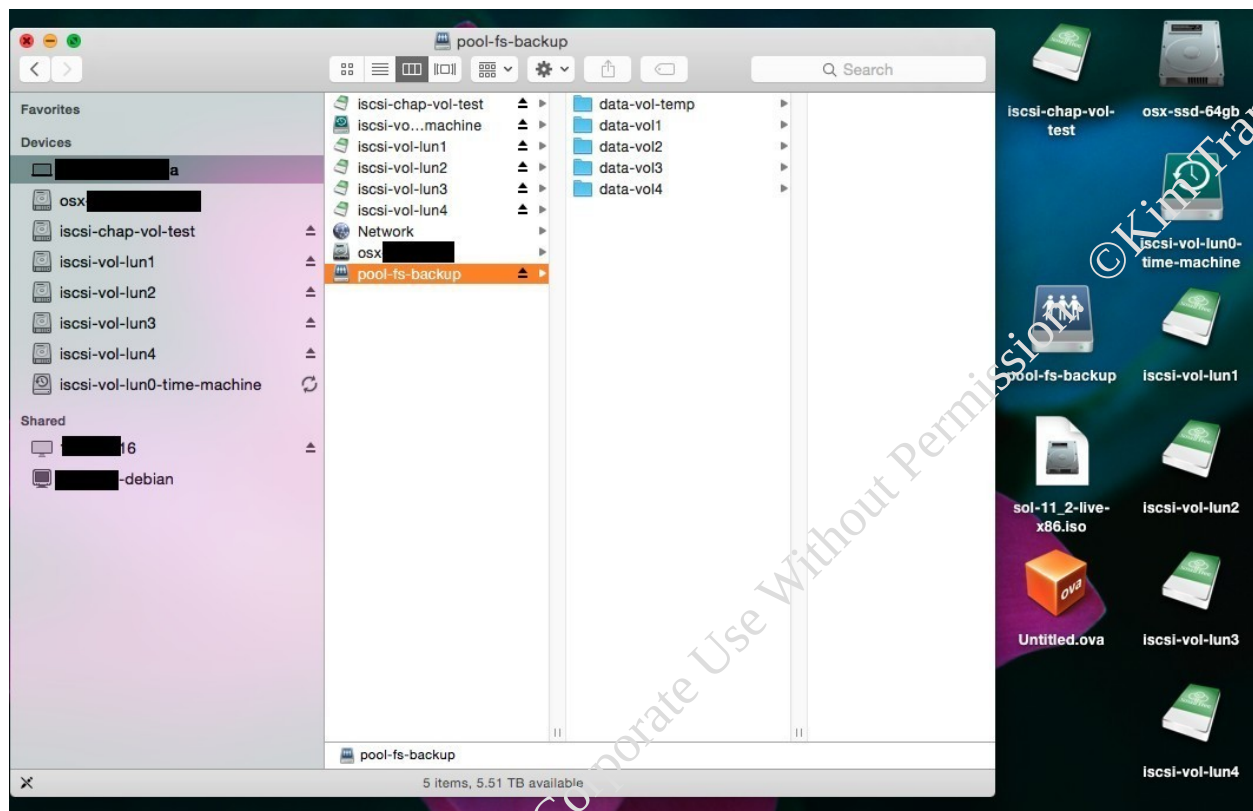
root@      -solaris11      :/zstor2tb# itadm list-target
TARGET NAME                                STATE    SESSIONS
iqn.1986-03.com.sun:02:target-chap-authentication  online   1
iqn.1986-03.com.sun:01:target-no-chap-authentication  online   1
root@      -solaris11      :/zstor2tb# itadm list-target -v
TARGET NAME                                STATE    SESSIONS
iqn.1986-03.com.sun:02:target-chap-authentication  online   1
    alias:                                -
    auth:                                 chap
    targetchapuser:                       test-chap-user
    targetchapsecret:                     set
    tpg-tags:                             test-tpg1 = 2
iqn.1986-03.com.sun:01:target-no-chap-authentication  online   1
    alias:                                testing-with-no-chap-authentication
    auth:                                 none
    targetchapuser:                       -
    targetchapsecret:                     unset
    tpg-tags:                             default

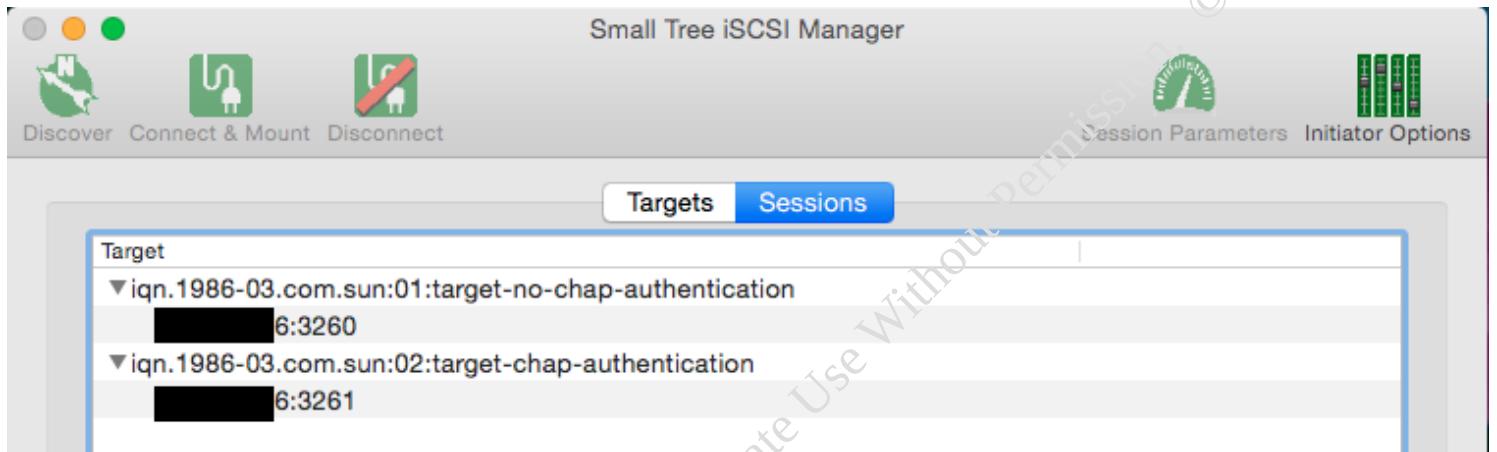
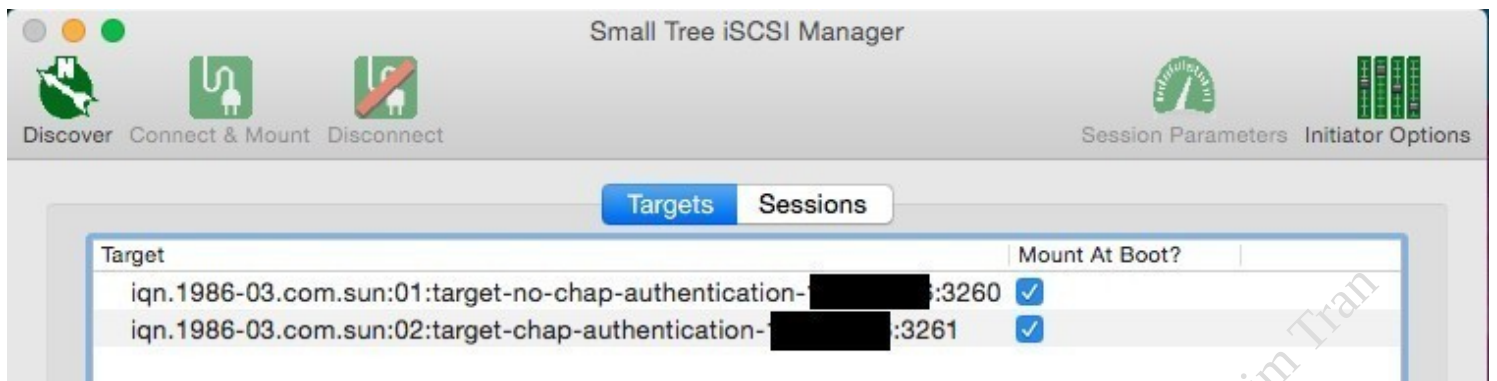
```

zstor2tb	1.20T	13.3T	66	1.16K	89.5K	70.0M
zstor2tb	1.20T	13.3T	49	1.16K	66.5K	56.5M
zstor2tb	1.20T	13.3T	72	84	98.0K	72.1M
zstor2tb	1.20T	13.3T	61	270	87.9K	95.0M
zstor2tb	1.20T	13.3T	5	2.38K	7.89K	308M
zstor2tb	1.20T	13.3T	1	2.54K	3.00K	326M
zstor2tb	1.20T	13.3T	4	2.53K	5.01K	327M
zstor2tb	1.20T	13.3T	38	1.51K	53.5K	234M
zstor2tb	1.20T	13.3T	61	74	87.0K	74.0M
zstor2tb	1.20T	13.3T	43	1.18K	56.5K	48.4M
zstor2tb	1.20T	13.3T	68	78	91.0K	78.0M
zstor2tb	1.20T	13.3T	68	87	91.5K	76.1M
zstor2tb	1.20T	13.3T	69	87	95.0K	76.0M
zstor2tb	1.20T	13.3T	60	72	84.0K	72.0M
zstor2tb	1.20T	13.3T	39	1.20K	54.0K	50.4M
zstor2tb	1.20T	13.3T	72	75	96.5K	75.0M
zstor2tb	1.20T	13.3T	70	90	98.0K	76.6M
zstor2tb	1.20T	13.3T	70	87	97.0K	73.2M

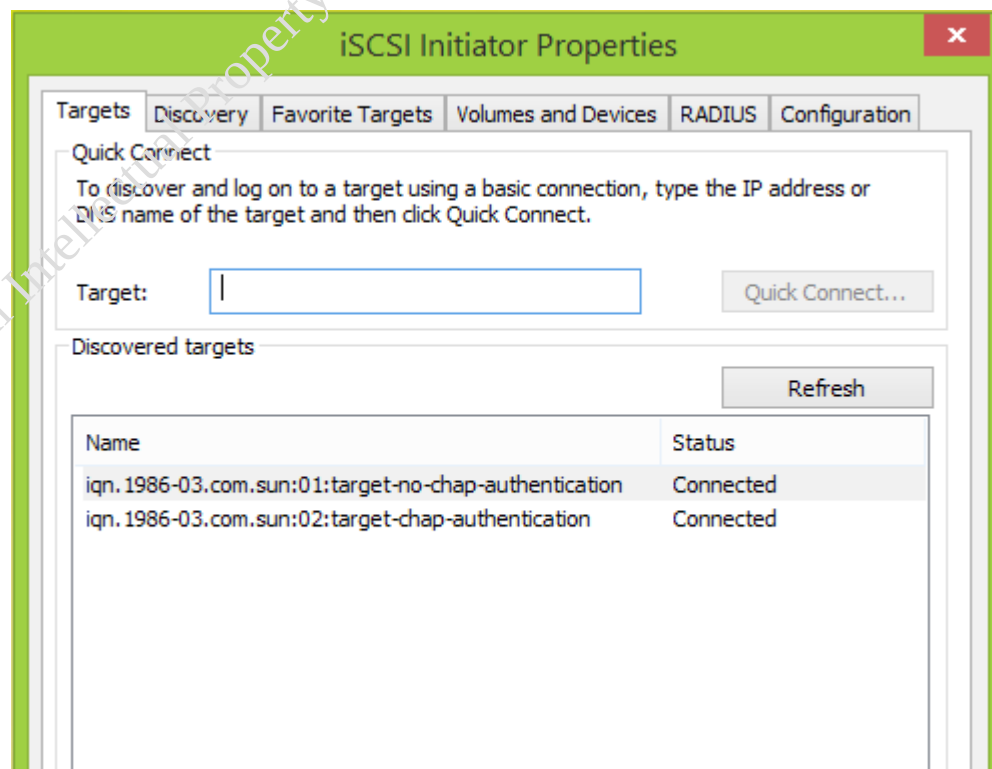
zstor2tb	1.23T	13.3T	0	201	0	25.2M
zstor2tb	1.23T	13.3T	23	1.66K	33.0K	233M
zstor2tb	1.23T	13.3T	70	82	98.5K	63.5M
zstor2tb	1.23T	13.3T	52	704	74.0K	116M
zstor2tb	1.23T	13.3T	64	897	90.0K	61.5M
zstor2tb	1.23T	13.3T	0	171	0	21.5M
zstor2tb	1.23T	13.3T	24	27	32.5K	19.4M
zstor2tb	1.23T	13.3T	56	556	77.5K	41.6M
zstor2tb	1.23T	13.3T	0	206	0	24.0M

// provisioned iscsi luns to macbook pro to add additional storage





// connection to windows host, with and without CHAP authentication



// provisioned iscsi luns to a windows laptop,
disks are recognized by the system

Computer Management (Local)

- System Tools
 - Task Scheduler
 - Event Viewer
 - Shared Folders
 - Performance
- Device Manager
- Storage
 - Disk Management
- Services and Application

Volume	Layout	Type	File System	Status	Capacity	Free Space	% Free
	Simple	Basic		Healthy (EFI System Partition)	100 MB	100 MB	100 %
	Simple	Basic		Healthy (Recovery Partition)	8.00 GB	8.00 GB	100 %
10g-disks (E:)	Simple	Basic	NTFS	Healthy (Primary Partition)	44.87 GB	44.78 GB	100 %
100g-disks (D:)	Simple	Basic	NTFS	Healthy (Primary Partition)	328.87 GB	328.74 GB	100 %
OS (C:)	Simple	Basic	NTFS	Healthy (Boot, Page File, Crash Dump, Wim Boot, Primary Partition)	20.90 GB	5.13 GB	25 %

Disk 0: Basic, 29.00 GB, Online. Partitions: 100 MB Healthy (EFI System), OS (C:) 20.90 GB NTFS Healthy (Boot, Page File, Crash Dump, Wim Boot, Primary Partition), 8.00 GB Healthy (Recovery Partition).

Disk 11: Basic, 328.88 GB, Online. Partition: 100g-disks (D:) 328.87 GB NTFS Healthy (Primary Partition).

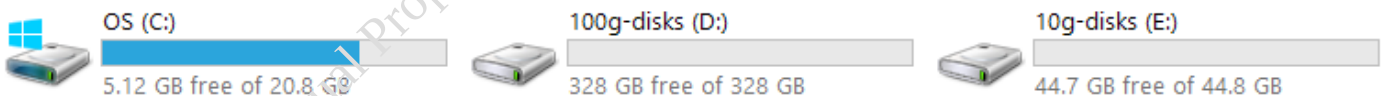
Disk 12: Basic, 44.88 GB, Online. Partition: 10g-disks (E:) 44.87 GB NTFS Healthy (Primary Partition).

Legend: ■ Unallocated ■ Primary partition

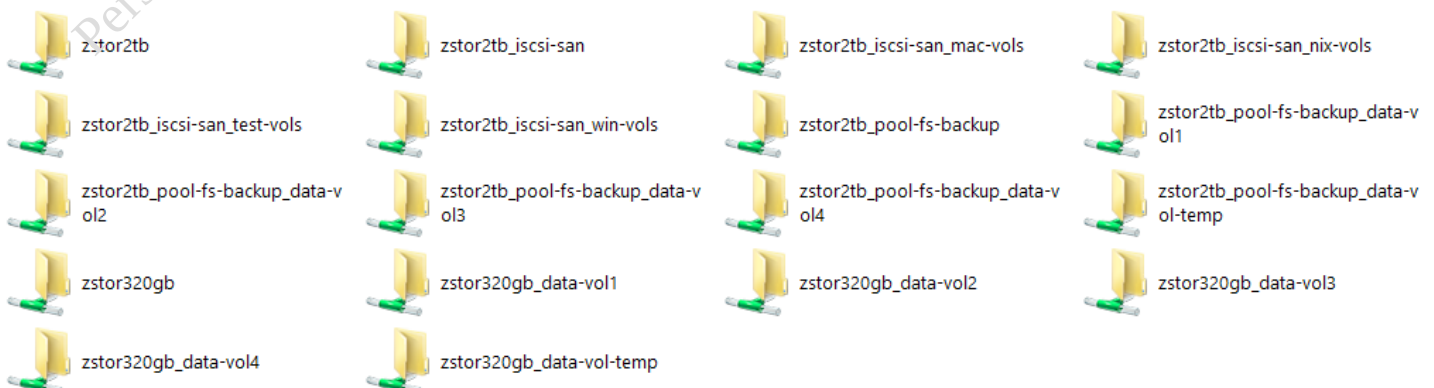
This PC

Folders (6)

Devices and drives (3)



// shares, exported via smb/cifs, recognized by the system



// windows laptop only had ~20gb of system storage hdd space,
no room for updates or local storage

added the provisioned iscsi luns to overcome laptop limitations

// provisioned iscsi luns to windows laptop
Configured for parity and no parity (no resiliency)

100g-disks OK

Using 4.75 GB of 496 GB pool capacity

Create a storage space
Add drives
Rename pool

Storage spaces

100g-disks (D:) OK View files
Parity 329 GB Change
Using 3.00 GB pool capacity Delete

Physical drives

10g-disks OK

Using 2.00 GB of 46.2 GB pool capacity

Create a storage space
Add drives
Rename pool

Storage spaces

10g-disks (E:) OK View files
Simple (no resiliency) 45.0 GB Change
Using 768 MB pool capacity Delete

Physical drives

// configured provisioned iscsi luns in a concatenate non raid set

10g-disks OK

Using 2.00 GB of 46.2 GB pool capacity

Create a storage space
Add drives
Rename pool

Storage spaces

10g-disks (E:) OK [View files](#)
Simple (no resiliency)
45.0 GB
Using 768 MB pool capacity
[Change](#)
[Delete](#)

Physical drives

	SUN COMSTAR SCSI Disk ... OK Attached via iSCSI 2.70 % used Providing 9.25 GB pool capacity	Rename Remove
	SUN COMSTAR SCSI Disk ... OK Attached via iSCSI 5.40 % used Providing 9.25 GB pool capacity	Rename
	SUN COMSTAR SCSI Disk ... OK Attached via iSCSI 2.70 % used Providing 9.25 GB pool capacity	Rename Remove
	SUN COMSTAR SCSI Disk ... OK Attached via iSCSI 8.10 % used Providing 9.25 GB pool capacity	Rename
	SUN COMSTAR SCSI Disk ... OK Attached via iSCSI 2.70 % used Providing 9.25 GB pool capacity	Rename Remove


// configured provisioned iscsi luns in a raid 5 or 6 set

100g-disks OK






Using 4.75 GB of 496 GB pool capacity

Create a storage space
Add drives
Rename pool

Storage spaces

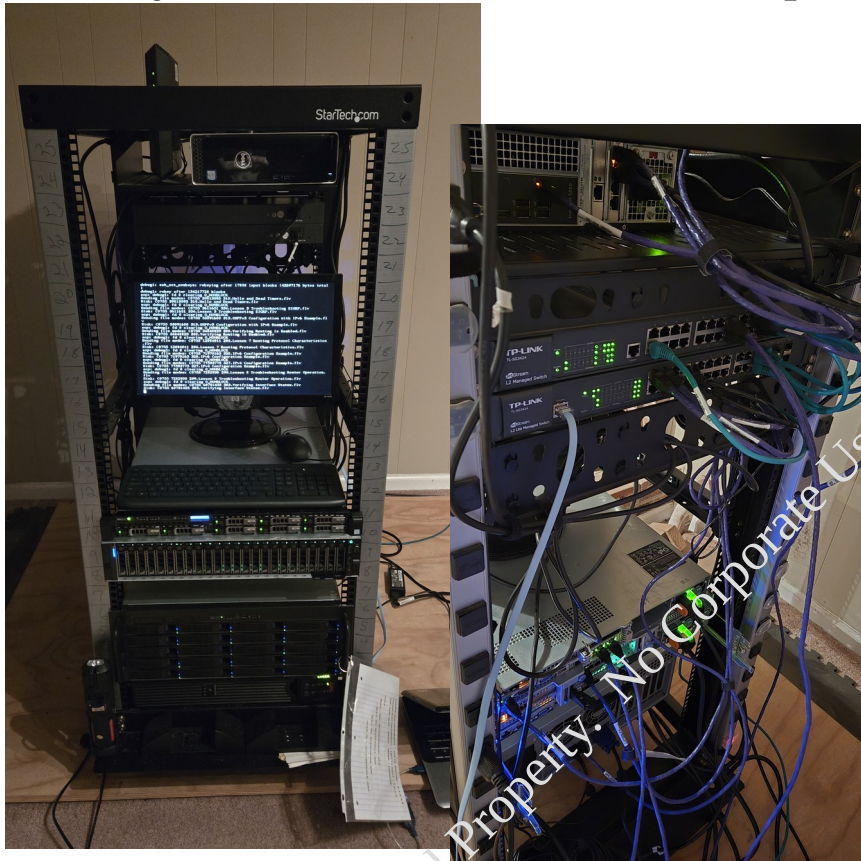
	100g-disks (D:) Parity 329 GB Using 3.00 GB pool capacity	✓ OK	View files Change Delete
-----------------------------------------------------------------------------------	--------------------------------------------------------------------	------	--------------------------------------------------------------------------------

Physical drives

	SUN COMSTAR SCSI Disk ... Attached via iSCSI 0.75 % used Providing 99.2 GB pool capacity	✓ OK	Rename
	SUN COMSTAR SCSI Disk ... Attached via iSCSI 1.00 % used Providing 99.2 GB pool capacity	✓ OK	Rename
	SUN COMSTAR SCSI Disk ... Attached via iSCSI 1.00 % used Providing 99.2 GB pool capacity	✓ OK	Rename
	SUN COMSTAR SCSI Disk ... Attached via iSCSI 1.00 % used Providing 99.2 GB pool capacity	✓ OK	Rename
	SUN COMSTAR SCSI Disk ... Attached via iSCSI 1.00 % used Providing 99.2 GB pool capacity	✓ OK	Rename

// updated the original half rack setup to include
refreshed/rebuild of new equipment/storage server and network layout
still a working progress :-)

old custom built storage server : 6U near bottom
new rebuilt storage server 1U beneath keyboard
new system environment to build : proxmox vm/container clusters :-)



// lovely isn't she :-)

