Few steps to build and update AIX NIM Server

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This is what I am going to show you in this example. I will start from basic level and then I will cover few advanced level. Only thing I won't cover is Primary/Alternate NIM master server. I prefer two Primary NIM servers instead as I had lot more issue with Primary/Alternate NIM master model.

1. Building the NIM Server.
   a) Copying AIX images from CD/DVD
   b) Building NIM Server
   c) Creating lpp_source from the existing image
   d) Creating spot from the lpp_source
   e) Create 2nd NIM Interface (P6/P7 Server won't boot using this method)
   f) Create/define NIM Clients

2. Using the NIM Server
   a) Loading two lpar from newly built NIM Server using RTE
   b) Create mksysb image of sidtest2.
   c) Load sidtes3 Server using mksysb of sidtest2.
   d) How to create a new lpp_source from existing one and update it with downloaded Service Packs or Technology level from IBM Fix Central and create a new spot.

Here is Hardware configuration. Most important you need to know is that you must create the lpp_source using all the available AIX CD/DVDs for a specific version. For example I will copy contents of all 8 AIX 5.3 TL12 CDs to my 530TL12BASE Lpp Source. Whether you believe or not but if you want to recover your Server to different Hardware or in a Disaster Recovery site you will need it. Also this process can be disastrous if proper care not taken. So must be exercised in test boxes only. I assume you know that NIM Server OS level and NIM master fileset has to be the at least same level or higher than the server OS level you are going to install. This is the only limited to NIM which is not the case of HP-UX Ignite-UX or Solaris Jumpstart.

```
System Model: IBM,9113-550
Processor Type: PowerPC_POWER5
Processor Implementation Mode: POWER 5
Processor Version: PV_5
Number Of Processors: 2
Processor Clock Speed: 1654 MHz
CPU Type: 64-bit
Kernel Type: 64-bit
LPAR Info: 2 sidtest1
Memory Size: 4096 MB
Good Memory Size: 4096 MB
Platform Firmware level: SF240_403
Firmware Version: IBM,SF240_403
Console Login: enable
Auto Restart: true
Full Core: false
```

Here is the list of all the disks available/used in this lpar

```
root@sidnim-</>lspv
hdisk0          none                                None
hdisk1          none                                None
hdisk2          none                                None
hdisk3          00cba1ee43f582ca                    rootvg          active
hdisk4          none                                None
hdisk5          none                                None
hdisk6          none                                None
root@sidnim-</>lsdev -Cc disk
hdisk0 Available 02-08-02     MPIO Other DS4K Array Disk
hdisk1 Available 02-08-02     MPIO Other DS4K Array Disk
hdisk2 Available 02-08-02     MPIO Other DS4K Array Disk
hdisk3 Available 04-08-00-3,0 16 Bit LVD SCSI Disk Drive
hdisk4 Available 04-08-00-4,0 16 Bit LVD SCSI Disk Drive
hdisk5 Available 04-08-00-5,0 16 Bit LVD SCSI Disk Drive
hdisk6 Available 04-08-00-8,0 16 Bit LVD SCSI Disk Drive
```

When I build NIM server for clients I mirror all the Logical Volumes. But for this example I won't mirror any disk. As hdisk3 is root disk I will use hdisk4 for all my LPP resources and spots and I will use hdisk5 to save all future mksysb images.

```
root@sidnim-</>bootinfo -s hdisk3
140013
root@sidnim-</>bootinfo -s hdisk4
140013
root@sidnim-</>bootinfo -s hdisk5
140013
```

rootvg

nimvg

imagevg

So I will create two Volume groups.

```
root@sidnim-</>mkvg -f -y nimvg hdisk4
0516-1254 mkvg: Changing the PVID in the ODM.
nimvg
root@sidnim-</>mkvg -f -y imagevg hdisk5
0516-1254 mkvg: Changing the PVID in the ODM.
imagevg
root@sidnim-</>lspv
hdisk0          none                                None
hdisk1          none                                None
hdisk2          none                                None
hdisk3          00cba1ee43f582ca                    rootvg          active
hdisk4          00cba1ee91ce0245                    nimvg           active
hdisk5          00cba1ee91ce3336                    imagevg         active
hdisk6          none                                None
```

Now I will create logical volumes. I need to know the total PPs and PP Size.

```
root@sidnim-</>lsvg nimvg
VOLUME GROUP:       nimvg                   VG IDENTIFIER:  00cba1ee00004c000000013491ce029d
VG STATE:           active                  PP SIZE:        256 megabyte(s)
VG PERMISSION:      read/write              TOTAL PPs:      546 (139776 megabytes)
MAX LVs:            256                     FREE PPs:       546 (139776 megabytes)
LVs:                0                       USED PPs:       0 (0 megabytes)
OPEN LVs:           0                       QUORUM:         2 (Enabled)
TOTAL PVs:          1                       VG DESCRIPTORS: 2
STALE PVs:          0                       STALE PPs:      0
ACTIVE PVs:         1                       AUTO ON:        yes
MAX PPs per VG:     32512
MAX PPs per PV:     1016                    MAX PVs:        32
LTG size (Dynamic): 256 kilobyte(s)         AUTO SYNC:      no
HOT SPARE:          no                      BB POLICY:      relocatable
PV RESTRICTION:_    none
```

I will create a 100GB Logical Volume and filesystem.

```
root@sidnim-</>mklv -y exportlv -t jfs2 nimvg 400
exportlv
```

```
root@sidnim-</>lsvg -l nimvg
nimvg:
LV NAME             TYPE       LPs     PPs     PVs  LV STATE      MOUNT POINT
exportlv            jfs2       400     400     1    closed/syncd  N/A
root@sidnim-</>lslv exportlv
LOGICAL VOLUME:     exportlv               VOLUME GROUP:   nimvg
LV IDENTIFIER:      00cba1ee00004c000000013491ce029d.1 PERMISSION:     read/write
VG STATE:           active/complete        LV STATE:       closed/syncd
TYPE:               jfs2                   WRITE VERIFY:   off
MAX LPs:            512                    PP SIZE:        256 megabyte(s)
COPIES:             1                      SCHED POLICY:   parallel
LPs:                400                    PPs:            400
STALE PPs:          0                      BB POLICY:      relocatable
INTER-POLICY:       minimum                RELOCATABLE:    yes
INTRA-POLICY:       middle                 UPPER BOUND:    32
MOUNT POINT:        N/A                    LABEL:          None
MIRROR WRITE CONSISTENCY: on/ACTIVE
EACH LP COPY ON A SEPARATE PV ?: yes
Serialize IO ?:     NO
root@sidnim-</>crfs -v jfs2 -d exportlv -p rw -m /export -A yes
File system created successfully.
104854196 kilobytes total disk space.
New File System size is 209715200
```

After running “mount all” command here is “df -g” output

```
root@sidnim-</>df -g
Filesystem    GB blocks      Free %Used    Iused %Iused Mounted on
/dev/hd4           0.50      0.32   36%     9899    12% /
/dev/hd2           3.00      0.95   69%    40931    16% /usr
/dev/hd9var        1.00      0.74   26%     5685     4% /var
/dev/hd3           1.00      1.00    1%       79     1% /tmp
/dev/hd1           0.25      0.24    6%       23     1% /home
/dev/hd11admin      0.25      0.25    1%        5     1% /admin
/proc                 -         -    -         -     -  /proc
/dev/hd10opt       2.00      1.83    9%     7007     2% /opt
/dev/livedump      0.25      0.25    1%        4     1% /var/adm/ras/livedump
/dev/lv-utility     32.00     22.18   31%     6608     1% /utility
/dev/exportlv    100.00     99.98    1%        4     1% /export
```

Now I will create the lv and filesystem for mksysb images. Here is output.

```
root@sidnim-</>mklv -y imagelv -t jfs2 imagevg 400
imagelv
root@sidnim-</>crfs -v jfs2 -d imagelv -p rw -m //images -A yes
File system created successfully.
104854196 kilobytes total disk space.
New File System size is 209715200
root@sidnim-</>df
Filesystem    512-blocks      Free %Used    Iused %Iused Mounted on
/dev/hd4         1048576    674664   36%     9905    12% /
/dev/hd2         6291456   1997296   69%    40931    16% /usr
/dev/hd9var      2097152   1557256   26%     5686     4% /var
/dev/hd3         2097152   2092360    1%       79     1% /tmp
/dev/hd1          524288    496040    6%       23     1% /home
/dev/hd11admin     524288    523488    1%        5     1% /admin
/proc                 -         -    -         -     -  /proc
/dev/hd10opt     4194304   3835176    9%     7007     2% /opt
/dev/livedump     524288    523552    1%        4     1% /var/adm/ras/livedump
/dev/lv-utility   67108864  46516984   31%     6608     1% /utility
/dev/exportlv  209715200 209682520    1%        4     1% /export
/dev/imagelv   209715200 209682520    1%        4     1% /images
```

Now you can mount the 1st CD (1 of 8) or 1st DVD (1 of 3) and copy all its content to /export/lpp_source directory. After putting AIX 7.1 TL0 DVD in the DVD Ram drive

```
root@sidnim-</>mount -v cdrfs -o ro /dev/cd0 /mnt
```

Also I want all the LPP Source to be created on /export/lpp_source directory and all the spots will be in /export/spot directory. Now I won’t be able to create one lpp source or spot

same time but this will help me to maintain this Server later.
I want to make sure that /tmp has at least 2-3 GB free space to be in safe side.
Here is the sample command for gencopy.

```
root@sidnim-</>gencopy -X -b "-qv" -d /mnt -t /export/lpp_source/710TL0SP1lpp/ all

/export/lpp_source/710TL0SP1lpp/RPMS/ppc/expect-5.42.1-3.aix6.1.ppc.rpm
/export/lpp_source/710TL0SP1lpp/RPMS/ppc/libxml2-2.6.17-3.aix5.1.ppc.rpm
/export/lpp_source/710TL0SP1lpp/RPMS/ppc/osinstall-1.4-1.aix5.3.noarch.rpm
/export/lpp_source/710TL0SP1lpp/RPMS/ppc/tcl-8.4.7-3.aix6.1.ppc.rpm
/export/lpp_source/710TL0SP1lpp/RPMS/ppc/tk-8.4.7-3.aix6.1.ppc.rpm
/export/lpp_source/710TL0SP1lpp/installp/ppc/xlsmp.rte.2.1.0.1.I
/export/lpp_source/710TL0SP1lpp/installp/ppc/xlsmp.msg.zh_CN.rte.2.1.0.1.I
/export/lpp_source/710TL0SP1lpp/installp/ppc/xlsmp.msg.ja_JP.rte.2.1.0.1.I
```

Lot of times it will ask for the 2nd CD/DVD and then 3rd and lot of times it didn't. But I would mount the 2nd CD/DVD and rerun the previous command until I am done with the complete set (8th CD or 3rd DVD or whatever is the last one). Once gencopy completed I will go to /export/lpp-source/710TL0SP1lpp directory

Now I will install NIM master fileset

```
root@sidnim-</>installp -aXYvgd /export/lpp_source/710TL0SP1lpp bos.sysmgt.nim.master
+-----------------------------------------------------------------------------+
                    Pre-installation Verification...
+-----------------------------------------------------------------------------+
Verifying selections...done
Verifying requisites...done
Results...

SUCCESSES
---------
  Filesets listed in this section passed pre-installation verification
  and will be installed.

  Selected Filesets
  -----------------
  bos.sysmgt.nim.master 7.1.0.0              # Network Install Manager - Ma...

  << End of Success Section >>

+-----------------------------------------------------------------------------+
                   BUILDDATE Verification ...
+-----------------------------------------------------------------------------+
Verifying build dates...done
FILESET STATISTICS
------------------
    1  Selected to be installed, of which:
        1  Passed pre-installation verification
  ----
    1  Total to be installed
```

```
                        Installing Software...
+-----------------------------------------------------------------------------+

installp: APPLYING software for:
        bos.sysmgt.nim.master 7.1.0.0


. . . . . << Copyright notice for bos.sysmgt >> . . . . . .
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Finished processing all filesets.  (Total time:  13 secs).

+-----------------------------------------------------------------------------+
                                Summaries:
+-----------------------------------------------------------------------------+

Installation Summary
--------------------
Name                        Level           Part        Event       Result
-------------------------------------------------------------------------------
bos.sysmgt.nim.master       7.1.0.0         USR         APPLY       SUCCESS
```

Now if I run lsnim command it will show something like this

```
root@sidnim-</>lsnim
0042-012 lsnim: this command may only be executed on a
        NIM master
```

Now I will configure the NIM Master

```
root@sidnim-</>nimconfig -apif_name=en0 -anetname=MASTER_NET -aplatform=chrp \
> -anetboot_kernel=64 -acable_type=tp -a client_reg=yes
0513-071 The nimesis Subsystem has been added.
0513-071 The nimd Subsystem has been added.
0513-059 The nimesis Subsystem has been started. Subsystem PID is 5505162.
```

Here is lsnim output

```
root@sidnim-</>lsnim -l master
master:
   class               = machines
   type                = master
   max_nimesis_threads = 20
   comments            = machine which controls the NIM environment
   platform            = chrp
   netboot_kernel      = 64
   if1                 = MASTER_NET sidnim 0002552FC962
   cable_type1         = tp
   Cstate              = ready for a NIM operation
   prev_state          =
   Mstate              = currently running
   serves              = boot
   serves              = nim_script
   master_port         = 1058
   registration_port   = 1059
   reserved            = yes
```

Now I will create lpp_source from the images I copied from CD/DVD. It takes only few minutes (2-3 minutes)

```
root@sidnim-</>nim -o define -t lpp_source -a server=master \
> -a location=/export/lpp_source/710TL0SP1lpp 710TL0SP1lpp
Preparing to copy install images (this will take several minutes)...

Now checking for missing install images...
All required install images have been found. This lpp_source is now ready.
```

Now I will create the 2nd lpp_source same way.

```
root@sidnim-</>nim -o define -t lpp_source -a server=master \
> -a location=/export/lpp_source/610TL6SP2lpp 610TL6SP2lpp
Preparing to copy install images (this will take several minutes)...

Now checking for missing install images...
All required install images have been found. This lpp_source is now ready.
root@sidnim-</>
```

Here is the list of two lpp_source I just created

```
root@sidnim-</>lsnim -t lpp_source
710TL0SP1lpp     resources       lpp_source
610TL6SP2lpp     resources       lpp_source
```

Creating spots from the above lpp_source. Each spot will take at least 25-30 minutes to be created.

```
root@sidnim-</>nim -o define -t spot -a server=master -a location=/export/spot \
> -a source=710TL0SP1lpp 710TL0SP1spot

 Creating SPOT in "/export/spot" on machine "master" from "710TL0SP1lpp" ...

 Restoring files from BOS image.  This may take several minutes ...
```

After several minutes

```
        /usr/sbin/rsct/install/bin/ctposti
0513-071 The ctrmc Subsystem has been added.
done
+-----------------------------------------------------------------------------+
                            Summaries:
+-----------------------------------------------------------------------------+

Installation Summary
--------------------
Name                        Level           Part        Event       Result
-------------------------------------------------------------------------------
rsct.core.utils             3.1.0.1         USR         APPLY       SUCCESS
rsct.core.utils             3.1.0.1         ROOT        APPLY       SUCCESS
rsct.core.sr                3.1.0.1         USR         APPLY       SUCCESS
rsct.core.sr                3.1.0.1         ROOT        APPLY       SUCCESS
rsct.core.sec               3.1.0.1         USR         APPLY       SUCCESS
rsct.core.sec               3.1.0.1         ROOT        APPLY       SUCCESS
rsct.core.rmc               3.1.0.1         USR         APPLY       SUCCESS
rsct.core.rmc               3.1.0.1         ROOT        APPLY       SUCCESS
rsct.core.hostrm            3.1.0.1         USR         APPLY       SUCCESS
rsct.core.hostrm            3.1.0.1         ROOT        APPLY       SUCCESS

 Checking filesets and network boot images for SPOT "710TL0SP1spot".
 This may take several minutes ...

root@sidnim-</>
```

Now “lsnim –t spot” output

```
root@sidnim-</>lsnim -t spot
710TL0SP1spot   _  resources       spot
```

Creating the 2nd spot

```
root@sidnim-</>nim -o define -t spot -a server=master -a location=/export/spot \
> -a source=610TL6SP2lpp 610TL6SP2spot

 Creating SPOT in "/export/spot" on machine "master" from "610TL6SP2lpp" ...

 Restoring files from BOS image.  This may take several minutes ...

 Installing filesets ...

 Be sure to check the output from the SPOT installation
 to verify that all the expected software was successfully
 installed.  You can use the NIM "showlog" operation to
 view the installation log file for the SPOT.
```

After several minutes

```
bos.rte.archive             6.1.6.0         ROOT        APPLY       SUCCESS
bos.rte.SRC                 6.1.6.0         USR         APPLY       SUCCESS
bos.rte.SRC                 6.1.6.0         ROOT        APPLY       SUCCESS
bos.rte.ILS                 6.1.6.0         USR         APPLY       SUCCESS
bos.rte.ILS                 6.1.6.0         ROOT        APPLY       SUCCESS
bos.rte.Dt                  6.1.2.0         USR         APPLY       SUCCESS
bos.iconv.ucs.com           6.1.6.0         USR         APPLY       SUCCESS
bos.iconv.com               6.1.6.0         USR         APPLY       SUCCESS
bos.adt.lib                 6.1.2.0         USR         APPLY       SUCCESS

 Checking filesets and network boot images for SPOT "610TL6SP2spot".
 This may take several minutes ...

root@sidnim-</>
```

Now “lsnim –t spot” output

```
root@sidnim-</>lsnim -t spot
710TL0SP1spot     resources       spot
610TL6SP2spot     resources       spot
```

Now I am ready to configure the clients. Before I configure the clients I will define the 2nd interface to serve another SUBNET which is in different vlan. 2nd IP of this NIM server is 10.10.10.1 and gateway will be same as the NIM IP and subnet 255.255.255.224. Now I will define the 2nd interface

```
root@sidnim-</>chdev -l en1 -a netaddr=10.10.10.1 -a netmask=255.255.255.224 \
> -a state=up
en1 changed
```

Now “ifconfig en1”

```
root@sidnim-</>ifconfig en1
en1: flags=5e080863,c0<UP,BROADCAST,NOTRAILERS,RUNNING,SIMPLEX,MULTICAST,GROUPRT,64BIT,CHECKSUM_O
FFLOAD(ACTIVE),PSEG,LARGESEND,CHAIN>
        inet 10.10.10.1 netmask 0xfffffffe0 broadcast 10.10.10.31
         tcp_sendspace 131072 tcp_recvspace 65536 rfc1323 0
```

Now I will create the 2nd NIM Interface

```
root@sidnim-</>nim -o define -t ent -a net_addr=10.10.10.1 \
> -a snm=255.255.255.224 -a routing1="default 10.10.10.1" SEC_NIM
```

Now “lsnim –c networks” output

```
root@sidnim-</>lsnim -c networks
MASTER_NET      networks        ent
SEC_NIM         networks        ent
```

Now “lsnim –l SEC_NIM”

```
root@sidnim-</>lsnim -l SEC_NIM
SEC_NIM:
   class      = networks
   type       = ent
   Nstate     = ready for use
   prev_state =
   net_addr   = 10.10.10.0
   snm        = 255.255.255.224
   routing1   = default 10.10.10.1
```

I built few hundred NIM servers for our clients using the same method I did to create secondary NIM Interface. I created 4-5 NIM interfaces using the same method. But starting P6/P7 Server this method doesn’t work. I still need to figure out a substitute for this method for P6/P7 Servers. Anyway I will create the clients now. To do that I have to add the entries in /etc/hosts file if not already there.

I don’t need any entry for the secondary NIM IP in /etc/hosts.

```
172.21.64.176   sidnim
172.21.64.177   sidtest2
10.10.10.11     sidtest3
```

Now I will create the clients. Normally I write a script to define few hundred clients. Also I wrote a shell script

which is menu driven and anyone with zero AIX skill can build a NIM server if lpp_sources available somewhere

to copy from. If I get time I will add steps in my script to create lpp_source from CD/DVD. Anyway I will create

the clients now. I like to put the IP Address in the comments section which helps me to find out the IP address from a single command.

```
root@sidnim-</scripts>nim -o define -t standalone -a platform=chrp \
> -a netboot_kernel=mp -a if1="find_net sidtest2 0" \
> -a comments=172.21.64.177 sidtest2
root@sidnim-</scripts>nim -o define -t standalone -a platform=chrp \
> -a netboot_kernel=mp -a if1="find_net sidtest3 0" \
> -a comments=10.10.10.11 sidtest3
```

Here is “lsnim –c machines” output

```
root@sidnim-</>lsnim -c machines
master       machines       master
sidtest2     machines       standalone
sidtest3     machines       standalone
```

And details information of these two clients

```
root@sidnim-</scripts>lsnim -l sidtest2
sidtest2:
   class          = machines
   type           = standalone
   comments       = 172.21.64.177
   connect        = shell
   platform       = chrp
   netboot_kernel = mp
   if1            = MASTER_NET sidtest2 0
   cable_type1    = N/A
   Cstate         = ready for a NIM operation
   prev_state     = ready for a NIM operation
   Mstate         = currently running
root@sidnim-</scripts>lsnim -l sidtest3
sidtest3:
   class          = machines
   type           = standalone
   comments       = 10.10.10.11
   connect        = shell
   platform       = chrp
   netboot_kernel = mp
   if1            = SEC_NIM sidtest3 0
   cable_type1    = N/A
   Cstate         = ready for a NIM operation
   prev_state     = ready for a NIM operation
   Mstate         = not running
```

Now I will allocate NIM resources and load two lpars. (For more NIM Commands please see the AIX page of my website http://sinhass.com/Aix_tips_troubleshoot.aspx)

```
root@sidnim-</>nim -o bos_inst -a source=rte -a spot=710TL0SP1spot \
> -a lpp_source=710TL0SP1lpp -a accept_licenses=yes -a no_client_boot=yes \
> -a set_bootlist=no -a force_push=no sidtest2
```

Command is successful now I will check the result.

```
root@sidnim-</>lsnim -l sidtest2
sidtest2:
   class          = machines
   type           = standalone
   comments       = 172.21.64.177
   connect        = shell
   platform       = chrp
   netboot_kernel = mp
   if1            = MASTER_NET sidtest2 0
   cable_type1    = N/A
   Cstate         = BOS installation has been enabled
   prev_state     = ready for a NIM operation
   Mstate         = currently running
   boot           = boot
   lpp_source     = 710TL0SP1lpp
   nim_script     = nim_script
   spot           = 710TL0SP1spot
   control        = master
```

Above output looking as expected. Now I will start booting the sidtest2 lpar from network.

From sidtest2 server

```
root@sidtest2-</root>bootlist -m normal ent0 speed=auto duplex=auto \
> bserver=172.21.64.176 client=172.21.64.177 gateway=0.0.0.0
```

And “bootlist –m normal” output

```
root@sidtest2-</root>bootlist -m normal -o
ent0 speed=auto duplex=auto bserver=172.21.64.176 client=172.21.64.177 gateway=0
.0.0.0
```

Now I will reboot sidtest2 and it will automatically boot from network if everything else is fine. We will know

in a moment. I am not going into all the details about NIM troubleshooting as I almost never faced any issue

with NIM booting issue if everything done properly. Few times I found tftp blocked in VLAN and we had to move NIM Server and clients to different VLAN and it worked. One more thing you must be careful about any typo in /etc/hosts file. Here it is booting.

```
-------------------------------------------------------------------------------
                              Welcome to AIX.
                    boot image timestamp: 15:47 12/31
                  The current time and date: 15:59:50 12/31/2011
        processor count: 2;  memory size: 4096MB;  kernel size: 35064581
boot device: /pci@800000020000000c/pci@2/ethernet@1:speed=auto,duplex=auto,bootp,
172.21.64.176,,172.21.64.177,0.0.0.0
-------------------------------------------------------------------------------
```

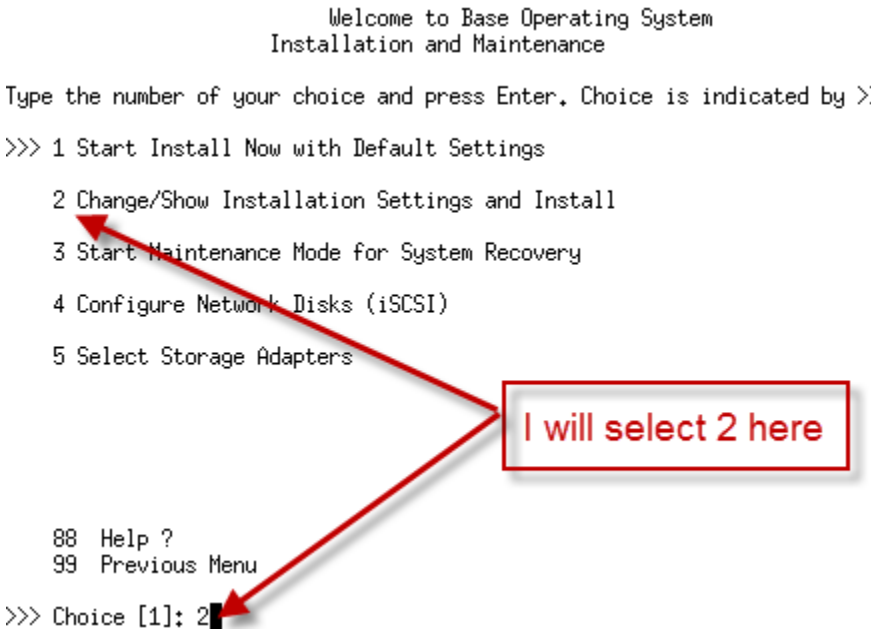
And now waiting for me to start. Now this is not part of what I want to show but few people requested me to
provide all the details. So I will show all the steps I do from Client side too. I will type 1 and hit enter to select
this terminal as console.

```
 ******* Please define the System Console. *******

Type a 1 and press Enter to use this terminal as the
  system console.
Pour definir ce terminal comme console systeme, appuyez
  sur 1 puis sur Entree.
Taste 1 und anschliessend die Eingabetaste druecken, um
  diese Datenstation als Systemkonsole zu verwenden.
Premere il tasto 1 ed Invio per usare questo terminal
  come console.
Escriba 1 y pulse Intro para utilizar esta terminal como
  consola del sistema.
Escriviu 1 1 i premeu Intro per utilitzar aquest
  terminal com a consola del sistema.
Digite um 1 e pressione Enter para utilizar este terminal
  como console do sistema.
```

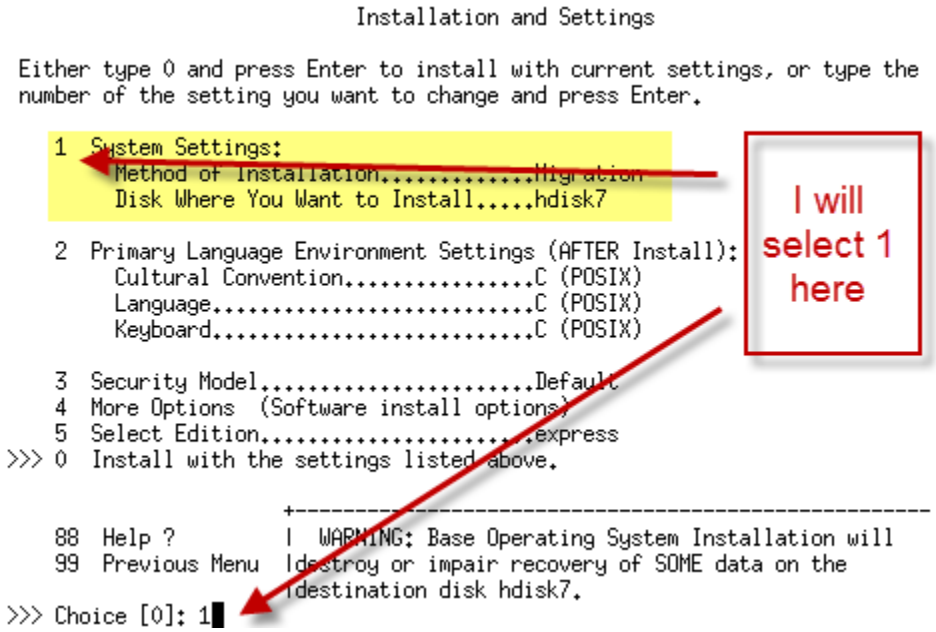
Next screen I will type 1 and hit Enter again to select “English”. I will crop the images to delete unnecessary
blank spaces. So Screen shot will be smaller than actual.

```
>>>  1 Type 1 and press Enter to have English during install.

    88  Help ?


>>> Choice [1]: 1
```

Now I will select Option 2 below and hit Enter



Now as I am going to wipe out existing OS from my test lpar I will select 1 here. You must be careful with what you are doing here.



I will select 1 again as I am reloading this test box. Be careful with what you are doing here.

```
                        Change Method of Installation

  Type the number of the installation method and press Enter.

    1 New and Complete Overwrite
      Overwrites EVERYTHING on the disk selected for installation.
      Warning: Only use this method if the disk is totally empty or if there
      is nothing on the disk you want to preserve.

    2 Preservation Install
      Preserves SOME of the existing data on the disk selected for
      installation.  Warning: This method overwrites the usr (/usr),
      variable (/var), temporary (/tmp), and root (/) file systems.  Other
      product (applications) files and configuration data will be destroyed.

>>> 3 Migration Install
      Upgrades the Base Operating System to the current release.
      Other product (applications) files and configuration data are saved.


    88  Help ?
    99  Previous Menu

>>> Choice [3]: 1
```

Now next screen it will show me list of all the disks presented to this lpar which includes SAN Disks, other Volume Groups etc. Now not necessarily it will tell you proper VG status. It is your responsibility to select the proper disk. For example hdisk1 and hsisk2 below is part of my SAN Disks used in GPFS Cluster but from the screen below there is no way to tell that. So take extreme caution when you load a server from this test example. I should not be blamed or responsible for any mistake you do here. Anyway I didn't see my original root disk so I will type "6" for "More Choices" in next page and see

```
                    Change Disk(s) Where You Want to Install

Type one or more numbers for the disk(s) to be used for installation and press
Enter. To cancel a choice, type the corresponding number and Press Enter.
At least one bootable disk must be selected. The current choice is indicated
by >>>.

        Name      Location Code   Size(MB)  VG Status   Bootable

     1  hdisk0    03-08-02          1024    none            Yes    No
     2  hdisk1    03-08-02        204800    none            Yes    No
     3  hdisk2    03-08-02        204800    none            Yes    No
     4  hdisk3    04-08-00-8,0     70006    none            Yes    No
     5  hdisk4    04-08-00-9,0     70006    none            Yes    No
     6  MORE CHOICES...

>>>  0   Continue with choices indicated above
    55  More Disk Options
    66  Disks not known to Base Operating System Installation
    77  Display Alternative Disk Attributes
    88  Help ?
    99  Previous Menu

>>> Choice [0]: 6
```

I will select 6 here as I don't see the original rootdisk

Now I can see the original root disk. Depending on original mirror setting I will select One disk or two disk.

If this is initial load then I would like to select one disk for root and after OS load completed then I will do
Mirroring. If I select two disks now it won't mirror. But it is different in case of mksysb which I will do later.
For now I won't change anything and will just continue as I will overwrite the existing disk for my test.

```
                        Change Disk(s) Where You Want to Install

Type one or more numbers for the disk(s) to be used for installation and press
Enter. To cancel a choice, type the corresponding number and Press Enter.
At least one bootable disk must be selected. The current choice is indicated
by >>>.

        Name      Location Code   Size(MB)  VG Status   Bootable

>>>  7  ...PREVIOUS CHOICES
     8  hdisk5    04-08-00-10,0    70006   none           Yes    No
     9  hdisk6    04-08-00-11,0    70006   none           Yes    No
>>> 10  hdisk7    04-08-01-8,0    140013   rootvg         Yes    No
    11  hdisk8    04-08-01-9,0    140013   none           Yes    No


     0   Continue with choices indicated above
    55  More Disk Options
    66  Disks not known to Base Operating System Installation
    77  Display Alternative Disk Attributes
    88  Help ?
    99  Previous Menu

>>> Choice [7]: 0
```

Next screen I will select "0" and hit enter

```
                              Installation and Settings

 Either type 0 and press Enter to install with current settings, or type the
 number of the setting you want to change and press Enter.

    1  System Settings:
         Method of Installation.............New and Complete Overwrite
         Disk Where You Want to Install.....hdisk7

    2  Primary Language Environment Settings (AFTER Install):
         Cultural Convention.................C (POSIX)
         Language............................C (POSIX)
         Keyboard............................C (POSIX)

    3  Security Model.......................Default
    4  More Options  (Software install options)
    5  Select Edition.......................express
>>> 0  Install with the settings listed above.

                        +-----------------------------------------------------
    88  Help ?          |  WARNING: Base Operating System Installation will
    99  Previous Menu   |        destroy or impair recovery of ALL data on the
                        |            destination disk hdisk7.
>>> Choice [0]:
```

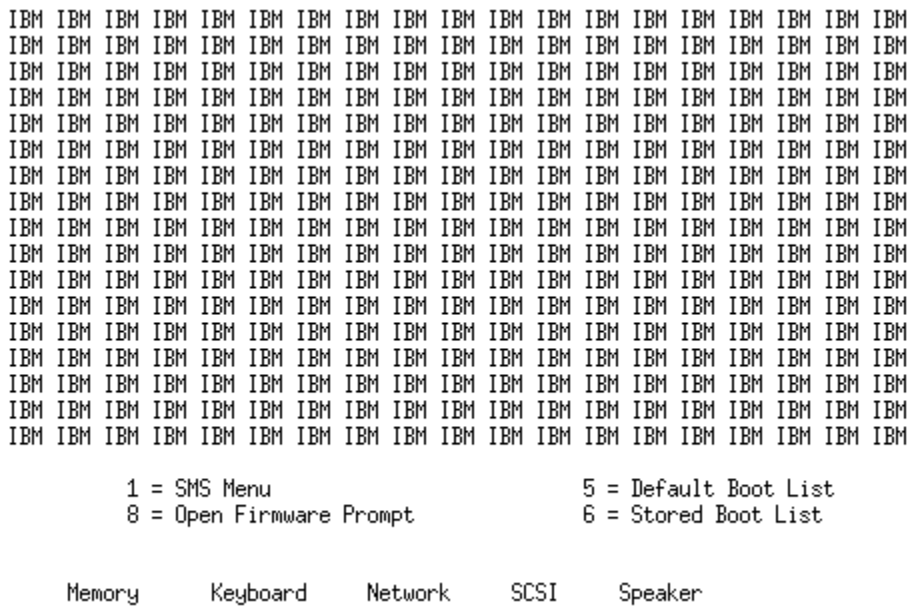
Now final screen and after verifying all information I will hit Enter.

```
                        Overwrite Installation Summary

Disks:  hdisk7
Cultural Convention:  C
Language:  C
Keyboard:  C
JFS2 File Systems Created:  yes
Graphics Software:  yes
System Management Client Software:  yes
Enable System Backups to install any system:  yes
Selected Edition:  express

Optional Software being installed:




>>> 1   Continue with Install
                      +-----------------------------------------------------
    88  Help ?        |  WARNING: Base Operating System Installation will
    99  Previous Menu |        destroy or impair recovery of ALL data on the
                      |            destination disk hdisk7.
>>> Choice [1]:
```

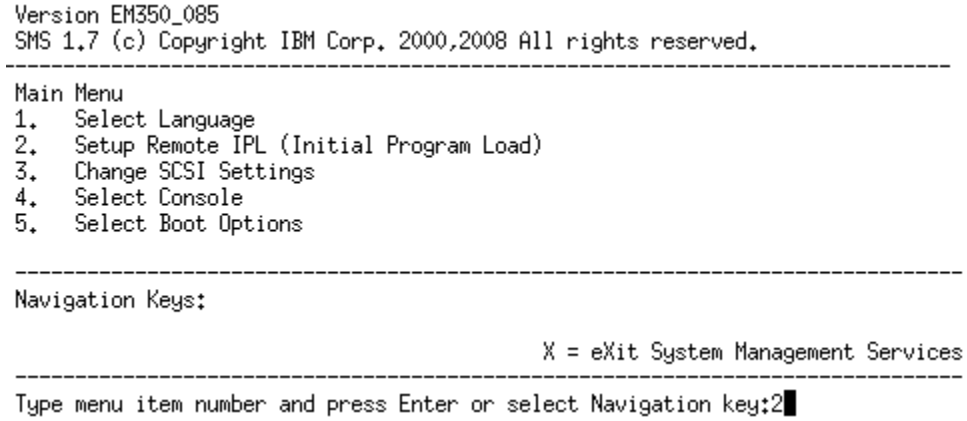
After I hit enter it will start loading the server. I will check back this server in 45 minutes.

```
                      Installing Base Operating System

       Please wait...

          Approximate     Elapsed time
        % tasks complete   (in minutes)


          0               0
```

And now I will start the loading sidtest3 which will be loaded from the secondary NIM interface. I will allocate the NIM resources same way I did before for sidtest2. And now I will reboot the lpar to network boot. This time I will show you the standard way. I will press “1” here or from HMC I can force it to boot to SMS mode. Please refer to my VIO blog for those screen shots.



Next Screen I will select Option “2” to setup remote IPL (IP Address etc. for network boot).



As I already know which Network card/Port to use I will select from below

```
Version EM350_085
SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
-------------------------------------------------------------------------------
NIC Adapters
     Device                          Location Code                  Hardware
                                                                    Address
 1.  PORT - 1 IBM Host Ethernet Ada  U                -P1-C10-T2  001a64d77760
 2.  PORT - 2 IBM Host Ethernet Ada  U                -P1-C10-T1  001a64d77761
 3.  PORT - 1 IBM Host Ethernet Ada  U                -P1-C10-T2  001a64d77300
 4.  PORT - 2 IBM Host Ethernet Ada  U                -P1-C10-T1  001a64d77301
 5.  PORT - 1 IBM Host Ethernet Ada  U                -P1-C10-T2  001a64d776f0
 6.  PORT - 2 IBM Host Ethernet Ada  U                -P1-C10-T1  001a64d776f1
 7.  PORT - 1 IBM Host Ethernet Ada  U                -P1-C10-T2  001a64a9d6d0
 8.  PORT - 2 IBM Host Ethernet Ada  U                -P1-C10-T1  001a64a9d6d1
 9.  Port 1 - IBM 2 PORT 10/100/100  U                -P1-C01-T1  001a649104ea
10.  Port 2 - IBM 2 PORT 10/100/100  U                -P1-C01-T2  001a649104eb
11.  Port 1 - IBM 2 PORT 10/100/100  U                -P1-C03-T1  001125a594ba
12.  Port 2 - IBM 2 PORT 10/100/100  U                -P1-C03-T2  001125a594bb
 -------------------------------------------------------------------------------
 Navigation keys:
 M = return to Main Menu      N = Next page of list
 ESC key = return to previous screen         X = eXit System Management Services
 -------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:9
```

Next Screen I will select option “1” for IPV4 and hit enter.

```
Version EM350_085
SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
-------------------------------------------------------------------------------
Select Internet Protocol Version.

1.   IPv4 - Address Format 123.231.111.222
2.   IPv6 - Address Format 1234:5678:90ab:cdef:1234:5678:90ab:cdef

-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
Type menu item number and press Enter or select Navigation key:1
```

Next I will select BOOTP , Option “1” and hit enter

```
Version EM350_085
SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
-------------------------------------------------------------------------------
Select Network Service.
1.   BOOTP
2.   ISCSI

-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
Type menu item number and press Enter or select Navigation key:1
```

Here I will select 1 to setup IP Parameter.

```
 Version EM350_085
 SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
------------------------------------------------------------------------------
 Network Parameters
Port 1 - IBM 2 PORT 10/100/1000 Base-TX PCI-X Adapter:                -P1-C01-
 1.   IP Parameters
 2.   Adapter Configuration
 3.   Ping Test
 4.   Advanced Setup: BOOTP
 ------------------------------------------------------------------------------
 Navigation keys:
 M = return to Main Menu
 ESC key = return to previous screen         X = eXit System Management Services
 ------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:1
```

Next screen after setting up all IP Parameter. Now it was not necessary to give Gateway IP Address as they are in same vlan.

```
 Version EM350_085
 SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
------------------------------------------------------------------------------
 IP Parameters
 1.   Client IP Address                  [10.10.10.11]
 2.   Server IP Address                  [10.10.10.1]
 3.   Gateway IP Address                 [10.10.10.1]
 4.   Subnet Mask                        [255.255.255.224]
 ------------------------------------------------------------------------------
 Navigation keys:
 M = return to Main Menu
 ESC key = return to previous screen         X = eXit System Management Services
 ------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:
```

I will click “Esc” key and go back to previous screen now. And then Option “2” to change speed/duplex etc.

```
 Version EM350_085
 SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
------------------------------------------------------------------------------
 Network Parameters
Port 1 - IBM 2 PORT 10/100/1000 Base-TX PCI-X Adapter:                -P1-C01-
 1.   IP Parameters
 2.   Adapter Configuration
 3.   Ping Test
 4.   Advanced Setup: BOOTP
 ------------------------------------------------------------------------------
 Navigation keys:
 M = return to Main Menu
 ESC key = return to previous screen         X = eXit System Management Services
 ------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:2
```

Next Screen I will go to Option “1” and change speed/duplex to auto/auto, then Option “2” and make sure “Spanning Tree” is disabled. No need to change Protocol.

```
 Version EM350_085
 SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
------------------------------------------------------------------------------
 Adapter Configuration
Port 1 - IBM 2 PORT 10/100/1000 Base-TX PCI-X Adapter:                -P1-C01-
 1.   Speed,Duplex
 2.   Spanning Tree Enabled
 3.   Protocol
 ------------------------------------------------------------------------------
 Navigation keys:
 M = return to Main Menu
 ESC key = return to previous screen         X = eXit System Management Services
 ------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:
```

Once all these set I will press “Esc” once. And do the “Ping Test” I will type “3” and Enter

```
 Version EM350_085
 SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
------------------------------------------------------------------------------
 Network Parameters
Port 1 - IBM 2 PORT 10/100/1000 Base-TX PCI-X Adapter:                P1-C01-
 1.   IP Parameters
 2.   Adapter Configuration
 3.   Ping Test
 4.   Advanced Setup: BOOTP
 ------------------------------------------------------------------------------
 Navigation keys:
 M = return to Main Menu
 ESC key = return to previous screen         X = eXit System Management Services
 ------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:3
```

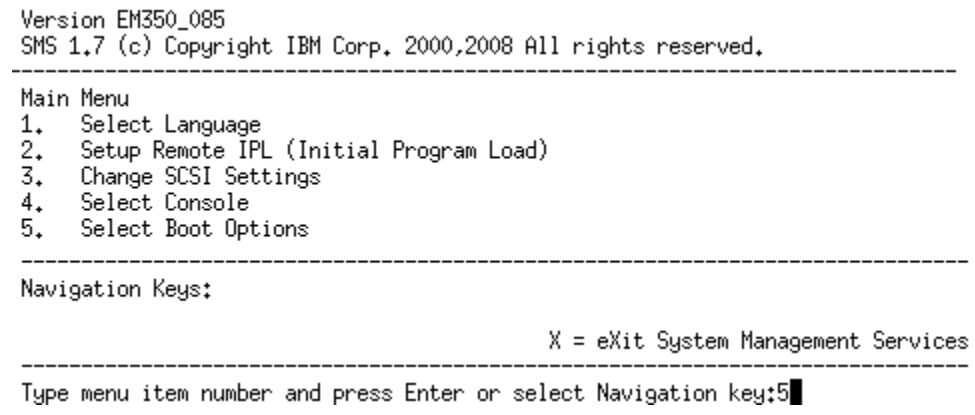
Next Screen will display the setting and if everything looks good I will type “1” and Enter.
If not then I have to go back and setup proper IP/Subnet/Gateway.

```
 SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
------------------------------------------------------------------------------
 Ping Test
 Port 1 - IBM 2 PORT 10/100/1000 Base-TX PCI-X Adapter:                -P1-C01
-
 Speed, Duplex: auto,auto
 Client IP Address: 10.10.10.11
 Server IP Address: 10.10.10.1
 Gateway IP Address: 10.10.10.1
 Subnet Mask: 255.255.255.224
 Protocol: Standard
 Spanning Tree Enabled: 0
 Connector Type:
 1. Execute Ping Test
 ------------------------------------------------------------------------------
 Navigation keys:
 M = return to Main Menu
 ESC key = return to previous screen         X = eXit System Management Services
 ------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:
```

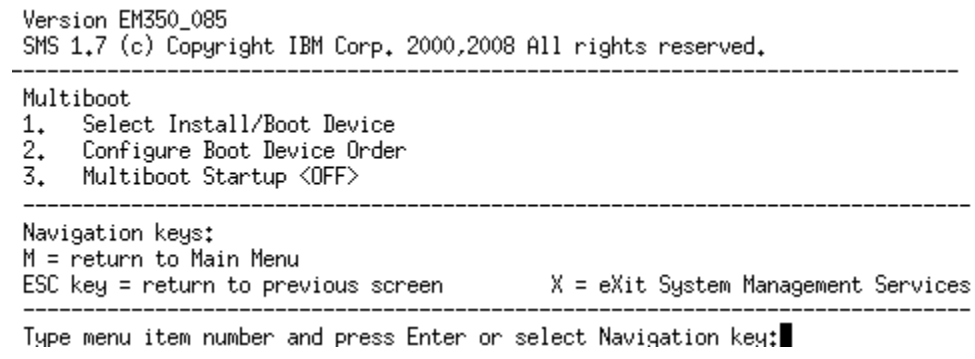
If everything is OK then next screen will be like this. (Screen shot cropped).

```
                          .-----------------.
                          |  Ping  Success. |
                          `-----------------'

Press any key to continue.....
```

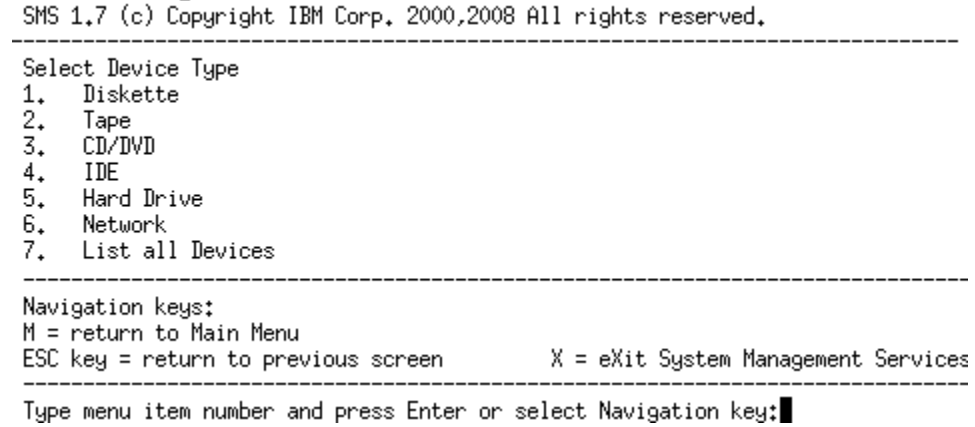
Now I will hit “Enter” and then just type “m” and it will bring me to the Main Menu. I will select Option “5” to “Select Boot Options”



Next I will select Option “1” to “Select Install/Boot Device”



I will select option “6” for “Network”



I will select option “1” next for “Bootp”

```
Version EM350_085
SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
-------------------------------------------------------------------------------
Select Network Service.
1.   BOOTP
2.   ISCSI
-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen         X = eXit System Management Service
-------------------------------------------------------------------------------
Type menu item number and press Enter or select Navigation key:1
```

Next screen it will show lot of Ethernet Cards. But I don't see the card I want to boot from so I will press "n" to go to next page

```
Version EM350_085
SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
-------------------------------------------------------------------------------
Select Device
Device  Current  Device
Number  Position  Name
1.        -      PORT - 1 IBM Host Ethernet Adapter
       ( loc=U                -P1-C10-T2 )
2.        -                   Host Ethernet Adapter
       ( loc=U                -P1-C10-T1 )
3.        -                   Host Ethernet Adapter
       ( loc=U                -P1-C10-T2 )
4.        -                   Host Ethernet Adapter
       ( loc=U                -P1-C10-T1 )
5.        -                   Host Ethernet Adapter
       ( loc=U                -P1-C10-T2 )
6.        -                   Host Ethernet Adapter
       ( loc=U                -P1-C10-T1 )
-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu      N = Next page of list
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
Type menu item number and press Enter or select Navigation key:
```

Now I see the card at option "9". I will select that.

```
Version EM350_085
SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
-------------------------------------------------------------------------------
Select Device
7.        -      PORT - 1 IBM Host Ethernet Adapter
       ( loc=                 -P1-C10-T2 )
8.        -                   Host Ethernet Adapter
       ( loc=                 -P1-C10-T1 )
9.        -                   2 PORT 10/100/1000 Base-TX PCI-X Adapter
       ( loc=                 -P1-C01-T1 )
10.       -                   2 PORT 10/100/1000 Base-TX PCI-X Adapter
       ( loc=                 -P1-C01-T2 )
11.       -                   2 PORT 10/100/1000 Base-TX PCI-X Adapter
       ( loc=                 -P1-C03-T1 )
12.       -                   2 PORT 10/100/1000 Base-TX PCI-X Adapter
       ( loc=                 -P1-C03-T2 )
13.       -                   2 PORT 10/100/1000 Base-TX PCI-X Adapter
       ( loc=                 -P1-C01-T1 )
-------------------------------------------------------------------------------
Navigation keys:
M = return to Main Menu     N = Next page of list     P = Previous page of list
ESC key = return to previous screen         X = eXit System Management Services
-------------------------------------------------------------------------------
Type menu item number and press Enter or select Navigation key:
```

Next Option “2” to “Normal Mode Boot”

```
 SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
-------------------------------------------------------------------------------
 Select Task

Port 1 - IBM 2 PORT 10/100/1000 Base-TX PCI-X Adapter
    ( loc=                -P1-C01-T1 )

 1.   Information
 2.   Normal Mode Boot
 3.   Service Mode Boot
 -------------------------------------------------------------------------------
 Navigation keys:
 M = return to Main Menu
 ESC key = return to previous screen         X = eXit System Management Services
 -------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:
```

Now option “1” to “Yes”

```
 Version EM350_085
 SMS 1.7 (c) Copyright IBM Corp. 2000,2008 All rights reserved.
-------------------------------------------------------------------------------
 Are you sure you want to exit System Management Services?
 1.   Yes
 2.   No
 -------------------------------------------------------------------------------
 Navigation Keys:

                                          X = eXit System Management Services
 -------------------------------------------------------------------------------
 Type menu item number and press Enter or select Navigation key:
```

Now it will start loading. I will check back in 45 minutes. I will check sidtest2 server. Both lpars loaded using RTE. I will create mksysb image in sidtest2 (mma, P6) server install it to sidtest3 (p5). In sidtest2 Server I created another volume group to save my mksysb file. Here it is completed. Remember you must use –p whenever you create a mksysb image in a tape or a file. This ensures that software packaging is disabled. Otherwise you may get packaging error and to my knowledge only solution is to create another mksysb image and you may not be so lucky.

```
# mksysb -ip -X /mksysb_image/sidtest2.mksysb

Creating information file (/image.data) for rootvg.

Creating list of files to back up

Backing up 64284 files.....

64284 of 64284 files backed up (100%)
0512-038 mksysb: Backup Completed Successfully.
```

Check the size

```
# ls -ls /mksysb_image/sidtest2.mksysb
2351104 -rw-r--r--    1 root     system   2407526400 Dec 31 13:36 /mksysb_image/
sidtest2.mksysb
```

Now I will run lsmksysb to verify the image

```
# lsmksysb -f /mksysb_image/sidtest2.mksysb
```

And last few lines of the output

```
    118156 ./sbin/helpers/jfs2/rdump
    117416 ./sbin/helpers/jfs2/restbyinode
    189334 ./sbin/helpers/jfs2/rollback
    119172 ./sbin/helpers/jfs2/rrestore
     86530 ./sbin/helpers/jfs2/snapshot
     33460 ./sbin/helpers/jfs2/statfs64
        24 ./sbin/helpers/jfs2/umount
     43104 ./sbin/helpers/nfsmnthelp
      4304 ./sbin/helpers/pmemfsmnthelp
     13336 ./sbin/helpers/stnfsmnthelp
      6552 ./sbin/helpers/udfmnthelp
    162352 ./sbin/helpers/v3fshelper
        34 ./sbin/install-info
     33468 ./sbin/rc.boot
         0 ./tftpboot
         0 ./tmp
         5 ./u
        21 ./unix
         0 ./usr
         0 ./var
         0 ./proc
total size: 2390015101
files archived: 64284
```

I am sure that mksysb image is complete and as I used –p to disable software packaging I am 100% sure that this image is a perfect image and I can use it anywhere I want, even I can install this image in a Power4 Server too. Now I will copy this image to sidnim server /images directory and now it is in sidnim

```
root@sidnim-</images>ls
lost+found       sidtest2.mksysb
```

Next I will define this image as mksysb image and see if it is showing. I use capital letter for mksysb name
for better readability. Do whatever you want.

```
root@sidnim-</images>nim -o define -t mksysb -a server=master \
> -a location=/images/sidtest2.mksysb SIDTEST2_MKSYSB
root@sidnim-</images>lsnim -t mksysb
SIDTEST2_MKSYSB     resources       mksysb
```

Now I will allocate this image to sidtest3 and install from this mksysb image. sidtest3 is different hardware
platform. Check below all the details before we start loading sidtest3.

```
root@sidnim-</images>nim -o bos_inst -a source=mksysb -a mksysb=SIDTEST2_MKSYSB \
> -a spot=710TL0SP1spot -a lpp_source=710TL0SP1lpp -a accept_licenses=yes \
> -a no_client_boot=yes -a force_push=no sidtest3
```

```
root@sidnim-</>lsnim -l sidtest3
sidtest3:
   class          = machines
   type           = standalone
   connect        = shell
   platform       = chrp
   netboot_kernel = 64
   if1            = SEC_NIM sidtest3 0
   cable_type1    = bnc
   Cstate         = BOS installation has been enabled
   prev_state     = ready for a NIM operation
   Mstate         = currently running
   boot           = boot
   lpp_source     = 710TL0SP1lpp
   mksysb         = SIDTEST2_MKSYSB
   nim_script     = nim_script
   spot           = 710TL0SP1spot
   cpuid          = 00CBA1EE4C00
   control        = master
root@sidnim-</>lsnim -l SIDTEST2_MKSYSB
SIDTEST2_MKSYSB:
   class         = resources
   type          = mksysb
   Rstate        = ready for use
   prev_state    = unavailable for use
   location      = /images/sidtest2.mksysb
   version       = 7
   release       = 1
   mod           = 0
   oslevel_r     = 7100-00
   alloc_count   = 1
   server        = master
   creation_date = Sat Dec 31 12:57:08 2011
```

Now I will boot the sidtest3 server from network. After setting bootlist to boot from network.

```
# uname -a
AIX sidtest3 1 7 00CBA1EE4C00
# ifconfig -a
en0: flags=5e080863,c0<UP,BROADCAST,NOTRAILERS,RUNNING,SIMPLEX,MULTICAST,GROUPRT
,64BIT,CHECKSUM_OFFLOAD(ACTIVE),PSEG,LARGESEND,CHAIN>
        inet 10.10.10.11 netmask 0xfffffe0 broadcast 10.10.10.31
         tcp_sendspace 131072 tcp_recvspace 65536 rfc1323 0
# bootlist -m normal ent0 speed=auto duplex=auto gateway=10.10.10.1 \
> bserver=10.10.10.1 client=10.10.10.11
# bootlist -m normal -o
ent0 speed=auto duplex=auto bserver=10.10.10.1 client=10.10.10.11 gateway=10.10.
10.1
```

After rebooting

```
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM
IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM IBM

BOOTP: chosen-network-type = ethernet,auto,rj45,auto
BOOTP: server   IP =        10.10.10.1
BOOTP: requested filename =
BOOTP: client   IP =        10.10.10.11
BOOTP: client   HW addr =   0 11 25 8 b4 d
BOOTP: gateway  IP =        10.10.10.1
BOOTP: device    /pci@80000002000000c/pci@2/ethernet@1
BOOTP: loc-code  U7311.D20.108C35A-P1-C06-T1
BOOTP R = 1 BOOTP S = 2
FILE: /tftpboot/sidtest3
FINAL Packet Count = 34707
FINAL File Size = 17769472 bytes.
load-base=0x4000
real-base=0x2000000

Elapsed time since release of system processors: 236522 mins 57 secs

-------------------------------------------------------------------------------
                              Welcome to AIX.
                    boot image timestamp: 15:47 12/31
                The current time and date: 20:39:25 12/31/2011
       processor count: 2;  memory size: 4096MB;  kernel size: 35064581
boot device: /pci@80000002000000c/pci@2/ethernet@1:speed=auto,duplex=auto,bootp,
10.10.10.1,,10.10.10.11,10.10.10.1
-------------------------------------------------------------------------------
```

And now after selecting Console, Language, Disk, etc….. etc… see below

```
                  Installing Base Operating System

    Please wait...

    Approximate     Elapsed time
 % tasks complete   (in minutes)


      35              1      38% of mksysb data restored.
```

After few seconds

```
                  Installing Base Operating System

   Please wait...

   Approximate     Elapsed time
 % tasks complete   (in minutes)


      83              2      Over mounting /.
```

And another few minutes

```
                  Installing Base Operating System

   Please wait...

   Approximate     Elapsed time
 % tasks complete   (in minutes)


      89              4      Copying Cu* to disk.
```

```
                  Installing Base Operating System

   Please wait...

   Approximate     Elapsed time
 % tasks complete   (in minutes)


     90              4      Creating boot image.
```

And now booting in less than 5 minutes

```
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Rebooting . . .
```

And now back to login prompt.

```
AIX Version 7
Copyright IBM Corporation, 1982, 2010.
Console login: root
*******************************************************************************
*                                                                             *
*                                                                             *
*  Welcome to AIX Version 7.1!                                                *
*                                                                             *
*                                                                             *
*  Please see the README file in /usr/lpp/bos for information pertinent to    *
*  this release of the AIX Operating System.                                  *
*                                                                             *
*                                                                             *
*******************************************************************************
Last login: Sat Dec 31 13:50:47 2011 on /dev/vty0

# uname -a
AIX sidtest3 1 7 00CBA1EE4C00
# w
  01:52PM   up 3 mins,  1 user,  load average: 0.32, 0.19, 0.08
User     tty          login@       idle      JCPU      PCPU what
root     vty0        01:52PM          0         0         0 w
```

So I just loaded a p5 550 lpar using a mksysb image created from mma lpar (p6) and close to 2.2 GB mksysb image took less than 5 Min to load. Pretty amazing, isn't it.

Next thing I am going to show you how to create a new lpp_source and spot using existing one.

I created one separate temporary filesystem in rootvg (have plenty of space in rootvg and it is temporary)

and mounted it /TMP_UPDATE. And just downloaded AIX 7.1 TL1 SP3 update files from IBM Fix Central and transferred all of them to sidnim server /TMP_UPDATE directory. Now I have to update my NIM

server to AIX 7.1 TL0 Service Pack 3 from current level of 7.1 TL0 SP1.

```
root@sidnim-</TMP_UPDATE/710TL0SP3>inutoc .
root@sidnim-</TMP_UPDATE/710TL0SP3>installp -aXYgvd . ALL
bos.rte.filesystem          7.1.0.15       USR         APPLY       SUCCESS
bos.rte.filesystem          7.1.0.15       ROOT        APPLY       SUCCESS
devices.isa_sio.chrp.ecp.rt 7.1.0.15       USR         APPLY       SUCCESS
devices.isa_sio.pnpPNP.501. 7.1.0.15       USR         APPLY       SUCCESS
bos.rte                     7.1.0.15       USR         APPLY       SUCCESS
bos.rte                     7.1.0.15       ROOT        APPLY       SUCCESS
devices.pci.c1110358.rte    7.1.0.15       USR         APPLY       SUCCESS
devices.pci.df1000f7.com    7.1.0.15       USR         APPLY       SUCCESS
devices.pci.df1000f7.com    7.1.0.15       ROOT        APPLY       SUCCESS
devices.isa_sio.pnpPNP.700. 7.1.0.15       USR         APPLY       SUCCESS
devices.pciex.771000801410b 7.1.0.15       USR         APPLY       SUCCESS
devices.pciex.14103d03.diag 7.1.0.0        USR         APPLY       SUCCESS
devices.common.IBM.mpt2.dia 7.1.0.0        USR         APPLY       SUCCESS
devices.pciex.001072001410e 7.1.0.0        USR         APPLY       SUCCESS
artex.base.samples          7.1.0.15       USR         APPLY       SUCCESS
artex.base.samples          7.1.0.15       ROOT        APPLY       SUCCESS
devices.pciex.001072001410f 7.1.0.0        USR         APPLY       SUCCESS

installp:  * * *  A T T E N T I O N ! ! !
        Software changes processed during this session require this system
        and any of its diskless/dataless clients to be rebooted in order
        for the changes to be made effective.
```

Now “oslevel –s” output below

```
root@sidnim-</TMP_UPDATE/710TL0SP3>oslevel -s
7100-00-03-1115
```

Now I will copy the existing 710TL0SP1lpp image to 710TL0SP3lpp and then I will update it to SP3. This way I will have both images in case I need it. First I will see the list

```
root@sidnim-</>lsnim -t lpp_source
710TL0SP1lpp     resources       lpp_source
610TL6SP2lpp     resources       lpp_source
```

Now I will start copying to new name. It will take some time.

```
root@sidnim-</>nim -o define -t lpp_source -a server=master \
> -a source=710TL0SP1lpp -a location=/export/lpp_source/710TL0SP3lpp \
> 710TL0SP3lpp
Preparing to copy install images (this will take several minutes)...
/export/lpp_source/710TL0SP3lpp/installp/ppc/DirectorPlatformAgent.6.2.0.1.I
/export/lpp_source/710TL0SP3lpp/installp/ppc/DirectorCommonAgent.6.2.0.1.I
Now checking for missing install images...
All required install images have been found. This lpp_source is now ready.
```

Copying just finished and now I will update this image to SP3, see below

```
root@sidnim-</>nim -o update -a packages=all -a source=/TMP_UPDATE/710TL0SP3 \
> 710TL0SP3lpp

/export/lpp_source/710TL0SP3lpp/installp/ppc/bos.msg.cs_CZ.7.1.0.1.I
/export/lpp_source/710TL0SP3lpp/installp/ppc/bos.msg.CS_CZ.7.1.0.1.I
/export/lpp_source/710TL0SP3lpp/installp/ppc/invscout.rte.2.2.0.17.I
/export/lpp_source/710TL0SP3lpp/installp/ppc/rsct.opt.stackdump.3.1.0.2.U
/export/lpp_source/710TL0SP3lpp/installp/ppc/rsct.basic.rte.3.1.0.4.U
/export/lpp_source/710TL0SP3lpp/installp/ppc/rsct.core.rmc.3.1.0.4.U
```

Once done

```
root@sidnim-</>lsnim -t lpp_source
710TL0SP1lpp     resources       lpp_source
610TL6SP2lpp     resources       lpp_source
710TL0SP3lpp     resources       lpp_source
```

Now I will create the spot from the new lpp-source. I will check back after 30 minutes.

```
root@sidnim-</>nim -o define -t spot -a server=master -a source=710TL0SP3lpp \
> -a location=/export/spot 710TL0SP3spot

 Creating SPOT in "/export/spot" on machine "master" from "710TL0SP3lpp" ...

 Restoring files from BOS image.  This may take several minutes ...
```