AIX CHEATSHEET

**VIO Server**

**Changing SEA from one VLAN to another when in access mode(NON- 802.1q):** On VIOS, create new virtual ethernet adapter with new VLAN in PVID field. Shutdown and reactivate VIOS. At VIOS command line: chdev -dev <SEA\_Adapter> -attr pvid=<new\_VLAN> pvid\_adapter=<new\_VirtualEth> virt\_adapters=<new\_VirtualEth> Remember that in access mode only one VLAN is being carried. If more than one is needed then you need 802.1q

On VIOC, change PVID field to new VLAN. Shutdown and reactivate VIOC.

Make any IP changes if necessary.

**Adding ADDITIONAL VLAN to existing SEA on power6 or lower:(power7 can** **add to existing vETH of SEA):**

On the VIO server DO NOT add any vlans to the existing virtual adapter, instead, you will create a NEW virtual ethernet adapter, give it a bullshit vlan id. Then give it an "additional vlan id" of the actual vlan you want to use for vlan tagging. shutdown then reactivate the VIOS(if you didnt use DLPAR). Make sure you check "External Access" and match the priority number Add the new virtual ethernet adapter to the SEA (yes, now you will have 2 virtual adapters in your SEA). $chdev -dev entX -attr virt\_adapters=entY,entZ (where entX is the SEA and entY is the adapter that was already part of the SEA and entZ is the new virtual adapter. <https://www-304.ibm.com/support/docview.wss?uid=isg3T1010740>

**Power7 adding additional VLANS:**

So you need to add the additional VLAN to the profile AND run the chhwres command on the HMC chhwres -r virtualio --rsubtype eth -m <managedServerName> -o s --id 1 -s 1000 -a "addl\_vlan\_ids+=319,ieee\_virtual\_eth=1"

In this example, the VLAN ID 319 is added to the existing VLAN IDs

for the virtual Ethernet adapter, and the virtual Ethernet adapter is

set to the IEEE 802.1Q standard.

ch -r virtualio --rsubtype eth -m <managed system> -o s {-p

<partition name> | --id <partition ID>} -s <virtual slot number> -a

"addl\_vlan\_ids+=5,ieee\_virtual\_eth=1"

chhwres -r virtualio -m Server-8205-E6B-SN061740R -o s --rsubtype eth

-p agpvh501 -s 1000 -a 'addl\_vlan\_ids+="304,306,307,308,309"'

dont forget to save the current running configuration afterwards

**Adding additional vlan error: chgsea: Ioctl NDD\_SEA\_MODIFY returned error 64 for device:** Forgot to check 'access external network'. Keep priority the same as the other virtual ethernet in the SEA

**NDD\_SEA\_MODIFY returned error 64 for device ent**

Forgot to hit “external access” checkbox on new virtual adapter

**CPU Folding on VIOS:**

schedo -L|grep vpm\_fold\_policy|awk '{print $2}'

**if it is not 4 the use it to disable cpu folding on vios**

schedo -p -o vpm\_fold\_policy=4

**Which disks are free on the vio server?:**

**REMEMBER TO CHECK ALL VIO SERVERS THAT SAN IS ALLOCATED TO!!**

**The hdisk and PVID are unreliable way to tell unique disk. Pull the unique id of the disk to ensure the same SAN disk across servers**

| for disk in `lsdev -Cc disk|grep MPIO|cut -f 1 -d " "` do echo $disk `lsattr -El  $disk -a unique\_id|cut -c 17-24` |  |
| --- | --- |
| done |  |
| you put first in column A, and second loop output in column B |  |
| in excel |  |
| that should match hdisk with unique\_id |  |
| then you can check if any hdisk with 1966 be mapped or not |  |
| if not you can rmdev |  |
| few days back, I did not see any hdisk with 1966 mapped |  |
| you will need do that on all 4 vios |  |

**mkvdev for LUN backing disk:**

mkvdev -vdev <LUN\_Backing\_Device> -vadapter <VIOC\_VHOST> -dev

<Descriptive\_Name>

mkvdev -vdev hdiskpower69 -vadapter vhost1 -dev hd69\_cg1p01a

**to remove the disk assigned above and clear its PVID:**

rmvdev -vdev hdiskpower69

chdev -dev hdiskpower69 -attr pv=clear

**EMC Gatekeeper disks:**

There are small LUNs(2 or 3MB) that AIX sees. This is a zoning issue

in the SAN. Ask the SAN guys to remedy

Networking Terms

**Cisco terms:**

One VLAN is called access mode. So put the VLAN number in the PVID box and do not check the 802.1q. Untagged packets will be tagged with the PVID Multiple VLAN is called trunk mode. Put bullshit in the PVID box and CHECK the 802.1q and put your VLAN's in the list. All incoming traffic must be tagged in the selected vlans or it is dropped. Etherchannel can be either access or trunk mode and can be layer 2 or layer 3 layer 2 contains MAC address, trunk layer 3 is IP address

layer 4 is port address Also when assigning PVID's across multiple VIO servers do not reuse any numbers.(assuming the same vSwitch) A Port VLAN ID (pvid) is a default VLAN ID that is assigned to an *access* port to designate the virtual LAN segment to which this port is connected. The pvid places the port into the set of ports that are connected under the designated VLAN ID. Also, if a trunk port has not been configured with any VLAN memberships, the virtual switch's Port VLAN ID (pvid) becomes the default VLAN ID for the ports connection.

UNTAGGED is a regular ethernet data packet

TAGGED is an ethernet data packet with an addition which contains a

VLAN ID

A PVID (Port VLAN ID) is an UNTAGGED packet that enters a switch port, the PVID is attached to the untagged packet and forwarded to a VLAN specified by the ID part of the PVID

Switch to device links (ports) are typically untagged, with the ports

PVID set to the desired vlan(access switch port mode). BUT with SEA's it is normal practice to use 802.1q(trunk switch port mode) for virtualization.

***Packets tagged with the VLAN that matches the PVID of the SEA are*** ***untagged before being sent out to the external network.***

***Packets tagged with a VLAN other than the PVID of the SEA are sent*** ***out with the VLAN tag unmodified***

When creating the SEA adapter, use the PVID of the virtual ethernet in the mkvdev -sea command's -defaultid field.

VLANs are layer 2 constructs, compared with IP subnets which are

layer 3 constructs. In an environment employing VLANs, a one-to-one relationship often exists between VLANs and IP subnets, although it is possible to have multiple subnets on one VLAN. VLANs and IP subnets provide independent Layer 2 and Layer 3 constructs that map to one another and this correspondence is useful during the network design process.

Shared Ethernet Adapter(SEA)

**ADMINISTRATION**

VIOS

**VIO server showing vhost being managed by powerpath!!** Pseudo name=**vhost4 <=== OMG!**

Symmetrix ID=000195702399 Logical device ID=085C

state=alive; policy=SymmOpt; priority=0; queued-IOs=0;

=====================================================================

=========

--------------- Host --------------- - Stor - -- I/O Path -- --

Stats ---

### HW Path I/O Paths Interf. Mode State Q-

IOs Errors

=====================================================================

=========

0 fscsi4 00

0 fscsi4 00

1 fscsi6 00

1 fscsi6 00

hdisk14 FA 10eA active alive

hdisk22 FA 8eA active alive

hdisk39 FA 7eA active alive

hdisk47 FA 9eA active alive

**To look at a specific vhost:(vscsi)**

lsmap -vadapter <vhost#>

**Looking at packets on the SEA's:** topas -i 1 **then type** E

**To figure out the VIOC disk on the VIOS: On Client(VIOC):** lscfg -vl hdisk2 hdisk2 U9119.FHA.0220B35-V31-**C104-T1-L83**00000000000000 Virtual SCSI Disk Drive

**On Server(VIOS):**

[root@chvio01b]:/home/padmin# diskmap |grep ch1p27 chvio01b vhost2 U9119.FHA.0220B35-V31-**C104** hd0\_ch1p27a 0x8100000000000000 hdiskpower0 chvio01b vhost2 U9119.FHA.0220B35-V31-**C104** hd14\_ch1p27a 0x8200000000000000 hdiskpower14 chvio01b vhost2 U9119.FHA.0220B35-V31-**C104** hd27\_ch1p27a 0x8300000000000000 hdiskpower27 [padmin@chvio01b]:/home/padmin$ lsmap -vadapter vhost2 SVSA Physloc Client Partition ID --------------- -------------------------------------------- ------------------ vhost2 U9119.FHA.0220B35-V31-**C104** 0x00000022

VTD

Status

LUN

Backing device hdiskpower0

Physloc

Physloc

VTD Status LUN **HDISK2 ON THE CLIENT** Backing device hdiskpower27 Physloc U5803.001.99201KP-P1-C7-T1-L70

**To look at a single NPIV vfchost connection:**

lsmap -vadapter vfchost2 -npiv

**LSMAP EXPLANATION Which virtFiber is NOT logged in: an 'a' in the flag field means its logged in a '4' means not\_logged\_in(must unmap first), a '1' means not\_mapped,not\_connected, '0' shows no status.** lsmap -all -npiv -field name physloc clntid status "fc name" flags "vfc client name" -fmt :|grep -v :a:vfchost34:U9117.MMD.21878F7-V1-C972:13:NOT\_LOGGED\_IN::1:vfchost35:U9117.MMD.21878F7-V1-C974:13:NOT\_LOGGED\_IN:fcs14:4:vfchost40:U9117.MMD.21878F7-V1-C984:16:NOT\_LOGGED\_IN:fcs5:4: **and for vscsi:(status field is blank then its not mapped**

lsmap -all -field physloc svsa clientid status -fmt :|grep -v Avail

**I had 2 vfchost that were showing NOT\_LOGGED\_IN. I went onto the**

**client and rmdev'd the corresponding slot and ran cfgmgr. It logged** **in. Make sure the slotting is correct.**

VIO server has a physical fiber card that logs in for some virtual

fibers but not for others.(vs237 kaiser)

**To map a physical fiber to a vfchost:**

vfcmap -vadapter vfchost19 -fcp fcs7

**To UNMAP a physical fiber to a vfchost:**

vfcmap -vadapter vfchost19 -fcp

**vhostX virtual location:**

lsdev -dev vhostX -vpd

hd0\_ch1p27a

Available

0x8100000000000000

U5803.001.99201KP-P1-C7-T1-L44

VTD

Status

LUN

Backing device hdiskpower14

hd14\_ch1p27a

Available

0x8200000000000000

U5803.001.99201KP-P1-C7-T1-L46

hd27\_ch1p27a

Available

**0x83**00000000000000 **<-------- THIS IS THE DISK THAT IS**

$ lsdev -dev vfchost0 -vpd

vfchost0 U8205.E6B.06137DR-V2-C36 Virtual FC Server Adapter

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*\*\*\*\*\*\*\*\*\*

The command's response was not recognized. This may or may not

indicate a problem.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*\*\*\*\*\*\*\*\*\*

Command did not complete.

"Run mkdev" was last subcommand run. Check to make sure that the entX’s are in available state and make sure the are no IP addresses assigned too. **Aaron Dunphy changed the priority and it worked**

**and Asad Khan ran into this trying to map vscsi. Ended up that the**

**disk had zero size**

**mkvdev for the SEA:**

usr/ios/cli/ioscli mkvdev -lnagg ent0 ent1 ent2 ent4 ent5 ent6 ent8

ent9 -attr mode=8023ad

lsattr -El ent16

/usr/ios/cli/ioscli mkvdev -sea ent16 -vadapter ent12 ent13 ent14

-default ent12 -defaultid 991 -attr ha\_mode=auto ctl\_chan=ent15

/usr/ios/cli/ioscli mkvdev -vlan ent17 -tagid 696

mktcpip -h pepxvn00003 -a 5.16.196.xx -i en18 -m 255.255.255.0 -g

5.16.196.1

ping 5.16.196.1

**Error creating SEA:**

**The command's response was not recognized. This may or may not**

**indicate a problem.**

**Check to make sure all interfaces are NOT configured with an IP** **Address. Also I ran into largesend=1 causing an issue but that wasnt** **it because I deleted it and retried the mkvdev command with**

**largesend=1 and it worked...perhaps it was creating them too fast,**

**one right after another? not sure but it works now. Aaron Dunphy**

**changed the priority and it worked. Also he shut down the other vio**

**server before trying the command again**

**Replacing the physical ethernet of a SEA:**

http://www-01.ibm.com/support/docview.wss?uid=isg3T1011065

**Which SEA is Primary:** [root@**chvio03a**]:/home/padmin# entstat -d ent13|grep State State: BACKUP LAN State: Operational

LAN State: Operational [root@**chvio03b**]:/home/padmin# entstat -d ent13|grep State State: PRIMARY LAN State: Operational LAN State: Operational

**To perform a manual SEA failover to the passive VIOs and ensure the client communications remain. (on the primary VIO, set ha\_mode = standby)** chdev -l entX -a ha\_mode=standby

**Also you can have both SEA's in standby mode and it will still work: (I ran a continuous ping to verify)** [root@cgvio03a]:/home/padmin# entstat -d ent13|egrep -i "vlan|high| active|state"

VLAN Ids :

High Availability Statistics:

State: PRIMARY

High Availability Mode:**Standby**Transmit and Receive Flow Control Threshold (High): 40960 **Priority: 1 Active: True**[root@cgvio03b]:/home/padmin# entstat -d ent13|egrep -i "vlan|high| active|state" VLAN Ids : High Availability Statistics:

State: BACKUP

High Availability Mode:**Standby**Transmit and Receive Flow Control Threshold (High): 40960 **Priority: 2 Active: False**

**SEA statistics:**

chdev -l ent11 -a accounting=enabled

seastat -d ent11

chdev -l ent11 -a accounting=disabled

**What VLAN's are associated with virtual ethernet:**

**Either look in the profile or entstat -d entX from the vios cli**

**against the SEA.**

entstat -d ent15|grep -i vlan

**VIO Commands taken from exam study guide:**

What is need to fully recreate a failed VIOS:

1)Backup non rootvg structures using savevgstruct

2)Capture virtual mappings to a file using viosbr

3)Run a backupios

**Are emergency fixes applied to the VIOS:**

lssw

**What causes a broadcast storm on redundant VIO servers with SEA failover?**The secondary SEA is created before enabling failover on the primary SEA

**Upgrading any version of VIO below 1.5 need to upgrade to 1.5 before**

**going any higher**

**How can an administrator list all VIO commands run by any user?**

/usr/ios/cli/ioscli isgcl (as root)

**\*\*HBA settings\*\*\***

**Change attributes on HBA's:(All HBA's were changed):**

*chdev -Pl fscsi# -a dyntrk=yes -a fc\_err\_recov=fast\_fail*

***\*\*general VIO notes/commands\*\*\* Building VIOS:****create profile Give storage physical WWN for VIOS boot LUNS install VIOS*

*create FC adapters on VIOS & VIOC*

*fcmap -vadapter vhost0 -fcp fc0 - on the VIOS(this maps server to*

*client for client's storage)*

*pull WWN to give to storage for client boot luns*

**Multiple sets of VIO servers on a single frame *!gotcha!:*** *You MUST assign different priority numbers on each vios vios1's priority numbers: 1-2(SEA1:1,SEA2:2) vios2's priority numbers: 1-2(SEA1:2,SEA2:1) \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**

*vios2's priority numbers: 3-4(SEA1:3,SEA2:4)*

*vios2's priority numbers: 3-4(SEA1:4,SEA2:3)*

***updateios -dev <Path\_to\_updates> -install -accept***

***After updating the VIO server I got this error:***

*$ license -accept*

*Access to run command is not valid.*

*$ shutdown -restart*

*Access to run command is not valid.*

*$ swrole - PAdmin*

*padmin's Password:*

*$ license -accept*

*$ shutdown -restart*

***Notes on building VIOS:***

*At Pepsi they had 4 VIOS on a frame. TRUNK PRIORITIES MUST BE*

*DIFFERENT ACROSS ALL VIOS.*

*Also when creating virtual ethernet, VLAN ID & Additional VLAN's must*

*not be the same.*

*When creating the SEA, the -defaultid in the mkvdev -sea command, use*

*the PVID of the virtual adapter.*

**VIOS padmin .profile add:**

alias aix="ioscli oem\_setup\_env" export ENV=/home/padmin/.kshrc **then in the .kshrc file put:(I get an error when i put the hostname variable in the PS1 variable)** if [ "$(whoami)" != "root" ]; then export PS1=[$(whoami)@cgvio03a]:'$PWD $ ' else export PS1=[$(whoami)@cgvio03a]:'$PWD # ' fi **in /etc/environment** EDITOR=/usr/bin/vi (you might wanna double check this path)

**If Etherchannel'd:**

**[padmin@chvio01b]:/home/padmin$** lsdev -dev ent12 -attr|grep use\_jumbo\_frame use\_jumbo\_frame yes Enable Gigabit Ethernet Jumbo Frames True

**then finally check the SEA:**

**[padmin@chvio01b]:/home/padmin$** lsdev -dev ent14 -attr|grep jumbo\_frames jumbo\_frames yes Enable Gigabit Ethernet Jumbo Frames True

**Checking/matching pvid of SEA to its virtual's pvid:**

**[padmin@chvio01b]:/home/padmin$** lsdev -dev ent14 -attr|grep -E "pvid| pvid\_adapter" pvid 11 PVID to use for the SEA device True pvid\_adapter ent6 Default virtual adapter to use for non-VLAN- tagged packets True

**then check the pvid of the virtual adapter(ent6):**

entstat -all <sea>|more

**and look for ent6 output like:**

VLAN Ids : ent6: 11 1320 1321 **<- the pvid is the first entry after the :**

**If they dont match then:**

chdev -dev <sea> -attr pvid=<correct\_pvid)

**padmin commands:**

**Remove SEA:**

rmdev -dev <SEA>

**Remove a Virtual SCSI Host Adapter:**

rmdev -dev vhost*X* -recursive

-recursive is used to remove all attached child devices.

**[padmin@chvio01b]:/home/padmin$ lsdev -type sea**

name

ent14

ent15

ent16

status description

Available Shared Ethernet Adapter

Available Shared Ethernet Adapter

Available Shared Ethernet Adapter

**List physical locations of ethernet adapters:**

**lsdev -type adapter -field name physloc|grep ent**

* ent0   U5802.001.RCH4530-P1-C8-T1
* ent1   U5802.001.RCH4530-P1-C8-T2
* ent2   U5802.001.RCH4530-P1-C8-T3
* ent3   U5802.001.RCH4530-P1-C8-T4

**Physical Location of Device:(must be physical device) lsdev -dev ent2 -slot**# Slot Description Device(s) U5803.001.99201KG-P2-C4 PCI-E capable, Rev 1 slot with 8x lanesent2 ent3

**lsslot -c slot**

# Slot Description Device(s) HEA 1 Logical I/O Slot lhea0 ent0 U9117.MMA.06C6DE1-V17-C0 Virtual I/O Slot vsa0 U9117.MMA.06C6DE1-V17-C2 Virtual I/O Slot ent1 U9117.MMA.06C6DE1-V17-C20 Virtual I/O Slot vscsi0 U9117.MMA.06C6DE1-V17-C22 Virtual I/O Slot vscsi1 U9117.MMA.06C6DE1-V17-C30 Virtual I/O Slot Unknown <- right after the completed DLPAR operation, adding a virtual fibre channel client adapter

**cfgmgr**

**s**

**lsslot -c slot**

# Slot Description Device(s) HEA 1 Logical I/O Slot lhea0 ent0 U9117.MMA.06C6DE1-V17-C0 Virtual I/O Slot vsa0 U9117.MMA.06C6DE1-V17-C2 Virtual I/O Slot ent1 U9117.MMA.06C6DE1-V17-C20 Virtual I/O Slot vscsi0 U9117.MMA.06C6DE1-V17-C22 Virtual I/O Slot vscsi1 U9117.MMA.06C6DE1-V17-C30 Virtual I/O Slot fcs0 <- new virtual fibre channel adapter

**Paging on the VIOS:**

When a virtual I/O server (VIOS) is first built, it’s automatically

configured with two page spaces, both on hdisk0. hd6 will be 512 MB and paging00 will be 1,024 MB. I always swap off paging00 and remove it and then increase hd6 to 4,096 MB. As mentioned, it’s bad practice to have two page spaces share the same hdisk.

**List Links on Physical Ethernet Adapters:**

netstat -cdlistats | grep -Ei "\(ent|media|link status"

ETHERNET STATISTICS (ent3) :

Link Status : Up

Media Speed Selected: 100 Mbps Full Duplex

Media Speed Running: 100 Mbps Full Duplex

**Etherchannel, MACs and VIO server:**

The MAC on the switch is for the VIO. I found the best way to analyze

the setup is to run a 'netstat -i' and note the MAC of the SEA. Then

run entstat and verify the MAC (called the 'Actor System'). Here is

an example

lsattr -El ent13

adapter\_names ent0,ent2,ent4,ent6 EtherChannel Adapters True

alt\_addr 0x000000000000 Alternate EtherChannel Address True

auto\_recovery yes Enable automatic recovery after failover True

backup\_adapter NONE Adapter used when whole channel fails True

hash\_mode default Determines how outgoing adapter is chosen True

mode 8023ad EtherChannel mode of operation True

netaddr 0 Address to ping True

noloss\_failover yes Enable lossless failover after ping failure True

num\_retries 3 Times to retry ping before failing True

retry\_time 1 Wait time (in seconds) between pings True

use\_alt\_addr no Enable Alternate EtherChannel Address True

use\_jumbo\_frame no Enable Gigabit Ethernet Jumbo Frames True

entstat -d ent13 | egrep "ent0|ent2|ent4|ent6|Link Status|Speed|Actor

System"

ETHERNET STATISTICS (ent0) :

Link Status : Up

Media Speed Selected: Auto negotiation

Media Speed Running: 1000 Mbps Full Duplex

Actor System Priority: 0x8000

Actor System: 00-1A-64-92-66-BA

ETHERNET STATISTICS (ent2) :

Link Status : Up

Media Speed Selected: Auto negotiation

Media Speed Running: 1000 Mbps Full Duplex

Actor System Priority: 0x8000

Actor System: 00-1A-64-92-66-BA

ETHERNET STATISTICS (ent4) :

Link Status : Up

Media Speed Selected: Auto negotiation

Media Speed Running: 1000 Mbps Full Duplex

Actor System Priority: 0x8000

Actor System: 00-1A-64-92-66-BA

ETHERNET STATISTICS (ent6) :

Link Status : Up

Media Speed Selected: Auto negotiation

Media Speed Running: 1000 Mbps Full Duplex

Actor System Priority: 0x8000

Actor System: 00-1A-64-92-66-BA

The interface en14 has the same mac address as "Actor System"

(00-1A-64-92-66-BA).

# netstat -i

Name Mtu Network Address ZoneID Ipkts Ierrs Opkts

Oerrs Coll

en14 1500 link#2 0.1a.64.92.66.ba 160910 0 68113 0 0

en14 1500 130.29.133. cosvio2.cos.agilent.com 160910 0 68113 0 0

lo0 16896 link#1 126 0 206 0 0

lo0 16896 127 localhost 126 0 206 0 0

lo0 16896 localhost 0 126 0 206 0 0

**Seeing WWPNs logging in/out out SAN from VIO Server:**

oem\_setup\_env and then alog -o -t cfg > /tmp/alog.config

sample output

**DEBUG your vio commands(shows the background AIX commands)**

export CLI\_DEBUG=33

**mkvdev -vdev hdiskpower1 -vadapter vhost0 -dev testdisk**

AIX: "lspv -l hdiskpower1 2>&1 | grep 0516-320" AIX: "export LANG=C;/usr/sbin/pooladm -I pool querydisk /dev/hdiskpower1" AIX: "/usr/sbin/lquerypv -V hdiskpower1" AIX: "mkdev -V hdiskpower1 -p vhost0 -l testdisk " **<--this command will be needed**

**Nice! lsmap**

**lsmap -all -field svsa physloc clientid vtd backing bdphysloc status**

**--------------------------------------------------------------------**

vhost0:U9117.MMD.103E7F7-V2-

C401:0x00000000:ap82\_altvg:hdiskpower17:U2C4E.001.DBJ6557-P2-C2-T1-

L153:Available:ap82\_rootvg:hd

iskpower16:U2C4E.001.DBJ6557-P2-C2-T1-L152:Available

vhost1:U9117.MMD.103E7F7-V2-

C403:0x00000004:ap83\_altvg:hdiskpower19:U2C4E.001.DBJ6557-P2-C2-T1-

L155:Available:ap83\_rootvg:hd

iskpower18:U2C4E.001.DBJ6557-P2-C2-T1-L154:Available

[pepxvn00002][/home/padmin]>lsmap -all -net -field sea

SEA ent16

**To list mapping of npiv:**

lsmap -npiv -all

**Error with a HBA on VIOS?:(only for NPIV)**

as padmin run: lsnports

**lsnports Output Field Definitions**

| Field | Description |
| --- | --- |
| name | Physical port name |
| physloc | Physical port location code |
| fabric | Fabric support 1=yes |
| tports | Total number of NPIV ports |
| aports | Number of available NPIV ports |
| swwpns | Total number of target worldwide port    names supported |
| awwpns | Number of target worldwide port names    available |

**To create a mapping for a VIOC via NPIV thru the VIOS:**

Create the slot's on the VIOS and VIOC and then bounce the VIOS(This

creates the vfchostX on the VIOS)

Then map the VIOC's vfchost number to the physical HBA on the VIOS(

-vadapter vfchostX -fcp fcsX)

**What is in the PCI slot?**

/home/padmin # lsslot -c pci

Slot Description Device(s)

U5803.001.992002A-P1-C1 PCI-E capable,Rev 1 slot 8x lanes ent0 ent1

U5803.001.992002A-P1-C2 PCI-E capable, Rev 1 with 8x lanes sissas2

U5803.001.99200RF-P1-C3 PCI-E capable, Rev 1 slot 8x lanes fcs0

U5803.001.99200RF-P2-C2 PCI-E capable, Rev 1 slot 8x lanes sissas1

U5803.001.992002A-P2-C3 PCI-E capable, Rev 1 slot 8x lanes fcs1

U5803.001.99201LF-P2-C4 PCI-E capable, Rev 1 slot 8x lanes ent2 ent3

U5803.001.992002A-P2-C10 PCI-E capable,Rev 1 slot 8x lanes fcs2 fcs3

**VIO VLAN Commands:**

lsdev -virtual List the devices and look for the the SEA adapter

entstat -all entX at the end it will shows all the VLAN ID's

END OF VIOS INSTALLING

**Installing AIX using lpar\_netboot to populate the ip,nim and gateway:**

To perform network boot:

lpar\_netboot [-v] [-x] [-f] [-i] [-E environment [-E ...]] [-g args]

[{-A -D | [-D] -l physical-location-code | [-D] -m MAC-address}] -t

ent [-T {on|off}] -s speed -d duplex -S server -G gateway -C client

[-K subnetmask] [-V vlan\_tag] [-Y vlan\_priority][[-a -B

tftp\_image\_filename] | -B bootp\_image\_filename] partition-name

partition-profile managed-system

To perform ping test along with a network boot of the partition

machA with partition profile machA\_prof on managed system test\_sys

and disable firmware spanning tree discovery:

lpar\_netboot -t ent -T off -D -l <physical-location-code> -s auto -d

auto -S 9.3.6.49 -G 9.3.6.1 -C 9.3.6.234 machA machA\_prof "test\_sys"

lpar\_netboot -t ent -T off -D -s auto -d auto -S 9.3.6.49 -G 9.3.6.1

-C 9.3.6.234 "czapdb317" "czapdb317" "Server-9117-MMD-SN21868A7"

OPTIONS

* -A   Return all adapters of the type specified with the -t option.
* -B   Network boot image filename,required option if Ipv6 addresses.
* -C   The IP address of the partition to network boot.
* -D   Perform a ping test and use the adapter that successfully

pings the server specified with the -S option.

-E Set environment variable setting. The -E LPAR\_NETBOOT\_DEBUG=1

is the same as export LPAR\_NETBOOT\_DEBUG=1. See ENVIRONMENT.

-G gateway IP address of partition specified w/ the -C option.

-K Subnetmask IP address.

-M Discover network adapter MAC addr and physical location code.

-S IP address of machine from which to retrieve network boot

image during network boot.

-T Enable or disable firmware spanning tree discovery. Valid

values are on, off.

-V Specifies the VLAN tag identifier to use for tagging Ethernet

frames during network install for virtual network communication.

Valid value is from 0 to 4094.

-Y Specifies the VLAN tag priority to use for tagging Ethernet

frames during network install for virtual network communication.Valid

value is from 0 to 7.

-a Network ip addresses for server, client and gateway are IPv6.

-d The duplex setting of the partition specified with the -C

option. Valid values are full, half, and auto.

* -f   Force close the virtual terminal session for the partition.
* -g   Specify generic arguments for booting the partition.

-i Force immediate shutdown of the partition. If this option is

not specified, a delayed shutdown will be performed.

-l physical loc code of network adapter to use for network boot.

* -m   MAC address of the network adapter to use for network boot
* -n   Instruct the partition to not network boot.

-s The speed setting of the partition specified with the -C

option. Valid values are 10, 100, 1000, and auto.

-t Type of adapter for MAC address or phys loc code discovery or

for network boot. The only valid value is ent for ethernet.

-v Display additional information during command execution.

-x Display debug output during command execution.

**HMC reference code 0611 on OS load: I reset the nim object exportfs -i /export/nim/spot/spot\_viosfp26sp02/usr deallocate resources HMC referenced code 0613 on OS load:** Check the default gateway. Betcha its been fat fingered **reallocate resources boot up LPAR**

**Logging the fiber in to have WWPNs show up on the SAN side:**

Boot it into SMS(Attach the fibre to the HBA)

Run a scan for hard disks via SMS (5-Boot options, 1-select boot

device, 5-Hard drives, 9-Scan)

How many drives does my CEC hold:

Check out the documentation:

http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/index.jsp?topic=/p7ecr/sasraidconfigs.htm This shows the feature code for the different SAS adapter(2BE and 2BD). not all the results are relevant. # lsvpd | grep -i -e cc -e fc | grep -ie 2BE -ie 2BD

\*CC 2BDD

\*CC 2BDA

\*CC 2BE1

\*CC 2BD9

\*CC 2BD6

This tells me that it is an 8-drive bay(2BD6)

**How to get the fibre ports to log into SAN:**

prereq: HMC 7.730 and vios 2.2.0.13 FP 24 SP3

**Log in all of the inactive WWPNs assigned to the virtual Fibre Channel client adapters in a partition’s current configuration:**

chnportlogin -m 9117-MMB\*1234567 -o login -p clientPartition

**Log in all of the WWPNs assigned to the virtual Fibre Channel client adapters in a partition profile:**

chnportlogin -m sys1 -o login -p clientPartition -n defaultProf

**Log out all of the WWPNs assigned to the virtual Fibre Channel client adapters in a partition profile:**

chnportlogin -m sys1 -o logout -p clientPartition -n defaultProf

**REF CODES ERRORS:**

0c46 when trying to install from NIM found out that during allocation

a mksysb, SPOT and LPP source was allocated...BAD ...only allocate

the mksysb and SPOT

NPIV

**NPIV set up:**

https://sites.google.com/site/torontoaix/storage-concepts-how-to-s/npiv http://publib.boulder.ibm.com/infocenter/powersys/v3r1m5/index.jsp? topic=/iphat/iphatvfc.htm&searchQuery=npiv&searchRank=0&pageDepth=2

**On VIOC's using NPIV, set the fiber channel adapters as desired**

**Issue with NPIV adapter at Kaiser:**

**I had many VIOC's using a mapped vfchost except for 2 VIO's. I tried**

**to unmap and remap but they would never log in. I found in errlog**

**this related error:**

LABEL: VFC\_HOST

IDENTIFIER: 7870C5A4

Description

Virtual FC Host Adapter detected an error

Probable Causes

Virtual FC Host Adapter Driver is an Undefined State

Failure Causes

Virtual FC Host Adapter Driver is an Undefined State

Recommended Actions

Remove Virtual FC Host Adapter Instance, then Configure the

same instance

Detail Data

ADDITIONAL INFORMATION

module: npiv\_startinitr 1.61.1.16 **rc: 0000000000000045** location: 00000618

data: 0 0 0 0

IBM support told me that it was the physical connection that was

messed up but when I ran lsattr -El fscsi11 it showed connected. So I

rebooted and fcs11 never came back. Ended up that the fiber cable was

bad and was replaced.

AIX OS

**How to remove specific error log entries:**

errclear -j 16F35C72

**How to prevent the nfsd subsystem from activating at boot time:**

Remove/rename the /etc/exports file

**How to prevent users from a group from logging in:**

Change the rlogin to false for each member

**Check for failed login attempts:(w/o -a shows source)**

who -a /etc/security/failedlogin

who -Hu /etc/security/failedlogin

**How to allow non root users to view crontabs:**

Enable via sudo & execute cronadm

**Script crontab additions(END means that @end of file do the print**

crontab -l|awk'{print}END{print "5 1 \* \* 1 ksh /usr/local/scripts/AIX\_Build\_Audit\_Script\_v3.66.sh"}'|crontab **removal:** crontab -l | sed '\!echo test >> /tmp/testing!d' | crontab

**Need to know the location code for adapters that are in defined state? tony**

lsdev -C -c adapter -F 'name class location physloc'

**That really kewl command that you remembered when talking with Tony: Returns the base file name of a string parameter:**# LOG=/tmp/CMAS\_VIO\_Report\_$(hostname)\_$(date +%Y%m%d).txt root@czapdb173 /tmp >

# echo $LOG /tmp/CMAS\_VIO\_Report\_czapdb173\_20150721.txt root@czapdb173 /tmp > # basename $LOG CMAS\_VIO\_Report\_czapdb173\_20150721.txt

**List all devices in Defined state(Accenture):**

lsdev -Sd -Fname

**List only fiber cards in the available state in one command:**

lsdev -C -F name -l fcs\* -Sa

**Remove all devices in Defined state:**

lsdev -Sd -Fname | xargs -n 1 rmdev -Rdl

**Define variable of connected fiber cards:**

FIBER\_CARDS=$(lsdev -C -F name -l fcs\* -Sa) # fibers in AVAILABLE state # find their parents fscsiX FIBER\_CARD\_PARENT=$( for i in ${FIBER\_CARDS}

do lsdev -p $i -F name -Sa done)

**# tests if the fibers are connected to a switch**

for i in ${FIBER\_CARD\_PARENT} do if [[ $(lsattr -El ${i} -F value -a attach) == "switch" ]];then CONNECTED\_FIBER\_CARDS=${CONNECTED\_FIBER\_CARDS}" ${i}" fi done FCS\_CONNECTED=$(echo ${CONNECTED\_FIBER\_CARDS}|sed s/fscsi/fcs/g)# These are fcsX's that are connected to the switch

**Remove all networking:(Accenture)**

rmtcpip

**Remove each interface:**

for if in $(lsdev -Cc if | awk '{print $1}') do ifconfig $if down detach rmdev -Rdl $if

done

**List the interface and its location code:**

lscfg -l ent\* lscfg -l fcs\*

**lsdev -Cc adapter**

ent0 Available Logical Host Ethernet Port (lp-hea) ent1 Available Virtual I/O Ethernet Adapter (l-lan) fcs0 Available 30-T1 Virtual Fibre Channel Client Adapter<- new virtual fibre channel adapter lhea0 Available Logical Host Ethernet Adapter (l-hea) vsa0 Available LPAR Virtual Serial Adapter vscsi0 Available Virtual SCSI Client Adapter vscsi1 Available Virtual SCSI Client Adapter

**Getting WWPNS from fiber adapter:**

**lscfg -vl fcs0|awk '/fcs/ || /Netw/ {print}'**

fcs0 U9117.MMA.06C6DE1-V17-C30-T1 Virtual Fibre Channel Client Adapter Network Address.............**C050760035A8008C** <- virtual fibre channel adapter WWPN (using NPIV)

**Script to gather from AIX both WWPN numbers:**

lsdev -Cc adapter|awk '/fcs/ {print $1,$3}'|while read fcs slot

do

wwpn=` lscfg -vl $fcs | grep -i network | cut -c 37-60`

wwpn1=` lscfg -vl $fcs | grep -i Hardware | cut -c 47-64`

echo $fcs $slot $wwpn1 $wwpn

done

**What are the valid values for an attribute:(if you dont know the** **attributes then -E instead of -R)**

lsattr -Rl ent0 -a media\_speed

10\_Half\_Duplex

10\_Full\_Duplex

100\_Half\_Duplex

100\_Full\_Duplex

1000\_Full\_Duplex

Auto\_Negotiation

**What VLAN is tied to the ethernet card:**

/home/padmin # lsattr -El ent14

base\_adapter ent11 VLAN Base Adapter True

vlan\_priority 0 VLAN Priority True

vlan\_tag\_id 1311 VLAN Tag ID True

**grep option and exit status:**

**-q suppresses output but exit code tell shows ibmtech in passwd file**

/root# grep -q ibmtech /etc/passwd;echo $? 0

**or a more elegant way:**

if grep -q root /etc/passwd;then echo root is in passwd file else echo root is not in passwd file fi

**Disk performance:**

**To measure disk Read throughput:**

**[root@cgnim01a]:/home/root#** time dd if=/mksysb/1000m of=/dev/null bs=1024k **1000+0 records in. 1000+0 records out.**

**real 0m6.12s**

**user 0m0.00s**

**sys 0m1.31s**

**divide the 1GB file by the time it took to read(6.12) = ~167MB/s**

**This read performance is well within the bounds of handling a gigabit**

**network(125MB/s theoretical limit, 100megabit network, 12.5MB/s)**

**To measure disk Write throughput:(creates a 1GB file which can be**

**used for read test)**

**/home/root#** sync; date; dd if=/dev/zero of=/mksysb/1000m bs=1024k count=1000; date; sync; date **Wed Jan 26 16:31:12 PST 2011 1000+0 records in.**

**1000+0 records out.**



**Wed Jan 26 16:31:21 PST 2011**

**Wed Jan 26 16:31:22 PST 2011**

**divide the 1GB file by the time it took to write(16:31:21 - 16.31.12**

**= 9 sec) = ~113 MB/s**

**This write performance is in range of the bounds of a gigabit**

**network(125MB/s theoretical limit, 100megabit network, 12.5MB/s)**

**lspath commands: lspath -AHE -l hdisk0 -p vscsi0**

attribute value description user\_settable priority 1 Priority True

**chpath: lspath** Enabled hdisk0

vscsi1 Failed hdisk1

vscsi1 Enabled hdisk0

vscsi0 Enabled hdisk1 vscsi0

**chpath -l hdisk1 -p vscsi1 -s enable**

**lspath shows hdisk in failed state:**

rmpath –l hdisk7 –p vscsi0

rmdev -l vscsi0

cfgmgr

**Redirect console messages:**

second /dev/null

**Other path/mpio commands:**

lspcmcfg

pcmpath query adapter

**Change Time Zone in /etc/environment:**

chtz PST8PDT

chtz ‘Amercia/Denver’

**Displays devices of a device class:**

jtucker007@(chw-partdb-001) jtucker007 $ listdgrp disk

hdisk0

hdisk1

hdisk2

hdisk3

hdisk4

hdisk5

**So if you have a RAID SAS adapter you can configure hardware RAID on**

**AIX! Who knew! BUT Aaron Dunphy said that performance generally sucks**

**and that must be the reason I personally never used it nor knew about**

**it!**

smitty device -> disk array -> IBM SAS array

**Adding telnet to a different port:**

vi /etc/inetd.conf: telnet80 stream tcp6 nowait root /usr/sbin/telnetd telnetd

**Note: Port number 80 is being used in this example.**vi /etc/services: telnet80 80/tcp **then:**refresh -s inetd

**So to comment out nfs:**

boot disk into service mode(make sure you know root password) and

modify /etc/inittab and comment out:

:rcnfs:23456789:wait:/etc/rc.nfs > /dev/console 2>&1 # Start NFS

Daemons

**/home and other file systems dont mount on boot:(Faisal) Check to see if this line is commented out or missing in /etc/inittab** rc:23456789:wait:/etc/rc 2>&1 | alog -tboot > /dev/console # Multi- User checks

**Iterate thru a directory and email contents:**

for i in $(ls)

do

echo $i

done | mail -s"lets see" jmtucker@us.ibm.com

**email attachment from command line:**

uuencode ~/HMC\_output my\_attachment|mail -s"lets see"

jmtucker@us.ibm.com

**Prevent users from logging into server:**

touch /etc/nologin

(Content of file will be displayed when non-root users try to

connect)

**Login error:**

# su - dwwbprod

Cannot set process credentials.

Primary group id did not resolve to group name

**Want to change a user's shell?**

chsh

**Find yesterday's file:**

ls -rt <path>|tail -1

**Disabling the finger Command:(or any other for that matter)**

chmod 000 /usr/bin/finger

**Sticky bit:(generally an outdated**

The sticky bit is a part of a permission set applied to files or

folders. The sticky bit prevents others from deleting files from a

folder. When the sticky bit is set on a directory,

only the owner or root can unlink (delete) or rename the files in

that directory. Without the sticky bit, anyone who is able to write

to the directory can delete or rename the files.

e.g.

chmod 1744 report

**History:**

fc -l

**Changing the hostname on inet0:**

*chdev* -l *inet0* -a *hostname*=<host\_name> **note: /etc/rc.net also can change the hostname on boot up**

**What is the serial number of the LPAR:**



lsattr -El sys0 -a systemid | awk -F" |," '{print $3}'

02103CB37

**Set the system name:**

uname -S <hostname>

**View failed logins:**

who -a /etc/security/failedlogin

**Monitor the maximum number of processes under DB2 instance ID:**

ps –fu db2inst1

**To show memory segments on system:**

svmon -S

**How many AIO's are running?:**

pstat -a | grep aios | wc –l

**svmon:**

**swap space is for needed but not frequently used process. A candidate goes to swap when it is not needed. Swap doesn’t get cleaned up. We can observe and recommend. For instance if we see that an app is using paging, we can report it. And if we see that best practices are not being followed, we can recommend. Mostly likely we recommend more memory because adding more swap doesn’t help unless it is to ‘get to best pracitces’. Currently we take RAM / 2 + 4 and never going above 32G. Never have a swap space more than 8G. Never have more than 1 swap space on a disk. Allocate 8G disk and use it all. Never remove hd6. swapoff /dev/hd6 if required(not normal)**

**This is a great command!**

svmon -Pgt 10|perl -lne ‘print if /^\s+Pid|N|Y|^-/’

**Top 5 paging processes:**

svmon -Pgt 5 to understand the top 5 paging process

**To understand which process is consuming more memory, which lists the top five processes**svmon -Put 5

**Shows top 10 memory usage by process:**

ps auxw | sort -r +3 |head -10

svmon -Pu -t 1 | grep -p Pid | head -2;svmon -Pu -t 15 | grep -p Pid

| grep '^.\*[0-9]' | grep -v Pid

**Shows top 10 CPU usage by process:**

ps auxw | sort -r +2 |head -10

**is 64K pages being used?:**

vmstat -P all <--- If there is a line that says 64K then yes 64K

pages are being used

**Convert epoch time with perl:**

perl -e 'use POSIX; print strftime("%c\n", localtime(1243972006));'

**perl to get local time:**

perl -we "print scalar (localtime(time))"

**PCI adapters information by feature:**

http://publib.boulder.ibm.com/infocenter/powersys/v3r1m5/index.jsp?topic=/iphcd/fc5773.htm

**\*\*\*users\*\*\***

**How to tell if a user is a LDAP user:**

lsldap -a passwd cmagentp

**if it returns object not found then its not LDAP or**

grep <username> /etc/passwd

**if it is there then its not LDAP(its local)**

**Configuring LDAP(at AMEX): Make a copy of the existing configuration: # cp -p /etc/security/ldap/ldap.cfg** /etc/security/ldap/ldap.cfg.$ (date) **Edit the LDAP configuration:**vi /etc/security/ldap/ldap.cfg **Change line: ldapservers:authp1.ipc.us.aexp.com,authp2.ipc.us.aexp.com TO : ldapservers:AUTHP2.app.aexp.com,AUTHP1.app.aexp.com Restart the LDAP client**/usr/sbin/restart-secldapclntd **List the LDAP clients:**ldapclient list **The new ldap servers should be listed Also you can check the network service list:**netstat -an | grep 389 **will show the port connect to new ldap IP**

**How to change a users password when LDAP is installed:**

chuser -R files maxage=0 cmagentp

**This changes the local user cmagentp**

**Change group ownership only:**

chgrp -R <group> <dir or file>

**Add members amayer and jwarrior to group printq:**

chgrpmem -m + amayer,jwarrior printq

**\*\*\*logical volumes\*\*\***

**Make Logical Volume:**

/usr/sbin/mklv -y'usrsapu41lv' -e'x' -t'jfs2' u41\_01vg 40

**Add copy LV to another disk:**

/usr/sbin/mklvcopy ibipslv 2 hdiskpower3

**Remove a copy LV from a disk:**

/usr/sbin/rmlvcopy ibipslv 1 hdiskpower1

**Logical Volumes:**

**lvcb logical volume control block**

**Look at the LVCB of a LV:**

getlvcb -AT backuptsm\_lv

**Write to lvcb: This command has multibos attributes(mb)**

putlvcb -f mb=27A718EDADC2C3F5:mbverify=1:mbs=true hd5  
putlvcb -L standby\_bootlv hd5

**extendlv:**

extendlv <lv\_name> <#\_of\_pp's>

**Migrate LV’s from one disk to another:**

migratepv hdisk1 hdisk2

migratepv -l datalv hdisk3 hdisk9

**copy from one lv to another:**

chlv -t copy <destination\_lv>

cplv -e <destination\_lv> -f <source\_lv>

**\*\*\*file systems\*\*\***

**Create File System:**

crfs -v jfs2 -d <lv\_name> -m /install -p rw -A yes

mount /install

**Create, mount and copy an iso image:**

**Create a filesystem:**

mklv -y cdlv -s n -L /dev/cdlv <vg\_name> 1G hdisk0

**Now dd the "iso" image into the lv:**

dd if=/opt/software/iso/fim\_console\_rios\_aix\_5.iso of=/dev/cdlv

**change the attributes of a file system**

mount -v cdrfs -o ro /dev/cdlv /mnt/iso mount /mnt/iso (mkdir the mount point if this fails) cd /mnt/iso **When done, remove the filesystem/unmount, enter:** umount /mnt/iso rmlv -f cdlv

**OR**

**In AIX 6.1 TL4:**

loopmount -i <name\_of\_iso> -o "-V cdrfs -o ro" -m /mnt

**Creating a VLAN inside of AIX:**

mkdev -c adapter -s vlan -t eth -a base\_adapter='ent4' -a

vlan\_tag\_id='1319'

**VIOC disk changes when VIOS is using power disks:**

chdev -l hdisk1 -a hcheck\_interval=20 -P

chdev -l hdisk1 -a queue\_depth=32 -P (matches the queue depth on the

VIOS hdiskpower device)

**Hot Swapable:**

If the device is allocated to an LPAR/VIOS use smitty devices > Hot

swapable and remove/replace it that way

**NIC ineterface in stopped state:(need to add how to fix)**

lsdev -l en4

en4 Stopped 08-21 Standard Ethernet Network Interface

**Pound sign as a mount point:**

**vi /etc/filesystems and use \* to rem out lines**

**Look inside a mksysb:f means file, -l shows info about VG backup**

lsmksysb -lf P2\_1202\_TL7.mk

**Get the LPP info from mksysb: L means display LPP info, f means file**

**lsmksysb -Lf P2\_1202\_TL7.mk**

**List the files contained in the mksysb:**

lsmksysb -f <mksysb\_file>

**Restore the image.data(or any file for that matter) from a mksysb (-d restores a whole directory):** restore -xqvf </location/of/mksysb/file> ./image.data **<-file restore**

**Break the mirror in image.data:**

What you are looking for are the “lv\_data” stanzas. There will be one for every logical volume associated with rootvg. The following is an example of an lv\_data stanza from an image.data file of a mirrored rootvg. The lines that need changing are marked with an --->, will be bold, and a slightly larger font:

lv\_data: VOLUME\_GROUP= rootvg **LV\_SOURCE\_DISK\_LIST= hdisk0 hdisk1 <-------** LV\_IDENTIFIER= 000693da00004c00000001203de2aa29.14 LOGICAL\_VOLUME= fslv01 VG\_STAT= active/complete TYPE= jfs2 MAX\_LPS= 512 **COPIES= 2 <--------**LPs= 20 STALE\_PPs= 0 INTER\_POLICY= minimum INTRA\_POLICY= middle MOUNT\_POINT= /chris MIRROR\_WRITE\_CONSISTENCY= on/ACTIVE LV\_SEPARATE\_PV= yes PERMISSION= read/write LV\_STATE= opened/syncd WRITE\_VERIFY= off PP\_SIZE= 256 SCHED\_POLICY= parallel **PP= 40 <---------**BB\_POLICY= relocatable RELOCATABLE= yes UPPER\_BOUND= 32 LABEL= /chris MAPFILE= LV\_MIN\_LPS= 1

STRIPE\_WIDTH=

STRIPE\_SIZE=

SERIALIZE\_IO= no

FS\_TAG= vfs=jfs2:log=/dev/hd8:mount=true:options=rw:account=false

DEV\_SUBTYP=

\*\*\***Note**: There are two disks in the 'LV\_SOURCE\_DISK\_LIST', THE 'COPIES' value reflects two copies, and the 'PP' value is double that of the 'LPs' value.

4. The following is an example of the same lv\_data stanza after manually breaking the mirror. The lines that have been changed are marked with a --->, will be bold, and a slightly larger font. Edit each 'lv\_data' stanza in the /image.data.mksysb file as shown below to break the mirrors:

lv\_data: VOLUME\_GROUP= rootvg **LV\_SOURCE\_DISK\_LIST= hdisk0 <-----------**LV\_IDENTIFIER= 000693da00004c00000001203de2aa29.14 LOGICAL\_VOLUME= fslv01 VG\_STAT= active/complete TYPE= jfs2 MAX\_LPS= 512 **COPIES= 1 <--------------**LPs= 20 STALE\_PPs= 0 INTER\_POLICY= minimum INTRA\_POLICY= middle MOUNT\_POINT= /chris MIRROR\_WRITE\_CONSISTENCY= on/ACTIVE LV\_SEPARATE\_PV= yes PERMISSION= read/write LV\_STATE= opened/syncd WRITE\_VERIFY= off PP\_SIZE= 256 SCHED\_POLICY= parallel **PP= 20 <------------**BB\_POLICY= relocatable RELOCATABLE= yes UPPER\_BOUND= 32 LABEL= /chris MAPFILE= LV\_MIN\_LPS= 1 STRIPE\_WIDTH= STRIPE\_SIZE= SERIALIZE\_IO= no FS\_TAG= vfs=jfs2:log=/dev/hd8:mount=true:options=rw:account=false DEV\_SUBTYP=

\*\*\***Note**: The 'LV\_SOURCE\_DISK\_LIST' has been reduced to one disk, the 'COPIES' value has been changed to reflect one copy, and the 'PP' value has been changed so that it is equal to the 'LPs' value.

**Oracle large page size:**

vmo -p -o lgpg\_regions=256 -o lgpg\_size=16777216

**Proctect ssh from being killed when AIX runs out of memory: You can protect things if you want.. – ( AIX OOM ) <- out of memory**grep ssh /etc/passwd sshd:\*:202:201::/var/empty:/usr/bin/ksh

vmo -o nokilluid=202

**User IDs lower than this value will be exempt from getting killed due**

**to low page-space**

**conditions.**

**0516-013 varyonvg: The volume group cannot be varied on because**

**there are no good copies of the descriptor area.**

I did a few lquerypv and lqueryvg and seen that there was 'something'

in them. one of the VG's I was able to export then import with

success. The other VG's I tried the same thing but ended up

recreating them and doing a restore :(

**lsvg shows “unable to find device id” and a vgid ####**

lvaryoffvg -g <that\_big\_ol\_vgid\_number>

**How to make an account non-expiring:**

chuser maxage=0 <user\_name>

**Reset unsuccessful login count:**

chuser unsuccessful\_login\_count=0 <user\_name>

or

chsec -f /etc/security/lastlog -a “unsuccessful\_login\_count=0” -s <user\_name>

**server doesn’t have date +%s: (look at epoch converted perl -we "print scalar localtime 1508863283")**

/usr/bin/chsec -f /etc/security/passwd -s mercury -a "lastupdate=`lsuser -c -a time\_last\_login mercury|grep -v \#|awk -F: '{print $2}'`”

**If a user’s need reset his passwd week count with out changing maxage of a user:**

chsec -f /etc/security/passwd -s qsight -a "lastupdate=1497910186"

the number is in epoch(date + %s)

chsec -f /etc/security/passwd -s mercury -a "lastupdate=`date +%s`"

**authentication log file:**

/var/log/auth.log

Fun to tail –f it and just watch

**Does a file set require a server reboot?**

Check the header on the file set and see if one of the fields has a N

or b...a N means no reboot; b means reboot

e.g.:head <lpp\_name\_

**Locale: To change the default language:(reboot required)** smitty mle\_add\_lang locale **will return the current locale**locale -a **Returns all the code pages installed**

**User ID's:**

mkuser -a id=999 pgrp=staff <user\_name>

mkuser gecos="John Tucker" id=16386 pgrp='staff' groups='sysadmingrp' jtucker007-a

mkuser gecos="Andrew Madison" id=13182 pgrp='staff' groups='sysadmingrp' amadison004-a

mkuser gecos="Tom Jones" id=16760 pgrp='staff' groups='sysadmingrp' tjones059-a



**List child devices:**

lsdev -p vscsi0

**Who is my parent device:**

lsdev -l hdisk9 -F parent

**To configure rstatd. I did the following(as root): 1. Edit /etc/inetd.conf**Uncomment or add entry for rstatd Eg rstatd sunrpc\_udp udp wait root /usr/sbin/rpc.rstatd rstatd 100001 1- 3

**2. Edit /etc/services**

Uncomment or add entry for rstatd

Eg

rstatd 100001/udp

**3. Refresh services**

refresh -s inetd

**File rename sytax:**

date +%d%m%y\_%H%M%S <-- just tick it out

**ln -s syntax:**

ln -s <real\_file> <file\_linked\_to\_real\_file>

**ex:**

**ln -s /home/padmin/unused\_disks.sh /usr/bin/avail <- then I could run**

**avail from anywhere and it calls my script in /home/padmin**

**Directory Tree Structure:**

find . -type d -print | sed -e 's;[^/]\*/;|\_\_\_\_;g;s;\_\_\_\_|; |;g'

**Fix LV's in wrong VG:**

cplv [ -v VolumeGroup ] [ -y NewLogicalVolume | -Y Prefix ]

SourceLogicalVolume if you dont specify NewLogicalVolume then system generated one is created

umount all

cplv -v d72\_04vg -y d72db2lvT d72db2lv (the VG here is the new

location for the LV)

rmlv -f d72db2lv

chlv -n d72db2lv d72db2lvT <- -n <new\_name> <old\_name>

mklv -t jfs2log d72\_04vg 1

logform /dev/loglv03

chfs -a log=/dev/rloglv03 /db2/D72

cplv -v d72\_04vg -y d72db2dumplvT d72db2dumplv

rmlv -f d72db2dumplv

chlv -n d72db2dumplv d72db2dumplvT

chfs -a log=/dev/rloglv03 /db2/D72/db2dump

mount all

**Change the name of a mount point:**

chfs -m </new\_mount> </old\_mount>

**Error mounting a filesystem: (this happened after cplv was ran with INLINE logfile(not sure if this is the issue))**mount /db2backup Replaying log for /dev/db2backup\_lv.

mount: /dev/db2backup\_lv on /db2backup: Unformatted or incompatible

media

**Remove a filesystem:**

rmfs /tucker

**Change file system to mount at reboot:**

chfs -A yes <file\_system>

**The path information for the binaries can be seen with the "which"**

**command and the related libraries can be seen with the "ldd" command.**

**For example, to copy all the binaries and related libraries for the**

**"ls" command, run the following:**

**Could not load module libc.a(shr.o)**

**Check memory to see if you have enough(512MB aint enough)**

**Check for the presence of un-owned files and directories:**

find / \( -nouser -o -nogroup \) -ls

**Check for the presence of world writable files and directories:**

find / -type f -perm -o+w -exec ls -l {} \;

find / -type d -perm -o+w -exec ls -ld {} \;

**Cron file location and other related things: Allow/Deny:**/var/adm/cron/cron.allow /var/adm/cron/cron.deny

**Also check to see if the user’s attribute, daemon, is set to true:**

lsuser -a daemon <username>

**users crontabs directory are:**

/var/spool/cron/crontabs

**cron job logs file:**

/var/adm/cron/log

**Limit the number of logins a user can have:**

chuser maxulogs=500 cfg2user

**this creates an entry in /etc/security/user:**

**# which ls | xargs ldd**

/usr/bin/ls needs:

/usr/lib/libc.a(shr.o)

/unix

/usr/lib/libcrypt.a(shr.o)

cfg2user:

admin = false

account\_locked = false

maxulogs = 500

**change to a higher value (0 means unlimited) bb\_lpar:/ #** chuser maxulogs=0 <user> **<--changed to unlimited**

**List users:**

lsuser -c -a id home ALL | sed '/^#.\*/d' | tr ':' '\011'

**List groups:**

lsgroup -c ALL | sed '/^#.\*/d' | tr ':' '\011'

**What mounted during startup:**

alog -t boot -o | grep mount

**Look at console messages:**

alog -ot console

alog –f /var/adm/ras/conslog –o | more

**DSH Notes:**

dping -f <file\_with\_hostnames>

dsh -q --- Shows entire dsh environment

export DSH\_NODE\_LIST=<your\_nodes>

export DSH\_NODE\_RSH=<path\_to\_ssh> if this is not set then dsh

fails(from my experience)

export DSH\_NODE\_OPTS="-q"

Once you set your DSH\_NODE\_LIST you can execute commands on a sublist

of that using -w<nodes\_u\_wanna\_execute\_on>

**Massive reboot command:**

dsh "echo shutdown -Fr|at now"

dsh syntax:

dsh -l <username> -n <node1>,<node2> <command>

**also dshbak is a great reporting tool**

dsh uptime|dshbak >> /tmp/<some\_file\_name>

**dsh: 2617-009 cg1p02a.dts.ca.gov remote shell had exit code 255**

What I did was a for loop to connect to the FQDN and said 'yes' to

the accept the certificate then it worked

#!/usr/bin/ksh

print "User ID ?"

read answer1

print "Group ID?"

read answer2

print "Group ?"

read answer3

dsh -a mkuser -a id=$answer2 pgrp=sm groups=$answer3 home=/home/

$answer1 $answer1

dsh -a chuser pwdwarntime=5 histsize=10 maxage=13 minlen=8 minalpha=1

minother=2 maxrepeats= mindiff=1 $answer1

**Which file set is a command linked to:**

lslpp -w /usr/sbin/powermt

/usr/sbin/powermt EMCpower.base File

**When was a file updated:(Funso)**

lslpp -ah bos.rte

Recreate

**List filesets and versions on install media:**

cd /path/to/bffs installp -l -d . **<-- or put the file name instead of the dot(.)** Fileset Name Level I/U Q Content ==================================================================== Java5.samples 5.0.0.275 I N usr # Java SDK 32-bit Samples Java5.sdk 5.0.0.325 I N usr,root

**on one line:**

lslpp -Lqc bos.net.nfs.\\* | cut -d: -f2,3,8

bos.net.nfs.client:6.1.4.4:Network File System Client

bos.net.nfs.server:6.1.4.0:Network File System Server

**0301-158 bosboot: mkboot failed to create bootimage.**

0301-165 bosboot: WARNING! Bosboot fialed - do not attempt to boot

device.

lquerypv -h /dev/hdisk0 -- ok hdisk6 --- ok

lqueryvg -Atp hdisk0 -- ok ouptut

varyonvg rootvg -- 0516-1296 and 0516-934

chpv -va hdisk# --- make a disk avail -- ok

syncvg -v rootvg -- running, ok

bosboot -ad /dev/hdisk0 --- ok hdisk6 --- ok

**We also rmdev -dl the extra disks that the OS seen via multipath**

**because I was having issues with the re-install**

**chservices:**

**To add the service, gregsapp, as a udp service on port 1423, enter:** chservices -a -v gregsapp -p udp -n 1423

**To add the service, gregsapp, as a udp service on port 1423 with an alias of fredsapp:**

chservices -a -v gregsapp -p udp -n 1423 -u "fredsapp"

**To change the port of the service specified as gregsapp with a udp**

**protocol to 1456:**

chservices -c -v gregsapp -p udp -N 1456

**To deactivate the gregsapp service on udp port 1456 by commenting it out:**

chservices -d -v gregsapp -p udp -n 1456

**Editing the /etc/hosts file with commands: To add an entry in the database:**

hostent -a 10.0.0.1 -h statermx

**To add an entry in the database associating an address with a series of host names:**

hostent -a 192.100.201.7 -h "alpha bravo charlie"

**To show an entry in the database matching a host name:**

hostent -s alpha

**To change the IP address of an entry to a new IP address:**

hostent -c 192.100.201.7 -i 192.100.201.8 **c is old addy, i is new addy**

**Debug the shutdown command:**

ksh -x /usr/sbin/shutdown -r now 2&1 |tee /tmp/shutdown.out

**Change ownership and remove locks on hdiskpower devices for Oracle ASM**for disk in $(lspv|awk '/^hdiskpower\d\*.\*none/ {print $1}') do

chown oragrid:oinstall /dev/r$disk

chdev –a reserve\_policy=no\_reserve –l $disk

done

**/usr/symcli/bin/symcfg discover;/usr/symcli/bin/symcfg list**

**Missing paths on VIOC:**

Make sure vfcmap’s are done. if so, check with EMC

**To get rootvg onto the powerpath disks run:**

pprootdev on

**bootlist shows hdisk(this is as designed) To run bosboot on power disks:**pprootdev fix bosboot -a

pprootdev on

**Is a disk bootable?**

bootinfo -B hdiskX

1 means bootable

0 means NOT bootable

**List mount points in VG**

lsvg -l u61\_01vg|awk '!/LV NAME/ && !/:$/ {print $NF}'

**Command line NFS mount with /etc/filesystems add:**

/usr/sbin/mknfsmnt -f '/sapmnt/U11/exe' -d 'xu11sapmntexe' -h

'pepzfp00024' -M 'sys' '-B' '-A' -t 'rw' -w 'bg' '-Y' '-Z' '-X' '-H'

'-j' '-q' '-g'

-f local mount point of remote directory

-d remote directory

-h remote host(NFS Server)

-M Security Method

-B Adds entry to /etc/filesysmtes and tries to mount it

-A /etc/filesystmes automount

-t mount type(rw, readwrite – ro,readonly)

-w location (fg foreground,bg background)

-Y execution of SUID and SGID

-Z device access through this mount is allowed

-X server does support long device numbers

-H hard mount, continue retrying until the server responds

-j acls are not used on this mount

-q no posix pathconf information exchanged if mounted NFS Ver2

-g Does not direct new files or directories created on the file

system to inherit the group ID of the parent directory

**To set the Max Process to 4096:**

chdev -l sys0 -a maxuproc='4096'

error sample related to maxuproc:

The following common error throw by DB: "ORA-12223: TNS:internal

limit restriction exceeded"

**To disconnect from console:(add ~ for each hop)**

~~. or ~.

**/etc/filesystems mountguard:**

**first mount the filesystem:**

mount -o noguard <file\_system>

**then change the option to not guard in the future:**

chfs -a moutguard=no <file\_system>

**Error running smitty or getting error**

man lsvg /tmp/man2162886: Invalid file system control data detected

**To fix this edit the /etc/filesystems and set file system(/tmp) flag on check = true**

**You can even try to reboot WITHOUT changing the /etc/filesystems**

**Error creating VG:**

/home/root# mkvg -yshellvg hdisk2

0516-1254 mkvg: Changing the PVID in the ODM.

shellvg

0516-021 /usr/sbin/varyonvg: The varyonvg failed because the volume

group's major number was already used by another device.

0516-862 mkvg: Unable to create volume group. **Used** lvlstmajor **to get unused major number.** /home/root# lvlstmajor 35...

/home/root# mkvg -f -V40 -yshellvg hdisk2

shellvg

**To upgrade firmware on HBA:**

**Pasha it was easy to upgrade hba firmware(FNU KHAN)**

Here is procedure :

6.1 Downloading AIX RPM Package

Use this method to install the AIX RPM package on an AIX system. Note

that the commands are case sensitive and must be entered exactly as

shown, including file names.

1) If the /etc/microcode directory does not exist, make a directory

to receive the RPM format file. On the command line type:

mkdir/etc/microcode

2) Transfer the RPM format file, df1000f114100104.202307.aix.rpm to

any temporary directory on the target server.

3) Unpack the file. On the command line type:

rpm -ihv --ignoreos df1000f114100104.202307.aix.rpm

4) If the microcode package unpacks successfully, the microcode file

will be added to the /etc/microcode directory.

If a message is received saying the "package <package\_name>is already

installed", you will need to uninstall the rpm package. On the

command line type:

rpm -e <package\_name>

where <package\_name> is the name of the package that was returned in

the message. Return to Step 3 and attempt to unpack the file again.

5) Verify the file size and sum of the df1000f114100104.202307 file

in /etc/microcode. On the command line type:

For the file size:

ls -al df1000f114100104.202307

For the sum:

sum df1000f114100104.202307

The output of these commands should be:

file size: 574516

sum: 41094

Login as root user.

From the command line key in: diag

Select: Task Selection (Diagnostics, Advanced Diagnostics, Service

Aids, etc.)

Select: Microcode Tasks

Select: Download Latest Available Microcode

Select: file system

/etc/microcode

Select the device: fcs\*

Press enter when prompted to download the microcode

Upon completion, a message will state that the microcode has be

successfully downloaded and that

the new level is 202307

**If you need output on the same line AND assign it to a variable: xargs is the key**HDISKS=$(lspv | awk '/hdiskpower/ {print $1}'| xargs)

**Then get the WWN (for fcs0 in this example):**

lscfg -vl fcs0 | grep "Network Address"

**SAS adapter-drawer mode(hard coded, model 5887):**

lscfg -vl ses0

look for Product Specific(ZM): 1

1 means sees all disks

2 means split in half

s 4 banks of 6 disks

**smitty fast path aliases:**

smitty inetalias

**To remove an alias:**

chdev -l en1 -a delalias4='156.81.27.110','255.255.255.0'

**To add an alias:**

chdev -l en1 -a alias4='156.81.27.108','255.255.255.0'

**To bind IP Address:**

chdev -l 'en1' -a netaddr='5.16.53.26' -a netmask='255.255.255.0' -a

state='up'

**Change the IP address on en0 to 192.168.1.2**

chtcpip -interface en0 -inetaddr 192.168.1.2 -netmask 255.255.255.0

**To remove an IP Address for interface en3:**

chdev -a netaddr=0.0.0.0 -a netmask=0.0.0.0 -l en3

**HBA lights indicators:**

| Green LED | Yellow LED | State |
| --- | --- | --- |
| Slow blink | Off | Normal, link down |
| On | 3 fast blinks | 4 Gbps link rate -  normal, link active |

**To list the physical attributes of fiber channel card:**

lsdev -dev fcs3 -vpd

**odmget command: (this command was used to see if hdisks were listed before hdiskpowers. At kaiser there was an issue with “-” being in the bootlist command. This was due to hdiskpowers being listed before hdisks)**odmget -q”parent=fscsi0 and status=1” CuDv

**Error removing ethernet:**

# rmdev -Rdl ent0

rmdev: 0514-521 Cannot find information in the predefined device

configuration database for the customized device ent0. 1. **Backup ODM.**

tar -cvf /tmp/ODM.tar /etc/objrepos/

**2. Delete the ent0 device from CuDv**

odmdelete -q "name=ent0" -o CuDv

**Error when running cfgmgr trying to get AIX to see its ethernet**

# cfgmgr

cfgmgr: 0514-621 WARNING: The following device packages are required

for device support but are not currently installed.

devices.pciex.ethernet:devices.pciex.pciex14e4.1657.1014.420.1:devices.pciex.e414571614102004:devices.pciex.14102004:devices.pciex.pciex14e4.1657.1:devices.pciex.e4145716:devices.pciex.pciexclass.020000:devices.pciex.pciexclass.000200

**Got an error changing en0 to jumbo frame in smitty:**

0514-518: can not access CuDv blah blah blah. I changed directories

to /etc/objrepos then went back into smitty ethernet and it

worked....stupid AIX

**How to get the WWN's from the SMS menu: Select #8 (Open Firmware prompt) then at the ok prompt type:** ioinfo **then select the** FCINFO **and then your fiber card and look at** FC Node WorldWidePortName **field**

**Show active WWN:**

fcstat –d fcs0

**Clear the force password change on root:**

pwdadm -c root

**System firmware file naming convention:**

01SVxxx\_yyy\_zzz

xxx is the release level

yyy is the service pack level

zzz is the last disruptive service pack level

NOTE: Values of service pack and last disruptive service pack level (yyy and zzz) are only unique within a release level (xxx). For example, 01SV830\_040\_040 and 01SV840\_040\_045 are

different service packs.

An installation is disruptive if the release levels (xxx) are different:

Example: Currently installed release is 01SV**840**\_040\_040, new release is 01SV**850**\_050\_050.

or

The service pack level (yyy) and the last disruptive service pack level (zzz) are the same.

Example: SV830\_**040**\_**040** is disruptive, no matter what level of SV830 is currently installed on the system.

or

The service pack level (yyy) currently installed on the system is lower than the last disruptive service pack level (zzz) of the service pack to be installed.

Example: Currently installed service pack is

SV830\_**040**\_040 and new service pack is SV830\_050\_**045**

An installation is concurrent if:

The release level (xxx) is the same, and

The service pack level (yyy) currently installed on the system is the same or

higher than the last disruptive service pack level (zzz) of the service pack to

be installed.

Example: Currently installed service pack is SV830\_040\_040, new service pack

is SV830\_071\_040.

**Steps to take to get firmware updates/upgrades:**

Go to IBM Fixcentral(here is latest link):

<https://www.ibm.com/support/fixcentral/>

Once you determine what firmware level you want you need to make sure the HMC code level can handle it. Use the following link:

<http://www-933.ibm.com/support/fixcentral/firmware/supportedCombinations>

**Verbose boot from open firmware:**

boot -s verbose /

**To list all defined devices:**

lsdev -Cc adapter -S d

**Query if user must change password on next login:**

[root@cg1p03a]:/# pwdadm -q maestro

maestro:

lastupdate = 1295547225

flags = ADMCHG **<-- Requires change(if this line does not show then no password change required)**

**NTP Notes: Verify that you have a server suitable for synchronization. Enter:**

**#** ntpdate -d ip.address.of.server

**The offset must be less than 1000 seconds for xntpd to synch. If the offset is greater than 1000 seconds, change the time manually on the client and run the ntpdate -d again. If you get the message, "no server suitable for synchronization found", verify xntpd is running on the server (see above) and that no firewalls are blocking port 123 or that you can ping that particular ntp server. Specify your xntp server in /etc/ntp.conf,enter:**

# vi /etc/ntp.conf**(Comment out the "broadcastclient" line and add server ip.address.of.server prefer.) Leave the driftfile and tracefile at their defaults. Start the xntpd daemon:** # **startsrc -s xntpd** (Use the -x flag if it is appropriate for your environment.) **Uncomment xntpd from /etc/rc.tcpip so it will start on a reboot.** # vi /etc/rc.tcpip **Uncomment the following line:** start /usr/sbin/xntpd "$src\_running" **If using the -x flag, add "-x" to the end of the line. You must include the quotes around the -x. Verify that the client is synched.** # lssrc -ls xntpd **NOTE: Sys peer should display the IP address or name of your xntpserver. This process may take up to 12 minutes.**

**How to stop a daemon from starting in /etc/rc.tcpip:**

chrctcp -d <daemon\_name>

**To enable and start ntp:**

chrctcp –S –a xntpd

**Debug mode for ntp: /usr/sbin/xntpd -d -d -d -d -d -d -d -d -d -d Update time:**ntpdate <ntp\_server>

**Clear PVID on a disk:**

chdev -l <disk> -a pv=clear

**Add PVID on a disk:**

chdev -l <disk> -a pv=yes

**Change Password:**

echo "root:kaiser" |chpasswd -c

**using dsh:**

dsh -l ibmtech sudo sh|echo "db2cinst:abc123"|chpasswd -c

**What program is using a port:**

io -i <port\_num>

**Change the number of pty's:**

smitty chgpty

or

chdev -l pty0 -a ATTnum='15000'

**lsattr -El pty0**

ATTnum 256 Maximum number of Pseudo-Terminals True

BSDnum 16 Maximum number of BSD Pseudo-Terminals True

autoconfig available STATE to be configured at boot time True

csmap sbcs N/A True

**Show static routes and host name of inet0:**

lsattr -El inet0

**Delete route:**

route delete default 10.31.101.65

or

> /etc/staticroutes

**route add network:**

chdev -l inet0 -a route="net,-hopcount,0,-netmask,255.255.248.0,,,,,-

static,172.31.240.0,172.31.238.1"

**Delete route:**

lsattr -El inet0|grep ^route

route host,-hopcount,0,,,,,,10.62.61.5,10.23.32.1 Route True

route net,-hopcount,0,,0,50.120.183.133 Route True

chdev -l inet0 -a delroute="host,-

hopcount,0,,,,,,10.62.61.5,10.23.32.1"

The routing is deleted permanently.

**To mount a file system with rbrw:**

modify the /etc/filesystems to reflect the option = rbrw in the

stanza of the mount point

**List All Logical Volumes by Volume Group:**

lsvg -o|lsvg -il

**List Free PP's in all VG's:**

/usr/sbin/lsvg -o|/usr/sbin/lsvg -i|egrep "VOLUME|FREE"

**One liner for saving/restoring VG's(Naveen Gande):**

lsvg -o | grep -vE "root|apps" | awk '{print "/usr/bin/savevg -f

/home2/"$1," -v -i -r ",$1}' | sh

**To print only LV names not in rootvg or swapvg:**

lsvg -o | grep -vE "root|swapvg"|lsvg -i -l|grep -vE ".:|LV|jfs2log"|

awk '{print $1}'

**save vg :**

/usr/bin/savevg -f'/home2/scshdspvg' '-v' '-i' '-r' scshdspvg

**restore vg:**

/usr/bin/restvg -f'/root/sap-prd1.prd1\_sapvg' -s -r hdisk75

**To view contents of a savevg file:**

/usr/bin/restvg -l -f'<path\_to\_savevg\_file>'

X-Windows Set up:

Install Xming and at run prompt:

"C:\Program Files\Xming\Xming.exe" -ac -multiwindow -clipboard

This turns off access control.

Open Putty:

Enable X11 forwarding and put your local box hostname:0 in X11

Display Location.

ssh to AIX box and run xclock

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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**Wanna get rid of AIX doing a reverse name lookup on incoming connections???:**

vi /etc/ssh/sshd\_config

enable UseDNS and set it to no

**Allow certain logins from specific host using key pair authentication:**

Match user mercury  
    AllowUsers mercury@10.248.113.61 mercury@10.248.132.202  
    AuthenticationMethods publickey  
    PasswordAuthentication no  
    RSAAuthentication      yes  
    PubkeyAuthentication   yes  
    AuthorizedKeysFile     .ssh/authorized\_keys  
    GSSAPIAuthentication   no  
  
Match all

**Update ssh to enable root to login:**

perl -pi.bak -e 's!^#\*PermitRootLogin.\*!PermitRootLogin yes!'

/etc/ssh/sshd\_config

**Generate ssh keys:**

ssh-keygen

**Push keys out with ssh-copy-id:**

ssh-copy-id –i <path\_to\_pub\_key> <remote\_host>

**ssh keys changed?:**

I already accepted the ssh keys but when I reconnect, it asks me

again...why?

Maybe the hostname was changed. Maybe it changed in DNS, if you resolve this way

ssh-keygen -R hostname

**ssh -o options:**

jtucker007@phxunixent003:~> ssh PHXSNDC010B

Unable to negotiate with 10.2.31.61 port 22: no matching key exchange method found. Their offer: diffie-hellman-group1-sha1

jtucker007@phxunixent003:~> ssh -oKexAlgorithms=+diffie-hellman-group1-sha1 PHXSNDC010A

The authenticity of host 'phxsndc010a (10.2.31.60)' can't be established.

RSA key fingerprint is SHA256:H7KcGv9YZGI2yiNahfJrq9dJ/ym+In8fWPW+AUgkJDU.

Are you sure you want to continue connecting (yes/no)?

**Kewl pipes:**

chmod 700 ~/.ssh

chmod 600 ~/.ssh/authorized\_keys

cat ~/.ssh/id\_rsa.pub | ssh username@server.com 'cat >>

.ssh/authorized\_keys'

User's home directory needs to be 755

for i in $(cat ~/ALL\_VIOC)

do

echo Checking "${i}"

ssh "${i}" 'ls -la ~/.ssh'

if [[ $? -eq 2 ]];then

echo making .ssh

ssh "${i}" 'mkdir -p ~/.ssh'

echo copying key over

cat ~/.ssh/id\_dsa.pub |ssh "${i}" 'cat >> .ssh/authorized\_keys'

else

cat ~/.ssh/id\_dsa.pub |ssh "${i}" 'cat >> .ssh/authorized\_keys'

fi

done

for i in `cat ~/wave6.hosts`

do

if [[ ! -f /home/ibmtech/.ssh/authorized\_keys ]]

then

cat /home/root/authorized\_keys | ssh ibmtech@$i 'cat >>

/home/ibmtech/.ssh/authorized\_keys'

fi

done

# Include time in prompt.

export SECONDS="$(date '+3600\*%H+60\*%M+%S')"

typeset -Z2 \_h; typeset -Z2 \_m ; typeset -Z2 \_s

padded

# hours, minutes and seconds...

\_hh="(SECONDS/3600)%24"

\_mm="(SECONDS/60)%60"

\_ss="(SECONDS)%60"

\_time='${\_x[(\_m=\_mm)==(\_h=\_hh)==(\_s=\_ss)]}$\_h:$\_m:$\_s'

export PS1=$(echo "${\_time} # ")

no -a:

Was asked to modify:

The value for the following parameters should be set at 64K

xdp\_xmit\_hiwat

udp\_recv\_hiwat

# 2 digits, zero

UDP related OS parameters can be queried with the following command:

no -a

Set the udp\_sendspace and udp\_recvspace to the OS maximum with:

no -o <parameter>

**Some commands that I have seen from Funso:( -f spreadsheet format, -s**

**seconds, -c count(iteration), -T Includes the top processes in the**

**output, -m Changes the directory before the command saves the data to**

**a file)**

print "/usr/local/bin/nmon -fT -s 60 -c 600 -m /var/tmp/nmon"|at 10

am <- This is the 'at' command

**Find out the size of a PV:**

bootinfo -s <disk\_name>

or

for i in `lsdev -Ct power -F name`

do

getconf DISK\_SIZE /dev/$i

done | sort | uniq -c

**List file names that contain a string:**

grep -l czapdb \*s

**When the resize command is not installed:(alias it in .profile)**

COLUMNS=139;

LINES=42;

export COLUMNS LINES;

**Creating a sysdump file type device:**

/usr/sbin/mklv -y'lg\_dump2lv' -t'sysdump' rootvg 8 hdisk1

**Change the secondary dump device:**

sysdumpdev -P -s'/dev/lg\_dump2lv'

**Change the primary dump device:**

sysdumpdev -P -p'/dev/pdumplv'

**Change the directory dump is copied to:**

sysdumpdev '-D' /var/adm/ras/dumpcopy

**Always allow dump:**

sysdumpdev –K

**dump device too small:**

/usr/lib/ras/dumpcheck -p

Then subtract existing size from estimated size divide by 1024 then divide by PP size to get number of LP’s to add

lslv <dump\_device\_lv>

extendlv <dump\_device\_lv> <#\_LP’s\_to\_add>

**Cool things to put in .profile:**

*export PS1*=[${LOGNAME}@$(hostname)]'$PWD>' stty erase ^?

create an executable .logout file in your home directory and put what ever you want in it:

vi .logout

echo “Good Bye!!”

**Pre VIO power cycle:**

1) Capture the primary and secondary dump devices with "sysdumpdev

-l" and make note of them.

2) Run lsvg -l rootvg and make sure the rootvg is mirrored.

3) Run "sysdumpdev -P -p" and sysdumpdev -P -s" to set dump devices

to /dev/sysdumpnull

**Post VIO power cycle:**

1) Reset dump devices to what they "were". See 1) from pre VIO reboot

2) Continue to normal checks (syncvg and lspath)

**nmon collection directory:**

into whoever's ID you used to run nmon

**.zip extractation:**

jar -xvf <file.zip>

**writesrv service:**

lssrc –s writesrv

The writesrv daemon is the server for the write(1) client. This allows users on the same system to send real time messages to one another of the sort "John, you there? Wanna do lunch?". The messages are blasted onto your terminal without much ado. These days users aren't typically logged in as interactive Unix users (unless they're geeks) so there's no compelling need for this service.

# lsitab -a|grep writesrv

writesrv:2:wait:/usr/bin/startsrc -swritesrv

root@chmc\_lis / >

# rmitab writesrv

**Increasing a mount point to a certain percentage:**

Lets say this you had this:

Filesystem GB blocks Free %Used Iused %Iused Mounted on

/dev/hd3 1.00 0.97 4% 159 1% /tmp

as you want to have 90% free space, by how much would you increase

/tmp?

Take the current total(1GB) and subtract the current free(.97GB) this

will give you 30MB(used)

then divide your used by the percentage free you want(90% for this

example) 30/.9 = 33.3

then use the 33.3MB to increase /tmp

chfs -a size=+34M /tmp

**Tar and gzip one liner:**

tar cvf - <directory>|gzip **>** <path\_to\_tar.gz\_file>

**Find the big directories:**

du -s /path/\* | sort –n

**Find large files:**

find /var –xdev -type f -size +1024 -exec ls –Al {} \; | awk ‘{print $9, $5, $6, $7, $8}’ | sort -nrk 2|awk ‘{print $1, $2/1024/1024 “MB”, $3, $4, $5}’|more

**Find the big files:**

du -am <dir Path> | sort -n

du -sm \* | sort -nr

**Find files modified in the last day:**

find . -mtime 1

**Here is the list of the top 20 largest files:**

$ sudo find /home -xdev -ls | sort +6 -nr | head -20

**Check most recently modified file: -1 = one day**

find /path/to/filesystem -xdev -mtime -1 -ls

**FTP:(enable & disable)**

You can disable any service in /etc/inetd.conf file. For example

modify the 'ftp service ' line from:

ftp stream tcp6 nowait root /usr/sbin/ftpd ftpd

to

#ftp stream tcp6 nowait root /usr/sbin/ftpd ftpd

and don't forget about restart the inetd

refresh -s inetd

or

chsubserver -a -v ftp -p tcp

chsubserver -a -v ftp -p tcp

**OR DO IT THE EASY WAY:**

startsrc -t ftp stopsrc -t ftp **check status:** lssrc -ls inetd

**ftp error: 421 service not available. I checked /etc/inetd.conf and seen that ftp was configured to use TCP Wrappers but TCP Wrappers was not configured at all. So I removed the link to TCP Wrappers in /etc/inetd.conf Original line was:**ftp stream tcp nowait root **/usr/local/asert/sbin/tcpd** /usr/local/etc/ftpd -a -u 077 **Changed to:**ftp stream tcp nowait root /usr/sbin/ftpd ftpd

**FTP modes, active and passive(<-toggles between them):**

The following chart should help admins remember how each FTP mode

works:

Active FTP :

command : client >1023 -> server 21

data : client >1023 <- server 20

Passive FTP :

command : client >1023 -> server 21

data : client >1023 -> server >1023

**Switching From 32 to 64 Bit Mode:**

To switch from 32-bit mode to 64-bit mode run the following commands,

in the given order:

1. ln -sf /usr/lib/boot/unix\_64 /unix

2. ln -sf /usr/lib/boot/unix\_64 /usr/lib/boot/unix

3. bosboot -ad /dev/ipldevice

4. shutdown -Fr

5. bootinfo -K (should now show 64)

**Switching From 64 To 32-Bit Mode:**

To switch from 64-bit mode to 32-bit mode run the following commands,

in the given order:

1. ln -sf /usr/lib/boot/unix\_mp /unix

2. ln -sf /usr/lib/boot/unix\_mp /usr/lib/boot/unix

3. bosboot -ad /dev/ipldevice

4. shutdown -Fr

5. bootinfo -K (should now show 32)

**OS 32-bit or 64-bit?**

bootinfo -y

Upgrading OS pre-checks:

Make sure these come back clean

#lppchk -v

#lppchk -vm3

#lppchk -c

#lppchk -l

#oslevel -sq

#oslevel -rl <top level from above command> example: oslevel -rl

5300-06

One thing that happened to me was that I was using smitty alt\_clone

and choosing 'all' in the filesets to install but it kept failing due

to prereq failures on stuff like java and openGL, basically file sets

that I never wanted to upgrade anyways...instead(via help from IBM) I

put 'update\_all' in the bundles to install and everything worked.

Example of NOT coming back clean:

# lppchk -v

# lppchk -c

lppchk: 0504-208 Size of /usr/java14/jre/lib/security/cacerts is

32284,

expected value was 30337.

# lppchk -l

# oslevel -sq

Known Service Packs

-------------------

5300-06-03-0732

5300-06-02-0727

5300-06-01-0722

5300-05-CSP-0000

5300-05-06-0000

5300-05-05-0000

5300-05-04-0000

5300-05-03-0000

5300-05-02-0000

5300-05-01-0000

5300-05-00-0000

5300-04-CSP-0000

5300-04-03-0000

5300-04-02-0000

5300-04-01-0000

5300-03-CSP-0000

# oslevel -rl 5300-06

Fileset Actual Level Recommended ML

---------------------------------------------------------------------

--------

ICU4C.rte 5.3.0.0 5.3.0.60

# oslevel -rl 5300-05

# oslevel -rl 5300-04

# oslevel -rl 5300-03

# oslevel -s

5300-05-05-0000

What happened here was that the ICU4C.rte is missing and is bringing

down the oslevel -s.

Download and install ICU4C.rte 5.3.0.0 5.3.0.60 and it will allow

oslevel -s to come back 5300-06-03-0732

**So at AMEX I couldnt find the base file set for bos.clvm.enh. Mr Fed**

**told me to look in the .toc in the directories for it...perfect!!**

**Boot Logical Volume:**

lslv -m hd5 shows where the BLV is on the hdisk

lspv -M hdiskX shows the LV mapping on a hdisk

lspv -p hdiskX show condensed mapping on hdisk

ucln101s:/root> lslv -l lv\_usrlcl

lv\_usrlcl:/usr/local

PV COPIES IN BAND

* hdisk0   004:000:000 0%
* hdisk1   004:000:000 0%

The COPIES column indicates that the total number of logical

partitions.The IN BAND column indicates the level of intra-allocation

policy as a percentage.

The DISTRIBUTION column shows how the physical partitions are

allocated in

each section of the intra policy, as shown in the following

relationship:

(outer edge) : (outer middle) : (center) : (inner middle) : (inner

edge)

**Create boot image on disk:**

bosboot -ad /dev/ipldevice

DISTRIBUTION

004:000:000:000:000

004:000:000:000:000

boosboot -ad /dev/hdiskX

0503-409 installp: bosboot verification starting

Check which disk is your boot disk.

rerun bosboot -ad hdiskX ::: Doesnt hurt anything

relink your IPL Device:

ln -f /dev/hdiskX /dev/ipldevice ::: -f removes the target if it

exists

Basically what happens is the link between the boot disk and

/dev/ipldevice is wrong or not there.

Determine if the link to the boot device is missing or incorrect,

correct the error and complete the installation process.

To identify the boot device and complete the installation:

1.To identify the boot disk, enter lslv -m hd5. The boot disk name displays. 2.Remove /dev/ipldevice: rm /dev/ipldevice 3.Create a link between the boot device indicated and the **/dev/ipldevice** file:ln /dev/*rhdiskX* /dev/ipldevice

(An example of *boot\_device\_name* is **rhdisk0**.)

4. ln /dev/hd5 /dev/ipl\_blv I had bosboot fail(@ State of Calif, h28&h29)(opened PMR) and it came down to the bosboot script was traversing NFS mounts(which wernt working). did proctree <PID> & procstack <PID> and seen that the bosboot

**Uninstall filesets:**

smitty deinstall

**Kewl unzip and uncompress command:**

zcat this.is.the.file.name.tar.Z | tar xvf -

**NFS Commands:**

dfshares <hostname> exportfs : **shows NFS shares on local machine**showmount -e **: shows exported FS's with permissions. queries against portmapper(port 111)**rpcinfo -p **: show version, protocol, port and service running Testing if NFS ports are being blocked by firewall: if hangs, port blocked**tn <hostname> 111 **(portmapper)**tn <hostname> 2049 **(nfs) also it could be a simple route issue. If the nfs share is shared out to a non prod interface(like the back up interface) then you might need a static route. So traceroute before and after the addition of the static route**

**Testing to see if a port is opened:**

**Change shell to ksh93(chsh) then:**

bash-4.2# echo "\c" > /dev/tcp/162.135.81.215/9100

bash-4.2# echo "\c" > /dev/tcp/162.135.81.215/9101

bash: connect: Connection refused

since the ort on 9100 didn’t return anything it means it is listening…proved by testing port 9101

**Mounting NFS shares from a Linux server**

Almost every Unix/Linux server, except AIX, has "portcheck" enabled,

which means that an NFS client must use reserved ports when

connecting to the server. Fortunately this setting can be changed on

the fly, and can also be made permanent. If you attempt to mount an

NFS filesystem from a Linux server without portcheck, you will

receive the following error:

# mount centos:/home/export /mnt

mount: 1831-008 giving up on:

centos:/home/export

vmount: Operation not permitted.

Once portcheck is activated, you can mount the filesystem:

# nfso -r -o nfs\_use\_reserved\_ports=1 (-r sets it across reboots)

**To list the reboot values for all Network File System tuning parameters, type:** nfso -r -a

**From my experience with the DR NIM and the DR firewall, I recall that sunrpc inspection had to be enabled since the ports that get assigned for NFS are dynamic (between 32768 and 65535) and it's the RPC portmapper who tells the client on which port the NFS service is actually listening. If I remember correctly after enabling inspection for sunrpc everything started to work smoothly on DR so I would expect the same here. Tftp also uses a random UDP port between 32768 and 65535 which is probably being handled already by the firewall since John was getting an NFS issue and that step in the process comes after successfully downloading the boot file over TFTP.**

**Not sure if this is still needed, but here is the breakdown of the ports and which ones are TCP, UPD or Both:**

**111 Sunrpc Needs both TCP and UDP. The service listens on both.**

**2049 NFS This por uses TCP.**

**1058-1059 NIM These ports use TCP.**

**67-68 BOOTP These use UDP.**

**69 TFTP This port uses UDP and then a random UDP port between 32768 and**

**65535 is used for the actual transfer.**

**513-1023 RSH (needed for NIM Alt. disk migrations) All these are TCP.**

**3901-3902 NIM Service Handler These use TCP.**

**There is a lot more information here:** http://www-304.ibm.com/support/docview.wss? uid=isg3T1011808

**Hard-mounted and soft-mounted file problems**

When the network or server has problems, programs that access hard-mounted remote files fail differently from those that access soft-mounted remote files. If a server fails to respond to a hard-mount request, NFS prints the message:

NFS server hostname not responding, still trying Hard-mounted remote file systems cause programs to hang until the server responds because the client retries the mount request until it succeeds. Use the **-bg** flag with the **mount** command when performing a hard mount so if the server does not respond, the client will retry the mount in the background. If a server fails to respond to a soft-mount request, NFS prints the message:

Connection timed out Soft-mounted remote file systems return an error after trying unsuccessfully for a while. Unfortunately, many programs do not check return conditions on file system operations, so you do not see this error message when accessing soft-mounted files. However, this NFS error message prints on the console.

**Identifying NFS problems**

1) Verify that the network connections are good

2)

, **portmap**, and **biod** daemons are running on the client

Verify that the **inetd**

lssrc -g nfs

lssrc -s inetd

lssrc -s portmap

3) Verify that a valid mount point exists for the file system being mounted.

4) Verify that the server is up and running by running the following command at the shell prompt of the

client:

/usr/bin/rpcinfo -p *server\_name*



5) Verify that the **mountd**

,

**portmap** and **nfsd** daemons are running on the NFS server by entering the

following commands at the client shell prompt:

/usr/bin/rpcinfo -u *server\_name* mount

/usr/bin/rpcinfo -u *server\_name* portmap

/usr/bin/rpcinfo -u *server\_name* nfs

If the daemons are running at the server, the following responses are returned:

1.

program 100005 version 1 ready and waiting

program 100000 version 2 ready and waiting

program 100003 version 2 ready and waiting

The program numbers correspond to the commands, respectively, as shown in the previous

example. If a similar response is not returned, log in to the server at the server console and

check the status of the daemons by following the instructions in

2.

3.

Getting the current status of the



NFS daemons.

6) Verify that the **/etc/exports** file on the server lists the name of the file system that the client wants to

mount and that the file system is exported. Do this by entering the command:

7) showmount -e *server\_name*

8) This command lists all the file systems currently exported by the *server\_name*.

9) For NFS version 4, verify that the NFSv4 domain is properly set.

10) For NFS version 4, verify that the **nfsrgyd** daemon is running.

NFS Facts & Notes:

NFS version 3 (NFSv3) is not stateful: NFSv4 is

**Change NFS Server export: -c client access, -r root access**

/usr/sbin/chnfsexp -d '/pslo' -V '3:4' '-B' -S 'sys' -t 'rw' -c

'cg1p33a,ch1p29a' -r 'cg1p33a,ch1p29a'

**Error with NFS:**

csehds003:/ds003\_forms 2.00 1.92 4% 970 1% /ds003\_forms

**csehds003:/finalist df: /finalist: A file, file system or message queue is no longer available.**csehds003:/ds003\_cpos\_daemon1 5.00 5.00 1% 16 1% /ds003\_cpos\_daemon1 csehds003.cse.ca.gov:/ap017\_hyperion\_transient df: /cse/reporting/transient\_items: A file, file system or message queue is no longer available. /dev/home\_hw 0.12 0.12 2% 23 1% /home/hw cg1p02a[/]# unmount /finalist (umount the local mount point that /etc/filesystems shows) then rerun: mount all

**exportfs: /cm/drArchive/001: Too many levels of symbolic links:**

**Can cd into nfs share but ls and rm commands seem to hang:**

**Ended up mounting as NFS version 2! and it worked...not sure why**

**NFS server is not responding still trying:**

**RPC: 1832-019 Program not registered:**

make sure rc.nfs is not commented out in /etc/inittab

stopsrc -g nfs

startsrc -s portmap

/etc/rc.nfs

**# mount pzaddb2:/epic /epic/db2\_epic**

**mount: giving up on:**

**pzaddb2:/epic**

**vmount: No such file or directory**

This error means that the local directory that you are trying to

mount to is not there. mkdir <local\_mount\_point> then retry your

mount command

**Link is to article used when there was RMC Daemon errors at Blue Shield of California(The default log file has been changed)** http://aixhealthcheck.com/index.php?id=233

**sudo,sudoers,visudo:**

http://www.sudo.ws/sudo/sample.sudoers

**So if you have specific commands you are allowed to run then you have**

**to preface it with: sudo <command>**

**IPTRACE Commands:**

Start an IP trace to find out who's transmitting to this port:

# iptrace -a -d <HOST> -p 657 /tmp/trace.out

# ps -ef | grep iptrace

root 2040018 iptrace -a -d lawtest2 -p 657 /tmp/trace.out

# kill 2040018

iptrace: unload success!

# ipreport -n /tmp/trace.out > /tmp/trace.fmt

# view /tmp/trace.fmt

# startsrc -s iptrace -a "-b -p 657 /tmp/iptrace.bin"

startsrc -s iptrace -a "-a -p 53 -b /tmp/dns.trc" This looks at port

53(DNS) -b bidirectional -a suppresses arp packets -p port

Use stopsrc -s iptrace to stop your packet capture then format it

with: ipreport -rns /tmp/dns.trc >/tmp/dns.out

**Kernel Trace:**

mkdir /tmp/trace

startsrc -s iptrace -a "-a -p 53 -b /tmp/trace/iptrace.trc"

trace -a -o /tmp/trace/ktrace.bin -L 262144000;sleep 10;trcstop

stopsrc -s iptrace

trcrpt -O svc=on,pid=on,tid=on,exec=on -o /tmp/trace/ktrace.txt

/tmp/trace/ktrace.bin

view /tmp/trace/ktrace.txt < Look for port(convert it to hex,

i.e..DNS port 53 is converted to 35,port=0000000000000035)

**Trace ip traffic on a VIOS SEA: No IP Address needs to be bound to the adapter. It just needs to show in the UP status.**ifconfig enX up startsrc -s iptrace -a "-i en12 /tmp/iptrace.out" collect your data stopsrc -s iptrace ipreport -nsrv /tmp/iptrace.out > /tmp/ipreport.out view /tmp/ipreport.out

Let Time Pass

# stopsrc -s iptrace

# ipreport -rns /tmp/ipt > /tmp/ipreport.out

# view /tmp/ipreport.out

**AIX Accounting:**

pacct grows in the /var/adm directory and once it hits a certain size then it is renamed and replaced

**Alt Disk Install:**

**Clean Up Alternate Disk Volume Group, usually old\_rootvg:** alt\_rootvg\_op -X <VG\_name>

**Shows the boot disk of that VG**

alt\_rootvg\_op -q <VG\_name>

**To "wake up" an original rootvg after booting from the new alternate disk:**

alt\_rootvg\_op -W -d hdisk0

**To "put to sleep" a volume group that had experienced a "wake-up" and rebuild the boot image:**

alt\_rootvg\_op -S –t

**Memory used:**

svmon -P

ps -eo pid,vsz,args Shows you 3 columns. Remember about child

processes

**Percentage of time the process has used the CPU since the process started:**ch1p01a[/]# ps -o"%C" -p 544872 %CPU

0.0

**Memory usage for each active process:**

ps gv | head -n 1; ps gv | egrep -v "RSS" | sort +6b -7 -n -r

**Sort command:**

sort -r (reverse sort on 1st column) sort -k 1.11n (sorts on 11th position of 1st column numerically. This was the solution for sorting hdiskpowerX's)

**Paging Space List paging space:** lsps -s lsps -a

**Deactivate and remove paging space:**

swapoff /dev/paging01;

rmps paging01



**Change paging space on hd6: -a {y|n}*(use on next restart)* -d #lp's *to subtract* -s #lp's *to add (*lp=pp size)**

chps -s32 hd6 (this adds 32 pp’s)

chps -d64 hd6 (this subtracts 64 pp’s)

**To create new paging space: -a *(use on restarts)* -n *(use immediately)* -s #lp's *(size)***mkps -a -n -s80 <VG>

**Instfix:**

instfix -ik <IY\_Number> Shows whether a fix is installed

**Does the fix require a reboot?**

Go to Fix Central select your p series, aix then do a fix search and

put in the IY<number>

instfix -i | grep ML - shows wheter or not all filesets are found for

a ML

instfix -i|grep SP - shows wheter or not all service pack filesets

are installed

oslevel -rl 05 - shows missing filesets for TL 05

**NIM Commands:Install these filesets on NIM master, and reboot** bos.net.tcp.server bos.net.nfs.server bos.sysmgt.nim.master bos.sysmgt.nim.spot

**Machine Add:**

nim -o define -t ent -a net\_addr=10.20.147.45 -a snm=255.255.252.0 -a

routing1='default 10.20.144.1' -a comments='Generated during

definition of aplvh508' network\_10\_20\_144\_0

**nimdef example:** command will execute a file with all your NIM client machines **[root@cgnim01a]:/home/root/nim#** cat wave3.defs default:

machine\_type = standalone

subnet\_mask = 255.255.255.0

network\_type = ent

platform

cable\_type

if1

gateway

cg1p05:

cg1p06:

cg1p07:

cg1p08:

cg1p09:

= chrp

= tp

= nim\_admin\_net1

= 192.168.0.201

cg1p43:

cg1p42:

**[root@cgnim01a]:/home/root/nim#**nimdef -p -f ./wave3.defs **<- -p = preview -d = define**

**Define NIM script resource to disable NFS from /etc/inittab and change root's password to: ibm**

#!/bin/sh if [[ -f /etc/inittab ]]

then

cp /etc/inittab /etc/inittab\_bk

sed s/rcnfs/\:rcnfs/g < /etc/inittab\_bk >/etc/inittab

fi

if [[ -f /etc/security/passwd ]]

then

cp /etc/security/passwd /etc/security/passwd\_bk

awk '/^root:$/ { password=1; } password==1 && /password/ { print "

password = TLrBnipn/WOds "; password=0; next; } 1' <

/etc/security/passwd\_bk >/etc/security/passwd

fi

**error: The image.data file contains no vg\_data stanza for rootvg. The installation cannot continue.**The perms need to be 644 on the mksysb on the NIM server

**Reset client and deallocate:**

nim -Fo reset <NIM\_host>

nim -o deallocate -a subclass=all <NIM\_host>

**Remove mksysb resource and its image:**

nim -o remove -arm\_image=yes <nim\_name>

**Reset a NIM Machine:**

nim -Fo reset -a deallocate=yes <--- gee not sure on syntax

**Define a NIM machine:(and have NIM determine the network)**

nim -o define -t standalone -a if1="find\_net czapwa194 0" -a

cable\_type1=tp czapwa194

**Remove a NIM Machine:**

nim -o remove <NIM\_Machine>

**Create SPOT from mksysb:**

nim -o define -t spot -a source=aplwd512\_mksysb -a server=master -a

location=/dc2015\_testing/spot aplwd512\_spot

**deallocate resources, enter:**

nim -o deallocate -a subclass=all <NIM\_host>

**lsnim -c groups**

vios groups mac\_group

pre-prod groups mac\_group

test groups mac\_group

snbx groups mac\_group

TechSnbx groups mac\_group

r9dev1 groups mac\_group

**Log for client:**

nim -o showlog -a log\_type=niminst test\_lpar

**Monitor mksysb install:**

while true

do

lsnim -a Cstate -a info <NIM\_host>

sleep 5

done

**Allocate mksysb to client:**

smitty nim\_bosinst

**Example 1 : When looking to see what the latest TL is that is installed to the SPOT**# lsnim -l 5305\_spot **This will show an “oslevel\_r” line that will give you the highest TL completely installed into the SPOT. If however you expect to see 5300-05 but only show 5300-04, we can use the fix\_query operation to find out what is .**

nim -o fix\_query -a fix\_query\_flags=”cq” -a fixes=5300-05\_AIX\_ML

5305\_spot |grep “:-:”

**To remove a machine from NIM:**

nim -o remove 'pepxgp00061'

**What is required/optional for nim command:**

lsnim -q define -t mksysb

the following resources are optional:

exclude\_files

the following attributes are required:

-a server=<value>

-a location=<value>

the following attributes are optional:

-a source=<value>

-a mk\_image=<value>

-a mksysb\_flags=<value>

-a exclude\_files=<value>

-a size\_preview=<value>

-a comments=<value>

-a verbose=<value>

-a group=<value>

**What does the attribute mean?: [root@cgnim01a]:/home/root/nim#** lsnim -p -a location location:

This attribute stores the path name of a NIM resource. It is

required for all NIM resources.

**To add mksysb resource:(havnt tried yet)**

nim -o define -t mksysb -aserver=master -alocation=<path\_to\_mksysb>

<resource\_name>

**To add a machine to a group:**

nim -o change -a add\_member=pepxgp00200 prod

**NIM ERRORS:**

**Unpack: file out of phase**

**Unpack: internal unpacking error: decode failure**

**Restore: Out Of Space!!**

**BOS Install: Restore of Base Operating System from /NIM\_BOS\_IMAGE**

**failed.**

**ID# OPTION**

* **1  Continue**
* **2   Perform System Maintenance and Then Continue**

**Enter ID number:**

You should recreate the mksysb, now without

software compression. Man mksysb:

-p Disables software packing of the files as they are backed up

**LED 611: failure: mount -r appii501.ipc.us.aexp.com:/dc2015\_testing/spot/aplwd512\_spot/usr /SPOT/usr**Removing the spot resource and relocating the resource under a different file system

**0042-175 c\_mkspot: An unexpected result was returned by the**

**"/usr/sbin/restbyname" command:restore: 0511-126 Cannot open**

**/dc2015\_testing/aplwd512.mksysb/usr/sys/inst.images/bos: A parameter**

**must be a directory. Mount volume 1 on /dc2015\_testing/aplwd512.mksysb/usr/sys/inst.images/bos. Press the Enter key to continue.**So I looked on the server for that directory and it was not there. Jeff Pany said that the one field needs to be a NIM resource label and not the path to the actual file

**0042-008 NIMState: Request denied method\_req:**

google says its the cpu id but I doubled check my resource allocation

and the actual client I was installing to. This was done in error. I

deallocated the NIM resource and shutdown the client and did it

correctly.

**Method A: To Produce Debug Output When Not Using a bosinst\_data**

**Resource**

1.To enable debugging for the BOS install program, start by performing all the processing you would normally do to install a client. 2.Since you are not using a **bosinst\_data** resource, you will be prompted to supply information about the installation to the BOS install program. 3.Select your console. 4.Select your language. 5.The **Welcome to Base Operating System Installation and Maintenance** menu is displayed. Instead of selecting one of the options, enter **911** at the prompt and press Enter. 6.Continue the normal procedure for selecting options and specifying data until the installation begins. Debug output will be sent to the client's display as the installation proceeds.

**rshd: 0826-813 Permission is denied:**

Check the .rhosts file in the home directory of root (grep root

/etc/passwd) & make sure it's perms are 600

**SMS can ping but bootp fails:**

On the NIM server check /etc/inetd.conf and uncomment bootpd and refresh -s inetd and try again **reference:** https://www-304.ibm.com/support/docview.wss?uid=isg3T1011386 **agpiu501.gso.aexp.com:/>#**lssrc -t bootps

Service Command Arguments Status

bootps /usr/sbin/bootpd bootpd /etc/bootptab active

If it is running, stop bootpd, kill any processes left then run /usr/sbin/bootpd -s -d -d -d and look for your MAC address after running network install. If this fails, check firewall

top

**DISK USAGE EXAMPLES:**

du -sg <directory> Summarizes in GB the <directory> s = summary g =

GB m = MB

**Core Dump:**

$ lquerypv -h core 6b0 64

The name of the application causing the core file is listed in the

section on the right. In the sample output below, the "ftpd"

application

caused the core file.

000006B0 7FFFFFFF FFFFFFFF 7FFFFFFF FFFFFFFF |................|

000006C0 00000000 000007D0 7FFFFFFF FFFFFFFF |................|

000006D0 00170000 53245A2C 00000000 00000015 |....S$Z,........|

000006E0 66747064 00000000 00000000 00000000 |**ftpd**............|

000006F0 00000000 00000000 00000000 00000000 |................|

00000700 00000000 00000000 00000000 000000CF |................|

00000710 00000000 00000020 00000000 000000BE |....... ........|

* 1. You should run **dbx** on the binary executable that caused the core dump. This will display the offending system call. In the following example the program that caused the core dump is **sleep**. Running **dbx** against the sleep command shows that the offending system call was sleep. AIX Support personnel may ask for this information in some cases.
  2. dbx /usr/bin/sleep core
  3. Type 'help' for help.
  4. reading symbolic information ...warning: no source
  5. compiled with -g
  6. [using memory image in core]
  7. Segmentation fault in sleep at 0xd0019cd8
  8. 0xd0019cd8 (sleep+0x40) 80410014 1 r2,0x14(rl)
  9. (dbx) where
  10. sleep(??) at 0xd0019cd8
  11. main(??, ??) at 0x10000378
  12. (dbx) quit

If AIX Support personnel determines that the core dump needs to be sent in to the support center, then also send the output of the **snap -g** command. This gathers the output of the **lslpp -hBc** command, which is required to recreate exact operating system environments.

A core file is generated when a program tries to do something illegal on the system. The usual cause is an attempt to access memory outside the memory assigned to the program by the system. Core files are usually caused by a program error or some type of data corruption.

Unless the program that caused the core file is a special debug version of the program, usually the only useful information in the core file is the name of the module or program that caused the core dump.

Examining the **errpt -a** log frequently alerts you to possible problems with the system that may be the cause of the core file.

**cp command:**

cp -phR <directory> this preserves permissions(p), copies symbolic

links(h) and recursive(R)

top

**mksysb:**

mksysb -ie /mnt/`hostname` the -i creates /image.data file which

contains info on VG's,LV's, FS's,paging space and PV's

**Virtual Memory via smitty:**

smitty ChShCurVM

smitty TunVmo

**Stop LDAP service:**

stop-secldapclntd

**Start LDAP service:**

start-secldapclntd

**Check if LDAP is running:**

appmd515:/:# ps -eaf |grep -i secldap

root 1098964 1 0Mar 17 - 2:59 /usr/sbin/secldapclntd

appmd515:/:#

**LDAP sanity check:**

Check /etc/hosts for properly configured ip address

**LDAP is not configured on this server:**

phxipcinvgdb01>ls -l /usr/lib/libibmldap.a

/usr/lib/libibmldap.a not found

phxipcinvgdb01>ls -l /usr/ldap/lib/libibmldapn.a

/usr/ldap/lib/libibmldapn.a not found

phxipcinvgdb01>ls -l /usr/lib/libibmldap64.a

/usr/lib/libibmldap64.a not found

**Check for efix: CHECK BEFORE UPGRADING OS**

emgr -l - lists the fixes applied on the box

emgr -r -L <label> - Removes the fix

emgr -P > /tmp/efix.list

emgr -pe - preview of install

emgr -e <ifix> - installs the ifix

**Exported NFS with 'permissions set correctly' but still getting access:**Check that portmap and nfs is running. make sure portmap is started before nfs

**Stale nfs?:**

/etc/nfs.clean then /etc/fc.nfs

[padmin@vlvio02]/home/padmin>mount 10.7.1.69:/software /mnt

nfsmnthelp: 1831-019 10.7.1.69: System call error number -1.

mount: 1831-008 giving up on: 10.7.1.69:/software System call error number -1. **Resolution: This is usually caused by the reverse lookup problem**

**Boot Devices:**

ipl\_varyon -i Indicates which PV is your BOOT drive

**Set bootlist for Normal mode:**

bootlist -m normal hdisk0 hdisk1 rmt0 fd

**Which disk did I boot off of?**

alog -o -f /var/adm/ras/bootlog|grep "boot device" bootinfo -b bootinfo should no longer be used. getconf should be used instead **What was the device the system was last booted from?**$ getconf BOOT\_DEVICE hdisk0

**What size is a particular disk in the system?**

$ getconf DISK\_SIZE /dev/hdisk0 10240

**What partition size is being used on a disk in the system?**

$ getconf DISK\_PARTITION /dev/hdisk0 16

**Is the machine capable of running a 64-bit kernel?**

$ getconf HARDWARE\_BITMODE 64

**Is the system currently running a 64-bit or 32-bit kernel?**

$ getconf KERNEL\_BITMODE 64

**How much real memory does the system have?**

$ getconf REAL\_MEMORY 524288

**Move a logical volume from one disk to another in the same volume group:**

migratepv -l hd6 <source\_hdisk> <target\_hdisk>

**To move all data from one disk to another(must be same VG):**

migratepv <source\_hdisk> <target\_hdisk>

**Make copy of logical volume: -k sync's the LV**

/usr/sbin/mklvcopy '-k' <lv\_name> <#\_of\_copies(1-3)> <target\_disk>

**Remove a copy of a logical volume:**

/usr/sbin/rmlvcopy <lv\_name> <#\_of\_copies(1-3)> <disk\_to\_remove\_from>

**Dump Commands:**

sysdumpdev -l

sysdumpdev -P -s'/dev/sysdumpnull' ::: sets(-s) secondary(-P) dump

device to nulllsvg

**Change HMC user to allow GUI logins:**

chhmcusr -i "name=jtucker007,remote\_webui\_access=1”

**Rename a Device**:

rendev -l name -n new\_name

**File in OS messed up:**

Assign RTE from NIM server, boot client off of NIM, change file.

**Listing HMC info from client LPARS:**

lsrsrc IBM.ManagementServer -- This will list the HMC info that the client is connected to. **And for AIX 6.1TL6 and later:**

lsrsrc IBM.MCP

**but the best way to tell:**

/usr/sbin/rsct/bin/rmcdomainstatus -s ctrmc

**if lsrsrc returns nothing then try resarting the RMC daemons**

**A specified file does not support the ioctl system call:**

comment out stty erase ^? in the .profile or there might be stale

partitions in rootvg

Try:

umount /tmp, syncvg -v rootvg; fsck -y /tmp; mount /tmp

Disk LUN ID and disk size:

for XX in `lspv | awk '{print $1}' `

do

VG=`lspv | grep "$XX " | awk '{print $3}' `

WUID=`lsattr -El $XX | grep uniq | awk '{print $2}' | cut -c6-37`

SZ=`getconf DISK\_SIZE /dev/$XX`

echo $XX = $SZ = $WUID = $VG

done

**Microcode:**

lsconf|pg lsmcode --- List the microcode on the managed system from the client LPAR lsmcode -d fcs0 **note: For VIOS, make sure VIOC are down and reboot the VIOS to clear any connections up(& its verifies "rebootability" of VIOS)**

**How to update microcode on fiber cards(HBA's):**

lscfg -vl fcs0 and look for the Customer Card ID Number(i.e. 5773) then go to fix central and download updates and instructions **Unpack RPM:** rpm -ivh --ignoreos <rpm\_package> **Install:** diag fcsX -T download

**Create a big file:(1GB)**

dd if=/dev/zero of=bigfile bs=1k count=10000

**Another way to create a large file is:**

# /usr/sbin/lmktemp ./test.large.file 1024

creates a 1024byte file

You can use this large file for adapter throughput testing purposes:

**Write large sequential I/O test:**

# cd /BIG

# time /usr/sbin/lmktemp 2GBtestfile 2147483648

Divide 2048/#seconds for MB/sec write speed.

**Read large sequential I/O test:**

# umount /BIG

(This will flush file from memory)

# mount /BIG

# time cp 2GBtestfile /dev/null

Divide 2048/#seconds for MB/sec read speed. Tip: Run nmon (select **a** for adapter) in another window. You will see the throughput for each

adapter.

**What I did to determine if I could update HMC code:**

CALLED IBM SUPPORT!

Get the matrix HMC & Server code combinations

http://www14.software.ibm.com/webapp/set2/sas/f/power5cm/supportedcod

ep5.html

Determine your HMC level that you are going to then log into one(is

sufficient) client LPAR on each managed system.

Then compare it with the matrix above.



If the code is an UPDATE then use 'Licensed Internal Code

Maintenance' -> HMC Code Update -> Install Corrective Service

**Resync stale LV states on rootvg:**

varyonvg rootvg or syncvg -P 32 -v

**If that fails because you cant write to /tmp:**

umount /tmp, syncvg -v rootvg; fsck -y /tmp; mount /tmp

fuser -ck /tmp;umount -f /tmp ← if you cant umount

**synclvodm: This will synchronize and rebuild the logical volume**

**control block (LVCB), the ODM and the volume group descriptor area**

**(VGDA).**

synclvodm -v rootvg

**Fiber Card:**

***WWPN: World Wide Port Name***

***WWNN: World Wide Node Name***

WWPN WWPN

lsattr -El fscsi0 <- use to check link status with switch

When showing: attach switch <-- This means that the HBA has logged

into the switch. Run fcstat fcsX and look for transmission bytes. If

showing: attach al then look at port type(mine is showing 'Private

Loop') it needs to show: Fabric. rmdev then cfgmgr the suspect HBA's.

**fibrechannel card is linked to a switch port?**

lsattr -El fscsi0 -F value -a attach switch system is not connected to the switch (cable is present, but switch port not configured OR cables are loose or in wrong send/receive confg) - attach: none, no SCSI ID:

WWNN



# lsattr -El fscsi0

**attach none**

False dyntrk no fc\_err\_recov delayed\_fail Policy True **scsi\_id**sw\_fc\_class 3

How this adapter is CONNECTED

Dynamic Tracking of FC Devices True

FC Fabric Event Error RECOVERY

Adapter SCSI ID False

FC Class for Fabric True

... and this is how it looks, if the card is connected to the switch:

# lsattr -El fscsi1

attach switch

dyntrk no

fc\_err\_recov delayed\_fail

Policy True

scsi\_id 0x610100

sw\_fc\_class 3

How this adapter is CONNECTED False

Dynamic Tracking of FC Devices True

FC Fabric Event Error RECOVERY

Adapter SCSI ID False

FC Class for Fabric True

... and this is how it looks if there is no cable to a switch at all:

# lsattr -El fscsi1

attach al

dyntrk no

fc\_err\_recov delayed\_fail

Policy True

scsi\_id 0x610100

sw\_fc\_class 3

How this adapter is CONNECTED False

Dynamic Tracking of FC Devices True

FC Fabric Event Error RECOVERY

Adapter SCSI ID False

FC Class for Fabric True

**al** means *Arbitrary Loop*. You get this if there is no cable plugged into the fibre channel card. But you also get this if the system is directly attached to a storage box (e.g. FAStT). In the latter case there is nothing wrong if you see **attach: al**

**hdisk in MISSING state:**

Check lsdev -Cc disk ::: if virtual then check VIO server otherwise

check connection to storage

It is possible that it has been removed logically via VIO or that the

physical disk is bad.

**hdisk in REMOVED state:**

**[root@cg1p46a]:/home/root# lsvg -p rootvg**

**0516-304 : Unable to find device id 00c20b45117c8c37 in the Device**

**Configuration Database.**

**rootvg:**

**PV ID PV STATE**

**DISTRIBUTION**

**00c20b45117c8c37 removed**

**78..109..109..109..109**

**hdisk1 active**

**00..00..00..00..74**

**TOTAL PPs**

**546**

**546**

**FREE PPs FREE**

**514**

**74**

to fix the removed state use chpv -va <hdisk\_or\_hdiskpower>

reducevg rootvg 00c20b45117c8c37 **(but this error'd out because there was allocated partitions on the PV)**lspv -l 00c20b45117c8c37 **(listed LV name which I verified wasnt being**

**used so I removed it, rmlv) then I was able to extendvg and mirror**

**NFS-NIM error: 0042-124 c\_ch\_nfsexp: NFS option sec=sys is NOT supported**This can happen if you have NFS exported a filesystem/directory that is also a NIM resource. Un-export the filesystem/directory and try again to see if the error still exists

**Special Characters used in NFS share:**

AMEX used a bunch of different country language code pages and when

you accessed them from the NFS client you would get an error, even

when you tried creating directories. Resolution was:

# nfso -o utf8\_validation=0 # dynamic change just for the running

environment

# nfso -r -o utf8\_validation=0 # permanent change

Apparently by default NFS does language code checking using UTF-8.

**NFS server cgnim01 not responding still trying:PMR 89179-49r Tu**

NFS would run for a while then just DIE and never come back. Issues

was dup IP on network. Seen different MAC addresses responding to NIM

server. I shutdown the interface that had the IP Addy originally then

everything worked great

REMEMBER TO DO SMITTY NIM\_BOSINST so that the client can get the

resource. Once this is done then you can

check /etc/bootptab on the NIM Master and see the details of the NIM

client connection. <-- very kewl!

System booting to what looks like the screen for the CD??? check the

lpar profile setting on HMC!

**Logical Volumes:**

lslv <logical\_volume\_name>

**0516-404 allocp: cannot keep strictness error**:

lslv <lv\_name> check upper bound. This setting is the maximum number of disks that the LV is allowed to traverse. To change this run:

chlv -u 1024 <lv\_name> then run your chfs command again

0516-787 extendlv: Maximum allocation for logical volume(-u is for max # of PV's, -x is for max # of logical partition(use this))

/usr/sbin/chlv -u'128' -x'2048' lv\_name\_here <- this changes the

**MAXIMUM NUMBER OF LOGICAL PARTITIONS**

Quick Calc:

lslv <lv\_name>

Look at LPs(this is the currently allocated to this LV)

Look at PP Size…if you multiple these 2 together and divide by 1024 you will get the current size(df -g)

**If you want to see what the maximum size you can increase the file system to:** multiple MAX LPs times PP Size then divide by 1024 will give you GB

**Increase by certain amount:**

Value of chlv –x<value> is how many PP Size = 1G?

Take that number and multiple it by increase size.

i.e. increase 500M PP Size = 256M

4 PP Sizes = 1G so multiple 4 \* 500 = 2000 so add 2000 to current MAX LPs and use that number as your X factor

example: /usr/sbin/chlv -x'2048' fdata08

**to keep strictness and satisfy allocation requests**

Usually means that the file system is mirrored. So you need to take

into account that extra space when determining how much free PP’s are

available

**Did a LUN inside a VG increase in size?**

chvg –g <VG\_Name>

**How do I know if my volume group is normal, big, or scalable?**

lsvg:MAX PVs:32 normal, 128 big, 1024 scalable



**Change T factor on VG:**

# chvg -t <factor> vgname

-t factor PPs per PV Max PVs Max PVs (Big VG)

1 1016 32 128

2 2032 16 64

3 3048 10 42

4 4064 8 32

5 5080 6 25

6 6096 5 21

7 7112 4 18

8 8128 4 16

9 9144 3 14

10 10160 3 12

11 11176 2 11

12 12192 2 10

13 13208 2 9

14 14224 2 9

15 15240 2 8

16 16256 2 8

**LSSRC:**

lssrc -ls inted ::: the -l shows the status for the subsystem

**VMSTAT stuff learned:**

if a file system is using normal I/O then vmstat -sv|grep numperm

will show some percentage ie:

sfnim02>>vmstat -sv|grep numperm

75.2 numperm percentage

but if the file system is mounted with the DIO option then the

numperm percentage should be zero

In order to make the VIOS disable folding vCPUs' permanent the -p

option is needed for the schedo command, similar to vmo and ioo

commands.

This should be documented in vial or the admin log since there is no

record of this change, other than the schedo command.

This should be tested by checking schedo -a after booting the VIOS

as:

schedo -a | grep xvcpus

schedo -p -o vpm\_xvcpus=-1

schedo -a | grep xvcpus

shutdown and reboot the VIOS

schedo -a | grep xvcpus

**MTLIB COMMANDS REFERENCE**

**#To check tape mounts:**

mtlib -l/dev/lmcp0 -qM

**#To check all tapes (shows all CAT codes):**

mtlib -l/dev/lmcp0 -qI

**#To check status on a particular volume:**

mtlib -l/dev/lmcp0 -qV -V volume\_ser

**#To check status of the ATL:**

mtlib -l/dev/lmcp0 -qL

**#To change the CAT code on a volume:**

mtlib -l/dev/lmcp0 -C -V tape\_volume -s old\_cat -t new\_cat

**#To mount a volume (manually):**

mtlib -l/dev/lmcp0 -m -f /dev/rmt0 -V 002666

**#To dismount an unloaded tape:**

mtlib -l (library) -f /dev/rmtxx -d

**RPM's on AIX to list:**rpm -q <package\_name> or rpm -qa (queries all packages)

wwwdev01(root):/usr/local/bin>rpm -q libgcc libgcc-4.2.0-3 **to install:**rpm -i <package\_name>

List the dependency package using:

rpm –qRp <package\_name>

so installing rpm.rte will create AIX-rpm-7.1.5.15.1.ppc

**When oslevel and other commands come back with rpm/rpmdb errors:**

mv /var/lib/rpm/\_db\* /tmp/

rpm --rebuilddb

**Removing a file with funny characters in it:(Michael Rowen)**

**First you can use the od -a command to look at the characters in each file name:**

# ls Mail\_\* | od -a | more 0000000 M a i l \_ R C bs D C \_ T r a d e

0000020 \_ C o u n t . s h lf M a i l \_ R

0000040 D C \_ T r a d e \_ C o u n t . s

0000060 h lf M a i l \_ R D C \_ U s e r s

0000100 . s h lf M a i l \_ R D C \_ U s e

0000120 r s . s h bs bs bs \_ n e w . s h lf

0000140 M a i l \_ R D C \_ U s e r s \_ n

0000160 e w 1 . s h lf

0000167

**If you look at the above output, you can see that there are 3 "bs" backspace characters in there. So the file names is really:** M a i l \_ R D C \_ U s e r s . s h bs bs bs \_ n e w . s h

**What you can do instead is use the inode number which is unique for any file. Use ls with the -i option to list inodes.**

# ls -i Mail\_\*

37688 Mail\_RDC\_Trade\_Count.sh

38982 Mail\_RDC\_Trade\_Count.sh

38717 Mail\_RDC\_Users.sh

37620 Mail\_RDC\_Users\_new.sh

38080 Mail\_RDC\_Users\_new1.sh

# ls -i Mail\_\* | od -a

0000000 3 7 6 8 8 sp M a i l \_ R C bs D C

0000020 \_ T r a d e \_ C o u n t . s h lf

0000040 3 8 9 8 2 sp M a i l \_ R D C \_ T

0000060 r a d e \_ C o u n t . s h lf 3 8

0000100 7 1 7 sp M a i l \_ R D C \_ U s e

0000120 r s . s h lf 3 7 6 2 0 sp M a i l

0000140 \_ R D C \_ U s e r s . s h bs bs bs

0000160 \_ n e w . s h lf 3 8 0 8 0 sp M a

0000200 i l \_ R D C \_ U s e r s \_ n e w

0000220 1 . s h lf

So the inode number we are interested in is 37620. You can then use the find command with options to match by inode and remove the file:

# find ./ -inum 37620

./Mail\_RDC\_Users\_new.sh

# find ./ -inum 37620 | od -a

0000000 . / M a i l \_ R D C \_ U s e r s

0000020 . s h bs bs bs \_ n e w . s h lf

0000036

So we verified that this is the file causing us problems. To actually

remove it add the rm command to the find command as follows:

find ./ -inum 37620 -exec rm {} \;

Anh Salmonson's version:

cd /var/ct/SAP\_PRD\_P31/registry/local\_tree

ls -li --> list by inode number

find . -inum 12701 --> make sure this outputs 1 file

find . -inum 12701 -exec rm {} \;

**Disk Errors:**

SC\_DISK\_ERR4. IBM suppt had me look at the sense data and they decoded it. Fields looked at were. Top Right then count left to

column 3 & 4

FSCSI\_ERR4. Sense Data Fields looked at were top left then count

right, columns 3 & 4. Also Bottom right then one up then count left

to column 6.

Basically IBM Supt knew the particulars of the error. Ended up

running a snap -gbc and sent it in for analysis.

SC\_DISK\_ERR2 Check errpt to see if the IDENTIFIER is B6267342. Check link below for cause relating to nmon http://www.ibm.com/developerworks/forums/thread.jspa?threadID=334029&tstart=0#14485246

**Sending an attachment via mailx:**

uuencode /ecmd6qapp03\_090423\_0800.nmon nmondata.nmon | mailx -s"nmon"

jmtx@pge.com

uuencode <file\_name> <attachment\_name>

**Email cofig file:**

/etc/mail/sendmail.cf

Or

/etc/sendmail.cf

http://www-01.ibm.com/support/docview.wss?uid=isg3T1011822

**EMAIL TESTING:**

telnet mail.contoso.com 25 EHLO test.com

***Type the following command to tell the receiving SMTP server who the message is from:***

*MAIL FROM:Admin@test.com*

***Type the following command with the SMTP address of the person you want to send to:*** *RCPT TO:* [*User@Domain.Com*](mailto:User@Domain.Com)**Type the following command to tell the SMTP server that you are ready to send data: DATA**

1.**You are now ready to start typing the 822/2822 section of the message. The user will see this part of the message in their inbox. Type the following command to add a subject line:** Subject: test message**Press ENTER two times. You do not receive a response from this command.**

**Note The two ENTER commands comply with Request for Comments (RFC) 822 and 2822. 822 commands must be followed by a blank line.**

2.**Type the following command to add message body text:** This is a test message you will not see a response from this command.

3.**Type a period (.) at the next blank line, and then press ENTER. You receive the following response:** 250 OK

4.**Close the connection by typing the following command:**

QUIT

Make sure that root:system own /usr/sbin/sendmail

What is the version of sendmail on box?

echo \$Z|sendmail -d0

**Can ping but ssh just drops need to login using console and run the below commands** stopsrc -s vasd ; **kill remnants vasd pids**startsrc -s vasd ; startsrc -s pblocald

netstat notes:

netstat -in

# netstat -in

Name Mtu Network Address Ipkts Ierrs Opkts Oerrs Coll

en0 1500 link#2 0.21.5e.34.34.42 204041005 0 67446977 3 0

en0 1500 172.18.185 172.18.185.42 204041005 0 67446977 3 0

en0 1500 172.18.184 172.18.184.53 204041005 0 67446977 3 0

en0 1500 172.18.184 172.18.184.52 204041005 0 67446977 3 0

en1 1500 link#3 0.21.5e.34.34.43 186308 0 491687 2 0

en1 1500 172.19.185 172.19.185.46 186308 0 491687 2 0

en2 1500 link#4 0.21.5e.34.34.e4 1471919 0 1204391 2 0

en2 1500 172.18.186 172.18.186.41 1471919 0 1204391 2 0

Name: Interface Name MTU: Maximum packet size(in bytes) transmitted via interface Network: Name of **HOST network** or IP Address Address: Either MAC or IP Ipkts: TOTAL number of packets received. Ierrs: TOTAL number of input errors. For example: Malformed packets, checksum errors or insufficient buffer space in device driver Opkts: TOTAL number of packets transmitted. Oerrs: TOTAL number of output errors. For example, a fault in the local host connection or adapter output queue overrun Coll: Number of packet collisions detected. The **netstat -i** command does not support the collision count for Ethernet interfaces (see entstat for Ethernet statistics)

If the number of errors during output packets is greater than 1 percent of the total number of output packets (from the command **netstat -i**); that is,Oerrs > 0.01 x Opkts Then increase the send queue size (*xmt\_que\_size*) for that interface. The size of the *xmt\_que\_size*could be checked with the following command:# lsattr -El *adapter*

***subnet mask to /X to HEX table to #ofHosts:***

*255.255.240.0 /20*

*255.255.248.0 /21*

*255.255.252.0 /22*

*255.255.254.0 /23*

*255.255.255.0 /24*

*ffff8000 255.255.128.0*

*ffffc000 255.255.192.0*

*ffffe000 255.255.224.0*

*fffff000 255.255.240.0*

*fffff800 255.255.248.0*

*fffffc00 255.255.252.0*

*fffffe00 255.255.254.0*

*ffffff00 255.255.255.0*

***Data Rate Units:***

*fffff000 4096*

*fffff800 2048*

*fffffc00 1024*

*fffffe00 512*

*ffffff00 256*

*b stands for bit B stands for byte 8 bits equal 1 byte 10Gbps = 1.25GBps (divide the Gbps by 8(to convert to GBps) so 10 / 8 = 1.25* So to get how much data you can transfer per hour in GBps: 1.25 \* 60 \* 60 = 4500 GB per hour

Mb/s or Mbps = Mega bits per second MB/s or MBps = Mega bytes per second Gb/s or Gbps = Giga bits per second

GB/s or GBps = Giga bytes per second

So 1MB/s is the same as 8 Mbps 1Gbps = 1000Mbps which is 125MBps

netstat -i -Z Clears all the statistics counters netstat -I <enX> <interval>

# netstat -I en3 3 input (en3) output **input (Total) output**

packets errs packets errs colls **packets errs packets errs colls** 0 0 68 68 0 **90613 0 43055 68 0**



000 0 0 2 0 0 0

0 0 **4291 0 1975 0 0** 2 0 **55 0 66 2 0**0 0 **39 0 30 0 nfs 0**

There are 2 reports. On the left, the individual interface. On the right, ALL interfaces netstat -r

Displays routing table info.

Flags: A Active Dead Gateway Detection U UP H This is a HOST G The route is to a GATEWAY D The route was created dynamically by a redirect M route has been modified by a redirect L Link level address is present in the route entry c Access to this route creates a cloned route W Route is a cloned route b route represents a broadcast address e has a binding cache entry l route represents a local address m route represent a multicast address

* R  Host or Net not reachable
* S  Manually added

The character => at the end of the line means the line is a duplicate route of the route on the next line # netstat -rn

Routing tables Destination Gateway Flags Refs Use If Exp Groups

Route tree for Protocol Family 2 (Internet):

default 127/8 172.18.184.0

172.18.185.1 UG 11 64589545 en0 127.0.0.1 U 29 2219645 lo0 - -

172.18.184.53 UHSb 0 0 en0

- - - - =>

172.18.184/24 172.18.184.52 172.18.184.53 172.18.184.255 172.18.185.0 172.18.185/24 172.18.185.42 172.18.185.255 172.18.186.0 172.18.186/24

**netstat -rs**

172.18.184.53 U 127.0.0.1 UGHS 127.0.0.1 UGHS

172.18.184.53 UHSb

1 844762 en0 0 38979 lo0 0 180210 lo0

0 4 en0 0 0 en0

3 1759931 en0 2 907997 lo0

- -

- -

- -

- -

- -

- -

- -

- -

172.18.185.42 172.18.185.42 127.0.0.1

UHSb U

UGHS

-

-

-

-

=>

=>

172.18.185.42 172.18.186.41

172.18.186.41

UHSb 0 15 en0

UHSb 0 U 1

0 en2 938448 en2



shows routing statistics

routing:

0 bad routing redirects

0 dynamically created routes

0 new gateways due to redirects

3848 destinations found unreachable

0 uses of a wildcard route

Adjust virtual processor on UORC005N and UORC004S's

profile on the HMC.

Please apply the following for both LPARs:

1) Select LPAR, click 'Tasks' button,& click 'Configuration' >

'Manage Profile'

2) Then edit the default profile

3) On the 'Processors' tab set the 'Maximum virtual processors' to 4

and click OK then click Close.

4) Click 'Tasks' button, and click 'Dynamic Logical Partitioning' >

'Processor' > 'Add/Remove'

5) Increase Virtual Processors to 2 then ok.

6) select the logical partition, click the Tasks button, and click

Configuration > Save Current Configuration

7) Enter the name of the new partition profile into New profile and

click OK

**Listing 5. Using svmon with the -G flag**

**# svmon -G**

|  | **size** | **inuse** | **free** | **pin** | **virtual** |
| --- | --- | --- | --- | --- | --- |
| **memory** | **1048576** | 1048416 | 160 | 79327 | 137750 |
| pg space | 1048576 | 524 |  |  |  |
|  |  |  |  |  |  |
|  | work | pers | clnt | lpage |  |
| pin | 79327 | 0 | 0 | 0 |  |
| in use | 137764 | 910652 | 0 | 0 |  |

The size reports back to total size of RAM in 4k pages. The inuse

column reports back the pages in RAM used by processes plus the

number of persistent pages that belonged to a terminated process and

is still resident in RAM. Free reports back the amount of pages on

the free list. Pin reports back the number of pages pinned in

physical memory (RAM). This cannot be paged out.

The paging space column reports back the actual use of paging space (in 4k pages). It's important to make the distinction between this and what is reported back in vmstat. The vmstat avm column shows ALL the virtual memory that is accessed, even if it is not paged out. I also like to look at the working and persistent numbers. These parameters show the number of both the working and persistent pages in RAM. Why is this important? As you might remember from Part 1, I discussed some of the differences between working and persistent storage. Computational memory is used while your processes are working on actual computation. They use working segments, which are temporary (transitory) and only exist up until the time a process terminates or the page is stolen. File memory uses persistent segments and have actual permanent storage location on the disk. Data files or executable programs are mapped to persistent segments rather then working segments. Given the alternative, you would much rather have file memory paged to disk than computational memory. In this situation, computational memory is unfortunately paged out more than file memory. Perhaps a little tuning of the vmo parameters might help shift the balance in your favor. Another useful feature of svmon is that you can display memory statistics for a given process. Listing

6 provides an example. **Listing 6. Using svmon to display memory statistics for a given process**

From here you can determine that this process is not using paging

space. Using the ps command I discussed earlier, in conjunction with

svmon, positions you to find the offending memory resource hog.

**Changing the AIX Login Herald**

Here are two ways to customize the AIX login prompt. The first way is to add a "herald" in the default stanza in the **/etc/security/login.cfg** file as follows

default: sak\_enabled = false logintimes = logindisable = 0

logininterval = 0 loginreenable = 0 logindelay = 0 herald =

# svmon -P | grep -p 15256

-----------------------------------------------------------

-------------------- Pid Command Inuse Pin Pgsp Virtual 64-

bit Mthrd LPage 15256 X 12102 3221 0 12022 N N N

"Dodgers\r\nID:"

The second method uses the "chsec" command to modify the same file:

**chsec -f /etc/security/login.cfg -s default -a herald="Dodgers\r\nID:"**

Note: for additional security, I recommend changing the standard Unix "login" prompt to something else like "ID". The "login" prompt almost invariably identifies the system as Unix to hackers.

**NMAP:**

nmap -vv <ip\_address> basic scan

nmap <ip\_address/24> scan subnet

nmap -sL <ip\_address/24> lists hosts it will scan

nmap <ip\_address/24> -exclude <ip\_address> scans subnet except

exclude

nmap -sS -vv <ip\_address> half open scan(doesnt reply to SYN-ACK)

nmap -PR -vv <ip\_address/24> request MAC address

nmap -sS -vv <ip\_address> -p <port\_to\_scan> -Pn this will scan a

specific port. Look in output for state of port. The states can be:

open: port is open

filtered: firewall or network obstacle. Cant tell open/closed

closed: no app is listening

unfiltered: unresponsive to nmap

**errpt example:**

errpt -aj A924A5FC use the label in the first column

# errpt TIMESTAMP format:

0820122810 (08 = mth, 20 = day, 12 = hour, 28 = min, 10 = year)

**Remove old temporary files**

0 1 \* \* \* /usr/bin/find /tmp -type f -mtime +90 -exec rm {} \;

>/dev/null 2>&1

**Find deleted files that processes still have opened:**

fuser -V -d <path>

**then**

ps uxwww -p <PID>

**Pulling date, time and size of mksysb across an environment. Good example of awk formatting,regex, substitution and arithmetic:** [root@cgnim01a]:/home/root/tucker# cat ./mksysb\_check.sh #!/bin/sh

export DSH\_NODE\_LIST=/home/root/tucker/allwaveshort

echo "\n\n=-=-=- MKSYSB IMAGE LAST GENERATED -=-=-=\n"

echo " ------------------------------------"

echo " LPAR DATE/TIME SIZE "

echo " ------------------------------------"

dsh -l ibmtech ls -l /mksysb/backup|tail +1||grep -v total|awk 'sub

(/\.dts\.ca\.gov:/,"") {printf "%-10s %s %s %s \t%2.1fGB\n",

$1,$7,$8,$9,$6/1024/1024/1024}'

echo "\t=-=-=- DONE -=-=-=\n"

CHRP Error Log Sense:

http://9.154.96.133/chrp.htm

**Using colors in Korn Shell**

**CUoD install activation code: They are public:**

<http://www-912.ibm.com/pod/pod> **Enter your activation code on your server using the HMC. To enter your code: a. In the navigation area of the HMC window, expand Systems Management. b. Select Servers. c. In the contents area, select the server on which you want enter your activation code. d. Select Tasks > Capacity on Demand (CoD) > Enter CoD Code. e. Type your activation code in the Code field. f. Click OK.**

**SYSTEM to AIX MATRIX**

https://www-304.ibm.com/support/docview.wss?uid=ssm1platformaix

**FLRT**

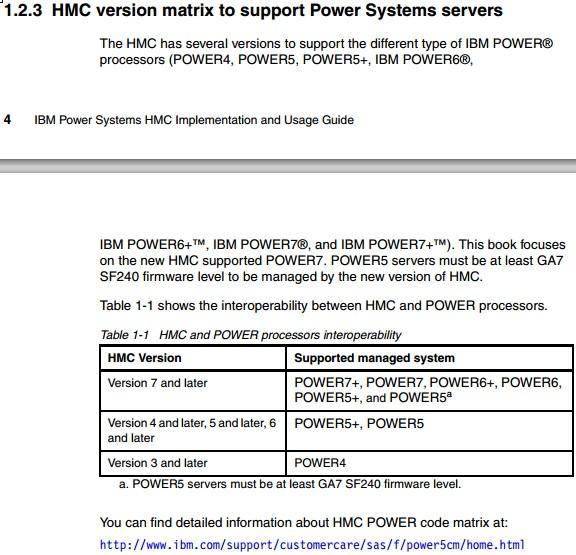
http://www14.software.ibm.com/webapp/set2/flrt/home

**Preparing to Migrate in AIX**

http://www-304.ibm.com/support/docview.wss?uid=isg3T1011431

HMC version 7 support matrix:



**Reset hscroot password:**

1 Power off the HMC.

2 Power on the HMC, and as soon as the Loading grub message is displa

yed quickly press the F1 key to get into grub.

The Grub menu will show one line with the text hmc.

3 On the Grub menu, select e for edit. The next GRUB screen is displayed with two lines:

root (hd0,0) kernel (hd0,1)/boot/bzImage ro root=/dev/hda2 vga=0x317 apm=power-off

Note: The root device can vary by model: hda2 C03, C04, CR2, and hdc2 for CR3. 4 Move the cursor down to the line starting with kernel. Select e for edit.

Move the cursor to the right and append the following to the end of the string:

V5.1.0 to V6.1.1: init=/bin/bash V6.1.2 and later: init=/bin/rcpwsh

The final string will vary slightly by version and model: kernel (hd0,1)/boot/bzImage ro root=/dev/hda2 vga=0x317 apm=power-off init=/bin/rcpwsh

Press the Enter key to save the changes. 5 Press b to boot the changed selection.

This will boot to a bash shell: (none):/#. 6 Verify root is mounted read/write. Type the following command:

mount -o remount,rw /dev/hda2 / Note: The root device can vary by model: hda2 C03, C04; hdc2 for CR2,CR3; sda2 for CR4.

7 Reset root and hscroot passwords. Run the following commands to reset the passwords. The command will prompt the user to enter the new password and a confirmation password. Any warning concerning the password being too simplistic can be ignored.

Reset root: /usr/bin/passwd

Reset hscroot: /usr/bin/passwd hscroot

8 Reboot the HMC (left ctl+left alt+del). 9 Log on as hscroot.

10 Immediately after logon, use the Web-based System Manager (HMC GUI) or the chhmcusr.

Sun Commands(I dont know why...Sun sucks)

**Is the Sun box virtual or dedicated I/O?**

zoneadm list -cv if the global = physical, local = virtual

also you can run prtconf it will only run on physical box and it will not run on virtual

**Red Hat Linux**

When connecting to wireless and you get a prompt for the password for the default keyring: Go to /home/<user>/.gnome2/keyrings and rename or delete default.keyrings

LINUX:

Change timezone on Red Hat 6:

file /etc/localtime

unlink /etc/localtime

vi /etc/sysconfig/clock

-> change Zone to what ever you need

run: tzdata-update

Is a server a VM?

dmesg|grep –i vm

END OF AIX OS

TUNING

If numperm is lower than minperm is the box in danger of running out of memory? Or better yet, what are the consequences of that?

Actually John, it is in danger of paging since it will steal comp

instead of if numperm > minperm where it will steal noncomp and won't page.

Thanks.

Jerry

**CPU stuff:**

an example of an LPAR with two virtual processors. This means the assigned processing units must be somewhere between 0.2 and 2. The maximum processing units the LPAR can utilize is two. If you want this LPAR to use more than two processing units worth of cycles, you need to add more virtual processors. If you add two more, then the assigned processing units must now be at least 0.4 and the maximum utilization is four processing units If you have an LPAR with four virtual processors and a desired 1.6 processing units–and all four virtual processors have work to perform–each receives 0.4 processing units. The maximum processing units available to handle peak workload is four. Individual processes

or threads may run slower, while workloads with a lot of processes or

threads may run faster.

To Assigning VP, round up the ec to the nearest whole number. .5 ec =

1 VP; 1.85 ec = 2 VP

ec is EQUALLY DISTRIBUTED to VP's 1.85 ec backing 2 VP's

PROCESSING ENTITLEMENT CAPACITY(PEC) = ec / VP

example: the PEC = .8 per VP when ec = 1.6 and VP = 2 <--- 1.6/2 = .8

VP = 4

ec = 2.5

then PEC = .625 per VP

The extremes

MAX:

VP = 2

ec = 2.0

then PEC = 1.0 per VP

MIN:

VP = 20

ec = 2.0

then PEC = 0.1 per VP

The PEC of a VP WILL NEVER EXCEED 1.0 pu. In other words,

The maximum number of processing units that can be allocated to a

virtual processor is always 1.00

!!!THIS IS FREAKEN IMPORTANT!!!

the **UPPER BOUNDARY of processing capacity** in a micro-partition is determined by the number of virtual processors that it possesses. For example, if you have a partition with 0.50 processing units and one virtual processor, the

partition cannot exceed 1.00 processing units. However, if the same

partition with

0.50 processing units was assigned two virtual processors and

processing

resources were available, the partition could use an **additional** 1.50 processing units(2.0) Currently the maximum number of VP that can be configured to an LPAR is 64.(PowerVM-Jan2011:53,54)

A reasonable setting for UNCAPPED LPARs:

define the desired and maximum virtual processor attributes greater

than the corresponding capacity entitlement attributes.

The exact value is installation-specific, but 50 to 100 percent more

is reasonable.(PowerVM-Jan2011:53)

Example: PU: min: .1 des: 2.0 max: 8.0 VP:

min: 1 des: 3 or 4 < ---- This is 50%(3) - 100%(4) of the PU:des value max: 12 or 16 <--- Determines upper boundary of processing units.

**Notes from Earl Jew:**

I tune by vCPU count, as guided by the load averages offered by "uptime", and confirm my tuning by observing the vmstat:kthr:r column.

I often grant only 0.1 eCPU for each vCPU for a ratio of 0.1-to-1. That is 0.1 of entitlement (eCPU) for each virtual vCPU

For Power7, I try to keep vCPU counts to multiples of 8 vCPUs for servers created with 8-core CPUs.

For Power7, I try to keep vCPU counts to multiples of 6 vCPUs for servers created with 6-core CPUs. For Power7, I try to keep vCPU counts to multiples of 4 vCPUs for servers created with 4-core CPUs.

I also leave CPU-folding active by-default; that is, I rarely turn off CPU-folding. Folded down vCPUs are very light weight. This is the key saving grace; this is what makes this method viable

You can thus offer a reasonably higher vCPU count -- and not restrict the overall frame's total finite amount of eCPU capacity to host many more-than-average counts of sibling LPARs on a frame. [Thus, the next resource limitation then becomes the larger amount of gbRAM needed in the frame.]

As such, when the workload is not active enough to use all-but-one vCPU, they fold down all vCPUs (but never vCPU0) and they otherwise absorb virtually no other resources.

In contrast, when the workload does explode with multiple active threads, the higher count of vCPUs will go-active/unfold and attend the workload quickly, thereby finishing the work sooner, and then folding-down the unused vCPUs when done.

The only time the above method does not work OPTIMALLY (but it does work), is when there are multiple LPARs with consistently continuously high active thread count workloads. In such cases though, such LPARs would/should not be using a shared-pool of CPUs. But rather, these should be granted dedicated CPU-cores and booted in this fashion.

END OF TUNING

VI, SED AND AWK COMMANDS

**VI commands that I keep forgetting: Global search and replace:** :%s/search\_string/replacement\_string/g

**Insert a # at the beginning of a range:**

:1,20s/^/#/

**To show your current line number:**

:.=

**Show the total number of lines in a file:**

:=

| :n,m | Range - Lines n-m |
| --- | --- |
| :. | Range - Current line |
| :$ | Range - Last line |
| :'c | Range - Marker c |
| :% | Range - All lines in file |

**Mark a line in vi:** mc **<= this marks the line as 'c'**

**Mark a spot and delete TO it:**ma **then go to spot you want to delete from then** d'a

**So if you want to insert a tab for a range. Mark the first line then go to the last line then type:** :'c,.s/^/<enter tab here>/

**if you want to do the same thing with 2 markers then:**

:'c,'ds/^/<enter tab here>/

**this will place a tab at the beginning of each line from marker c to**

**marker d**

**To copy AIX command line verbiage into a file:**

v

**Enable line count:**

create .exrc in home directory with vi commands that you would like set automatically i.e. to set line numbers on put: ***set number*** in the .exrc file :set number

**How to delete blank lines within vi:**

<esc>:g/^$/d

**Lines with spaces:**

<esc>:g/^ \*$/d

**Remove trailing white spaces: the % means all lines in file**

:%s/[ ^I]\*$/

**Find # at end of line:**

/#$/

**Matches if the first character is not a # in the line:**

/^[^#]/

**Matches if there are zero or more numbers in the line:**

/[0-9]\*/

**Matches if the line starts with any letter:**

/^[a-zA-Z]/

**REGEX Patterns: excludes comments and blank lines** grep -vE '^#|^ \*$' /etc/ntp.conf

|  |
| --- |

**Quoting:**

single quotes ' strips ALL meaning from special characters. This is

also called a strong quote

double quotes “ strips SOME meaning from special characters. This is

also called a weak quote

**sed commands:**

To remove all blank lines, enter:

$ cat /etc/rssh.conf | sed '/^$/d' > /tmp/output.file

Remove last character:

sed ‘/.$//’

END OF VI, SED AND AWK COMMANDS

HACMP HACMP HACMP

**What version of HACMP am I running:**

ssh -q $i lslpp -l |grep cluster.es.server.rte`

**PowerHA Commands:**

**Show the CAA disk:**

clmgr query repository

clshowres

cltopinfo

clstat

odmget HACMPdisktype

/var/hacmp/log/hacmp.out

File Collections:

smitty cspoc -> file collections

if you change/show you can see the directories that participate. clcomd is the process that syncs the files

path: /usr/es/sbin/cluster/utilities/<command>

clpasswd [-g resource group] user

Change the current users password on all nodes in a cluster, or in a

resource group.

clRGinfo [-a][-h] [-v][-s|-c] [-p] [-t] [resgroup1] [resgroup2]...

Gives you a report on the location and state of one or more specified

resource groups.

clgetaddr [-o odmdir ] nodename

Returns a PINGable address for the specified node name.

cllscf

Lists complete cluster topology information.

cllsdisk {-g Resource Group }

Lists PVIDs of accessible disks in a specified resource chain.

cllsfs {-g resource group } [-n]

Lodmget HACMPdisktype file systems accessible by all participating

nodes in a resource group.

cllslv [-g resource group ] [-c | -s] [-n] [-v]

Lists the names of logical volumes accessible by nodes in a specified

resource chain.

cllsgrp

Lists names of all resource groups configured in the cluster.

cllsnim [-d odmdir ] [-c] [-n nimname ]

cllsnim shows information about the different network types and

tunable values.

cllsparam {-n nodename } [-c] [-s] [-d odmdir ]

Lists runtime parameters.

cllsres [-g group ] [-c] [-s] [-d odmdir ] [-qquery ]

Sorts HACMP for AIX Configuration Database resource data by name and

arguments.

cllsserv [-c] [-h] [-n name ] [-d odmdir ]

Lists application servers by name.

cllsvg {-g resource group } [-n] [-v] [-s | -c]]

clshowres [-g group ] [-n nodename ] [-d odmdir ]

Shows resource group information for a cluster or a node.

clstat [-c cluster ID | -n cluster name] [-i] [-r seconds] [-a] [-o]

[-s]

Cluster Status Monitor (ASCII mode).

clstat [-a] [-c id | -n name ] [-r tenths-of-seconds ][-s]

Cluster Status Monitor (X Windows mode).

cltopinfo [-c] [-i] [-n] [-w] [-m]

Shows complete topology information: The cluster name, total number

of networks, total number of missed heartbeats and nodes configured

in the cluster. Displays all the configured networks for each node.

Displays all the configured interfaces for each network. Also

displays all the resource groups defined.

get\_local\_nodename

Lists volume groups shared by nodes in a cluster. A volume group is

considered shared if it is accessible by all participating nodes in a

configured resource group. Note that the volume groups listed may or

may not be configured as a resource in any resource group. If neither

-s nor -c is selected, then both shared and concurrent volume groups

are listed.

Returns the name of the local node.

clgetactivenodes [-n nodename ] [-o odmdir ] [-ttimeout ] [-v verbose

]

Retrieves the names of all cluster nodes.

END OF HACMP

**CAA**

caa is part of the OS(post AIX71)

lssrc -g caa shows 2 services in the group

**clconfd**: cluster config daemon wakes up every 10 mins to sync any needed changes to the cluster

**clcomd:** is the cluster communications daemon

END OF CAA

GPFS

**GPFS Commands:**

**State of the cluster**

#       /usr/lpp/mmfs/bin/mmgetstate -a  
  
**Lists license info**  
#       /usr/lpp/mmfs/bin/mmlslicense -L

**Lists more info**  
#       /usr/lpp/mmfs/bin/mmlscluster

#       /usr/lpp/mmfs/bin/mmgetstate -a > gpfsinfo.`uname -n`.out  
#       /usr/lpp/mmfs/bin/mmlslicense -L >> gpfsinfo.`uname -n`.out  
#       /usr/lpp/mmfs/bin/mmlscluster >> gpfsinfo.`uname -n`.out  
                # Capture info in a file

**Issue the lsuser command to all nodes in the cluster**  
#       /usr/lpp/mmfs/bin/mmdsh -v -N all lsuser USERID

**Add a new node to a cluster**

#       /usr/lpp/mmfs/bin/mmaddnode -N dkencaap101-gpfs  
                # there are other requirements  
                # /etc/hosts adds  
                # root ssh cross cert'ed

**Shutdown**  
#       /usr/lpp/mmfs/bin/mmshutdown

**Startup**  
#       /usr/lpp/mmfs/bin/mmstartup

# the ip of a node in the cluster, gpfs primary port is 1191  
/usr/lpp/mmfs/bin/mmsdrcli getObj  192.168.6.2 1191 5

mmlscluster mmlsconfig

**Verify the cluster state:**

# mmgetstate -a

Node number Node name ------------------------------------------

1 AVPMA521-GPFS active 2 AVPMA524-GPFS active

Log

tail -f /var/adm/ras/mmfs.log.latest

Dump/Save save current config: gpfs.snap

**Unmount all GPFS FS’s on all nodes:**

mmumount all -a

**Mount all GPFS FS’s on all nodes:**

mmmount all -a

**List active mounts:**

mmlsmount all

**List current NSDs (network shared disks):**

GPFS state

mmlsnsd -M

Disk name NSD volume ID Device Node name Remarks ---------------------------------------------------------------------------------------

mycluster00nsd 0AEC13994BFCEEF7 mycluster00nsd 0AEC13994BFCEEF7 mycluster00nsd 0AEC13994BFCEEF7 - host3.mydomain.com (not found) directly

attached OR # mmlsnsd

File system Disk name NSD servers ---------------------------------------------------------------------------

gpfs01\_abinitio abinitio1 gpfs01\_abinitio abinitio2 gpfs01\_abinitio abinitio3 gpfs01\_abinitio abinitio4 gpfs01\_backup backup1 gpfs01\_backup backup2 gpfs01\_backup backup3 gpfs01\_backup backup4 gpfs01\_sandbox sandbox1 gpfs01\_sandbox sandbox2 gpfs01\_sandbox sandbox3 gpfs01\_sandbox sandbox4 gpfs01\_sandbox sandbox5

**Add a disk to the cluster:**

/dev/hdisk7 host1.mydomain.com /dev/hdisk7 host1.mydomain.com

AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS

AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS

AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS AVPMA521-GPFS,AVPMA524-GPFS

find server that has /gpfs directory. GPFS changes are done from 1 node. verify that LUN lock is turned off. Create a new file with the disk definitions: hdiskpower161:AVPMA521-GPFS,AVPMA524-GPFS::dataAndMetadata:100:backup6 hdiskpower162:AVPMA521-GPFS,AVPMA524-GPFS::dataAndMetadata:100:backup7

File Format: DiskName:ServerList::DiskUsage:FailureGroup:DesiredName:StoragePool

then execute: mmcrnsd -F <location\_of\_disk\_definitions>

**Remove NSD disks:**

Same file format as above but use the command:

mmdelnsd -F <location\_of\_disk\_definitions>

**Disable File System Quota:**

mmchfs -Q no mmumount -a <filesystem> mmmount -a <filesystem>

**Add NSD to a filesystem:**

mmadddisk <file\_system> -F <location\_of\_disk\_definitions>

**List file systems that GPFS controls:**

mmlsfs all -a or mmlsnsd (look at first column of data)

**inodes running out on GPFS FS:**

# df -g | grep sandbox /dev/gpfs01\_sandbox 238.24 223.23 7% # mmchfs /dev/gpfs01\_sandbox -F 1M # df -g | grep sandbox /dev/gpfs01\_sandbox 238.24 223.23 7%

END OF GPFS

NETWORKING

144859

144892

81% /dtuetl/sandbox 14% /dtuetl/sandbo#x

**How to verify that you are on a specific network:**

ping the wire(network part of the subnet) of the network you want to

validate. Doing this will send out an arp request to everything in

that network then check out your arp table and you should see

responses from everyone else on the network.

e.g.

arp -a|wc -l => 186

en0 10.249.48.180 netmask 0xfffffc00

use a subnet calc to find the wire.

ping 10.249.48.0(you can see the replies from hosts)

arp -a|wc -l => 210

**Checking settings on network:(jumbo frames(good only on gig networks)) Pull attributes on real/physical NIC's [padmin@chvio01b]:/home/padmin$** for i in 1 2 3 4 5

> do

> lsdev -dev ent$i -attr|grep jumbo\_frames

> done

jumbo\_frames yes

jumbo\_frames yes

jumbo\_frames yes

jumbo\_frames yes

jumbo\_frames yes

Transmit jumbo frames True

Transmit jumbo frames True

Transmit jumbo frames True

Transmit jumbo frames True

Transmit jumbo frames True

**Dynamically change the MTU:**

chdev -l enX -a mtu=9000

**Network Settings:**

It is important that you configure both the adapter and the other

endpoint of the cable the same way. If one endpoint is manually set

to a specific speed and duplex mode, the other endpoint should also

be manually set to the same speed and duplex mode. Having one end

manually set and the other in Auto\_Negotiation mode normally results

in problems that make the link perform slowly.

**Adapter MTU setting:**

All devices on the same physical network, or logical network if using

VLAN tagging, must have the same Media Transmission Unit (MTU) size.

This is the maximum size of a frame (or packet) that can be sent on

the wire.The various network adapters support different MTU sizes, so

make sure that you use the same MTU size for all the devices on the

network. For example, you can not have a Gigabit Ethernet adapter

using jumbo frame mode with a MTU size of 9000 bytes, while other

adapters on the network use the default MTU size of 1500 bytes.

10/100 Ethernet adapters do not support jumbo frame mode, so they are

not compatible with this Gigabit Ethernet option. You also have to

configure Ethernet switches to use jumbo frames, if jumbo frames are

supported on your Ethernet switch.

It is important to select the MTU size of the adapter early in the

network setup so you can properly configure all the devices and

switches. Also, many AIX® tuning options are dependent upon the

selected MTU size.

**To see the NIC's status:**

entstat -d entX|egrep "VLAN|Real A|Virtual A|ETHERNET|Media|Link

Status"| grep -v ETHERNET0

**What port and switch is NIC on:(chdev -l enX -a state=up). Perform it on the SEA or if no SEA then the EC or individual interface(-c 2 if there are two ports in the etherchannel)**tcpdump -nn -vvv -i enX -s 1500 -c 1 'ether[20:2] == 0x2000'|egrep "Device-ID|Port-ID|Native"

tcpdump -nn -vvv -i enX -s 1500 -c 1 'ether[20:2] == 0x2000'

**Notes on tcpdump:(Aaron Dunphy)**

when you invoke a tcpdump, it puts the adapater into promiscuous mode

which will show all traffic on the switch which is exposed to that

given port.

**To look at network traffic going to a host:**

tcpdump -I -i en0 host <host\_name>

**To look at network traffic for DNS on en1:**

tcpdump -I -i en1 udp port 53

**All usernames in /etc/passwd:**

cat /etc/passwd|awk -F: '{print $1}'

**You can set ulimit variables WHILE creating users:**

mkuser rss=-1 fsize=-1 core=524288 gecos="John Tucker" jtuck

**or after the username is made:**

**List Ethernet interfaces:**

netstat -in|grep ^en|grep -v link|awk '{print $1}'|sort|uniq

**Network Adapter Commands:**

lsattr -El entX List speed and duplex of card

netstat -v|grep Speed Shows 'Selected' and 'Running' Media Speed

EMC POWERPATH

**Rename a hdiskpower device:**

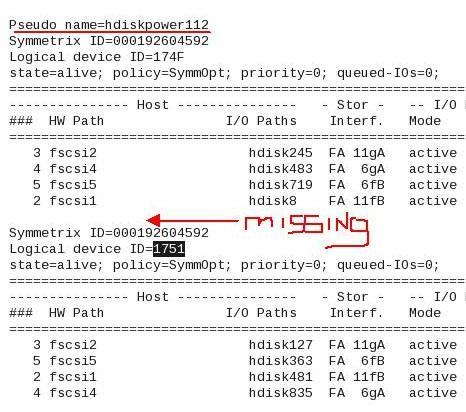
emcpadm renamepseudo -s hdiskpowerS -t hdiskpowerT

**Concise output of power disks:**

powermt display paths|grep -v -p =0

**powermt display does not assign hdiskpower**



**Removing HBA that has powerdisks on it(Asad, Carne): Basically you need to have powerpath delete the disks since they are in charge of them:**powermt remove dev=all hba=0 rmdev -Rdl fcs0

**hdiskpower not under powerpath control:**

powermt remove dev=6 Bad dev value 6, or not under Powerpath control. **If the device is not available, you’ll get a “Bad dev value” as shown below.(reinstall powerpath)**unmanage the underlying disks

powermt unmanage dev=hdisk3

chdev -l hdisk3 -a pv=clear (if has PVID) powermt remove dev=all uninstall/reinstall powerpath

**When powerpath is being stubborn about being deleted(cant rmdev**

**hdiskpowerX:(Ive even used this method on hdisks. Also I have**

**odmdelete'd power & their hdisks then rebooted, it helped)**

**for each power disk:**

odmdelete -q name=hdiskpowerX -o CuDv odmdelete -q name=hdiskpowerX -o CuAt **then**odmdelete -q name=powerpath0 -o CuDv odmdelete -q name=powerpath0 -o CuAt

rm /dev/powerpath0

**reboot then if you want to unistall powerpath now is the time(**installp -u EMCpower)

**UNLICENSED Powerpath. In basic fail over mode**

Pseudo name=hdiskpower0 Symmetrix ID=000195701766 Logical device ID=0C76 Device WWN=60000970000195701766533030433736 state=alive; policy=**BasicFailover**; queued-IOs=0 ========================================================================= =====

--------------- Host --------------- - Stor - -- I/O Path -- -- Stats --- ### HW Path I/O Paths Interf. Mode State Q-IOs Errors ========================================================================= =====

3 fscsi3 2 fscsi2 1 fscsi1 0 fscsi0

**Resolution:**

hdisk7 hdisk3 hdisk2 hdisk1

FA 7f:00 **unlic** FA 10f:00 **unlic** FA 7f:00 **unlic** FA 10f:00 active

alive alive

alive alive

0 0 0 0

0 0 0 0

Run the following commands: powermt check\_registration(Make sure the license shows with full capabilities.) powermt set policy=co dev=all (Set the Policy to ClarOpt.) powermt display dev=all (Make sure all device paths are now licensed.) powermt save (Save the configuration.)

**EMC Power Path Dead Paths:**

powermt check (remove dead paths)

powermt save

cfgmgr -l fscsiX

**Check default power disk policies and change them:**

lsattr -D -c driver -s pseudo -t power|grep reserve\_enable;

lsattr -D -c disk -s pseudo -t power|grep reserve\_policy;

lsattr -D -c disk -s fcp -t SYMM\_VRAID|grep reserve\_policy;

chdef -c driver -s pseudo -t power -a reserve\_enable=no;

chdef -c disk -s pseudo -t power -a reserve\_policy=no\_reserve;

chdef -c disk -s fcp -t SYMM\_VRAID -a reserve\_policy=no\_reserve

**other chdef commands: List attributes that have modified default values:** chdef -H

for i in `cat chdef`

do

echo $i

ssh -q $i 'pbrun lsattr -D -c driver -s pseudo -t power -a

reserve\_enable;pbrun lsattr -D -c disk -s pseudo -t power -a

reserve\_policy;pbrun lsattr -D -c disk -s fcp -t SYMM\_VRAID -a

reserve\_policy'

echo

done

**or you can do this(provided by Shocka Khan):**

powermt remove dev=hdiskX

powermt config

powermt save

cfgmgr -l fscsiX

**When installing EMC powerpath software make sure you do powerpath AND**

**ODM**

**If the LUNs that storage presents to the VIOS or VIOC shows up as:**

**EMC CLARiiON FCP LUNZ Disk**

**Ask the storage guys to see if the LUNs were allocated to a storage**

**group**

**EMC Powerpath Error:**

[padmin@vlvio02]/home/padmin>powermt config

Method error (/etc/methods/cfgpower -l powerpath0 ):

0514-040 Error initializing a device into the kernel.

Unexpected error occured.

Resolve:

PowerPath 5.3 SP1 installation package was placed in the same

directory as the PowerPath 5.3.0 package. When the install from this

directory, it also installed the following fileset:

EMCpower.consistency\_grp 5.3.0.1 C F PowerPath Consistency Group

This fileset id no longer valid and it causes powermt config to fail.

**Follow these sets to resolve this issue: 1. Remove all of PowerPath** (installp -ug EMCpower.\*). **2. Seperate the PowerPath 5.3 SP1 package into its own installation directory 3. Remove all devices:** rmdev -dl **for every device 4. Install PowerPath 5.3 SP1 from the new directory that you created 5. Bring the devices back in with** cfgmgr **and** powermt config

ETHERCHANNEL

**Cisco term = AIX term**

Port Channel = Etherchannel

LACP = 8023ad

Also the interface needs to be ‘up’ for aggregated status to show

“aggregated” but link can show down. Add IP Address to interface to show MAC. On the switch side, we can port channel the same interfaces that are on the server side. In addition to a port channel, LACP(8023ad) can be added(true for a single port too) to the configuration but the

server side mode of the etherchannel needs to be changed otherwise the connection fails

The Link Aggregation status is a diagnostic value and does not affect the AIX® side of the configuration. This status value was derived using a best-effort attempt. To debug any aggregation problems, it is best to verify the switch's configuration.

Also the etherchannel will take on the MAC address of its first

member. Once you know this MAC, you can look at the LACP state and determine which side is out-of-sync(also you can determine by MAC address if the port is the Actor or Partner port):

IEEE 802.3ad Port Statistics:

-----------------------------

Actor System Priority: 0x8000

Actor System: E4-1F-13-FD-5D-E2

Actor Operational Key: 0xBEEF

Actor Port Priority: 0x0080

Actor Port: 0x0003

Actor State:

LACP activity: Active

LACP timeout: Long

Aggregation: Aggregatable

Synchronization: IN\_SYNC

Partner System Priority: 0x8000

Partner System: 54-7F-EE-AF-D4-FC

Partner Operational Key: 0x0034

Partner Port Priority: 0x8000

Partner Port: 0x2E25

Partner State:

LACP activity: Active

LACP timeout: Long Aggregation: Aggregatable **Synchronization: OUT\_OF\_SYNC**

==> Looks like the switch port side is the issue <==

bounce the switch port after you down/detach the etherchannel on AIX. You can also rmdev -l and mkdev -l the device. If you determine that the issue was on the

AIX side then a reboot should fix it

Mode:

The "8023ad" mode enables the Link Aggregation Control Protocol(LACP) to negotiate the adapters in the link aggregation with a LACP enabled switch. (Federico's notes): using "LACP Active" you need to configure the etherchannels to use 802.3ad on the aix/vios side Standard mode means it's a link aggregation both on the server side and on the switch side (or at least it should be) and the hash\_mode determines the algorithm used to distribute the load. src\_dst\_port means the hashing will use both the source and destination port numbers to distribute the packets over the links.

**Command line for changing an etherchannel**

ethchan\_config { -a [ -b ] | -d } EtherChannel Adaptern

ethchan\_config -c EtherChannel Attribute NewValue

ethchan\_config -f EtherChannel

**-p parent etherchannel individual NIC**

ethchan\_config -a -p ent51 ent42 ent12

To add the adapter ent0 as the backup adapter in the EtherChannel

called ent7, type: /usr/lib/methods/ethchan\_config -a -b ent7 ent0

To change the address to ping attribute of an EtherChannel called

ent7 to 10.10.10.10, type:

/usr/lib/methods/ethchan\_config -c ent7 netaddr 10.10.10.10

To force a failover of an EtherChannel called ent7 from the currently

active channel to the idle channel:

/usr/lib/methods/ethchan\_config -f ent7

**Etherchannel Errors: If you get an error when adding an adapter(new or old) to an etherchannel, make sure that the ports on the switch are configured correctly.** http://www.antapex.org/AIX5\_Virtualization\_4.pdf page 74 Important: When adding new adapters to a link aggregation, make sure that the ports on the physical network switch have also been configured to support the new adapters in the link aggregation. Faisal mentioned that the interface might need have to ifconfig enX detach it first(check with ifconfig -a). Then I was able to re-add it with the "Add Main Adapter" field.

**ethchan\_config errno = 2:**

Make sure the entX you are trying to add is not apart of another

etherchannel!

**ethchan\_config errno = 22:**

Double check that are not putting the wrong interfaces into the

channel. @ AX I tried to put in ent4 when it should have been ent8

**EtherChannel:**

lsdev -Cc adapter - will show you if you have any etherchannel

uorc107d:/root> lsdev -Cc adapter

ent6 Available EtherChannel / IEEE 802.3ad Link Aggregation

<jtucke01@uorc107d>lsattr -El ent6 **adapter\_names ent4** EtherChannel Adapters True alt\_addr 0x000000000000 Alternate EtherChannel Address True auto\_recovery yes Enable automatic recovery after failover True **backup\_adapter ent5** Adapter used when whole channel fails True hash\_mode default Determines how outgoing adapter is chosen True interval long Determines interval value for IEEE 802.3ad mode True mode standard EtherChannel mode of operation True netaddr 0 Address to ping True noloss\_failover yes Enable lossless failover after ping failure True num\_retries 3 Times to retry ping before failing True retry\_time 1 Wait time (in seconds) between pings True use\_alt\_addr no Enable Alternate EtherChannel Address True use\_jumbo\_frame no Enable Gigabit Ethernet Jumbo Frames True

**Then we can look at the values set on the etherchannel:**

<jtucke01@uorc107d>lsattr -El en6 alias4 IPv4 Alias including Subnet Mask True alias6 IPv6 Alias including Prefix Length True arp on Address Resolution Protocol (ARP) True authority Authorized Users True broadcast Broadcast Address True mtu 1500 Maximum IP Packet Size for This Device True netaddr 165.253.243.156 Internet Address True netaddr6 IPv6 Internet Address True netmask 255.255.255.0 Subnet Mask True prefixlen Prefix Length for IPv6 Internet Address True remmtu 576 Maximum IP Packet Size for REMOTE Networks True **rfc1323** Enable/Disable TCP RFC 1323 Window Scaling True security none Security Level True state up Current Interface Status True tcp\_mssdflt Set TCP Maximum Segment Size True tcp\_nodelay Enable/Disable TCP\_NODELAY Option True **tcp\_recvspace** Set Socket Buffer Space for Receiving True **tcp\_sendspace** Set Socket Buffer Space for Sending True **or you can see the bolded red values via ifconfig -a**en6: flags=1e080863,c0<UP,BROADCAST,NOTRAILERS,RUNNING,SIMPLEX,MULTICAST,G ROUPRT,64BIT,CHECKSUM\_OFFLOAD(ACTIVE),LARGESEND,CHAIN>

inet 165.253.243.156 netmask 0xffffff00 broadcast

165.253.243.255

**tcp\_sendspace 131072 tcp\_recvspace 65536 rfc1323 0**

VIOC

**Which VIO server is my client using vscsi:**

echo cvai|kdb|grep vscsi[0-9]

* vscsi0   0x000007 0x0000000000 0x0 czapvs231->vhost3
* vscsi1   0x000007 0x0000000000 0x0 czapvs230->vhost3

**Which VIO server is my client using using vFiber:**

echo "vfcs" | kdb

NAME ADDRESS STATE HOST HOST\_ADAP OPENED

NUM\_ACTIVE

fcs0 0xF1000A00001E0000 0x0008 czapvs262 vfchost36 0x01

0x0000

fcs1 0xF1000A0026BF4000 0x0008 czapvs263 vfchost37 0x01

0x0000

fcs2 0xF1000A0026BF2000 0x0008 czapvs262 vfchost37 0x01

0x0000

fcs3 0xF1000A0026BF8000 0x0008 czapvs263 vfchost36 0x01

0x0000

fcs4 0xF1000A0026BF6000 0x0008 czapvs262 vfchost39 0x01

0x0000

fcs5 0xF1000A00EAF92000 0x0004 czapvs263 vfchost39 0x00

0x0000

**List slot location:**

lscfg -l fcs\*

**How to determine if the command being run is at the same level as the command being referenced in man pages?** Use lslpp-w to get the fileset name, then the level of the file set with lslpp-l

**.HMC.**

**Update/Upgrade Firmware on frame:**

http://www-304.ibm.com/webapp/set2/sas/f/power5cm/power7.html

3.0 Firmware Information and Description

Use the following examples as a reference to determine whether your installation will be concurrent or disruptive. For systems that are not managed by an HMC or SDMC, the installation of system firmware is always disruptive. Note: The concurrent levels of system firmware may, on occasion, contain fixes that are known as Deferred and/or Partition-Deferred.

Deferred fixes can be installed concurrently, but will not be

activated until the next IPL. Partition-Deferred fixes can be

installed concurrently, but will not be activated until a partition

reactivate is performed. Deferred and/or Partition-Deferred fixes, if

any, will be identified in the "Firmware Update Descriptions" table

of this document. For these types of fixes (Deferred and/or

Partition-Deferred) within a service

pack, only the fixes in the service pack which cannot be concurrently activated are deferred.

\*Note: \*The file names and service pack levels used in the following

examples are for clarification only, and are not necessarily levels

that have been, or will be released.

System firmware file naming convention:

01EMXXX\_YYY\_ZZZ

\* XXX is the /release/ level

\* YYY is the /service pack/ level

\* ZZZ is the /last disruptive service pack/ level

\*

\*NOTE:\* Values of service pack and last disruptive service pack level

(YYY and ZZZ) are only unique within a release level (XXX).

For example, 01EM310\_067\_045 and 01EM320\_067\_053 are \*different\*

service packs.

An installation is \*disruptive\* if:

\* The /release/ levels (XXX) are different.

Example: Currently installed release is EM310, new release is EM320

\* The /service pack/ level (YYY) and the /last disruptive service

pack/ level (ZZZ) are the same.

Example: EM310\_120\_120 is disruptive, no matter what level of EM310

is currently installed on the system

\* The service pack level (YYY) currently installed on the system

is lower than the last disruptive service pack level (ZZZ) of the

service pack to be installed.

Example: Currently installed service pack is EM310\_120\_120 and

new service pack is EM310\_152\_130

An installation is \*concurrent\* if:

\* The /release/ level (XXX) is the same, and

\* The /service pack/ level (YYY) currently installed on the

system is the same or higher than the /last disruptive service pack/

level (ZZZ) of the service pack to be installed.

Example: Currently installed service pack is EM310\_126\_120,

new service pack is EM310\_143\_120.

**HMC/firmware support matrix from Stuart:**

http://www-933.ibm.com/support/fixcentral/firmware/supportedCombinations

**List all kinds of stuff about the HMC:**

lshmc -n

**List memory usage on HMC:**

monhmc –r mem

**RMC connection on the vios keeps dropping:**

**edit /usr/sbin/rsct/bin/rmcd\_start, and add "-S" option to limit rmc packet size. This reduces the RMC data packet to small size on the RMC on startup script**

**On VIOS:**

vi /usr/sbin/rsct/bin/rmcd\_start

**SOPT="-S 4500" <---- add this line**

unset EXTSHM exec /usr/sbin/rsct/bin/rmcd $AOPT $ROPT $RHBOPT $MOPT $NOPT $POPT \ $TOPT $UOPT $VOPT $WOPT $XOPT **$SOPT** $@ **<------add $SOPT**

After saved rmcd\_start script, recycle RMC, /usr/sbin/rsct/bin/rmcctrl -z /usr/sbin/rsct/bin/rmcctrl -A /usr/sbin/rsct/bin/rmcctrl -p

**Directory of all HMC commands:**

ls /usr/hmcrbin

**Get VIO information without logging in:**

m556069@czlchm38:~>viosvrcmd -p czapvs228 -m Server-9117-MMD-

SN21868A7 -c "lsdev -slots"

# Slot

U9117.MMD.21868A7-V1-C0

U9117.MMD.21868A7-V1-C2

U9117.MMD.21868A7-V1-C3

U9117.MMD.21868A7-V1-C4

U9117.MMD.21868A7-V1-C10

U9117.MMD.21868A7-V1-C11

U9117.MMD.21868A7-V1-C12

U9117.MMD.21868A7-V1-C14

Description Device(s)

Virtual I/O Slot vsa0

Virtual I/O Slot vhost8

Virtual I/O Slot vfchost6

Virtual I/O Slot vfchost8

Virtual I/O Slot vhost1

Virtual I/O Slot vfchost0

Virtual I/O Slot vfchost1

Virtual I/O Slot vhost5

**Getting VIO info as oem\_setup\_env from the HMC:**

hscroot@hmc1:~> command=`printf "oem\_setup\_env\nwhoami"`

hscroot@hmc1:~> viosvrcmd -m p520 -p vio1 -c "$command" root **but that way kinda sucks....I think I found a better way(from NOT the HMC):** for i in $(cat ALL\_VIOS\_DR) do echo czapvs$i $(ssh padmin@czapvs$i 'echo powermt version| oem\_setup\_env') done

**Changing the current sharedpool for a LPAR:**

chhwres -r procpool -m [managed\_system] -o s -p [lpar\_name] -a

"shared\_proc\_pool\_name=[target\_sharepool\_name]"

**Changing the shared pool defined in a LPAR’s profile :**

chsyscfg -r prof -m [managed\_system] -i

"lpar\_name=[lpar\_name],name=[profile\_name],shared\_proc\_pool\_name=[tar

get\_sharepool\_name]"

**Change maximum procs in pool:**

chhwres -r procpool -m Server-9117-MMD-SN21867D7 -o s --poolname

SharedPool01 -a max\_pool\_proc\_units=31

**Change the name of a Shared Processor Pool:**

Chhwres –r procpool –m <managed\_system> -o s –poolid 1 –a “new\_name=<new\_name>”

**List the virtual networks:**

lshwres -r virtualio --rsubtype vnetwork -m Server-9117-MMD-SN103CB27

vnetwork=VLAN602-

VSWITCH\_602\_302,is\_tagged=0,vswitch=VSWITCH\_602\_302,vlan\_id=602

vnetwork=VLAN82-

VSWITCH\_602\_302,is\_tagged=1,vswitch=VSWITCH\_602\_302,vlan\_id=82

vnetwork=VLAN601-

VSWITCH\_601\_301,is\_tagged=0,vswitch=VSWITCH\_601\_301,vlan\_id=601

vnetwork=VLAN82-

VSWITCH\_601\_301,is\_tagged=1,vswitch=VSWITCH\_601\_301,vlan\_id=82

**To add or remove a virtual network or set virtual network attributes:**chhwres -r virtualio -m managed-system -o {a | r | s} --rsubtype vnetwork --vnetwork virtual-network [-a "attributes"]

**To add or remove a virtual switch:**

chhwres -r virtualio -m managed-system -o r --rsubtype vswitch --vswitch virtual-switch **Before you remove a vswitch, make sure that any virtual ethernet that uses(used) that vswitch is removed. Once you remove them you can see that the virtual networks disappear. If you remove a virtual network make sure that you remove the ones that are is\_tagged=1 first before is\_tagged=0(<= this is PVID of the vswitch)**

**List attributes of an HMC user:**

lshmcusr --filter names=m556069

**Create HMC user**

**mkhmcusr -u hscpe -a hmcpep**

**or**

**mkhmcusr -u m556069 -a hmcsuperadmin --passwd**

**Change user's password**

**chhmcusr -u <user name> -t passwd**

**HMC readmes:**

**http://www14.software.ibm.com/webapp/set2/sas/f/hmcl/resources.html**

**Create an LPAR: with dedicated CPU mode:**mksyscfg -r lpar -m Server-9117-MMC-SN217D807 -i "name=<name>,profile\_name=<name>,lpar\_env=aixlinux,min\_mem=1024,desir ed\_mem=65536,max\_mem=98304,proc\_mode=ded,min\_procs=1,desired\_procs=5, max\_procs=64,sharing\_mode=keep\_idle\_procs"

mksyscfg -r lpar -m "cg1 - Server-9119-FHA-SN0220B45" -i

"name=tucker,profile\_name=normal,lpar\_env=aixlinux,min\_mem=256,desire

d\_mem=512,max\_mem=1024,proc\_mode=shared,min\_proc\_units=.1,desired\_pro

c\_units=.2,max\_proc\_units=.3,min\_procs=1,desired\_procs=1,max\_procs=1,

sharing\_mode=uncap,uncap\_weight=128,shared\_proc\_pool\_id=0"

**Remove an LPAR:**

rmsyscfg -r lpar -m "cg1 - Server-9119-FHA-SN0220B45" -n tucker

**LED Code 888-102-700-0c5:**

NIM server crashed. Reset and deallocate client that you are trying

to install. If that doesnt work then recycle NFS on NIM server. At

Kaiser it seemed that the issue was no LUNs available via NPIV.lp

To run a full NFS clean run the following, including a reset and

deallocate operation, before setting up for your next install attempt

:

nim -Fo reset client\_name

nim -o deallocate -a subclass=all client\_name

stopsrc -g nfs

cd /etc

mv exports exports.

rm rmtab xtab

cd /var/statmon

rm -rf ./state ./sm ./sm.bak

startsrc -g nfs



**LED CODE: 0608 kaiser**

Client LPAR pings and pulls the OS boot load over via tftp but hangs

with LED CODE 0608. Issue is the network. Fix that

**IOR Collection LP on frame:**

If it doesnt magically go away(like it should). Get on HMC CLI and

WHACK IT!

**Change the min,desired and max shared proc's/Memory:**

chsyscfg -r prof -m "cg1 - Server-9119-FHA-SN0220B45" -i

"name=normal,lpar\_name=tucker,min\_proc\_units=0.1,desired\_proc\_units=0

.2,max\_proc\_units=0.4"

chsyscfg -r prof -m Server-8205-E6B-SN105929G -i

"name=default,lpar\_name=9,min\_proc\_units=0.1,desired\_proc\_units=0.1,m

ax\_proc\_units=2,min\_procs=1,desired\_procs=1,max\_procs=4,min\_mem=512,d

esired\_mem=4096,max\_mem=8192"

**To add NIM ssh keys to HMC, run on NIM:**

ssh hscroot@hmc60 "mkauthkeys --add 'ssh-dss AAAAblah blah blah==

root@cgnim01a' ~HOME/.ssh/id\_dsa"

**To add ssh keys from one HMC to another and vice versa:**

jtucke@NCHMC-01:~> mkauthkeys --ip 10.21.12.198 -u jtucke -g

Enter the password for user jtucke on the remote host 10.21.12.198:

**To add keys to a vio server:**

cat ~/.ssh/id\_rsa.pub|ssh padmin@chw-pvios-001 'tee -a ~/.ssh/authorized\_keys2'

**To remove all ssh keys for user m556069:**

mkauthkeys -r -u m556069

**Verify that SSH authentication keys are correct between HMC's:**

mkauthkeys -u <remoteUserName> --ip <remoteHostName> --test

**To close a console session via the HMC command line:**

-m (managed system) -p (LPAR name)

rmvterm -m SAP-p570-1-SN102FBA5 -p pepxd200014

DLPAR

**Ports needed for both LPM and DLPAR:**

**DLPAR Checklist:**

Can you ping the HMC from the LPAR? Can you ping the LPAR from the

HMC? If either of these tests fails, check the network configuration

on both components before doing anything else. Ensure the settings on

the HMC are correct(IP address, netmask, default gateway, network

**port** 657 upd/tcp must have to be open in both directions between the **HMC** public interface and the lpars routes, DNS server).

If you check the network and you are happy that the LPAR and the HMC can communicate, then perhaps you need to re-initialise the RMC subsystems on the AIX LPAR. Run the following commands:

# /usr/sbin/rsct/bin/rmcctrl –z

# /usr/sbin/rsct/bin/rmcctrl –A

# /usr/sbin/rsct/bin/rmcctrl –p

Wait up to 5 minutes before trying DLPAR again. If DLPAR still

doesn’t work i.e. the HMC is still reporting no values for DCaps, and the IBM.DRM subsystem still won’t start, try using the recfgct

command.(but not on a HA node)

hscroot@hmc1:~> lspartition -dlpar

.....

<#5> LPAR:<24\*9117-MMB\*10284FP, , 192.168.1.15>

Active:<1>, OS:<AIX, 6.1, 6100-05-01-1016>,DCaps:<0x0>, CmdCaps:<0x0,

0x0>, PinnedMem:<768>

.....

# /usr/sbin/rsct/install/bin/recfgct

Wait 5 minutes. This should resolve your DLPAR issue. The IBM.DRM subsystem should now be active and there should be good (non-zero) values for DCaps:

# lssrc -g rsct\_rm

Subsystem Group PID Status

IBM.DRM rsct\_rm 6881300 active

IBM.CSMAgentRM rsct\_rm 7274530 active

IBM.ServiceRM rsct\_rm 6029480 active

IBM.AuditRM rsct\_rm 6357058 active

IBM.ERRM rsct\_rm 4456566 active

IBM.LPRM rsct\_rm 6946986 active

hscroot@hmc1:~> lspartition -dlpar

....

<#5> LPAR:<24\*9117-MMB\*10284FP, , 192.168.1.15>

Active:<1>, OS:<AIX, 6.1, 6100-05-01-1016>, DCaps:<0xc5f>,

CmdCaps:<0x1b, 0x1b>, PinnedMem:<994>

....

Only run the rmcctrl and recfgct commands if you believe something has become corrupt in the RMC configuration of the LPAR. The fastest way to fix a broken configuration or to clear out the RMC ACL files after cloning (via alt\_disk migration) is to use the recfgct command.

These daemons should work “out of the box” and are not typically the cause of DLPAR issues. However, you can try stopping and starting the daemons when troubleshooting DLPAR issues.

The rmcctrl -z command just stops the daemons. The rmcctrl -A command ensures that the subsystem group (rsct) and the subsystem (ctrmc) objects are added to the SRC, and an appropriate entry added to the end of /etc/inittab and it starts the daemons. The rmcctrl –p command enables the daemons for remote client connections i.e. from the HMC to the LPAR and vice versa. If you are familiar with the System Resource Controller (SRC) you might be tempted to use stopsrc and startsrc commands to stop and start these daemons. Do not do it; use the rmcctrl commands instead.

If /var is 100% full, use chfs to expand it. If there is no more

space available, examine subdirectories and remove unnecessary files

(for example, trace.\*, core, and so forth). If /var is full, RMC

subsystems may fail to function correctly.

The polling interval for the RMC daemons on the LPAR to check with

the HMC daemons is 5-7 minutes; so you need to wait long enough for

the daemons to start up and synchronize.

The Resource Monitoring and Control (RMC) daemons are part of the Reliable, Scalable Cluster Technology (RSCT) and are controlled by the System Resource Controller (SRC). These daemons run in all LPARs and communicate with equivalent RMC daemons running on the HMC. The daemons start automatically when the operating system starts and synchronize with the HMC RMC daemons.

The daemons in the LPARs and the daemons on the HMC must be able to

communicate over the network for DLPAR operations to succeed.This is

not the network connection between the managed system (FSP) and the

HMC; it is the network connection between the operating system (AIX)

in each LPAR and the HMC.

Note: Apart from rebooting, there is no way to stop and start the RMC

daemons on the HMC.

**How to know if DLPAR can be performed for a specific LPAR:**

lsrsrc IBM.MCP

**to set processing units to a specific number:(remember its relationship to VPs)**

chhwres -m Server-9117-MMD-SN21928F7 -r proc -o s --procunits .4 -p czapwa168

**If both the partitions you are adding to or removing from are using**

**dedicated processors, you can only use --procs to specify the**

**quantity of processors to add, remove, or move and the quantity must**

**be a whole number greater than 0.**

**If both the partition you are adding to or removing from is using**

**shared processors:**

**1. use --procunits to specify the quantity of processing units**

**to add, remove, or move and the quantity of processing units**

**specified with this option can have up to 2 decimal places.**

**2. use --procs to specify the quantity of virtual processors to**

**add, remove, or move. The quantity must be a whole number**

**greater than 0**

**To add a fiber channel adapter with wwpns:(client only, make sure you create the server side slot)**

chhwres -r virtualio -m Server-9117-MMD-SN21929B7 -o a --id 23 --rsubtype fc -s 909 -a adapter\_type=client,remote\_lpar\_id=2,remote\_slot\_num=909,wwpns=\"c050 7607be690000,c0507607be690001\"

**to add vscsi to vios:**

chhwres -r virtualio -m Server-9117-MMD-SN21879A7 -o a --id 1

--rsubtype scsi -s 498 -a

"adapter\_type=server,remote\_slot\_num=498,remote\_lpar\_id=4"

**to add vFiber to vios:**

chhwres -r virtualio -m Server-9117-MMD-SN21879A7 -o a --id 1

--rsubtype fc -s 1093 -a "adapter\_type=server,remote\_lpar\_id=4,

remote\_slot\_num=1093"

**To add memory via dlpar:(a = add, r = remove, m = move)**

chhwres -r mem -m <managed\_system> -o a -p <client>|--id <lpar\_id> -q

<quantity\_MBlssys> -w 10

**add vscsi slot:(add one at a time to each VIOS)**

chsyscfg -m Server-9119-FHA-SN0220B35 -r prof -i

"lpar\_name=tucker,name=Normal,virtual\_scsi\_adapters+=203/client/30/ch

vio01a/203/1"

chsyscfg -m Server-9119-FHA-SN0220B35 -r prof -i

"lpar\_name=tucker,name=Normal,virtual\_scsi\_adapters+=204/client/31/ch

vio01b/204/1"

virtual\_scsi\_adapters=virtual-slot-number/client-or-server/[remote-

lpar-ID]/[remote-lpar-name]/[remote-slot-number]/is-required

**To remove processing units from a VIOC:**

chhwres -r proc -m Server-9117-MMD-SN21928A7 -o r -p czapap404

--procunits 2.0

**To add a processor pool to a frame: -o s means set**

chhwres -r procpool -o s -m <managed\_system> --poolid 1 -a

“new\_name=pool1,max\_pool\_proc\_units=28”

**To remove a processor pool:(set max\_pool\_proc to zero)**

chhwres -r procpool -m Server-9117-MMD-SN103CB37 -o s --poolname

SharedPool02 -a "max\_pool\_proc\_units=0"

**Change the name of an LPAR:**

chsyscfg -m Server-9117-MMD-SN103CB27 -r lpar -i

'name=czapvs98,new\_name=czapvs98\_oldprofile'

**Move the partition lpar1 to shared processor pool pool1:**

chhwres -r procpool -m <managed\_system> -o s -p lpar1 -a

"shared\_proc\_pool\_name=pool1"

**Dynamically adding a virtual fiber channel adapter to a client lpar:**

<http://www.aixmind.com/?p=798>

When adding a new virtual fibre channel adapter to a client partition the common approach as used in the past with virtual SCSI adapters, first adding the new client adapter to the LPAR as DLPAR operation and afterwards simply adding the same adapter to the LPAR's current profile does not work for virtual fibre channel adapters! The reason is, that just in the moment when the virtual fibre channel adapter is created for a client LPAR a pair of *unique* WWPNs (NPIV) is assigned to this adapter by the system. So when adding a virtual fibre channel adapter dynamically to a client partition a set of WWPNs will be created instantly for this adapter and when attempting to add the same adapter later on to the partition's profile, another pair of WWPNs will be associated with that virtual fibre channel adapter. This behavior can very easily be verified taking a look at the virtual fibre channel adapter properties. The one in the running LPAR will have a different pair of WWPNs than the one in the stored profile. As long as the client LPAR is not shut down everything seems to be fine. But when the LPAR is shut down for the first time and restarted (here actually the saved profile is activated for the first time after the change) then it will come up with another pair of WWPNs and loose access to all SAN devices that have been mapped and zoned to the previous WWPNs of the dynamically added virtual fibre channel adapter. As there is no regular way of reusing WWPNs on the HMC (although there is a workaround to manually change the WWPNs in a profile using the chsyscfg -r prof command), the previous WWPNs are lost and the SAN zoning and subsystem mapping has to be done all over again with the new WWPNs of that virtual fibre channel adapter.

So when **adding virtual fibre channel client adapters dynamically** to a client partition using a DLPAR operation simply follow the steps below to preserve the WWPN configuration and safely add this new adapter with its associated WWPNs to the client partition's

profile (after having configured the associated virtual fibre channel *server* adapters in the Virtual I/O server partition):

1.Add the Virtual Fibre Channel client adapter dynamically to the client LPAR.

2.Use '**Save Current Configuration**' to save the current configuration to a new

LPAR profile with a new name.

3.Use '**Change Default Profile**' to make the new profile the default profile of the LPAR (if desired), to ensure that this profile with the new virtual fibre channel adapter is automatically used after the next shutdown / restart cycle of the LPAR.

Please note, that only the **virtual fibre channel *client* adapter** is associated with a pair of NPIV WWPNs, which can be seen in the 'Properties' window of the adapter on the HMC. Thus the management of client LPAR profiles containing virtual fibre channel client adapters requires special handling to preserve the WWPN configuration.

The **virtual fibre channel *server* adapter** on the VIOS is not associated with WWPNs and therefore does not require a

special handling of VIO server profiles. A look in the client partition with the dynamically added virtual fibre channel adapter:

**Broken DLPAR:**

http://www-01.ibm.com/support/docview.wss?uid=isg3T1011372 /usr/sbin/rsct/install/recfgct

**note: do not run recfgct on a HA node**

/usr/sbin/rsct/bin/rmcctrl -p

hscpe@pbsghmc12:~> lshmc -v

"vpd=\*FC ????????

\*VC 20.0

\*N2 Tue Mar 23 11:24:10 CDT 2010

\*FC ????????

\*DS Hardware Management Console \*TM 7042-CR5 **\*SE KQTGLMG**\*MN IBM

\*PN Unknown \*SZ 4228251648 \*OS Embedded Operating Systems \*NA 5.16.196.58 \*FC ???????? \*DS Platform Firmware \*RM V7R3.5.0.0 " hscpe@pbsghmc12:~> pesh **KQTGLMG <----- You need to call IBM support and give them the serial number of the HMC and they will generate a time sensitive password for you to use**Role = hmcpe Password: hscpe@pbsghmc12:~> su - Password: <--- This is root's password pbsghmc12:~ # /usr/sbin/rsct/install/bin/recfgct 0513-071 The ctcas Subsystem has been added. 0513-071 The ctrmc Subsystem has been added. 0513-059 The ctrmc Subsystem has been started. Subsystem PID is 27726. pbsghmc12:~ # /usr/sbin/rsct/bin/rmcctrl -p

END OF DLPAR

CHANGING COMMANDS

**To uncap LPARs:**

chsyscfg -m <Managed\_System> -r prof -i

"lpar\_name<lpar\_name>,name=<profile\_name>,"sharing\_mode=uncap","uncap

\_weight=128""

**To add virtual ethernet on a profile from the HMC:**

This is will add 3 Virt Eth with additional VLAN ID's

chsyscfg -m SAP-p570-205-SN103E855 -r prof -i

'name=default,lpar\_name=pepxvn00048,"virtual\_eth\_adapters=32/1/992/60

6/1/0/ETHERNET0,33/1/993/607/1/0/ETHERNET0,900/0/999//0/0/ETHERNET0,"

"31/1/991/417,419,428,430/1/0/ETHERNET0""'

***for additional\_vlans do it EXACTELY as shown above***

***Here is the syntax for multiple additional VLANs from the HMC CLI: (this was copied straight from another vio server, just add the escapes in for the quotes):***chsyscfg -r prof -m Server-9117-MMD-SN21928C7 -i name=czapvs241,lpar\_name=czapvs241,\"virtual\_eth\_adapters=\"\"161/1/6 61/555,556/2/0/VSWITCH\_661\_361//all/none\"\",\"\"162/1/662/555,556/1/ 0/VSWITCH\_662\_362//all/none\"\”\”

**To enable Performance Collections:**

chsyscfg -r lpar -m <Managed\_System> -i

'name=pepxvp00065,allow\_perf\_collection=1'

**Virtual Ethernet Adapters**

The syntax of the virtual Ethernet adapters is:

**slot\_number/is\_ieee/port\_vlan\_id/"additional\_vlan\_id,additional\_vlan\_ id"/is\_trunk(number=priority)/is\_required**So the adapter with this setting 2/1/1//0/1 would say it is in **slot\_numer 2**, it is **ieee**, the **port\_vlan\_id** is **1**, it has **no** additional VLAN ids assigned, it is **not** a **trunk** adapter and it is **required**.

To create a trunk adapter with the priority of 2 which is required,

has the addl. VLANS 2 and 20 with a default port VLAN ID of 1 and is

IEEE compatible and resides in slot 90 the syntax would be:

90/1/1/"2,20"/2/1.

**Create vSwitch from command line:**

chhwres -r virtualio --rsubtype vswitch -m Server-9117-MMD-SN21867F7

-o a --vswitch VSWITCH\_663\_363

**To remove a vSwitch via CLI:(after removing all virtual networks using the vSwitch) (this is an issue at this time)dlp**chhwres -r virtualio --rsubtype vswitch -m Server-9117-MMD-SN21867F7 -o r --vswitch VSWITCH\_663\_363

**Syntax for Virtual scsi adapter:**

virtual-slot-number/client-or-server/supports-HMC/remote-lpar-

ID/remote-lpar-name/remote-slot-number/is-required

As in command above mentioned command

mksyscfg"virtual\_scsi\_adapters=301/client/4/vio01\_server/301/0"

means

301 - virtual-slot-number

client-or-server - client (Aix\_client)

4 -- Partiotion Id ov VIO\_01 server (remote-lpar-ID)

vio01\_server - remote-lpar-name

301 -- remote-slot-number (VIO server\_slot means virtual server scsi

slot)

1 -- Required slot in LPAR ( It cannot be removed from DLPAR

operations )

0 --means desired ( it can be removed by DLPAR operations)

**To add Virtual ethernet adapter & slot mapping for above created profile:**chsyscfg -m Server-9117-MMA-SNxxxxx -r prof -i 'name=profile\_name,lpar\_id=xx,"virtual\_eth\_adapters=596/1/596//0/1,50 6/1/506//0/1,"'

chsyscfg -m Server-8205-E6B-SN062BE42 -r prof -i

'name=default,lpar\_id=4,"virtual\_eth\_adapters+=10/0/307//0/0/ETHERNET

0//all/none,11/0/702//0/0/ETHERNET0//all/none"'

**To change the maximum number of adapters:**

chsyscfg -m Server-8205-E6B-SN062BE42 -r prof -i

'name=default,lpar\_id=4,"max\_virtual\_slots=512”

Syntax for Virtual ethernet adapter

slot\_number/is\_ieee/port\_vlan\_id/"additional\_vlan\_id,additional\_vlan\_

id"/is\_trunk(number=priority)/is\_required

means

So the adapter with this setting 596/1/596//0/1 would say it is

inslot\_number 596, Its is ieee, the port\_vlan\_id is 1, it has no VLAN

id assigned, It is not a trunk adapter and it is required.

**To open a console via the HMC command line:**

mkvterm -m Server-9119-FHA-SN0220B35 -p ch1p05a

**Create Virtual Switch on Frame:**

chhwres -r virtualio --rsubtype vswitch -m <manage server name> -o a

--vswitch <Vswitch\_name>

Remember that vswitch is case sensitive when LPM'ing(this is not true

beginning 4Q 2015)

**To shutdown a LPAR via the HMC command line:**

chsysstate -m SAP-p570-2-SN102FB95 -r lpar -n pepxd200015 -o shutdown

--immed --restart

END OF CHANGING COMMANDS

LISTING PROPERTIES

**To list the processor pools on a frame:**

lshwres -m <managed\_system> -r procpool

name=DefaultPool,shared\_proc\_pool\_id=0,"lpar\_names=czapvs256,czapvs25

7","lpar\_ids=1,2"

**To list which client a vio server slot is assigned to:**

lshwres -r virtualio --rsubtype scsi -m Server-9117-MMD-SN103E7F7

--filter lpar\_ids=9

lpar\_name=czapap437,lpar\_id=9,slot\_num=620,state=0,is\_required=0,adap

ter\_type=client,remote\_lpar\_id=3,remote\_lpar\_name=czapvs102,remote\_sl

ot\_num=620

lpar\_name=czapap437,lpar\_id=9,slot\_num=619,state=0,is\_required=0,adap

ter\_type=client,remote\_lpar\_id=2,remote\_lpar\_name=czapvs101,remote\_sl

ot\_num=619

**List current running config(great for verifying dlpar ops):**

lshwres -r virtualio -m Server-9117-MMD-SN21868A7 --rsubtype fc

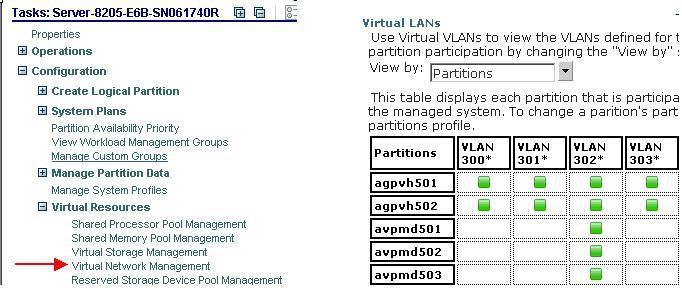
--filter lpar\_ids=1 --level lpar

**What VLANs are active on a frame:**

From HMC: select Servers -> Configuration -> Virtual Resources ->

Virtual Network Management



**LMB block of frame:**

lshwres -r mem -m Server-9117-MMD-SN103CB27 --level sys -F

mem\_region\_size

**you can preface these commands to run from HMC:(generic)**

for i in `lssyscfg -r sys -F name`

do

for x in `lssyscfg -r lpar -m $i -F name|grep czapvs|grep -v vs237`

do

echo "frame "$i " vio server :"$x

echo vFIBER

viosvrcmd -m $i -p $x -c "lsmap -all -npiv -field name physloc clntid

status 'fc name' flags 'vfc client name' -fmt :"|grep -v :a:

echo VSCSI

viosvrcmd -m $i -p $x -c "lsmap -all -field physloc svsa clientid

status -fmt :"|grep -v Avail

done

echo

done

**List the individual hard drives in a frame:**

lshwres -r io --rsubtype slotchildren -m Server-9117-MMD-SN2192907

--filter lpar\_names=czapvs256 -F lpar\_name:phys\_loc:description|grep

-i disk

**...for ALL disks on a HMC:**

for i in `lssyscfg -r sys -F name`

do

lshwres -r io --rsubtype slotchildren -m $i -F

lpar\_name:phys\_loc:description|grep -i disk|grep -v null

done

**Listing current partition configuration:**

lshwres -m p740 --level lpar -r proc -F

lpar\_name,lpar\_id,curr\_proc\_mode,curr\_min\_proc\_units,curr\_proc\_units,

curr\_max\_proc\_units,curr\_min\_procs,curr\_procs,curr\_max\_procs,curr\_sha

ring\_mode,curr\_uncap\_weight --filter "lpar\_names=p740\_lpar03"

p740\_lpar03,5,shared,0.1,2.0,3.0,1,4,5,uncap,128

**List the frames capabilities:**

lssyscfg -m <frame\_name> -r sys -F capabilities lssyscfg -m stfrspmmba -r sys -F capabilities "active\_lpar\_share\_idle\_procs\_capable,autorecovery\_power\_on\_capable,b sr\_capable,cod\_mem\_capable,cod\_proc\_capable,custom\_mac\_addr\_capable,e lectronic\_err\_reporting\_capable,firmware\_power\_saver\_capable,hardware \_power\_saver\_capable,hardware\_discovery\_capable,hca\_capable,huge\_page \_mem\_capable,lpar\_affinity\_group\_capable,lpar\_avail\_priority\_capable, lpar\_proc\_compat\_mode\_capable,lpar\_suspend\_capable,os400\_lpar\_suspend \_capable,micro\_lpar\_capable,os400\_capable,os400\_net\_install\_capable,o s400\_restricted\_io\_mode\_capable,redundant\_err\_path\_reporting\_capable, shared\_eth\_failover\_capable,sp\_failover\_capable,vet\_activation\_capabl e,**virtual\_eth\_dlpar\_capable**,virtual\_eth\_qos\_capable,virtual\_fc\_capabl e,virtual\_io\_server\_capable,virtual\_switch\_capable,vlan\_stat\_capable"

**Listing partition profile configuration:**

lssyscfg -r prof -m p740 --filter "lpar\_names=p740\_lpar03" -F

name,lpar\_name,lpar\_id,proc\_mode,min\_proc\_units,desired\_proc\_units,max\_proc\_units,min\_procs,desired\_procs,max\_procs,sharing\_mode,uncap\_weight

default,p740\_lpar03,5,shared,0.1,1.5,3.0,1,2,5,uncap,128

**What does the frame contain?:**

lshwres -r io --rsubtype slot -m Server-9117-MMA-SN104D532 -F

unit\_phys\_loc,description,drc\_name,lpar\_name

**with drc\_index(needed to assign to LPAR):**

lshwres -r io --rsubtype slot -m Server-9117-MMD-SN21928C7 -F

drc\_index,unit\_phys\_loc,description,drc\_name|grep -v "Empty slot"

lshwres -r virtualio --rsubtype slot -m Server-9117-MMA-SN104D532 -F

unit\_phys\_loc,description,drc\_name,lpar\_name

**Look at the children devices. You can even see MAC addresses of NIC's:**lshwres -r io --rsubtype slotchildren -m Server-9117-MMB-SN102A0BE

hscroot@HMC-2A:~> lshwres -r io --rsubtype slotchildren -m Server-

9117-MMB-SN102A0BE|grep -i U78C0.001.DBJ5791-P2-C6

phys\_loc=U78C0.001.DBJ5791-P2-

C6,lpar\_id=none,lpar\_name=null,description=pci,pci\_vendor\_id=111D,pci

\_device\_id=8018,pci\_subs\_device\_id=0000,pci\_subs\_vendor\_id=0000,pci\_c

lass=0604,pci\_revision\_id=000E,parent\_drc\_index=2101024D,parent=U78C0

.001.DBJ5791-P2-C6

phys\_loc=U78C0.001.DBJ5791-P2-

C6,lpar\_id=none,lpar\_name=null,description=pci,pci\_vendor\_id=111D,pci

\_device\_id=8018,pci\_subs\_device\_id=0000,pci\_subs\_vendor\_id=0000,pci\_c

lass=0604,pci\_revision\_id=000E,parent\_drc\_index=none,parent=U78C0.001

.DBJ5791-P2-C6

phys\_loc=U78C0.001.**DBJ5791-P2-C6- T1**,lpar\_id=none,lpar\_name=null,description=ethernet,pci\_vendor\_id=808 6,pci\_device\_id=10BC,pci\_subs\_device\_id=0368,pci\_subs\_vendor\_id=1014, pci\_class=0200,pci\_revision\_id=0006,**mac\_address=00145eea0780**,parent\_d rc\_index=none,parent=U78C0.001.DBJ5791-P2-C6 ***Look at disks!***

**List the default profile then change it to something else then delete old profile:**lssyscfg -r lpar -m Server-9117-MMD-SN217D117 --filter lsof lpar\_names=czapvs225 -F default\_profile

**then**

chsyscfg -r lpar -m Server-9117-MMD-SN217D117 -i 'name=czapvs225,default\_profile=czapvs225' **then**rmsyscfg -r prof -m Server-9117-MMD-SN217D117 -p czapvs225 -n czapvs225-default **(but you must make the new default profile the active running profile before deleting the old profile)**

**List profiles associated to lpar:**

chsyscfg -r prof -m <managed\_server\_name> --filter

lpar\_names=<lpar\_name> (-F name)

**To list current vscsi assignment:**

hscroot@hmc61a:~> lssyscfg -m Server-9119-FHA-SN0220B35 -r prof

--filter lpar\_names=ch1p26a -F virtual\_scsi\_adapters

"102/client/31/chvio01b/102/1,103/client/30/chvio01a/103/1"

**List all virtual ethernet adapters on the managed system:(Shows VLANs)**lshwres -r virtualio --rsubtype eth --level lpar -m <managed server> -F --header lpar\_name,lpar\_id,slot\_num,state,is\_required,is\_trunk,trunk\_priority, ieee\_virtual\_eth,port\_vlan\_id,vswitch,addl\_vlan\_ids,mac\_addr,allowed\_ os\_mac\_addrs,qos\_priority,connect\_status,drc\_name,shared\_adapter,back ing\_device,device\_name

appvh553-dr-

VIOS1,1,1001,1,0,0,unavailable,0,1001,ETHERNET0,,561AACE497E9,all,non

e,active,U9117.MMB.102A0BE-V1-C1001-T1,,,ent8

appvh553-dr-

VIOS1,1,1002,1,0,1,2,0,303,ETHERNET0,,561AACE497EA,all,none,active,U9

117.MMB.102A0BE-V1-C1002-T1,ent14,ent12,ent9

**List ALL profiles:**

lssyscfg -r prof -m "ch1 - Server-9119-FHA-SN0220B35"

**How an LPAR is "made up":**

lssyscfg -r prof -m system1 --filter ""lpar\_names=lpar1,lpar2,lpar3""

**What is the default profile and what is current running profile:**

lssyscfg -r lpar -m Server-9117-MMB-SN102A0BE -F

name,default\_profile,curr\_profile --header

**Create an LPAR:(for aix LPAR, lpar\_env=aixlinux):**

mksyscfg -m SAP-p570-5-SN103CD75 -r lpar -i 'name=TBD-

PVIO1,lpar\_env=vioserver,all\_resources=0,profile\_name=default,min\_mem

=7168,desired\_mem=8192,max\_mem=10240,min\_proc\_units=0.5,desired\_proc\_

units=1.0,max\_proc\_units=2.0,min\_procs=1,desired\_procs=1,max\_procs=2,

proc\_mode=shared,shared\_proc\_pool\_id=0,sharing\_mode=uncap,uncap\_weigh

t=250,io\_slots=none,max\_virtual\_slots=950,lpar\_io\_pool\_ids=none,auto\_

start=0,boot\_mode=norm,power\_ctrl\_lpar\_ids=none,work\_group\_id=none,bs

r\_arrays=0,lhea\_logical\_ports=none,lhea\_capabilities=none,lpar\_proc\_c

ompat\_mode=default,conn\_monitoring=1,redundant\_err\_path\_reporting=1'

**Current cpu usage by all LPARs:**

lshwres -r proc -m Server-9117-MMB-SN102A0BE --level lpar -F

lpar\_name,curr\_proc\_units --header

**Current memory usage by all LPARs:**

lshwres -r mem -m Server-9117-MMB-SN102A0BE --level lpar -F

lpar\_name,curr\_mem --header

**Show Frame's Memory from NIM server:**

ssh hscroot@5.16.196.23 lshwres -r mem -m SAP-p570-2-SN102FB95

--level sys | tr -s , '\n' (-r proc shows processing units)

**List hardware resources:(this shows NPIV stuff, change --rsubtype scsi to show virtual adapters)**lshwres -r virtualio --rsubtype fc --level lpar -m SAP-p570-202- SN103E915

**Getting WWPNs from all client LPARs on frame:**

lshwres -r virtualio -m Server-8205-E6B-SN061380R --rsubtype fc --level lpar

**Which VLANs does my frame's VIO servers support:**

m556069@czlchm38:~>lshwres -r virtualio --rsubtype chhw -m Server-

9117-MMD-SN21867D7

vswitch=VSWITCH\_606\_306,"vlan\_ids=306,606,415",switch\_mode=VEB

vswitch=VSWITCH\_607\_307,"vlan\_ids=307,3337,1337,607",switch\_mode=VEB

vswitch=VSWITCH\_601\_301,"vlan\_ids=301,82,601",switch\_mode=VEB

vswitch=ETHERNET0(Default),vlan\_ids=none,switch\_mode=VEB

vswitch=VSWITCH\_602\_302,"vlan\_ids=302,82,602",switch\_mode=VEB

vswitch=VSWITCH\_661\_361,"vlan\_ids=361,661,555,556",switch\_mode=VEB

vswitch=VSWITCH\_603\_303,"vlan\_ids=303,603,488",switch\_mode=VEB

vswitch=VSWITCH\_662\_362,"vlan\_ids=362,662,555,556",switch\_mode=VEB

vswitch=VSWITCH\_604\_304,"vlan\_ids=304,604,488",switch\_mode=VEB

vswitch=VSWITCH\_663\_363,"vlan\_ids=363,663,559",switch\_mode=VEB

vswitch=VSWITCH\_605\_305,"vlan\_ids=305,88,605",switch\_mode=VEB

**Which LPARs belong to which proc pools:**

m556069@czlchm38:~>lshwres -r procpool -m Server-9117-MMD-SN21867D7

-F name lpar\_names

DefaultPool czapvs232,czapvs233,czapap174,czapap175,czapap176

SharedPool01 czapdb211,czapdb212,czapdb227,czapdb180

**proc pool details:**

lshwres -r procpool -m Server-9117-MMD-SN21867D7

name=DefaultPool,shared\_proc\_pool\_id=0,"lpar\_names=czapvs232,czapvs23

3,czapap174,czapap175,czapap176,czapap210,czapap211,czapap212,czapap1

33,czapap132,czapap93","lpar\_ids=1,2,6,7,8,9,10,11,14,15,16"

name=SharedPool01,shared\_proc\_pool\_id=1,max\_pool\_proc\_units=28.0,curr

\_reserved\_pool\_proc\_units=0.0,pend\_reserved\_pool\_proc\_units=0.0,"lpar

\_names=czapdb211,czapdb212,czapdb227,czapdb180","lpar\_ids=3,4,5,13"

**List the virtual switches on a managed frame:**hscroot@czlchm33:~> **lshwres -r virtualio -m Server-9117-MMC-SN217D807 --rsubtype vswitch** vswitch=vSwitch\_660\_304,"vlan\_ids=660,556,304",switch\_mode=VEB vswitch=vSwitch\_661\_305,"vlan\_ids=305,661,556",switch\_mode=VEB vswitch=vSwitch\_662\_306,"vlan\_ids=306,662,556",switch\_mode=VEB vswitch=vSwitch\_602\_302,"vlan\_ids=302,220,602",switch\_mode=VEB vswitch=vSwitch\_601\_301(Default),"vlan\_ids=220,301,601" ,switch\_mode=VEB vswitch=vSwitch\_603\_303,"vlan\_ids=303,220,603",switch\_mode=VEB

**To see everything configured for an LPAR:**

lssyscfg -r prof -m "cg1 - Server-9119-FHA-SN0220B45" --filter

lpar\_names=cg1p47a

name=Normal,lpar\_name=cg1p47a,lpar\_id=49,lpar\_env=aixlinux,all\_resour

ces=0,min\_mem=40960,desired\_mem=40960,max\_mem=40960,min\_num\_huge\_page

s=0,desired\_num\_huge\_pages=0,max\_num\_huge\_pages=0,proc\_mode=shared,mi

n\_proc\_units=4.09,desired\_proc\_units=9.69,max\_proc\_units=10.3,min\_pro

cs=5,desired\_procs=10,max\_procs=15,sharing\_mode=uncap,uncap\_weight=12

8,shared\_proc\_pool\_id=0,shared\_proc\_pool\_name=DefaultPool,"io\_slots=2

1010400/none/1,21010250/none/1,21010238/none/1,210103B8/none/1,210104

B8/none/1,21010239/none/1,21010249/none/1,2101032A/none/1",lpar\_io\_po

ol\_ids=none,max\_virtual\_slots=999,"virtual\_serial\_adapters=0/server/1

/any//any/1,1/server/1/any//any/1",virtual\_scsi\_adapters=none,virtual

\_eth\_adapters=none,hca\_adapters=none,boot\_mode=norm,conn\_monitoring=1

,auto\_start=0,power\_ctrl\_lpar\_ids=none,work\_group\_id=none,redundant\_e

rr\_path\_reporting=1,bsr\_arrays=0,lpar\_proc\_compat\_mode=default,electr

onic\_err\_reporting=null,virtual\_fc\_adapters=none

**List available resources on a frame:**

lsavailres

**and to pull the numeric values:**

echo lsavailres -m Server-9117-MMD-SN103CB37|ssh czlchm27|awk

-F"[=,]" '{print $2" "$NF}'

**Available processors on all frames on HMC:**

for i in $(lssyscfg -r sys -F name)

do

echo "frame: "$i "avail: "`lshwres -m $i -r proc --level sys -F

curr\_avail\_sys\_proc\_units`

done

**How much CPU amd memory is installed and used:**

lshwres -m EOSL-9117-MMC-SN101C337 -r proc --level sys -F

configurable\_sys\_proc\_units curr\_avail\_sys\_proc\_units

installed\_sys\_proc\_units –header

lshwres -m EOSL-9117-MMC-SN101C337 -r mem --level sys -F

configurable\_sys\_mem curr\_avail\_sys\_mem installed\_sys\_mem --header

configurable\_sys\_mem curr\_avail\_sys\_mem installed\_sys\_mem

**Installed COD(formerly CuoD):**

lscod -t cap -m EOSL-9117-MMC-SN101AEB7 -c onoff -r proc -F

avail\_procs\_for\_onoff

8

lscod -t cap -m EOSL-9117-MMC-SN101AEB7 -c onoff -r mem -F

avail\_mem\_for\_onoff

90112 <---- divide by 1024 to get GB

**List only the min,desired and max shared proc's:**

lssyscfg -r prof -m "cg1 - Server-9119-FHA-SN0220B45" -F

min\_proc\_units,desired\_proc\_units,max\_proc\_units --filter

lpar\_names=tucker

0.2,0.2,0.4

**To see the memory fields on a frame(nice format):**

ssh hscroot@5.16.196.23 lshwres -r mem -m SAP-p570-2-SN102FB95

--level sys | tr -s , '\n'

**To List attributes of LPARs on a managed frame:**

lssyscfg -r lpar -m SAP-p570-5-SN103CD75

name:lpar\_id:allow\_perf\_collection

pepxgp00123:27:0

pepxgp00069:26:0

pepxgp00150:25:0

pepxd200077:24:0

**Show vSwitches associated with frame:**

lshwres -r virtualio --rsubtype vswitch -m Server-9117-MMD-SN21867E7

**To list the firmware level of a frame:**

lslic -m AGPSF544-8205-E6B-SN10B4B72 -F

ecnumber,platform\_ipl\_level,activated\_level,deferred\_level,mtms

**View which vlans are served by your Vswitches:**

lshwres -r virtualio --rsubtype vswitch -m <managed\_system> -F

**Collecting WWPNs for Virtual Fibre Channel Adapters:**

lssyscfg -r prof -m <managed\_system> -F virtual\_fc\_adapters --filter

lpar\_names=<lpar>[,<lpar>]

END OF LISTING PROPERTIES

LPM

**hscroot@pbsghmc11:~> lslparmigr -r sys -m SAP-p570-202-SN103E915**

inactive\_lpar\_mobility\_capable=1,num\_inactive\_migrations\_supported=4,

num\_inactive\_migrations\_in\_progress=0,active\_lpar\_mobility\_capable=1,

num\_active\_migrations\_supported=160,num\_active\_migrations\_in\_progress

=0

**What does the output of lspartition -dlpar mean?**

Intended as a development tool, the output of lspartition -dlpar has

following meaning:

**Partition**<LParID, lpar\_hostname, lpar IPaddress> **Active**<#>: - 0 means no session to lpar; 1 means otherwise **OS**<OSType, OSLevel>: Should be <AIX, 5.2> if it's Active<1>. If Active<1> and OS information is empty, this means the IBM.HostRM could have a problem on AIX. (I have not seen this happens yet!)

<#0> Partition:<002, lpar.company.com, 9.8.206.215>

Active:<1>, OS:<AIX, 5.2>, DCaps:<0xf>, CmdCaps:<0x1, 0x0>

**DCaps**<#>: - Value 0x0 means the LPAR does not support DLPAR operation. Value 0xf means all DLPAR operations are supported. Usually, this value goes together with the Active<1> above. The session must be established first before the information can be queried from the LPAR.

**CmdCaps**<0x1, 0x0>: - No significant meaning for Release 3, version 1.x.x. In Release 3, version 2.2.x or above, the 0x1 means remote shutdown of the AIX LPAR can be done from the HMC.

**LPM:**

**You CAN NOT LPM to and from a set of vio servers at the same time**

**List the partition mobility capabilities for a frame:**

lslparmigr -r sys -m Server-9117-MMD-SN103CB27 inactive\_lpar\_mobility\_capable=1,num\_inactive\_migrations\_supported=16 ,num\_inactive\_migrations\_in\_progress=0,active\_lpar\_mobility\_capable=1 ,**num\_active\_migrations\_supported=16**,num\_active\_migrations\_in\_progress =0,inactive\_prof\_policy=config,sys\_firmware\_num\_inactive\_migrations\_s upported=16,sys\_firmware\_num\_active\_migrations\_supported=16,os400\_lpa r\_mobility\_capable=1

**Which LPARs are currently migrating:**

lslparmigr -r lpar -m Server-9117-MMD-SN103CB27

name=czapwa193,lpar\_id=35,migration\_state=Not Migrating

name=czapwa191,lpar\_id=34,migration\_state=Not Migrating

**To watch a particular lpar's migration:**

while true do lslparmigr -r lpar -m Server-9117-MMD-SN103E807 --filter "dest\_sys\_names=Server-9117-MMD-SN21928C7" -F name,migration\_state ,bytes\_remaining sleep 5 done **HSCLA318 The migration command issued to the destination management console failed with the following error: HSCLA391 The failed partition operation cannot be cleaned up. Try the recovery operation later.**On the client run: /usr/sbin/rsct/install/bin/recfgct wait 5 mins and try the LPM again(sometimes you have to run recfgct a few times if it continues to fail LPM)

**HSCLA299 The OS level on the migrating partition 29\*9117-MMD\*21928C7( czapwa138 ) does not support partition mobility.**On the client run: /usr/sbin/rsct/install/bin/recfgct wait 5 mins and try the LPM again(sometimes you have to run recfgct a few times if it continues to fail LPM)

**HSCLA31B**

**The mapping of the migrating partition's virtual fibre channel**

**adapter 1184 to the Virtual I/O Server (VIOS) partition 1\*9117- MMD\*2192887 on the destination managed system is not currently valid. Please issue the command to list the possible and suggested client adapter to destination VIOS partition mappings, and try the operation again using a new mapping from this list. Alternatively, allow the management console to make the selection automatically by not specifying a mapping when starting the migration.** What happened at kaiser was that they zone to specific physical fibers on the vio servers...so when you LPM via the CLI you need to ensure that the slot numbers are correct. In this case I messed up 2 fibers...kaiser alternated between 2 vio servers, 1 taking odd slots the other even and so on the client you have to make sure that they line up.

At kaiser we had some zoning(FAs) that the client was not supposed to

see and since it did see it and there wasnt any LUNs configured

behind the FA, LPM failed cuz of it

**HSCLA29A there is an issue in the SAN so that the name server can not reach anytarget ports.**We were moving a db server that had 4 virtual fibers that were attached to the TAN environment but no tapes were allocated to it. This qualifies as 'no storage' attached therefor LPM will fail noting that. So unmap any virtual fibers then LPM.pare

HSCLA251:

LPM using vSwitch...ENSURE that the NAMES of the vio vSwitchs are

EXACTELY the same...case sensitive

HSCLA296 The DLPAR Resource Manager (DRM) capability bits for

partition

**HSCLA246 The HMC cannot communicate migration commands to the partition pepxd200069. Either the network connection is not available or the partition does not have a level of software that is capable of supporting partition migration. Verify the correct network and migration setup of the partition, and try the operation again.**I tried rebooting the LPAR with ZERO luck, same error I did do some hostname changes on the Client LPAR and when we run: host <client\_Name> it is returning the FQDN name but I changed it to just the shortened hostname So to fix this issue run: I also recommend to run directly recfgct on HMC. /usr/rsct/install/bin/recfgct /usr/rsct/bin/rmcctrl -p => therefor you need a pesh passwort to become root. But since I did not have pesh password I renamed the hostname on the client to what the HMC 'knew' it as and I was able to LPM it back successfully. So the whole story is that I was LPM'ing the boxes

WHILE checking them...The hostname was incorrect, so I changed

it...and this caused the communication error with the HMC...I do not

see this as an issue in the future since hostname changes WHILE

LPM'ing most likely wont happen in the future.

**HSCLA4C3** The remote virtual fibre channel adapter 306 is being used by another virtual fibre channel adapter. Choose a different remote virtual fibre channel adapter, and try again. I was trying to boot up pepxgp00084 and received the error above. I looked up the error in PSDB.

lshwres -r virtualio --rsubtype fc --level lpar -m SAP-p570-201-

SN103E925

hscroot@pbsghmc11:~> lshwres -r virtualio --rsubtype fc --level lpar

-m SAP-p570-201-SN103E925|grep 306 <--- wanted to see what LPAR slot

306 was allocated to.

Also we know that pepxgp00084 is lpar\_id(Client ID) 18 lpar\_name=pepxvp00021,lpar\_id=3,slot\_num=306,adapter\_type=server,stat e=1,is\_required=0,remote\_lpar\_id=45,remote\_lpar\_name=**pepxgp00091**,remo te\_slot\_num=306 lpar\_name=**pepxgp00091**,lpar\_id=45,slot\_num=306,adapter\_type=client,sta te=0,is\_required=1,remote\_lpar\_id=3,remote\_lpar\_name=pepxvp00021,remo te\_slot\_num=306,"wwpns=c05076020d6500de,c05076020d6500df"

Then I ran the same command looking for what my LPAR was 'allocated' to: (THIS LOOKS CORRECT! So lets look at what the PROFILE says): hscroot@pbsghmc11:~> lshwres -r virtualio --rsubtype fc --level lpar -m SAP-p570-201-SN103E925|grep pepxgp00084 lpar\_name=pepxvp00021,lpar\_id=3,slot\_num=**300**,adapter\_type=server,stat e=1,is\_required=0,remote\_lpar\_id=18,remote\_lpar\_name=pepxgp00084,remo te\_slot\_num=**300** lpar\_name=pepxvp00022,lpar\_id=4,slot\_num=**301**,adapter\_type=server,stat e=1,is\_required=0,remote\_lpar\_id=18,remote\_lpar\_name=pepxgp00084,remo te\_slot\_num=**301**

**The PROFILE said that the two FC slot numbers should be 306 and 307**

**(WRONG!)**

**[pepxvp00022][/home/padmin]>lsmap -npiv -all|more**

**Name Physloc ClntID ClntName ClntOS**

**------------- ----------------------------------**

**vfchost0 U9117.MMA.103E925-V4-C301 18**

**Status:NOT\_LOGGED\_IN**

**FC name:fcs0 FC loc code:U789D.001.DQD99NY-P1-C6-T1**

**Ports logged in:0**

**Flags:4<NOT\_LOGGED>**

**VFC client name: VFC client DRC:**

[pepxvp00021][/home/padmin]>lsmap -npiv -all

Name Physloc ClntID ClntName ClntOS ------------- ---------------------------------- vfchost0 U9117.MMA.103E925-V3-**C300** 18

Status:NOT\_LOGGED\_IN

FC name:fcs0 FC loc code:U789D.001.DQD99NY-P1-C1-T1

Ports logged in:0

Flags:4<NOT\_LOGGED>

VFC client name: VFC client DRC:

I confirmed that no other LPAR was using slot 300 from pepxvp00021 or slot 301 from pepxvp00022 and then changed the profile to pepxgp00084 and booted it successfully. **REMEMBER THAT WITH A SLOT CHANGE THE WWN'S WILL CHANGE ALSO**

**LPM via command line:**

migrlpar -o m -m Server-9117-MMD-SN103E7F7 -t Server-9117-MMD-SN21868A7 -p czapap438 --ip 172.21.55.147 -u l482339

$ lspartition -dlpar

Seeing only vios1 with DCaps:<0x0> one client lpar is showing up with

DCaps:<0x0>

login to vios1 and vios3 run these command:

# lslpp -l csm.client ... installed

# lssrc -a | grep rsct IBM.eprm , IBM.hostrm, IBM.DRM, IBM.AuditRM

# /usr/sbin/rsct/install/bin/recfgct

# /usr/sbin/rsct/bin/rmcctrl -p

on lpar client:

# lssrc -a | grep rsct .....only four daemons are showing up

# lslpp -l csm.client ... installed

# df -k looks ok

# /usr/sbin/rsct/install/bin/recfgct

# /usr/sbin/rsct/bin/rmcctrl -p

# lssrc -a | grep rsct ..... now seven daemons are showing up

**HSCLA340 The HMC may not be able to replicate the source multipath I/O configuration for the migrating partition's virtual I/O adapters on the destination.**/usr/sbin/rsct/bin/rmcctrl -z /usr/sbin/rsct/install/bin/recfgct /usr/sbin/rsct/bin/rmcctrl -p **for error hscla282 and hscla284 I ended up increasing the memory on the vioc. shutting it down/reactivating it then tried LPM again**

**HSCLA282 The operation to check partition apqwd617 for migration**

**readiness has failed. The partition command is: drmgr -m -c pmig -p**

**check -d 1 The partition standard error is:**

**HSCLA257 The migrating partition has returned a failure response to the HMC's request to perform a check for migration readiness. The migrating partition is not ready for migration at this time. Try the operation again later.** I had just restarted the rsct services on the vioc, the -A, -p blah blah and got this error.

**HSCLA284 The request issued to the source mover service partition**

**apqvh535-VIOS1 to start the migration has failed. The partition**

**command is: migmover -m src\_start -e 55236 -i 0xa949fe04edff2dab -l**

**39 -p 10.74.112.111 -L 10.74.112.66 -v U9117.MMA.107A3EC-V1-C2 -c 8**

**-t 100 -s 300 -d 1 The partition standard error is: null**

**HSCLA2CF The partition migration has been stopped unexpectedly.**

**Perform a migration recovery for this partition, if necessary**

**HSCLA27E(apqwd619&635,50244 004)The operation to lock the physical**

**device location for target adapter U9117.MMA.105BE2F-V1-C164 on the**

**virtual I/O server partition apqvh589-VIOS1 has failed. The partition**

**command is: migmgr -f lock\_target\_adapter -s U9117.MMA.105BE2F-V1-**

**C164 -i 0xc0d95f12951aa89d -t vscsi -d 1 The partition standard error**

**is: null**

**HSCLA27F(apqwd633&619) The operation to establish the physical device**

**location for adapter U9117.MMA.105BE2F-V1-C12 on the virtual IO**

**server partition apqvh589-VIOS1 has failed. The partition command is:**

**migmgr -f set\_adapter -t vscsi -s U9117.MMA.105BE2F-V1-C12 -C 0x3 -d**

**1 The partition standard error is: cfgmgr: 0514-609 Unable to save**

**the base customized information on /dev/ipldevice**

I tried running cfgmgr and bosboot on apqvh589. bosboot failed with a

memory error. I allocated 2GB more memory and it ran successful. Also

check mappings on the VIO server, chances are there are LUNs that are

not mapped to the client LPAR.

Also, PSDB has many references to reserve\_lock. Check lsattr In IPC2 we had issues with **HSCLA27F** that the RCA ended up being the firmware level on the SAN switches. Some great troubleshooting tools came out of the RCA.

**devscan shows if secondary WWPNs can talk to target from VIO:**

devscan -t f -n c0507604a7840043 --dev fcs1

This does not show LUNs assigned, just that it can see target. --dev

fcsX is optional. You can run this on the client, just drop -t f and

only use -n <WWPN>

http://www-01.ibm.com/support/docview.wss?uid=aixtools-25584e29

**Test migration functionality for NPIV adapters:**

ftp://ftp.software.ibm.com/systems/virtualization/vio/ztools/lpm-vfc-

wwpn/migmgr\_npiv\_test.sh

This was ran on the source VIO servers and I believe what it does is

show that the vfchost are 'ok' for a LPM operation. When prompted,

put in the vfchostX into the script.

**Inactive migration on clients using NPIV:**

ONLY WORKS if it's been actively migrated previous

**HSCLA284 The request issued to the source mover service partition**

**apqvh533-VIOS1 to start the migration has failed. The partition**

**command is: migmover -m src\_start -e 62951 -i 0x966076ffa94715ec -l**

**16 -p 10.74.112.111 -L 10.74.112.64 -v U8203.E4A.102CDZM-V1-C2 -c 8**

**-t 100 -s 300 -d 1 The partition standard error is: null...geez I**

**have no notes!**

**HSCLA2CF The partition migration has been stopped unexpectedly.**

**Perform a migration recovery for this partition, if necessary**

**HSCLA27C The operation to get the physical device location for adapter**What ended up being the issue was that all the client WWN's were not zoned on the destination VIOS. We UNMAPPED the unused fiber on the source VIOS then LPM'd successfully.

**HSCLA276 The HMC was not able to locate the source Virtual I/O Server**

**partition for the client virtual adapter 317 in its internal database**

**(this btw did not work. Dharmesh said that he would look at it and**

**then let me know what the fix is)**

**(issue @ AMEX also):Julian B Owens, IBM Support, had me run:**

lssrc -a|grep rsct /usr/sbin/rsct/install/bin/recfgct **then** lssrc -a|grep rsct **again(more services showed up & active, this recycles the services)wait some time for communication back to HMC then tried the LPM again and it worked! But I had this error again and the above didnt work. So I opened another PMR. I ran lspartition -dlpar and looked for source vios and vioc for active<1>(which they were(means they are talking to each other)). Then we went into the HMC as hscpe and ran recfgct(follow pesh directions and made all its frames connections happy again)..waited for active to change to active<1> for the VIOS and VIOC involved then tried LPM again**

Run lspartition -dlpar on the HMC before and after the instructions

below. You will see the number of connections change(which they

should)

**Clear RMC connection. On the LPAR and VIOS!:** ============= /usr/sbin/rsct/install/bin/recfgct /usr/sbin/rsct/bin/rmcctrl -z /usr/sbin/rsct/bin/rmcctrl -A /usr/sbin/rsct/bin/rmcctrl -p Qureshi, Faisal {PEP} [9:15 AM]:

Logged onto HMC as root

On the HMC: (see below on how to do it on the HMC)

=============

HMC commands

**To close a terminal seesion:**

rmvterm -m SAP-p570-1-SN102FBA5 -p pepxd200014

**Power on a managed system:**

chsysstate -m managed-system -r sys -o {on | onstandby |

onstartpolicy | onsysprof | onhwdisc} [-f system-profile-name] [-k

keylock-position]

**Power off a managed system fast:**

chsysstate -m sys1 -r sys -o off --immed

**powers on LPAR in SMS(to boot to normal mode, -b norm)**

chsysstate -m SAP-p570-1-SN102FBA5 -r lpar -o on -n pepxd20002 -f default -b sms

**add fiber channel slot:(on client,To remove the Fiber, change the + sign to a - sign)**chsyscfg -r prof -m SAP-p570-1-SN102FBA5 -i "lpar\_name=pepxvn00001,name=default,virtual\_fc\_adapters+=109/client// pepxd200018/109//0"

**For vio server:**

chsyscfg -r prof -m Server-8205-E6B-SN06137DR -i "lpar\_name=agpvh510,name=default,virtual\_fc\_adapters+=32/server//avpm d525/32//0" **Scripting the vio side: x=2 for i in 0 1 2 3 4 5 6 7 8 9 (increments Client name) do x=$(( x + 1 )) (increments slot # in 1st position) for t in 2 3 4 5 (increments slot # in 2nd position) do chsyscfg -r prof -m Server-8205-E6B-SN062BE42 -i "lpar\_name=AGPVH522- VIOS,name=default,virtual\_fc\_adapters+=${x}${t}/server//AVPMD58${i}/$ {x}${t}//0" done done**

**To remove an LPAR:**

rmsyscfg -r lpar -m <managed server> -n <partition\_name>

**Delete the service partition(full server partition)**

chsyscfg -m Server-9117-MMD-SN21928C7 -r sys -i

"service\_lpar\_id=none"

**List ALL max\_virtual\_slots on ALL LPARS on the entire HMC:**

for i in `lssyscfg -r sys -F name`

do

for x in `lssyscfg -m $i -r lpar -F name`

do

lssyscfg -r prof -m $i --filter lpar\_names=$x -F name

max\_virtual\_slots virtual\_scsi\_adapters virtual\_fc\_adapters --header

done

done

**To list the WWN's for the clients off the client profiles created on the HMC:**lssyscfg -r prof -m <managed server> --filter lpar\_names=pepxd200020 -F lpar\_name,virtual\_fc\_adapters

**To list all the virtual WWPNs on a managed system:**

for i in `lssyscfg -m Server-8205-E6B-SN06137DR -r lpar -F name`

do

echo $i

lssyscfg -r prof -m Server-8205-E6B-SN06137DR --filter lpar\_names=$

{i} -F virtual\_fc\_adapters|sed -e 's/","/\n/g'|sed -e 's/"//g'|sort

-g| cut -d/ -f6

echo done

**To find out if any virtual fiber adapters are REQUIRED: 1=REQ excluding vio servers:**for i in `lssyscfg -r sys -F name` do

for x in `lssyscfg -m $i -r lpar -F name|grep -v czapvs`

do

echo $x

lssyscfg -r prof -m $i --filter lpar\_names=$x -F virtual\_fc\_adapters

echo

done

done|sed -e 's/","/\n/g'|sed -e 's/"//g'|sed -e 's/,//g'|cut -d/ -f7

**To find out if any virtual fiber adapters are REQUIRED: 1=REQ INCLUDING vio servers:**for i in $(lssyscfg -r sys -F name) do

for x in $(lssyscfg -m $i -r lpar -F name|grep -v -E “czapdb”)

do

echo $x

lssyscfg -r prof -m $i --filter lpar\_names=$x -F virtual\_fc\_adapters

echo

done

done|sed -e 's/","/\n/g'|sed -e 's/"//g'|sed -e 's/,/\n/g'|cut -d/

-f7

**To find out if any virtual scsi adapter is required: 1=REQ**

for i in `lssyscfg -r sys -F name`

do

for x in `lssyscfg -m $i -r lpar -F name`

do

echo $x

lssyscfg -r prof -m $i --filter lpar\_names=$x -F

virtual\_scsi\_adapters

echo

done

done|sed -e 's/","/\n/g'|sed -e 's/"//g'|sed -e 's/,/\n/g'|cut -d/

-f6

**Show the PHYSICAL WWN of an LPAR:(I dont think this works on power7 at this time)(from UK AIX VUG)**

lshwres -r io --rsubtype slotchildren -m Server-9117-MMB-SN101509A -F phys\_loc,description,mac\_address,wwpn,microcode\_version |grep Fibre

**Show only the WWNs in a list:**

lssyscfg -r prof -m Server-8205-E6B-SN06137DR -F virtual\_fc\_adapters

--filter lpar\_names=avpmd525| sed -e 's/","/\n/g'| cut -d/ -f6

**List processing resources for all partitions:**

lshwres -r proc -m system1 --level lpar -F lpar\_name,curr\_proc\_units

--header

**Checking Memory Region Size:**

lssyscfg -r sys -F name | while read M

do

echo -e $M\\t\\c

lshwres -r mem -m $M -- level sys -F mem\_region\_size

done

**List memory resources for all partitions:**

lshwres -r mem -m Server-9117-MMA-SN10630C2 --level lpar -F

lpar\_name,curr\_mem --header

**To list the managed systems on a HMC:**

lssyscfg -r sys -F name

**To see the reference codes(LED) for all the systems: the comma after the -F flag is the delimeter shown in output(it can be whatever)** lsrefcode -m SAP-p570-2-SN102FB95 -r lpar -F lpar\_name,refcode

**For just one:**

lsrefcode -m SAP-p570-2-SN102FB95 -r lpar --filter

lpar\_names=<LPAR\_Name> -F lpar\_name,refcode

**Show history ref code for a LPAR:**

lsrefcode -m Server-9117-MMD-SN21867F7 -r lpar -n 10 -F --header

--filter lpar\_names=czapvs237

**To find an LPAR:**

for i in $(lssyscfg -r sys -F name); do echo $i $(lssyscfg -r lpar -m

$i -F name|grep pepxd200084); done

VIOC Related HMC commands

**Check LMB size of the frame:**

lshwres -r mem -m plum-8204-E8ASN105C0B0 --level sys -F

mem\_region\_size

**Force save running config onto lpar's profile:**

mksyscfg -r prof -m Server-9117-MMD-SN21868A7 -o save -p czapvs228 -n

czapvs228 –force

**Cant get console on LPARs on a frame:**

Getting error when trying to get console. Reboot HMCs and wait some

period of time(hate that part)

**Adding PHYSICAL adapters to LPARs/VIO profiles: first you need to find out the drc\_index of the i/o cards:** lshwres -r io -m Server-9117-MMC-SN217D807 --rsubtype slot -F drc\_index:drc\_name:description **output:**21010140:U5802.001.9K87802-P1-C1:1 Gigabit Ethernet (UTP) 4 Port Adapter PCIE-4x/Short 21010141:U5802.001.9K87802-P1-C2:1 Gigabit Ethernet (UTP) 4 Port Adapter PCIE-4x/Short 21010142:U5802.001.9K87802-P1-C3:1 Gigabit Ethernet (UTP) 4 Port Adapter PCIE-4x/Short 21010148:U5802.001.9K87802-P1-C7:1 Gigabit Ethernet (UTP) 4 Port Adapter PCIE-4x/Short

**then use the mksyscfg command to create:**

chhwres -r io -m sys1 -o a -p p1 -l 21010001

mksyscfg -r lpar -m Server-9117-MMC-SN217D807 -i "name=czapvs161,profile\_name=czapvs161,lpar\_env=vioserver,min\_mem=102 4,desired\_mem=12288,max\_mem=24576,proc\_mode=shared,min\_proc\_units=1,d esired\_proc\_units=2,max\_proc\_units=64,min\_procs=1,desired\_procs=4,max \_procs=64,sharing\_mode=uncap,uncap\_weight=255,shared\_proc\_pool\_id=0,a llow\_perf\_collection=1,**io\_slots=21010140//1**"

for the io\_slots format: drc\_index/slot-IO-pool-ID/ is-required

where 0 = no and 1 = yes, the slot-IO-pool-ID is optional

**and to add more than one physical IO at the same time:**

mksyscfg -r lpar -m Server-9117-MMC-SN217D807 -i

"name=czapvs161,profile\_name=czapvs161,lpar\_env=vioserver,msp=1,min\_m

em=1024,

desired\_mem=12288,max\_mem=24576,proc\_mode=shared,min\_proc\_units=1,des

ired\_proc\_units=2,max\_proc\_units=64,min\_procs=1,desired\_procs=4,max\_p

rocs=64,sharing\_mode=uncap,uncap\_weight=255,shared\_proc\_pool\_id=0,all

ow\_perf\_collection=1,io\_slots=21010140//1,io\_slots=21010141//1,io\_slo

ts=21010142//1,io\_slots=210101C0//1,io\_slots=210101C1//1,io\_slots=210

101C2//1,io\_slots=21010283//1,io\_slots=21010284//1,io\_slots=21010285/

/1,io\_slots=210102C3//1,io\_slots=210102C4//1,io\_slots=210102C5//1,io\_

slots=210102C8//1,io\_slots=210102C9//1,io\_slots=21010288//1,io\_slots=

21010289//1"

**If you need to make the physical IO DESIRED instead of required:**

chsyscfg -m Server-9117-MMD-SN10724A7 -r prof -i

lpar\_name=czapvs221,name=czapvs221,\"io\_slots=\"\"21010243/none/0\"\"

,\"\"21010283/none/0\"\",\"\"21010244/none/0\"\",\"\"21010284/none/0\

"\",\"\"21010245/none/0\"\",\"\"21010285/none/0\"\",\"\"21010208/none

/0\"\",\"\"21010209/none/0\"\",\"\"2101028C/none/0\"\",\"\"2101024C/n

one/0\"\",\"\"2101028D/none/0\"\",\"\"2101024D/none/0\"\"

**...the last field, 0=desired, 1=required**

SSH

**ssh without getting a login banner:**

ssh -q

**ssh is slow in responding with a login prompt:**

check /etc/hosts and /etc/resolv.conf for name resolution

**ssh\_exchange\_identification: Connection closed by remote host:**

The server in question was just used heavily for sftp’s, moving about

2TB of data to the server. Google did NOT help on this but one entry

suggested to leave it alone for a day and the issue should go away...

**I can ping but can not ssh:**

**HealthNet DR, did not need /etc/resolv.conf so renamed it to .old**

**then it worked**

**Who is ssh'ing into which IP Address?**

netstat -an|grep 22

**What process is listening on a port when you don’t have lsof:**

netstat -Aan|grep 17701

f1000e000794b3b8 tcp 0 0 \*.17701 \*.\* LISTEN

rmsock f1000e000794b3b8 tcpcb

The socket 0xf1000e000794b008 is being held by proccess 38142018

<jtucker007@phxcxnuat001>/home/jtucker007>ps -ef|grep 38142018

**If they have lsof installed you can list listening ports:**

lsof –Pnl +M|grep LIST

**If the steps above do not give you a PID(ibm recommends the following)**

netstat –Aan | grep 32833

kdb

kbd> sockinfo <pcb addr> tcpcb|grep INFO

kbd> dd <sock addr> 60

the line that contains the PID is +250 from the socket address

kdb> p \*|grep <pid>

convert this to dec from hex

exit kdb and kill the PID form the CLI

adputusr 38142018 28442708 0 May 05 - 0:02 node ./bin/www

STORY TELLING

User is sshing to a box with good username and password but connection immediately disconnects: lesson learned: check for primary group set for user

I have two interfaces on a box(primary and back up). I was not able

to ssh into the primary interface but was able to into the back up.

upon ssh into the back up interface, I tried doing a netstat -i and

hangs. when i did a netstat -rn I noticed that there was a tons of

wrong routing paths. So I removed them and then I was able to ssh

into the primary and netstat -i was able to complete.

Restoring mksysb's from CCSAS onto p6 servers in OTech. First thing

that happened was that the LPAR hung with LED 0605 which meant that

there were no ethernet drivers. Since we were going from a physical

server to a virtual one we ended up creating a SPOT from the AIX

disks and allocated it. This worked great until we hit the next the

hung error code: 0c48(if you have the console open then hit 1 to

select English)

ftp, ssh, scp hangs when doing cat's on files or changes or anything

simple(ftp'ing). Check MTU sizes of ALL parties involved(source,

target, switches)

**Funky things when ssh into a box:**

Check in the /etc/ssh/sshd\_config file for uncommented lines that

might cause the issue...on the Varian DR, one box wouldnt let me ssh into it with the correct password. In the file was a allowroot

without-password, so I commented it out and restarted ssh and it

worked! stopsrc -s sshd;startsrc -s sshd

**Ethernet card shows Link Status or Media Speed Running as Unknown:**

Talked to network and he showed us not connected and everything looks

good.Talked to guys that pull cables and he said all looks good.

Check errpt and double check that the ethernet cards are in the

correct order. If all is good there then have cable guys pull new

cables. Another thing you can do is have networking check to see if they can see the MAC address....if they dont then bounce the switch port

**Super slow speeds with NIM tftp'ing mksysb to client LPAR:**

On the NIM server I ran: tcpdump -I -i en0 host ch1p02

and gots lots and lots of errors:

14:12:19.360888 IP cgnim01.dts.ca.gov.nfs >

ch1p02.dts.ca.gov.2898601975: reply ERR 1460

14:12:19.360894 IP cgnim01.dts.ca.gov.nfs >

ch1p02.dts.ca.gov.3137716528: reply ERR 1460

apprently this error can safely be ignored. I still do not know why

it is slow. so at 86% the client reboots and isnt pointed at the disk

nor the correct network interface. So we point it to the configured

LAN. The install restarts from the beginning (Grrrr). We ended up

allocating ALOT MORE RESOURCES to the VIOS, NIM and NIM CLIENT...and

it is WAY FASTER but still fails around 86%(this was due to

vdevices(virtual devices) not being installed onto the mksysb that we

were trying to restore)

**So at Kaiser we had some SEAs go Defined. Individual NICs showed UNKNOWN status. We got together with networking and up'd the EC and tcpdumped them. They went from UNKNOWN to up status...weird...oh this is LACP too...so to get the SEAs back online I rmdev'd them and recreated them(pulling the info before deleting them: lsdev -dev entX**

**-attr). Also at Davita, we had SEA’s with no ip address bound to them so rmdev -l then mkdev -l *DO NOT DO -dl***

**Cant see MAC address on customer switch:**

What happened was we were doing multiple VLANs and the network guy forgot to put one of them on his side...then the MAC's showed up. But the MACs show up only on the switch(layer 2) and no where else.

(Still thinking of whats wrong). ended up putting things back to the

"way they were" still nothing. so the resolve was that my configs

were incorrect. I didnt have the VLANs set up correctly. see other

document that details what Faisal and I sametime'd about

**df listing shows dashes instead of sizes:(Varian DR exercise)**

**after a recreation of the LV/FS, df shows dashes. The FS needs to**

**mount ontop of its directory. Do a mkdir then remount FS. OR the**

**underlaying mount point might not have the right permissions for a**

**user to see it. At Kaiser /data was 700 and I couldnt see the df size**

**of /data/Tivoli unless I became root.**

**Created File system but mount command never returns to prompt:**

Turns out that there were a TON of umount and mount processes that never finished. Reboot should fix issue

root@czabdb2 / >

# ps -ef |grep mount

root 10551416 1 0 Feb 28 - 0:00

/sbin/helpers/jfs2/umount -f -V jfs2 /dev/lv\_Ascprd01

root 12124162 1 0 Feb 28 - 0:00

/sbin/helpers/jfs2/umount -f -V jfs2 /dev/lv\_Ascprd02

root 15925450 1 0 May 17 - 0:00

/sbin/helpers/jfs2/mount -v jfs2 /dev/alt\_tivolitws

/alt\_inst/usr/Tivoli/TWS

root 21496044 10 Mar 23 - 0:00 /sbin/helpers/jfs2/mount -v jfs2 /dev/alt\_tivolitws /alt\_inst/usr/Tivoli/TWS

root 28508212 10 Feb 28 - 0:00 /sbin/helpers/jfs2/umount -V jfs2 /dev/lv\_sc16scratch

root 32571444 10 Apr 07 - 0:00 /sbin/helpers/jfs2/mount -v jfs2 /dev/alt\_tivolitws /alt\_inst/usr/Tivoli/TWS

root 32636966 10 Mar 09 - 0:00 /sbin/helpers/jfs2/mount -v jfs2 /dev/alt\_tivolitws /alt\_inst/usr/Tivoli/TWS

**SSH:**

ssh'ing to box with ***ssh epicap02 date*** returns ksh: date: not found. Did some testing and come to find out that the boxes that were upgraded to TL9 are having the issue. Ran ssh tests to and from the same two boxes. i.e. sfnim02 -> epicap02 then reverse epicap02 -> sfnim02. Each time the server(epicap02) would fail with the error: "date: not found". We are going to reinstall ssh on epicap02 to see if this fixes the issue. The issue was that there were multiple PATH statements in the /etc/environment file....Reduced them down to one and all worked

END OF STORY TELLING

AIX BASICS

FILE SETS:

To list software and update on a specific media:

Install -l

**Uninstall filesets:**

Installp –gu sysmgt.pconsole

**Password Policy Changes:**

180 days max password age

/etc/security/user

**AIX file basics: /etc/passwd format**Username : Password Flag : UID : GID : GECOS : Home : Shell/Command Password Flag This field varies slightly in different flavors of UNIX and Linux. In AIX, the second field can contain one of two characters, either ! or \*. If the ! is displayed, a password has been set for the user. If no password has been set, \* appears. The passwords themselves are stored in /etc/security/passwd. **/etc/security/.profile**When you create a user using themkuser command, the script /usr/lib/security/mkuser.sys is executed. This script creates the user's directory, sets the correct permissions, and "creates" the user's .profile. The mkuser.sys script actually copies the /etc/security/.profile file into the user's new home directory. **/etc/security/limits**

The /etc/security/limits file contains all the ulimits, or users' system resource limitations. Table1 defines the fields in the

/etc/security/limits file and their use.

Table 1. Fields in /etc/security/limits

Soft limit

fsize

core

cpu

Hard limit

fsize\_hard

core\_hard

cpu\_hard

Description

Size of file a user

can create

Size of core file a

user can create

The amount of system

data

stack

rss

nofiles

nproc

data\_hard

stack\_hard

rss\_hard

nofiles\_hard

nproc\_hard

time allowed

Size of the process

data segment

Size of the process

stack segment

Physical memory

allowed

Number of open file

descriptors at one

time

Number of running

processes at one time

What's the difference between soft and hard limits? A *soft limit* is a value that a user or application can change on the fly up to the maximum (the hard limit). The *hard limit* is just that -- the maximum value a parameter can be set to. If setting the parameter to a numeric value is too difficult (for example, if a developer has no idea how much memory his or her program is going to take or the number of files it will need to open), you can set the parameter to**- 1**, which translates to unlimited.It isn't imperative that you set individual ulimits for each and every user, however. The /etc/security/limits file contains a section called default that defines a template of standard values for each user unless that user has set custom values. If the defaultsection doesn't exist, IBM kindly set predetermined limits just in case.

**/etc/security/passwd**

The /etc/security/passwd file contains the AIX user's password

information. The file contains three fields per user:

●password. Encrypted password. Note: If this field contains only an asterisk (\*), the account is locked until a password has been set. ●lastupdate. Number of seconds since epoch when the password was last updated. ●flags. Restrictions to changing the user's password. You can set three different flags:

○ADMIN. If set, only the root user can change the user's password. ○ADMCHG. If set, the user is prompted to change his or her password on the next login/su.

○NOCHECK. If set, any additional restrictions in

/etc/security/user are ignored.

**/etc/security/user**

**Valid Authentication Modules are found:**

/usr/lib/security/methods.cfg

Now you're getting into the meat of AIX user administration. The /etc/security/user file contains the most important settings, outside of the basics in /etc/passwd, for a user.Table2shows some of the parameters. Table 2. Parameters in the /etc/security/user file Parameter Format Description

account\_locked

TRUE | FALSE

TRUE | FALSE

MMDDHHYY

0-260 0-50

TRUE | FALSE

0-52

0-52

TRUE | FALSE

TRUE | FALSE

Lock out the account;

the user is unable to log in if set to True.

If True, the user has administrative rights.

If the date has been

reached, the account

has expired and is

locked.

Number of weeks the

user can't reuse a

password.

Number of passwords

previously used that

can't be reused.

User can log in if

True.

Number of weeks a

password is valid.

Number of weeks a

user must wait before

changing his or her

password.

The account can be

accessed remotely if

set to True.

Others can use su to

access this account

if set to True.

admin

expires

histexpire

histsize

login

maxage

minage

rlogin su

For a full listing of all parameters, look in your AIX system

under /etc/security/user.

maxexpired

Defines the maximum time (in weeks) beyond the maxage value that a user can change an expired password. After this defined time, only an administrative user can change the password. The value is a decimal

integer string. The default is -1, indicating restriction is set. If

the maxexpired attribute is 0, the password expires when the maxage

value is met. If the maxage attribute is 0, the maxexpired attribute

is ignored. Range: 0 to 52 (a root user is exempt from maxexpired)

**/usr/lib/security/mkuser.default**

The /usr/lib/security/mkuser.default file contains values used when creating a new AIX user through mkuser.Listing5provides an example of

what the file may look like on your system.

Listing 5. Example /usr/lib/security/mkuser.default file



user: pgrp = staff groups = staff shell = /usr/bin/ksh home =

/home/$USER admin: pgrp = system groups = system shell =

/usr/bin/ksh home = /home/$USER

Many more parameters can be defined in this file. To view the full

list, look at man chuser

**xargs: -n will pull the first field -t echo's the command to be ran -p asks if you want to run command -i iterates thru the parameters one at a time(without it put all hdisks on one line(from example below)) {} is the result of the commands piped thru to xargs**lspv|grep power|grep none|awk '{print $1}'| xargs -t -i bootinfo -s {} find . -depth -print | xargs grep 443 find /tmp \( -type f -o -type l \) -mtime -1 | xargs tar -cvf - {} | gzip > /tmp/tony.tar.gz

**The *find* command:**-mtime is for number of days ie: -mtime +2 (modified time greater than 2 days) -mmin is for number of minutes ie: -mmin +240 (modified time greater than 4 hours) This syntax will find ONLY in the directory: find /mnt1 \( ! -name mnt1 -prune \) -name "pbsxis00017\*" -mtime +14 -exec ls -al {} \; **or you can wildcard in the ls command:** ls \*pbs\* to search all files in a dir and grep for something: find . -print | xargs -i egrep -l 'search text' {}| xargs -i ls -l {}

**tar command:**

c=create v=verbose f=filename t=view

**Create a tarball with multiple files:**

tar cvf <tarball\_name> <file1> <file2> <etc> tar cvf <tarball\_name> `some command` (ie. `ls patrol\*`)

**View files in tarball:** tar vtf <tarball>

**Extract files in tarball:** tar xvf <tarball>

**Extract files to a specific directory:** tar xvf <tarball> -C <path>

**Tar up all home directories listed in a file:** cat list.txt|xargs tar cf archive.tar

**Redirecting:** uncompress < perfdata\_1\_88630.49r.tar | tar -tvf-vswitch

KORN KORN KORN SHELL SCRIPTING

HUP (hangup), the signal the shell sends to all of your background processes when you log out.

**Built in korn shell debugger:**

ksh -n <korn\_shell\_script>

**Print tabs in your output:**

echo -e ${i}\t$(ssh $i oslevel -s)

**Script Logging:**

# Enable/Disable logging by uncommenting/commenting the following line

exec > ${LOG} 2>&1 # Log everything to log file

str = pat string DOES match pattern

str != pat string does NOT match pattern

str1 < str2 string1 is less than string2

str1 > str2 string1 is greater than string2

-n str string in NOT null(length > 0)

-z str string is null(has 0 length)

**KORN KORN KORN SHELL SCRIPTING:**

$? exit status of last command

$$ PID of current program

$! PID of last background job

$# Number of command line arguments $0 program line and path

$\* expands to positional parameters starting at $1

When the expansion occurs within double quotes, it expands to a single word with the value of each parameter separated by the first character of the **IFS** special variable. That is, "**$\***" is equivalent to "**$1***c***$2***c***...**", where *c* is the first character of the value of the **IFS** variable. If **IFS** is unset, the parameters are separated by spaces. If **IFS** is null, the parameters are joined without intervening separators

$@ expands to positional parameters acting like seperate parms

When the expansion occurs within double quotes, each parameter expands to a separate word. That is, "**$@**" is equivalent to "**$1**" "**$2**" ... When there are no positional parameters, "**$@**" and **$@** expand to nothing

$# expands to the number of positional parameters

$? Expands to the exit status of the last command

$$ expands to the PID. In subshell is also expands to PID not subshell PID

$0 expands to the name of the shell or shell script

**Expansion:**

Brace expansion: occurs BEFORE ANY OTHER modification to the command line

Tilde expansion: ~ is replaced with the full path in the HOME variable. ~+ is replaced with the current working directory. ~- is replaced with the most recent previous working directory

Parameter expansion: expanding anything that begins with a $

Backquote expansion: $(command) and `command` are equivalent. Except escapes are not required for special characters

Tricks with parameter expansion:

${!LE\*} gives a list of all variables that begin with LE

**Conditional Tests: Use [[ condition ]] when you are comparing or testing a file attribute.** [[ condition ]] is actually a statement just like any other, except that the only thing it does is return an exit status that tells whether condition is true or not construct: if [[ <some\_condition> ]];then **String comparison operators:** str = string pat = pattern

if [[ -z $(lsb\_release --d) ]];then echo lsb\_release --d returned zero length else echo lsb\_release --d returned length > 0 fi

The Korn shell also accepts the external [] and test commands. The [[ ]] construct has many more options and is better integrated into the Korn shell language: specifically, word splitting and wildcard expansion aren't done within [[ and ]], making quoting less necessary.

**omit the [[ ]] when you are NOT comparing or testing a file attribute:**

if grep -q root /etc/passwd && cd /tmp;then echo commands were successful

else echo commands failed fi

print “\t\t\t\tPASSED”

**String operators: Special syntax inserted between variable name and right curly bracket**

${varname:-word} If varname exists and isn't null, return its value; otherwise **RETURNS** word. **Purpose**: Returning a default value if the variable is undefined. **Example**: ${count:-0} evaluates to 0 if count is undefined.

${varname:=word} If varname exists & not null, return its value; otherwise **SETS** it to word & then return its value **Purpose**: Setting a variable to a default value if it is undefined. **Example**: ${count:=0} **SETS** count to 0 if it is undefined.

${varname:?message} If varname exists and isn't null, return its value; otherwise print varname: followed by message, and **ABORT** the current command or script. Omitting message produces the default message parameter null or not set. **Purpose**: Catching errors that result from variables being undefined.

**Example**: {count:?" undefined!" } prints "count: undefined!" and **EXITS** if count is undefined

${varname:+word} If varname exists and isn't null, return word; otherwise return null. **Purpose**: Testing for the existence of a variable. **Example**: ${count:+1} returns 1 (which could mean "true") if count is defined.

**Testing for the existence of a variable.**

${varname:+word} If varname exists and isn't null, return word; otherwise return null i.e. ${count:+1} returns 1 (which could mean "true") if count is defined

exported variables ARE KNOWN to the subshell

$variable -ne number

True if $variable, interpreted as a number, is not equal to number.  
Similarly, -lt = less than, -le = less than or equal, -gt = greater than, -ge = greater than or equal

**simple testing of last execution result:**

if [ $? –eq 0 ];then

echo yes $? Is zero

else

echo no, not zero

fi

**File Tests:**

-e file #True if file exists(can be of any type)

-f file #True if file exists and is an ordinary file

-r file #True if file exists and is readable

-w file #Writable

-x file #Executable

-L file # is a symlink

-s file #True if file exists and size > 0

**Character string tests:**

-n “string” #True if string has non-zero length

-z “string” #True if string has zero length

**I/O redirection:**

stdin 0 stdout 1 stderr 2

2>&1 # Redirects stderr to stdout 0< FILENAME # Accept input from a file.

1>filename # Redirect stdout to file hostfilename

**Test conditions**

if command ran successfully then

normal processing

else

error processing fi awk a

if [[ $(whoami) != "root" ]]

then

echo "This script must be run by user root."

exit 1

fi

**getting the length of a variable:**

$ TEST=asad $ echo $TEST asad $ echo ${#TEST} 4

**arrays:**

set -A <variable> <item> ...

**recall all elements in an array:**

for (( i=0; i<${#numbers[@]}; i++ )); do echo $

{numbers[i]}; done

echo

printf "%s\n" "${lines[@]}"

**Read STDIN and execute:**

while read LINE; do echo “${LINE}” # do something with it here

done

If you are using a while read and executing ssh commands make sure you add ssh –n so that all the lines in your input file are read through. –n

**Underline output:**

you HAVE TO use the printf command turns underling ON: printf '\e[4m' turns underling OFF: printf '\e[0m' so to underline this output:

printf "\e[4m%20s\t%-30s\t%s\n\e[0m" "vswitch name" "vlans carried" "switch mode"

echo “Some text \c” the \c will not insert a return character

**Very nice output prepending output with the hostname:**

for i in $(< all\_lpars);do ssh -n $i 'last|grep -i -e mercury -e ddmiadmi -e patagt -e sitescope|while read line;do echo `uname -n`\| $line;done' >> ~/last\_command.csv

Scripts

Funso...use of tail in splitting a field

for i in $(lsdev -C -t mpioosdisk -r name)

do

lscfg -vl ${i} | egrep "Machine|ROS|Number" | cut -c37- | xargs | read a b c

echo "$(hostname) ${i} ${a} ${b} `echo ${c} | tail -c5`"

done

**Gather information from HMCs:**

Put the commands into frame\_firmware\_cmd file that you want to gather from the HMCs

​​#!/usr/bin/ksh

# Written by John Tucker

# July 27 2021

################################

#Gather frames from all HMCs. If there are new HMCs then update the all\_hmcs file

rm ~/frames.out

rm ~/uniq\_frames.out

for i in $(< all\_hmcs)

do

cat frame\_firmware\_cmd | ssh -T hscroot@$i >> ~/frames.out

done

echo "Frame FirmwareVersion" > ~/uniq\_frames.out

sort -n ~/frames.out|uniq >> ~/uniq\_frames.out

cat ~/uniq\_frames.out

or Victor Walters version:

for HMC in den3-hmc05 den3-hmc06 den4-hmc01 den4-hmc02 den4p6hmcu01 den6p5hmcu01 sea-hmc07 sea-hmc08 ;do

for FRAME in `ssh ${HMC} 'lssyscfg -r sys -F name'` ;do

print "${FRAME} has firmware level `ssh -T ${HMC} lslic -m ${FRAME} -F activated\_spname installed\_level ecnumber`"

done ;done

**diskmap script: [root@cgvio03a]:/home/padmin# cat diskmap**

#!/bin/ksh PATH=$PATH:/usr/ios/cli # # Go grab all the LUN and vhost information for recovery # purposes.. This script runs on VIOS only, must be run # as ROOT (oem\_setup\_env)... # # Daryl Scott - IBM June 1, 2007 # typeset -L12 VIOS typeset -L7 VHOST typeset -L28 VHOST\_CONN typeset -L14 VTD typeset -L20 LUN typeset -L20 DEV echo " " echo "Hostname Vhost Vhost Connection VTarget Name IOS LUN Phy Device" echo "-------------------------------------------------------------------- ----------------------------" VIOS=`hostname -s` for VHOST in `lsdev -Cc adapter|grep vhost |awk '{print $1}'` do VHOST\_CONN=`lscfg -vl $VHOST |head -1 | awk '{print $2}'` for VTD in `lsdev -C -p $VHOST |awk '{print $1}'` do LUN=`lsattr -El $VTD -a LogicalUnitAddr | awk '{print $2}'` DEV=`lsattr -El $VTD -a aix\_tdev | awk '{print $2}'` print "$VIOS $VHOST $VHOST\_CONN $VTD $LUN $DEV" done done

**Script to pull State of SEA as oem\_setup\_env:**

for i in `lsdev -Cc adapter|grep Sha|awk '{print $1}'`

do

echo ${i}:

entstat -d $i|egrep "State|High Availability"|egrep -v "Actor|

Partner"

echo "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*"

echo

done

OR

(This is the seastate command I created for State of California,ln -s

/home/padmin/sea\_state /usr/bin/seastate)

#!/bin/ksh

for i in `lsdev -Cc adapter|grep Shared|awk '{print $1}'`

do

echo "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*"

echo $i

entstat -d $i|egrep "Control Channel Adapter|Real Adapter|Virtual

Adapter|High|Active|State"|egrep -v "Switch|Invalid|Tran|Actor|

Partner|LACP"

done

**What EMC hdiskpower devices are NOT assigned?(with their LUN ID and size displayed & reserve lock): [root@cgvio03a]:/home/padmin#** cat unused\_disks.sh PATH=$PATH:/usr/ios/cli

clear echo "|----------------------------------|" echo "|hdiskpower NOT assigned to vhosts:|" echo "|Assign LUNs based on middle column|" echo "|----------------------------------|" ioscli lsmap -all | grep ^Backing|awk '{print $3}' > lsmap.txt for x in `lspv | grep power|awk '{print $1}'` do grep -q $x lsmap.txt if [ $? -eq 1 ] then echo "$x " `/usr/sbin/powermt display dev=$x | grep Logical | awk '{print $4,$5}'` " "`bootinfo -s $x` "LOCK "`ioscli lsdev -dev $x -attr|grep reserve|awk '{print $2}'`" PVID "`ioscli lsdev -dev $x -attr|grep Physical|awk '{print $2}'` fi done rm lsmap.txt **(BONUS: ln -s /home/padmin/unused\_disks.sh /usr/bin/avail)**

**Total Disk allocation to VIOC using EMC disks:**

#!/bin/ksh

PATH=$PATH:/usr/ios/cli

#

# Lists and adds up disks allocated to LPARs

# This script runs on VIOS only, must be run

# as ROOT (oem\_setup\_env)...

#

# Daryl Scott - IBM June 1, 2007

# Modified by John Tucker - IBM Apr 20, 2011

NORM="\033[0m"

RED="\033[0;31m"

UNDERLINE="\033[4m"

BOLD="\033[1m"

TOT=0

typeset -L7 VHOST

typeset -L14 VTD

typeset -L12 DEV

typeset -L33 SIZ

echo " "

echo "Vhost VTarget Name Phy Device Disk Size"

echo "-----------------------------------------"

for VHOST in `lsdev -Cc adapter|grep vhost |awk '{print $1}'`

do

for VTD in `lsdev -C -p $VHOST |awk '{print $1}'`

do

DEV=`lsattr -El $VTD -a aix\_tdev | awk '{print $2}'`

SIZ=`bootinfo -s $DEV`

TOT=`expr $TOT + $SIZ`

print "$VHOST $VTD $DEV $SIZ"

done

print "\th Total Allocated ${RED}${UNDERLINE}${BOLD}${TOT}MB$

{NORM}"

TOT=0

echo

done

**Script to check NIC ports:(by Federico Tomas Gimenez Molinelli)**

for i in 0 1 2 3

do

echo ENT$i

chdev -l en$i -a state=up >/dev/null 2>&1

sleep 1

lscfg -l ent$i

tcpdump -nn -vvv -i en$i -s 1500 -c 1 'ether[20:2] == 0x2000'

2>/dev/null | egrep "Device-ID|Port-ID|Native VLAN ID|System Name"

chdev -l en$i -a state=down >/dev/null 2>&1

sleep 1

rmdev -l en$i >/dev/null 2>&1

echo "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*"

done

**Pulling HEA Ethernet NIC info:(Aaron Dunphy)**

[disops3][/axphome/adunph]> cat scripts/ls\_aix\_network\_adapters.sh

#!/bin/ksh

HEA=`lsvpd | grep -i -e cc -e fc | grep -i -e 266d -e 266e -e 266f |

sed 's/^[ \t]\*//g' | sed 's/[ \t]\*$//g'`

if [ "$HEA" == "\*CC 266D" ]

then

echo "4-port 1Gb Copper"

elif [ "$HEA" == "\*CC 266E" ]

then

echo "Dual 10Gb Fiber"

elif [ "$HEA" == "\*CC 266F" ]

then

echo "Dual 10Gb Copper"

else

echo " --- No HEA found on this partition --- "

fi

echo " "

echo "Checking network adapters..."

lsdev -Cc adapter | grep ent

echo " "

ECHANS=`lsdev -Cc adapter | grep ent | grep -i etherchannel | awk

'{print $1}`

echo "Checking EtherChannel membership..."

printf "%-6s %-20s %-20s %-6s\n" "EC" "Primary Adapter(s)" "Backup

Adapter(s)" "Mode"

printf "\033[31m"

for i in `echo $ECHANS`

do

var=`lsattr -El $i | grep -i adapter\_names | awk '{print $2}'`

var1=`lsattr -El $i | grep -i ^mode | awk '{print $2}'`

var2=`lsattr -El $i | grep -i backup\_adapter | awk '{print $2}'`

printf "%-6s %-20s %-20s %-6s\n" "$i" "$var" "$var2" "$var1"

done

printf "\033[m"

echo " "

echo "Checking UP interfaces..."

UPIF=`ifconfig -a | grep ^en | grep "UP," | awk '{print $1}'| sed

's/://g'`

for i in `echo $UPIF`

do

var=`lsattr -El $i | grep "^netaddr " | awk '{print $2}' | grep -i

-v internet `

printf "\033[31m"

printf "$i: $var \n"

done

printf "\033[m"

**Looking for unused fiber and vscsi mappings:**

for i in `lssyscfg -r sys -F name` do for x in `lssyscfg -r lpar -m $i -F name|grep czapvs|grep -v vs237` do echo "frame "$i " vio server :"$x viosvrcmd -m $i -p $x -c "lsmap -all -npiv -field name physloc clntid status 'fc name' flags 'vfc client name' -fmt :"|grep -v :a:|awk -F: '{print $2}' echo VSCSI

viosvrcmd -m $i -p $x -c "lsmap -all -field physloc svsa clientid status -fmt :" done done

**Script to gather current allocations on frames:**

for i in `lssyscfg -r sys -F name`

do

echo "\*\*\*\*\* "`echo $i`" \*\*\*\*\*\*\*\*\*\*"

lshwres -r proc -m $i --level sys -F curr\_avail\_sys\_proc\_units

--header

lshwres -r mem -m $i --level sys -F curr\_avail\_sys\_mem --header

lshwres -r proc -m $i --level lpar -F lpar\_name,curr\_proc\_units

--header

lshwres -r mem -m $i --level lpar -F lpar\_name,curr\_mem --header

echo "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*"

echo done

**Check ALL vio servers on ALL frames on a HMC to see if virtual fiber is mapped or not logged in:** for i in `lssyscfg -r sys -F name` do

for x in `lssyscfg -r lpar -m $i -F name|grep czapvs`

do

echo "frame "$i " vio server :"$x

viosvrcmd -m $i -p $x -c "lsmap -all -npiv -field name physloc clntid

status 'fc name' flags 'vfc client name' -fmt :"|grep -v :a:

done done

**How to list all crontab entries for everyone on a box for multiple boxes:Set up dsh. tuck is each box on a line of its own** for i in `cat tuck`

do

for y in `dsh -l ibmtech -n $i sudo ls /var/spool/cron/crontabs|awk

'{print $2}'`

do

echo "USER: "$y

dsh -l ibmtech -n $i sudo crontab -l $y|dshbak

done

done

**Piping values thru a while read:**

cat /etc/automount.direct | grep -v nfs | awk '{ print $1 }'| while

read i

do

cd $i done

**piping multiple values through while read:**

cat CP1vg1|awk '{print $1" "$NF}'|while read LV MP

do

crfs -v jfs2 -d $LV -m $MP -p rw -A yes

done

**Using ssh in a while read loop:(or better yet use dsh)**

make sure to use -n option on ssh to prevent ssh from reading STDIN

after first execution.

#!/bin/bash

while read dir file

do

ssh -n test@192.1.1.1 "ls -tl /$dir/$file"

done < /tmp/dirandfile

**adding entries into the /etc/hosts file from the results of an nslookup:(create phase5\_list with host names)**for i in `cat ~/phase5\_list` do

echo 'hostent -a '`nslookup $i|grep Add|grep -v \#53|awk '{print

$2}'`' -h '\"${i}.crdc.kp.org' '$i\"\;

done

hostent -a 172.22.83.107 -h "czapwa131.crdc.kp.org

hostent -a 172.22.83.110 -h "czapwa134.crdc.kp.org

hostent -a 172.22.83.113 -h "czapwa137.crdc.kp.org

hostent -a 172.22.83.116 -h "czapwa140.crdc.kp.org

**How many different disk do I have(Jeff Pany):**

for i in `lsdev -Ct power -F name`

do

getconf DISK\_SIZE /dev/$i

done | sort | uniq -c

10 59 139402 (59 disks are 139G)

703 17425 (703 disks are 17G)

1 19 (1 disk is 19M)

2 35073 (2 disks are 35G)

**Mount options: (verifly with** lsfs**)**

mount -o remount,noatime /dbX

chfs -a options=noatime /dbX

**List mount point by VG:**

lsvg | while read VG

do

echo "disk usage in $VG filesystems: "

lsvg -l $VG| awk ' !/N\/A|LV|$VG/ { print $7 }' | xargs df -gP

echo

done

czapwa131";

czapwa134";

czapwa137";

czapwa140";

**Disk usage per VG:**

lsvg | while read VG

do

GIGS=$(lsvg -l $VG| awk ' !/N\/A|LV|$VG/ { print $7 }' | xargs df -gP

| sumcol 3)

echo "

Estimated disk usage in $VG filesystems is $GIGS GB

"

done

get size(GB) from mount points in specific VG:

powermt check(a is for all) then run powermt save

**Check to see if passwordless ssh is working for cfg2user**

#

PASSWORDLESS\_SSH=$(ssh -q -o StrictHostKeyChecking=no -o BatchMode=yes -i ~/cfg2user\_rsa\_id cfg2user@czapdb173 whoami)

if [[ ${PASSWORDLESS\_SSH} = cfg2user ]]; then

echo "zero means success" | tee -a ${SCP\_LOG}

echo "SSH is working " | tee -a ${SCP\_LOG}

echo "Creating local key for cfg2user" $? | tee -a ${SCP\_LOG}

chmod 600 ~/cfg2user\_rsa\_id

**ssh back to central server:**

at kaiser they wanted all aix boxes to scp and ssh up to a central

server(db173). The user on db173 is unique in the environment. So on

db173 I created a ssh key. I took that private key and put it in the

client audit script.

echo "-----BEGIN RSA PRIVATE KEY-----

MIIEogIBAAKCAQEAvCRWqC2k2fENBNu+v8goL4GxwW4+pVC17E/GCupje/klFOAV

UHEuSyRouB3uGg/ErBof5gI67bthwv5DEBNg7RaFEaCqzESfWsXbY6rjGBdTOAtl

AthDMrqrdBmsMGHLK02wD0gG6xH4U98bKFjQ1YRm6X0SDbvpr0ISxp+0O4I0gDfz

Fpd4TVw++FjomGfM6q3pUJrz5j4hwiQ+/4vIQjke+3O1GbQIVPypyXBRW/5SF2Uy

gBntL9Ia8y0uwIcCOlYZumNtxsi2ZhNc6ZOklgL8n3kfY8/AHq+TuoV8swnukClA

U+zybPfk8LImwRaHMphlIQkoWI4tupAUOWlj7QIBIwKCAQBF4ZyHm+zF+nKMxqXv

djrP0RYjRjSGi7FJJPHJikI1XIodslEPP/tAezzWrAf7DSvK5SHKddtfnV7TZcEj

OmXUZ3NBD8ppIM15fLCSu9CxLTwqwmdY0/uzwa1loyKy4n6pryQi7t3/ilTr88hC

L54GKd0U5U/ZNyrpUw5JxkpB/IV2yZa1Nxey/chi4TEth/bLD5C8of7Win30t6Xf

HE4MmDoSG6tnJMh9N5H+94mpnyC03CHzFkux2/La/rQ/w1NavpsQ6Jf6duuxTo7S

aGVOoCSJ2fsAvIg8e5ZYPAxbUQ6nUjEAoqy5OZP9alQ5ZdBEeaK0W6a3He3fbNYi

El+LAoGBAPR0ZHNHcFPR+HSZ3Y3LAp0TkNwUXmp92WMjJY9WHC614sdJxRP+0XDB

IK12oNXwrTwlsdjWgF+fEbpUm3/FUkoXQW4lTg6Bo0FmAI6TiiUHZ0DGmVzykhLd

gPUUHooMFfa68EeAFrrXuqxvjz0NC/UTxWAtg8w9axRagmIzWDwBAoGBAMUHFzjT

ktD785ss4f3I9yE+QeoFTVF1jWuCS1OL1KAH95P3FV17WC0HqNW4DaZT373jYq99

mJpjIXBQ96JPiU3f/88FGU/xloRKF+taoaniTwq0gTJbkNwAzjFCsZZOo5VN0ddb

+Ny2P73DLAbyH9eN2k7mjptB0oVBmeeqVdftAoGBAKegROFVjtpkGBVw0m/bqgVP

PsLMI3w5ChgYGcFfnkvqb56Y/Cr34BLNksAW1K/1fhqdgUQ7ULaY9jagaqDB0gbr

YBEDoz0lscZx1H8GFZW77wfYo61zIlYUOyu2BlAISZM+W56+O3jOcWBMf3pSFtPw

TNQ8d6H+Oswgzm85Jo+LAoGBALnE22F3BsUKz74xoeCniewkwc4E/8HVPDIqZEd1

NjB8ilhPXUmC7Ly+FDc4geX3T0yjMSkepdNkx8GrbSQB2TrL4o/9fkQPqyxF3AnK

eysl1X8fN/xHtHeo/Oyd9+V9WGgzbhQyJSffCOYea1cBi7ybsJOI7NuHNDR/rl4V

oWUvAoGAMdPWYjZVTHFEAgB+LoglHmuvF9nK4aP6dEvM9lsUpS3UxMZhMX4vz6yT

FML8uQSQdWjWdQ2qOoQx0lyALxgSSWnepdM9jCnO8LSKNpLZ0aBTliqHbggDQ2N7

m8uHa3h78/hvvfcTm1loCrqyHpMfMDduOaU+cecth2ZPsEA37PM=

-----END RSA PRIVATE KEY-----" > ~/.ssh/cfg2user\_rsa\_id

chmod 600 ~/.ssh/cfg2user\_rsa\_id

ssh -q -o StrictHostKeyChecking=no -i ~/.ssh/cfg2user\_rsa\_id

cfg2user@czapdb173 'mkdir -p /cmas/LPAR\_Reports/LPAR\_Reports\_$(d

ate +%Y%m%d)'| tee -a ${LOG}

ssh -q -o StrictHostKeyChecking=no -i ~/.ssh/cfg2user\_rsa\_id

cfg2user@czapdb173 'chmod 770 /cmas/LPAR\_Reports/LPAR\_Reports\_$(

date +%Y%m%d)'| tee -a ${LOG}

scp -o StrictHostKeyChecking=no -i ~/.ssh/cfg2user\_rsa\_id

"/tmp/CMAS\_LPAR\_Report\_$(hostname)\_$(date +%Y%m%d).txt" cfg2user@cz

apdb173:/cmas/LPAR\_Reports/LPAR\_Reports\_$(date +%Y%m%d)| tee -a $

{LOG}

ssh -q -o StrictHostKeyChecking=no -i ~/.ssh/cfg2user\_rsa\_id

cfg2user@czapdb173 "chmod 770 /cmas/LPAR\_Reports/LPAR\_Reports\_$(

date +%Y%m%d)/CMAS\_LPAR\_Report\_$(hostname)\_$(date +%Y%m%d).txt"| tee

-a ${LOG}

the -o StrictHostKeyChecking=no avoids the question when you first

connect to a server

**Scripted way of changing Performance Collections on one managed system:**for i in `lssyscfg -r lpar -m SAP-p570-5-SN103CD75 -F lpar\_id` do

echo $i

chsyscfg -r lpar -m SAP-p570-5-SN103CD75 -i lpar\_id=$

{i},allow\_perf\_collection=1

done

**Scripted way of changing Performance Collections on one entire HMC(all p570's):**

for i in `lssyscfg -r sys -F name|grep p570` do

for x in `lssyscfg -r lpar -m ${i} -F lpar\_id`

do

echo $x

chsyscfg -r lpar -m ${i} -i lpar\_id=${x},allow\_perf\_collection=1

done

done

**Check condition and then act on it:**

for i in $(lspv|awk '/diskpower/ {print $1}')

do

if [[ $(lsattr -El $i -F value -a reserve\_policy) = "single\_path" ]]

then

echo hi <--- replace with chdev or whatever

fi done

**NFS Scripts: massive add to client:(needs nfs\_data file in form of nfsserver:remote\_share:local\_mount)**[root@cg1p28a]:/home/root# cat nfs\_script for i in `cat nfs\_data` do /usr/sbin/mknfsmnt -f `echo $i|awk -F: '{print $3}'` -d `echo $i|awk -F: '{print $2}'` -h `echo $i|awk -F: '{print $1}'` -M 'sys' -B -A -t rw -w bg -K 4 -Y -Z -X -S -j -q -g done

**massive delete from client: -B removes from /etc/filesystems**

for i in `lsnfsmnt|awk '{print $3}'`

do

rmnfsmnt -f $i -B

done

**Check NFS mounts if data is in mount point:**

for i in `lsnfsmnt|awk '{print $3}'|grep -v Mount`

do

echo

echo $i

ls -l $i

sleep 1

done

**Umount all NFS:**

for i in `lsnfsmnt|awk '{print $3}'|grep -v Mount`

do

umount $i

done

**List all fscsi connections with their status and physical location:**

let i=0

while [ $i -lt 80 ]

do

lsdev -l fcs$i -F 'name class location physloc'

lsattr -El fscsi$i|grep switch

echo

let i=i+1

done

**IF file exists, change the name, check again:**

i=2

while [[ -e "${LOG\_FILENAME}" ]]; do

LOG\_FILENAME="${LOG\_PATH}/${LOG\_PREFIX}$(date -u "+$ {TIME\_FORMAT}")\_${i}${LOG\_SUFFIX}"

i=$((i+1)) done

**List hostnames of vscsi clients ONLY IF the vio server also hosts npiv:**

/usr/ios/cli/ioscli lsmap -npiv -all -field ClntID ClntName -fmt :|uniq|sed s/:/" "/g | while IFS=$' \t\n' read -r -- CLIENTID CLIENTNAME do HOSTNAME\_LOOKUP[${CLIENTID}]="${CLIENTNAME}"

done

**Only shows the hdiskpowers that are single\_path and chdev's them**

for i in $(lspv|awk '{print $1}'|grep pow) do op=$(lsattr -El $i|grep reserve\_policy|awk '{print $2}') if [[ $op = "single\_path" ]] then echo $i chdev -l $i -a reserve\_policy=no\_reserve fi done

**Same script for padmin:(if LUN is in use then change on reboot)**

for i in $(lspv|awk '{print $1}'|grep -v NAME) do op=$(lsdev -dev $i -attr|grep reserve|awk '{print $2}') if [[ $op != 'no\_reserve' ]]

then echo $i chdev -dev $i -attr reserve\_policy=no\_reserve if [[ $? = 1 ]] then chdev -dev $i -perm -attr reserve\_policy=no\_reserve fi fi done

**Testing for a string that contains certain alphanumerics: This script pulls the vscsi mappings from the vio servers executed from the HMC** for i in `lssyscfg -r sys -F name` do echo $i



for x in `lssyscfg -r lpar -m $i -F name` do

echo $x

**if [[ $x = czapvs\* ]]**

then viosvrcmd -m $i -p $x -c "lsmap -all -field vtd svsa status -fmt :" echo

fi

done

echo done

**ping a target once and if it fails then tee it a file:**

for i in $(cat /tmp/backupnic) do echo "pinging ""$i" result=$(ping -c 2 "$i"|grep packets|awk '{print $7}') if [[ $result != 0% ]]

then echo "Doesnt ping: ""$i" |tee -a /tmp/badnics fi done

**List the ioslevel of all vio servers on a HMC:**

for i in $(lssyscfg -r sys -F name) do echo "$i" for x in $(lssyscfg -r lpar -m "$i" -F name|grep czapvs) do

lssyscfg -m "$i" -r lpar --filter lpar\_names="$x" -F name:os\_version done echo done

**Checking if all rmt tapes in Defined state:(doesnt work if last tape is available)**

for i in $(cat tapecheck) do ssh "$i" 'lsdev|grep rmt|grep Defined > /dev/null' if [[ $? -eq 0 ]] then echo "$i"" has defined tapes" fi echo "Checked ""$i" done

**awk example of using multiple fields in output(Naveen Gande) The assigment of variable is done as the ' read' is executed.** lsvg -l rootvg | grep sysdump | awk '{print $1,$4}' | while read lv pp do

echo "sysdump $lv contains $pp PP"

done

**awk example using if then else logic:**

uname -a|awk '{ if ($1 == "AIX") {print $2} else {print "Why bother"}}' ktazd216

**Pretty sweet output for fcs slot WWPN and status:**

for i in $(lsdev -Cc adapter|grep fcs|awk '{print $1}') do echo "$i" $(lscfg -vl "$i"|grep Hard|awk '{FS = "."} {print $9}') $(lscfg -vl "$i"|grep Netw|awk 'BEGIN { FS = "." } {print $14}') $(fcstat "$i"|grep running) done

**Super clean report of npiv off vio server as root:**

printf "%8.8s %9.6s %5.4s %27.10s %5.4s %27.10s %12.6s\n" "ClientID" "device" "Cfcs" "ClientSlot" "Vfcs" "VIOSlot" "status" /usr/ios/cli/ioscli lsmap -all -npiv -field ClntID Physloc "FC loc code" "VFC client name" name "FC name" status -fmt :|awk -F: '{printf "%8.2s%10.9s%6.5s%28.28s%6.5s%28.28s%13.12s\n", $1,$3,$5,$2,$6,$4,$7}'

**and vscsi and show backing device uniqueness:**

echo "CltID Device Backing Status Backing Status" /usr/ios/cli/ioscli lsmap -all -field SVSA status "backing device" "Client Partition ID" -fmt :|awk -F: '{print $2,$1,$4,$3,$6,$5,$7}' echo echo "Dup use of backing devices report" echo "Total# BackingDevice" for i in $(/usr/ios/cli/ioscli lsmap -all -field "backing device" -fmt :|awk -F: '{print $1,$2}') do echo " "$i done|sort|uniq -c

**have grep search before and after a pattern found(Steve Price):**

# cat greptest BEFORE=3 AFTER=3 FILE=/var/hacmp/log/cl\_event\_summaries.txt PATTERN="RG\_MOVE"

for i in $(grep -n $PATTERN $FILE | sed -e 's/\:.\*//') do head -n $(($AFTER+$i)) $FILE | tail -n $(($AFTER+$BEFORE+1))

done echo " "

**HMC report I wrote for Kaiser:**

# What is the hostname of the HMC echo "HMC: "$(uname -n)

# HMC version

lshmc –v

printf "\n"

#Clear out variable

VIOS="";VIOC="";FRAMES=""

# Create variable with frame names echo ...gathering frame names...

FRAMES=$(lssyscfg -r sys -F name)

# creating master VIOC and VIOS variable from entire HMC printf "%s" "...creating variables containing vio and client lpars" for i in $FRAMES do

printf . for x in $(lssyscfg -m $i -r lpar -F name) do if [[ $(lssyscfg -m "$i" -r lpar --filter lpar\_names="$x" -F lpar\_env) = "vioserver" ]] then VIOS="${VIOS} "${i}" "${x}"" else VIOC="${VIOC} "${i}" "${x}"" fi done done printf "\n"

# Lists the firmware of the frame for i in $FRAMES do printf "\t\t%s\n" "Frame"

printf "\t%s\n" "$i" printf "%s\t%s\n" "Firmware Name" "Firmware Number" printf "%s\t%s\n" $(lslic -m "$i" -t sys -F curr\_spname\_primary curr\_ecnumber\_primary) printf "\n" done

# Shows available CPU/Memory on frame and whats allocated to all LPARs for i in $FRAMES do printf "\t\t%s\n" "Frame"

printf "\t%s\n" "$i" printf "%s\t%s\n" "Avail CPU" "Avail Memory" printf "%.1f\t\t%s\n" $(lshwres -r proc -m "$i" --level sys -F curr\_avail\_sys\_proc\_units) $(expr $ (lshwres -r mem -m "$i" --level sys -F curr\_avail\_sys\_mem) / 1024)GB printf "\n" printf "%s\t\t%s\t%s\n" "LPAR" "Desired CPU" "Desired Memory" for x in $(lssyscfg -m $i -r lpar -F name) do

printf "%s\t%.1f\t\t%s\n" $(lshwres -r proc -m "$i" --level lpar --filter lpar\_names=$x -F lpar\_name curr\_proc\_units) $(lshwres -r mem -m "$i" --level lpar --filter lpar\_names=$x -F curr\_mem) done printf "\n"

done

# List ALL vswitch's with the vlans that are allowed on them for i in $FRAMES do printf "\t%s\n" "$i"

printf "%20s\t%-30s\n" "VSWITCH NAME" "VLANS CARRIED" printf "%20s\t%-30s\n" $(lshwres -r virtualio --rsubtype vswitch -m "$i" -F vswitch vlan\_ids|sort) printf "\n" done

# Looks at VIOS physical adapter's required/desired setting and MSP setting printf "%s\t%s\n" ${VIOS}|while read i x; do if [[ $(lssyscfg -r lpar -m "$i" --filter lpar\_names="$x" -F msp) = 1 ]]

then printf "%-10s%s\n" "$x" " is MSP enabled" else printf "%-10s%s\n" "$x" " is NOT MSP enabled" fi done

#List last valid configuration for i in $FRAMES do lssyscfg -r prof -m "$i" --lastvalidcfg printf "\n"

done

#LPM clean up check for npiv echo LPM Check Section echo Unused or not logged in virtual fibers printf "%s\t%s\n" ${VIOS}|while read i x; do echo "frame "$i " vio server: "$x viosvrcmd -m $i -p $x -c "lsmap -all -npiv -field name physloc clntid status 'fc name' flags 'vfc client name' -fmt :"|grep -v :a: done

echo ...checking desired fields for virtuals... echo ...printed below are adapters set to required for i in $FRAMES do echo Checking on frame: "${i}" echo ...checking ethernets...

lshwres -r virtualio -m $i --rsubtype eth --level lpar -F lpar\_name,slot\_num,is\_required|grep "\,1$" echo ....completed checking ethernets;echo echo ...checking fiber... lshwres -r virtualio -m $i --rsubtype fc --level lpar -F lpar\_name,slot\_num,is\_required|grep "\,1$" echo ....completed checking fibers;echo

echo ...checking scsi... echo ....completed checking scsi;echo lshwres -r virtualio -m $i --rsubtype scsi -F lpar\_name,slot\_num,is\_required|grep "\,1$" echo Done checking frame: "${i}" echo done echo ...completed checking desired fields for virtuals

**ssh from jump box to get fcs slot numbers:(use double quotes)**

for i in 0 1 2 3^Jdo^Jssh czapap169 "lscfg -vl fcs$i|grep fcs"^Jdone

**SEA summary output:**

#!/bin/ksh vlanids () { /usr/ios/cli/ioscli lsdev -dev $1 -attr virt\_adapters|awk '$1 ~ /^ent/ {print $1}'|/usr/ios/cli/ioscli entstat -all $1|grep "ent[0-9][0-9]:" }

for i in $(/usr/ios/cli/ioscli lsdev -type sea|awk '$1 ~ /^ent/ {print $1}') do echo "[SEA=""${i}""]" "[Phys/EthChan="$(/usr/ios/cli/ioscli lsdev -dev $i -attr real\_adapter|awk '$1 ~ /^ent/ {print $1}')"]" "[PVID="$(/usr/ios/cli/ioscli lsdev -dev $i -attr pvid|awk '$1 ~ /^[0-9]/ {print $1}')"]" "[vswitch="$(entstat -d "${i}"|grep "Switch ID:"|uniq|awk '{print $3}')"]" "[State="$(entstat -d $i|egrep "BACKUP|PRIMARY"|awk '{print $2}')"]" "[vETH:VLANs="$(vlanids ""${i}"")"]" done 2> /dev/null

output: [SEA=ent50] [Phys/EthChan=ent40] [PVID=601] [vswitch=VSWITCH\_601\_301] [State=BACKUP] [vETH:VLANs= ent24: 82 601] [SEA=ent51] [Phys/EthChan=ent41] [PVID=602] [vswitch=VSWITCH\_602\_302] [State=PRIMARY] [vETH:VLANs= ent25: 82 602] [SEA=ent52] [Phys/EthChan=ent42] [PVID=603] [vswitch=VSWITCH\_603\_303] [State=BACKUP] [vETH:VLANs= ent26: 488 603] [SEA=ent53] [Phys/EthChan=ent43] [PVID=604] [vswitch=VSWITCH\_604\_304] [State=PRIMARY] [vETH:VLANs= ent27: 488 604] [SEA=ent54] [Phys/EthChan=ent44] [PVID=606] [vswitch=VSWITCH\_606\_306] [State=PRIMARY] [vETH:VLANs= ent29: 92 415 606] [SEA=ent55] [Phys/EthChan=ent45] [PVID=661] [vswitch=VSWITCH\_661\_361] [State=BACKUP] [vETH:VLANs= ent30: 555 556 661] [SEA=ent57] [Phys/EthChan=ent47] [PVID=663] [vswitch=VSWITCH\_663\_363] [State=BACKUP] [vETH:VLANs= ent32: 559 663] [SEA=ent58] [Phys/EthChan=ent15] [PVID=605] [vswitch=VSWITCH\_605\_305] [State=BACKUP] [vETH:VLANs= ent28: 88 605]

**SEA Etherchannel and NICs inside:**

for i in $(/usr/ios/cli/ioscli lsdev -type sea|awk '{print $1}') do child=$(lsattr -El $i -a real\_adapter|awk '{print $2}') echo Parent:$i EC:$(lsattr -El $i -a real\_adapter|awk '{print $2}') Inside:$(lsattr -El $child -a adapter\_names|awk '{print $2}')

done

Parent:ent51 EC:ent42 Inside:ent4,ent0,ent16,ent12 Parent:ent52 EC:ent43 Inside:ent5,ent1,ent17,ent13 Parent:ent53 EC:ent44 Inside:ent8,ent20 Parent:ent54 EC:ent45 Inside:ent2,ent14

**Making changes as root on the vio server from the HMC:**

FRAMES=$(lssyscfg -r sys -F name) for i in $FRAMES do printf .

for x in $(lssyscfg -m "${i}" -r lpar -F name) do if [[ $(lssyscfg -m "${i}" -r lpar --filter lpar\_names="${x}" -F lpar\_env) = "vioserver" ]] then VIOS="${VIOS} "${i}" "${x}"" fi done done

printf "%s\t%s\n" ${VIOS}|while read i x; do echo "${x}" viosvrcmd -m "${i}" -p "${x}" -c "$(printf "%s\n%s" "oem\_setup\_env" "chps -s8 hd6")" done

done

**List and sort the vio server names with lpar\_id number:**

FRAMES=$(lssyscfg -r sys -F name) for i in $FRAMES do echo $i

for x in $(lssyscfg -m $i -r lpar -F name) do if [[ $(lssyscfg -m "$i" -r lpar --filter lpar\_names="$x" -F lpar\_env) = "vioserver" ]] then lssyscfg -m $i -r lpar --filter lpar\_names=$x -F name:lpar\_id fi done|sort -n echo done

**Compare the WWPNs in the running profile are different than the WWPNs in the saved profile**FRAMES=$(lssyscfg -r sys -F name) for i in $FRAMES

do echo "${i}" for x in $(lssyscfg -m "${i}" -r lpar -F name) do

echo "${x}" DEFAULT=$(lssyscfg -r lpar -m "${i}" --filter lpar\_names="${x}" -F default\_profile) RUNNING=$(lshwres -r virtualio -m "${i}" --rsubtype fc --filter lpar\_names="${x}" --level lpar|cut -d, -f10,11|sed -e 's/"wwpns=/"/g'|sed -e 's/"//g'|sort -g) SAVED=$(lssyscfg -m "${i}" -r prof --filter lpar\_names="${x}",profile\_names="${DEFAULT}" -F virtual\_fc\_adapters|sed -e 's/","/\n/g'|seds -e 's/"//g'| cut -d/ -f6|sort -g) if [[ $RUNNING == $SAVED ]];then echo they are the same echo else echo they are different echo Running Profile: echo $RUNNING echo echo Saved default profile: echo $SAVED echo fi done echo done

**Pull all virtual ethernet info with corresponding profile name:**

FRAMES=$(lssyscfg -r sys -F name) for i in $FRAMES do echo "${i}"

for x in $(lssyscfg -m "${i}" -r lpar -F name) do echo "${x}" lssyscfg -r prof -m "${i}" --filter lpar\_names="${x}" -F name:virtual\_eth\_adapters echo

done echo done

**Watch LPM from HMC command line:**

while true do lslparmigr -r lpar -m Server-9117-MMD-SN103CB27 --filter "dest\_sys\_names=Server-9117-MMD- SN21928C7" -F name,migration\_state,bytes\_remaining sleep 5 done

**FUNCTION and BASIC SCRIPT container:**

#!/usr/bin/sh

##################

function if\_error

##################

{

if [[ $? -ne 0 ]];then # check return code passed to function

echo "$1" # if rc > 0 then print error message and quit

exit $?

fi

}

case $1 in

"-c") touch ~/whatcha

echo "-c executed"

if\_error "ERROR: Failed creating file";;

"-d") rm ~/whatcha

echo "-d executed"

if\_error "ERROR: Failed deleting file";;

esac

**Ping server function:**

jtucker007@phxunixent003:~> cat pingserver.ksh

#!/usr/bin/ksh

if\_error() {

if [[ $? -ne 0 ]]; then

echo -e "$1"

exit $?

fi

}

ping\_server() {

ping -c 2 $1 > /dev/null

}

ping\_server $1

if\_error "Error: Ping to server failed"

**Calling an outside function from within a shell script:**

jtucker007@phxunixent003:~> cat pingserver.ksh

#!/usr/bin/ksh

source ~/if\_error.function # Path to function

if\_error() {

if [[ $? -eq 0 ]]; then

echo -e "$1"

exit $?

fi

}

ping\_server() {

ping -c 2 $1 > /dev/null

}

ping\_server $1

if\_error "This was called outside this shell script" # Function name

**SHELL FUNCTIONS:**

This function is for usage of the command. If the man page is installed (-n on test statement) then display usage else display usage with here-document



I believe that $0 is the command with any parameters/options ############## usage ##################### usage(){

msg=`/usr/bin/dspcat rmtcpip.cat 1 2 2>/dev/null` if [ -n "$msg" ]; then

/usr/bin/dspcat rmtcpip.cat 1 2 >&2

echo $0 else

cat <<- HERE >&2 # this is a here-document

Usage: $0 HERE

fi

exit 2 }

# There shouldn't be any extra parameter for this script. if [ $# -gt 0 ] ; then

usage fi

**Checking 1) in maintenance mode? 2) root? 3) group is system?**

HOSTID=`hostid` # First check to see if the machine is in maintenance mode if [ "$HOSTID" != "0" ]; then # It's running machine.

# Check the permisson, either user as "root", or group as "system": UID=`id | awk '{print $1}' | cut -c5` GID=`id | awk '{print $2}' | cut -c5` if [ "$UID" != "0" a "$GID" != "0" ]; then

msg=`/usr/bin/dspcat rmtcpip.cat 1 1 2>/dev/null` if [ -n "$msg" ]; then

/usr/bin/dspcat rmtcpip.cat 1 1 >&2 else

echo "Permission denied" fi

exit 2 fi

**Function if there is an error**

############## problem ########################## # DESCRIPTION: Issue "problem" message and exit # INPUT: # $RTNCODE

# $1 Name of command that encountered an error # problem(){

echo "rmtcpip: Problem with $1 command, return code = $RTNCODE" >&2

exit $RTNCODE }

##############################################

# Code in main script: ifconfig $IFNAME detach > /dev/null 2>&1 RTNCODE=$?

if [ $RTNCODE -ne 0 ]; then problem ifconfig

KORN SYNTAX

**Nested Loop:**

> for i in 1 2 3; do for x in 1 2; do echo X=${x} and I=${i}; done;

done

X=1 and I=1

X=2 and I=1

X=1 and I=2

X=2 and I=2

X=1 and I=3

X=2 and I=3

**In-variable substitution:**

foo=11.0

NEW\_VALUE=$(echo "${foo//./}")

> echo $NEW\_VALUE

110

END OF KORN SYNTAX

AWK

**awk awk awk notes:**

awk {print $2}END{if(NR==0)exit 1}

Printing kewl things from awk:

lspv| awk ‘$3 ~ /^None$/ {print “chdev –l “$1” –a reserve\_policy=no\_reserve”}’ | sh

awk '{print $0}' **prints the whole line**

**grep within awk:**

awk ‘/regex/ {print $2}’ /tmp/file\_name

System Variables:(default)

FS Field Separator

NF Number of fields in current record

NR Number of the current record OFS Output filed separator(a blank) ORS Output record separator(a newline) RS Record separator(a newline) OFMT Output Format for Numbers(%.6g)

**Putting a field into an array:**

**#this takes field 2 and indexes it into the TIME array**

set -A TIME $(awk '{print $2}' LPAR\_UTILIZATION.data)

step=0

for i in ${TIME[\*]};do

echo ${TIME[step]}

step=$(( step + 1 ))

done|wc -l

${#TIME[\*]} gives the number of elements in an array

**how to pull ONLY the path to file (use absolute path to file) although you can use some variable notation. look in korn shell scripting area**

awk -F"/" '{for (c=1;c<(NF);c++) print $c}' ORS="/"

**awk'ing certain fields looking for specific conditions and &&. this is from shell script rmtcpip:**

netstat -ni | awk '$1!="lo0" && $1!="Name" {print $0}' | awk 'substr($3,1,4)=="link" {print $1}' | sed -e 's/\\*$//'

en0 1500 link#2 fa.28.d8.17.7.64 2107462 0 1511796 0 0 en0 1500 172.22.88 172.22.88.99 2107462 0 1511796 0 0 en2 1500 link#3 fa.28.d8.17.7.a1 111428 0 26641 0 0 en2 1500 172.31.238 172.31.238.111 111428 0 26641 0 0

**Going thru each field looking for a pattern:**

for x in $(awk '{for (POS=1;POS<(NF);POS++)

if ($POS ~ /su/) {print $(POS + 4)} if ($POS ~ /^\//) {print $POS}}' ${v\_HA\_STOP\_SCRIPT} | sed s/[\'\"]//g)

**BEGIN END and assigning and displaying variables:**

awk -F"," 'BEGIN{RS=";"} NF == 12 {frame=$7;++x;print frame}END{print x" records processed"}' /srv/data/frame

**Using system() within awk:**

#!/usr/bin/sh awk 'BEGIN {print "Hello this is the beginning"} { for (POS=1;POS<=NF;POS++) { if ($1 ~ /su/) print $POS system("uptime") } } END {print "This is the end"}' ~/HACMP/OPPR\_clstr1\_start.sh

**Using gsub within awk:**

#!/usr/bin/sh awk 'BEGIN {print "Hello this is the beginning"} { for (POS=1;POS<=NF;POS++) { { if ($1 ~ /^\//) { system("ls -l "$POS) } if ($1 ~ /su/) { mystring=$(1 + 4) gsub(/"/, "X",mystring)# print $(POS + 4) print "this is the value: " mystring system("ls -l "mystring) } }

} } END {print "This is the end"}' ~/HACMP/OPPR\_clstr1\_start.sh

**awk using system and gsub: cat ~/HACMP/OPPR\_clstr1\_start.sh|awk 'gsub (/'\''/,"WHATUP");{print}'** #!/bin/sh v\_HA\_SCRIPT=$(/usr/es/sbin/cluster/utilities/cllsserv|awk '{print $2" "$3}') for i in ${v\_HA\_SCRIPT} do echo "############################################################" echo "Contents of " $i echo "------------------------------------------------------------" awk '{ for (POS=1;POS<=NF;POS++) {{ if ($1 ~ /^\//) { system("ls -l "$POS) system("cksum "$POS) print "" } if ($1 ~ /su/) { mystring=$(1 + 4) gsub(/"/, "X",mystring)# print $(POS + 4) print "this is the value: " mystring system("ls -l "mystring) system("cksum "mystring) } } } }' $i done

**awk ofs example:**

for i in $(pvdisplay|awk '/PV Name/ {print $3}') do pvs $i|grep -v PV|awk 'BEGIN{OFS="\t";} {printf("%-19.18s%-13.12s%-9.8s\n", $1, $2,$5)}' done

**Multiple field separators:( comma or space)**

lsattr -El sys0 -a systemid | awk -F" |," '{print $3}'

**Pull the second line from a file:**

awk ‘FNR==2{print $1}’

END OF AWK

SSH Learning(OpenSSH)

Story:

Got a ticket saying that a user could no longer ssh into a box with key authentication. I asked for username and the 2 boxes involved. Got onto the source box as user and ssh –vvv <destination> and READ. I was able to read that the ssh session was trying key authentication with a DSA key but on the source box there was only RSA keys(with a recent creation date). I looked at user’s history and noticed he ran sshkey-gen on the same day as the new RSA key. Bingo! Self induced user issue. I put his new DSA public key into the authorized\_keys file on the <destination> server.

**Your personal ssh configuration file: ~/.ssh/config**

**e.g.**

Johns-MBP:.ssh johntucker$ cat config

Host jump

HostName 10.210.12.244

user m556069

ProxyCommand nc -X 5 -x 167.210.219.110:1080 %h %p

At the CLI I can type: ssh jump and ssh will jump resolve via ~/.ssh/config file

**System wide and personal shell scripts:**

/etc/sshrc used for system wide script for ssh-based logins

~/.ssh/rc used for individual ssh-based login scripts

**Suspend your ssh connection and return to origin:**

You ssh from BOXA to BOXB and say it took forever then you figure out that you need to return to BOXA to do something. Instead of logging out you can suspend your ssh connection with CTRL-z This will background your job(the ssh connection) and put you back onto BOXA. Once you are done you can foreground your job(fg %1) and be back on BOXB

**X11 forwarding:**

Must be enabled on both client and server. Lets say you want to run xclock from BOXA on BOXB. On BOXA run: ssh –X BOXB

**Enable X11 forwarding:**

vi /etc/ssh/sshd\_config

**uncomment and set to yes:**

X11Forwarding Yes

**Then run:**

stopsrc –s sshd; startsrc –s sshd

**ssh CLI options:**

escape character:

ssh -e “%” makes the % the escape character for this session

ssh -T does NOT allocate a pseudo-terminal

**Show fingerprint of key file**

ktazd216 $ ssh-keygen -l

Enter file in which the key is (/users/m556069/.ssh/id\_rsa): ←defaults to rsa

/users/m556069/.ssh/id\_dsa

1024 ed:56:14:70:1f:6b:18:03:ca:9f:ed:7f:23:1c:65:3b /users/m556069/.ssh/id\_dsa.pub (DSA)

**looks like this key has a bit strength of 1024**

**Change the passphrase of a private key(even if it never had one):**

ktazd216 $ ssh-keygen -p

Enter file in which the key is (/users/m556069/.ssh/id\_rsa): /users/m556069/.ssh/id\_dsa

Key has comment '/users/m556069/.ssh/id\_dsa'

Enter new passphrase (empty for no passphrase):

Enter same passphrase again: this is going to be hard

Your identification has been saved with the new passphrase.

Ssh-agent stores your passphrase in memory and uses it to authenticate to your private key. Run: **ssh-agent $SHELL** then **ssh-add.** To list which keys the ssh agent currently holds: **ssh-add -l**. To delete a key from memory: **ssh-agdd -d <name\_of\_key\_file>** or delete all keys in memory: **ssh-add –D**

**You want to add to the known\_host file without typing ‘yes’ when you first connect to the box:**

ssh-keyscan <hostname> >> ~/.ssh/known\_hosts

**this adds the hostname on subsequent connections the ip address will automatically be added**

PowerHA Notes:

Reverse name resolution:

host <hostname> or host <ip\_address>

Network Considerations:

PowerHA 7.1.3 uses the subnet mask of the Base IP address for all IP aliases configured on this network interface (fyi, AIX allows IP aliases with different subnet masks on the same adapter)

Persistent IP address(PIPA)(node-bound IP address) must be an alias on an adapter. PIPA do NOT belong to a resource group and must be configured to PowerHA

The persistent alias can be in the same or different subnet as the service

The subnet masks must all be the same

All communication interfaces defined to a PowerHA network MUST have the same subnet mask. This makes sense outside of PowerHA otherwise those interfaces would NOT be able to communicate with each other(cuz they aint on the same subnet!). Comm interfaces that belong to a DIFFERENT PowerHA network may have the same of a different subnet mask defined

Base IP addresses should be on non-routed networks and on different subnets from each other(for clusters with 2 or more NICs)

Base adapter on seperate non-routed network to allow heartbeating

Service IP addresses must be on a seperate subnet than the Base IP...This should be obvious since the Base IP subnets are non-routed!

You may have more than one Service IP address on a adapter

Use of a single NIC adapter allows you to put the Base IP and Service IP on the same subnet...This is fine and the use of a Base IP subnet doesnt make sense so really what I read is that the Base IP address is really the Persistent IP address. This makes sense since the DGW is tied to the initial IP address on the NIC.

In a multiple interface per network configuration, using a persistent alias and including it in the same subnet as your default route is common. This typically means that the persistent address is included in the same subnet as the service addresses. The persistent alias can be used to access the node when PowerHA 7.1.3 is down and also overcome the default route issue.

| IP Label | DisribPref | NetIntface | NtwkName | Function | IP/SubMask |
| --- | --- | --- | --- | --- | --- |
| Node01a | N/A | en0 | ether10 | base | 10.10.31.31 **255.255.255.0** |
| hanode1 | Anticollocation | N/A | ether10 | persistent | 192.168.100.31 **255.255.255.0** |
| app1svc | Anticollocation | N/A | ether10 | service | 192.168.100.131 **255.255.255.0** |

PowerHA in switched network with VLANs. Switches should have these protocols turned off: spanning tree, portfast, uplinkfast and backbonefast. If spanning tree is required then portfast should also be enabled.

Hard set ethernet adapters

During a Service IP swap, PowerHA disables DNS and NIS and sets the NSORDER to local. Once complete order is restored. Ensure /etc/netsvc.conf is set to:

hosts = local,bind4

Part of the cluster planning is to have the app run on all nodes without PowerHA involved

Configuring the cluster

Ensure BEFORE beginning to configure the cluster that:

/etc/cluster/rhosts is fully populated and clcomd has been refreshed

Define cluster, nodes and networks

Configure repository disk(min 512MB) and heartbeating

Verify and Sync Cluster

Verify CAA and cluster topology(lspv|grep caa and cltopinfo)

Ensure all shared disks have same PVIDs across all nodes

Create shared VG via smitty cspoc

Create shared LV via smitty cspoc

Create jfs2log LV via smitty cspoc

Create FS via smitty cspoc

Create application controller

Create Service IP labels

Create RG’s

Add resources into RG’s

Verify and Sync Cluster

Issues getting cluster status. cldump: Waiting for the Cluster SMUX peer (clstrmgrES) fails and I could never get status. This is a years old issue. Edit /etc/snmpdv3.conf and

1) edit /etc/snmpv3.conf (all nodes) and remove the comment hash from this line:

            #COMMUNITY public    public     noAuthNoPriv 0.0.0.0    0.0.0.0         -

            2) add this line (this is the top-level cluster view of the SNMP MIB):

            VACM\_VIEW        defaultView     1.3.6.1.4.1.2.3.1.2.1.5 - included -

Then restart services(can be done without stopping cluster services)

stopsrc -s clinfoES;stopsrc -s snmpd;stopsrc -s aixmibd;stopsrc -s hostmibd;stopsrc -s snmpmibd

sleep 10

startsrc -s snmpd;startsrc -s aixmibd;startsrc -s hostmibd;startsrc -s snmpmibd;

sleep 60

startsrc -s clinfoES

# clRGinfo returns ZERO info

<root@phxpcxn015b>/>ls -l /usr/es/sbin/cluster/utilities/clRGinfo

-r-xr-sr-x 1 root hacmp 0 Feb 23 15:20 /usr/es/sbin/cluster/utilities/clRGinfo

Hmmmmm ZERO size file!!! That could be an issue

**Gather Cluster Layout:**

/usr/es/sbin/cluster/utilities/cllscf | tee /tmp/cluster\_config

/usr/es/sbin/cluster/utilities/cllsserv | tee -a /tmp/cluster\_config

/usr/es/sbin/cluster/utilities/clRGinfo -v | tee -a /tmp/cluster\_config

/usr/es/sbin/cluster/utilities/cllsres | tee -a /tmp/cluster\_config

/usr/es/sbin/cluster/utilities/cldisp | tee -a /tmp/cluster\_config

odmget HACMPfcfile | tee -a /tmp/cluster\_config

**The following section is my notes post-IBM working mainly as an AIX admin:**

**IOCP not running:**

**See if iocp fileset is installed:**

lslpp –l bos.iocp.rte

**If it is, see if it is available:**

lsdev –Cc iocp

**If it is not:**

Smitty iocp **and make it available**

**Then either reboot or run** cfgmgr **and check availability again:** lsdev –Cc iocp

Multibos issues

Server is booted off bos\_hd5(bootinfo –v)

\* If the active instance is booted on the blv bos\_hd5 run the

\* following commands:

\* # chfs -a dev=/dev/hd4 /bos\_inst

\* # chfs -a dev=/dev/hd2 /bos\_inst/usr

\* # chfs -a dev=/dev/hd9var /bos\_inst/var

\* # chfs -a dev=/dev/hd10opt /bos\_inst/opt

**multibos command again in debug mode?**  
  
script /tmp/multibos.out  
multibos -XsD  
exit

Sftp connection closes after authenticating:

Check perms on /etc/ssh/sshd\_config. It should be 644

**vi “out of memory”:**

try: export EXINIT="set ll=20000000 dir=/tmp”

HMC CLI:

What is the hostname of the HMC?:

lshmc –n –F name

**This will save the most recent 500 lines of wtmp**

/usr/sbin/acct/fwtmp < /var/adm/wtmp > /tmp/wtmp.out

tail -500 /tmp/wtmp.out > /tmp/wtmp.small

/usr/sbin/acct/fwtmp -ci < /tmp/wtmp.small > /var/adm/wtmp

rm /tmp/wtmp.out

rm /tmp/wtmp.small

kdb commands:

echo volgrp | kdb

alt\_disk\_install:

alt\_disk\_copy -d hdisk6 -b update\_all -n -l /mnt/2017q3/aix71tl04sp04

log file location:

/var/adm/ras/alt\_disk\_inst.log

Search for: Result = SUCCESS

<root@chwpcxnmftgi04>/home/roothome>/usr/bin/oslevel -s

oslevel: Unable to acquire lock.

Rebooted lpar and it cleared the ODM lock(I tried chvg –u rootvg but it didn’t help)

**<root@lvsscxnmftgi04>/var/adm/ras>startsrc -s sshd**

**Missing privilege separation directory: /var/empty**

mkdir /var/empty

chmod 555 /var/empty

startsrc –s sshd

Does your system have emergency fixes:

emgr -l

Remove an ifix:

emgr -rL

NIS Commands:

User should be able to change their password with: yppasswd

NIS Master will be running these processes:

chwemadm01(/etc/security): ps -ef|grep yp

root 24128 22494 0 Nov 30 - 0:00 /usr/lib/netsvc/yp/rpc.yppasswdd /etc/passwd -m

root 29154 22494 0 Nov 30 - 5065:38 /usr/lib/netsvc/yp/ypserv

root 30190 22494 0 Nov 30 - 0:00 /usr/lib/netsvc/yp/rpc.ypupdated

root 43252 22494 0 Oct 23 - 0:31 /usr/lib/netsvc/yp/ypbind –ypsetme

A client will be running these process:

jtucke07 78298 71388 1 13:46:04 pts/1 0:00 grep yp

root 80534 77414 0 Mar 07 - 262:56 /usr/lib/netsvc/yp/ypserv

root 82326 77414 0 Mar 07 - 1:16 /usr/lib/netsvc/yp/ypbind -ypsetme

$ uname -n

chwemactdb01

Push out master passwd list to clients:

smitty mkmaps

In the /etc/passwd file look for the NIS escape sequence "+::0:0:::". Every user before/above this sequence will be taken from the local system. If that user is not found before the sequence, it will be looked for in NIS.

**syslog.conf**