

# AIX boot process

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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**

**Available in NVRAM and is valid:** loads Boot device from the user Bootlist found

**Available in NVRAM AND IS INVALID:** Checks in Default Bootlist in ROS and loads the boot device

**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)**

Copies ODM information from BLV into RAM FS (Command: **# restbase**)

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.

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)**

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

Checks stale partitions in VG and mounts temp in HD FS (Command: **# syncvg**)  
Synchronize VG information available in ODM (Command: **# savebase**)  
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**

**QCS BUMP** stands for 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.*

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