Clonar un servidor HP-UX usando IGNITE

Vamos a clonar el servidor bl860c en el servidor bl870c que lo tenemos parado.

Primero la parte de crear la imagen de bl860c y guardarla en el servidor de ignite(backup):

En el servidor de ignite creamos el directorio donde se guarda la imagen:

```
root@rx4640:/var/opt/ignite/recovery/archives>mkdir bl860c
root@rx4640:/var/opt/ignite/recovery/archives>chown bin:bin bl860c
```

Añadimos el nuevo dir a la lista de FS exportados por NFS:

```
root@rx4640:>vi /etc/exports
/var/opt/ignite/clients -anon=2
/var/opt/ignite/recovery/archives/bl860c -anon=2

root@rx4640:>exportfs -va
re-exported /var/opt/ignite/clients
exported /var/opt/ignite/recovery/archives/bl860c
```

Ahora ya tenemos el servidor preparado, desde el cliente lanzamos el backup(make_net_recovery,parte del soft de ignite), para generar la imagen:

```
#/opt/ignite/bin/make_net_recovery -s rx7640 -x inc_entire=vg00
WARNING: /var/opt/ignite/recovery directory does not exist. Will create it.
       * Creating NFS mount directories for configuration files.

=======  01/10/12 14:49:42 MET  Started ./make_net_recovery. (Tue Jan 10 14:49:42 MET 2012)
         @(#)Ignite-UX Revision C.7.7.98
         @(#)ignite/net_recovery (opt) Revision: /branches/IUX_RA0809/ignite/src@75250 Last
Modified: 2008-08-25 11:39:14 -0600 (Mon, 25 Aug 2008)

       * Testing for necessary pax patch.
       * Checking Versions of Recovery Tools
       * Scanning system for IO devices...
       * Boot device is: 0/2/1/0.0x5000c500052c4979.0x0
       * Creating System Configuration.
       * /opt/ignite/bin/save_config -f
/var/opt/ignite/recovery/client_mnt/0x0017A477000C/recovery/2012-01-10,14:49/system_cfg vg00
       * Backing Up Volume Group /dev/vg01
       * /usr/sbin/vgcfgbackup /dev/vg01
       * Creating Map Files for Volume Group /dev/vg01
       * /usr/sbin/vgexport -s -p -m /etc/lvmconf/vg01.mapfile /dev/vg01

       * Backing Up Volume Group /dev/vg00
       * /usr/sbin/vgcfgbackup /dev/vg00
       * Creating Map Files for Volume Group /dev/vg00
       * /usr/sbin/vgexport -s -p -m /etc/lvmconf/vg00.mapfile /dev/vg00

       * Backing Up Volume Group /dev/classVG
       * /usr/sbin/vgcfgbackup /dev/classVG
       * Creating Map Files for Volume Group /dev/classVG
       * /usr/sbin/vgexport -s -p -m /etc/lvmconf/classVG.mapfile /dev/classVG

       * Creating Control Configuration.
       * Creating Archive File List
```

```
       * Creating Archive Configuration

       * /opt/ignite/lbin/make_arch_config -c
/var/opt/ignite/recovery/client_mnt/0x0017A477000C/recovery/2012-01-10,14:49/archive_cfg -g
         /var/opt/ignite/recovery/client_mnt/0x0017A477000C/recovery/2012-01-10,14:49/flist -n
2012-01-10,14:49 -r ipf -b 64 -d Recovery\ Archive -L
         /var/opt/ignite/recovery/arch_mnt -l
19.132.168.63:/var/opt/ignite/recovery/archives/BL860c -i 1 -m t
       * Saving the information about archive to /var/opt/ignite/recovery/previews
       * Creating The Networking Archive

       * /opt/ignite/data/scripts/make_sys_image -d /var/opt/ignite/recovery/arch_mnt -t n -s
local -n 2012-01-10,14:49 -m t -w
         /var/opt/ignite/recovery/client_mnt/0x0017A477000C/recovery/2012-01-
10,14:49/recovery.log -u -R -g
         /var/opt/ignite/recovery/client_mnt/0x0017A477000C/recovery/2012-01-10,14:49/flist -a
9678080

       * Preparing to create a system archive.
       * The archive is estimated to reach 4839040 kbytes.
       * Free space on /var/opt/ignite/recovery/arch_mnt
         after archive should be about 13618552 kbytes.

       * Archiving contents of BL860c via tar to
          /var/opt/ignite/recovery/arch_mnt/2012-01-10,14:49.
       * Creation of system archive complete.

       * Creating CINDEX Configuration File

       * /opt/ignite/bin/manage_index -q -c 2012-01-10,14:49\ Recovery\ Archive -i
/var/opt/ignite/recovery/client_mnt/0x0017A477000C/CINDEX -u Recovery\ Archive


=======  01/10/12 15:17:05 MET  make_net_recovery completed successfully!
```

Podemos ver que la imagen se ha creado en el servidor de ignite:

```
root@rx4640:/var/opt/ignite/recovery/archives/BL860c> du -sk *
2895958 2012-01-10,14:49
root@rx4640:/var/opt/ignite/recovery/archives/BL860c> file 2012-01-10,14:49
2012-01-10,14:49:       gzip compressed
```

Ahora ya que tenemos la imagen preparada, vamos a sacar los datos de la maquina destino donde vamos a meter la imagen, la BL870c , necesitamos la mac de la tarjeta de red que queramos usar para restaurar el servidor(tiene que tener comunicación con el servidor).

En el server de destino sacamos la mac, en este caso como no tiene SO instalado y es un rx lo sacamos desde la EFI:

```
Shell> lanaddress

LAN Address Information

   LAN Address        Path
   -----------------  ---------------------------------------
   Mac(0017A4770014)  Acpi(HPQ0002,PNP0A08,400)/Pci(0|0)/Pci(0|0)/Mac(0017A4770014)
   Mac(0017A4770016)  Acpi(HPQ0002,PNP0A08,400)/Pci(0|0)/Pci(0|1)/Mac(0017A4770016)
  *Mac(0017A4770000)  Acpi(HWP0002,PNP0A03,100)/Pci(1|0)/Mac(0017A4770000)
   Mac(0017A4770002)  Acpi(HWP0002,PNP0A03,100)/Pci(1|1)/Mac(0017A4770002)
```

```
   Mac(0017A4770010)  Acpi(HWP0002,PNP0A03,200)/Pci(2|0)/Mac(0017A4770010)
   Mac(0017A4770012)  Acpi(HWP0002,PNP0A03,200)/Pci(2|1)/Mac(0017A4770012)


Shell>
```

Vamos a usar la mac 0017A4770000 , con esta mac nos vamos a el servidor de ignite y vamos a copiar la configuración del cliente del origen BL860c a la del BL870c:

En el servidor de ignite podemos ver como al crear la imagen él nos crea un directorio con la mac y un link simbólico a el hostname con la config del cliente:

```
root@rx4640:/var/opt/ignite/clients> ls -l BL860c
lrwxr-xr-x   1 bin        bin             14 Mar 12 01:51 BL860c -> 0x0017A477000C
root@rx4640:/var/opt/ignite/clients>
```

Lo que vamos hacer es crear un directorio con la mac de destino y copiar la configuración del cliente origen BL860c

```
root@rx4640:/var/opt/ignite/clients> mkdir 0x0017A4770000
root@rx4640:/var/opt/ignite/clients> ln -s 0x0017A4770000 bl870c
root@rx4640:/var/opt/ignite/clients> ls -l bl870c
lrwxr-xr-x   1 root       sys             14 Mar 12 04:39 bl870c -> 0x0017A4770000
root@rx4640:/var/opt/ignite/clients> chown -h bin:bin bl870c
```

Una vez creada la carpeta y el link simbólico, copiamos los ficheros necesarios:

```
root@rx4640:/var/opt/ignite/clients> cd BL860c
root@rx4640:/var/opt/ignite/clients/BL860c> ls
CINDEX       client_name  host.info    recovery
root@rx4640:/var/opt/ignite/clients/BL860c> cp -pR CINDEX recovery ../bl870c/
root@rx4640:/var/opt/ignite/clients/BL860c>
root@rx4640:/var/opt/ignite/clients/BL860c> ls -l ../bl870c/
total 16
-rw-r--r--   1 bin        sys            789 Mar 12 02:18 CINDEX
drwxr-xr-x   3 bin        bin             96 Mar 12 01:51 recovery
```

Es necesario que todos los ficheros siempre sean de bin:bin o bin:sys, por lo que para estar seguros lanzamos un:

```
root@rx4640:/var/opt/ignite/clients> chown -R bin:bin 0x0017A4770000
```

Ya tenemos la configuración preparada, ya podemos arrancar de ignite y empezar a restaurar en nuestro servidor de destino BL870c:

```
hell> lanboot select
  01  Acpi(HPQ0002,PNP0A08,400)/Pci(0|0)/Pci(0|0)/Mac(0017A4770014)
  02  Acpi(HPQ0002,PNP0A08,400)/Pci(0|0)/Pci(0|1)/Mac(0017A4770016)
  03  Acpi(HWP0002,PNP0A03,100)/Pci(1|0)/Mac(0017A4770000)
  04  Acpi(HWP0002,PNP0A03,100)/Pci(1|1)/Mac(0017A4770002)
  05  Acpi(HWP0002,PNP0A03,200)/Pci(2|0)/Mac(0017A4770010)
  06  Acpi(HWP0002,PNP0A03,200)/Pci(2|1)/Mac(0017A4770012)
Select Desired LAN: 03
Selected Acpi(HWP0002,PNP0A03,100)/Pci(1|0)/Mac(0017A4770000)


Client MAC Address: 00 17 A4 77 00 00 ...
Client IP Address: 19.132.168.75
```

```
Subnet Mask: 255.0.0.0
BOOTP Server IP Address: 19.132.168.63
DHCP Server IP Address: 19.132.168.63
Boot file name: /opt/ignite/boot/nbp.efi

Retrieving File Size.
Retrieving File (TFTP).
@(#) HP-UX IA64 Network Bootstrap Program Revision 1.0
Downloading HPUX bootloader
Starting HPUX bootloader
Obtaining size of fpswa.efi   (328192 bytes)
Downloading file  fpswa.efi   (328192 bytes)

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HP-UX Boot Loader for IPF  --  Revision 2.036

Booting from Lan
Obtaining size of AUTO   (226 bytes)
Downloading file  AUTO   (226 bytes)
Obtaining size of AUTO   (226 bytes)
Downloading file  AUTO   (226 bytes)



Obtaining size of AUTO   (226 bytes)
Downloading file  AUTO   (226 bytes)
    1.  target OS is B.11.23 IA
    2.  target OS is B.11.31 IA
    3.  Exit Boot Loader

Choose an operating system to install that your hardware supports:

Seleccionamos la version de la imagen que vamos a restaurar.

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Console is on Serial Device - via PCDP
Booting kernel...


Memory Class Setup
-------------------------------------------------------------------------
Class     Physmem              Lockmem              Swapmem
-------------------------------------------------------------------------
System :  3865 MB              3865 MB              3865 MB
Kernel :  3865 MB              3865 MB              3865 MB
User   :  3289 MB              2915 MB              2927 MB
-------------------------------------------------------------------------

ktracer is off until requested.
Installing Socket Protocol families AF_INET and AF_INET6
Kernel EVM initialized
sec_init(): kernel RPC authentication/security initialization.
secgss_init():  kernel RPCSEC_GSS security initialization.
rpc_init(): kernel RPC initialization.
rpcmod_install(): kernel RPC STREAMS module "rpcmod" installation. ...(driver_install)
NOTICE: nfs_client_pv3_install(): nfs3 File system was registered at index 11.
NOTICE: nfs_client_pv4_install(): nfs4 File system was registered at index 12.
NOTICE: USB device attached.  Identification String:
fclp0: Claiming Fibre Channel HBA port at hardware path 0/3/0/0/0/0
fclp1: Claiming Fibre Channel HBA port at hardware path 0/3/0/0/0/1
NOTICE: USB device attached.  Identification String:
Devices/Mouse/USB/Standard/hp/Unknown/0_1
```
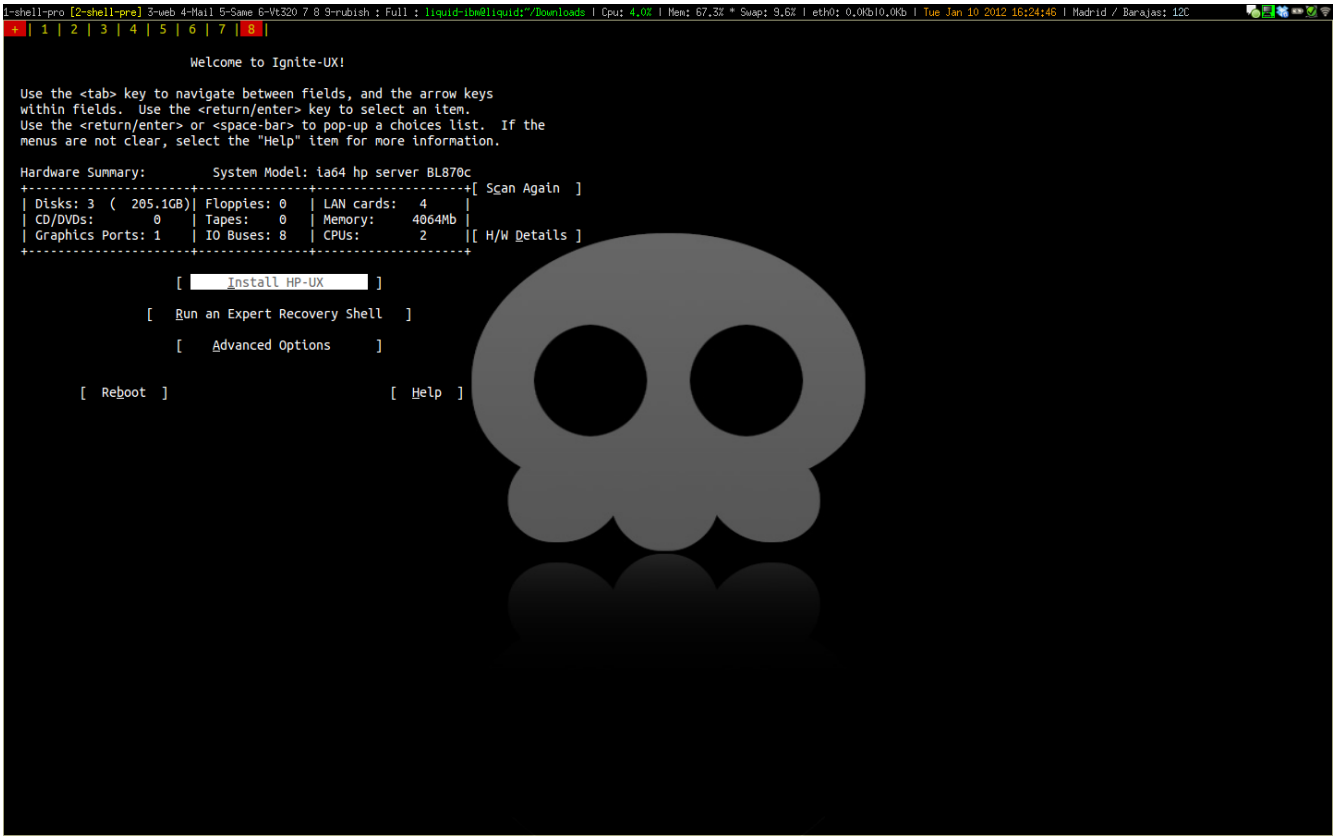
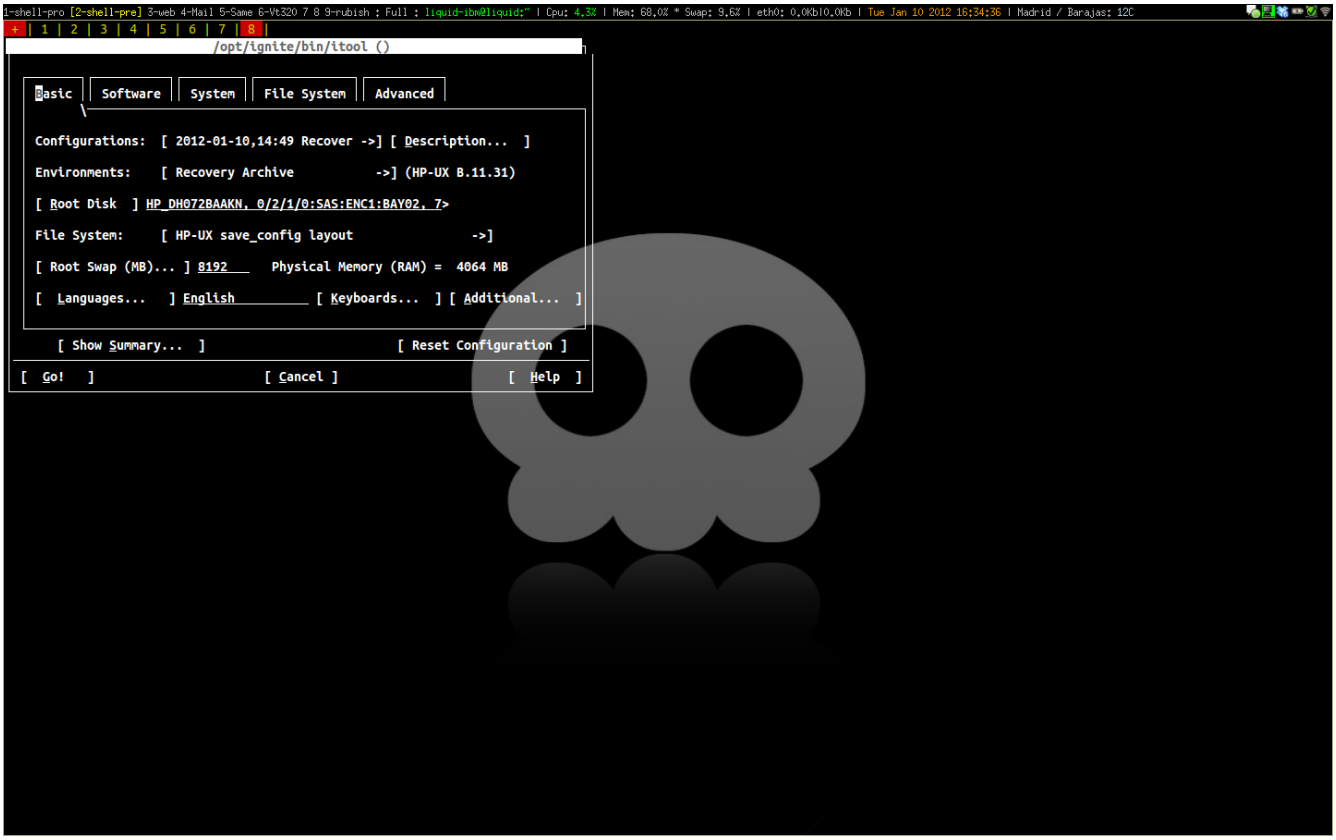

```
 <2.307.3.10.1008.4390.1>

    System Console is on the Built-In Serial Interface
igelan2: INITIALIZING HP PCI-X 1000Mbps Dual-port Built-in at hardware path 0/2/2/0
igelan0: INITIALIZING HP PCI-X 1000Mbps Dual-port Built-in at hardware path 0/1/1/0
igelan1: INITIALIZING HP PCI-X 1000Mbps Dual-port Built-in at hardware path 0/1/1/1
igelan3: INITIALIZING HP PCI-X 1000Mbps Dual-port Built-in at hardware path 0/2/2/1
AF_INET socket/streams output daemon running, pid 34
afinet_prelink: module installed
Starting the STREAMS daemons-phase 1
    Swap device table:  (start & size given in 512-byte blocks)
        entry 0 - auto-configured on root device; ignored - no room
WARNING: No swap device configured, so dump cannot be defaulted to primary swap.
WARNING: No dump devices are configured.  Dump is disabled.
Create STCP device files
Starting the STREAMS daemons-phase 2
     $Revision: vmunix:    B.11.31_LR FLAVOR=perf nfsauth: lookupname: 2

Memory Information:
    physical page size = 4096 bytes, logical page size = 4096 bytes
    Physical: 4161772 Kbytes, lockable: 3018320 Kbytes, available: 3174196 Kbytes

       * Preparing to execute init...
=======  01/10/12 10:15:43 EST  HP-UX Installation Initialization. (Tue Jan 10
         10:15:43 EST 2012)
         @(#)Ignite-UX Revision C.7.7.98
         @(#)ignite/launch (opt) Revision:
         /branches/IUX_RA0809/ignite/src@75250 Last Modified: 2008-08-25
         11:39:14 -0600 (Mon, 25 Aug 2008)
       * Configuring RAM filesystems...
       * Number of SAS devices swapped to be in physical location order: 2
       * Scanning system for IO devices...
       * Boot device is: 0/1/1/0
       * Setting keyboard language.

A USB interface has been detected on this system.
In order to use a keyboard on this interface, you must specify
a language mapping which will be used by X windows and
the Internal Terminal Emulator (ITE).
The characters "1234567890" will appear as "!@#$^&*()"
on keyboards that use the shift key to type a number.
Your choice will be stored in the file /etc/kbdlang


 1) USB_PS2_DIN_Belgian                  2) USB_PS2_DIN_Belgian_Euro
 3) USB_PS2_DIN_Danish                   4) USB_PS2_DIN_Danish_Euro
 5) USB_PS2_DIN_Euro_Spanish             6) USB_PS2_DIN_Euro_Spanish_Euro
 7) USB_PS2_DIN_French                   8) USB_PS2_DIN_French_Euro
 9) USB_PS2_DIN_German                  10) USB_PS2_DIN_German_Euro
11) USB_PS2_DIN_Italian                 12) USB_PS2_DIN_Italian_Euro
13) USB_PS2_DIN_JIS_109                 14) USB_PS2_DIN_Korean
15) USB_PS2_DIN_Norwegian               16) USB_PS2_DIN_Norwegian_Euro
17) USB_PS2_DIN_S_Chinese               18) USB_PS2_DIN_Swedish
19) USB_PS2_DIN_Swedish_Euro            20) USB_PS2_DIN_Swiss_French2_Euro
21) USB_PS2_DIN_Swiss_German2           22) USB_PS2_DIN_Swiss_German2_Euro
23) USB_PS2_DIN_T_Chinese               24) USB_PS2_DIN_UK_English
25) USB_PS2_DIN_UK_English_Euro         26) USB_PS2_DIN_US_English
27) USB_PS2_DIN_US_English_Euro

Enter the number of the language you want:
24
```

Ya nos arranca el GUI de ignite, elegimos install HP-UX:



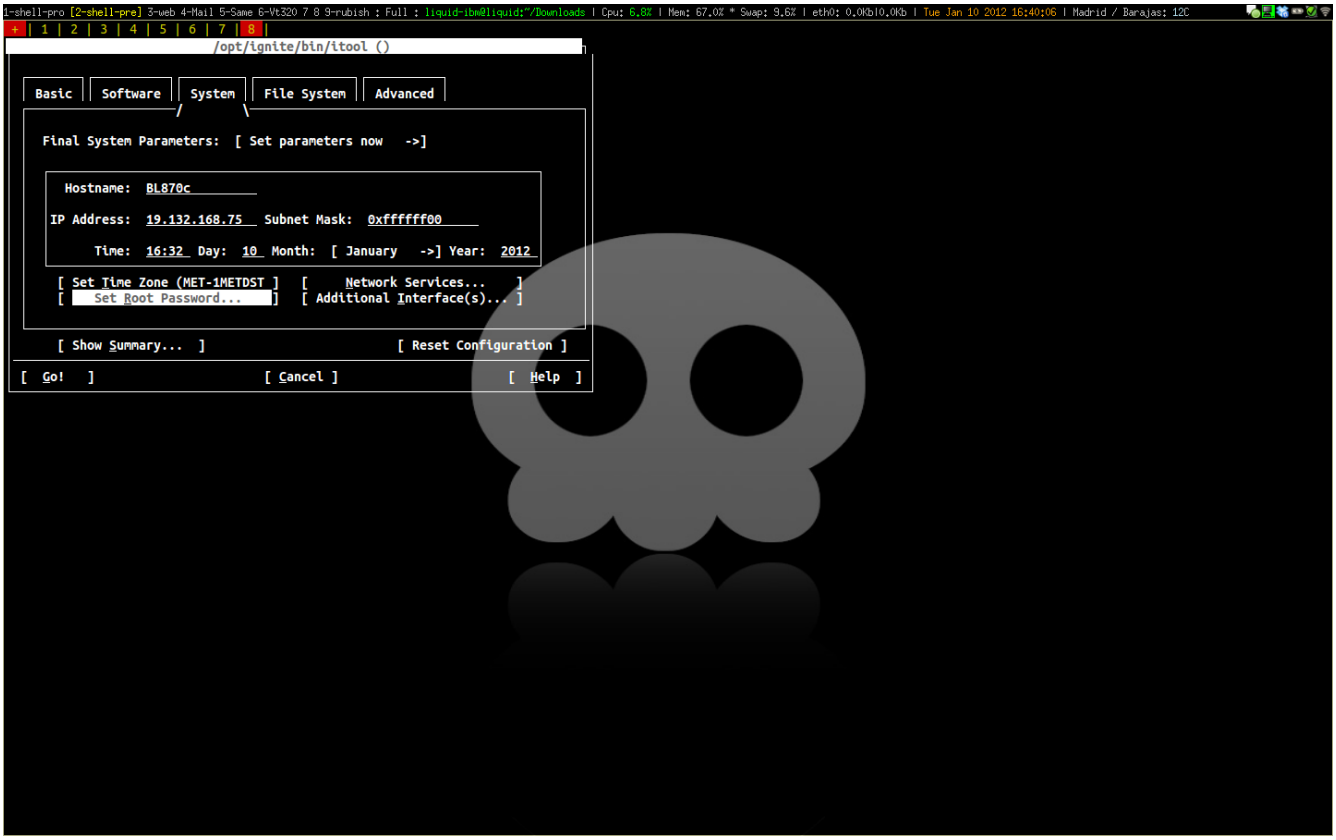
Después elegimos Advanced installation:

Después tenemos un menu con 5 pestañas, en la primera seleccionamos nuestro disco de root y comprobamos que vamos a instalar de un recovery archive, si necesitamos modificar la swap, la podemos modificar en el root swap, al final tiene la opción additional donde podemos configurar varias opciones, si vamos a restaurar a otro hardware, si queremos importar los Vgs de datos, etc.



La pestaña de software es si hemos puesto algún depot de software adicional para instalar al restaurar la imagen(como podria ser el software de vpars,drivers,etc), en este caso no instalamos software adicional, después en la pestaña system, ponemos la información de red que queremos que tenga el servidor destino, y las password de root

Finalmente en la pestaña de File System, fijamos el tamaño de los FS(por defecto son los mismos que tiene la imagen origen)



Cuando lo tengamos listo, damos a GO! Y ya empieza a restaurar la imagen en el disco seleccionado:

```
    * Bringing up Network (lan0)
add net default: gateway 19.132.168.1
       * Reading configuration information from server...
       * Loading configuration utility...
       * Beginning installation from source: 19.132.168.63
=======  01/10/12 10:32:23 EST  Starting system configuration...
```

```
       * Configure_Disks:  Begin
       * Mapping LUN Instance Data
       * Will install B.11.31 onto this system.
       * Creating LVM physical volume "/dev/rdisk/disk4_p2" (0/2/1/0.0x5000c500014cbb3d.0x0).
       * Creating volume group "vg00".
       * Creating logical volume "vg00/lvol1" (/stand).
       * Creating logical volume "vg00/lvol2" (swap_dump).
       * Creating logical volume "vg00/lvol3" (/).
       * Creating logical volume "vg00/lvol4" (/tmp).
       * Creating logical volume "vg00/lvol5" (/home).
       * Creating logical volume "vg00/lvol6" (/opt).
       * Creating logical volume "vg00/lvol7" (/usr).
       * Creating logical volume "vg00/lvol8" (/var).
       * Extending logical volume "vg00/lvol1" (/stand).
       * Extending logical volume "vg00/lvol2" (swap_dump).
       * Extending logical volume "vg00/lvol3" (/).
       * Extending logical volume "vg00/lvol4" (/tmp).
       * Extending logical volume "vg00/lvol5" (/home).
       * Extending logical volume "vg00/lvol6" (/opt).
       * Extending logical volume "vg00/lvol7" (/usr).
       * Extending logical volume "vg00/lvol8" (/var).
       * Making VxFS filesystem for "/stand", (/dev/vg00/rlvol1).
       * Making VxFS filesystem for "/", (/dev/vg00/rlvol3).
       * Making VxFS filesystem for "/tmp", (/dev/vg00/rlvol4).
       * Making VxFS filesystem for "/home", (/dev/vg00/rlvol5).
       * Making VxFS filesystem for "/opt", (/dev/vg00/rlvol6).
       * Making VxFS filesystem for "/usr", (/dev/vg00/rlvol7).
       * Making VxFS filesystem for "/var", (/dev/vg00/rlvol8).
       * Configure_Disks:  Complete
        •   Download_mini-system:  Begin
        •

….....................................................

-en     * Download_mini-system:  Complete
       * Loading_software:  Begin
       * Installing boot area on disk.
       * Formatting HP Service Partition.
       * Enabling swap areas.
       * Backing up LVM configuration for "vg00".
       * Processing the archive source (Recovery Archive).
       * Tue Jan 10 10:34:54 EST 2012: Starting archive load of the source (Recovery Archive).
       * Processed 10% of archive
       * Processed 20% of archive
       * Processed 30% of archive
       * Processed 40% of archive
       * Processed 50% of archive
       * Processed 60% of archive
       * Processed 70% of archive
       * Processed 80% of archive
       * Processed 90% of archive
       * Completed 100% of archive
       * Tue Jan 10 10:48:15 EST 2012: Completed archive load of the source (Recovery
Archive).
       * Executing user specified script: "/opt/ignite/data/scripts/os_arch_post_l".
       * Running in recovery mode (os_arch_post_l).
        •   Relocating RAM filesystems.
        •
```

Despues de 2 reinicios el servidor ya empieza a arrancar del disco selecionado en el menu donde se ha instalado la imagen nueva, para estar seguros de la configuracion de red(que no nos levante con una IP de la maquina de producción la podemos arrancar en sigle user despues del segundo reinicio y

comprobar que el netconf esta ok).

Después ya el servidor arranca clonado con normalidad:

```
     Starting HP-UX Tomcat-based Servlet Engine .................. N/A
     Starting HP-UX Webmin-based Admin ........................... N/A
     Starting the HPUX Webproxy subsystem ........................ N/A
     Starting HP-UX XML Web Server Tools ......................... OK
     Start kwdbd ................................................. N/A
     Validating HP Virtual Machine Configuration ................. N/A
     Starting OVTrcSrv ........................................... OK
     Start LVM daemon ............................................ OK
     Starting the amgrd subsystem ................................ N/A
     Starting PRNGD (Pseudo Random Number Generator Daemon) ...... N/A
     Starting Control Daemon ..................................... N/A

The system is ready.


GenericSysName [HP Release B.11.31] (see /etc/issue)
Console Login: root
Password:
Last successful login:       Tue Jan 10 14:43:50 MET 2012 /dev/console
Last authentication failure: Tue Jan 10 14:43:49 MET 2012 /dev/console
Please wait...checking for disk quotas
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(c)Copyright 1979, 1980, 1983, 1985-1993 The Regents of the Univ. of California
(c)Copyright 1980, 1984, 1986 Novell, Inc.
(c)Copyright 1986-2000 Sun Microsystems, Inc.
(c)Copyright 1985, 1986, 1988 Massachusetts Institute of Technology
(c)Copyright 1989-1993  The Open Software Foundation, Inc.
(c)Copyright 1990 Motorola, Inc.
(c)Copyright 1990, 1991, 1992 Cornell University
(c)Copyright 1989-1991 The University of Maryland
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You have mail.

Value of TERM has been set to "vt100".
WARNING:  YOU ARE SUPERUSER !!

# uname -a
HP-UX BL870c B.11.31 U ia64 3551397632 unlimited-user license
# netstat -ni
Name      Mtu  Network         Address         Ipkts              Ierrs Opkts
Oerrs Coll
lan0      1500 19.132.168.0    19.132.168.75   1083               0     1082               0
0
lo0      32808 127.0.0.0       127.0.0.1       22003              0     22003              0
0
```