

# AIX Server and Informix DB Disaster Recovery

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## Insight (ifx01) DRP procedure

Sunguard System Environment:

- Configuration ID: p690 Hotsite 2; LPAR11
- Hostname : ifx01
- OS level: 5300-08-01-0819
- CPU : 2
- Memory : 8G
- Internal Disk: 144G (4 x 36G)
- External Disk: 300G (6 x 50G)
- Network: 1 x 1000G
- DDS5 DAT72 Tape Drive: 1

Use HMC to connect to LPAR11 as a console.

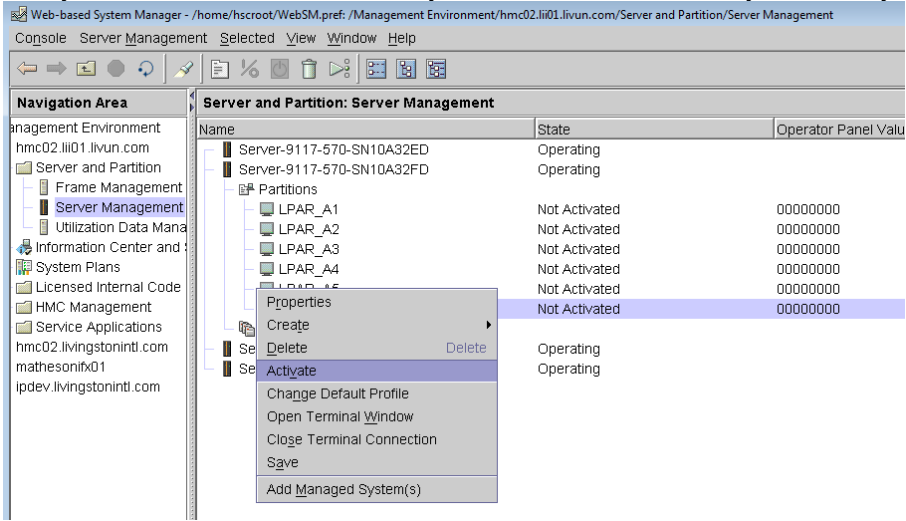
Insight backup tapes:

- IFX01 system – April 29th + April 21st
- IFX01 App – May 2nd + May 3rd
- IFX01 DB – May 2nd + May 3rd

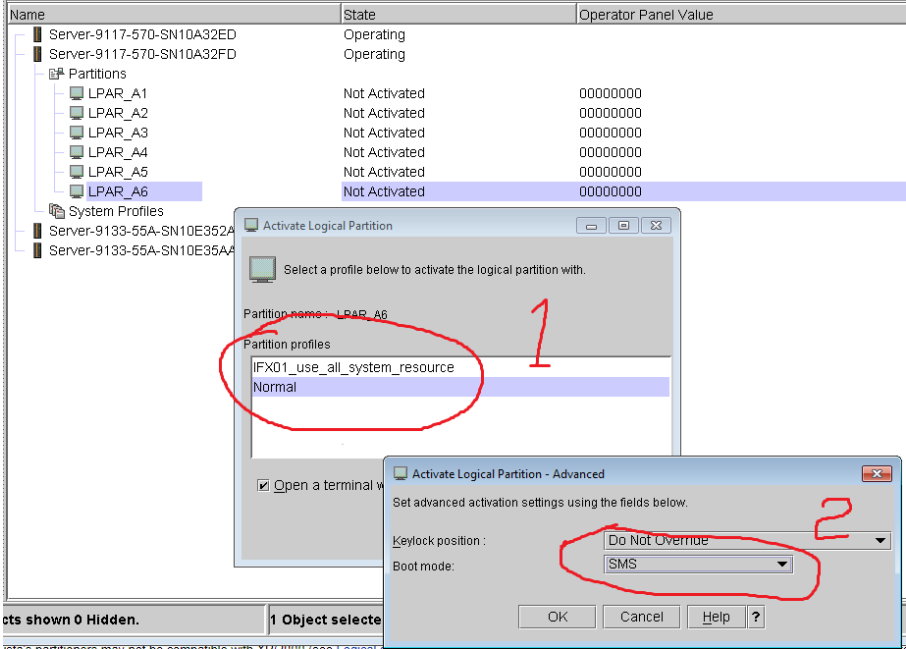
### **Step 1: Restore the basic OS (rootvg) via OS backup tape**

1. Display and/or change the primary boot device.  
To display the primary boot device:  
**# bootlist -m normal -o**  
  
To change the primary boot device to tape drive:  
**# bootlist -m normal rmt0**
2. Power off system by:  
**# sync; sync; sync; shutdown -F**
3. Turning on the external devices first is necessary so that the system unit can identify them during the startup (boot) process. These include:
  - Terminals
  - Tape drives
  - Monitors
  - External disk drives
4. Power on the system. When booting, a screen will appear (before the one in Figure 1-1) asking you to press a function key (such as F1) to select the proper display as the system console. Each display on

the system will receive a function key number in order to identify it as the system console



Active LPAR\_A6, in Advanced... option, select Boot mode: SMS



```
VTerm - Partition: "LPAR_A6"  Node: 6*9117-570*10A32FD

PowerPC Firmware
Version SF240_382
SMS 1.6 (c) Copyright IBM Corp. 2000,2005 All rights reserved.
-----
Main Menu
1.  Select Language
2.  Setup Remote IPL (Initial Program Load)
3.  Change SCSI Settings
4.  Select Console
5.  Select Boot Options

-----
Navigation Keys:
                                     X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key: _
MA+  a                                     pl 25/065
```

For SMS, we have 5 options for NVROM parameters setting, and or operation

1. Select Language, you should always choose English, or just leave it alone
2. Setup Remote IPL, it's important to choose an ethernet interface and set ip/routor to access NIM server
3. change scsi settings if you have lots of scsi cards connetions which may have scsi ID conflickion
4. Select Console, always cureent one you work on
5. Select Boot Options

choose: 5 Select Boot options

```
VTerm - Partition: "LPAR_A6"  Node: 6*9117-570*10A32FD

PowerPC Firmware
Version SF240_382
SMS 1.6 (c) Copyright IBM Corp. 2000,2005 All rights reserved.
-----
Multiboot
1.  Select Install/Boot Device
2.  Configure Boot Device Order
3.  Multiboot Startup <OFF>

-----
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: _
MA+  a                                     pl 25/065
```

choose: 1 Select Install/Boot Device

```
VTerm - Partition: "LPAR_A6" Node: 6*9117-570*10A32FD

PowerPC Firmware
Version SP240_382
SMS 1.6 (c) Copyright IBM Corp. 2000,2005 All rights reserved.
-----
Select Device Type
1. Diskette
2. Tape
3. CD/DVD
4. IDE
5. Hard Drive
6. Network
7. List all Devices

-----
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:
MA*  a                                     p1 25/065
```

choose: 2 Tape

```
VTerm - Partition: "LPAR_A6" Node: 6*9117-570*10A32FD

PowerPC Firmware
Version SP240_382
SMS 1.6 (c) Copyright IBM Corp. 2000,2005 All rights reserved.
-----
Select Media Type
1. SCSI
2. SSA
3. SAN
4. IDE
5. ISA
6. List All Devices

-----
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:
MA*  a                                     p1 25/065
```

choose: 6 List All devices

```
VTerm - Partition: "LPAR_A6" Node: 6*9117-570*10A32FD

PowerPC Firmware
Version SP240_382
SMS 1.6 (c) Copyright IBM Corp. 2000,2005 All rights reserved.

-----
Select Device
Device  Current  Device
Number  Position  Name
-----
1.      -      Ethernet
          ( loc=U7879.001.DQDLTRF-P1-T6 )
2.      -      Ethernet
          ( loc=U7879.001.DQDLTRF-P1-T7 )
3.      -      IDE CD-ROM
          ( loc=U7879.001.DQDLTRF-P4-D1 )
4.      -      SCSI Tape
          ( loc=U7879.001.DQDLTRF-P1-C3-T1-L1-L0 )
5.      2      SCSI 146814 MB Harddisk, part=2 (AIX 6.1.0)
          ( loc=U7879.001.DQDLYMX-P1-T14-L4-L0 )
6.      1      SCSI 146814 MB Harddisk, part=2 (AIX 6.1.0)
          ( loc=U7879.001.DQDLYMX-P1-T14-L5-L0 )
-----

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: _
MA*  a                                     p1 25/065
```

choose: 4 SCSI Tape

```
VTerm - Partition: "LPAR_A6" Node: 6*9117-570*10A32FD

Version SP240_382
SMS 1.6 (c) Copyright IBM Corp. 2000,2005 All rights reserved.

-----
Select Task

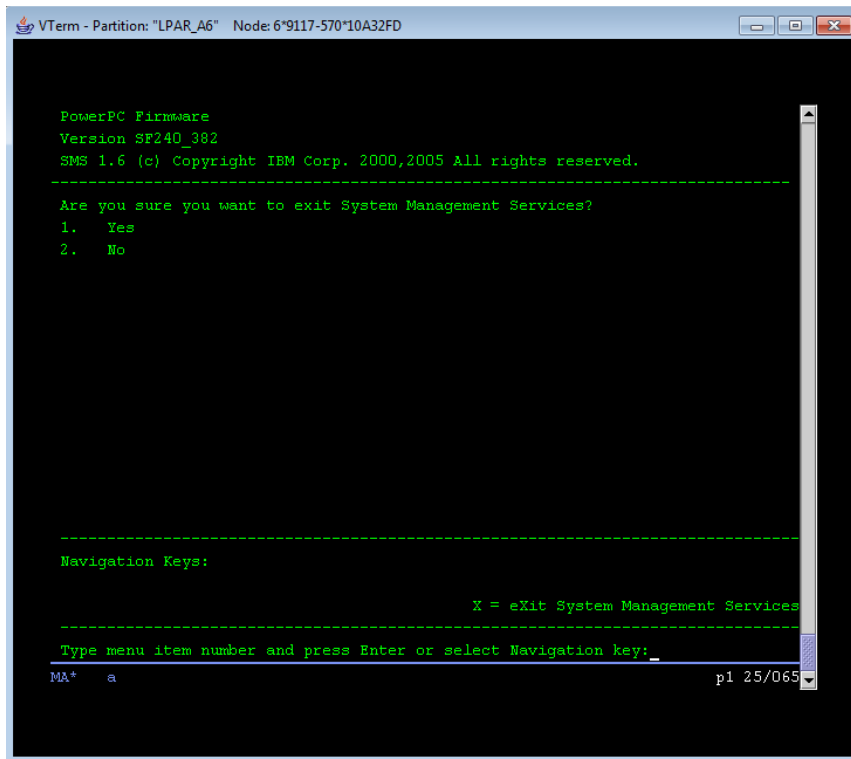
SCSI Tape
( loc=U7879.001.DQDLTRF-P1-C3-T1-L1-L0 )

1.  Information
2.  Normal Mode Boot
3.  Service Mode Boot

-----

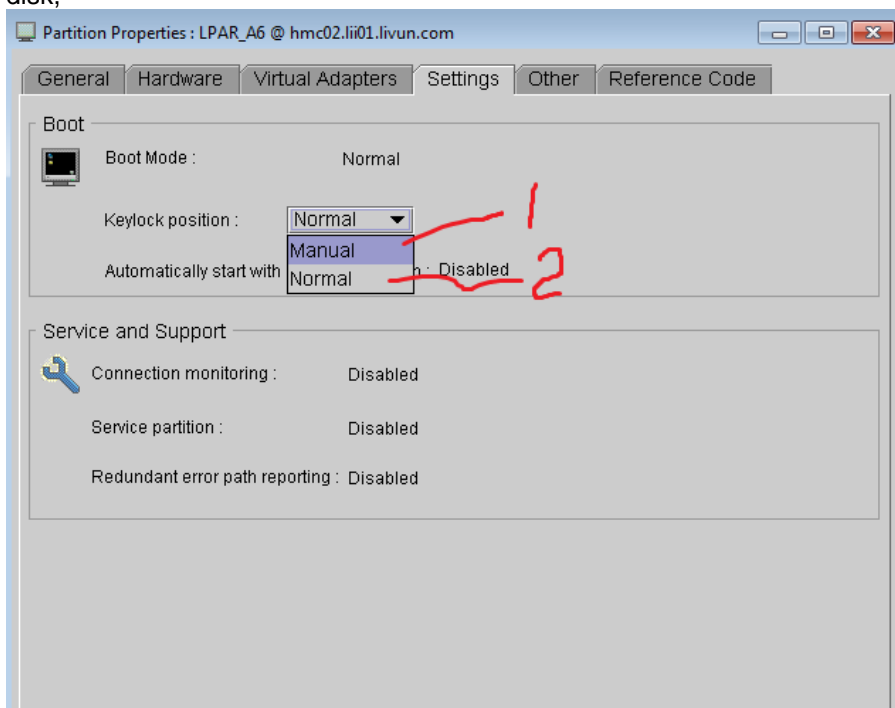
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen      X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key: _
MA*  a                                     p1 25/065
```

choos: 3 Sercei Mode Boot



choose: 1 yes

**TIPS:** If you need diagnose system hardware status right after you load the OS kernel from local hard disk,



if choose 1, then

```

Welcome to AIX.
boot image timestamp: 19:46:40 01/20/2014
The current time and date: 13:44:47 03/29/2014
processor count: 9; memory size: 4096MB; kernel size: 27880376
boot device: /pci@80000002000000d/pci@2/pci1069,b166@1/scsi@0/sd@5:2
-----
DIAGNOSTIC OPERATING INSTRUCTIONS

LICENSED MATERIAL and LICENSED INTERNAL CODE - PROPERTY OF IBM.
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ALL RIGHTS RESERVED.

These programs allow you to enter diagnostics, service aids, single
user mode, or low-level maintenance mode. The diagnostics should be
used whenever problems with the system occur which have not been
corrected by any software application procedures available.

In general, the diagnostics will run automatically. However, sometimes
then,
FUNCTION SELECTION

1. Diagnostic Routines
   This selection will test the machine hardware. Wrap plugs and
   other advanced functions will not be used.
2. Advanced Diagnostic Routines
   This selection will test the machine hardware. Wrap plugs and
   other advanced functions will be used.
3. Task Selection(Diagnostics, Advanced Diagnostics, Service Aids, etc.)
   This selection will list the tasks supported by these procedures.
   Once a task is selected, a resource menu may be presented showing
   all resources supported by the task.
4. Resource Selection
   This selection will list the resources in the system that are supported
   by the diagnostic programs. Once a resource is selected, a task menu will
   be presented showing all tasks that can be run on the resource(s).
5. Single User Mode
   The system will enter single-user mode for software maintenance.
```

You choose 5, then init 2 to start the system OS to multiple user run level.

---

**TIPS: If Select boot/install from Network/DVD/Tape, which means load OS kernel Not from Hard Disk, you will face a situation that you may install a new OS,migrate OS, recover OS on to a selected Hard Disk,**

choose 3..Service Mode Boot, if you just want to load OS kernel in Service Mode, which configure Kernal by current system hardware, and enter a diagnose, maintenance for system recovery, totally new installation, and/or migration status

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA
Version SP240_382
SMS 1.6 (c) Copyright IBM Corp. 2000,2005 All rights reserved.
-----
Select Task

Ethernet
( loc=U787B.001.D1W7D18-F1-C4-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:3_
MA+ a p1 25/066
```

Then, choose 3,

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA
PowerPC Firmware
Version SP240_382
SMS 1.6 (c) Copyright IBM Corp. 2000,2005 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:1_
MA+ a p1 25/066
```

then, choose 1,



[illegible]

Loading the AIX Kernal...

```

VTerm - Partition: "10-E35AA"  Node: 1*9133-55A*10E35AA
BOOTP R = 1 BOOTP S = 2
FILE: /tftpboot/admsrv2
FINAL Packet Count = 33728
FINAL File Size = 17268224 bytes.
load-base=0x4000
real-base=0x2000000

Elapsed time since release of system processors: 31622 mins 10 secs

-----
Welcome to AIX.

boot image timestamp: 15:02 03/12
The current time and date: 15:21:24 03/29/2014
processor count: 2; memory size: 16000MB; kernel size: 27209514
boot device: /pci@8000000020000003/pci@2,2/ethernet@1:192.168.108.60,,192.168.104.212,192.168.104.254,00,00
-----

MA* a p1 25/001

```

Following operation are controlled by OS kernel...

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA
.212,192.168.104.254,00,00

-----

***** 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 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.
```

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

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

88 Help ?

>>> Choice [1]: _
MA+ a p1 25/017
```

choose 1, have English during install

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

Welcome to Base Operating System
Installation and Maintenance

Type the number of your choice and press Enter. Choice is indicated by >>>.

>>> 1 Start Install Now with Default Settings

    2 Change/Show Installation Settings and Install

    3 Start Maintenance Mode for System Recovery

    4 Configure Network Disks (iSCSI)

    5 Select Storage Adapters

88 Help ?
99 Previous Menu

>>> Choice [1]: _
MA+ a p1 25/017
```

1. Start install Now with Dedault settings
2. Change/Show Installation Settings and install
3. Start maintenance Mode for System Recovery
4. Chfigure Network Disk (iscsi)
5. Select Storage Adapters

choose 3.. start maintenance Mode for System Recovery

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

Maintenance

Type the number of your choice and press Enter.

>>> 1 Access a Root Volume Group

    2 Copy a System Dump to Removable Media

    3 Access Advanced Maintenance Functions

    4 Erase Disks

    5 Configure Network Disks (iSCSI)

    6 Select Storage Adapters

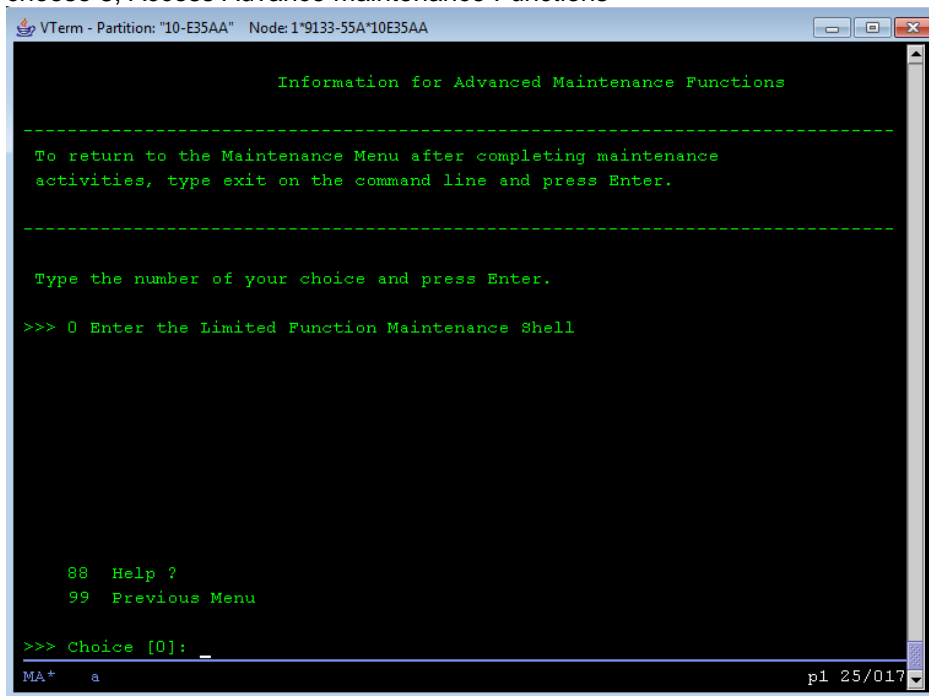
88 Help ?
99 Previous Menu

>>> Choice [1]: _
MA+ a p1 25/017
```

1. Access a Root Volume Group
2. Copy a system Dump to Removable Media
3. Access Advance Maintenace Functions
4. Erase Disks

5. Configure Network Disks (iscsi)
6. Select Storage Adapters

choose 3, Access Advance maintenance Functions



```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

Information for Advanced Maintenance Functions

-----

To return to the Maintenance Menu after completing maintenance
activities, type exit on the command line and press Enter.

-----

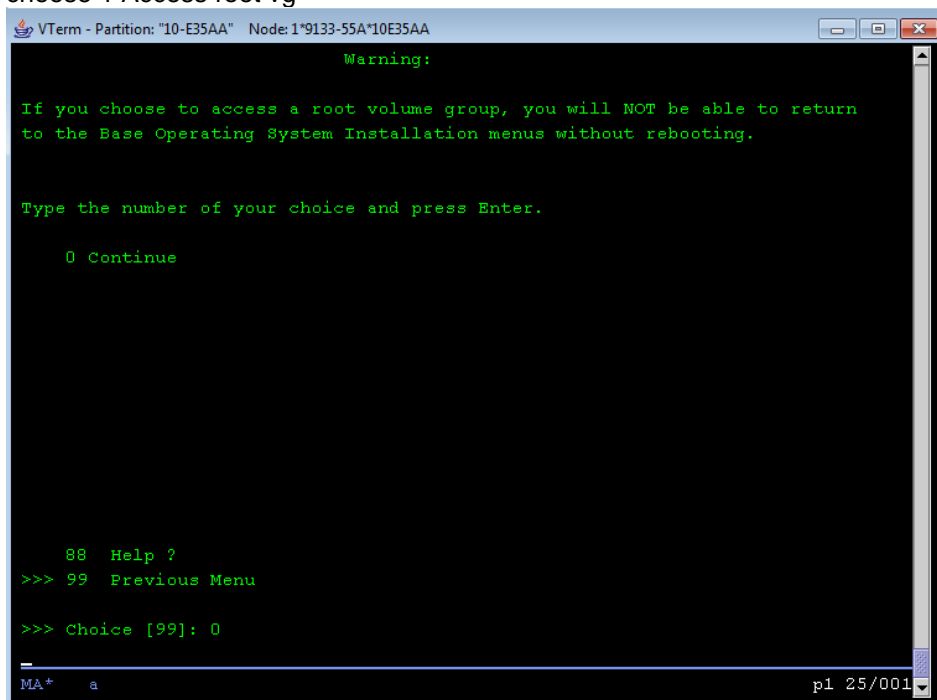
Type the number of your choice and press Enter.

>>> 0 Enter the Limited Function Maintenance Shell

88 Help ?
99 Previous Menu

>>> Choice [0]: _
MA* a p1 25/017
```

choose 1 Access root vg



```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

Warning:

If you choose to access a root volume group, you will NOT be able to return
to the Base Operating System Installation menus without rebooting.

Type the number of your choice and press Enter.

0 Continue

88 Help ?
>>> 99 Previous Menu

>>> Choice [99]: 0
MA* a p1 25/001
```

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

Access a Root Volume Group

Type the number for a volume group to display the logical volume information
and press Enter.

13) <--- previous page
14) Volume Group 00ce35aa00004c000000001082a819886 contains these disks:
    hdisk21 72155 00-08-02 200400a0b8198877//0015000000000000 000b0700
    hdisk20 2048 00-08-02 200400a0b8198877//0014000000000000 000b0700
    hdisk19 102400 00-08-02 200400a0b8198877//0013000000000000 000b0700
    hdisk18 102400 00-08-02 200400a0b8198877//0012000000000000 000b0700
15) Volume Group 00ce35aa00004c00000000144b6ef9e24 contains these disks:
    hdisk1 204800 00-08-02 200400a0b8198877//0001000000000000 000b0700
16) Volume Group 00ce35aa00004c00000000144db0f82c8 contains these disks:
    hdisk41 140013 03-08-00-8,0

Choice: 15_

MA+ a p1 25/014
```

choose 15, Volume Group hdisk1

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

Volume Group Information

-----
Volume Group ID 00ce35aa00004c00000000144b6ef9e24 includes the following
logical volumes:

    hd5      hd6      hd8      hd4      hd2      hd9var
    hd3      hd1      hd10opt  hd11admin lg_dumplv livedump

-----

Type the number of your choice and press Enter.

1) Access this Volume Group and start a shell
2) Access this Volume Group and start a shell before mounting filesystems

99) Previous Menu

Choice [99]: _

MA+ a p1 25/018
```

choose 1 Access this volume Group and start a shell, then you can fsck each filesystems on rootvg, and even change root password on /etc/passwd. or using #passwd directly.

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

Volume Group Information

-----
Volume Group ID 00ce35aa00004c00000000144b6ef9e24 includes the following
logical volumes:

      hd5      hd6      hd8      hd4      hd2      hd9var
      hd3      hd1      hd10opt  hd11admin  lg_dumplv  livedump

-----

Type the number of your choice and press Enter.

  1) Access this Volume Group and start a shell
  2) Access this Volume Group and start a shell before mounting filesystems

99) Previous Menu

Choice [99]: 1_

MA* a p1 25/019
```

```
VTerm - Partition: "10-E35AA" Node: 1*9133-55A*10E35AA

  1) Access this Volume Group and start a shell
  2) Access this Volume Group and start a shell before mounting filesystems

99) Previous Menu

Choice [99]: 1
Importing Volume Group...
rootvg
Checking the / filesystem.

The current volume is: /dev/hd4
Primary superblock is valid.
Checking the /usr filesystem.

The current volume is: /dev/hd2
Primary superblock is valid.
mount: /dev/hd4 on /: Device busy
The mount of /dev/hd4 did not succeed.
Exiting to shell.
#_
MA* a p1 25/003
```

```
VTerm - Partition: "10-E35AA" Node 1*9133-55A*10E35AA

/proc      0.50    0.35   31%    9972    11% /proc
/dev/hd4    0.50    0.35   31%    9972    11% /
/dev/hd2    2.00    0.07   97%   42849    67% /usr
/dev/hd3    0.25    0.23   10%    1151     3% /tmp
/dev/hd9var 0.50    0.14   73%    7387    19% /var
/dev/hd10opt 0.50    0.23   55%    8853    15% /opt

# lsvg -l rootvg
rootvg:
LV NAME      TYPE      LPs      PPs      PVs      LV STATE    MOUNT POINT
hd5          boot      1         1         1      closed/syncd  N/A
hd6          paging    2         2         1      open/syncd    N/A
hd8          jfs2log   1         1         1      open/syncd    N/A
hd4          jfs2      2         2         1      open/syncd    /
hd2          jfs2      8         8         1      open/syncd    /usr
hd9var       jfs2      2         2         1      open/syncd    /var
hd3          jfs2      1         1         1      open/syncd    /tmp
hd1          jfs2      1         1         1      closed/syncd  /home
hd10opt      jfs2      2         2         1      open/syncd    /opt
hd11admin    jfs2      1         1         1      closed/syncd  /admin
lg_dump1v    sysdump   8         8         1      closed/syncd  N/A
livedump     jfs2      1         1         1      closed/syncd  /var/adm/tas/1
ivedump
loglv00      jfs2log   1         1         1      closed/syncd  N/A
lv00         jfs2      1         1         1      closed/syncd  /var/adm/csd

# _
MA* a p1 25/003
```

if choose 2 Importing Volume Group... rootvg, checking the / filesystem.

```
VTerm - Partition: "10-E35AA" Node 1*9133-55A*10E35AA

99) Previous Menu

Choice [99]: 2
Importing Volume Group...
rootvg
Checking the / filesystem.

The current volume is: /dev/hd4
Primary superblock is valid.
Could not load program /sbin/helpers/jfs2/logredo64:
Cannot run a 64-bit program until the 64-bit
environment has been configured. See the system administrator.
J2_LOGREDO:log redo processing for /dev/hd4
Primary superblock is valid.
Checking the /usr filesystem.

The current volume is: /dev/hd2
Primary superblock is valid.
Exit from this shell to continue the process of accessing the root
volume group.
# _
MA* a p1 25/003
```

```
VTerm - Partition: "10-E35AA" Node:1*9133-55A*10E35AA
# ls
.sh_history  bin          home         mnt          sbin         var
SPOT        dev          lib          opt          tmp
admin       etc          lpp          proc         usr
# cd /home
# ls -l
total 0
# ls -l
total 0
# cd /
# df -g
Filesystem      GB blocks      Free %Used      Iused %Iused Mounted on
/dev/ram0        0.12          0.10  19%          591      1% /
ifx01:/export/spot/spot1/usr      6.25          4.28  32%      53627      6% /SPOT/usr
ifx01:/export/lpp_source/lpp_source1 6.75          0.91  87%      2909      2% /
SPOT/usr/sys/inst.images
/proc            -             -      -           -        - /proc
# exit
mount: /dev/hd4 on /: Device busy
The mount of /dev/hd4 did not succeed.
Exiting to shell.
# exit

INIT: EXITING /sbin/rc.boot 2

MA+ a p1 25/001
```

5. Insert mksysb OS backup tape media into the Tape Drive. The system begins booting from the installation media. After several minutes, c31 is displayed in the LED (if your system has an LED; A screen similar to the one in Figure 1-1 is displayed).

```

Welcome to Base Operating System
Installation and Maintenance

Type the number of your choice and press Enter. Choice is indicated by >>>.

>>> 1 Start Install Now with Default Settings

      2 Change/Show Installation Settings and Install

      3 Start Maintenance Mode for System Recovery

88 Help ?
99 Previous Menu

>>> Choice [1]:
```

Figure 1-1

6. Select option 3, Start Maintenance Mode for System Recovery, and press Enter. A screen similar to the one in Figure 1-2 is shown.



```
Maintenance

Type the number of your choice and press Enter.

>>> 1 Access a Root Volume Group
      2 Copy a System Dump to Removable Media
      3 Access Advanced Maintenance Functions
      4 Erase Disks
      5 Install from a System Backup

88 Help ?
99 Previous Menu

>>> Choice [1]:
```

Figure 1-2

If you want to change root passwd here using " 1 Access a Root Volume Group"

7. Enter 5, Install from a system backup

Next System Backup Installation and Settings screen specifies disks where you want to install the backup image. The Change Disk(s) Where You Want to install screen displays. This screen lists all available disks on which you can install the system backup image. Three greater-than signs (>>>) mark each selected disk. Type the number and press Enter for each disk you choose. Type the number of a selected disk to deselect it. You can select more than one disk.

We can select all 4 internal disks (hdisk0 hdisk1 hdisk2 hdisk3) to create rootvg.

8. After you have finished selecting disks, press the Enter key.
9. Type 0 to accept the settings in the System Backup Installation and Settings screen. The Installing Base Operating System screen displays the rate of completion and duration.

After OS restored from backup tape, the OS should be boot in normal mode.

## Step 2: Setup System file systems environment for Application restoration

1. Preparation in /etc/filesystems:

```
# cp /etc/filesystems /etc/filesystems.backup.20120503
```

Remove stanza entries of following filesystems in /etc/filesystems:

```
/ix_root
/ix_plog
/ix_llog
/ix_dat1
/ix_dat2
/ix_dat3
/ix_idx1
/ix_idx2
/ix_idx3
```

```
/ix_temp  
  
/usr/apps  
/netins  
/dmqjtmp  
/recyclebox
```

```
/ach_root  
/ach_plog  
/ach_llog  
/ach_dat1  
/ach_dat2  
/ach_idx1  
/ach_idx2  
/ach_temp
```

## **# vi /etc/filesystems**

2. Use 6 external disks (300G) to create application and database storage space:

```
# Create Volume Group dbvg  
/usr/sbin/mkvg -s 256 -f -y dbvg hdisk4 hdisk5 hdisk6 hdisk7 hdisk8 hdisk9
```

```
# Create Logic Volumes  
/usr/sbin/mklv -t jfs2log -y loglv00 dbvg 1  
/usr/sbin/mklv -t jfs2 -y ixrootlv dbvg 1  
/usr/sbin/mklv -t jfs2 -y ixploglv dbvg 1  
/usr/sbin/mklv -t jfs2 -y ixlloglv dbvg 4  
/usr/sbin/mklv -t jfs2 -y ixdat1lv dbvg 88  
/usr/sbin/mklv -t jfs2 -y ixdat2lv dbvg 100  
/usr/sbin/mklv -t jfs2 -y ixdat3lv dbvg 76  
/usr/sbin/mklv -t jfs2 -y ixidx1lv dbvg 28  
/usr/sbin/mklv -t jfs2 -y ixidx2lv dbvg 20  
/usr/sbin/mklv -t jfs2 -y ixidx3lv dbvg 16  
/usr/sbin/mklv -t jfs2 -y ixtemplv dbvg 16
```

```
/usr/sbin/mklv -t jfs2 -y appslv dbvg 40  
/usr/sbin/mklv -t jfs2 -y netinslv dbvg 10  
/usr/sbin/mklv -t jfs2 -y dmqjtmpv dbvg 50  
/usr/sbin/mklv -t jfs2 -y recyclelv dbvg 40
```

```
/usr/sbin/mklv -t jfs2 -y achrootlv dbvg 1  
/usr/sbin/mklv -t jfs2 -y achploglv dbvg 1  
/usr/sbin/mklv -t jfs2 -y achlloglv dbvg 4  
/usr/sbin/mklv -t jfs2 -y achdat1lv dbvg 152  
/usr/sbin/mklv -t jfs2 -y achdat2lv dbvg 164  
/usr/sbin/mklv -t jfs2 -y achidx1lv dbvg 12  
/usr/sbin/mklv -t jfs2 -y achidx2lv dbvg 12  
/usr/sbin/mklv -t jfs2 -y achtemplv dbvg 8
```

```
# Create FileSystems  
/usr/sbin/crfs -v jfs2 -d ixrootlv -m /ix_root -A yes -p rw -a logname=loglv00  
/usr/sbin/crfs -v jfs2 -d ixploglv -m /ix_plog -A yes -p rw -a logname=loglv00  
/usr/sbin/crfs -v jfs2 -d ixlloglv -m /ix_llog -A yes -p rw -a logname=loglv00  
/usr/sbin/crfs -v jfs2 -d ixdat1lv -m /ix_dat1 -A yes -p rw -a logname=loglv00  
/usr/sbin/crfs -v jfs2 -d ixdat2lv -m /ix_dat2 -A yes -p rw -a logname=loglv00
```

```

/usr/sbin/crfs -v jfs2 -d ixdat3lv -m /ix_dat3 -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d ixidx1lv -m /ix_idx1 -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d ixidx2lv -m /ix_idx2 -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d ixidx3lv -m /ix_idx3 -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d ixtemplv -m /ix_temp -A yes -p rw -a logname=loglv00

/usr/sbin/crfs -v jfs2 -d appslv -m /usr/apps -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d netinslv -m /netins -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d dmqtmplv -m /dmqjtmp -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d recyclelv -m /recyclebox -A yes -p rw -a logname=loglv00

/usr/sbin/crfs -v jfs2 -d achrootlv -m /ach_root -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d achploglv -m /ach_plog -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d achlloglv -m /ach_llog -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d achdat1lv -m /ach_dat1 -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d achdat2lv -m /ach_dat2 -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d achidx1lv -m /ach_idx1 -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d achidx2lv -m /ach_idx2 -A yes -p rw -a logname=loglv00
/usr/sbin/crfs -v jfs2 -d achtemplv -m /ach_temp -A yes -p rw -a logname=loglv00

# Mount all these filesystems
/usr/sbin/mount all

```

### Step 3: Restore Application

To restore the backups from a single-volume, multiple-backup tape, for example:

```

# restore -xvqs 5 -f /dev/rmt0.1
# restore -xvqs 4 -f /dev/rmt0.1

```

The first command extracts all files from the fifth archive on the multiple-backup tape specified by /dev/rmt0.1. The .1 designator specifies the tape device will not be retensioned when it is opened and that it will not be rewound when it is closed. It is necessary to use a no-rewind-on-close, no-retension-on-open tape device because of the behavior of the -s flag. The second command extracts all the files from the fourth archive (relative to the current location of the tape head on the tape). After the fifth archive has been restored, the tape read/write head is in a position to read the archive. Since you want to extract the ninth archive on the tape, you must specify a value of 4 with the -s flag. This is because the -s flag is relative to your position on the tape and not to an archives position on the tape. The ninth archive is the fourth archive from your current position on the tape.

The Application file systems backup sequence:

filesystem: /	File Archive number: 1
filesystem: /home	File Archive number: 2
filesystem: /usr	File Archive number: 3
filesystem: /var	File Archive number: 4
filesystem: /tmp	File Archive number: 5
filesystem: /opt	File Archive number: 6
filesystem: /ibm	File Archive number: 7
filesystem: /netins	File Archive number: 8
filesystem: /dmqjtmp	File Archive number: 9
filesystem: /recyclebox	File Archive number: 10
filesystem: /usr/apps	File Archive number: 11
filesystem: /insight	File Archive number: 12
filesystem: /var/adm/ras/livedump	File Archive number: 13
filesystem: /admin	File Archive number: 14

We need to restore file systems: **/ibm**; **/netins**; **/dmqjtmp**; **/recyclebox**; **/usr/apps**; The other file systems are restored by OS restore process (They are in rootvg).

1. Insert APP backup tape media into the Tape Drive.

```
# tctl -f /dev/rmt0 rewind
```

2. To restore /ibm file system, Change to a directory that will be used to restore the files

```
# cd /ibm
```

```
# restore -xvqs 7 -f /dev/rmt0.1
```

You have not read any media yet.

Unless you know which volume your file or files are on, you should start with the last volume and work towards the first volume.

Specify the next volume number: **1**

[ Type the volume number and press Return. If you have only one volume, type **1** and press Return ]

Do you want to set the owner or the mode for the current directory? [ yes or no ] **no**

[ To keep the mode of the current directory unchanged, enter **no** at the set owner/mode prompt ]

3. Then, to restore /netins file system:

```
# cd /netins
```

```
# restore -xvqs 1 -f /dev/rmt0.1
```

You have not read any media yet.

Unless you know which volume your file or files are on, you should start with the last volume and work towards the first volume.

Specify the next volume number: **1**

Do you want to set the owner or the mode for the current directory? [ yes or no ] **no**

4. Then, to restore /dmqjtmp file system:

```
# cd /dmqjtmp
```

```
# restore -xvqs 1 -f /dev/rmt0.1
```

You have not read any media yet.

Unless you know which volume your file or files are on, you should start with the last volume and work towards the first volume.

Specify the next volume number: **1**

Do you want to set the owner or the mode for the current directory? [ yes or no ] **yes**

5. Then, to restore /recyclebox file system:

```
# cd /recyclebox
```

```
# restore -xvqs 1 -f /dev/rmt0.1
```

You have not read any media yet.

Unless you know which volume your file or files are on, you should start with the last volume and work towards the first volume.

Specify the next volume number: **1**

Do you want to set the owner or the mode for the current directory? [ yes or no ] **yes**

6. Then, to restore /usr/apps file system:
- ```
# cd /usr/apps
# restore -xvqs 1 -f /dev/rmt0.1
```

You have not read any media yet.

Unless you know which volume your file or files are on, you should start with the last volume and work towards the first volume.

Specify the next volume number: 1

Do you want to set the owner or the mode for the current directory? [ yes or no ] **yes**

7. Eject the tape from tape drive:
- ```
# tctl -f /dev/rmt0.1 offline
```

#### Step 4: Setup Informix database Restore Environment

# Create Database Storage files (chunks) for informix dbspace

```
cd /ix_dat1
/usr/bin/touch ix_dat1.1
/usr/bin/touch ix_dat1.10
/usr/bin/touch ix_dat1.11
/usr/bin/touch ix_dat1.12
/usr/bin/touch ix_dat1.13
/usr/bin/touch ix_dat1.14
/usr/bin/touch ix_dat1.15
/usr/bin/touch ix_dat1.16
/usr/bin/touch ix_dat1.17
/usr/bin/touch ix_dat1.18
/usr/bin/touch ix_dat1.19
/usr/bin/touch ix_dat1.2
/usr/bin/touch ix_dat1.20
/usr/bin/touch ix_dat1.21
/usr/bin/touch ix_dat1.22
/usr/bin/touch ix_dat1.3
/usr/bin/touch ix_dat1.4
/usr/bin/touch ix_dat1.5
/usr/bin/touch ix_dat1.6
/usr/bin/touch ix_dat1.7
/usr/bin/touch ix_dat1.8
/usr/bin/touch ix_dat1.9
```

```
cd /ix_dat2
/usr/bin/touch ix_dat2.1
/usr/bin/touch ix_dat2.10
/usr/bin/touch ix_dat2.11
/usr/bin/touch ix_dat2.12
/usr/bin/touch ix_dat2.13
/usr/bin/touch ix_dat2.14
/usr/bin/touch ix_dat2.15
/usr/bin/touch ix_dat2.16
/usr/bin/touch ix_dat2.17
/usr/bin/touch ix_dat2.18
/usr/bin/touch ix_dat2.19
/usr/bin/touch ix_dat2.2
/usr/bin/touch ix_dat2.20
/usr/bin/touch ix_dat2.21
/usr/bin/touch ix_dat2.22
/usr/bin/touch ix_dat2.23
/usr/bin/touch ix_dat2.24
/usr/bin/touch ix_dat2.25
/usr/bin/touch ix_dat2.3
/usr/bin/touch ix_dat2.4
/usr/bin/touch ix_dat2.5
/usr/bin/touch ix_dat2.6
/usr/bin/touch ix_dat2.7
/usr/bin/touch ix_dat2.8
/usr/bin/touch ix_dat2.9
```

```

cd /ix_dat3
/usr/bin/touch ix_dat3.1
/usr/bin/touch ix_dat3.10
/usr/bin/touch ix_dat3.11
/usr/bin/touch ix_dat3.12
/usr/bin/touch ix_dat3.13
/usr/bin/touch ix_dat3.14
/usr/bin/touch ix_dat3.15
/usr/bin/touch ix_dat3.16
/usr/bin/touch ix_dat3.17
/usr/bin/touch ix_dat3.18
/usr/bin/touch ix_dat3.19
/usr/bin/touch ix_dat3.2
/usr/bin/touch ix_dat3.3
/usr/bin/touch ix_dat3.4
/usr/bin/touch ix_dat3.5
/usr/bin/touch ix_dat3.6
/usr/bin/touch ix_dat3.7
/usr/bin/touch ix_dat3.8
/usr/bin/touch ix_dat3.9

cd /ix_idx1
/usr/bin/touch ix_idx1.1
/usr/bin/touch ix_idx1.2
/usr/bin/touch ix_idx1.3
/usr/bin/touch ix_idx1.4
/usr/bin/touch ix_idx1.5
/usr/bin/touch ix_idx1.6
/usr/bin/touch ix_idx1.7

cd /ix_idx2
total 0
/usr/bin/touch ix_idx2.1
/usr/bin/touch ix_idx2.2
/usr/bin/touch ix_idx2.3
/usr/bin/touch ix_idx2.4
/usr/bin/touch ix_idx2.5

cd /ix_idx3
/usr/bin/touch ix_idx3.1
/usr/bin/touch ix_idx3.2
/usr/bin/touch ix_idx3.3
/usr/bin/touch ix_idx3.4

cd /ix_llog
/usr/bin/touch ix_llog.1

cd /ix_plog
/usr/bin/touch ix_plog.1

cd /ix_root:
/usr/bin/touch ix_root.1

cd /ix_temp
/usr/bin/touch ix_temp.1
/usr/bin/touch ix_temp.2
/usr/bin/touch ix_temp.3
/usr/bin/touch ix_temp.4

cd /
/usr/bin/chown -R informix:informix ix*
/usr/bin/chmod -R 660 ix*
/usr/bin/chmod 777 ix*

```

Reboot the system

**# sync; sync; sync; shutdown -Fr**

## Step 5: Restore Informix database

1. Setup Informix running environment:

Login as root

```
# hostname ifx01
# ifconfig en0 192.168.108.60
```

login as USER Informix

```
$ . ./ids115.env ipdb
```

2. Restore Informix Database:

Insert Informix 'ontape -s' backup tape media into the Tape Drive

```
$ ontape -r
```

Please mount tape 1 on /dev/rmt0 and press Return to continue:...

[enter]

Continue to restore? (y/n) y

Do you want to back up the logs? (y/n) n

Warning : If you intent to use J/Foundation or GLS for Unicode feature(GLU) with this server instance, please make sure that your SHMBASE value specifies in onconfig is 0x40000000L or above. Otherwise you will have problems while attaching or dynamically adding virtul shared memory segments. Please refer to Server machine notes for more information.

Restore a level 1 archive (y/n) n

Do you want to restore log tapes? (y/n) n

```
/usr/apps/inf/ver115UC3/bin/onmode -sy
```

Program over

3. Bring the database server online when the restore is over

```
$ onmode -m
```

## Step 6: Bring Database and application online

Run Informix:

```
login as USER Informix
$ . ./ids115.env ipdb
$ oninit
```

Shutdown Informix:

```
$ onmode -ky
```

Run Tuxedo Application:

```
login as ipgown
$ cd /usr/apps/ipg/ver001/srv/locus
$ . ./setenv.locus
$ tmboot -y
```

Shutdown Tuxedo Application:

```
# tmshutdown -y
```

**For Archive database server ardb DRP consideration**

# Archive database storage architecture:

IBM Informix Dynamic Server Version 11.50.UC3W2 -- On-Line -- Up 02:24:07 -- 929856 Kbytes

## Dbspaces

address	number	flags	fchunk	nchunks	pgsize	flags	owner	name
50431810	1	0x1	1	1	4096	N	informix	rootdbs
5051dd50	2	0x1	2	1	4096	N	informix	llogdbs
5051deb0	3	0x1	3	2	4096	N	informix	tempdbs1
5138a018	4	0x1	4	1	4096	N	informix	plogdbs
5138a178	5	0x1	5	44	4096	N	informix	datadbs1
5138a2d8	6	0x1	27	48	4096	N	informix	datadbs2
5138a438	7	0x1	51	3	4096	N	informix	indxdb1
5138a598	8	0x1	54	3	4096	N	informix	indxdb2
8 active, 2047 maximum								

## Chunks

address	chunk/dbs	offset	size	free	bpages	flags	pathname
50431970	1	1	0	62500	54561	PO--	/ach_root/ach_root.1
5138a6f8	2	2	0	250000	124947	PO--	/ach_llog/ach_llog.1
5138a8c8	3	3	0	250000	249547	PO--	/ach_temp/ach_temp.1
5138aa98	4	4	0	62500	2447	PO--	/ach_plog/ach_plog.1
5138ac68	5	5	0	250000	0	PO--	/ach_dat1/ach_dat1.1
5138ae38	6	5	0	250000	3	PO--	/ach_dat1/ach_dat1.2
5138b018	7	5	0	250000	1	PO--	/ach_dat1/ach_dat1.3
5138b1e8	8	5	0	250000	1	PO--	/ach_dat1/ach_dat1.4
5138b3b8	9	5	0	250000	1	PO--	/ach_dat1/ach_dat1.5
5138b588	10	5	0	250000	0	PO--	/ach_dat1/ach_dat1.6
5138b758	11	5	0	250000	0	PO--	/ach_dat1/ach_dat1.7
5138b928	12	5	0	250000	0	PO--	/ach_dat1/ach_dat1.8
5138baf8	13	5	0	250000	0	PO--	/ach_dat1/ach_dat1.9
5138bcc8	14	5	0	250000	0	PO--	/ach_dat1/ach_dat1.10
5138c018	15	5	0	250000	0	PO--	/ach_dat1/ach_dat1.11
5138c1e8	16	5	0	250000	0	PO--	/ach_dat1/ach_dat1.12
5138c3b8	17	5	0	250000	1	PO--	/ach_dat1/ach_dat1.13
5138c588	18	5	0	250000	0	PO--	/ach_dat1/ach_dat1.14
5138c758	19	5	0	250000	3	PO--	/ach_dat1/ach_dat1.15
5138c928	20	5	0	250000	0	PO--	/ach_dat1/ach_dat1.16
5138caf8	21	5	0	250000	0	PO--	/ach_dat1/ach_dat1.17
5138ccc8	22	5	0	250000	0	PO--	/ach_dat1/ach_dat1.18
5138d018	23	5	0	250000	0	PO--	/ach_dat1/ach_dat1.19
5138d1e8	24	5	0	250000	1	PO--	/ach_dat1/ach_dat1.20
5138d3b8	25	5	0	250000	1	PO--	/ach_dat1/ach_dat1.21
5138d588	26	5	0	250000	0	PO--	/ach_dat1/ach_dat1.22
5138d758	27	6	0	250000	1	PO--	/ach_dat2/ach_dat2.1
5138d928	28	6	0	250000	0	PO--	/ach_dat2/ach_dat2.2
5138daf8	29	6	0	250000	0	PO--	/ach_dat2/ach_dat2.3
5138dcc8	30	6	0	250000	0	PO--	/ach_dat2/ach_dat2.4
5138e018	31	6	0	250000	0	PO--	/ach_dat2/ach_dat2.5
5138e1e8	32	6	0	250000	0	PO--	/ach_dat2/ach_dat2.6
5138e3b8	33	6	0	250000	0	PO--	/ach_dat2/ach_dat2.7
5138e588	34	6	0	250000	0	PO--	/ach_dat2/ach_dat2.8
5138e758	35	6	0	250000	0	PO--	/ach_dat2/ach_dat2.9
5138e928	36	6	0	250000	0	PO--	/ach_dat2/ach_dat2.10
5138eaf8	37	6	0	250000	3	PO--	/ach_dat2/ach_dat2.11
5138ecc8	38	6	0	250000	0	PO--	/ach_dat2/ach_dat2.12
5138f018	39	6	0	250000	0	PO--	/ach_dat2/ach_dat2.13
5138f1e8	40	6	0	250000	0	PO--	/ach_dat2/ach_dat2.14
5138f3b8	41	6	0	250000	0	PO--	/ach_dat2/ach_dat2.15
5138f588	42	6	0	250000	0	PO--	/ach_dat2/ach_dat2.16
5138f758	43	6	0	250000	0	PO--	/ach_dat2/ach_dat2.17
5138f928	44	6	0	250000	0	PO--	/ach_dat2/ach_dat2.18
5138faf8	45	6	0	250000	0	PO--	/ach_dat2/ach_dat2.19
5138fcc8	46	6	0	250000	0	PO--	/ach_dat2/ach_dat2.20
51390018	47	6	0	250000	0	PO--	/ach_dat2/ach_dat2.21
513901e8	48	6	0	250000	0	PO--	/ach_dat2/ach_dat2.22
513903b8	49	6	0	250000	0	PO--	/ach_dat2/ach_dat2.23
51390588	50	6	0	250000	0	PO--	/ach_dat2/ach_dat2.24
51390758	51	7	0	250000	2	PO--	/ach_idx1/ach_idx1.1
51390928	52	7	0	250000	162	PO--	/ach_idx1/ach_idx1.2
51390af8	53	7	0	250000	245901	PO--	/ach_idx1/ach_idx1.3
51390cc8	54	8	0	250000	176857	PO--	/ach_idx2/ach_idx2.1
51391018	55	8	0	250000	249997	PO--	/ach_idx2/ach_idx2.2
513911e8	56	8	0	250000	249997	PO--	/ach_idx2/ach_idx2.3



513913b8	57	3	0	256000	255997	PO--	/ach_temp/ach_temp.2
51391588	58	5	0	250000	0	PO--	/ach_dat1/ach_dat1.23
51391758	59	5	0	250000	0	PO--	/ach_dat1/ach_dat1.24
51391928	60	5	0	250000	0	PO--	/ach_dat1/ach_dat1.25
51391af8	61	5	0	250000	0	PO--	/ach_dat1/ach_dat1.26
51391cc8	62	5	0	250000	0	PO--	/ach_dat1/ach_dat1.27
51395018	63	5	0	250000	0	PO--	/ach_dat1/ach_dat1.28
513951e8	64	6	0	250000	0	PO--	/ach_dat2/ach_dat2.25
513953b8	65	6	0	250000	1	PO--	/ach_dat2/ach_dat2.26
51395588	66	6	0	250000	0	PO--	/ach_dat2/ach_dat2.27
51395758	67	6	0	250000	0	PO--	/ach_dat2/ach_dat2.28
51395928	68	6	0	250000	0	PO--	/ach_dat2/ach_dat2.29
51395af8	69	6	0	250000	0	PO--	/ach_dat2/ach_dat2.30
51395cc8	70	5	0	250000	1	PO--	/ach_dat1/ach_dat1.29
51396018	71	5	0	250000	1	PO--	/ach_dat1/ach_dat1.30
513961e8	72	5	0	250000	1	PO--	/ach_dat1/ach_dat1.31
513963b8	73	5	0	250000	3	PO--	/ach_dat1/ach_dat1.32
51396588	74	5	0	250000	0	PO--	/ach_dat1/ach_dat1.33
51396758	75	6	0	250000	0	PO--	/ach_dat2/ach_dat2.31
51396928	76	6	0	250000	0	PO--	/ach_dat2/ach_dat2.32
51396af8	77	6	0	250000	0	PO--	/ach_dat2/ach_dat2.33
51396cc8	78	5	0	250000	2	PO--	/ach_dat1/ach_dat1.34
51397018	79	5	0	250000	1	PO--	/ach_dat1/ach_dat1.35
513971e8	80	6	0	250000	0	PO--	/ach_dat2/ach_dat2.34
513973b8	81	6	0	250000	0	PO--	/ach_dat2/ach_dat2.35
51397588	82	5	0	250000	5	PO--	/ach_dat1/ach_dat1.36
51397758	83	5	0	250000	5	PO--	/ach_dat1/ach_dat1.37
51397928	84	5	0	250000	125	PO--	/ach_dat1/ach_dat1.38
51397af8	85	6	0	250000	0	PO--	/ach_dat2/ach_dat2.36
51397cc8	86	6	0	250000	0	PO--	/ach_dat2/ach_dat2.37
51398018	87	6	0	250000	0	PO--	/ach_dat2/ach_dat2.38
513981e8	88	6	0	250000	0	PO--	/ach_dat2/ach_dat2.39
513983b8	89	6	0	250000	0	PO--	/ach_dat2/ach_dat2.40
51398588	90	5	0	250000	397	PO--	/ach_dat1/ach_dat1.39
51398758	91	6	0	250000	0	PO--	/ach_dat2/ach_dat2.41
51398928	92	6	0	250000	0	PO--	/ach_dat2/ach_dat2.42
51398af8	93	5	0	250000	141	PO--	/ach_dat1/ach_dat1.40
51398cc8	94	6	0	250000	0	PO--	/ach_dat2/ach_dat2.43
51399018	95	5	0	250000	141	PO--	/ach_dat1/ach_dat1.41
513991e8	96	6	0	250000	0	PO--	/ach_dat2/ach_dat2.44
513993b8	97	5	0	250000	0	PO--	/ach_dat1/ach_dat1.42
51399588	98	6	0	250000	0	PO--	/ach_dat2/ach_dat2.45
51399758	99	6	0	250000	0	PO--	/ach_dat2/ach_dat2.46
51399928	100	6	0	250000	34945	PO--	/ach_dat2/ach_dat2.47
51399af8	101	6	0	250000	184461	PO--	/ach_dat2/ach_dat2.48
51399cc8	102	5	0	250000	45709	PO--	/ach_dat1/ach_dat1.43
5139a018	103	5	0	250000	249997	PO--	/ach_dat1/ach_dat1.44

103 active, 2047 maximum

NOTE: The values in the "size" and "free" columns for DBspace chunks are displayed in terms of "pgsize" of the DBspace to which they belong.

Expanded chunk capacity mode: disabled

## Monthly data space change:

69,71c69,71							
<	51390928	52	7	0	250000	1698	PO-- /ach_idx1/ach_idx1.2
<	51390af8	53	7	0	250000	249997	PO-- /ach_idx1/ach_idx1.3
<	51390cc8	54	8	0	250000	177497	PO-- /ach_idx2/ach_idx2.1
---							
>	51390928	52	7	0	250000	162	PO-- /ach_idx1/ach_idx1.2
>	51390af8	53	7	0	250000	245901	PO-- /ach_idx1/ach_idx1.3
>	51390cc8	54	8	0	250000	176857	PO-- /ach_idx2/ach_idx2.1
117,119c117,119							
<	51399928	100	6	0	250000	182409	PO-- /ach_dat2/ach_dat2.47
<	51399af8	101	6	0	250000	249997	PO-- /ach_dat2/ach_dat2.48
<	51399cc8	102	5	0	250000	211597	PO-- /ach_dat1/ach_dat1.43
---							
>	51399928	100	6	0	250000	34945	PO-- /ach_dat2/ach_dat2.47
>	51399af8	101	6	0	250000	184461	PO-- /ach_dat2/ach_dat2.48

```
> 51399cc8 102 5 0 250000 45709 PO-- /ach_dat1/ach_dat1.43
```

For Create new chunks for Dbspace: datadbs1 and datadbs2:

```
Dbspace 6: 432406 - 219406= 213000(page) * 4 = 852000 (kilobyte)
Dbspace 5: 211597 - 45709 = 165888(page) * 4 = 663552 (kilobyte)
+
=====
1,515,552 (kilobyte)
```

For ip\_arch03 to hold 18 months data, we still need 6 months (from Nov,2012) data space:  
1515552 \* 6 = 9,093,312 (kilobyte)

