

FUJITSU BLADES BX300 PXE INSTALLATION

to install this hardware we'll use the slack-kickstart software , the required version is 0.4.b or greater

What we'll do is connect to the blade from the serial console, boot the machine through the network, using a precompiled kernel and a root image created with slack-kickstart, then we will start the installation taking the packages from a working repository

In order to be able to boot the blade from the net, we will need a server offering dhcp/tftp services, and this server must be placed on the same network of the server that we want to install.

Let's start assuming that we have an already working kernel called bzImage and a sample.gz root image, the points that we need to face are the following:

1. Boot server preparation

this first operation is needed to prepare the environment for the next steps, this procedure is already described in the slack-kickstart howto that can be found at the url:

http://www.slack-kickstart.org/index.php?ART=PXEinfo_it

there is a trick that is needed : append the following command at the boot parameter, this is made to enable the output to be displayed on the serial line `console=ttyS0,9600`

I'm reporting the essential steps "cut&past-ing" it from the official site:

- a) install dhcp server (swaret -install dhcp)
- b) install inetd (swaret -install inetd)
- c) install syslinux (swaret -install syslinux)

once the packets are installed and the dependences are resolved , we can move on to the configuration phase

a) */etc/dhcpd.conf*

in this file we should have the following lines :

```
allow booting;
allow bootp;
option domain-name "foo.net"; # domain of the server
option subnet-mask 255.255.255.0;
option broadcast-address 192.168.1.255;
option domain-name-servers 10.39.113.107;
option routers 192.168.1.30;
ddns-update-style none;
allow unknown-clients;
subnet 192.168.1.0 netmask 255.255.255.0 { # ip cl server
range 192.168.1.10 192.168.1.20;
    next-server 192.168.1.22; # ip of tftp/dhcp server
    filename "pxelinux.0";
}
```

once the configuration file is ready (the net parameter must be set according to the network that is going to be used) it is possible to start the dhcp daemon with the command line `/usr/sbin/dhcpd`, then it is possible to verify that the server

is running checking if the process is listening on udp port number 67

b) /etc/inetd.conf

in this file we have to create an entry in the format :
`tftp dgram udp wait root /usr/sbin/in.tftpd
in.tftpd -s /tftpboot -r blksize`

even in this case once the `inetd` daemon is started with the runlevel script `/etc/rc.d/rc.inetd` , it is possible to verify that the `tftp` server is running by checking that the process is listening on udp port number 69.

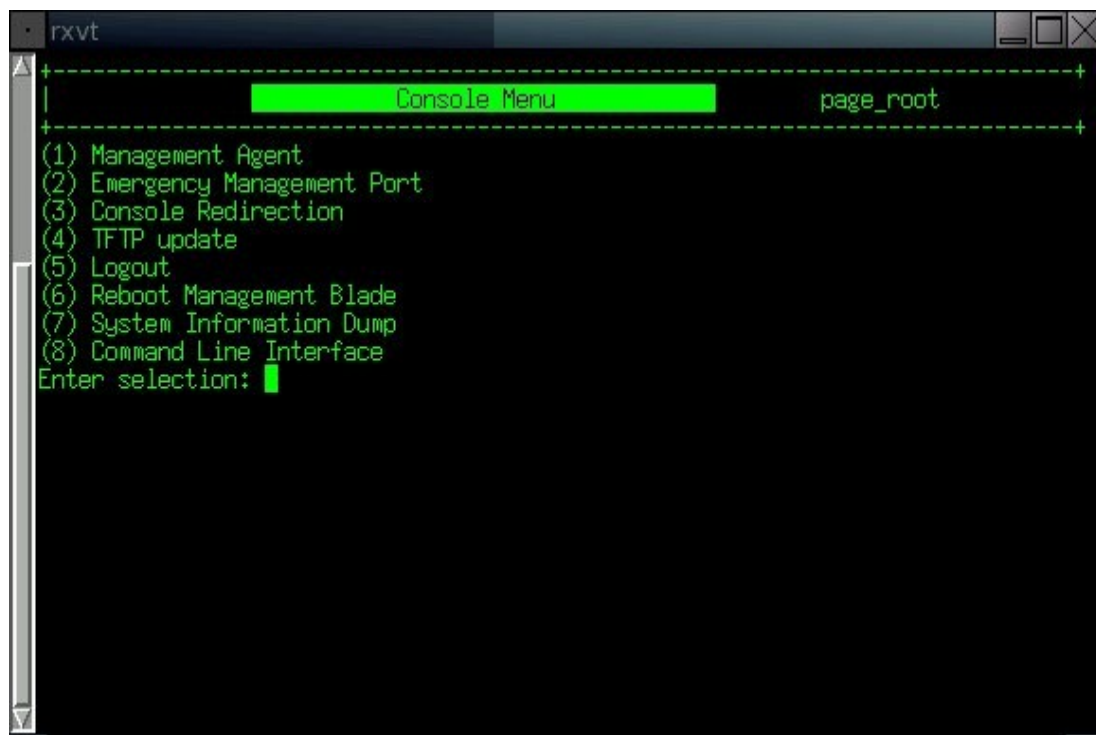
c) directory /tftpboot

this directory is used to contain the files that the `tftp` server allows to download , the needed files are :

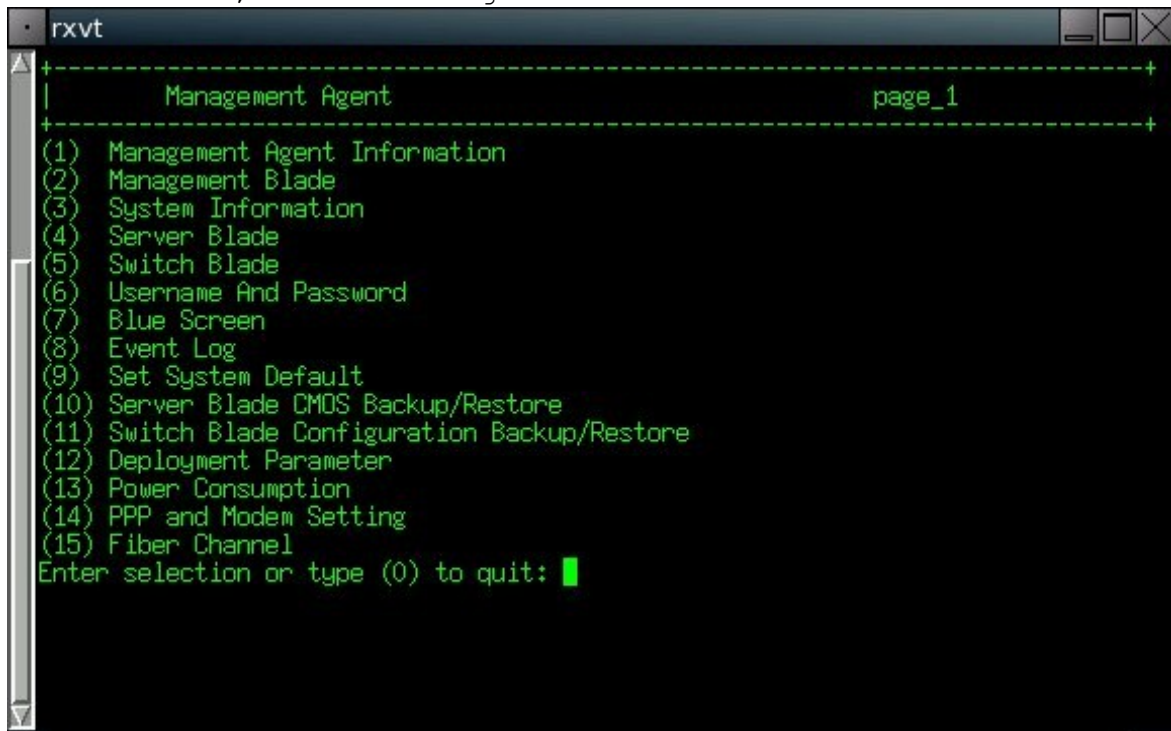
- `bzImage` (the kernel that the client machine will use)
- `pxelinux.0` (pxe loader, the name must match the name specified in the point a, this file is part of the `syslinux` package and by default is found at the path `/usr/share/syslinux/pxelinux.0`)
- `sample.gz` (this is the name of the root image created with slack kickstart and it must match the name specified in the next point)
- `pxelinux.cfg` (this is not a file but a directory and it must contain all the configuration files for the machines that we want to install, the essential file is called `default`)
A configuration file should be made like this example :
`default Kickstart
prompt 0
label Kickstart
kernel bzImage
append initrd=sample.gz devfs=nomount load_ramdisk=1
prompt_ramdisk=0 ramdisk_size=16384 rw root=/dev/ram
console=ttyS0,9600`
(note that last part, from `append` to `console=ttyS0,9600` is all on a single line)

2. Setup of the server to install to enable it to boot from the network.

- Logging into the management part of the chassis fujitsu the following menu' is shown, and the first option (1 Management Agent) is the one that needs to be chosen

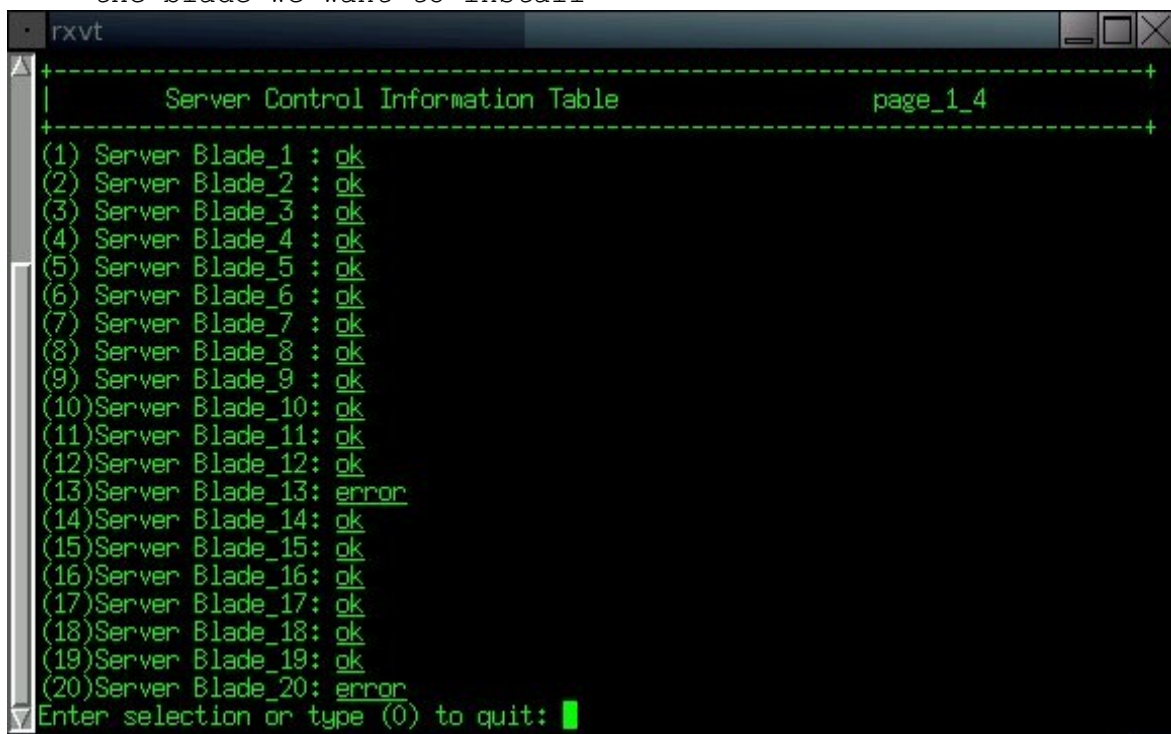


- o in the new screen, the option number 4 (Server Blade) should be selected, in order to get the full list of the blades



```
rxvt
+-----+
|           Management Agent                               page_1
+-----+
(1) Management Agent Information
(2) Management Blade
(3) System Information
(4) Server Blade
(5) Switch Blade
(6) Username And Password
(7) Blue Screen
(8) Event Log
(9) Set System Default
(10) Server Blade CMOS Backup/Restore
(11) Switch Blade Configuration Backup/Restore
(12) Deployment Parameter
(13) Power Consumption
(14) PPP and Modem Setting
(15) Fiber Channel
Enter selection or type (0) to quit: █
```

- o from the full list all we need to do is to select the entry of the blade we want to install



```
rxvt
+-----+
| Server Control Information Table                          page_1_4
+-----+
(1) Server Blade_1 : ok
(2) Server Blade_2 : ok
(3) Server Blade_3 : ok
(4) Server Blade_4 : ok
(5) Server Blade_5 : ok
(6) Server Blade_6 : ok
(7) Server Blade_7 : ok
(8) Server Blade_8 : ok
(9) Server Blade_9 : ok
(10) Server Blade_10 : ok
(11) Server Blade_11 : ok
(12) Server Blade_12 : ok
(13) Server Blade_13 : error
(14) Server Blade_14 : ok
(15) Server Blade_15 : ok
(16) Server Blade_16 : ok
(17) Server Blade_17 : ok
(18) Server Blade_18 : ok
(19) Server Blade_19 : ok
(20) Server Blade_20 : error
Enter selection or type (0) to quit: █
```

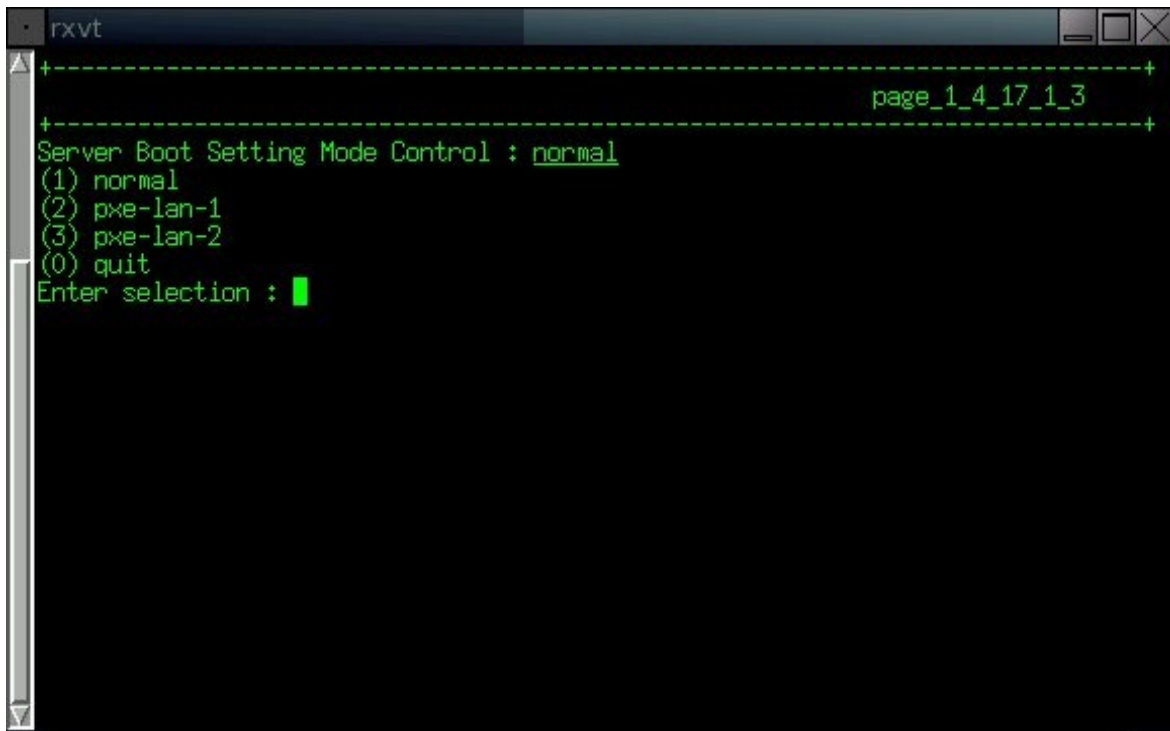
- o once the blade to install is chosen the following screen is shown and the voice number 1 must be chosen (Server Blade Control Information) in this way we can reach the controls to shut down/ startup the machine.

```
rxvt
+-----+
|          Server Blade                               page_1_4_17          |
+-----+
(1) Server Blade Control Information
(2) Server Blade Information
(3) Server Blade CPU
(4) Server Blade Memory
(5) Server Blade Voltage Table
(6) Server Blade Temperature
(7) Server Blade NIC Information
(8) Server Blade Watch Dog
Enter selection or type (0) to quit: █
```

- o From this screen we can choose the voice number 3 (Set Server Boot Mode) that enables us to choose the boot device

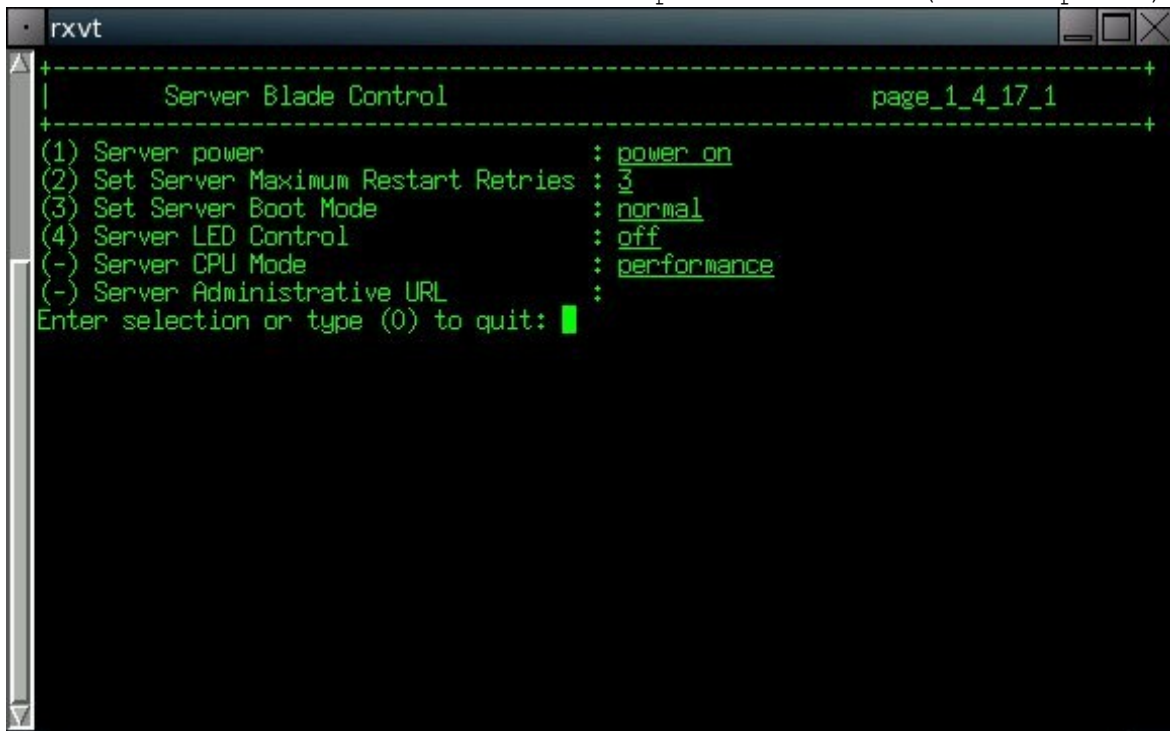
```
rxvt
+-----+
|          Server Blade Control                               page_1_4_17_1          |
+-----+
(1) Server power : power on
(2) Set Server Maximum Restart Retries : 3
(3) Set Server Boot Mode : normal
(4) Server LED Control : off
(-) Server CPU Mode : performance
(-) Server Administrative URL :
Enter selection or type (0) to quit: █
```

- o from this screen we can setup as boot device the network interface that is connected on the same subnet of the dhcp/tftp server



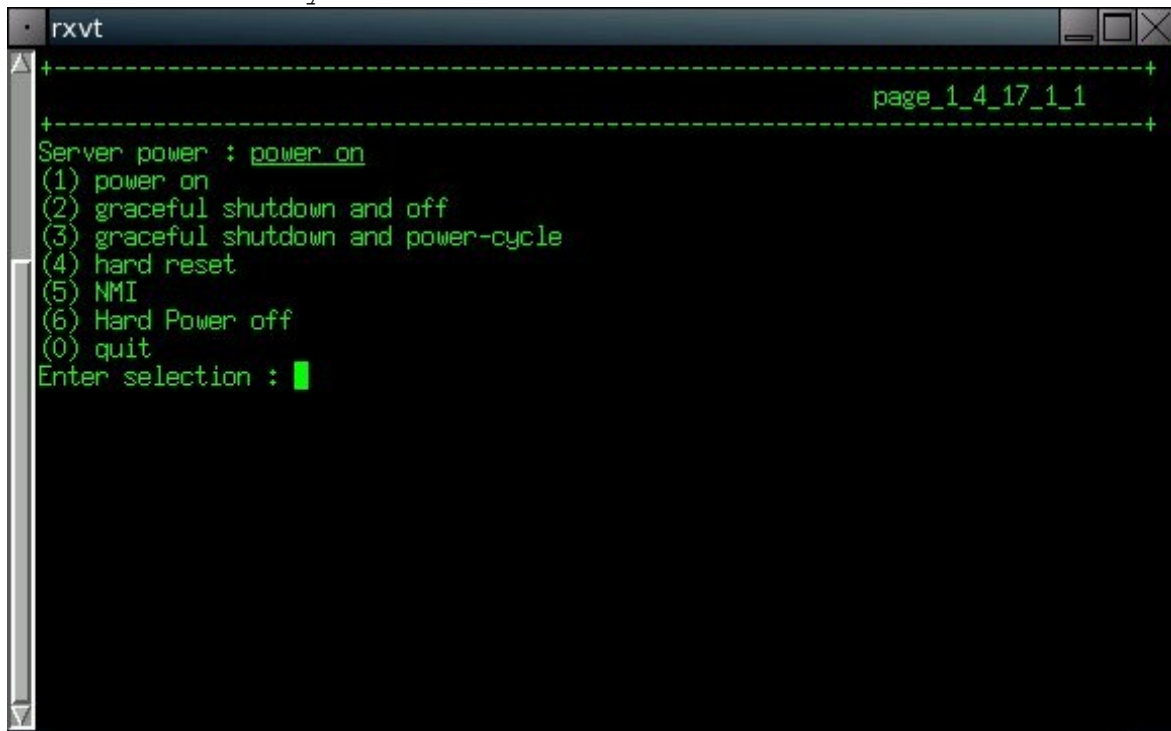
```
rxvt
+-----+
+-----+ page_1_4_17_1_3
+-----+
Server Boot Setting Mode Control : normal
(1) normal
(2) pxe-lan-1
(3) pxe-lan-2
(0) quit
Enter selection : █
```

- o once the boot device is set up we can go back to the previous screen where we can choose the option number 1 (Server power)



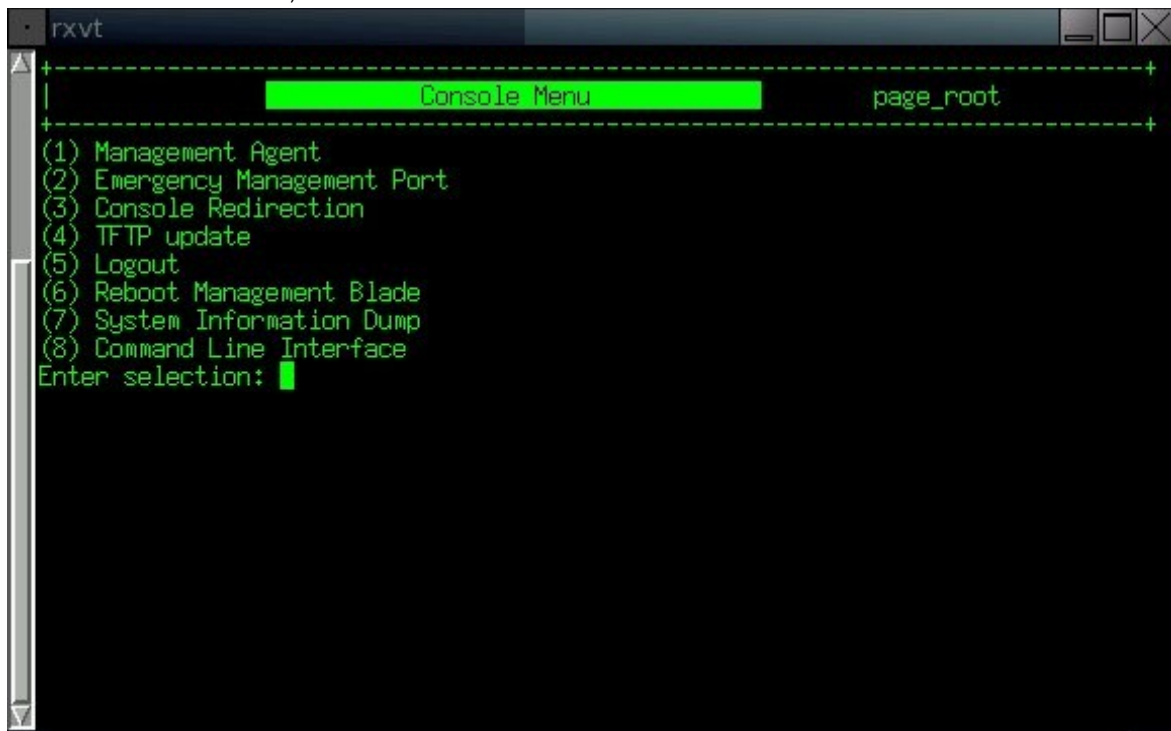
```
rxvt
+-----+
| Server Blade Control | page_1_4_17_1
+-----+
(1) Server power : power on
(2) Set Server Maximum Restart Retries : 3
(3) Set Server Boot Mode : normal
(4) Server LED Control : off
(-) Server CPU Mode : performance
(-) Server Administrative URL :
Enter selection or type (0) to quit: █
```

- o from this menu' it is possible to reboot the server by selecting the option numebr 4 (hard reset) this function acts just like the reset key on standard machines



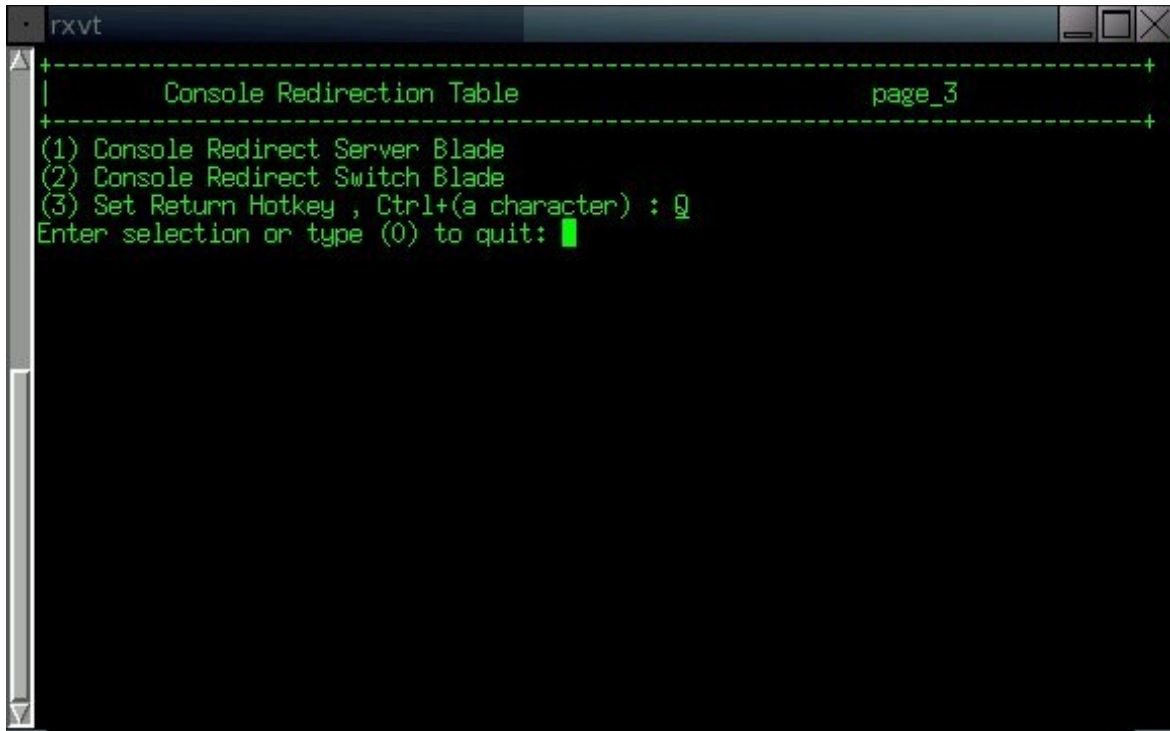
```
rxvt
+-----+
+-----+
Server power : power_on
(1) power on
(2) graceful shutdown and off
(3) graceful shutdown and power-cycle
(4) hard reset
(5) NMI
(6) Hard Power off
(0) quit
Enter selection : █
```

- o it is now possible to follow the boot of the server going back to the initial screen and selecting the option number 3 (Console Redirection)



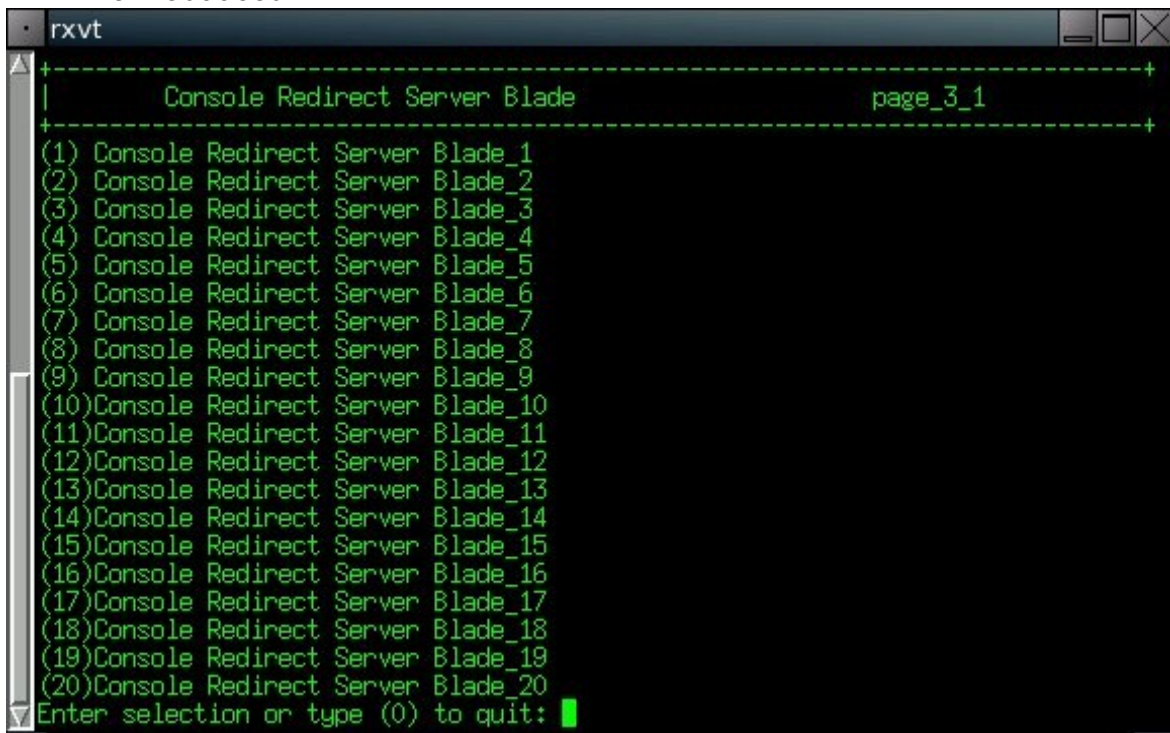
```
rxvt
+-----+
|           Console Menu           page_root
+-----+
(1) Management Agent
(2) Emergency Management Port
(3) Console Redirection
(4) TFTP update
(5) Logout
(6) Reboot Management Blade
(7) System Information Dump
(8) Command Line Interface
Enter selection: █
```


- o then we can select the option number 1 (Console Redirect Server Blade)



```
rxvt
-----+-----
|           Console Redirection Table           page_3          |
|-----+-----|
(1) Console Redirect Server Blade
(2) Console Redirect Switch Blade
(3) Set Return Hotkey , Ctrl+(a character) : Q
Enter selection or type (0) to quit: █
```

- o then we are in the blades menu where we can choose the one that we rebooted



```
rxvt
-----+-----
|           Console Redirect Server Blade           page_3_1      |
|-----+-----|
(1) Console Redirect Server Blade_1
(2) Console Redirect Server Blade_2
(3) Console Redirect Server Blade_3
(4) Console Redirect Server Blade_4
(5) Console Redirect Server Blade_5
(6) Console Redirect Server Blade_6
(7) Console Redirect Server Blade_7
(8) Console Redirect Server Blade_8
(9) Console Redirect Server Blade_9
(10) Console Redirect Server Blade_10
(11) Console Redirect Server Blade_11
(12) Console Redirect Server Blade_12
(13) Console Redirect Server Blade_13
(14) Console Redirect Server Blade_14
(15) Console Redirect Server Blade_15
(16) Console Redirect Server Blade_16
(17) Console Redirect Server Blade_17
(18) Console Redirect Server Blade_18
(19) Console Redirect Server Blade_19
(20) Console Redirect Server Blade_20
Enter selection or type (0) to quit: █
```

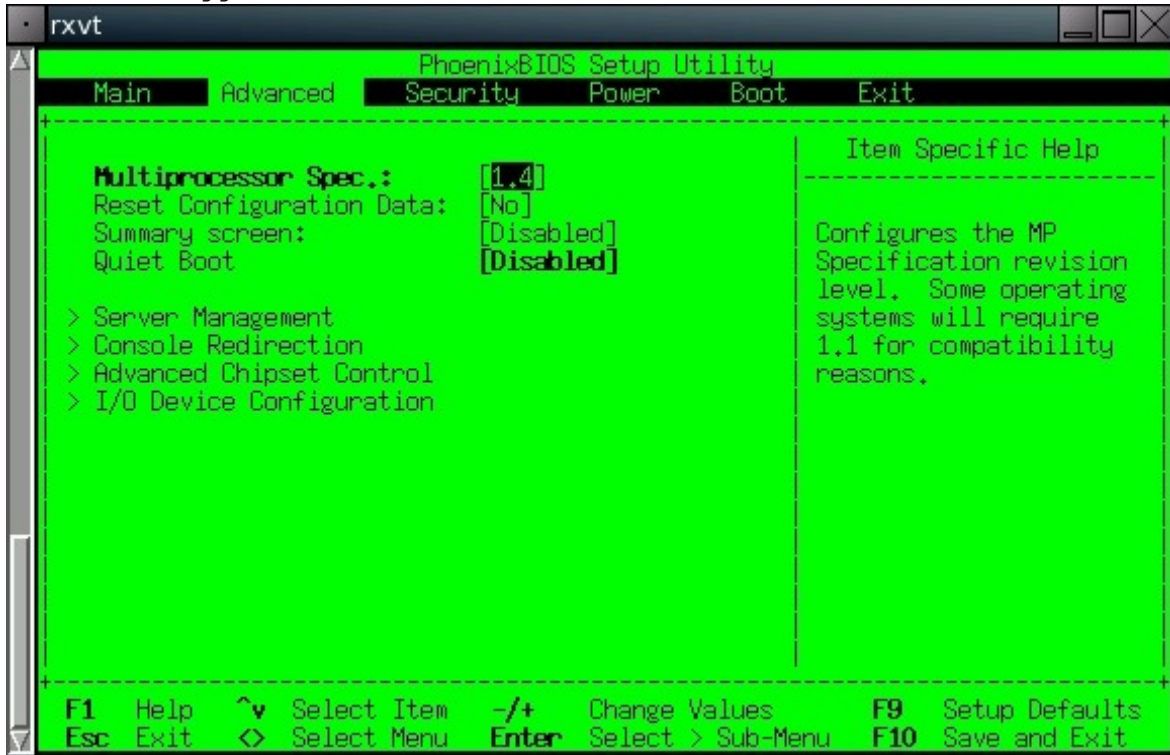

3. Boot e installation

before we reboot a blade is is useful to check some bios parameters that may help us during the procedure :

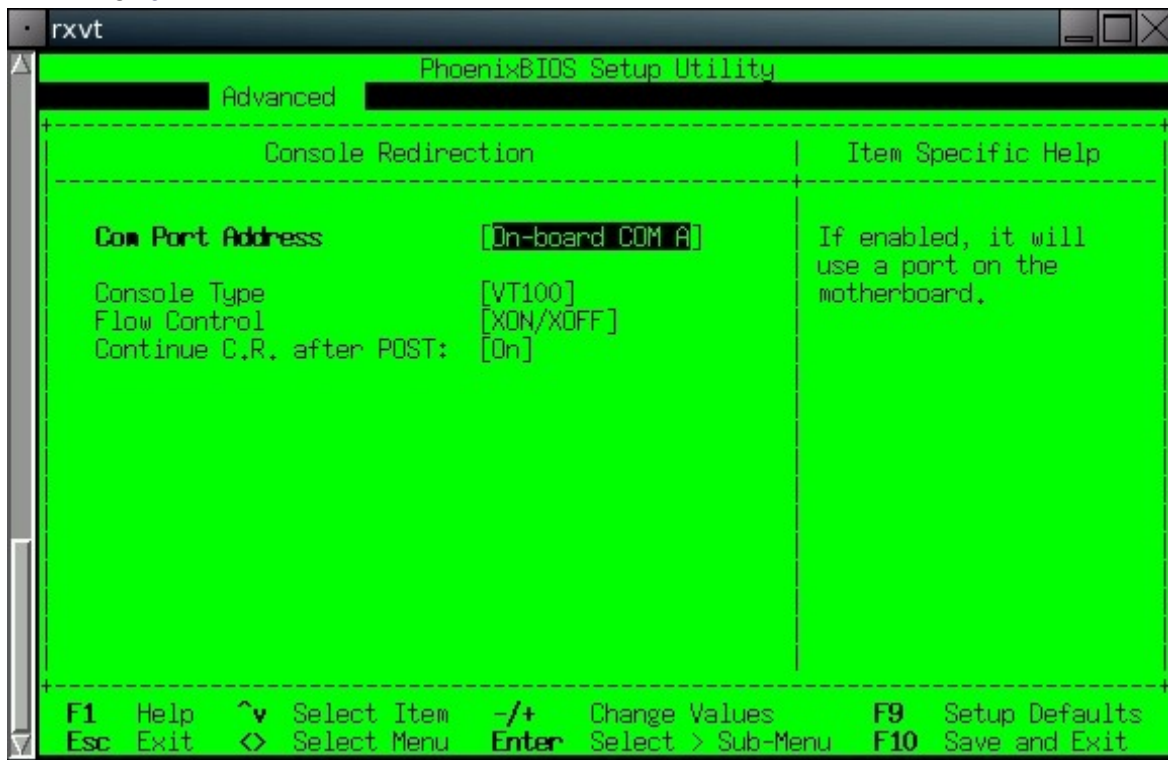
- The first option is : "Extended Memory Test" , this option can be found in the first screen(Main); the suggested value is Disabled



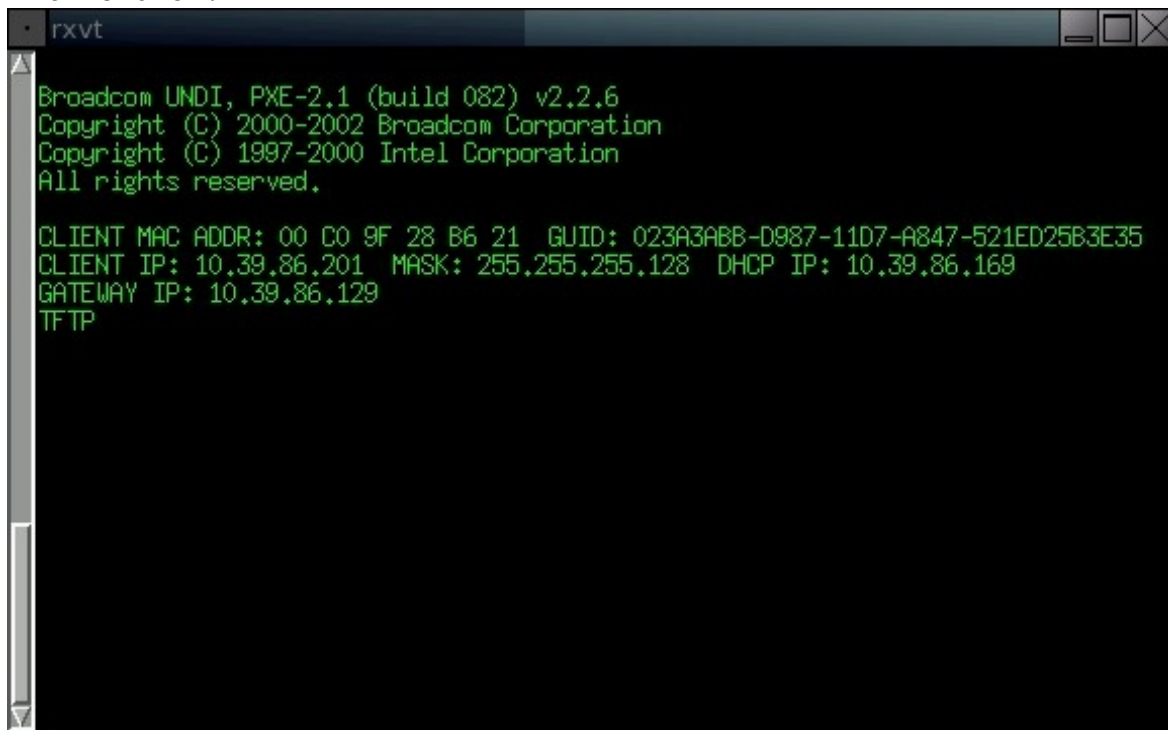
- another interesting option is "Summary Screen" , this can be found in the second bios screen(Advanced) and as the former , the suggested value is Disabled



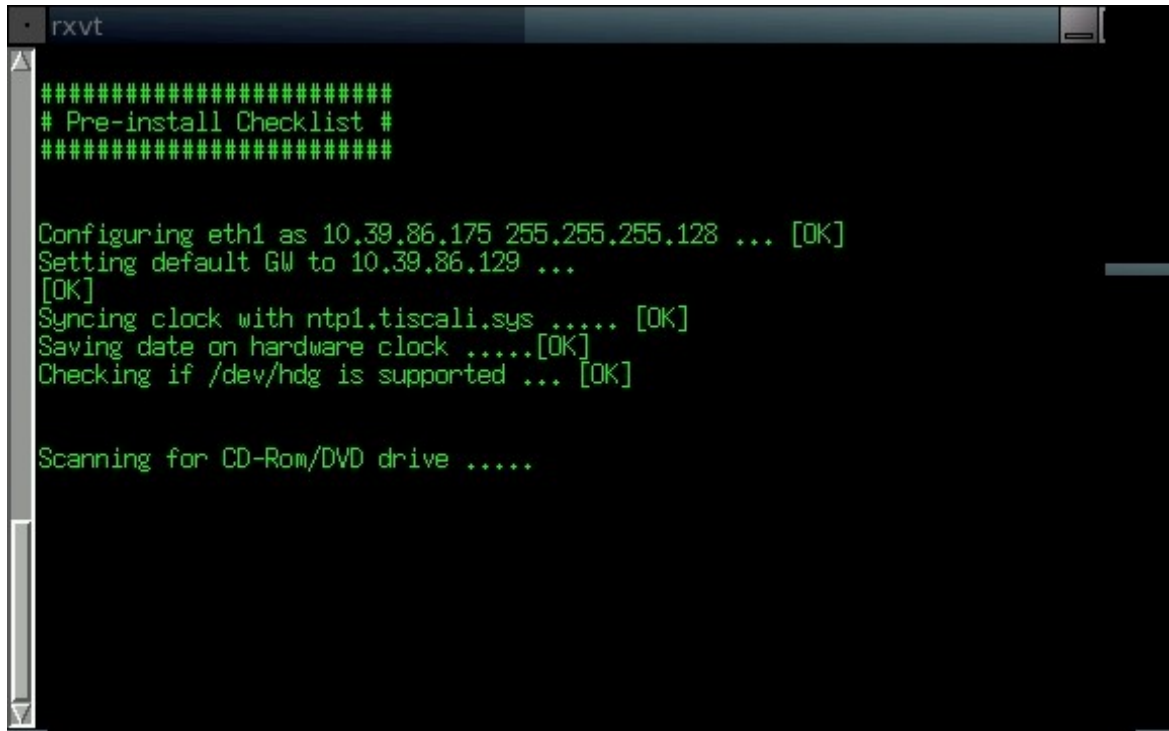
- o the last option is inside a submenu of the menu' Advanced , the name of the submenu is : Console Redirection, the name of the option is : "Continue C.R. After Post" and the suggested value is on



going back to the reboot phase, we should now see a screen like this one :



4. and once the boot has finished we should see :

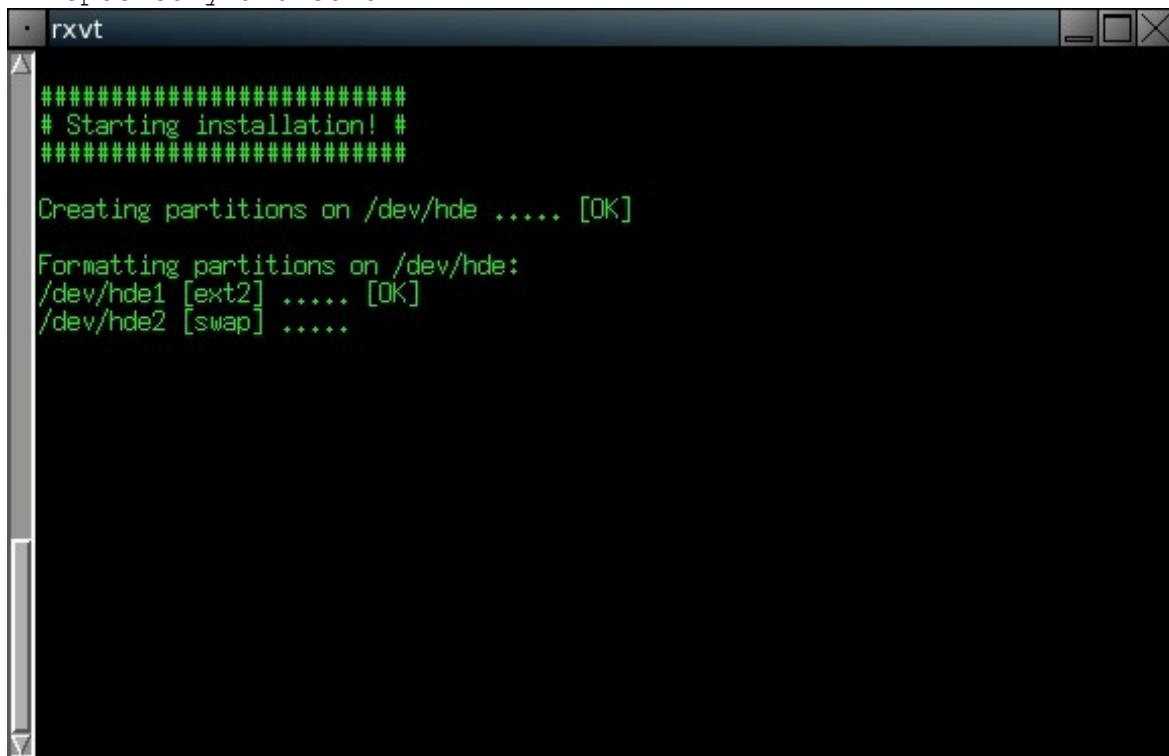


```
rxvt
#####
# Pre-install Checklist #
#####

Configuring eth1 as 10.39.86.175 255.255.255.128 ... [OK]
Setting default GW to 10.39.86.129 ...
[OK]
Syncing clock with ntp1.tiscali.sys ..... [OK]
Saving date on hardware clock .....[OK]
Checking if /dev/hdg is supported ... [OK]

Scanning for CD-Rom/DVD drive .....
```

when we're returned to the prompt we can start the real installation with the command `setup`, so after `setup` we will have the partitioning, the copy and installation of packages from the repository and so on



```
rxvt
#####
# Starting installation! #
#####

Creating partitions on /dev/hde ..... [OK]

Formatting partitions on /dev/hde:
/dev/hde1 [ext2] ..... [OK]
/dev/hde2 [swap] .....
```