

## Old custom built storage server data migration to new storage server

//old storage pool

```
pool: zstor
state: ONLINE
scan: scrub in progress since Sun Nov 30 14:47:24 2025
      1 scanned out of 18.5T at 1/s, (scan is slow, no estimated time)
      0 repaired, 0.00% done
config:

      NAME                                STATE      READ  WRITE CKSUM
      zstor                                ONLINE      0     0     0
        raidz3-0
          c0t5000CCA22D22B8Ed0             ONLINE      0     0     0
          c0t50014EE0028EA60Ed0            ONLINE      0     0     0
          c0t5000CCA229C2152Ed0            ONLINE      0     0     0
          c0t5000CCA229DDFB3Cd0            ONLINE      0     0     0
          c0t5000CCA221E7E1DBd0            ONLINE      0     0     0
          c0t5000CCA22DCC0F0Bd0            ONLINE      0     0     0
          c0t5000CCA22DDA19EEd0            ONLINE      0     0     0
          c0t5000CCA22DC7F85Dd0            ONLINE      0     0     0
          c0t5000CCA22DD6DFD2d0            ONLINE      0     0     0
          c0t5000CCA22DEF0C3Ad0            ONLINE      0     0     0
          c0t5000CCA22DDA3EC3d0            ONLINE      0     0     0
          c0t5000CCA22DF65FF5d0            ONLINE      0     0     0
          c0t5000CCA22DD9DA72d0            ONLINE      0     0     0
          c0t5000CCA22D2930Fd0            ONLINE      0     0     0
          c0t50014EE25DB0C362d0            ONLINE      0     0     0
          c0t50014EE2085B9A64d0            ONLINE      0     0     0
          c0t5000CCA369F456E6d0            ONLINE      0     0     0
          c0t5000CCA221E77A36d0            ONLINE      0     0     0
        spares
          c0t5000CCA22DD9ABA1d0            AVAIL

errors: No known data errors
root@sanjiyan-zstor:~#
```

zstor	16.4T	6.81T	1.08M	/zstor
zstor/archive-scans	744K	6.81T	744K	/zstor/archive-scans
zstor/isan	1.32M	6.81T	674K	/zstor/isan
zstor/iscsi-san	5.41T	6.81T	860K	/zstor/iscsi-san
zstor/iscsi-san/mac-vols	3.07T	6.81T	674K	/zstor/iscsi-san/mac-vols
zstor/iscsi-san/mac-vols/vol-000	188G	6.84T	73.4G	-
zstor/iscsi-san/mac-vols/vol-001	121G	6.86T	55.8G	-
zstor/iscsi-san/mac-vols/vol-002	121G	6.86T	55.8G	-
zstor/iscsi-san/mac-vols/vol-003	113G	6.86T	49.9G	-
zstor/iscsi-san/mac-vols/vol-004	113G	6.86T	49.9G	-
zstor/iscsi-san/mac-vols/vol-005	10.5G	6.82T	184M	-
zstor/iscsi-san/mac-vols/vol-006	10.3G	6.82T	209K	-
zstor/iscsi-san/mac-vols/vol-007	10.3G	6.82T	209K	-
zstor/iscsi-san/mac-vols/vol-008	10.3G	6.82T	209K	-
zstor/iscsi-san/mac-vols/vol-009	10.3G	6.82T	209K	-
zstor/iscsi-san/mac-vols/vol-010	672G	6.81T	672G	-
zstor/iscsi-san/mac-vols/vol-011	516G	7.06T	267G	-
zstor/iscsi-san/mac-vols/vol-012	516G	7.06T	267G	-
zstor/iscsi-san/mac-vols/vol-013	516G	7.06T	267G	-
zstor/iscsi-san/mac-vols/vol-test1	106G	6.92T	209K	-
zstor/iscsi-san/mac-vols/vol-test2	106G	6.92T	209K	-

zstor/iscsi-san/nix-vols	1.56T	6.81T	636K	/zstor/iscsi-san/nix-vols
zstor/iscsi-san/nix-vols/vol-000	213G	6.99T	35.1G	-
zstor/iscsi-san/nix-vols/vol-001	213G	6.99T	34.8G	-
zstor/iscsi-san/nix-vols/vol-002	213G	6.99T	34.5G	-
zstor/iscsi-san/nix-vols/vol-003	213G	6.99T	34.6G	-
zstor/iscsi-san/nix-vols/vol-004	213G	6.99T	34.4G	-
zstor/iscsi-san/nix-vols/vol-005	106G	6.92T	209K	-
zstor/iscsi-san/nix-vols/vol-006	106G	6.92T	209K	-
zstor/iscsi-san/nix-vols/vol-007	106G	6.92T	209K	-
zstor/iscsi-san/nix-vols/vol-008	106G	6.92T	209K	-
zstor/iscsi-san/nix-vols/vol-009	106G	6.92T	209K	-
zstor/iscsi-san/win-vols	802G	6.81T	674K	/zstor/iscsi-san/win-vols
zstor/iscsi-san/win-vols/vol-000	151G	6.89T	77.0G	-
zstor/iscsi-san/win-vols/vol-001	151G	6.89T	75.7G	-
zstor/iscsi-san/win-vols/vol-002	149G	6.89T	75.3G	-
zstor/iscsi-san/win-vols/vol-003	150G	6.89T	75.6G	-
zstor/iscsi-san/win-vols/vol-004	149G	6.89T	74.7G	-
zstor/iscsi-san/win-vols/vol-005	10.3G	6.82T	2.44M	-
zstor/iscsi-san/win-vols/vol-006	10.3G	6.82T	368M	-
zstor/iscsi-san/win-vols/vol-007	10.3G	6.82T	1.12G	-
zstor/iscsi-san/win-vols/vol-008	10.3G	6.82T	2.20M	-
zstor/iscsi-san/win-vols/vol-009	10.4G	6.82T	993M	-
zstor/naspool	10.8T	6.81T	2.46T	/zstor/naspool
zstor/naspool/1	2.97T	6.81T	2.43T	/zstor/naspool/1
zstor/naspool/2	4.75T	6.81T	2.92T	/zstor/naspool/2
zstor/naspool/3	596G	6.81T	930K	/zstor/naspool/3

root@sanjiyan-zstor:~#

// sent - migration in progress

```
root@sanjiyan-zstor:~# zpool iostat zstor 1
```

pool	capacity		operations		bandwidth	
	alloc	free	read	write	read	write
zstor	18.5T	14.0T	98	9	5.03M	45.1K
zstor	18.5T	14.0T	256	0	1.08M	0
zstor	18.5T	14.0T	230	0	970K	0
zstor	18.5T	14.0T	249	0	997K	0
zstor	18.5T	14.0T	238	126	954K	563K
zstor	18.5T	14.0T	270	0	1.06M	0
zstor	18.5T	14.0T	281	0	1.21M	0
zstor	18.5T	14.0T	260	0	1.06M	0
zstor	18.5T	14.0T	237	0	1.03M	0

zstor	18.5T	14.0T	699	19	84.9M	83.8K
zstor	18.5T	14.0T	497	2	61.5M	12.0K
zstor	18.5T	14.0T	774	0	89.1M	0
zstor	18.5T	14.0T	661	0	69.2M	0
zstor	18.5T	14.0T	712	0	80.3M	0
zstor	18.5T	14.0T	787	0	94.8M	0
zstor	18.5T	14.0T	766	15	93.8M	63.9K
zstor	18.5T	14.0T	737	2	85.8M	12.0K
zstor	18.5T	14.0T	712	0	82.9M	0
zstor	18.5T	14.0T	825	0	96.0M	0
zstor	18.5T	14.0T	761	0	86.4M	0
zstor	18.5T	14.0T	773	0	94.2M	0

// new storage pool for receiving storage migration

```
r630-suse:/home/onemantech # zpool status
pool: zstor
state: ONLINE
config:

    NAME                                STATE      READ  WRITE CKSUM
    zstor                                ONLINE     0     0     0
      raidz3-0
        wwn-0x58ce38ee2033a941          ONLINE     0     0     0
        wwn-0x58ce38ee2033a011          ONLINE     0     0     0
        wwn-0x58ce38ee20333a11          ONLINE     0     0     0
        wwn-0x58ce38ee20320b05          ONLINE     0     0     0
        wwn-0x58ce38ee2032b4a5          ONLINE     0     0     0
        wwn-0x58ce38ee2032b12d          ONLINE     0     0     0
        wwn-0x58ce38ee2033a015          ONLINE     0     0     0
        wwn-0x58ce38ee20333a0d          ONLINE     0     0     0

errors: No known data errors
r630-suse:/home/onemantech #
r630-suse:/home/onemantech #
r630-suse:/home/onemantech #
r630-suse:/home/onemantech #
r630-suse:/home/onemantech # zfs list
NAME      USED  AVAIL  REFER  MOUNTPOINT
zstor    793G  15.0T   793G   /zstor
r630-suse:/home/onemantech #
```

// received – migration in progress

pool	capacity		operations		bandwidth	
	alloc	free	read	write	read	write
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	3.87K	0	716M
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	2.60K	0	456M
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	2.72K	0	482M
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	1.57K	0	324M
zstor	1.38T	26.6T	0	1.72K	0	276M
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	2.76K	0	493M
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	0	0	0
zstor	1.38T	26.6T	0	4.16K	0	782M
zstor	1.38T	26.6T	0	0	0	0

// new storage server network configuration with nic bonding / lacp configurations

```
10: bond0: <BROADCAST,MULTICAST,MASTER,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 24:6e:00:00:00:00 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1 scope global bond0
        valid_lft forever preferred_lft forever
    inet6 fe80::206e:0000:0000:0000:3658/64 scope link proto kernel_ll
        valid_lft forever preferred_lft forever
11: bond0.10@bond0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 24:6e:00:00:00:00 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.10 scope global bond0.10
        valid_lft forever preferred_lft forever
    inet6 fe80::206e:0000:0000:0000:3658/64 scope link proto kernel_ll
        valid_lft forever preferred_lft forever
12: bond0.12@bond0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 24:6e:00:00:00:00 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.12 scope global bond0.12
        valid_lft forever preferred_lft forever
    inet6 fe80::206e:0000:0000:0000:3658/64 scope link proto kernel_ll
        valid_lft forever preferred_lft forever
r630-suse:/home/onemantech #
```

```
Bonding Mode: IEEE 802.3ad Dynamic link aggregation
Transmit Hash Policy: layer2+3 (2)
MII Status: up
MII Polling Interval (ms): 100
Up Delay (ms): 0
Down Delay (ms): 0
Peer Notification Delay (ms): 0

802.3ad info
LACP active: on
LACP rate: slow
Min links: 0
Aggregator selection policy (ad_select): stable
System priority: 65535
System MAC address: 24:6e:00:00:00:58
Active Aggregator Info:
    Aggregator ID: 1
    Number of ports: 2
    Actor Key: 9
    Partner Key: 3614
    Partner Mac Address: 30:b5:c2:05:00:3b
```

```
Slave Interface: em3
MII Status: up
Speed: 1000 Mbps
Duplex: full
Link Failure Count: 0
Permanent HW addr: 24:00:00:00:00:58
Slave queue ID: 0
Aggregator ID: 1
Actor Churn State: none
Partner Churn State: none
Actor Churned Count: 0
Partner Churned Count: 0
details actor lacp pdu:
    system priority: 65535
```

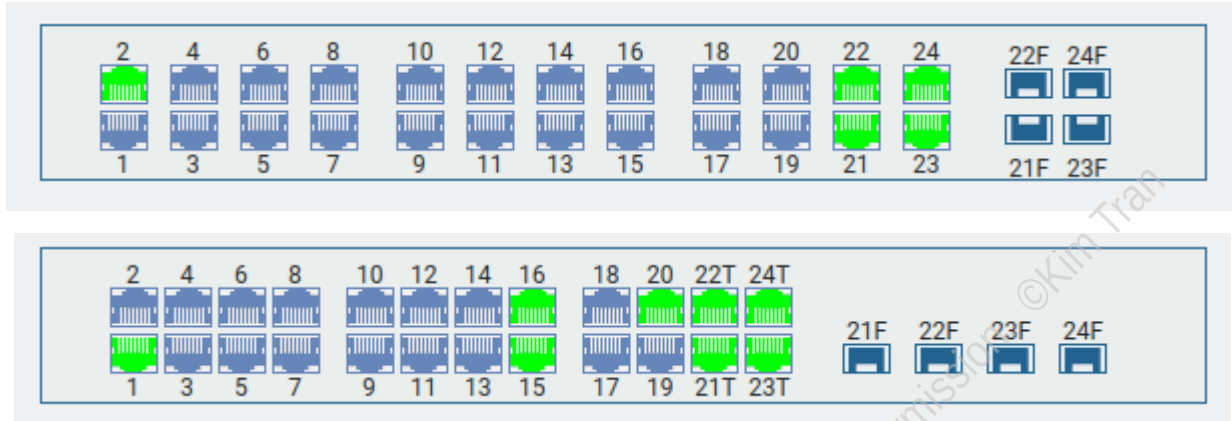
```
Slave Interface: em4
MII Status: up
Speed: 1000 Mbps
Duplex: full
Link Failure Count: 0
Permanent HW addr: 24:00:00:00:00:59
Slave queue ID: 0
Aggregator ID: 1
Actor Churn State: none
Partner Churn State: none
Actor Churned Count: 0
Partner Churned Count: 0
details actor lacp pdu:
    system priority: 65535
```

// switch network configurations for the lacp/bonding in addition to the switch ISL trunking

```
#
interface gigabitEthernet 1/0/15
  switchport mode general
  switchport general allowed vlan 11 untagged
  switchport general allowed vlan 10,12 tagged
  switchport pvid 11
  channel-group 2 mode active
#
interface gigabitEthernet 1/0/16
  switchport mode general
  switchport general allowed vlan 11 untagged
  switchport general allowed vlan 10,12 tagged
  switchport pvid 11
  channel-group 2 mode active
```

```
#
interface gigabitEthernet 1/0/21
  switchport mode trunk
  switchport trunk allowed vlan 10-12
  switchport pvid 11
  channel-group 1 mode active
#
interface gigabitEthernet 1/0/22
  switchport mode trunk
  switchport trunk allowed vlan 10-12
  switchport pvid 11
  channel-group 1 mode active
#
interface gigabitEthernet 1/0/23
  switchport mode trunk
  switchport trunk allowed vlan 10-12
  switchport pvid 11
  channel-group 1 mode active
#
interface gigabitEthernet 1/0/24
  switchport mode trunk
  switchport trunk allowed vlan 10-12
  switchport pvid 11
  channel-group 1 mode active
```

// lacp – bonding configurations for ports 21-24 ISL, and the lacp bond for new storage server ports 15,16



// redesigned home lab network for vlans and better traffic segmentation implementation

```
TL-SGC3424-V2-SW1#show vlan
VLAN  Name                Status  Ports
-----
1      Default VLAN        active  Gi1/0/1, Gi1/0/15, Gi1/0/16, Gi1/0/20
      Gi1/0/21, Gi1/0/22, Gi1/0/23, Gi1/0/24
10     device-mgmt         active  Gi1/0/1, Gi1/0/15, Gi1/0/16, Gi1/0/20
      Gi1/0/21, Gi1/0/22, Gi1/0/23, Gi1/0/24
11     general-data        active  Gi1/0/1, Gi1/0/2, Gi1/0/3, Gi1/0/4
      Gi1/0/5, Gi1/0/6, Gi1/0/7, Gi1/0/8
      Gi1/0/9, Gi1/0/10, Gi1/0/11, Gi1/0/12
      Gi1/0/13, Gi1/0/14, Gi1/0/15, Gi1/0/16
      Gi1/0/17, Gi1/0/18, Gi1/0/19, Gi1/0/20
      Gi1/0/21, Gi1/0/22, Gi1/0/23, Gi1/0/24
12     port-channel-isl    active  Gi1/0/1, Gi1/0/15, Gi1/0/16, Gi1/0/20
      Gi1/0/21, Gi1/0/22, Gi1/0/23, Gi1/0/24
```

// port channel – lacp configurations

```
TL-SGC3424-V2-SW1#show etherchannel
Channel-group listing:
-----
```

```
Group: 1
-----
```

```
Group state = L2
Ports: 4  MaxPorts = 16
Protocol:  LACP
```

```
Group: 2
-----
```

```
Group state = L2
Ports: 2  MaxPorts = 16
Protocol:  LACP
```

```
Group: 1
-----
```

```
Group state = L2
Ports: 4  MaxPorts = 16
Protocol:  LACP
```

```
Ports in the group:
-----
```

```
Flags:  S - Device is sending slow LACPDUs      F - Device is sending fast LACPDUs.
        A - Device is in active mode.            P - Device is in passive mode.
```

```
Local information:
```

Port	Flags	State	LACP port Priority	Admin Key	Oper Key	Port State
Gi1/0/21	SA	Up	32768	0x1	0xfb3	0x3d
Gi1/0/22	SA	Up	32768	0x1	0xfb3	0x3d
Gi1/0/23	SA	Up	32768	0x1	0xfb3	0x3d
Gi1/0/24	SA	Up	32768	0x1	0xfb3	0x3d

```
Group: 2
-----
```

```
Group state = L2
Ports: 2  MaxPorts = 16
Protocol:  LACP
```

```
Ports in the group:
-----
```

```
Flags:  S - Device is sending Slow LACPDUs      F - Device is sending fast LACPDUs.
        A - Device is in active mode.            P - Device is in passive mode.
```

```
Local information:
```

Port	Flags	State	LACP port Priority	Admin Key	Oper Key	Port State
Gi1/0/15	SA	Up	32768	0x2	0xe1e	0x3d
Gi1/0/16	SA	Up	32768	0x2	0xe1e	0x3d

// pfsense firewall-router configs for implementation

Interface	Network port
WAN	re0 (f4: [redacted])
LAN	em0 (00: [redacted])
vlan10_device_management	VLAN 10 on em0 - lan (device-management)
vlan12_io_traffic	VLAN 12 on em0 - lan (io_traffic)

Interface Assignments	Interface Groups	Wireless	VLANs	QinQs	PPPs	GREs
VLAN Interfaces						
Interface	VLAN tag	Priority	Description			
em0 (lan)	10		device-management			
em0 (lan)	12		io_traffic			

// general – broad firewall rules to test functionality before secured traffic rules, still in progress

Firewall / Rules / VLAN10_DEVICE_MANAGEMENT							
Floating    WAN    LAN <u>VLAN10_DEVICE_MANAGEMENT</u> VLAN12_IO_TRAFFIC							
Rules (Drag to Change Order)							
<input type="checkbox"/>	States	Protocol	Source	Port	Destination	Port	Gateway
<input type="checkbox"/>	✓ 0 /19 KiB	IPv4 *	VLAN10_DEVICE_MANAGEMENT net	*	*	*	*
<input type="checkbox"/>	✓ 0 /0 B	IPv4 *	VLAN10_DEVICE_MANAGEMENT net	*	*	*	*

// cable dressing – management still in progress :-)



// she's a beauty isn't she :-)

