

Re-installing a multi-partitioned RedHat 7.1 for The Rembo Wizard

Problem description

An existing RedHat 7.1 workstation should be converted to be used with the The Rembo Wizard. The problem is with the current partitioning scheme of the system with two partitions for the system, one partition for the user data and one swap partition while The Rembo Wizard manages only one system partition.

Task description

We will use both the Rembo Toolkit in the command line mode and The Rembo Wizard to reinstall the system with the partitioning scheme supported by The Rembo Wizard. The two system partitions will be combined together to one system image and stored on a Rembo Server. The user data directory will be temporarily stored on the Rembo Server as well. Then the hard disk will be partitioned with three partitions: system, swap data. Stored images are installed on new partitions. `/etc/fstab` will be modified before the system is started again. After verification, a new base image is taken with The Rembo Wizard.

Analyze the partition table of the actual installation

It is best done when the old system is still running. In the example system, we have following type of partition distribution with `df(1)`:

Filesystem	1k-blocks	Used	Available	Use%	Mounted on
/dev/hda1	1011928	63880	896644	7%	/
/dev/hda3	5044188	5600	4782352	1%	/home
/dev/hda2	3028108	204828	2669460	8%	/usr

`/dev/hda4` is the swap partition as can be seen in the system's `/etc/fstab(5)`. From above follows that the "/" and the `/usr` partitions should be combined on the new `/dev/hda1`, while the new swap should be on `/dev/hda2` and the user's data should be restored on a new `/dev/hda3`.

Prepare the target system to boot with The Rembo Wizard and create temporary images.



This work includes the selection of meaningful System Type and OS Type names for the installation and setting a meaningful configuration The Rembo Wizard for this host. In this example, the System Type is "DO1" and the OS Type is "R71" for RedHat Linux 7.1. It is to be noted also that the system is located in a classical style, 10 Mbit/s Ethernet segment with a fan-out unit. Therefore the network protocol is Unicast and we use the transfer speed setting of max. 5 Mbit/s. Working with Unicast means also that will not use any local disk cache but we will operate on the Rembo Server's file system directly (we will use `net://` instead of `cache://` URI's when referencing to archives).

Take images of the original system

Sorry, some typing is required. There is no automation possible here but you have to give some Rembo commands by hand through the Rembo's interactive interface. Load and start Rembo's administration plug-in through the following buttons in The Rembo Wizard.



From the menu in the lower left corner, open up a console to see the result of (and the errors in) your commands. Open also the interactive, command typing dialog with the help button.



Let's start with the `/home` directory, the data directory which should be kept separated. We will build a base image of the corresponding disk partition, `/dev/hda3` with the following command.



```
BuildDiskImage(0,3,"net://host/hdimages/homebup.bas");
```

That is "take a simple, non-virtual image of the third partition (3) of the first disk (0) and store it on the network file system (Rembo Server), in host level scope, in the directory `hdimages`, filename `homebup.bas`". Observe the console for any errors; you should see a Synchronization bar to appear almost instantly.

What follows is a little more complicated. We must now combine all the system partitions in one, single image. This is done with the help Rembo virtual images. For more explanations, see [Creating a Linux Base Image](#) section in the Rembo Client Administration Manual.

Create a virtual image starting with `/dev/hda1` partition.

```
CreateVirtualImage("system", "disk://0:1");
```

Add the `/usr` partition `/dev/hda2` on the virtual image `system`, just created

```
LinkTree("link://system/usr", "disk://0:2");
```

Create now a combined base image of the two partitions with filename that corresponds The Rembo Wizard file naming convention (`DO1R71.bas`).

```
Synchronize("link://system", "net://host/hdimages/DO1R71.bas", "");
```



When the operation is finished we will observe that we have

the two base images created on the remote server. This can be done in three different ways:

1. With a Windows workstation based Rembo Server Management Console (as illustrated on the left), located in the "wintools" directory of the Rembo Toolkit's distribution..
2. With the shell prompt command line command "netclnt", located in the "misc" directory of the Rembo Toolkit's distribution.
3. From the client screen's file browser as explained below.



Repartition the hard disk

WARNING: From this point on, there is no return! As an experienced system administrator you certainly do understand the potential risks of the following procedure which erases all the information from the disk.



It is good idea now to **Reboot the computer**. Since we are going to change the partition table of the system it is better to make sure that there is no open file handles hanging around in the Rembo OS.

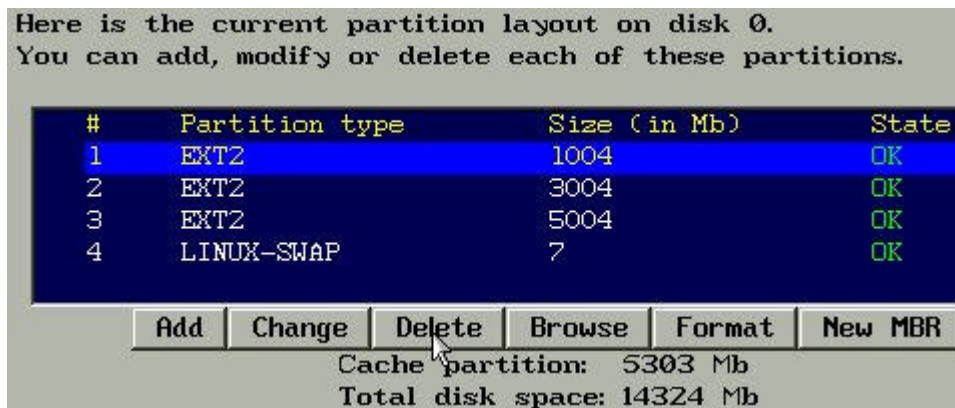
Otherwise an error message like **An error was encountered: Resource busy (disk://0:1/)** would appear somewhere on the line.

From the original installation we would create the new partition distribution that would adapt both to the original configuration and to the partitioning rules of the The Rembo Wizard for Linux systems.

- /dev/hda1 (1) for the system (5 GB)
- /dev/hda2 (2) for the swap (512 MB)
- /dev/hda3 (3) for the data (6 GB)

We could do the partitioning with some Rembo Toolkit's commands, but since we are lazy typers we are happy to use Rembo Toolkit's own partition manager.

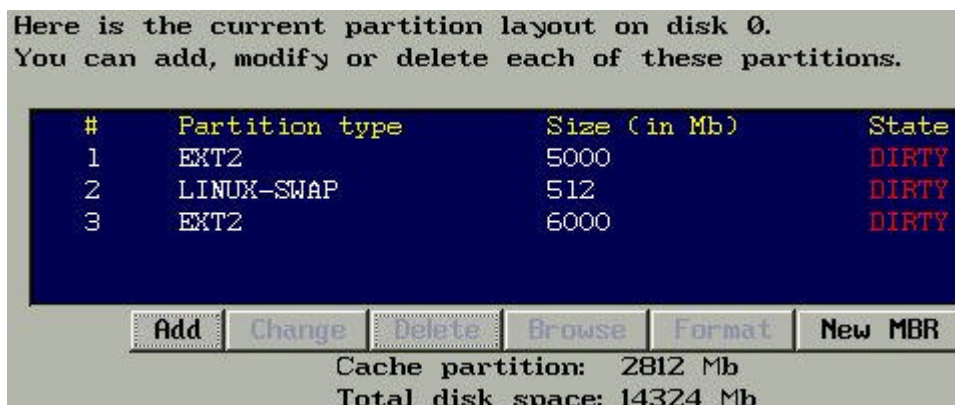




Select partitions with a click of the mouse, one at a time, from partition 4 to 1. Use the *Delete* button on all partitions to remove them from the disk's partition table. Use the *Add* button to create a new partition table. Note that all partitions will be primary partitions on the first partition table of the disk. Do not use logical partitions.

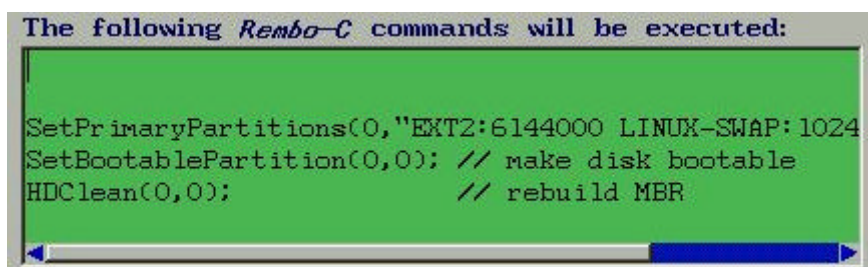


Below is the resulting partition table.

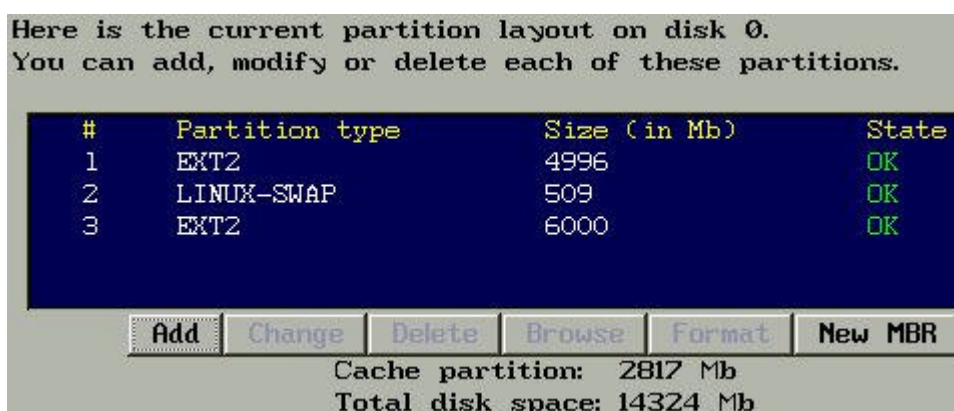


Press now the *Commit* button on the Rembo Toolkit's partition manager to write the partition table

on the disk. It will show us what commands you could have given yourself in the Interact-window. It is noteworthy to observe that also the master boot record will be cleaned in the process. Press *Do It !*



Click on *Done* to leave the Rembo Toolkit's partition manager. You can then revisit the partition manager in order to see what are the **actual** sizes of each partition; depending of the disk geometry and cluster size, it is rather rare to see that you can get exactly the values in MB that you have requested.



Restore the original content

Restoring is better done with the Rembo Toolkit's command line.



Restore the base image on the `/dev/hda1` partition (this will format the partition as well).

```
RestoreDiskImage(0,1,"net://host/hdimages/D01R71.bas");
```

Format the `/dev/hda2` (swap) partition.

```
HDClean (0,2);
```

Restore the user's data on the `/dev/hda3` partition (this will format the partition as well).

```
RestoreDiskImage(0,3,"net://host/hdimages/homebup.bas");
```

Modify the `/etc/fstab` according to the new partition scheme, using the Rembo Toolkit's file manager

and its text editor.

```
FileMan("disk://0:1");
```

- Files are not listed alphabetically but in the order of their creation...
- Most of the Linux installations are using the LABEL=xxx presentation of the disk partition in /etc/fstab. Replace the presentation with the basic device presentation, ex. /dev/hda1

File disk://0:1/etc/fstab				
File				
/dev/hda1	/	ext2	defaults	1 1
/dev/hda3	/home	ext2	defaults	1 2
/dev/fd0	/mnt/floppy	auto	noauto,owner	0 0
none	/proc	proc	defaults	0 0
none	/dev/pts	devpts	gid=5,mode=620	0 0
/dev/hda2	swap	swap	defaults	0 0
/dev/cdrom	/mnt/cdrom	iso9660	noauto,owner,kudzu,ro	0 0

Above is the new /etc/fstab file of the modified system in the Rembo Toolkit's File Manager's editor window.

Test the restored system

Boot the system with the original kernel, in this system *vmlinuz-2.4.3-12*.

```
LXBoot("disk://0:1/boot/vmlinuz-2.4.3-12", "", "root=/dev/hda1");
```

Everything should be as before...

Take new base image with The Rembo Wizard

Beside the /etc/fstab, there is probably some other modifications that you have carried out in the restored system. Anyway, it is good idea now to

- Register the new partition table signature into the *autoload*-file
- Take a base image of the restored and modified system.
In the example the end-user is supposed to take his/her own differential system backups. Therefore the base image is taken in the host scope.





Say *Yes* to the above question and in the following configuration dialog, do not forget to press *OK* to store the new partition table signature into the *autoload*-file of the host.

Now take a system administration level backup - the base image - using the The Rembo Wizard's main menu functionality.



Use now the *Admin Backup* button to make a new base image. It will replace the original one, taken from the system with multiple partitions.

Remove the temporary backup of the user's data partition

The Rembo Wizard is not intended to be used for data backups. In the above partition scheme, only the `/dev/hda1` will be backed up. There is no need to leave the temporary data partition archive on the Rembo Server. Delete *homebup.bas*.

08 Mar 2002