

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
          capacity      operations      bandwidth
pool    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	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 172.16.1.1 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 172.16.1.10 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 172.16.1.12 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:b5:02:05:05:3b
```

```
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
```

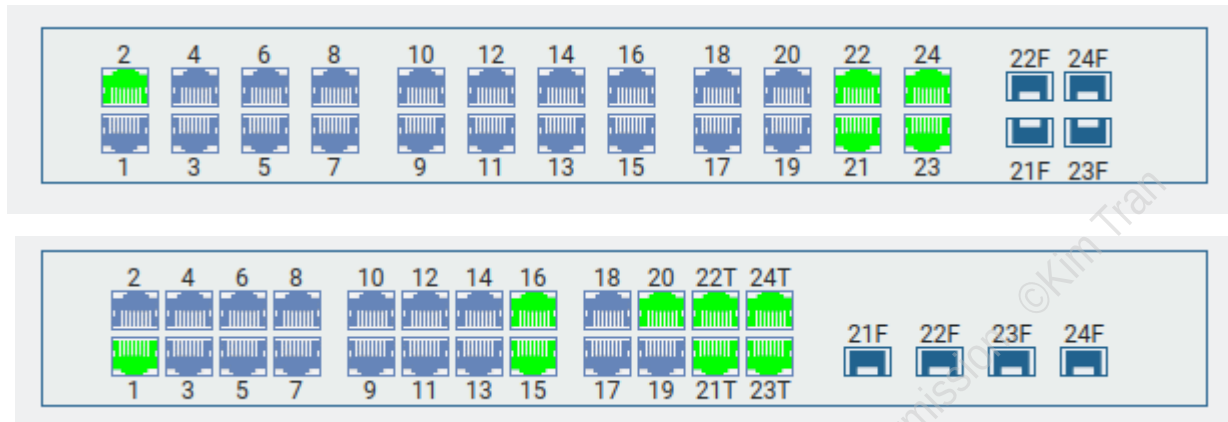
```
Slave Interface: em4
MII Status: up
Speed: 1000 Mbps
Duplex: full
Link Failure Count: 0
Permanent HW addr: 24:00:00:00:00:59
Slave queue ID: 0
Aggregator ID: 1
Actor Churn State: none
Partner Churn State: none
Actor Churned Count: 0
Partner Churned Count: 0
details actor lacp pdu:
    system priority: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

FloatingWANLANVLAN10_DEVICE_MANAGEMENTVLAN12_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 :-)

