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Disk operations

/dev/dsk/cXtXdXsX – block device
/dev/rdsk/cXtXdXsX – raw/character device
format [-e] – command to handle label/vtoc partitions in Solaris.
-e – enables expert menu (like creating EFI/SMI labels)
format -e → choose disk → label → choose SMI[0] or EFI[1] → yes - this sequence will label a disk to SMI or EFI label.
format -e → choose disk → p → p → - this sequence will list partition table of the chosen disk.
format -e → choose disk → p → 6 → tag → permissions → enter starting cylinder → enter size, label → yes – this sequence will create partition 6 with the size you have chosen.
rmformat – command to show remote magnetic devices like USB disks and CD/DVD devices.
fdisk – command to handle MBR partitions.
prtvtoc /dev/rdsk/cXtXdXsX – prints partition virtual table of contents (vtoc).
fmthard -s <vtoc-file> /dev/rdsk/cXtXdXsX – enables writing a partition table/vtoc represented by the file - <vtoc-file> to a new hard disk.
stmsboot -e – enables Solaris I/O multi pathing.
stmsboot -d – disables Solaris I/O multi pathing.

Device operations

devfsadm -v – refreshes the /dev directory to accept changes after device changes.
volcheck – refreshes the /dev/vol directory to accept changes after USB/CD/DVD device changes.

Simple Network interface operations

ifconfig -a – shows network interface configuration.
Temporary network configuration
ifconfig <if-dev> <IP> netmask + broadcast + up – set the IP of interface <if-dev> to be <IP> the netmask and broadcast addresses are being calculated from /etc/netmasks.
Permanent network configuration
/etc/hostname.bge0 – if the interface is called bge0 this file should contain hostname (or IP) of the interface bge0. (sample entry: elvis)
/etc/hosts – should contain entry with IP and the hostname found in /etc/hostname.bge0
(sample entry: 10.0.0.1 elvis)
/etc/netmasks – should contain the netmasks of the network address.
(sample entry: 10.0.0.0 255.255.255.0)

Filesystem operations

mount /dev/dsk/cXtXdXsX /dir1 – mount the block device /dev/dsk/cXtXdXsX to the directory /dir1 .
umount /dir1 – unmount /dir1 from the system.

Package operations

There are two kind of package formats - datastream format (package as a file) file-system format (package as a directory)
pkginfo – list all installed packages in the system.
pkginfo -d xxx.pkg all – list all the packages that are found inside the datastream xxx.pkg.
pkgadd -d <dir> – list all the packages that are found inside the directory <dir> .
pkgadd -d . SUNWxxx – add the package SUNWxxx which is in file-system/directory format.
pkgadd -d . SUNWxxx – add the package SUNWxxx which is in file-system/directory format.
pkgadd -d xxx.pkg all – add all the packages that are found inside the datastream xxx.pkg.
pkgrm SUNWman – removes SUNWman from the system.
umask 077 - allows to create directories or files with permissions of 777-077=**700** for a directory, or 666-077=**600** for a file.

Patch operations

{showrev -p} or {patchadd -p} – list all installed patches in the system.
patchadd <patch-dir> – Add the patch <patch-dir> to the system.
patchrm <patch-num> – removes the patch <patch-num> from the system.

Services operations

svcs [-a] – list all enabled service
-a – list all services (also the disabled ones).
svcadm enable <FMRI> – enable the service named <FMRI>.
svcadm disable <FMRI> – disable the service named <FMRI>.
netservices [limited | open] –
limited – will secures the Solaris system to enable only services that are secured by default.
Open – will open all services like telnet/ftp which are not secured by default.
inetconv – checks /etc/inetd.conf file and converts inetd services to SMF services.

User/group operations

useradd -d /export/home/<login> -u <UID> -g <GID> <login> – creates the user named <login> with user id <UID> and primary group id <GID>.
userdel [-r]<login> – deletes the user named <login> .
-r – also deletes user's home directory.
groupadd -g <GID> <group-name> – creates ta group-name named <group-name> with specific gid value of <GID>.
groupdel <group-name> – deletes the groupname named <group-name>.

Flash archive

Flash archive is a way to archive entire Solaris OS for replication on another server.
flar create -n <flar-name> -a <author-name> /flars/archive1.flar – creates the file named archive1.flar to be a flash archive file which contains the entire Solaris OS.

Live upgrade

Live upgrade is a way to create boot environment in Solaris operating. A boot environment is a sophisticated that enables system while leaving the current Solaris OS in tact.
lustatus – shows which boot environments are available on the system.
lucreate -n vanilla – creates a boot environment named vanilla which contains a snapshot of the current state of the Solaris OS.
luactivate vanilla – activates the boot environment named vanilla (requires -init 6).

Swap operations

Virtual memory area and is combined from the RAM and a dedicated disk storage known as swap space.
swap -s – lists summary of system's virtual space.
swap -l – lists details of system's physical swap areas.
swap -a <dev | file> – Add device or swap file to be a swap device.
swap -d <dev | file> – deletes device or swap file from being a swap device.
mkfile <size> <file-name> – Creates a swap file.
zfs create -V <size> rpool/swap2 – Creates a swap volume named swap2 using zfs.
swap -a /dev/zvol/dsk/rpool/swap2 – Adds the device /dev/zvol/dsk/rpool/swap2 as a swap device.

NFS operations

NFS – network file-system.

NFS Server side

/etc/dfs/dfstab – configuration file for configuring shares (only needed for ufs shares).
dfshares – lists summary of local nfs shares on the system.
dfmounts – lists summary of nfs clients connected to local nfs server.
share – lists summary of local nfs shares on the system.
share /export/home/fs1 – creates a temporary share on the directory /export/home/fs1.

NFS client side

/etc/vfstab – configuration file for using nfs shares as client.
mount server:/export/home/fs1 /local/fs1 – mounts the remote nfs share named server:/export/home/fs1 to a local directory named /local/fs1.

Auto File-system operations

/etc/auto_master – contains all direct and indirect maps.
Direct map – map of an absolute directory path to NFS share.
Indirect map - map of an relative directory path to NFS share.

auto_master direct map configuration -
/- auto_direct

auto_master indirect map configuration -
/home auto_home

Direct mapping -
/etc/auto_direct:
/opt/SUNWspro
server:/opt/SUNWspro

Indirect mapping -
/etc/auto_home:
haim
server:/export/home/haim

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server:/export/home/&

Auto file-system mounting and unmounting service name:**autofs**
Enabling the service:
svcadm enable autofs
Disabling the service:
svcadm disable autofs
Refreshing the service after creating a new mapping:
svcadm refresh autofs
Temporary automatic umount duration configuration:
automount -t <new_duration>
Permanent automatic umount duration (in seconds) configuration:
/etc/default/autofs
change the line
#AUTOMOUNT_TIMEOUT=600
to be:
AUTOMOUNT_TIMEOUT=200 - this will change the duration time to be 200 seconds.

RBAC

right – ability to perform a command with special permissions.
Authorization – ability to perform a task that is not backed up by a special command.
Profile – set of rights and authorizations.
Role – special user that can not logged in.
Handling roles -
roleadd <rolename>
roledel [-d] <rolename>
Handling profiles -
/etc/security/prof_attr – profiles DB file.
profiles – shows which profiles are assigned to the current logged in user.
Adding profile to a user or role -
roleadd/rolemod -P "profile1,profile2" <rolename>
useradd/usermod -P "profile1,profile2" <rolename>
Deleting profiles -
roleadd/rolemod -P "" <rolename>
useradd/usermod -P "" <rolename>
Running commands using RBAC -
pfexec <cmd>
use - **/usr/bin/pfsh, /usr/bin/pfksh**
Allowing a user to switc to role -
useradd/usermod -R <rolename> <loginname>
Switching from user to a role -
su - <rolename>

Zones operations

Sparse zone – zone that inherits file-system's from the global zone.
Whole root zone – zone that has it's own file-system.

Zone configuration and administration

Sparse zone configuration -
zonecfg -z <zone-name> "create;set autoboot= <true|false>;set zonepath= /full/zone/path;add net;set physical=e1000g0;set address=10.0.0.10;end;commit"
Whole root zone configuration -
zonecfg -z <zone-name> "create -b;set autoboot= <true|false>;set zonepath= /full/zone/path;add net;set physical=e1000g0;set address=10.0.0.10;end;commit"
Installing zone -
zoneadm -z <zone-name> install
Zone maintenance -
zoneadm -z <zone-name> <boot|halt>
First time login:
zlogin -C <zone-name>
Next time logins:
zlogin <zone-name> (requires root privileges)
Cloning zone -
zoneadm -z <zone-name> clone <original-zone>
Detaching zones -
zoneadm -z <zone-name> halt
zoneadm -z <zone-name> detach
Attaching zones -
We need to configure the zone.
zoneadm -z <zone-name> attach

Advanced Network interface operations

IPMP

Permanent Probe based and Link based IPMP

Link based IPMP – IP multi pathing that only use link connected/disconnected as test criteria.
Probe based IPMP – a link based IP multi pathing that also uses test addresses for checking ping to specific router IP's as test criteria.
Deprecated – a directive which tells that the IP is not allowed to produce data packets.
-failover – a directive which tells that the IP is not allowed to fail over to another nic in the group.
/etc/hostname.bge0
global-bge0 netmask + broadcast + group \ global-mp up
addif global-test-bge0 netmask + broadcast + deprecated -failover up (only for probe-based)
/etc/hostname.bge1
global-bge1 netmask + broadcast + group \ global-mp up
addif global-test-bge1 netmask + broadcast + deprecated -failover up (only for probe-based)
/etc/hosts
<IP> global-bge0
<IP> global-bge1
<IP> global-test-bge0 (only for probe-based)
<IP> global-test-bge1 (only for probe-based)

Temporary Probe based and Link based IPMP

ifconfig bge0 global-bge0 netmask + broadcast \ + group global-mp up
ifconfig bge1 global-bge1 netmask + broadcast \ + group global-mp up
ifconfig bge0 addif global-test-bge0 netmask + broadcast + deprecated -failover up (only for probe-based)
ifconfig bge0 addif global-test-bge0 netmask + broadcast + deprecated -failover up (only for probe-based)

Device operations

dladm show-dev – shows the available physical interfaces in the system.
dladm show-link – shows physical and logical interfaces and the status of the link.

Aggregation

dladm show-aggr – show existing aggregations
dladm create-aggr -d bge0 -d bge1 1 – creates a new aggregation with key=1.
dladm add-aggr -d bge2 1 – adds a new interface to existing aggregation with key=1.
dladm remove-aggr -d bge0 1 – removes bge0 from participating in the aggregation with key=1.
dladm delete-aggr 1 – deletes a whole aggregation with key=1.

Vlan tagging

(vlan-ID)x1000+(Interface-id)
ifconfig bge35002 plumb global-bge2-v30 netmask + broadcast + up - creates vlan tagged interface that uses bge2 with properties of vlan ID=30.

Aggregation with vlan tagging

ifconfig aggr35002 plumb global-aggr2-v30 netmask + broadcast + up - creates vlan tagged interface that uses aggr2 with properties of vlan ID=30.

Routing

netstat -rn – shows current routing table
route [-p] add <network> <gateway> - creates a temporary route. -p – for creating a permanent route.
route [-p] delete <network> <gateway> - deletes temporarily a route. -p – for deleting permanently.

Enabling dynamic routing

svcadm enable route:default – enables dynamic routing using RIPv1/RIPv2 and RDISC protocols.
svcadm disable route:default – disables dynamic routing using RIPv1/RIPv2 and RDISC protocols.

Default router

Route [-p] add default <gateway> - adds a new default gateway. -p – for permanent use.
route [-p] change default <gateway> - changes the default gateway. -p – for permanent use.
Permanent default routing -
/etc/defaultrouter
<hostname | IP> (of the default router)
Becoming a router
routeadm -ue ipv4-forwarding - enables ipv4 forwarding on the system.
routeadm -ud ipv4-forwarding - disables ipv4 forwarding on the system.
/etc/notrouter – an empty flag file that tells Solaris not to be a router.

NTP

ntpdate -b <ntp-server-ip> - will check if the ntp server is feasible for synchronization.

NTP client configuration

1. **cp /etc/inet/ntp.client /etc/inet/ntp.conf** – this copies ntp.client template file to be ntp.conf.
2. Change /etc/inet/ntp.conf
change the line with -
multicastclient 224.0.1.1
to be:
server <IP-Address-of-NTP-Server>
3. **svcadm enable ntp** – this will enable ntp service as a client.

NTP server configuration

1. **cp /etc/inet/ntp.server /etc/inet/ntp.conf** – this copies ntp.server template file to be ntp.conf.
2. Change /etc/inet/ntp.conf
change the lines with -
server 127.127.XType.0 prefer
stratum 127.127.XType.0 stratum 0
to be:
server 127.127.1.0 prefer
#stratum 127.127.Xtype.0 stratum 0
3. **touch /var/ntp/ntp.drift** – this will create a drift file for the use of ntp server.
4. **svcadm enable ntp** – this will enable ntp service as a server.