AIX boot proccess

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AIX Boot Process

POWER ON

POST (Power on Self Test) / **BIST** (Built-in Self Test for AIX)

ROS Initialization (Checks Mother Board using OCS BUMP)

Hardware ROS Software ROS

3 types:

- **Primary Devices**: processor, mother board, RAM
- **Secondary Devices**: HD, CD, Floppy, Tape, magnetic tape etc.
- **Base Devices**: Keyboard, Mouse

- Checks **User Bootlist**
- Locates boot strap code to find bootable devices in User boot list
- Bootlist is of 2 types:
    - Bootlist in Normal Boot
    - Bootlist in Service Mode
- Bootlist in Normal Boot & Service mode each is of 2 types:
    - Default Bootlist in ROS
    - User Bootlist in NVRAM

User BootList: 3 Scenarios

1. **Available in NVRAM and is valid**: loads Boot device from the user Bootlist found
2. **Available in NVRAM AND IS INVALID**: Checks in Default Bootlist in ROS and loads the boot device
3. **Unavailable**: keep checking the adapters and devices on BUS till valid bootlist is found to load the boot devices.

Once a Valid boot device is found

PSN (Program Sector Number) is checked

PSN gets loaded in **IPL** (Initial Program Load)

IPL contains information about the boot image

Boot Image is made up of:

- **Kernel**
- **RAM FS**
- **Device Information (ODM)**
- **RC Boot (it's a directory)**

Control goes over to the Kernel

AIX Kernel gets initiated and RAM FS is created

Kernel will start the INIT process with Process ID = 1

INIT starts **RC.Boot1 (Boot Phase 1)**

1. Copies ODM information from BLV into RAM FS (Command: **# restbase**)
2. Starts sys, bus, SCSI, LVM, RVG configuration methods and updates data present in ODM in RAM FS (Command: **# cfgmgr -f**). cfgmgr command will check for all plug and play devices.
3. Determines the last boot device (Command: **# bootinfo -b**)

Now the system is ready for installation, maintenance or diagnostic

INIT starts RC.Boot2 (Boot Phase 2)

1. Activates the Root VG information available in ODM in RAM FS (Command**: # ipl_varyon**)
2. Mounts HD FS (Hard disk FS) in RAM FS. All 10 partitions gets loaded
3. Copies ODM from RAM FS into HD FS and scans the file system (Command: **# fsck -f**)
4. Delete RAM FS

Up to this no console is available; boot progress is checked through **LED display**. All boot information is written in log file, can be checked by running the following command:

 # alog –t boot -o

INIT will execute the processes defined in **/etc/inittab**

One of the processes is RC.Boot3 (Boot Phase 3)

1. Checks stale partitions in VG and mounts temp in HD FS (Command: **# syncvg**)
2. Synchronize VG information available in ODM (Command: **# savebase**)
3. Initialize the console (Command: **# cfgcon**)

Kernel will start all the Background daemon services present in /etc/inittab

LED display is OFF

Login Display will appear

End of Boot process, Root FS is mounted

Init reads /etc/inittab

If default entry does not exists, init will ask user to enter the Run level from system console

If /etc/inittab does not exists, system will go into maintenance mode

Init re-reads /etc/inittab every 60 seconds

Points To Remember:

ODM: **Object Database Manager**: is a database that has complete device configuration and informational data of the entire OS.

Information stored in ODM is:

Network Configuration

LVM Configuration

PV VG LV Configuration

Device Information

Smit menus, screens and commands

Hardware information

CCS BUMP stands doe On Chip Sequencer and Built in Micro processor

3. ***S: All information available here is gained and compiled from various RED HAT IBM Books & PDFs.***

This is an effort to make understanding of AIX Booting Process simpler and user friendly.

All thoughts and reflections are welcomed.