How to Clone a VMS Disk

To clone an Alpha VMS disk (for use at a different site, for example), perform the following steps.

- **Configure the Alpha** hardware as desired.
- **Connect the Image Backup Disk** to the Alpha machine.
- **Boot from an OpenVMS CD-ROM Disk.**
- **Perform an Image Backup** from the source disk to the target disk.
- **Remove the source disk** from the Alpha machine.
- **Boot the New System**
- **Run HSQPARAMS** to configure the newly cloned disk.

Create a Standalone Image Backup Disk

1. Before starting the disk clone procedure, you must have a usable disk from which you can work. If one does not exist, you must perform a standalone image backup from an existing system disk to an attached external hard drive. Use the procedure on the VMS install disk to perform this step. When the disk backup is complete, remove the external hard drive. Make a note of the device name (for example, dka100). This will be used as the “source” disk for the image disk.
2. Once the standalone image backup disk is ready, you can proceed with the following steps.

Connect the Image Backup Disk

Make sure Alpha machine is disconnected from the network before performing these steps.

1. Power down the Alpha machine, if it is not already powered down.
2. Remove the Alpha unit’s side or rear panel to gain access to the internal SCSI bus.
3. Attach the Image Backup Disk via the internal SCSI ribbon cable also attached to the unit’s CD-ROM drive.

Boot from an OpenVMS CD-ROM Disk

If a SCSI port has no SCSI peripheral connected to it, it must be terminated with a SCSI terminator (provided by DEC), otherwise the system will not boot properly.

The assembled system should have the **OpenVMS™** operating system pre-installed on the CPU module's hard drive. At power up, the system will boot to full system status unless instructed otherwise. To boot from the CD-ROM drive, perform the following steps.

1. Power up the Alpha machine (without the OpenVMS disk in the CD-ROM drive). A number of messages will scroll down the screen. **Press CNTRL-C** immediately after you see the following

   ```
   CPU 0 booting
   ```

   to interrupt the normal boot process and access the console prompt (>>>). Alternatively, you may depress the reset button (on the front panel) to interrupt the standard OpenVMS startup, and bring up the console prompt.

2. At the console prompt, type the following to confirm the CD-ROM disk label. It should be dka400, if not, use the indicated device name in the following procedure.

   ```
   >>> show device disk
   ```

   Insert the OpenVMS disk into the CD-ROM drive, and type the following to boot the system of the disk in the CD-ROM drive.

   ```
   >>> set auto_action HALT
   >>> boot dka400
   ```

   The first of these two commands tells the system to not automatically boot to full system status when booted. The second starts the actual boot process from the CD-ROM drive. A number of messages will scroll down the screen. Eventually a menu of choices will appear.

   ```
   1) Install or upgrade OpenVMS Alpha Version...
   2) List layered product kits that this process can install
   3) Install or upgrade layered product(s)
   4) Execute DCL ommands and procedures
   5) Shut down this sytem
   Enter CHOICE or ? to repeat menu: (1/2/3/4/5/?)
   ```

   Enter 4 at the prompt, after a short series of warning messages, a system prompt of $$$ will appear.

Perform an Image Backup

1. At the VMS prompt, type the following commands. First, check that both the source and destination disk drives display as recognized devices. You can not proceed until both are recognized by the operating system.

   Enter:

   ```
   $$$ show device disk
   ```

   to verify that both devices are recognized.

2. The source and target disks must be mounted before proceeding. *In this example*, dka100 is the source disk and dka300 is the target disk.

   ```
   $$$ mount dka100: /over=identification
   $$$ mount dka300: /foreign
   ```

3. Perform a device display again to verify that each disk is mounted correctly.

   ```
   $$$ show device disk
   ```

4. To start the backup process, enter the following command:

   ```
   $$$ backup /image dka100: dka300:
   ```

   Ignore any messages that may which list files that could not be copied because they could not be found or because the files was marked “Not for backup.”

   After a few minutes, the $$$ prompt will reappear.

5. Type the following to log out of the $$$ prompt:

   ```
   $$$ log out
   ```

   The five menu choices described earlier will display. **Choose number 5** (Shut down this system). After the system shuts down and reboots, the >>> prompt will reappear.

6. The boot sequence must be reset to automatic. Enter the following at the >>> (console) prompt:

   ```
   >>> set auto_action boot
   ```

7. Power down the AlphaServer and remove the source disk.

Boot the New System

Perform the following steps to verify that the newly cloned disk is recognized.

1. Power up the AlphaServer 800. A number of messages will scroll down the screen. **Press CNTRL-C** immediately after you see the following

   ```
   CPU 0 booting
   ```

   to interrupt the normal boot process and access the console prompt (>>>). Alternatively, you may depress the reset button (on the front panel) to interrupt the standard OpenVMS startup, and bring up the console prompt.

2. To verify the AlphaServer boot drive, type the following:

   ```
   >>> show bootdef_dev
   ```

   The label of the boot device should display. (If the target disk was dka100, then this will display.)

3. To boot the AlphaServer from the boot disk, simply type:

   ```
   >>> boot
   ```

Run HSQPARAMS

MISER program HSQPARAMS must be run to rename the newly created system disk.

1. Type the commands following at the $ prompt to start HSQPARAMS. Note that the prompt will display the site name from the image backup system (for example, TURVSA$).

   ```
   XXXVSA$ tools
   XXXVSA$ stop_miser
   XXXVSA$ hsqparams
   ```

2. Follow the direction outlined in HSQ document **HSQPARAMS** to rename the cloned disk.

3. Shut down the system and reconnect it to the network.

4. Boot the final configuration.

Reconnect the AlphaServer 800 to the Ethernet network.

Checking System Environment Variables

It is important to verify that all the system variables have been set properly. To view system variables, use the following commands. Each Alpha machine type must be set according to the manufacture's specifications. Consult DEC Alpha documentation for details.

To display the current setting for an environment variable, type:

```
>>> show variable_name
```

at the boot prompt (>>>), where *variable_name* is one of the listed environment variables. (**Show**, by itself, will display the entire list of variables and their current settings.)

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