Customizable CD/DVD

Workshop

September 2005

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I. Deploy from the bootable CD/DVD, archive is located on the CD/DVD

Introduction

This chapter describes how to create custom bootable Recovery CD/DVD with preliminary prepared backup image (images can be prepared by any of available variants as it is described in the **Deployment workshops and scenarios** document)

OS deployment requires performing of following steps:

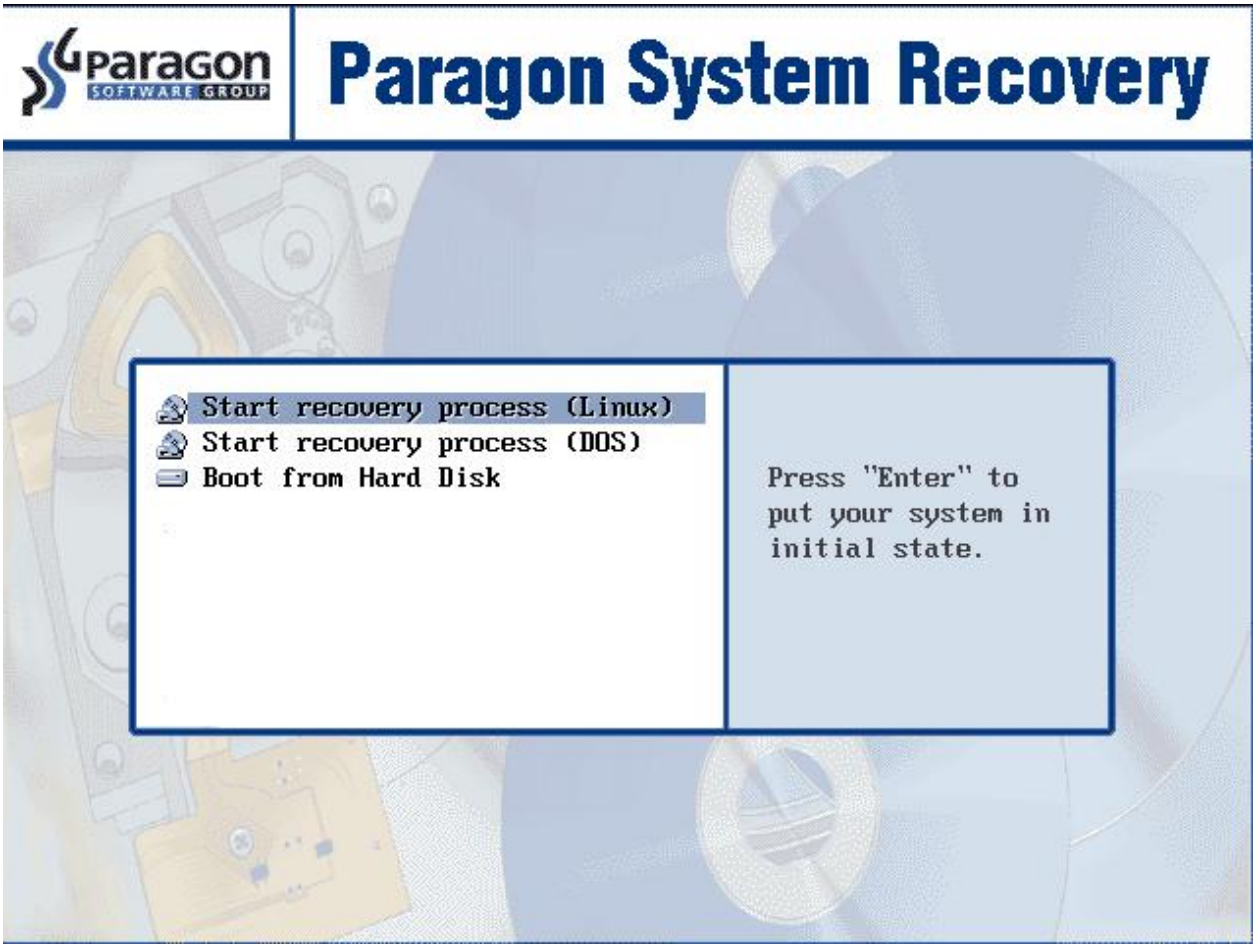
1. Install an OS on a “Master PC” (which will be backed up for deployment);
2. Install Paragon Deployment Manager 7.0;
3. Launch Exact Image module;
4. Prepare backup images;
5. Create custom menu (MENU.CFG, START.BAT) and prepare scripts
6. Burn customizable bootable Recovery CD/DVD with preliminary prepared backup images and customized menu;
7. Boot “Client PCs” with bootable CD with backup images and perform restore.

I.1. Variants of images/bootable CD/DVD creation process

I.1.1. Creation of customize bootable Recovery CD with preliminary prepared backup images

I.1.1.1. Custom Recovery CD structure, general components

The CD includes DOS and Linux environments:



Boot loader files:

.\BOOT\
.\BM.BIN
.\BM_HIDE
.\BM_MBR
.\BM_STAT
.\BOOT.CATALOG
.\BZIMAGE
.\CD_PLG.EXE
.\DOS.ENG
.\LILO.GER
.\MEMDISK

Boot loader boots:

.\DOS.IMG - DOS diskette image

or

.\INITRD.GZ – packed Linux image

To show Linux menu file

.\MENU.CFG

is required.

Without the file MENU.CFG, standard Hard Disk Manager Deployment engine is started in Linux mode.

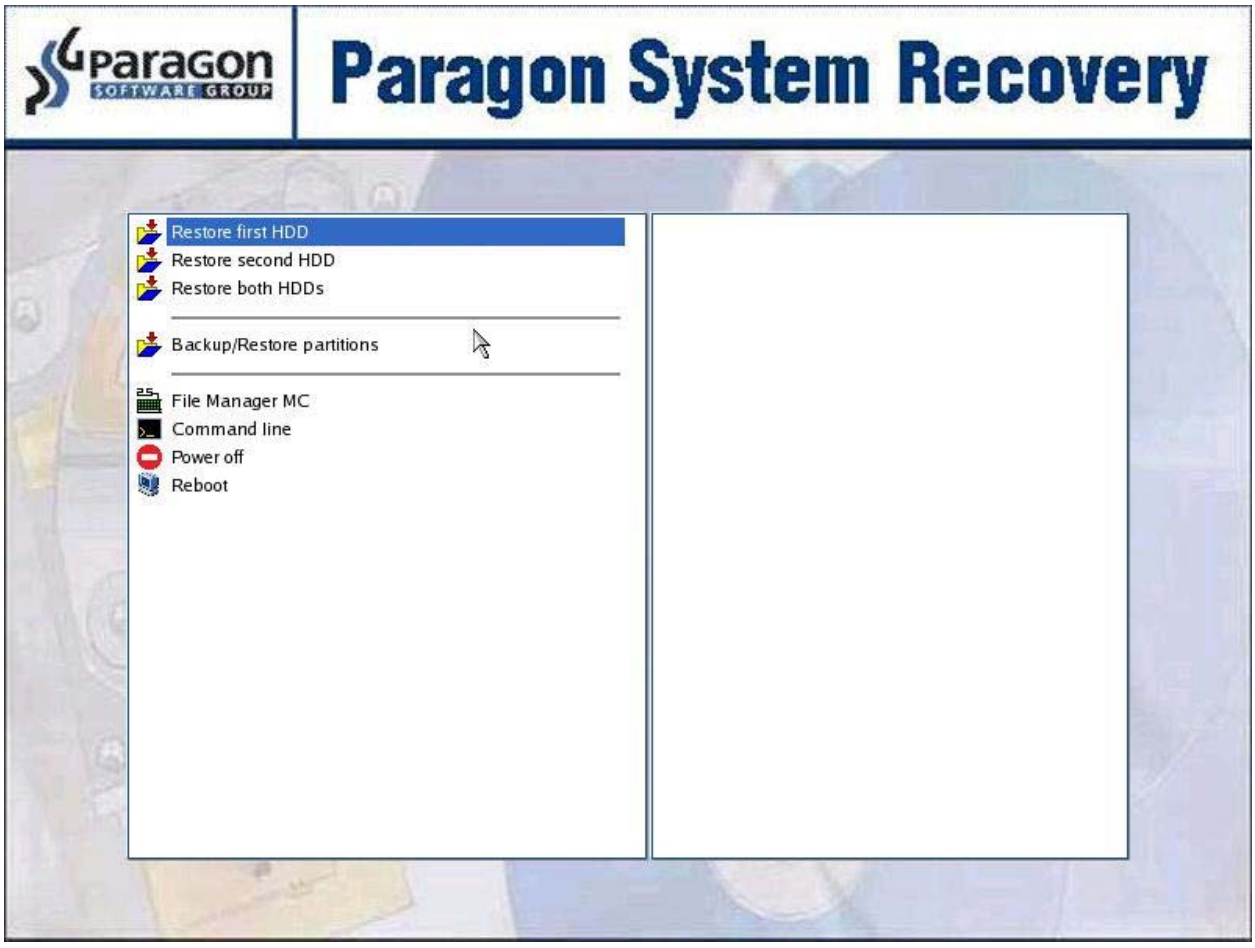
You can execute custom START.BAT after booting under DOS environment.

Without the file START.BAT Simple Recovery Wizard is started in DOS mode otherwise custom START.BAT is started.

From the main menu can be started Hard Disk Manager (“Start recovery process (Linux)”), Simple recovery Wizard (“Start recovery process (DOS)”) to work in manual mode or paragon engine scripts (up to 5), if there is custom MENU.CFG on CD/DVD:

.\PSRSCRIPT1.PSL
..
.\PSRSCRIPT5.PSL

The example MENU.CFG is to display Linux menu to start 3 scripts:



3 supplied example scripts are:

PSRSCRIPT1.PSL – Restore all partitions onto first HDD
PSRSCRIPT2.PSL – Restore the partition onto second HDD
PSRSCRIPT3.PSL – Restore all partitions onto both HDD

Partitions images imageXX.xxx should be located in the root of this CD (see Chapter I.1.2.2. which):

image11.xxx – the image of the system partition
image12.xxx – the second partition for the first HDD
image21.xxx - the partition for the second HDD

The **main changeable DOS batch file** is

./start.bat

This file starts after DOS booting and CD/DVD-ROM mounting. Insert this file with other customizable DOS files. (see How to prepare custom CD/DVD)

I.1.1.2. Preparing a custom CD/DVD

Step-by-step workflow to create custom Recovery CD/DVD with preliminary prepared backup images:

The supplied DeployCD.iso ISO-image is necessary to prepare final Recovery CD. It is need to add on the final CD/DVD files:

- MENU.CFG;
- script files PSRSCRIPT1.PSL…PSRSCRIPTx.PSL;
- and partition images imageXX.xxx;
- file start.bat to be started under DOS
- other file required under DOS

Important! The names of the files MENU.CFG, PSRSCRIPT1.PSL… PSRSCRIPTx.PSL and partition images are **CASE-SENSITIVE**!

We supply default MENU.CFG, PSRSCRIPT1.PSL, PSRSCRIPT2.PSL PSRSCRIPT3.PSL, start.bat and other DOS files to build the final CD/DVD (see the folder **\customfiles** in the package)

Step-by-step workflow to prepare custom CD/DVD:

1. Install Deployment Manager

2. Launch Exact Image module

3. Replace the file **<EI_InstallationFolder>\ISO\srw_en.iso** by customizable Recovery CD ISO image of the CD/DVD (DeployCD.iso)

   Important! As DeployCD.iso will be customized, we strongly recommend you to keep original ISO-image untouched and create copy of it for customizing!

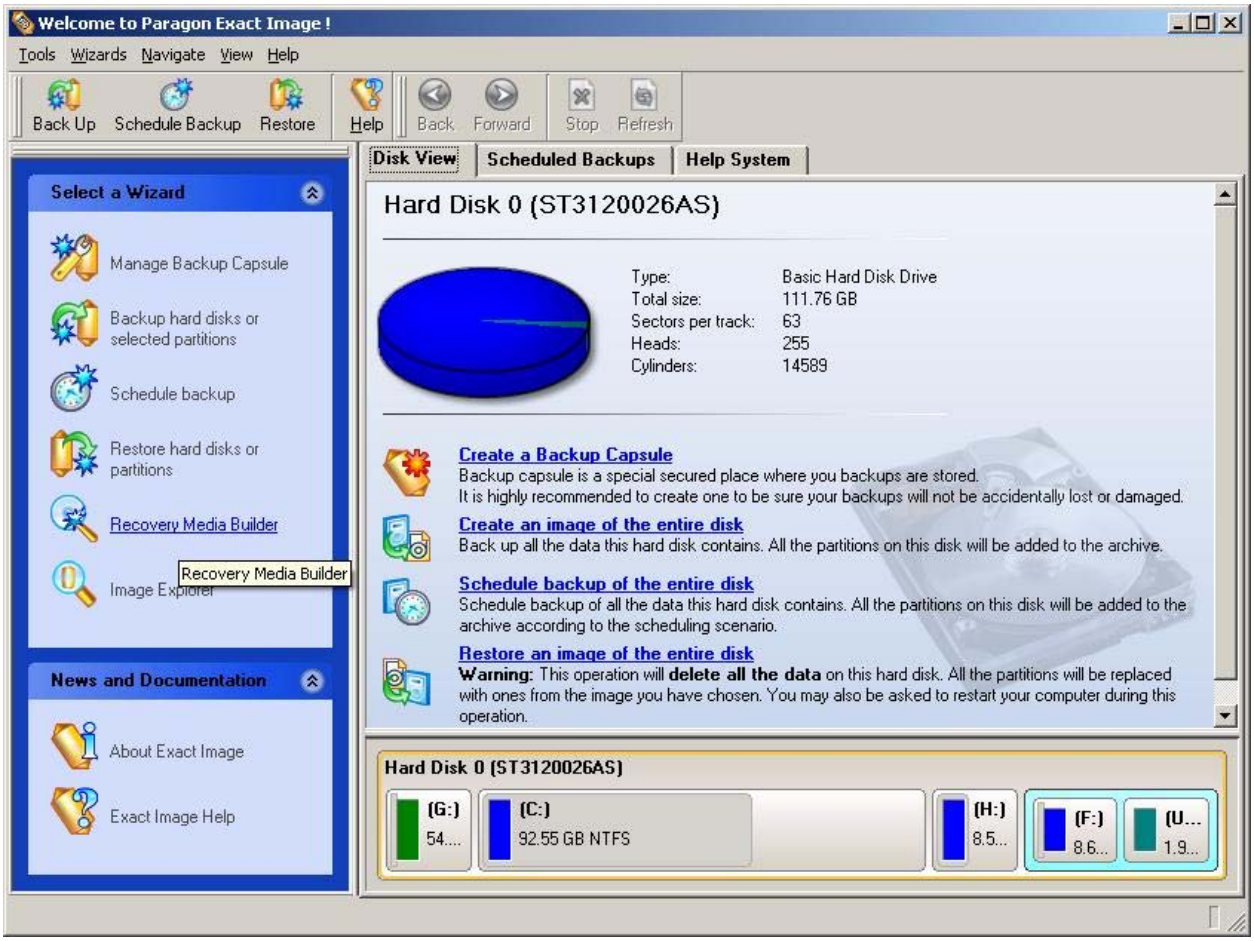
4. Prepare partition images with Exact Image (see Chapter I.1.2.2. in the **Deployment workshops and scenarios** document)

5. If it is necessary modify script files PSRSCRIPTX.PSL (see Chapter II.1.2.3. in the **Deployment workshops and scenarios** document)

6. If it is necessary edit file MENU.CFG (see Chapter II.1.2.4. in the **Deployment workshops and scenarios** document)

7. If it is necessary modify main DOS batch file **start.bat** and other DOS files

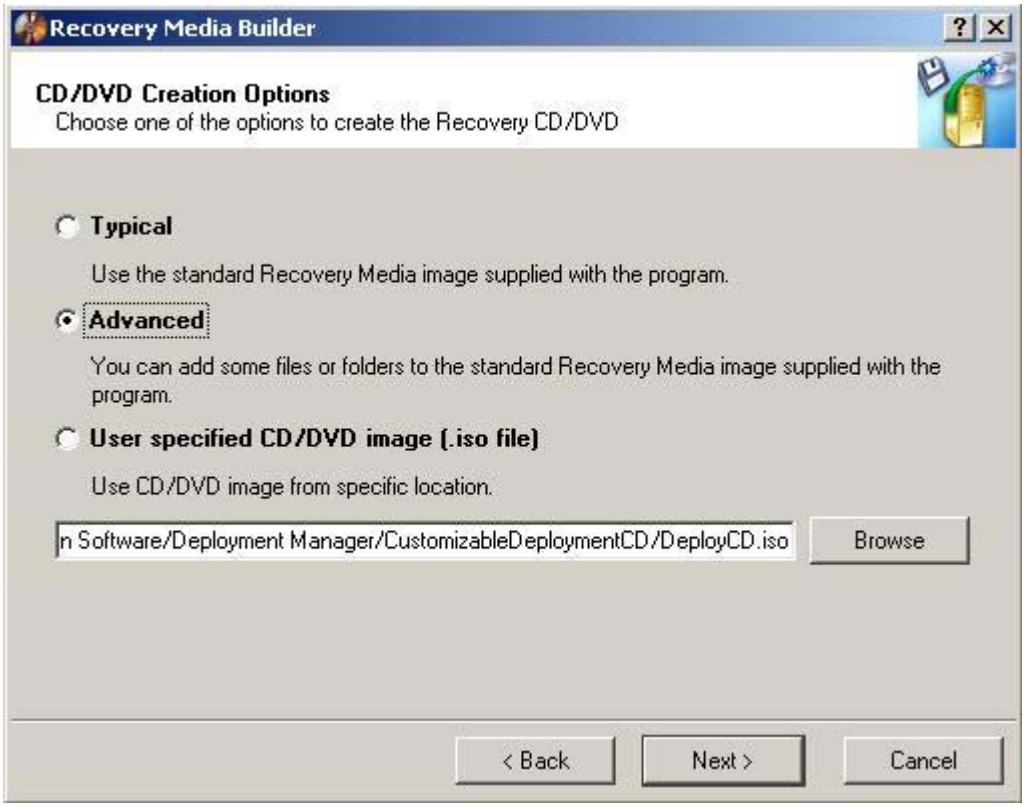
8. Startup Exact Image. You will be messaged to create Backup Capsule, press No.



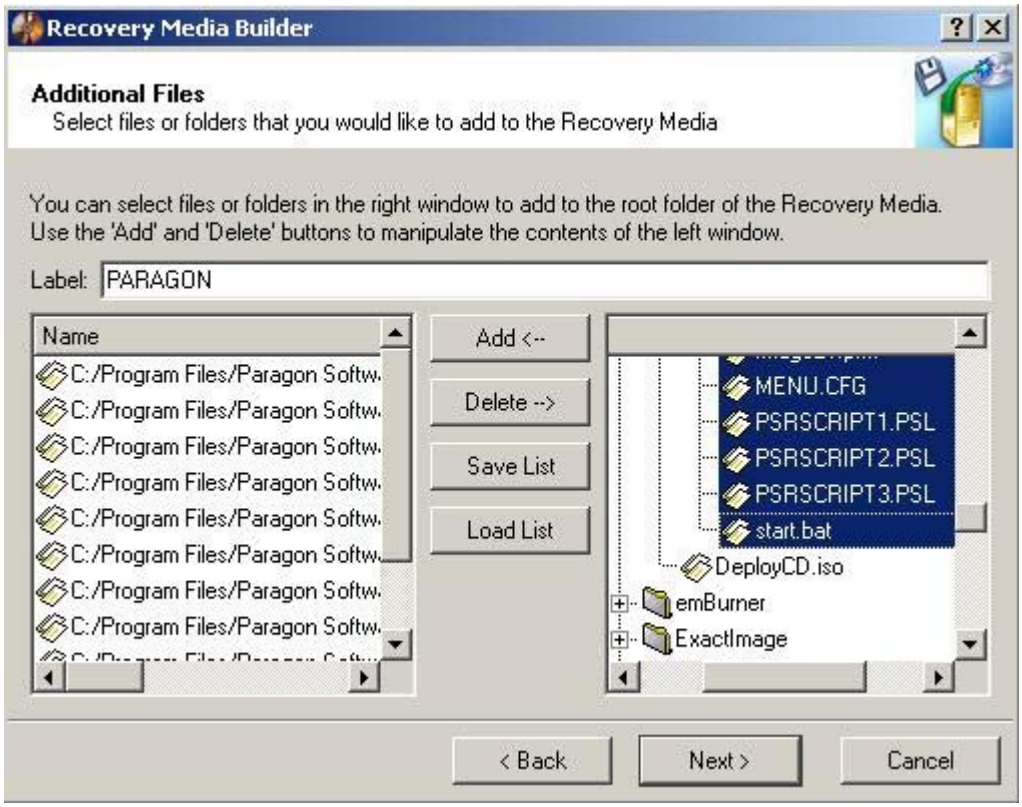
9. Start Recovery Media Builder from the left panel

10. Select CD/DVD as Recovery Media Type

11. Select Advanced option and click “Browse” to browse DeployCD.iso ISO-image

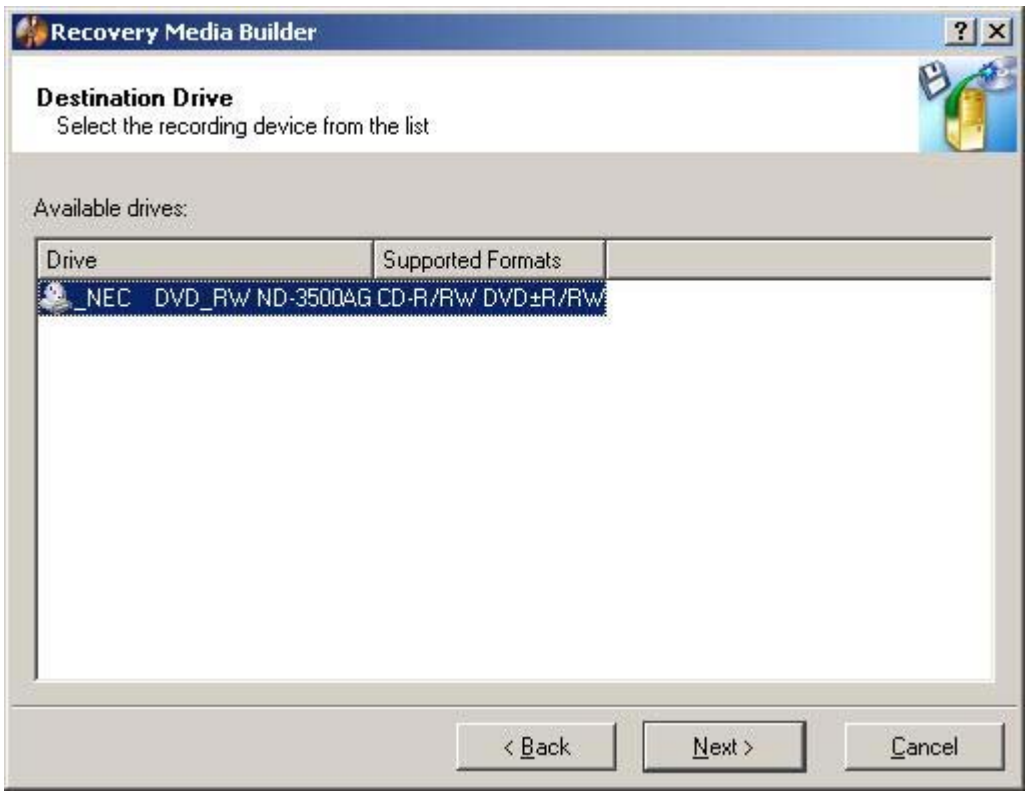


12. Add custom MENU.CFG, PSRSCRIPT1.PSL… PSRSCRIPTx.PSL, start.bat, partition images and other DOS file onto the CD



13. The user is able to save (“Save list” button) or load (“Load list” button) list of custom files (PSRSCRIPT1.PSL..PSRSCRIPT5.PSL, MENU.CFG, imageXX.xxx,start.bat).

14. Select CD/DVD Burner and burn the final custom CD/DVD



I.1.1.3. Script example

Let consider main parts of the example script **PSRSCRIPT1.PSL** to restore the partitions onto the HDD. This script works under DOS and Linux.

First standard Paragon Engine options initialized:

```
settings
      surfacetest off
      verify off
      copyonetoone off
…
      autoconverttofat32 on
      sidparams ""
      hotbackup lockimpossible
      tempdrive C
endsettings

// Turn off confirmation
confirm off
```

Then parameters of the script are set. <disknum> - the number of the HDD to restore, <img1> and <img2> - partition images to restore, <imgpath> - images path (used for DOS):

```
set value disknum = 0
set string img1 = "/image11.pbf"
set string img2 = "/image12.pbf"
set string imgpath = "$(DIRECTORY)/../.."

goto start_script
```

Under Linux is required to find the CD-Rom with the images. The function find_linux_file is used for it. The image <img1> should be located in the CD root:

```
find_linux_file:
    set string template = "/mnt/cdrom"
    set value counter = 0
…
    while ((value(now_time) + 120 >= nowtime) and (value(done) == 0))
endcall
```

In the case of Linux – call function <find_linux_file>

```
start_script:

if (os == linux) then
    call find_linux_file
endif
```

Verification that image file exists:

```
if (not(fileexist(string(imgpath) + string(img1))))
then
    print "File was not found"
    print ""
    goto error_out
endif
```

Select HDD to operate. Write standard MBR and delete all partitions:

```
select disk value(disknum)
```

```
update mbr
```
delete all

Check errors virtually, apply the operation physically and check errors again. Such section is used to execute the operations the physically:

```
// Check for errors
call check_error

// Apply all scheduled operations
apply all

// Check for errors
call check_error
```

Restore the partition from image <img1> and enlarge it up to 60Gb:

```
// Restore
img = string(imgpath) + string(img1)
select partition primary 0
select image all
resize image 60000 * 1024
restore
```

Create extended partition:

```
// Partition creation
print "Partition creation"
print ""
select partition primary 1
create /fs = extended /size = SIZEPARTITION (value(disknum),1)
```

Restore the partition from image <img2> as logical and enlarge it up to max

```
// Restore
img = string(imgpath) + string(img2)
select partition logical 0
select image all
resize image max
restore
```

I.1.1.4. MENU.CFG file example

The file MENU.CFG is to initialize Linux Menu. To manipulate amounts of items in the menu – add/change appropriate sections [LINEx]. Do not edit other sections.

For example, to start paragon script follow section is available:

```
[LINE1]
Title  = Restore first HDD
Title.de  = Restore first HDD
Title.fr  = Restore first HDD
Title.pl  = Restore first HDD
Title.jp  = Restore first HDD
Icon   = pic/db.bmp
ExCode = 2
ExString= RunPScr1
Hint = "Restore first HDD"
```

Title.de – The name of the menu item (German localization)

ExString = RunPScr1 – is indication to start script PSRSCRIPT1.PSL in the root of the CD/DVD.

To start script PSRSCRIPT2.PSL the string

```
ExString = RunPScr2
```

should be used.

I.2. Variants of deployment methods

I.2.1. Booting from custom CD/DVD and restore in automatic or manual mode

This chapter describes how to restore “Client PCs” from image placed on a custom Recovery CD.

The user should perform following tasks:

- Prepare backup images (see Chapter I.1.1. , Chapter I.1.2. , Chapter I.1.3. in the **Deployment workshops and scenarios** document)
- Create customized Recovery CD/DVD (see Chapter II.1.2. in the **Deployment workshops and scenarios** document)
- Burn customized Recovery CD/DVD with preliminary prepared backup images
- Boot “Client PC” with the customized Recovery CD
- Restore “Client PC” from image placed on the customized Recovery CD/DVD in manual or automatic mode

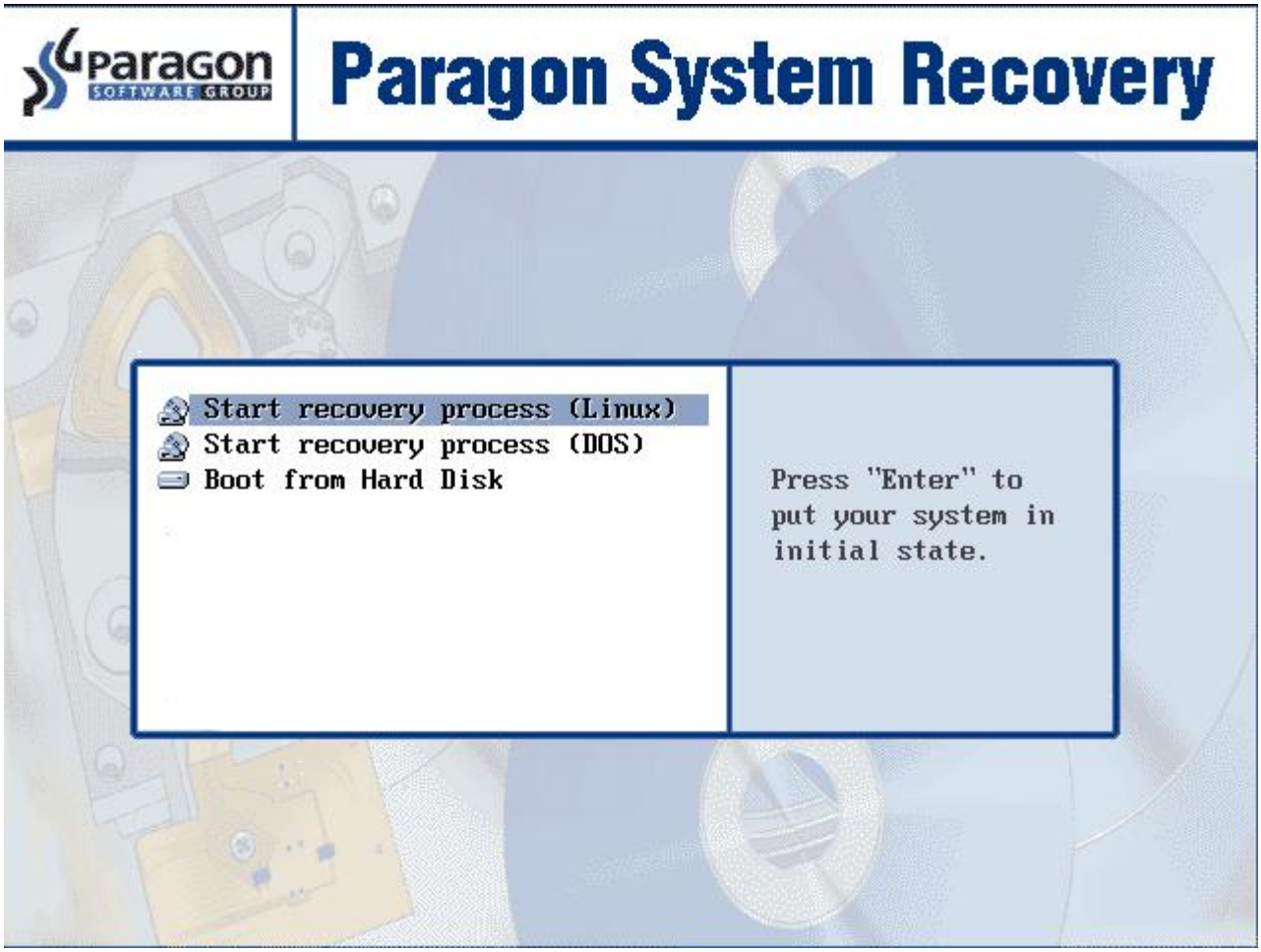
I.2.1.1. Restore in automatic mode

In order to restore “Client PCs” from image placed on the custom CD/DVD, the user should perform following tasks:

- Prepare customized Recovery CD with preliminary prepared backup images (see Chapter II.1.2. in the **Deployment workshops and scenarios** document)
- Boot “Client PC” with the customized Recovery CD/DVD
- Select “Start recovery process (Linux)”
- Run one of available scripts to restore “Client PC”

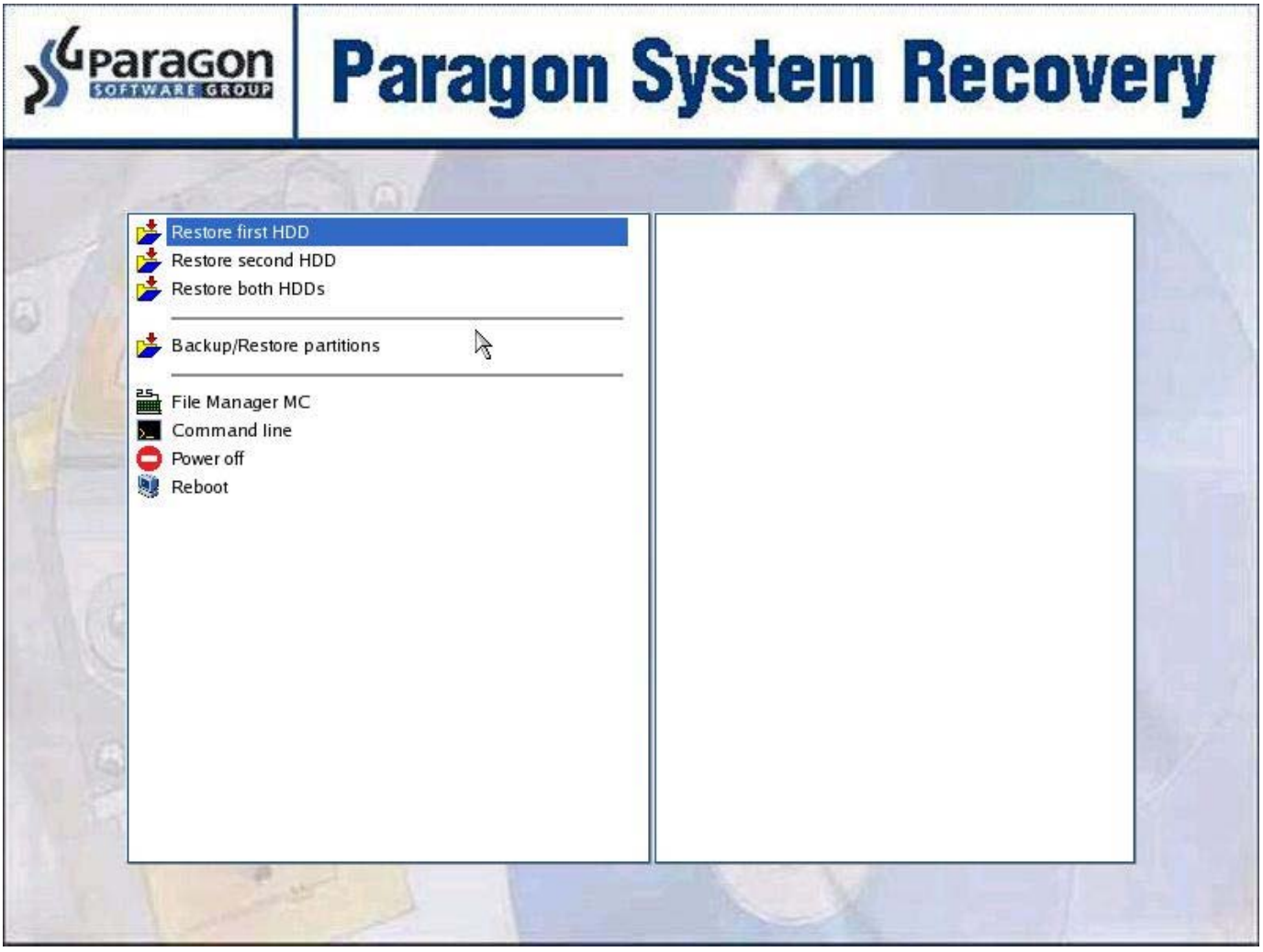
Step-by-step workflow to perform deployment using custom Recovery CD:

1. Boot “Client PC” with custom Recovery CD/DVD with backup archives, scripts and customize menu (see Chapter II.1.2. (in the **Deployment workshops and scenarios** document) to prepare custom CD/DVD)

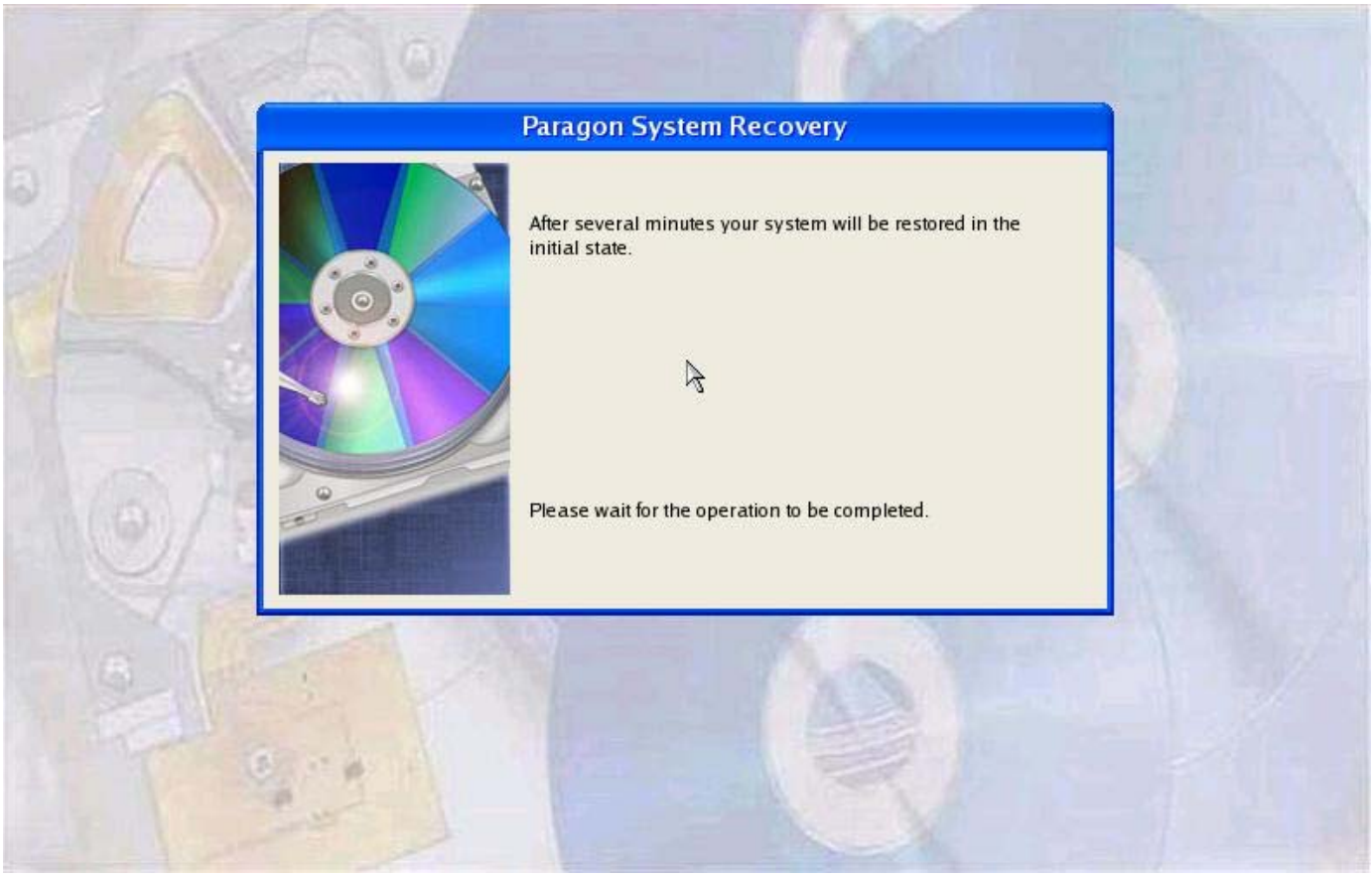


2. Select “Start recovery process (Linux)” in order to restore “Client PC” in automatic mode

3. Wait for customized menu to load



4. To restore in automatic mode, please select appropriate menu item: “Restore first HDD”, “Restore second HDD” or “Restore both HDDs”. (**Note,** menu and scripts can be customized by the user and may have different names and functionality)



5. Wait for operation to be completed.

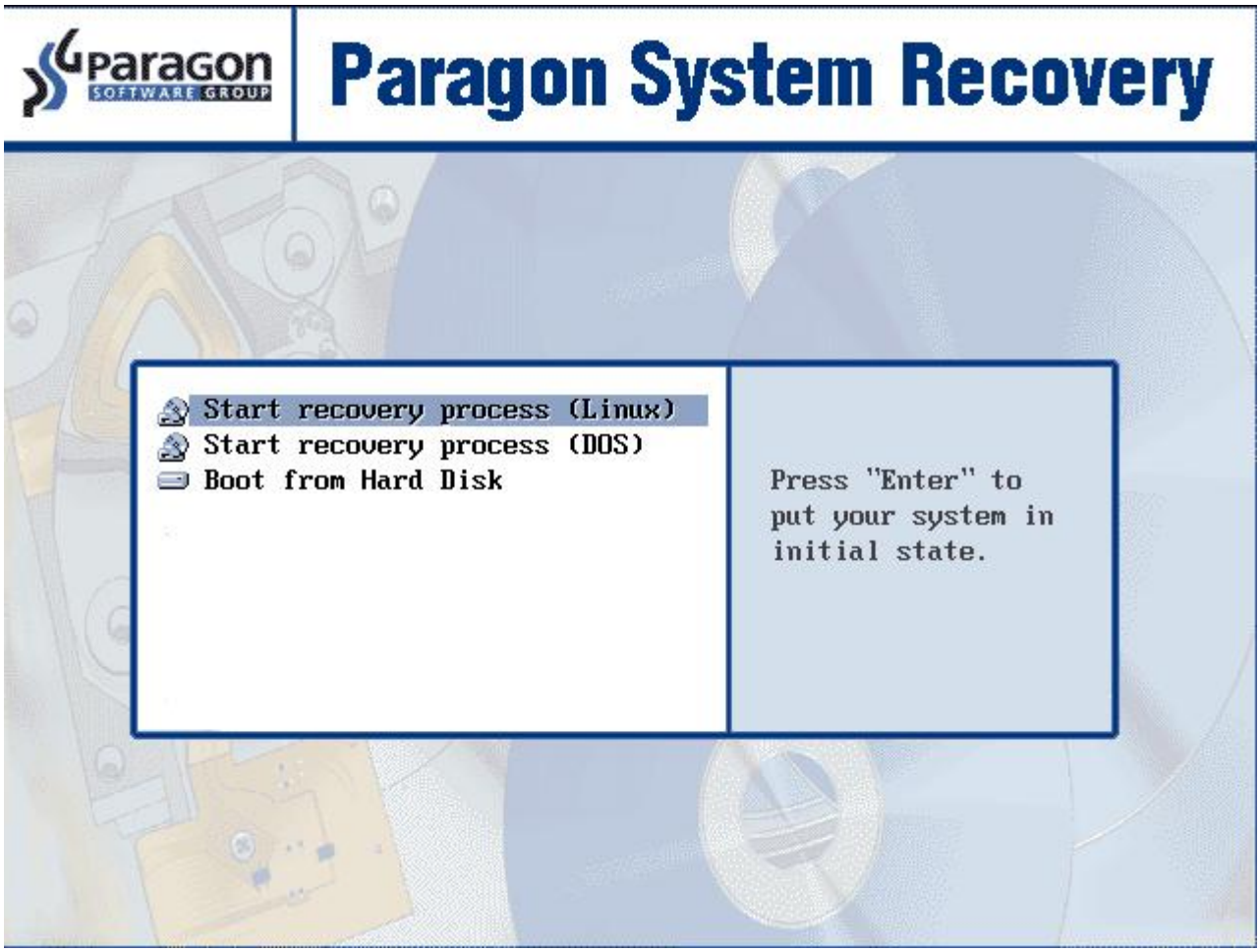
I.2.1.2. Restore in manual mode

In order to restore “Client PCs” from image placed on the custom CD/DVD, the user should perform following tasks:

- Prepare customized Recovery CD/DVD with preliminary prepared backup images (see Chapter II.1.2. in the **Deployment workshops and scenarios** document))
- Boot “Client PC” with the customized Recovery CD/DVD
- Select “Start recovery process (Linux)”
- Launch Hard Disk Manager
- Perform manual restore of a “Client PC” in manual mode

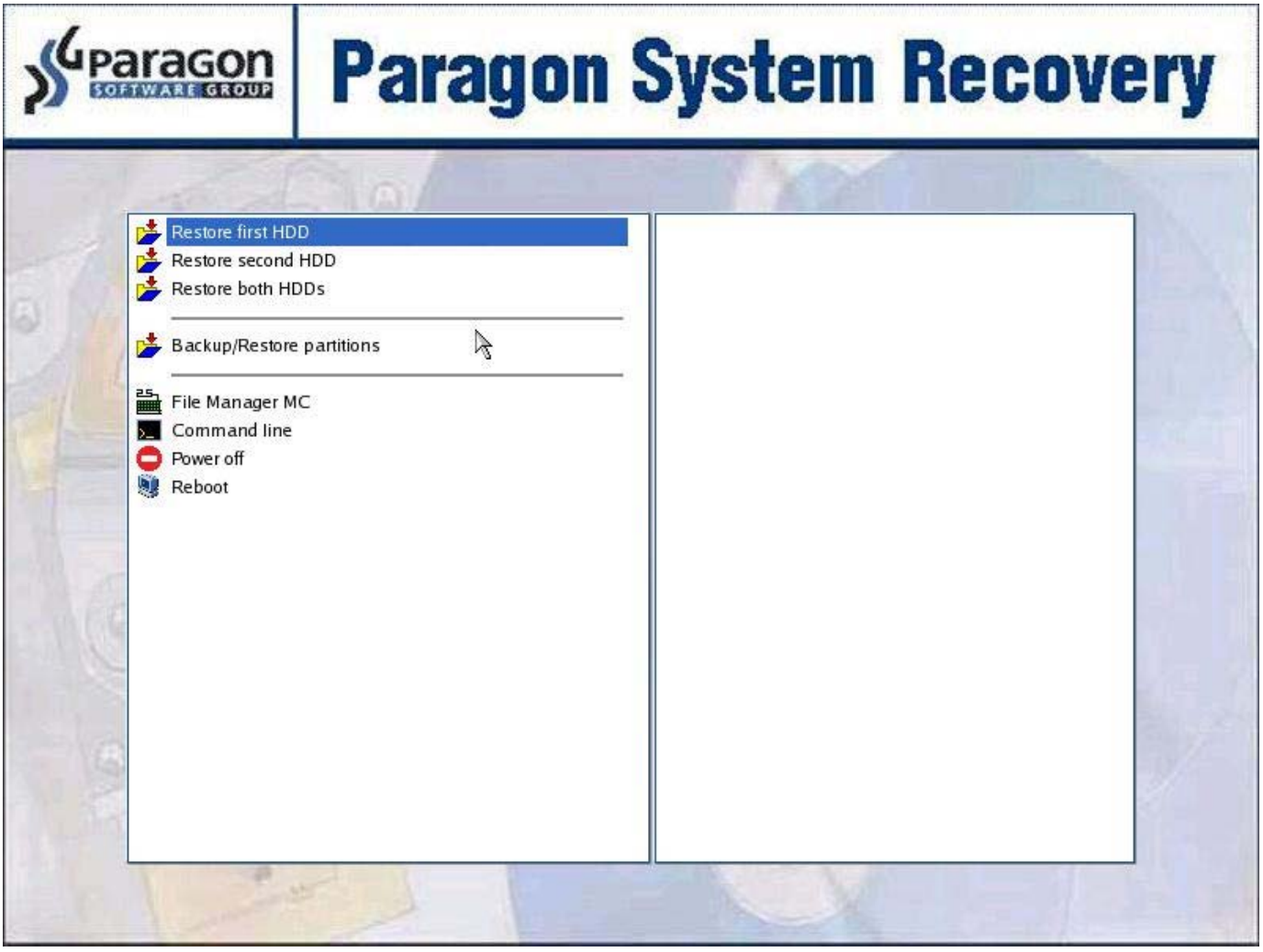
Step-by-step workflow to perform deployment using custom Recovery CD:

1. Boot “Client PC” with custom Recovery CD/DVD with backup archives, scripts and customize menu (see Chapter II.1.2. (in the **Deployment workshops and scenarios** document) to prepare custom CD/DVD)



2. Select “Start recovery process (Linux)” in order to restore “Client PC” in automatic mode

3. Wait for customized menu to load



4. Select “Backup/Restore partition” in order to launch Hard Disk Manager engine

All other steps for restoration are similar to those which were described for the Chapter II.2.1. (in the **Deployment workshops and scenarios** document), except one thing: the user should restore partition or entire disk from images placed on the custom CD/DVD instead of mounted network share.