AIX ????

Install fileset from ISO

```
# □□□ DVD ISO file □ /mnt/iso
# □□: □□ devices.scsi.disk
root@aixvm:ppc> ls -l /mnt/iso/installp/ppc/devices.scsi.disk
-rw-r--r--    2 4000     4000        1445888 Oct 28 2022
/mnt/iso/installp/ppc/devices.scsi.disk

root@aixvm:ppc> cd /mnt/iso/installp/ppc/

root@aixvm:ppc> installp -acgXYd . devices.scsi.disk
```

Install lsof

Where to download the lsof, bind, rsyslog, openssh, openssl, etc packages?

- URL: https://www.ibm.com/resources/mrs/assets/packageList?source=aixbp&lang=en_US

lsof_4.892.tar

```
tar xf lsof_4.892.tar
cd lsof_4.892
installp -acgXYd . lsof.base lsof.license lsof.man.en_US
lsof -v
```

```
tar xf lsof_4.892.tar
cd lsof_4.892
smitty installp

# Install Software
# INPUT device / directory for software   [.]  << Input a dot
# SOFTWARE to install                     [_all_latest] << Esc + 4, Esc + 7
# ACCEPT new license agreements?          yes
```

User & Group

```
# Create a new user
mkuser admin="false" pgrp="staff" gecos="Test User" test3
mkuser admin="false" pgrp="staff" groups="sshusers" gecos="Test User" test3

# Remove a user
rmuser -p <user-name>
```

Network

Check the interface

```
lsdev -Cc if
lsdev -Cc adapter
lscfg -vpl ent0
lsattr -El ent0
lsattr -El en0
```

Configure the network

```
# Set the ip/netmask/gateway
/usr/sbin/mktcpip -h'aixvm' -a'192.168.99.100' -m'255.255.255.0' -i'en0' -g'192.168.99.1' -
A'no' -t'N/A'

# Set the DNS server addr
echo "nameserver 1.1.1.1" > /etc/resolv.conf
```

Check the port opened

```
netstat -Aan
```

??????

```
# Login Failed
who /etc/security/failedlogin | tail -50

# Check the number of previous unsucessful logins for the account to confirm it is blocked
```

```
lsuser -a account_locked unsuccessful_login_count {ALL|user_name}

# To check with particular user’s last password changed
pwdadm -q {user_name}
lssec -f /etc/security/passwd -a lastupdate -s {user_name}
lsuser -a lastupdate {user_name}

## Convert the EPOCH-TIME
perl -le 'print scalar localtime $ARGV[0]' {epochtime}

# Reset unsucessful login counter
chsec -f /etc/security/lastlog -a unsuccessful_login_count=0 -s {user_name}

# Unlock the locked account
chuser account_locked=false {user_name}

# Lock account
chuser account_locked=true {user_name}

# List the locked accounts
lsuser ALL | sed -n '/account_locked=true/p' | sed '/sshd/d' | awk '{print $1}'
```

?????????

- ??????????
- ???retry ??????????????????????
- ??????????????

```
chuser loginretries=5 <username>
lsuser -a loginretries <username>
```

??????

????????: `/etc/security/login.cfg`?????? pwd_algorithm ???AIX ?? crypt ??????????????????: [Traditional password crypt function]

```
usw:
□□□shells = /bin/sh,/bin/bsh,/bin/csh,/bin/ksh,/bin/tsh,/bin/ksh93
□□□maxlogins = 32767
□□□logintimeout = 60
```

```
□□□maxroles = 8
□□□auth_type = STD_AUTH
□□□pwd_algorithm = ssha256
```

????????????

- ????: `/etc/security/pwdalg.cfg`???? smd5, ssha1, ssha256, ssha512 ????

?????????????

```
chsec -f /etc/security/login.cfg -s usw -a pwd_algorithm=ssha512
```

Mount CD-ROM & ISO

```
# Mount CD-ROM
mount -V cdrfs -o ro /dev/cd0 /mnt

# Mount/Umount ISO file
loopmount -i aix61_dvd.iso -o "-V cdrfs -o ro" -m /mnt
loopumount -l loop0 -m /mnt
```

?? HMC root

- ?? HMC8 ? HMC9 ? root ??

Restrictd users to switch to root

```
# Create a group sysadm
mkgroup sysadm

# Add the user1 that is allowed to su to root into the group sysadm
chgrpmem -m + user1 sysadm
lsgroup sysadm

chsec -f /etc/security/user -s root -a sugroups=sysadm
# Reset to the default, sugroups=ALL
# Alternatively
smitty user
```

```
# Change / Show Characteristics of a User
# User Name                             [root]
# SU GROUPS                             [sysadm]
```

Restricted Shell

????????????? Shell ???????

???

- How to Use a Restricted Shell

Defaul Shell?

```
# Change the default shell for the user to the restricted shell such as rksh or Rsh.
chuser shell=/usr/bin/rksh <user-name>
# OR
chsh <user-name> /usr/bin/rksh
```

.profile?

```
# Add the commands that are allowd to run by the user into the directory.
mkdir /usr/bin/restricted
cd /usr/bin/restricted
ln -s /usr/bin/date date

# Create a .profile in the user's home directory and set the PATH environment variable to
# a directory containing all of the commands you want the user to be able to run
export PATH=/usr/bin/restricted
```

Core dump

```
# □□ core file
dbx -C ./core

(dbx) corefile

(dbx) dump

(dbx) quit
```

System dump

errpt:

```
67145A39 0413095315    U    S    SYSDUMP    SYSTEM DUMP
```

Copy the dump from the dump device to a file using the `savecore` command:

```
savecore  .
```

> Yes, the period is necessary. It indicates you want the dump copied to your current directory

savecore will copy the dump to your current directory, and name it:

```
vmcore.0.BZ
```

Uncompress the dump using the dmpuncompress command:

```
dmpuncompress  vmcore.0.BZ
```

Lastly, format the dump:

```
/usr/lib/ras/dmprtns/dmpfmt  -c  vmcore.0
```

Reading a Dump

```
kdb  vmcore.0  vmunix.0
```

????

Memory - svmon

```
# For a summary of the top 15 processes using memory on the system
svmon -Pt15 | perl -e 'while(<>){print if($.==2||$&&&!$s++);$.=0 if(/^-+$/)}'
```

```
--------------------------------------------------------------------------------
     Pid Command          Inuse      Pin     Pgsp  Virtual 64-bit Mthrd  16MB
18547096 db2sysc        3956861    12944   282407  4007901      Y     Y     N
```

```
19333470 db2sysc         690873    12944    26772   688572      Y     Y     N
19726694 db2sysc         271696    12944     6198   287133      Y     Y     N
13500914 db2sysc         263458    12943    18957   285159      Y     Y     N
 1966448 shlap64         109377    12900     3432   122071      Y     N     N
13631924 db2vend         105589    12900      597   115784      Y     N     N
19005734 db2sysc         105082    12902      409   114965      Y     Y     N
20709798 db2sysc         105071    12900      409   114953      Y     N     N
20119938 db2sysc         105071    12900      409   114953      Y     N     N
20185458 db2sysc         105071    12900      408   114953      Y     N     N
15597848 db2vend         104222    12900     1771   115608      Y     N     N
21430722 db2sysc         103728    12900     1576   114777      Y     N     N
21037528 db2sysc         103724    12902     1576   114773      Y     Y     N
14025064 db2sysc         103696    12900     1608   114777      Y     N     N
18350424 db2sysc         103696    12900     1608   114777      Y     N     N
```

Sar

- sar ?? - IBM ????

> ???? sar: 0551-201 Cannot open /var/adm/sa/sa09?????? `sar -o /var/adm/sa/sa09 10`

```
# CPU
sar -u 2 10

# Mmeory
sar -r 2 10

# I/O
sar -b 2 10
```

iostat

```
iostat 2 10
```

Perl ??

??????????

```
perl -e "use LWP::UserAgent;"
perl -e "use DBI;"
```

HTTP GET request

```
use LWP::UserAgent;

my $ua = LWP::UserAgent->new;

my $server_endpoint = "http://192.168.1.1:8000/service";

# set custom HTTP request header fields
my $req = HTTP::Request->new(GET => $server_endpoint);
$req->header('content-type' => 'application/json');
$req->header('x-auth-token' => 'kfksj48sdfj4jd9d');

my $resp = $ua->request($req);
if ($resp->is_success) {
    my $message = $resp->decoded_content;
    print "Received reply: $messagen";
}
else {
    print "HTTP GET error code: ", $resp->code, "n";
    print "HTTP GET error message: ", $resp->message, "n";
}
```

HTTP POST request

```
use LWP::UserAgent;

my $ua = LWP::UserAgent->new;

my $server_endpoint = "http://192.168.1.1:8000/service";

# set custom HTTP request header fields
my $req = HTTP::Request->new(POST => $server_endpoint);
$req->header('content-type' => 'application/json');
$req->header('x-auth-token' => 'kfksj48sdfj4jd9d');

# add POST data to HTTP request body
```

```
my $post_data = '{ "name": "Dan", "address": "NY" }';
$req->content($post_data);

my $resp = $ua->request($req);
if ($resp->is_success) {
    my $message = $resp->decoded_content;
    print "Received reply: $messagen";
}
else {
    print "HTTP POST error code: ", $resp->code, "n";
    print "HTTP POST error message: ", $resp->message, "n";
}
```

NFS

```
# List NFS mount-points that were configured in /etc/filesystems
root@aixvm:> lsnfsmnt -l
Name            Nodename   Mount Pt               VFS   Size    Options    Auto Accounting
/dataVol/aix_nfs fedoravm   /mnt/nfs               nfs   --
bg,hard,intr,retry=3,timeo=30,sec=sys yes  no
```

????

bootinfo

```
# 目前開機磁區
bootinfo -v

# 目前開機磁碟
bootinfo -b
```

bosboot

```
# 建立可開機的映像檔
bosboot -ad hdisk0
```

bootlist

```
# 檢視 normal/service 模式的開機清單
bootlist -m normal -o
```

```
bootlist -m service -o

# □□ normal/service □□□□□□□□
bootlist -m normal hdisk0 hdisk1
bootlist -m service cd0 hdisk1
```

System Infomation

`oslevel -s`

```
7200-05-06-2320
```

`prtconf`

```
System Model: IBM pSeries (emulated by qemu)
Machine Serial Number: Not Available
Processor Type: PowerPC_POWER8
Processor Implementation Mode: POWER 8
Processor Version: PV_8_Compat
Number Of Processors: 2
Processor Clock Speed: 1000 MHz
CPU Type: 64-bit
Kernel Type: 64-bit
LPAR Info: 0 aix_on_kvm
Memory Size: 4096 MB
Good Memory Size: 4096 MB
Platform Firmware level: Not Available
Firmware Version: SLOF,HEAD
Console Login: enable
Auto Restart: true
Full Core: false
NX Crypto Acceleration: Not Capable
In-Core Crypto Acceleration: Capable, but not Enabled
...
INSTALLED RESOURCE LIST

The following resources are installed on the machine.
+/- = Added or deleted from Resource List.
*   = Diagnostic support not available.
```

```
  Model Architecture: chrp
  Model Implementation: Uni-Processor, PCI bus

+ sys0                                                  System Object
+ sysplanar0                                            System Planar
* vio0                                                  Virtual I/O Bus
* ent0                                                  Virtual I/O Ethernet Adapter (l-
lan)
* vsa0                                                  LPAR Virtual Serial Adapter
* vty0                                                  Asynchronous Terminal
* pci0                                                  PCI Bus
* scsi0           qemu_virtio-scsi-pci:0000:00:02.0      Virtio SCSI Client Adapter
(f41a0800)
* hdisk4          qemu_virtio-scsi-pci:0000:00:02.0-LW_0  MPIO Other Virtio SCSI Disk Drive
* hdisk5          qemu_virtio-scsi-pci:0000:00:02.0-LW_0  MPIO Other Virtio SCSI Disk Drive
+ L2cache0                                              L2 Cache
+ mem0                                                  Memory
+ proc0                                                 Processor
+ proc1                                                 Processor
```

`lparstat -i`

```
Node Name                                  : aixvm
Partition Name                             : aix_on_kvm
Partition Number                           : 0
Type                                       : Shared
Mode                                       : Capped
Entitled Capacity                          : 2.00
Partition Group-ID                         : 1
Shared Pool ID                             : 1
Online Virtual CPUs                        : 2
Maximum Virtual CPUs                       : 2
Minimum Virtual CPUs                       : 2
Online Memory                              : 4096 MB
Maximum Memory                             : 4096 MB
Minimum Memory                             : 4096 MB
Variable Capacity Weight                   : 128
Minimum Capacity                           : 2.00
...
```

`uname -L`

```
0 aix_on_kvm
```

inittab ??

```
# List all items
lsitab -a

# Remove an item
rmitab nim
```

????

```
# List all services
lssrc -a
lssrc -a | grep active

# Check the service inetd
lssrc -s inetd
lssrc -ls inetd

# Start/Reload/Stop the service
startsrc -s xntpd
refresh -s xntpd
stopsrc -s xntpd
```

LPAR Check

```
# Lists details on the LPAR configuration
lparstat -i
```

UAK Check (Update Access Key)

```
# Check UAK (Update Access Key) Expiration
lparstat -u
```

UTF-8 locales

Check the current locale environment variables.

```
root@aixvm:> locale
LANG=en_US
LC_COLLATE="en_US"
LC_CTYPE="en_US"
LC_MONETARY="en_US"
LC_NUMERIC="en_US"
LC_TIME="en_US"
LC_MESSAGES="en_US"
LC_ALL=

root@aixvm:> locale -a
C
POSIX
en_US.8859-15
en_US.IBM-858
en_US.ISO8859-1
en_US



root@aixvm:> lslpp -L bos.loc.*
  Fileset                      Level  State  Type  Description (Uninstaller)
  ----------------------------------------------------------------------------
  bos.loc.iso.en_US          7.2.5.0    A     F    Base System Locale ISO Code
                                                   Set - U.S. English
```

Install the file set for en_US.UTF-8 from AIX Installer ISO

- file set: `bos.loc.utf.EN_US`

```
installp -qaXgY -d <path of install images> bos.loc.utf.EN_US
```

With smitty

```
smitty install_all
# Press F4 to select the INPUT device / directory for software
#  Press F4 to select the  SOFTWARE to install
#  Use the    "/" key to search for the fileset name
```

Applying the locale

```
root@aixvm:> locale -a
C
POSIX
EN_US.UTF-8
EN_US
en_US.8859-15
en_US.IBM-858
en_US.ISO8859-1
en_US.UTF-8
en_US

root@aixvm:> chlang -m EN_US.UTF-8 EN_US.UTF-8
# Relogin
root@aixvm:> locale
LANG=EN_US.UTF-8
LC_COLLATE="EN_US.UTF-8"
LC_CTYPE="EN_US.UTF-8"
LC_MONETARY="EN_US.UTF-8"
LC_NUMERIC="EN_US.UTF-8"
LC_TIME="EN_US.UTF-8"
LC_MESSAGES="EN_US.UTF-8"
LC_ALL=
```

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