



# IBM Rescue and Recovery with Rapid Restore Customization and Deployment Guide Version 1.5

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## Preface

This guide is intended for IT administrators, or those who are responsible for deploying IBM® Rescue and Recovery with Rapid Restore™ to computers throughout their organizations. IBM Rescue and Recovery with Rapid Restore is an essential tool that enables users and administrators to restore backups, access files, diagnose problems, and make Ethernet connections in case the Microsoft® Windows® operating will not open or run correctly. This guide is intended to provide the information required for installing the IBM Rescue and Recovery with Rapid Restore application on one or many computers, provided that licenses for the software are available for each target computer.

IBM Rescue and Recovery with Rapid Restore provides function and application helps. For questions and information about using the various components included in the IBM Rescue and Recovery workspace refer to the helps for the components.

IBM deployment guides are developed with IT professionals and the unique challenges that they encounter in mind. If you have suggestions or comments, communicate with your IBM authorized representative. We will periodically update these guides, so check this Web site for later versions:  
<http://www.pc.ibm.com/us/think/thinkvantagetech/rapidrestore.html>



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## Chapter 1. About IBM Rescue and Recovery with Rapid Restore: Executive overview

IBM Rescue and Recovery with Rapid Restore represents a unique combination of IBM ThinkVantage™ Technologies. This integrated application unites the IBM Rapid Restore Ultra backup and restore application with a suite of powerful tools that can be used even if the Microsoft Windows operating system will not start.

In the corporate environment, these technologies can directly and indirectly help IT professionals. All the ThinkVantage Technologies will benefit IT professionals because they help make IBM personal computers easier to use and more self-sufficient. IBM provides powerful tools that facilitate and simplify rollouts at the outset. On a continuing basis, ThinkVantage Technologies help IT professionals spend less time solving individual computer problems and more time on their core tasks.

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### Two major components of IBM Rescue and Recovery with Rapid Restore

There are two major components of IBM Rescue and Recovery with Rapid Restore:

- The IBM Rescue and Recovery environment that will start even if the Windows operating system will not open.
- IBM Rapid Restore Ultra 4.0 functions in the Rescue and Recovery environment as well as under Windows.

There are some features of IBM Rescue and Recovery with Rapid Restore that run under the Windows operating system. In some instances system information used in the Rescue and Recovery environment are gathered while Windows is running. If the Windows operating system malfunctions, that malfunction alone will not prevent the Rescue and Recovery environment from operating normally. The functions that run under the Windows operating system, however, are not configurable, therefore these functions are not addressed in this deployment guide.

### The IBM Rescue and Recovery environment

The IBM Rescue and Recovery environment was developed to provide an emergency workspace for users who are unable to start Windows on their computers. Running under Windows PE, the environment offers the look, feel, and function that is familiar to Windows users and helps them solve some problems without consuming IT staff time.

The IBM Rescue and Recovery environment comprises a number of functions grouped in four major categories:

- **Rescue and Restore**
  - **Recovery overview:** links users to help topics about the various recovery options that IBM provides.
  - **Rescue files:** enables users to copy files created in Windows applications to removable media or to a network. Users can continue to work even though their workstation is down.

- **Restore from backup:** helps users restore files that have been backed up with Rapid Restore Ultra. (IBM Rapid Restore Ultra is covered in Chapter 4, “Customizing the IBM Rescue and Recovery installation,” on page 19).
- **Restore factory contents:** provides a method to erase the hard disk and reinstall the software that IBM preinstalled on the computer.
- **Configure**
  - **Configuration overview:** links to Rescue and Recovery environment help topics that cover configuration.
  - **Set recovery password:** enables a user or administrator to password protect the Rescue and Recovery environment.
  - **Access BIOS:** opens the IBM BIOS Setup Utility program.
- **Communicate**
  - **Communication overview:** links to related help topics in the Rescue and Recovery environment.
  - **Open browser:** starts the Opera Web browser. (Web or Intranet access requires a wired Ethernet connection.)
  - **Download files**
  - **Map network drive:** helps users access network drives for software downloads or file transfer.
- **Troubleshoot**
  - **Diagnostic overview:** links to Rescue and Recovery diagnostics help topics.
  - **Diagnose hardware:** opens the PC Doctor application that can perform hardware tests and report results.
  - **Create diagnostic disks**
  - **Boot from another device**
  - **System information:** provides details regarding the computer and its hardware components.
  - **Activity and asset log viewer:** details recent user activity and computer hardware to aid in problem determination and resolution. The log viewer provides a readable way to view activity and asset log entries.
  - **Warranty status**

IBM Rescue and Recovery with Rapid Restore is available on IBM personal computers that come with IBM preinstalled software. It is also available for purchase as a download so that organizations can benefit from IBM Rescue and Recovery with Rapid Restore on non-IBM computers as well.

Chapter 2, “Preparing to install IBM Rescue and Recovery with Rapid Restore,” on page 7 addresses configuring the IBM Rescue and Recovery environment for deployment. Although installing IBM Rescue and Recovery includes the installation of IBM Rapid Restore Ultra, treating them as individual components for the sake of customization, configuration, and deployment will simplify the discussion and facilitate image creation.

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## IBM Rapid Restore Ultra 4.0

IBM Rapid Restore Ultra enables users to rescue lost data, applications and operating systems with the touch of a button. Providing this capability to users will help reduce time-consuming help desk calls, which result in support cost savings.



Moreover, your users will feel secure they can rescue lost data, applications and operating systems with the touch of a button and get back in business quicker. You can schedule all users' computers to backup on a schedule, thereby limiting risk and the potential for downtime. IBM Rapid Restore Ultra can offer your clients an extra layer of support by pre-configuring automatic external backup to a server or external storage.

"Installing IBM Rescue and Recovery on a single computer" on page 15 covers configuring IBM Rapid Restore Ultra features for deployment. Although the installing IBM Rescue and Recovery includes the installation of IBM Rapid Restore Ultra, treating them as individual components for the sake of customization, configuration, and deployment will simplify the discussion and facilitate image creation.

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## Installation requirements

The following are system requirements for installing IBM Rescue and Recovery with Rapid Restore. For best results, go to this IBM Web site to make sure that you have the latest version of the software:

<http://www-307.ibm.com/pc/support/site.wss/MIGR-4Q2QAK.html>

A number of legacy computers from IBM can support IBM Rescue and Recovery with Rapid Restore, provided that they meet the requirements specified. Refer to the download page on the Web for information about IBM computers that support IBM Rescue and Recovery with Rapid Restore.

## Requirements for IBM computers

IBM computers must meet or exceed the following requirements to run IBM Rescue and Recovery with Rapid Restore:

- Operating System: Microsoft Windows XP or Windows 2000
- Processor: As specified by Microsoft for Windows XP (Home or Professional) and Windows 2000
- Memory: 128 MB
  - In shared memory configurations, the BIOS setting for maximum shared memory must set to no less than 4 MB and no greater than 8 MB.
  - In non-shared memory configurations, 120 MB of non-shared memory.

**Note:** If a computer has less than 200 MB of non-shared memory, IBM Rescue and Recovery with Rapid Restore will run. However, the user might be unable to start more than one application in the Rescue and Recovery environment.

- 1.5 GB of free hard disk space. The base installation requires 930 MB and does not include space required Rapid Restore Ultra backups.
- VGA-compatible video that supports a resolution of 800 x 600 and 24-bit color.
- Supported Ethernet card.

## Requirements for installing and using IBM Rescue and Recovery with Rapid Restore software on non-IBM computers

There are hard disk drive, network, hardware, and other requirements for installing Rescue and Recovery with Rapid Restore on non-IBM computers.

## Hard disk drive configuration

IBM Rescue and Recovery with Rapid Restore software is not supported on the "factory preloads" for original equipment manufacturer (OEM) computers (non-IBM). For OEM computers, the hard disk drive must be configured according to recommendations in "Installation of IBM Rescue and Recovery with Rapid Restore on non-IBM computers" on page 47.

## Network adapters

The Rescue and Recovery environment in IBM Rescue and Recovery with Rapid Restore software supports only wired PCI-based, Ethernet network adapters. Network device drivers included in the Rescue and Recovery environment are the same drivers that are pre-populated in Microsoft Windows XP Professional operating system and they are independent of the Windows operating system. For supported IBM computers, required drivers are included with IBM Rescue and Recovery with Rapid Restore software.

If an OEM network device in your computer is not supported, refer to the documentation that came with the device for instructions to add support for system-specific network drivers. Request drivers from your OEM.

## Support for booting from external media (CD/DVD and USB)

Non-IBM computer and devices (USB hard disk drive, CD-R/RW, DVD-R/RW/RAM, or DVD+R/RW) must fully support one or more of the following specifications:

- BIOS Enhanced Disk Drive Services - 2
- USB Mass Storage Specification for Bootability
- El Torito Bootable CD-ROM Format Specification
- Compaq Phoenix Intel BIOS Boot Specification
- ATAPI Removable Media Device BIOS Specification
- USB Mass Storage Class Specification Overview (each device must comply with the command block specification in the section 2.0 Subclass code in the "USB Mass Storage Class Specification Overview.")

## Minimum system memory requirements

The non-IBM computer must have 128 MB system RAM to install IBM Rescue and Recovery with Rapid Restore.

## Video requirements

- **Video compatibility:** VGA-compatible video that supports a resolution of 800 x 600 and 24-bit color
- Video memory:
  - On non-shared video memory systems: a minimum 4 MB of video RAM
  - On shared video memory systems: a minimum of 4MB and maximum of 8 MB can be allocated for video memory.

## Installation Requirements

1.5 GB of free hard disk space (the base install uses 930 MB and does not include Rapid Restore Ultra backups)

## Application compatibility

Some applications that have complex filter driver environments (such as anti-virus software) might not be compatible with IBM Rescue and Recovery with Rapid Restore software. For information regarding compatibility issues, refer to the

"README" file that accompanies IBM Rescue and Recovery with Rapid Restore software on the Web: <http://www.ibm.com/thinkvantage>

### **About this guide**

This guide refers to a number of utilities. These utilities can be found on the IBM Web site. Look for the links on the page that this document is placed.



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## Chapter 2. Preparing to install IBM Rescue and Recovery with Rapid Restore

Setting up IBM Rescue and Recovery occurs in two phases:

- Installation
- Base backup

The installation phase consists of the following steps:

1. Qualifying and determining the system configuration
2. Installing the components of the application, services, and drivers that operate under the Windows operating system
3. Installing the Rescue and Recovery Master Boot Record (MBR)
4. Installing the IBM Rescue and Recovery environment (sometimes called the predesktop environment)
5. Rebooting

For an enterprise rollout, the required reboot at the end might be undesirable for various reasons. Among these is interruption of a scripted process or batched installation of multiple applications. IBM Rescue and Recovery can be configured not to reboot at the end of the installation phase. It can also be scripted to perform a base backup without rebooting. However, it must be noted that data backed up before the reboot will not be protected from corruption until the reboot is performed.

The base backup phase follows the reboot, unless scripted to be performed prior to the reboot.

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### Rapid Restore Ultra 4.0 interfaces

IBM Rapid Restore Ultra has two main interfaces. The primary interface operates in the Windows environment using the Rapid Restore Ultra 4.0 product. The secondary interface operates independently of the Windows operating system. This is called the Rescue and Recovery environment.

#### Rapid Restore Ultra for Windows interface

Rapid Restore Ultra 4.0 installs into C:\Program Files\IBM\IBM Rapid Restore Ultra directory. The backups for IBM Rapid Restore Ultra 4.0 can be stored in multiple locations, which will be discussed later. In this document, unless otherwise noted, the location of the backups will be assumed to be in the primary location: C:\RRUbackups. This directory, when placed on a local partition on the primary hard disk drive, will be protected by a filter driver that is installed as part of the IBM Rescue and Recovery installation.

In addition to the main Rapid Restore Ultra 4.0 application, there are several other supporting applets that are installed on the C drive of the local client computer. Each applet must be installed in its correct location to ensure proper communication between the Windows operating system and the IBM Rescue and Recovery environment. The paths for these applets are:

**\IBMShare:** used as a shared folder between the Windows operating system and the IBM Rescue and Recovery environment.

**\IBMTOOLS\UTILS:** stores several applets for applications that must run in both the Windows and Rescue and Recovery environments.

**\IBMTOOLS\Python32:** stores the Python code that is required for several IBM Rescue and Recovery functions to work.

**\IBMTOOLS\eGatherer:** holds the eGatherer code that collects system information for both the Windows and Rescue and Recovery environment.

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## Rescue and Recovery environment configurations

Because there are several hard disk drive configuration scenarios, IBM Rescue and Recovery must install a custom Master Boot Record (MBR). This MBR receives notifications from Windows or from a keyboard at boot time. Based on the input, the appropriate partition (Windows or the Rescue and Recovery environment) boots.

### Default installation

If you are installing IBM Rescue and Recovery onto a hard disk that does not have an IBM\_SERVICE partition or PARTIES area, IBM Rescue and Recovery with Rapid Restore will be installed according to the following the software defaults.

The Rescue and Recovery environment by default is located in a virtual partition that must be installed on the C drive (primary partition of the master hard disk drive) of the computer. It consists of two directories, \minint and \preboot. Both of these directories are protected by the same filter driver that protects the backup location \RRUbackups.

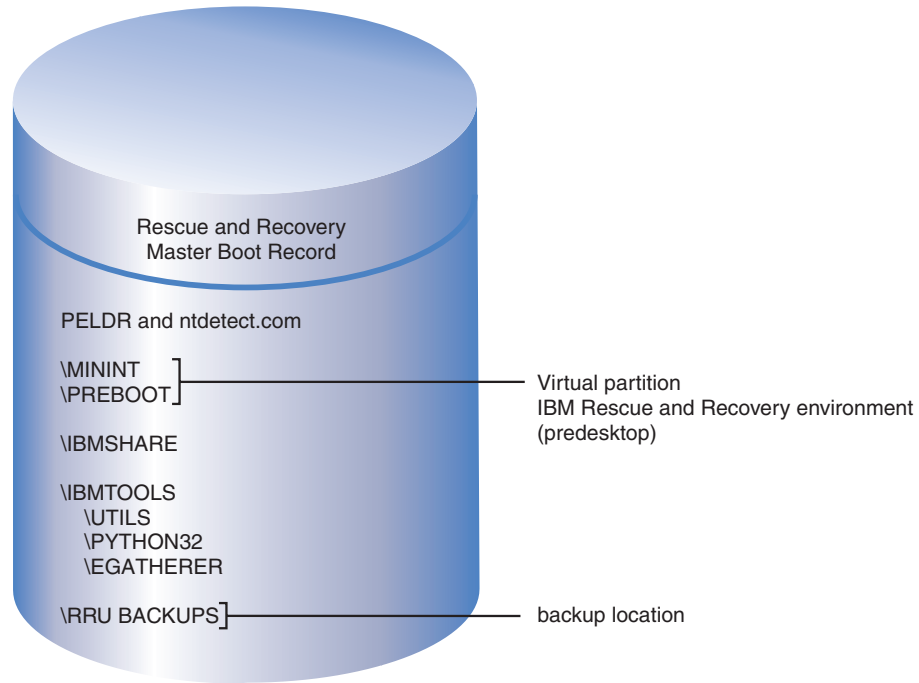


Figure 1. Default installation

## IBM computers with a type 1C IBM\_SERVICE partition

These IBM computers were announced prior to January 2003 or computers that have an ImageUltra™ Builder disk image. The IBM Rescue and Recovery with Rapid Restore installation in this scenario is similar to the default installation. As with the default installation, IBM Rescue and Recovery environment is installed into a virtual partition. However, the Rescue and Recovery environment will link to the IBM\_SERVICE partition to restore the factory contents or the ImageUltra Builder disk image.

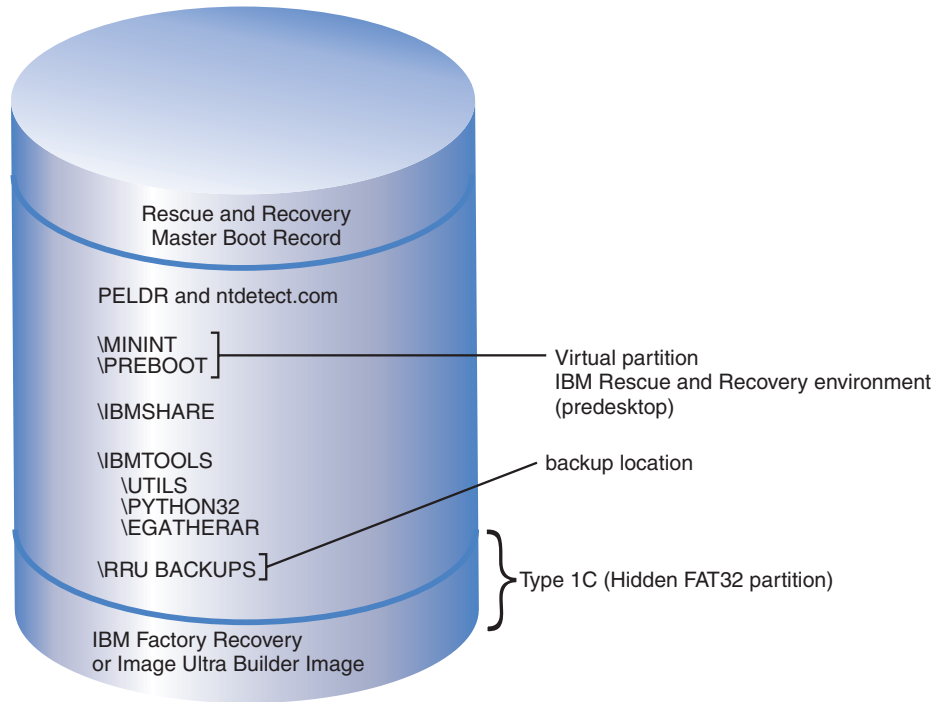


Figure 2. Installation for computers with an IBM service partition

## IBM computers with a PARTIES area

IBM computers that have a PARTIES area were announced during 2003. Again, the installation in this scenario is similar to a default installation. The Rescue and Recovery environment is installed into a virtual partition as with the default installation. However, the Rescue and Recovery environment will link to the PARTIES area to initiate a restore of factory contents or diagnostics.



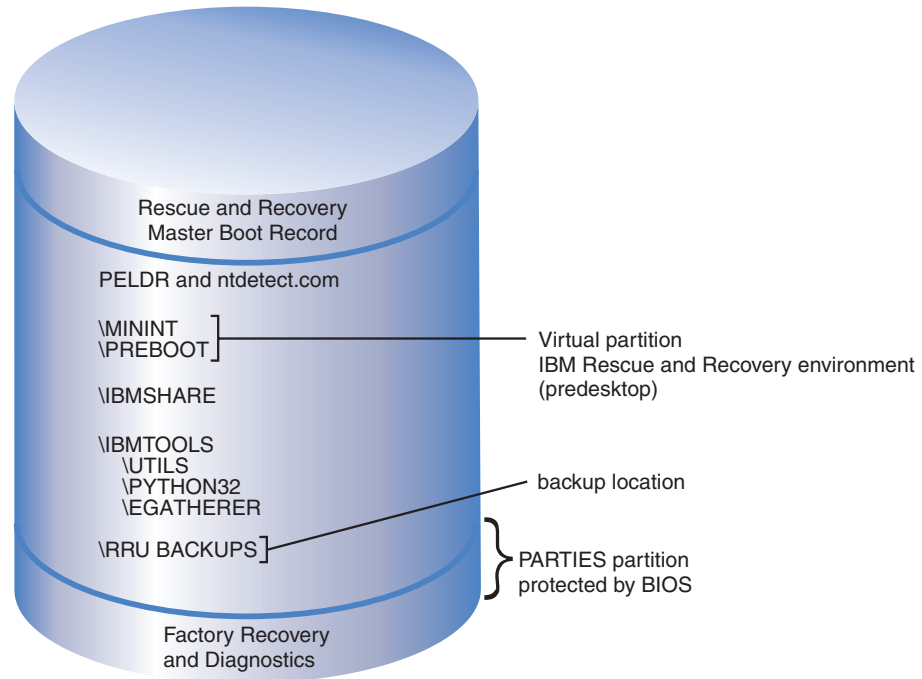


Figure 3. Installation on computers with a PARTIES area

## IBM computers with a PARTIES Area and a type 1C service partition

IBM computers with this configuration were announced during 2003 and also have an ImageUltra disk image in the IBM\_SERVICE partition. The IBM Rescue and Recovery with Rapid Restore installation for these computers is similar to a default installation. The Rescue and Recovery environment is installed into a virtual partition. However, the Rescue and Recovery environment will link to the PARTIES area to initiate a restore of factory contents or diagnostics.

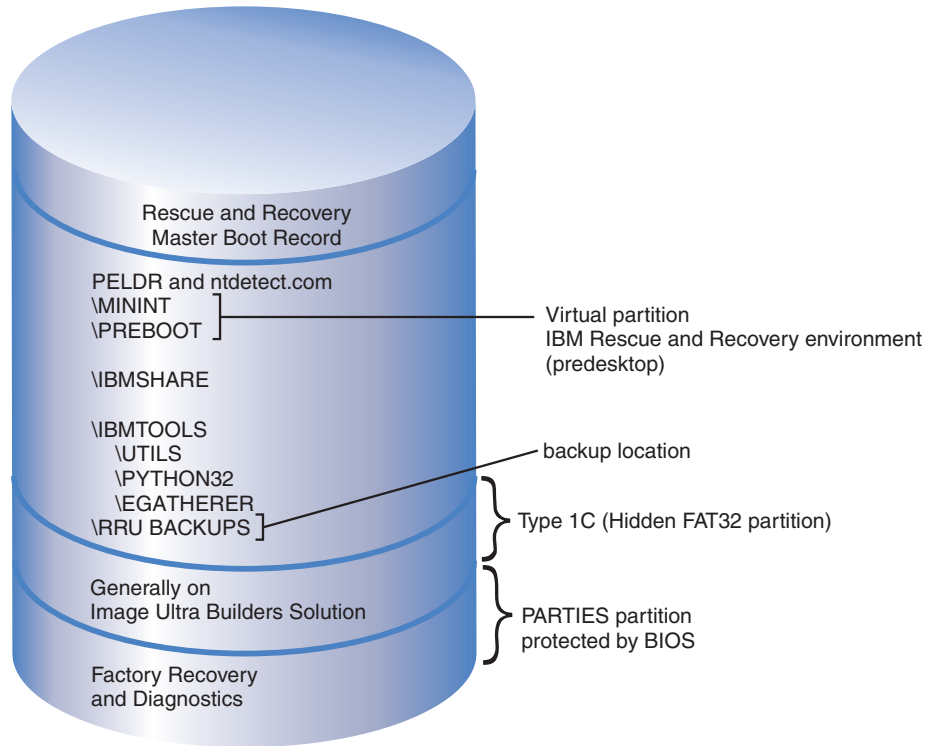


Figure 4. Installation on IBM computers with a PARTIES Area and a type 1C service partition

## IBM computers with the Rescue and Recovery application preinstalled in a type 12 partition

IBM computers that are announced in the first quarter 2004 and come with the IBM Rescue and Recovery environment preinstalled will feature this configuration. The Rescue and Recovery environment resides entirely in a type 12 partition, not in the virtual partition as with the previous scenarios. In addition to the Rescue and Recovery environment, the factory recovery and system diagnostics will also reside in the type 12 partition. The Rapid Restore Ultra 4.0 backups, however, do not reside in the type 12 partition.

The key advantage to placing the Rescue and Recovery environment in a type 12 partition is this: When the IBM Rescue and Recovery environment is placed in a virtual partition, several files are placed in the root of the C drive. The filter driver does not protect these files because some are common with Windows boot files (for example, NTDETECT.COM). When placed on the root of the C drive, it is possible that an end user could delete these files from the system. If these files are deleted or otherwise become unusable, the end user would be unable to boot to the Rescue and Recovery environment. However, when the IBM Rescue and Recovery environment is placed in a type 12 partition, Windows will prevent all users from accessing that partition; the files required to open the IBM Rescue and Recovery environment are highly protected.

With the IBM Rescue and Recovery environment secured in the type 12 partition, only the corruption of the MBR would prevent access to the Rescue and Recovery. If the MBR becomes corrupted, an external version of the IBM Rescue and Recovery environment must be used. Currently, IBM supports CD and USB hard

disk drive-based versions of the IBM Rescue and Recovery environment that are created with the Create Rescue Media applet in the Access IBM folder of the Start Menu.

Discussion of the IBM Rescue and Recovery environment installation into a type 12 partition will be covered later in this document. It is important to note that the recovery and diagnostics will be available only on IBM computers with the standard IBM factory preinstalled software and disk image.

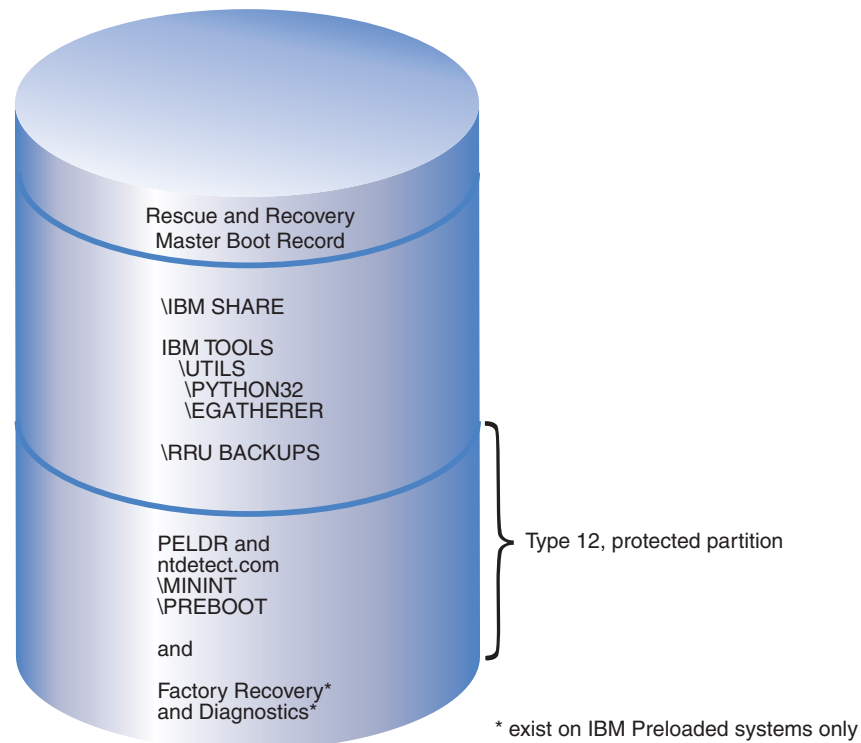


Figure 5. IBM computers with the Rescue and Recovery application preinstalled in a type 12 partition

## Preparing computers with Rapid Restore Ultra versions 3.x and Rapid Restore PC 2.x

Before installing IBM Rescue and Recovery with Rapid restore, you must first uninstall earlier versions of the software.

### Uninstalling Rapid Restore Ultra versions 3.x and Rapid Restore PC 2.x

You must uninstall all previous IBM Rapid Restore applications. If an older version of Rapid Restore is detected during the Install, you will be prompted to uninstall the older application.

To uninstall earlier versions of Rapid Restore do the following:

1. Click **Start**→**Settings**→**Control Panel**.
2. Double-click **Add/Remove Programs**.
3. Select **IBM Rapid Restore PC** or **IBM Rapid Restore Ultra**, and then click **Change/Remove**.

4. Follow the on-screen instructions to complete the software removal. If IBM Rapid Restore Ultra is not in this list of programs, continue to step 5.
5. In the Add/Remove Programs applet, select Access IBM. This will open an Access IBM uninstall program that lists multiple IBM applications. If IBM Rapid Restore Ultra is not in this list of programs, continue to step 6.
6. Run the following command from a command prompt:  

```
c:\program files\xpointr\rmvmpc.exe
```

### Saving backups to a network

If you determine to have backups saved to a network drive (see Appendix C, "TVT.TXT settings and values," on page 61 for settings and values information), it is important to note the following: When a backup is performed, Rapid Restore Ultra creates a hidden directory called "RRUbackups" to store the backup files in. If the destination for the backup is a common network share (for example, \\Servername\SharedFolder), separate directories must be created and shared for each client computer, NOT EACH USER. The following illustrates a sample directory tree on the Server:



Figure 6. Sample directory tree on a shared network resource set up to receive Rapid Restore Ultra backups

In Figure 6, when Network is chosen as the backup location, \\Servername\Machine1 would be the UNC for Machine1. The UNC for Machine2 would be \\Servername\Machine2.

**Setting up user accounts for network backups:** When the Rapid Restore Ultra Backups directory is created on the network share, the service makes it a read *only* folder, and assigns it access rights so that only the account that created the folder has full control over the folder. In order to complete a merge operation, MOVE permissions must exist for the User account. If logged in with an account other than the account that created the folder initially (i.e., administrator), the merge process will fail.

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## Chapter 3. Installing IBM Rescue and Recovery with Rapid Restore

Initially, less complex installations of IBM Rescue and Recovery with Rapid restore will be discussed in order to establish a foundation to support more complex rollouts and deployments. Chapter 4, "Customizing the IBM Rescue and Recovery installation," on page 19 addresses modifying the installation. Chapter 5, "Customizing the Rapid Restore Ultra 4.0 component of IBM Rescue and Recovery with Rapid Restore," on page 23 discusses how you can configure this ThinkVantage Technology to meet your needs and those of your organization.

There are three basic methods of installing IBM Rescue and Recovery with Rapid Restore:

- Single-computer standard installation
- Multiple-computer image deployment from a donor computer
- Remote installation with application and installation customization

---

### Installing IBM Rescue and Recovery on a single computer

Obtain the latest version of code from the following Web site:

[www.ibm.com/thinkvantage](http://www.ibm.com/thinkvantage)

To install the IBM Rescue and Recovery, follow the instructions on the IBM Web download page.

Alternatively, you can start the installation from a command prompt by typing the following:

```
<Source Directory> \setup_ibmrrXXXX.exe
```

**Note:** XXXX is the build ID.

### Installing the application silently

You can prepare a command file that silently installs IBM Rescue and Recovery followed by a reboot:

```
:: Perform a silent install of Rescue and Recovery
start /WAIT setup_ibmrrXXXX.exe /s /v
:: Perform a silent install of Rescue and Recovery with no user interface
start /WAIT setup_ibmrrXXXX.exe /s /v /qn
```

You can prepare a command file that silently installs IBM Rescue and Recovery, but suppresses the reboot after installation:

```
:: Perform a silent install with no reboot
setup_ibmrrXXXX.exe /s /v"/qn REBOOT="R"
```

### Simple install of IBM Rescue and Recovery without taking a base backup

To install IBM Rescue and Recovery with Rapid Restore without taking a base backup, do the following:

1. Install and configure Windows and your application suite.

2. Install IBM Rescue and Recovery by typing `setup_ibmrrXXXX.exe` from a command prompt and then follow the on-screen instructions to complete the install.
3. If desired customize your TVT.TXT file as described in Appendix C, "TVT.TXT settings and values," on page 61.
4. Sysprep the image, and then shutdown Windows.
5. Create an image of the entire hard disk, as described in "Using PowerQuest Drive Image based tools" on page 17 or "Using Symantec Ghost based tools" on page 18, depending on your image-creation process.

After the master image is deployed to client computers, they will complete the first-use procedures of Windows inserted with Sysprep. The client user will configure the basic Windows settings. Then the user takes a back up.

### Installing IBM Rescue and Recovery on multiple computers

If you plan to install IBM Rescue and Recovery with Rapid Restore on multiple computers, you can increase the installation speed by extracting the MSI-based installation code from the `setup_ibmrrXXXX.exe` file that you downloaded. Because the executable file from the Web extracts itself to a temporary directory during the first stage of installation, performing this step once and then avoiding it during subsequent installations will greatly improve the install time on each computer. If you plan to customize the settings for IBM Rapid Restore Ultra before installation, follow this procedure. The first step is to perform an "administrative install," which captures, extracts, and retains all the files required for subsequent installations.

**Note:** Customizing IBM Rescue and Recovery will be discussed later in this document. See Chapter 6, "Customizing the Rescue and Recovery component of IBM Rescue and Recovery with Rapid Restore," on page 27.

## Performing an administrative install

The Windows Installer can perform an administrative installation of an application or product to a network for use by a workgroup or for customization. For the IBM Rescue and Recovery installation package, an administrative installation unpacks the installation source files to a specified location. To run an administrative installation the setup package needs to be executed from the command line using the `/a` parameter.

Launching an administrative installation presents a series of windows that prompt the administrative user to specify the location to unpack the setup files. The default extract location that is presented to the administrative user is `C:\`. A new location can be chosen, which may include drives other than `C` (other local drives, mapped network drives, and so forth). New directories can also be created during this step.

To perform the administrative install perform the following procedures.

### Specify the target directory for an administrative install

To extract the setup files to a specific directory use the following command:

```
:: Extract the WWW EXE to the directory C:\IBMRR
start /WAIT setup_ibmrrXXXX.exe /a /s /v"/qn TARGETDIR="C:\IBMRR"" /w
```

### Install Rescue and Recovery using MSIEXE

For all MSIs, add the following install-log generation code:

```
/L*v %temp%\rrinstall.txt
```

To install the setup files using MSIEXEC, use the following command:

```
:: Perform the install of Rescue and Recovery  
msiexec /i "C:\IBMRR\IBM Rescue and Recovery with Rapid Restore.msi"
```

To silently install the setup files (including a reboot at the end) using MSIEXEC, use the following command:

```
:: Silent install using the MSI with a reboot  
start /WAIT msiexec /i "C:\IBMRR\IBM Rescue and Recovery  
with Rapid Restore.msi" /qn
```

To silently install the setup files (without a reboot at the end) using MSIEXEC, use the following command:

```
:: Silent install using the MSI without a reboot  
start /WAIT msiexec /i "C:\IBMRR\IBM Rescue and Recovery  
with Rapid Restore.msi" /qn REBOOT="R"
```

**Silently uninstall with MSIEXEC:** To uninstall silently IBM Rescue and Recovery with Rapid restore, type the following at a command prompt:

```
msiexec /x "C:\IBMRR\IBM Rescue and Recovery with Rapid Restore.msi" /qn
```

## Including IBM Rescue and Recovery with Rapid Restore in a disk image

You can use your tool of choice to create a disk image that includes IBM Rescue and Recovery with Rapid Restore. This deployment guide provides basic information regarding PowerQuest and Ghost as it applies to this application and installation. It is assumed that you have expertise in your image-creation tool and that you will include other options that you require for your applications.

**Note:** If you plan to create an image, you must capture the Master Boot Record. The Master Boot Record is critical for the Rescue and Recovery environment to function correctly.

### Using PowerQuest Drive Image based tools

Assuming that the PowerQuest DeployCenter tool PQIMGCTR is installed in the following location, the following scripts enable you to create and deploy an image with IBM Rescue and Recovery with Rapid Restore: X:\PQ

#### Minimum script files:

X:\PQ\RRUSAVE.TXT:

Script language	Result
SELECT DRIVE 1	Select first hard disk drive
SELECT PARTITION ALL (Needed if you have a type 12 partition or if you have multiple partitions in your image.)	Select all partitions
Store with compression high	Stores the image

X:\PQ\RRDEPLY.TXT:

Script language	Result
SELECT DRIVE 1	Select first hard disk drive
DELETE ALL	Delete all partitions
SELECT FREESPACE FIRST	Select first free space
SELECT IMAGE ALL	Select all partitions in image
RESTORE	Restore image

**Image Creation:** X:\PQ\PQIMGCTR /CMD=X:\PQ\RRUSAVE.TXT /MBI=1  
/IMG=X:\IMAGE.PQI

Script language	Result
SELECT DRIVE 1	Select first hard disk drive
X:\PQ\PQIMGCTR	Image program
/CMD=X:\PQ\RRUSAVE.TXT	PowerQuest Script file
/MBI=1	Capture the Rescue and Recovery Boot Manager
/IMG=X:\IMAGE.PQI	Image file

**Image deployment:** X:\PQ\PQIMGCTR /CMD=X:\PQ\RRDEPLY.TXT /MBR=1  
/IMG=X:\IMAGE.PQI

Script language	Result
X:\PQ\PQIMGCTR	Image program
/CMD=X:\PQ\RRDEPLY.TXT	PowerQuest Script file
/MBR=1	Restore the Rescue and Recovery Boot Manager
/IMG=X:\IMAGE.PQI	Image file

## Using Symantec Ghost based tools

When creating the Ghost image, the command line switch (which might be incorporated into the ghost.ini file) -ib must be used to capture the Rapid Restore Ultra Boot Manager. Also, the image must capture the whole disk and all partitions. Refer to the documentation provided by Symantec for specific details on Ghost.



---

## Chapter 4. Customizing the IBM Rescue and Recovery installation

Custom installations of IBM Rescue and Recovery with Rapid Restore must follow this basic process:

1. Extract the file `setup.exe_ibmrrxxxx.exe` to a MSI based installation package as described in “Performing an administrative install” on page 16.
2. Customize the control file, `TVT.TXT`.
3. Perform the MSI-based installation, deferring the reboot as described in “Install Rescue and Recovery using MSIEXEC” on page 16.
4. Customize the Rescue and Recovery environment.

If the computer you are working on will be a donor system for an image deployment, run Sysprep, and then capture an image of the hard disk.

**Note:** The base backup in Rapid Restore Ultra can be restored to a computer independent of any incremental backups. Therefore, IBM does not support deploying an image that includes a non-Sysprep image as the base backup. If the base image is not a Sysprep image, the identical base image with the same machine name and SID could be restored to multiple computers, creating unnecessary complications in your environment.

---

### Producing a simple deployment with a “Create base backup” icon on the desktop

To perform a simple deployment that places a backup icon on the desktop for the user, do the following:

1. Extract the `setup_ibmrrxxxx.exe` to a temp directory:  

```
start /WAIT setup.exe /a /s /v"/qn TARGETDIR="C:\IBMRR" /w
```
2. Customize the `TVT.TXT` file, as required. For example, you might want to schedule a weekly backup at 3:00 p.m. every Tuesday. Add the following entries in the [Rapid Restore Ultra] section of `TVT.TXT` to accomplish this. (See Appendix C, “TVT.TXT settings and values,” on page 61 for additional setting information.)  

```
ScheduleHour=15  
ScheduleMinute=00  
ScheduleDayOfTheWeek=2
```
3. Initiate the MSI install deferring the reboot:  

```
start /WAIT msiexec /i "C:\IBMRR\IBM Rescue and Recovery with  
Rapid Restore.msi" /qn REBOOT="R" /L*v %temp%\rrinstall.txt
```
4. Customize the Rescue and Recovery environment. (See Chapter 6, “Customizing the Rescue and Recovery component of IBM Rescue and Recovery with Rapid Restore,” on page 27 for detailed information.)
5. Delete the temporary files in `c:\IBMRR`. (Refer to Chapter 5, “Customizing the Rapid Restore Ultra 4.0 component of IBM Rescue and Recovery with Rapid Restore,” on page 23).
6. Write a command file with the following commands:  

```
del "c:\Documents and Settings\All Users\Desktop\Create Base
```

```
Backup.lnk
"%RRU%rrucmd.exe" backup location=L name=Base level=0
```

7. Create a shortcut on the All Users Desktop called "Create base backup."  
(Specify your path under **Type the location** of the item.)
8. Run Sysprep on the system.
9. Create the image for deployment.

After the client user receives the image and personalizes the computer, the user clicks the **Create base backup** icon to start Rapid Restore Ultra and saves the base backup.

---

## Capturing a Sysprep image in the base backup

**Note:** This is only supported with a virtual partition.

To capture a Sysprep image in the base backup, do the following:

1. Extract the setup.exe to a temp directory without any prompts:  

```
start /WAIT setup.exe /a /s /v"/qn TARGETDIR="C:\IBMRNR" /w
```

**Note:** The temp directory location can be changed.

2. Customize the TVT.TXT file. For example, you might want to schedule a weekly backup at 3:00 p.m. every Tuesday. Add the following entries in the [Rapid Restore Ultra] section of TVT.TXT to accomplish this. (See Appendix C, "TVT.TXT settings and values," on page 61) for additional setting information):

```
ScheduleHour=15
ScheduleMinute=00
ScheduleDayOfTheWeek=2
```

3. Change the entry as follows:

```
ScheduleFrequency
to
ScheduleFrequency=2
```

**Note:** the following step might take several minutes to complete.

4. Initiate the MSI install, deferring the reboot:  

```
Start /WAIT msixec /i "C:\IBMRNR\IBM Rescue and Recovery
With Rapid Restore.msi" /qn REBOOT="R"
```
5. Customize the Rescue and Recovery environment as required. (Refer to Chapter 5, "Customizing the Rapid Restore Ultra 4.0 component of IBM Rescue and Recovery with Rapid Restore," on page 23.)
6. Delete the temporary files in C:\IBMRNR or location selected.

**Note:** The following step must be done before rebooting the system, which locks the virtual partition.

7. Prepare for capturing a Sysprep image by creating the file, SYSPREP.MOD:  

```
[RapidRestoreUltra] LastBackupLocation=1
[Backup0] StartTimeLow=0x94AB9600
[Backup0] StartTimeHigh=0x01C3C332
[Backup0] DisplayDate=5/14/2004
[Backup0] Name=Sysprep Base
[Backup0] Partitions=0x00000004
```

[Backup0] Location=1

[Backup0] Level=0

**Notes:**

- a. **DisplayDate:** This is the date that will be shown in the UI for the base backup.
- b. **DisplayTime:** This is the time of the base backup as it is shown in the UI.
- c. **Name:** This is the title of the backup that you will see in the UI.
- d. **Partitions:** This value is a bitmask representing the partitions that were backed up on the primary drive. Bit position 0 (the least-significant bit) is drive A, bit position 1 is drive B, bit position 2 is drive C, and so on. For example, if the user backed up partitions C and E on the primary drive, this value would be 0x00000014 (binary value equals 10100).
- e. **Location:** Here are the possible values:

LOCAL	0x01	(1 decimal)
LOC_CDRDVD	0x02	(2 decimal)
LOC_USB	0x08	(8 decimal)
LOC_NETWORK	0x10	(16 decimal)
LOC_SECOND	0x20	(32 decimal)

If you do a bitwise on one or more of these, you get the location. For example, Local and USB would have a location Local (1) + USB (8) = 9. Network and Second would be 48.

8. Create a file `makebase.cmd` with following syntax:

```
@ECHO ON
:: Set up a location for the backup
md c:\RRUbackups
:: Copy the TVT.TXT file to Backup Location
copy "c:\Program Files\IBM\IBM Rapid Restore Ultra\TVT.TXT" c:\RRUbackups
:: Merge in the required changes to the TVT.TXT
"c:\Program Files\IBM\IBM Rapid Restore Ultra\cfgmod"
c:\RRUbackups\TVT.TXT C:\rru_sysprep\sysprep.mod
if exist c:\preboot\startup\makebase.do goto takebase goto end
:takebase
del c:\preboot\startup\makebase.do
:: remove the directory created
rd c:\rru_sysprep /s /q
:: location=x parameter on the command line must
:: match the Location=x in the sysprep.mod file
c:\preboot\rru\br_funcs backup level=0 destination=C:\RRUbackups drive=c:
location=1 nice=0 pw=0 uuid=0 compress
copy c:\RRUbackups\TVT.TXT "c:\Program Files\IBM\IBM Rapid Restore Ultra"
:end
```

9. Create a file `install.bat` with the following syntax:

```
@ECHO ON
:: This script assumes that the RRE resides in the virtual partition
:: Set MBR to boot to the RRE on the next boot
c:\IBMTTOOLS\UTILS\bmgr32.exe /bw
:: Copy the working file into the startup folder
copy makebase.cmd c:\preboot\startup
```

```
:: Copy the tag file into the preboot
copy makebase.do c:\preboot\startup
net start "IBM Rapid Restore Ultra Service"
```

10. Create a file, makebase.do. (It can be blank, or zero (0) bytes.)
11. Place the files install.bat, sysprep.mod, makebase.cmd and makebase.do in a directory C:\rru\_sysprep. Files can be placed on any location and path; if so, where there are references to C:\rru\_sysprep, makebase.cmd should be changed. Run install.bat to set up the system to capture a base backup during the next boot to the Rescue and Recovery environment.
12. Run Sysprep on the computer.
13. Boot to the Rescue and Recovery environment. (Note that the first active command in install.bat sets the MBR to boot to the Rescue and Recovery environment automatically on the next boot).
14. Shut down the computer after the Rescue and Recovery environment opens.

**Notes:**

- a. For best results turn off the computer using the power button instead of using the restart button in the Rescue and Recovery environment.
  - b. This procedure can take a considerable amount of time. This is a normal part of the process.
15. Capture the image for deployment.

**Attention:** After the client users starts windows and personalizes the computer, the user *must* reboot the system one more time before taking an incremental backup. If this does not occur, registry changes will not be included in the first incremental backup after personalization.

---

## Chapter 5. Customizing the Rapid Restore Ultra 4.0 component of IBM Rescue and Recovery with Rapid Restore

There are numerous features and aspects of IBM Rapid Restore Ultra that can be customized, from files included and excluded from backups to scheduling backups.

---

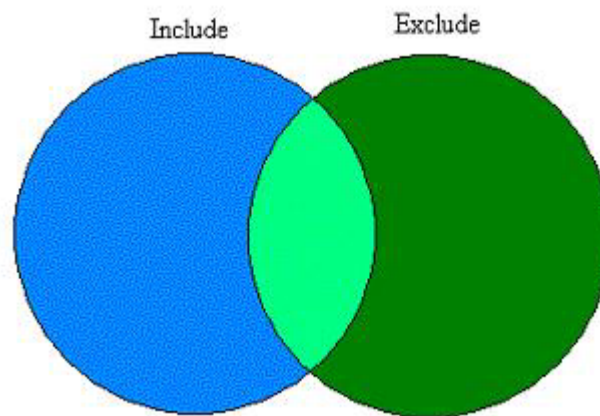
### Including and excluding files in backups

IBM Rapid Restore Ultra 4.0 has extensive include and exclude capabilities. It can include and exclude an individual file or folder or an entire partition.

The files that control the include and exclude functions, listed in order of precedence are as follows. All are located in the directory `c:\Program Files\IBM\IBM Rapid Restore Ultra`.

- `ibmexcl`
- `guiexcl`
- `ibmincl`

**Note:** `ibmincl` always supersedes `ibmexcl` and `guiexcl`. Consider the following diagram. Folders, files, and file types are listed in `ibmexcl` and `ibmincl`.



*Figure 7. Files listed in `ibmincl` are represented by the blue area. Files listed in the green area are to be excluded.*

Files that are contained in the blue and light green regions only will be backed up. Even though some files in the light green area are in the list of files to be excluded, the inclusion list takes precedence over the exclusion list and those files are included in the backup.

By design, IBM Rapid Restore Ultra 4.0 takes a conservative approach to the files that it must include in the backup process. The primary goal of our default backup process is to ensure that in the event you must restore your system from the RRU backup, Windows will start. To do this, we identify the several files, file types, and paths that must be backed up no matter what the end users selects in the user interface. These components are identified in the file `ibmincl`. This file can be

viewed with any text editing program. The Administrator can modify the contents of this file as part of the customization process. The default files and folders listed in `ibmincl.d` are as follows:

- \*.ocx
- \*.dll
- \*.exe
- \*.ini
- \*.drv
- \*.com
- \*.sys
- \*.cpl
- \*.icm
- \*.lnk
- \*.hlp
- \*.cat
- \*.xml
- \*.jre
- \*.cab
- \*.sdb
- \*.bat
- \*\ntldr
- \*\peldr
- \*\bootlog.prv
- \*\bootlog.txt
- \*\bootsect.dos
- \*winnt
- \*windows
- \*minint
- \*preboot
- \*application data
- \*documents and settings
- \*ibmtools
- \*program files
- \*msapps

To further protect the user and computer, we have prevented the user from excluding certain files in the Rapid Restore Ultra user interface. Files that are prevented from being excluded from a backup are listed in the file `c:\Program Files\IBM\IBM Rapid Restore Ultra\excl.dmsk.txt`. The default entries in this file match the values in the file `ibmincl.d`. Similar to `ibmincl.d`, the contents of this file may be modified by an Administrator.

It is important to note that after a folder has been placed into an include list, all files and sub-folders in that folder will automatically be included regardless of the setting in an exclude file (`ibmexcl.d` or `guiexcl.d`).

The user, by default, can select individual files and folders to be excluded from the backup. These files and folders are stored in the file `guiexcl.d`.

If an administrator wants to ensure that a particular file or folder is always backed up, he or she can include the file names or types in the `ibmincl` file. Any entry in this file will always be included in a backup regardless of an entry in the other lists.

Administrators also have the ability to exclude always a file, folder, or partition from a backup.

The following files and folder are always excluded from any backup:

- `pagefile.sys`
- `hiberfile.sys`
- `c:\System Volume Information`

When restored, both `pagefile.sys` and `hiberfile.sys` will be regenerated automatically by Windows. In addition, the Windows System Restore data will be regenerated with a new restore point by Windows after a backup has been restored.

The format for each of these files (`ibmincl`, `ibmexcl`, and `guiexcl`) use standard DOS style commands and wildcard such as `"*"` and `"?"`.

## Example with Lotus Notes and IBM Client Security Software

Assuming your enterprise is using Lotus Notes<sup>®</sup> for your mail client and CSS with FFE to protect critical files that reside locally on your systems.

Because many Notes deployments leverage a local replica of a server based mail file, it would be appropriate to exclude `*.NSF` files from the backups. If the computer did need to be restored from the backups, the local copy of the NSF file (often quite large and backed up elsewhere) could be replicated after the system restore. To facilitate this exclusion, the administrator would simply add the entry `*.nsf` to `ibmexcl`. The entry in `ibmexcl` would look like this:

```
*.nsf
```

You must use great caution in excluding every file with a given extension. If you blindly exclude all `*.NSF` files, for example, you will not backup several files that are critical for Lotus<sup>®</sup> Notes to function correctly. One key file that would not be backed up is `NAMES.NSF`. Because `NAMES.NSF` is the core control file for Notes as well as the personal address book, it would be very important to ensure it is backed up. To do this, place the entry `*names.nsf` in the file `ibmincl`. By combining inclusion and exclusion, you can backup reliably critical files and exclude files that can be obtained from other sources. Consider adding `JOURNAL.NSF` to the inclusion list and any database files that are strictly local.

In this example, you will also notice that we include CSS with FFE. The database that FFE uses to keep track of what folders are protected by FFE also has a `.NSF` extension. To ensure that these files are always backed up, include the entry `c:\Program Files\IBM\Security\*flt.nsf` in the `ibmincl` file. If this database file is not backed up an IBM Rapid Restore Ultra backup is restored, the `*flt.nsf` files will not be restored (because `*.nsf` is listed in the `ibmexcl` list). After the restore, you will be unable to access your File and Folder Encryption-protected files and folders.

The entries in the `ibmincl` file for this example would appear as:

```
*names.nsf  
*journal.nsf
```

## Customizing other aspects of IBM Rapid Restore Ultra

There are numerous aspects of Rapid Restore Ultra that you can customize using an external file named TVT.TXT that is defined prior to the installation process. The TVT.TXT file is located in the following subdirectory: C:\Program Files\IBM\IBM Rapid Restore Ultra\.

The TVT.TXT file will follow the standard Windows ini file format with the data organized by sections denoted by [] and one entry per line of this format:  
*setting=value*

For example, if you do not want to encrypt all backup data, include the following lines in the TVT.TXT file:

```
[Rapid Restore Ultra]
EncryptBackupData=0
```

The 0 parameter following EncryptBackupData directs Rapid Restore Ultra not to encrypt the backup.

A complete list of setting strings, parameters, and default settings for the [Rapid Restore Ultra] section of TVT.TXT are presented in Appendix C, "TVT.TXT settings and values," on page 61.

## Disabling password synchronization

Password synchronization is a feature that allows the user to have their Windows password and their pre-desktop password match. Each time a member of the administrator group changes the Windows password, the administrator user will be prompted to update the pre-desktop password. If this is not desirable, it can be disabled. To disable the password synchronization dialog, delete the following registry key:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run]
"IBMPRC"="C:\IBMTTOOLS\UTILS\ibmprc.exe"
```



---

## Chapter 6. Customizing the Rescue and Recovery component of IBM Rescue and Recovery with Rapid Restore

To customize parts of this environment, which is a workspace that can start even if the operating system will not open, you must use the following utility program: IBMRRUTIL.EXE.

---

### Using IBMRRUTIL.EXE

You can obtain IBMRRUTIL.EXE and other utilities mentioned in this guide from the Web site that contains this document.

The following procedure presents the steps to get files from and put files into the Rescue and Recovery area. These procedures will be used for all file customizations of the Rescue and Recovery area.

To use IBMRRUTIL.EXE perform the following:

1. Copy IBMRRUTIL.EXE to the root of the C drive.
2. Create GETLIST.TXT file with the following syntax:  

```
\preboot\usrintfc\[file name]
```

, and then save the file as C:\TEMP\GETLIST.TXT
3. At a command prompt, type the IBMRRUTIL.EXE command and one of the switches defined in the following table. After the switch complete the command with the appropriate parameters, as shown in the table.
4. After you have performed the "get" routine, you can then edit the file using a standard text editor.

Command and switch	Result
IBMRRUTIL -11	List the contents of preboot directory
IBMRRUTIL -12	List the contents of minint directory
IBMRRUTIL -14	List the contents of the root of the C drive or root of type-12 partition
IBMRRUTIL -g C:\temp\getlist.txt C:\temp	Get files from preboot partition
IBMRRUTIL -d C:\temp\ getlist.txt	Delete a file(s) from the preboot partition.
IBMRRUTIL -p C:\temp	Add or replace files in the preboot partition.
IBMRRUTIL -bp	Update or replace files in RRUbackups virtual partition.
IBMRRUTIL -br	Delete the content of backup.
IBMRRUTIL -bg	Copy individual files from the \RRUbackups.
IBMRRUTIL -s	Space consumed by RRUbackups.

The following example refers to this file name: PEAccessIBMxx.ini, where xx represents one of the following two-letter language abbreviations:

Two-letter language code	Language
br	Brazilian Portuguese

Two-letter language code	Language
dk	Danish
en	English
fi	Finnish
fr	French
gr	German
it	Italian
jp	Japanese
kr	Korean
nl	Dutch
no	Norwegian
po	Portuguese
sc	Simplified Chinese
sp	Spanish
sv	Swedish
tc	Traditional Chinese

The following is an example for getting the file, PEAccessIBMen.ini, from the Rescue and Recovery area:

1. Create GETLIST.TXT file with the following parameters  

```
\preboot\usrintfc\PEAccessIBMen.ini
```
2. Save the file as C:\TEMP\GETLIST.TXT.
3. At a command prompt, type the following command: C:\IBMRRUTIL -g C:\temp \getlist.txt c:\temp.

The following is an example for putting the file, PEAccessIBMen.ini, back to the Rescue and Recovery area. At a command line type the following:

```
C:\ IBMRRUTIL.EXE -p C:\temp
```

**Note:** The "put" (-p) routine will use the directory structure created in the get (-g) routine. For proper placement of the edited file, ensure that the edited file is located in the same directory that is established in the GETLIST.TXT file, as in the example below:

```
C:\temp\ preboot\usrintfc\PEAccessIBMen.ini
```

## Adding device drivers to the Rescue and Recovery area

The following is an example of the steps required to put device drivers into the Rescue and Recovery area:

1. Obtain device drivers from the vendor's web site or other media.
2. Create the following directory structures:  

```
C:\TEMP\MININT\INF
```

```
C:\TEMP\MININT\SYSTEM32\DRIVERS
```
3. Copy all network driver \*.INF files to the MININT\INF directory. (For example, E100B325.INF needs to be in the \MININT\INF directory.)
4. Copy all \*.SYS files to the \MININT\SYSTEM32\DRIVERS directory. (For example, E100B325.SYS needs to be in MININT\SYSTEM32\DRIVERS directory.)

5. Any related \*.DLL, \*.EXE, or other files to the \MININT\SYSTEM32\DRIVERS directory. (For example, E100B325.DIN, INTELNIC.DLL etc. needs to be in MININT\SYSTEM32\DRIVERS directory.)

**Notes:**

- a. Catalog files are unnecessary, as they are not processed by the Rescue and Recovery environment. The above instructions apply to any device driver that might be needed to configure the computer.
  - b. Due to the limitation of Windows PE, some configuration applications, or settings, might have to be applied manually as registry updates.
6. To put the device drivers in to the Rescue and Recovery environment, at a command line type the following:  
C:\ IBMRRUTIL.EXE -p C:\temp

---

## Customizing the Preboot environment

You can customize the following elements of the IBM Rescue and Recovery environment by editing the configuration file, PEAccessIBMxx.INI:

- The main GUI fonts
- The Welcome window that opens when IBM Rescue and Recovery is started
- The five category names in the left panel of the user interface
- The category link icons
- The category functions
- The HTML-based help system for the Rescue and Recovery environment

## Changing the look of the environment

There several ways to change the look of the Rescue and Recovery environment.

The settings in the control file called PEAccessIBMen.INI will enable customization of the Rescue and Recovery environment.

**Note:** To get, edit, and replace PEAccessIBMen.ini refer to “Using IBMRRUTIL.EXE” on page 27.

## Changing the main GUI font

You can change the font of the main graphical user interface. It is important to note that the default settings might not display all characters correctly, depending on the language and characters required. In PEAccessIBMxx.INI the [Fonts] section contains the default settings for the character style that will be displayed. The following settings are the default settings for most single-byte character set languages:

```
[Fonts]
LeftNavNorm = "Microsoft Sans Serif"
LeftNavBold = "Arial Bold"
MenuBar = "Microsoft Sans Serif"
```

Depending on your visual and character set requirements, the following fonts are compatible with the IBM Rescue and Recovery environment. Other fonts might be compatible, but have not been tested:

- Courier
- Times New Roman
- Comic Sans MS

## Changing the environment background

The background of the right panel is a bitmap, MAINBK.BMP, located in the following directory \PREBOOT\USRINTFC. If you create your own bitmap image for the right-panel background, it must conform to the following dimensions:

- 620 pixels wide
- 506 pixels deep

The file must be placed in the \PREBOOT\USRINTFC directory in order for Rescue and Recovery to present the desired background.

**Note:** To get, edit, and replace MAINBK.BMP, refer to “Using IBMRRUTIL.EXE” on page 27.

## Changing entries and functions in the left panel

Changing the left-panel entries requires editing the PEAccessIBMxx.INI file. For information regarding getting PEAccessIBMxx.INI from the Rescue and Recovery environment and replacing the file, refer to “Using IBMRRUTIL.EXE” on page 27.

There are twenty-one entries in the left panel of IBM Rescue and Recovery. Although functions are different, each entry has the same basic elements. The following is an example of a left-panel entry:

```
[LeftMenu] button00=2, "Introduction", Introduction.bmp, 1,  
1, 0, %sysdrive%\Preboot\Opera\Opera.exe,
```

Entry	Customization options
00-01	Fully customizable
02	Must remain a button type 1 (see Button Type table below). Text can be changed. An application or help function can be defined. No icon can be added.
03-06	Fully customizable
07	Must remain a type 1. Text can be changed. An application or help function can be defined. No icon can be added.
08-09	Fully customizable
10	You can set this entry to be displayed or to be hidden. See "Defining entry types in the following section for field and value information. No other customization is enabled.
11	Must remain a type 1. Text can be changed. An application or help function can be defined. No icon can be added.
12-15	Fully customizable
16	Must remain a type 1. Text can be changed. An application or help function can be defined. No icon can be added.
17-19	Fully customizable
20	No customization is enabled

## Defining entry types

**Button00** must be a unique identifier. The number determines the order by which the buttons will be displayed in the left panel.

**Button00=[0-8]** This parameter determines the button type. This number can be an integer 0 through 8. The following list explains the type and behavior of each

button type:

Parameter	Button type
0	Empty field. Use this value when you want to leave a row blank and unused.
1	Section head text. Use this setting to establish a major grouping or section head.
2	Application launch. The fields that follow define an application or command file to be started when the user clicks the button or text.
3	HTML help for the Rescue and Recovery environment. The fields that follow will define a help topic to be launched using the Opera browser
4	Display a restart message window before launching. The values in the fields that follow this button type will direct the GUI to present a message to the user that the computer will need to be restarted before the specified function is executed.
5	Reserved for IBM
6	Reserved for IBM
7	Launch and wait. The fields that follow this specification forces the environment to wait for a return code from the launched application before continuing. The return code is expected to be in the environment variable, %errorlevel%.
8	Launch application. These tell the GUI to retrieve the Country Code and language before starting the application. It is used for Web links that have CGI scripts to open a Web page from a certain country or in a certain language.

## Defining entry fields

Button00=[0-8], "title" The text following the button type parameter specifies the text or title of the button. If the text exceeds the width of the left panel, the text will be cut and ellipsis points will indicate that more characters follow. On mouse over, the full title text will be displayed in a bubble.

Button00=[0-8], "title", file.bmp Following the title text, specify the file name of the bitmap that you want to use as an icon for the button being created. The bitmap must be no larger than 15 pixels by 15 pixels to fit in place correctly.

Button00=[0-8], "title", file.bmp, [0 or 1] This setting directs the environment to display or hide the entry. The value 0 hides the entry. If the value is set to 0, then the a blank line is displayed. The value 1 displays the value.

Button00=[0-8], "title", file.bmp, [0 or 1], 1 This is a reserved function and must always be set to 1.

Button00=[0-8], "title", file.bmp, [0 or 1], 1, [0 or 1] To require a password prior to starting an application, place a value of 1 in this position. If you set this value to 0, no password will be required before a the specified application is started.

Button00=[0-8], "title", file.bmp, [0 or 1], 1, [0 or 1], %sysdrive%[pathname\executable] The value of %sysdrive% must be the boot drive letter. Following the boot drive letter, you must provide a fully qualified path to an application or command file.

Button00=[0-8], "title", file.bmp, [0 or 1], 1, [0 or 1], %sysdrive%[pathname\executable], **[parameters]** Provide any number of parameters required by the target application that is being started.

If you are not providing values for various fields, you must provide the required commas in order for the button definition to be accepted and to run correctly. For example, if you are creating a group heading, "Rescue and Recover," the following would be the code for the entry:

```
Button04=1, "Rescue and Recover",,,,,,
```

Entries 02, 07, 11 and 16 must remain type 1, or header, entries, and they will always fall in their numerical places. The available of entries that fall under the headers can be reduced by setting fully customizable entries to type 0-blank lines in the left panel. However, the total number of entries cannot exceed twenty-one and entries 10 and 20 must remain in those positions.

The following list presents the function and executables that can be started from the left-panel entries:

- Recover files (FTR.EXE)
- Restore from backup (PEGUI.EXE)
- Recover factory contents (RECOVER.CMD)
- Open browser (OPERA.EXE)
- Map a network drive (MAPDRV.EXE)
- Diagnose hardware (RDIAGS.CMV; launches the PC Dr application, IBM preinstallation models only)
- Create diagnostic diskettes (DDIAGS.CMD)

## Changing the right panel

Changing the right-panel entries requires editing the PEAccessIBMxx.INI file. For information regarding getting PEAccessIBMxx.INI from the Rescue and Recovery environment and replacing the file, refer to "Using IBMRRUTIL.EXE" on page 27.

There are two features of the right panel that are customizable: the function links and user messages and window status.

**Customizing the function links in the right panel:** To change the functions of the links that span the top of the right panel, modify the [TitleBar] section of PEAccessIBMxx.INI. These links operate the same way as the left-panel entries. The button number values are 00 through 04. The same applications that can be started from the left panel can be started from the [TitleBar] entries. See the applications listed in "Using IBMRRUTIL.EXE" on page 27 for a complete list of applications that can be started from the title bar.

**Modifying user messages and window status:** PEAccessIBMxx.INI contains two sections with messages to the user that can be modified:

```
[Welcome window]
```

```
[Reboot messages]
```

The Welcome window is defined in the [Welcome] section of PEAccessIBMxx.INI. Depending on the changes that you have made to the left panel, you can change the information in the title line and lines 01 through 012. You can set the font that the title, head and bold will be displayed in:

```
[Welcome]
```

```
Title = "Welcome to IBM Rescue and Recovery with Rapid Restore"
```

```

Line01 = "The IBM(R) Rescue and Recovery(TM) workspace provides
a number of tools to help you recover from problems that
prevent you from accessing the Windows(R) environment."
Line02 = "You can do the following:"
Line03 = "*Rescue and restore"
Line04 = "your files, folders or backups using IBM Rapid Restore(TM)"
Line05 = "*Configure"
Line06 = "your system settings and passwords"
Line07 = "*Communicate"
Line08 = "use the Internet and link to the IBM support site"
Line09 = "*Troubleshoot"
Line10 = "diagnose problems using diagnostics"
Line11 = "Features may vary based on installation options.
For additional information, click Introduction
in the Rescue and Recovery menu."
Line13 = "NOTICE:"
Line14 = "By using this software, you are bound by the
terms of the License Agreement. To view the license,
click Help in the Rescue and Recovery toolbar,
and then click View License."
Continue = "Continue"
NowShow = "Do not show again"
NoShowCk =0
WelcomeTitle = "Arial Bold"
WelcomeText = "Arial"
WelcomeBold = "Arial Bold"

```

To hide the Welcome window altogether, change NoShowCk =0 to NoShowCk =1. To change the display fonts for the title and welcome text, edit the last three lines of the section according to your design preferences.

**Note:** Do not change or delete lines 13 and 14.

In the [REBOOT] section of the PEAccessIBMxx.INI file, you can modify the values in the following lines:

```

NoShowChk=
RebootText=

```

The two values for "NoShowChk" are 0 and 1. The message can be hidden when a user chooses to do so. When a user clicks the check box when the message is displayed the value is set to 1. To have the message displayed, change the value to 0. If necessary, the font for messages in the [REBOOT] section can be changed. For example, this value can be set as follows:

```

RebootText = "Arial"

```

**Note:** The following sections of PEAccessIBMxx.INI are available in the file, but are not customizable: [Messages], [EXITMSG], and [HelpDlg].

---

## Configuring the Opera browser

There are two configuration files for the Opera browser. One contains the default configuration as set by IBM. The other is the "active" configuration. A user can make changes to the current Opera session, but the changes will be lost when the IBM Rescue and Recovery with Rapid Restore is restarted.

To make permanent changes to the browser, edit both the copy of Opera6.ini and Norm1.ini that are on the %systemdrive%, C, in the following folder path: C:\Preboot\Opera\Profile. The temporary, "active" copy of Opera6.ini is on the ramdrive (Z:) in the Z:\Preboot\Opera\Profile directory.

### Notes:

1. To get, edit and put the Opera6.ini and Norm1.ini files, refer to "Using IBMRRUTIL.EXE" on page 27.
2. The Opera workspace has been modified to provide enhanced security. As a result, some browser functions have been deleted.

## Disabling the address bar

To disable the address bar in Opera, do the following:

1. Get the file Minimal\_toolbar(1).ini in C:\preboot\opera\profile\toolbar by using the IBMRRUTIL process in the section entitled "Using IBMRRUTIL.EXE" on page 27.
2. Open the file for editing.
3. Locate the [Document Toolbar] section of the file, and then locate the "Address0" entry.
4. Place a semicolon (; -a comment delimiter) in front of the "Address0" entry.

**Note:** Stopping here and continuing to step 6 will disable the Opera toolbar, but will leave a nonfunctional "Go" button and toolbar graphic. To remove the "Go" button and the toolbar, continue with step

5. Locate the following entries and then place a semicolon in front of each:  
Button1, 21197=Go Zoom2
6. Save the file.
7. Put the file by using the IBMRRUTIL process as discussed in the section entitled "Using IBMRRUTIL.EXE" on page 27. The address bar will be disabled when Opera runs.

## Customizing bookmarks in the Opera browser

IBM has configured Opera to read the bookmarks established in this ramdrive file: z:\operadef6.adr. This file is generated when Rescue and Recovery is started from code in the startup routine. The startup routine automatically imports Windows Internet Explorer bookmarks and adds some additional IBM bookmarks. Because the ramdrive file that is generated on startup is impermanent, add bookmarks to Internet Explorer, and then those entries will be automatically imported when the Rescue and Recovery environment is started.

### Excluding Internet Explorer bookmarks

You can exclude some or all of the Internet Explorer favorites. To exclude specific Windows users' favorites do the following:

1. Get C:\preboot\startup\opera\_010.cmd by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.
2. Open the file for editing.



3. Locate the following line in the .CMD file: python.exe favs.pyc  
z:\Operadef6.adr
4. At the end of this line of code, type in quotations the names of the Windows users whose favorites you want to exclude. For example, if you want to exclude the favorites for All Users and Administrator, the code line will read as follows:  
python.exe favs.pyc z:\Operadef6.adr "All Users, Administrator"
5. Save the file.
6. Put the file by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.

If you do not want any of the Internet Explorer favorites to be displayed in the browser provided in the Rescue and Recovery environment, do the following:

1. Get the C:\preboot\startup\opera\_010.cmd for editing by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 1.
2. Locate the following line in the .CMD file: python.exe favs.pyc  
z:\Operadef6.adr.
3. Do one of the following:
  - a. Type REM at the beginning of the line, as follows:  
REM python.exe favs.pyc z:\Operadef6.adr
  - b. Delete the line of code from the file.
4. Save the file.
5. Put the file back by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.

## Changing proxy settings

To change the proxy settings for the Opera browser, do the following:

1. Get the file C:\preboot\opera\profile\norm1.ini for editing by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.
2. Add the following section to the bottom of the norm1.ini file:

**Note:** The [0 or 1] variable indicates that the check item is either enabled (1) or disabled (0).

```
[Proxy]
Use HTTPS=[0 or 1]
Use FTP=[0 or 1]
Use GOPHER=[0 or 1]
Use WAIS=[0 or 1]
HTTP Server=[HTTP server]
HTTPS Server=[HTTPS server]
FTP Server=[FTP server]
Gopher Server= [Gopher server]
WAIS Server Enable HTTP 1.1 for proxy=[0 or 1]
Use HTTP=[0 or 1]
Use Automatic Proxy Configuration= [0 or 1]
Automatic Proxy Configuration URL= [URL]
No Proxy Servers Check= [0 or 1]
```

3. Save the file.
4. Put the file back by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.

To add an HTTP, HTTPS, FTP, Gopher, or WAIS proxy, type =<address of proxy> after the appropriate line. For example, if the address of your proxy server is `http://www.your company.com/proxy`, the HTTP Server line would read as follows:

```
HTTP Server=http://www.your company.com/proxy
```

To add the port to the entry, place a colon after the address and type the port number. The same holds for the "No Proxy Servers" and "Automatic Proxy Configuration URL" fields.

```
z:\preboot\opera\profile\opera6.ini.
```

## Enabling or specifying the full download path

There are numerous settings that can be set to enable the "Save As" window to be displayed. The most straightforward method is offered here.

To enable the "Save As" window to be displayed, do the following:

1. Get the `C:\preboot\opera\defaults\Standard_menu.ini` file by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.
2. In the [Link Popup Menu] section, locate this string: `;;Item, 50761`.
3. Remove the two semicolons, and then save the file. When Rescue and Recovery is closed and reopened, a user will be able to right-click a link, and the "Save Target As" option will be displayed. This will also enable the "Save As" window to be displayed.

**Note:** Straight links (not redirected links) will work with the above procedure. For example, if a link targets a .PHP script, Opera will save the script only, not the file to which the script points.

4. Put the file back to the directory structure by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.

You can also specify a fixed download directory. To do this, do the following:

1. Get the `C:\preboot\opera\norm1.ini` file by using the IBMRRUTIL process defined discussed in "Using IBMRRUTIL.EXE" on page 27.
2. In the file, locate this line:  
`Download Directory=%OpShare%`
3. Change `%OpShare%` to the full path of the directory to which you want downloaded files to be saved.
4. Save the `norm1.ini` file. When Rescue and Recovery is closed and reopened, Opera will save downloaded files to the specified directory.
4. Put the file back by using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.

### Notes:

1. Customizing the full path for downloading does not enable users to save the target file, even if the link is redirected.
2. IBM has configured Opera to download the following file types only: .ZIP, .EXE, and .TXT. The preceding will change Opera behavior for these file types only. (There are potentially tens of thousands of file types using a three-letter file extension. Just as the IBM Rescue and Recovery environment is not intended to be a replacement for the Windows environment, the Opera browser is not intended to replace a full-service browser. Internet access is provided to help users get up and running. The number of recognized file types is necessarily limited. For the purposes of rescue and recovery .TXT, .EXE, and

- .ZIP should be sufficient. If another file type needs to be transferred, best results will be realized by creating a .ZIP file, which can then be extracted.)
- File types are recognized by mime type rather than by file extension. For example, if a .TXT file is named with .EUY as an extension, for example, the file will still open in the Opera browser as a text file.

### Adding a specific file extension to the downloadable files list

You can add to the list of files that can be downloaded through the Rescue and Recovery browser.

To add to the list, do the following:

- Make sure that Opera is not open and that all Opera windows are closed, including the Rescue and Recovery Help files.
- Get the c:\Preboot\Opera\Norm1.ini file using the IBMRRUTIL process discussed in "Using IBMRRUTIL.EXE" on page 27.
- Locate the [File Types] section of the file.
- Use the search function to discover whether the file extension you want is listed, but does not work; then do one of the following:
  - If the extension is found, but files with that extension do not work correctly, do the following:
    - Change the value following the extension from 8 to 1. (A value of 8 tells the browser to ignore the file. A value of 1 instructs the browser to save the file.) For example, change the following:
 

```
video/mpeg=8,,,,mpeg,mpg,mpe,m2v,m1v,mpa,|
```

to

```
video/mpeg=1,,,,mpeg,mpg,mpe,m2v,m1v,mpa,|
```
    - Scroll up to the [File Types Extension] section of the NORM1.INI file, and then search for the mime type of the file. For example, find the following:
 

```
video/mpeg=,8
```
    - Change the ,8 value to the following:
 

```
%opshare%\,2
```

**Note:** If the value already set as specified, do not change the value.
    - Save the file, and then copy the file to Opera6.ini, and then restart IBM Rescue and Recovery for the changes to be effective.
  - If the extension is not present and files of the desired type do not work correctly, do the following:
    - In the [File Types Extension] section of NORM1.INI, locate the temporary mime entry. The following is an example:
 

```
temporary=1,,,,lwp,prz,mwp,mas,smc,dgm,|
```
    - Add the file type extension to the list. For example, if you want to add .CAB as a recognized extension, add it according to the following sample entry:
 

```
temporary=1,,,,lwp,prz,mwp,mas,smc,dgm,cab,|
```

**Note:** The trailing comma and pipe symbol are essential for this setting to work. If either is omitted, all file extensions in the list might be disabled.
    - Save the file to the directory path C:\temp\. Copy the file to OPERA6.INI, and then restart the IBM Rescue and Recovery workspace for the changes to be effective.

## Changing the behavior of files with specific extensions

You can change the behavior of files by replacing values in the NORM1.INI file. To change file behavior by extension, do the following:

1. Close Opera and all active Opera windows, including IBM help files.
2. Open the Preboot\Opera\Norm1.ini file for editing by using the IBMRRUTIL process discussed in “Using IBMRRUTIL.EXE” on page 27.
3. Locate the [File Types] section of the file, and then search for the extension you want to work with. For example, you want all .TXT files to be saved to the IBMSHARE folder.
4. Find the following entry: `text/plain=2,,,,txt,|`

**Note:** A value of 2 instructs the browser to display the text in Opera. A value of 1 instructs the browser to save the target file in the IBMSHARE folder.

5. Continuing with the .TXT example, change the line to read as follows:  
`text/plain=1,,,txt,|`
6. Save the file and put it back by using the IBMRRUTIL process as discussed in “Using IBMRRUTIL.EXE” on page 27.
7. Restart the IBM Rescue and Recovery workspace for changes to be effective.

## Adding a static IP address

To add a static IP address, the following files need to be changed.

1. Get the \MININT\SYSTEM32 WINBOM.INI file by using the IBMRRUTIL process discussed in “Using IBMRRUTIL.EXE” on page 27.
2. Add [WinPE.Net] section before [PnPDriverUpdate] in WINBOM.INI file. For example, consider the following file: WINBOM.INI

```
[Factory]
WinBOMType=WinPE
Reseal=No
[WinPE]
Restart=No
[PnPDriverUpdate]
[PnPDrivers]
[NetCards]
[UpdateInis]
[FactoryRunOnce]
[Branding]
[AppPreInstall]
```

The following lines must be added to the [WinPE.Net] section.

```
[WinPE.Net]
Gateway=9.44.72.1
IPConfig =9.44.72.36
StartNet=Yes
SubnetMask=255.255.255.128
```

Entry	Description
Gateway	Specifies the IP address of an IP router. Configuring a default gateway creates a default route in the IP routing table. <b>Syntax:</b> Gateway = xxx.xxx.xxx.xxx
IPConfig	Specifies the IP address that Windows PE uses to connect to a network. <b>Syntax:</b> IPConfig = xxx.xxx.xxx.xxx
StartNet	Specifies whether to start networking services. <b>Syntax:</b> StartNet = Yes   No
SubnetMask	Specifies a 32-bit value that enables the recipient of IP packets to distinguish the network ID and host ID portions of the IP address. <b>Syntax:</b> SubnetMask = xxx.xxx.xxx.xxx

3. Get the PREBOOT\IBMWORK NETSTART.TBI file by using the IBMRRUTIL process discussed in “Using IBMRRUTIL.EXE” on page 27.
4. Change  
factory -minint  
  
to  
factory -winpe
5. Comment out the following lines:  
regsvr32 /s netcfgx.dll  
netcfg -v -winpe  
net start dhcp  
net start nla
6. Put the \IBMWORK NETSTART.TBI and \MININT\SYSTEM32 WINBOM.INI files back by using the IBMRRUTIL process discussed in “Using IBMRRUTIL.EXE” on page 27.

---

## Changing the video resolution

You can change the video resolution by changing the default predesktop resolution settings of 800 × 600 × 16-bit. To change the settings, do the following:

1. Get the Minint\system32\winbom.ini file by using the IBMRRUTIL process discussed in “Using IBMRRUTIL.EXE” on page 27.

2. In the file winbom.ini, add the following entries:

```
[ComputerSettings]
```

```
DisplayResolution=800x600x16 or 1024x768x16
```

In the file preboot\ibmwork\netstart.tbi change factory-minnit to factory-winpe

When the Rescue and Recovery area boots, you will see an additional window during startup that is titled “Factory preinstallation.” Furthermore, the colors will be reduced from thousands to 256.

3. Put back the Minint\system32\winbom.ini file by using the IBMRRUTIL process discussed in “Using IBMRRUTIL.EXE” on page 27.



---

## Chapter 7. IBM Rescue and Recovery with Rapid Restore best practices

A usage scenario will best illustrate the power and best practices of IBM Rescue and Recovery with Rapid Restore. This scenario will start with the configuration of the hard disk drive, move through several updates, and follow the life cycle of a deployment.

---

### Installing IBM Rescue and Recovery with Rapid Restore in a new roll-out on IBM computers

The first thing to consider when deploying a system is to prepare the hard disk drive of your donor system. If you want to start with a clean hard disk, you must consider cleaning out the Master Boot Record on the primary hard disk. Remove all storage devices (second hard disks, USB hard disks, USB memory keys, PC Card Memory, and so on) from the donor system, except the primary hard disk that you are going to install Windows on.

**Attention:** Running this command will erase the entire contents of the target hard disk drive. After running, you will be unable to recover any data from the target hard disk drive.

Create a DOS boot diskette and place the file CLEANDRV.EXE on it. Boot the diskette (only one storage device attached). At the DOS prompt, type the command  
CLEANDRV /D0 /Y

Install the operating system and applications. Build your donor system as though you were *not* installing IBM Rescue and Recovery with Rapid Restore. The last step in the process is to install IBM Rescue and Recovery with Rapid Restore.

This first step in the install process is going to be extraction of the install shield executable to the directory c:\RRTemp. If you are going to install IBM Rescue and Recovery with Rapid Restore on multiple systems, performing this process one time will reduce the install time on each machine by roughly one-half. Assuming that the install file is located in the root of the C drive, create a file EXE\_Extract.cmd. EXE\_Extract.cmd will extract the file c:\setup\_ibmrrxxx.exe to c:\RRTemp.

```
:: This package will extract the WWW EXE to the directory c:\RRTemp for an  
:: administrative install.
```

```
@ECHO OFF
```

```
:: This is the name of the EXE (Without the .EXE)
```

```
set BUILDID=setup_ibmrr1033
```

```
:: This is the drive letter for the Setup_ibmrr1033.exe
```

```
:: NOTE: DO NOT END THE STRING WITH A "\". IT IS ASSUMED TO NOT BE THERE.
```

```
SET SOURCEDRIVE=C:
```

```
:: Create the RRTemp directory on the HDD for the exploded WWW EXE
```

```
MD c:\RRTemp
```

```
:: Explode the WWW EXE to the directory c:\RRTemp
```

```
start /WAIT %SOURCEDRIVE%\%BUILDID%.exe /a /s /v"/qn
```

```
TARGETDIR=c:\RRTemp"
```

Assuming that you will customize the settings for Rapid Restore Ultra 4.0, you can make many customizations prior to the installation of Rapid Restore Ultra 4.0. Some examples in this scenario are:

- Change maximum number of incremental backups to 4.
- Set Rapid Restore Ultra 4.0 to perform an incremental backup every day at 1:59 p.m. to the local hard disk and call it "Scheduled".
- Hide the Rapid Restore Ultra 4.0 User Interface to all users not in the local Administrators Group.

To do this, create a custom TVT.TXT (modified entries are in **bold**):

```
[Scheduler]
Task1=RapidRestoreUltra
Task2=egatherer
[egatherer]
ScheduleFrequency=2
Task=c:\IBMT00LS\egatherer\launcheg.exe
ScheduleHour=0
ScheduleMinute=0
ScheduleDayOfTheWeek=0
ScheduleWakeForBackup=0
[RapidRestoreUltra]
LastBackupLocation=0
CustomPartitions=0
Exclude=0
Include=0
CustomStorageSettings=1
MaxNumberOfIncrementalBackups=4
MaxBackupSize=0
EncryptBackupData=1
UUIDMatchRequired=0
PasswordRequired=0
DisableArchive=0
DisableRestore=0
DisablePreferences=0
DisableSFR=0
CPUPriority=3
Yield=0
Ver=4.0
Task=C:\Program Files\IBM\IBM Rapid Restore Ultra\rrucmd.exe
TaskParameters=BACKUP location=L name="Scheduled"
ScheduleFrequency=1
ScheduleHour=13
ScheduleMinute=59
HideGUI=0
GUIGroup=Administrators
[RestoreFilesFolders]
WinHiddenFolders=%RRUBACKUPS%,%MININT%,%PREBOOT%
PEHiddenFolders=%RRUBACKUPS%,%MININT%,%PREBOOT%,Z:\
AllowDeleteC=FALSE
```



In the same directory as the new TVT.TXT, create a file INSTALL.CMD. INSTALL.CMD will perform several actions. First it will copy the custom TVT.TXT into the install package created in c:\RRTemp. It will then perform a silent install of IBM Rescue and Recovery with Rapid Restore without a reboot at the end. It will then start the "IBM Rapid Restore Ultra Service" so that a base backup can be performed. After the service is started, the environment to create an ISO image of the RRE Rescue CD will be set up (this is normally performed as part of a reboot) and the ISO image will be created. Finally, the base backup is going to be created and the system will be rebooted.

## INSTALL.CMD

The following represents the code for INSTALL.CMD:

```
:: Copy custom TVT.txt here
copy tvt.txt "c:\RRTemp\program files\IBM\IBM Rapid Restore Ultra"
:: Install using the MSI with no reboot (Remove "REBOOT="R"" to force a reboot)
start /WAIT msixec /i "c:\RRTemp\IBM Rescue and Recovery with Rapid
Restore.msi" /qn REBOOT="R"
:: Start the service. This is needed to create a base backup.
start /WAIT net start "IBM Rapid Restore Ultra Service"
:: Make an ISO file here - ISO will reside in c:\IBMT0OLS\rrcd
```

**Note:** Set up the environment is not needed if the system is rebooted.

```
:: Set up the environment
set PATH=%PATH%;%SystemDrive%\IBMT0OLS\Python22
set PATHEXT=%PATHEXT%;.PYW;.PYO;.PYC;.PY
set TCL_LIBRARY=%SystemDrive%\IBMT0OLS\Python22\tcl\tcl8.4
set TK_LIBRARY=%SystemDrive%\IBMT0OLS\Python22\tcl\tk8.4
set PYTHONCASEOK=1
set RRU=c:\Program Files\IBM\IBM Rapid Restore Ultra\
set PYTHONPATH=C:\IBMT0OLS\utils\support;C:\IBMT0OLS\utils\logger
:: The next line will create the ISO silently and not burn it
c:\IBMT0OLS\Python22\python c:\IBMT0OLS\utils\spi\mkspiim.pyc /scripted
:: Take the base backup... service must be started
c:
cd "c:\Program Files\IBM\IBM Rapid Restore Ultra"
RRUcmd.exe backup location=L name=Base level=0
:: Reboot the system
c:\IBMT0OLS\Utils\bmgr32.exe /R
```

## Customizing

Assume that you have deployed IBM Rescue and Recovery with Rapid Restore in your environment and now you realize a couple of things you would like to change with Rapid Restore Ultra 4.0. For the purposes of this scenario, these things are as follows:

- You would like more than 4 incremental backups and would like to change it to 10.
- The backup time of 1:59 p.m. interferes in some way with your environment. You would like to change the time to 10:24 a.m.
- You would like to allow all users on your systems to access the Rapid Restore 4.0 user interface.

- You would like to yield the system to other processes during a scheduled backup. Your evaluation after experimentation determines that the proper value of Yield= in your environment should be 2 instead of the standard value of 0.

To do this on multiple machines, create a mod file using a text editor. Create the file UPDATE.MOD with the following contents:

```
[RapidRestoreUltra] MaxNumberOfIncrementalBackups=10
[RapidRestoreUltra] ScheduleHour=10
[RapidRestoreUltra] ScheduleMinute=24
[RapidRestoreUltra] GUIGroup=
[RapidRestoreUltra] Yield=2
```

You can then create a short INSTALL.CMD file and using a systems management tool of your choice push the INSTALL.CMD and UPDATE.MOD files to your target systems. After the systems run INSTALL.CMD the updates will be effective. The contents of INSTALL.CMD are as follows:

```
:: Merge the changes into TVT.TXT
"%RRU%cfgmod.exe" "%RRU%tvt.txt" update.mod
:: Reset the scheduler to adopt the new scheduled backup time without a
reboot
"%RRU%reloadsched.exe"
```

## Updating

Now assume that you need to make a major change to your system, such as a service pack update to Windows. Before you install the service pack, you would like to force an incremental backup on the system and identify that backup by name. To do this, create a file FORCE\_BU.CMD and push it down to your target systems. After the file FORCE\_BU.CMD is on the target system, launch it. The contents of FORCE\_BU.CMD are:

```
:: Force a backup now
"%RRU%rrucmd" backup location=L name="Backup Before XP-SP2 Update"
```

### Enabling the Rescue and Recovery desktop

After realizing the benefits of Rapid Restore Ultra 4.0 for a period of time, you want to benefit from the Rescue and Recovery environment. For demonstration purposes, we have provided a sample script that will extract the control file for the Rescue and Recovery environment, enable you to edit it, and then put it back into the Rescue and Recovery environment using IBMRRUTIL.EXE. See "Using IBMRRUTIL.EXE" on page 27 for more information.

To modify the desktop of the Rescue and Recovery environment, we will use the following UPDATE\_RRE.CMD script to demonstrate several processes. First we will use IBMRRUTIL.EXE to get a file from the Rescue and Recovery environment. The files to be extracted from the Rescue and Recovery environment are defined by the file GETLIST.TXT. We then create a directory structure to put files back into the Rescue and Recovery environment when we are finished. We then make a copy of the file for safe keeping and then edit it.

In this example, we want to change the home page that gets opened when a user clicks on the "Open Browser" entry in the Rescue and Recovery environment. Our example will open the page <http://www.ibm.com/thinkvantage>.

To make the change, when Notepad opens with PEAccessIBMen.ini, edit the line:  
button13 = 8, "Open browser", Internet.bmp, 1, 1, 0,

```
%sysdrive%\Preboot\Opera\Opera.EXE, http://www.pc.ibm.com/cgi-  
bin/access_IBM.cgi?version=4&link=gen_support&country=__  
COUNTRY__&language=__LANGUAGE__
```

to

```
button13 = 8, "Open browser", Internet.bmp, 1, 1, 0,  
%sysdrive%\Preboot\Opera\Opera.EXE,  
http://www.ibm.com/thinkvantage
```

Then put the new version into the directory structure for placing files into the Rescue and Recovery environment. For details, refer to “Using IBMRRUTIL.EXE” on page 27. Finally put the new version of the file into the Rescue and Recovery environment and reboot the system into the Rescue and Recovery environment.

## UPDATE\_RRE.CMD

```
@ECHO OFF  
:: Obtain the PEAccessIBMen.ini file from the RRE  
c:\RRDeployGuide\IBMRRUTIL\ibmrrutil -g getlist.txt  
c:\RRDeployGuide\GuideExample\RREOriginal  
:: Make a directory to put the edited file for import back into the RRE  
md c:\RRDeployGuide\GuideExample\put\preboot\usrintfc  
:: Open the file with notepad and edit it.  
ECHO.  
ECHO Edit the file  
c:\RRDeployGuide\GuideExample\RREOriginal\PEAccessIBMen.ini  
(file will open automatically)  
pause  
:: Make a copy of original file  
copy  
c:\RRDeployGuide\GuideExample\RREOriginal\preboot\usrintfc\PEAccessIBMen.ini  
c:\RRDeployGuide\GuideExample\RREOriginal\preboot\usrintfc\  
PEAccessIBMen.original.ini  
notepad  
c:\RRDeployGuide\GuideExample\RREOriginal\preboot\usrintfc\PEAccessIBMen.ini  
pause  
copy c:\RRDeployGuide\GuideExample\RREOriginal\preboot\usrintfc\  
PEAccessIBMen.ini c:\RRDeployGuide\GuideExample\put\preboot\usrintfc\  
:: Place the updated version of the PEAccessIBMen into the RRE  
c:\RRDeployGuide\IBMRRUTIL\ibmrrutil -p c:\RRDeployGuide\GuideExample\put  
ECHO.  
ECHO Reboot to the RRE to see the change  
pause  
c:\IBMTTOOLS\UTILS\bmgr32.exe /bw /r
```

Create GETLIST.TXT:

```
\preboot\usrintfc\PEAccessIBMen.ini
```

Finally, you have done some analysis and determine there are files that you need to ensure get backed up and there are other files that do not need to be backed up since they reside on the server and can be obtained after a system restore. To do

this you would create a custom set of `ibmincl` and `ibmexcl` files. These files would be placed in a directory with `NSF.CMD`. `NSF.CMD` copies these files into the proper location.

In the example, we will use Lotus Notes and the IBM File and Folder Encryption example that is discussed in another section of this Deployment Guide.

#### **NSF.CMD**

```
copy ibmincl "%RRU%"
copy ibmexcl "%RRU%"
```

#### **IBMINCLD:**

```
*.ocx
*.dll
*.exe
*.ini
*.drv
*.com
*.sys
*.cpl
*.icm
*.lnk
*.hlp
*.cat
*.xml
*.jre
*.cab
*.sdb
*.bat
*\ntldr
*\peldr
*\bootlog.prv
*\bootlog.txt
*\bootsect.dos
*winnt
*windows
*minint
*preboot
*application data
*documents and settings
*ibmtools
*program files
*msapps
*names.nsf
*journal.nsf
c:\Program Files\IBM\Security\*flt.nsf
```

#### **IBMEXCLD:**

```
*.nsf
```

---

## Installation of IBM Rescue and Recovery with Rapid Restore on non-IBM computers

To install IBM Rescue and Recovery with Rapid Restore, there must be 8 free sectors available in the master boot record on the hard disk. IBM Rescue and Recovery with Rapid Restore uses a custom Boot Manager in order to enter into the Recovery area.

Some OEM manufacturers store pointers to their product recovery code in the master boot record sector. OEM product recovery code may interfere with the IBM Rescue and Recovery with Rapid Restore. Boot Manager installation.

Consider the following scenarios and best practices to ensure IBM Rescue and Recovery with Rapid Restore provides the desired functions and features:

### Scenario 1

This scenario covers new image deployments that include IBM Rescue and Recovery with Rapid Restore.

#### Best practices for hard drive setup

If you are using an OEM image for the base OS, ensure that the Master Boot Record does not contain the product recovery data. This can be accomplished by the following:

**Attention:** Running the following command will erase the entire contents of the target hard disk drive. After running, you will be unable to recover any data from the target hard disk drive.

1. Use CLEANDRIVE.EXE available from <http://www.ibm.com/support/us> to ensure all sectors are cleared from the MBR on the hard disk drive that you plan to use to create your base image.
2. Package the image according to your procedures for deployment.

### Scenario 2

Deploying IBM Rescue and Recovery with Rapid Restore deployment on existing clients requires some effort and planning.

#### Best practices for hard drive setup

If deploying IBM Rescue and Recovery with Rapid Restore to existing OEM clients that contain OEM product recovery code, run the following test to determine if the OEM product recovery code interferes with IBM Rescue and Recovery with Rapid Restore:

1. Set up a test client with the image that contains the OEM product recovery code.
2. Install IBM Rescue and Recovery with Rapid Restore. If there are not 8 free sectors in the MBR as a result of the OEM product recovery code, you will see the following error message:

Error 1722. There is a problem with this Windows Installer package. A program run as part of the setup did not finish as expected. Contact your personnel or package vendor.

If you receive Error 1722 and need to create 8 free sectors, call the IBM help desk to report the error and obtain further instructions.

## Creating a bootable IBM Rescue and Recovery CD

IBM Rescue and Recovery builds and burns the rescue media CD from the current service area contents, rather than from a pre-assembled ISO image. However, if an appropriate ISO image is already present, because it was preloaded or because it had been run built before, that image will be used to burn the CD, rather than creating a new one.

Because of the resources involved, only one instance of the CD burning application may be running at any given time. If it is running, attempting to start a second instance will meet with an error message and the second instance will abort. In addition due to the nature of accessing protected areas of the hard drive, you must be the administrator to create the ISO; however a limited user can burn the ISO to a CD. See below for information on how to pre-create the ISO image of the Rescue media CD.

If you create a new ISO image, copying the following directory trees and building the ISO requires at least 400 MB of free space available on the system drive.

- minint
- preboot
- win51
- win51ip
- win51ip.sp1
- scrrec.ver

Moving around this much data is HDD-intensive, and might take 15 or more minutes on some computers.

**Creating the recovery ISO file and burning to CD a sample script file:** To create a recovery ISO file and burn to CD a sample script file, prepare the following code:

```
:: Make an ISO file here - ISO will reside in c:\IBMTOOLS\rrcd
```

**Note:** The following seven lines of code are needed only if the system is not rebooted after install.

```
:: Set up the environment
set PATH=%PATH%;%SystemDrive%\IBMTOOLS\Python22
set PATHEXT=%PATHEXT%;.PYW;.PYO;.PYC;.PY
set TCL_LIBRARY=%SystemDrive%\IBMTOOLS\Python22\tcl\tcl8.4
set TK_LIBRARY=%SystemDrive%\IBMTOOLS\Python22\tcl\tk8.4
set PYTHONCASEOK=1
set RRU=c:\Program Files\IBM\IBM Rapid Restore Ultra\
set PYTHONPATH=C:\IBMTOOLS\utils\support;C:\IBMTOOLS\utils\logger
:: The next line will create the ISO silently and not burn it
c:\IBMTOOLS\Python22\python c:\IBMTOOLS\utils\spl\mkspiim.pyc /scripted
:: The next line will create the ISO with user interaction and not burn it
:: c:\IBMTOOLS\Python22\python c:\IBMTOOLS\utils\spl\mkspiim.pyc
/noburn
```

---

## Installing IBM Rescue and Recovery into a type 12 service partition

You must have the following in order to install IBM Rescue and Recovery into a type 12 service partition:

- The file IBMSPPQI
- PowerQuest PQDeploy
- Latest installer for IBM Rescue and Recovery

### Procedure

There are several options related to installing the IBM Rescue and Recovery environment in a service partition.

**Note:** For best results, create the service partition at the end of the drive, rather than the beginning.

To perform the installation use the following steps:

1. Create unallocated space at the end of the hard disk drive.
2. Create three primary partitions of 100 MB (or two additional partitions if you currently have a C drive already partitioned), using a partitioning software tool, such as Partition Magic.

**Note:** Steps 1 and 2 will ensure that the service partition is the last in the partition table. This is required in order for IBM Rescue and Recovery with Rapid Restore to install to the service partition correctly.

3. Leave at least 500 MB of unallocated free space at the end of the drive.
4. Using PowerQuest, restore the IBMSPPQI file to the unallocated free-space.
5. Delete the primary partitions created in step 1 (except the C drive), and then reboot.

**Note:** System volume information may be on the newly created service partition. The system volume information needs to be deleted through Windows System Restore.

6. Install IBM Rescue and Recovery with Rapid Restore and reboot when prompted.





---

## Chapter 8. Issues, conflicts, and limitations

To get the latest information regarding the IBM Rescue and Recovery with Rapid Restore program, visit [www.ibm.com/pc/support](http://www.ibm.com/pc/support). To view Hints & Tips associated with the Rescue and Recovery program, do the following:

1. Click **Hints & Tips**.
2. In the **Brand** field, use the drop-down menu to select **ThinkVantage Technologies**.
3. In the **Family** field use the drop-down menu to select **IBM Rescue and Restore**; then click **Continue**.

---

### Changing the system board

If you need to change a failed motherboard and you are using UUID protection as soon as you complete the motherboard replacement, perform a backup. This will capture the new UUID and propagate it to the original backups.

---

### Backing up encrypted files

Rapid Restore Ultra 4.0 does backup both Windows EFS and IBM Client Security Software File and Folder Encryption (FFE) files in their encrypted form.

If you use FFE, you should ensure that the database that FFE uses to keep track of what folders are protected by FFE also has a .NSF extension. To ensure that these files are always backed up you should include the entry `c:\Program Files\IBM\Security\*flt.nsf` in the `ibmincl.d` file. This ensures that the database file for FFE is backed up. Loss of this file will prevent access to the FFE protected files and folders.

Single File Restore of encrypted files (FFE and EFS) does have some limitations in the Rescue and Recovery environment. When an encrypted file can be restored using Single File Restore is best summarized in this table below. Note, during full restore of the system, all encrypted files are restored with no issues.

	Windows	Rescue and Recovery Environment
FFE	No	Yes
EFS	Yes (logged on user only)	No

---

### Limitations

There are a number of limitations that you and users need to note.

#### Wireless and dial-up connectivity

There is no wireless or dial-up capability from the IBM Rescue and Recovery workspace. Only wired Ethernet is supported.

## USB memory key and startup

You can use a USB memory key to perform read/write functions within the IBM Rescue and Recovery workspace. However, you cannot boot from a USB memory key.

## Pointing device functions

All pointing devices will operate as a two-button device within the IBM Rescue and Recovery workspace. For example, just as the third button of a three-button mouse is not supported in the IBM Rescue and Recovery workspace the scrolling capability of an IBM ScrollPoint® mouse is not supported.

## Compatibility with previous versions

IBM Rapid Restore Ultra 3.0 and prior versions are not compatible with the IBM Rescue and Recovery program. If you install the IBM Rescue and Recovery program and previous versions of Rapid Restore Ultra are installed, then the Rescue and Recovery program prompts you to uninstall any previous versions of Rapid Restore Ultra including all backups made by prior versions of the program during installation of the Rescue and Recovery program.

## DVD-RAM disks and IBM and recovery

The IBM Rescue and Recovery workspace does not support booting from a DVD-RAM disc as an external device. As a result, do not create rescue media, Product Recovery CDs, backups, or archive backups using DVD-RAM media if you intend to boot from an external device. Other DVD formats are supported.

## Restoring while the IBM Rapid Restore Ultra help system is open

If you have the IBM Rapid Restore Ultra program and help system open while attempting to perform a "Backup now" backup, the program will close and you will receive an error message. However, the backup operation is underway and the error message should be closed. To check on the progress of your backup, re-open the Rapid Restore Ultra program and the progress is indicated on the screen.

## Large backup files and "Not responding" messages

If you are transferring files that are large, you might see a "Not responding" message on a previous IBM Rapid Restore file transfer window. However, the file transfer operation is still underway and can be verified by the progress bar indicated on the window where the file transfer operation was started.

## Drives and drive letters

When you are transferring files, the drive letters used for the location and destination directories might not represent drive letters typically used in your Windows environment. One way of locating the drive that is known as your C drive is to expand each directory and look for folders commonly associated with the C drive such as a My Documents folder or a Documents and Settings folder.

## IBM Rescue and Recovery installed on non-primary hard disk

If you installed the IBM Rescue and Recovery program on a hard disk drive, other than your primary drive, and the alternate drive is damaged, then the Rescue and Recovery program must be reinstalled if you want to continue performing rescue and recovery operations from the alternate drive. It is a good idea to perform a backup operation after the program is reinstalled.

## **USB memory key inserted during installation**

If you install Windows 2000 and there is a USB memory key attached to the computer at the time of installation, then a TXTSETUP.SIF is inserted in the C drive root directory. If you attempt to enter the IBM Rescue and Recovery workspace with the TXTSETUP.SIF in the C drive root directory, your computer will not boot into the Rescue and Recovery workspace successfully. To prevent this problem, either detach the USB memory key before installing Windows 2000 or delete or rename the TXTSETUP.SIF file in the C root directory before entering the Rescue and Recovery environment.

## **Screen flashes when IBM Rescue and Recovery opens**

Depending on the video card installed on your computer, there might be a series of flashes when the IBM Rescue and Recovery workspace is opened.

## **Video RAM and performance**

The video RAM that came with your computer is typically set to store a default capacity of 8MB. Having a video RAM lower than 8MB might adversely affect performance of the IBM Rescue and Recovery program.



---

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## Appendix B. Installation command-line switches

The Windows installer provides a number of functions for the administrator through command-line switches and parameters.

---

### Administrative installation procedure and command-line parameters

The Windows Installer can perform an administrative installation of an application or product to a network for use by a workgroup or for customization. For the IBM Rescue and Recovery installation package, an administrative installation unpacks the installation source files to a specified location. To run an administrative installation the setup package needs to be executed from the command line using the /a parameter:

```
Setup.exe /a
```

Launching an administrative installation presents a series of windows that prompt the administrative user to specify the location to unpack the setup files. The default extract location that is presented to the administrative user is C:\. A new location can be chosen which may include drives other than C: (other local drives, mapped network drives, etc.). New directories can also be created during this step.

If an administrative installation is run silently, the public property TARGETDIR can be set on the command line to specify the extract location:

```
Setup.exe /s /v"/qn TARGETDIR=F:\IBMRR"
```

Or

```
msiexec.exe /i "IBM Rescue and Recovery.msi" /qn TARGERDIR=F:\IBMRR
```

After an administrative installation has been completed, the administrative user can customize the source files, such as adding additional settings to TVT.TXT. To install from the unpacked source after customizations are made, the user calls msiexec.exe from the command line, passing the name of the unpacked \*.MSI file. The following section describes the available command line parameters that can be used with msiexec as well as an example of how to use it. Public properties can also be set directly in the msiexec command line call.

MsiExec.exe is the executable program of the Windows Installer used to interpret installation packages and install products on target systems.

```
msiexec /i "C:\<WindowsFolder>\Profiles\<UserName>\
Personal\MySetups\<project name>\
<product configuration>\<release name>\
DiskImages\Disk1\<product name>.msi"
```

**Note:** Although the example above is broken into several lines, the command line is a single line and no spaces follow the slashes.

The table below provides a detailed description of MsiExec.exe command line parameters. This table is taken directly from the Microsoft Platform SDK documentation on the Windows Installer.

Parameter	Description
/I <package> or <product code>	Use this format to install the product: <pre>Othello:msiexec /i "C:\&lt;WindowsFolder&gt;\Profiles\ &lt;UserName&gt;\Personal\MySetups \Othello\Trial Version\ Release\DiskImages\Disk1\ Othello Beta.msi"</pre> <p>Product Code refers to the GUID that is automatically generated in the Product Code property of your product's project view.</p>
/f [p o e d c a u m s v] <package> or <product code>	Installing with the /f option will repair or reinstall missing or corrupted files. For example, to force a reinstall of all files, use the following syntax: <pre>msiexec /fa "C:\&lt;WindowsFolder&gt;\Profiles\ &lt;UserName&gt;\Personal\MySetups\ Othello\Trial Version\Release\ Othello\Trial Version\Release\</pre> <p>in conjunction with the following flags:</p> <ul style="list-style-type: none"> <li>• p reinstalls a file if it is missing or if an older version of the file is present on the user's system</li> <li>• e reinstalls a file if it is missing or if an equivalent or older version of the file is present on the user's system</li> <li>• c reinstalls a file if it is missing or if the stored checksum of the installed file does not match the new file's value</li> <li>• a forces a reinstall of all files</li> <li>• u or m rewrite all required user registry</li> <li>• s overwrites any existing shortcuts</li> <li>• v runs your application from the source and re-caches the local installation package</li> </ul>
/a <package>	The /a option allows users with administrator privileges to install a product onto the network.
/x <package> or <product code>	The /x option uninstalls a product.
/j [u m] <package> /j [u m] <package> /t <transform	Building with the /j <package> option advertises the components of your application on the end user's computer
<list/j [u m] <package> /g /j <language ID>	The following variables produce these results: <ul style="list-style-type: none"> <li>• u advertises components only to the current user</li> <li>• m advertises components to all users of the computer</li> <li>• g specifies language ID</li> <li>• t applies a transform to your advertised product</li> </ul> <p>Transforms enable the synchronization of applications across different languages. For example, if you upgrade the English version of your product, you could apply a transform to automatically upgrade the French version of your product.</p>



Parameter	Description
/L [i w e a r u c m p v + ] <log file>	<p>Building with the /L option specifies the path to the log file-these flags indicate which information to record in the log file:</p> <ul style="list-style-type: none"> <li>• i logs status messages</li> <li>• w logs non-fatal warning messages</li> <li>• e logs any error messages</li> <li>• a logs the commencement of action sequences</li> <li>• r logs action-specific records</li> <li>• u logs user requests</li> <li>• c logs initial user interface parameters</li> <li>• m logs out-of-memory messages</li> <li>• p logs terminal settings</li> <li>• v logs the verbose output setting</li> <li>• + appends to an existing file</li> <li>• * is a wildcard character that allows you to log all information (excluding the verbose output setting)</li> </ul>
/p <patch package>	<p>Building with the /p option applies a patch to an installed setup package. To patch an installed administrative image, combine this option with /a as shown:</p> <pre>:/p &lt;patch package&gt; /a &lt;package&gt;</pre>
/q [n b r f]	<p>The /q option is used to set the user interface level in conjunction with the following flags:</p> <ul style="list-style-type: none"> <li>• q or qn creates no user interface</li> <li>• qb creates a basic user interface</li> </ul> <p>The user interface settings below display a modal dialog box at the end of installation:</p> <ul style="list-style-type: none"> <li>• qr displays a reduced user interface</li> <li>• qf displays a full user interface</li> <li>• qn+ displays no user interface</li> <li>• qb+ displays a basic user interface</li> </ul>
/? or /h	Either command displays Windows Installer copyright information
/y <filename>	This command calls the DllRegisterServer entry-point function of the DLL or OCX file specified in <filename>.
/z <filename>	This command calls the DllUnregisterServer entry-point function of the DLL or OCX file specified in <filename>.

Parameter	Description
TRANSFORMS	<p>Use the <b>TRANSFORMS</b> command line parameter to specify any transforms that you would like applied to your base package. Your transform command line call might look something like this:</p> <pre>msiexec /i "C:\&lt;WindowsFolder&gt;\ Profiles\&lt;UserName&gt;\Personal \MySetups\ Your Project Name\Trial Version\ My Release-1 \DiskImages\Disk1\ ProductName.msi" TRANSFORMS="New Transform 1.mst"</pre> <p>You can separate multiple transforms with a semicolon. Because of this, it is recommended that you do not use semicolons in the name of your transform, as the Windows Installer service will interpret those incorrectly.</p>
Properties	<p>All public properties can be set or modified from the command line. Public properties are distinguished from private properties by the fact that they are in all capital letters. For example, COMPANYNAME is a public property.</p> <p>To set a property from the command line, use the following syntax:</p> <pre>PROPERTY=VALUE</pre> <p>If you wanted to change the value of COMPANYNAME, you would enter the following:</p> <pre>msiexec /i "C:\&lt;WindowsFolder&gt;\ Profiles\&lt;UserName&gt;\Personal \ MySetups\Your Project Name\ Trial Version\My Release-1 \ DiskImages\Disk1\ProductName.msi" COMPANYNAME="InstallShield"</pre>

## Appendix C. TVT.TXT settings and values

The default values identified below are suggested settings. The values might be different for different configurations (for example, Preload, Web Download, OEM version). The following installation configuration settings are available:

Setting	Values
EncryptBackupData	0 = do not encrypt backup1 = encrypt backup (default)
LocalBackup2Location	$x:\backslash foldername$ (where $x$ = drive letter and $foldername$ = any fully qualified folder name.) The default is this: <1st partition letter on the second drive>:\IBMBBackupData <b>Notes:</b> 1. Because the drive letter can change over time, IBM Rescue and Recovery will associate the drive letter to a partition at the time of install, and then use the partition information rather than the drive letter. 2. This is the location filed of TaskParameters entry.
NetworkUNCPath	network share using the format: \\<computername>\<share folder>  There is no default. <b>Note:</b> This location will not be protected by the File Filter Driver.
MaxNumberOfIncrementalBackups	default = 5, min = 2, max = 32
CPUPriority	$n$ where $n = 1$ to $5$ ; 1 is the lowest priority and 5 is highest priority.  The default is 3.
Yield	$n$ where $n = 0$ to $8$ ; 0 means that IBM Rescue and Recovery does not yield and 8 means that IBM Rescue and Recovery produces the maximum yield value. <b>Note:</b> A higher yield will incrementally slow down backup performance and provide better interactive performance.  The default is 0.
HideGUI	0 = show the GUI to authorized users  1 = hide the GUI from all users
DisableArchive	0 = enable archive  1 = hide archive  The default is 0.

Setting	Values
DisableRestore	0 = enable restore 1 = hide restore The default is 0.
DisablePreferences	0 = enable set preferences 1 = hide set preferences The default is 0.
DisableSFR	0 = enable single file restore 1 = single file restore The default is 0
MaxBackupSize	$x$ , where $x$ is the size in GB. This value will not prevent a backup from exceeding this threshold. If the threshold is exceeded, however, the user will be warned about the file size the next time an "On Demand" backup is taken.
RunBaseBackup	0 = don't perform the base backup 1 = perform base backup The default is 0.
GUIGroup (see AccessFile)	<i>&lt;group&gt;</i> , where <i>&lt;group&gt;</i> is a Windows local group (not a domain group) that is permitted to perform IBM Rescue and Recovery operations. The list of privileged groups is stored in a file that is defined by the AccessFile entry.
AccessFile (see GUIGroup)	<i>&lt;filename&gt;</i> , where <i>&lt;filename&gt;</i> is the fully qualified path to a file that holds the names of Windows local groups (not domain groups) that are permitted to perform IBM Rescue and Recovery operations. If blank or missing, all users who can log onto the computer can launch the GUI and perform command line operations. By default the file is blank.
ScheduleFrequency	0 = not scheduled 1 = daily 2 = weekly 3 = monthly The default is 2 (weekly).
ScheduleDayOfThe-Month	$x$ , where $x = 1$ to 28 or 35 for monthly backups only. 35 = the last day of the month

Setting	Values
ScheduleDayOfTheWeek	For weekly backups only 0 = Sunday 1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday The default is 0 (Sunday).
ScheduleHour	$x$ , where $x = 0$ to 23 and 0 is 12:00 AM, 12 is noon, and 23 is 11:00 PM. The default is 0.
ScheduleMinute	$x$ , where $x = 0$ to 59, which increments represent the minute within the hour to start the incremental backup. The default is 0.
ScheduleWakeFor-Backup	0 = do not wake the computer for scheduled backups 1 = wake the computer, if it is a desktop for scheduled backups, but do not wake notebook computers 2 = wake the computer regardless of whether it is a desktop or notebook The default is 2. <b>Note:</b> If a notebook wakes for a backup, but ac power is not detected, it will return to suspend/hibernate before a backup operation starts.
Pre (see PreParameters)	<i>cmd</i> , where <i>cmd</i> is a fully qualified path to an executable file to run prior to the primary task.
PreParameters (see Pre)	<i>parms</i> , where <i>parms</i> are parameters to be used in the pre-task
PreShow	0 = hide pre-task 1 = show pre-task The default is 0.
Post (see PostParameters)	<i>cmd</i> , where <i>cmd</i> is a fully qualified path to an executable file to run after to the primary task.
PostParameters (see Post)	<i>parms</i> , where <i>parms</i> are parameters to be used in the post-task
PostShow	0 = hide post-task 1 = show post-task The default is 0.
Task	<i>cmd</i> , where <i>cmd</i> is a fully qualified path to the program to run as the primary task.

Setting	Values
TaskParameter	<i>parms</i> are parameters to be used in the task.
TaskShow	0 = hide task 1 = show task The default is 1.
PasswordRequired	0 = no password required to open the IBM Rescue and Recovery environment. 1 = password required to open the IBM Rescue and Recovery environment.
UUIDMatchRequired	0 = Computer UUID match is not required. 1 = Computer UUID match is required. <b>Note:</b> Backups that have been captured when the UUIDMatchRequired was set to 1 will continue to require a UUID match, even if this setting is changed later.
Exclude (see Include)	0 = do not apply GUIexcl.d.txt 1 = apply GUIexcl.d.txt <b>Notes:</b> 1. Exclude and select files can be defined prior to installation and be applied during the installation process. 2. Exclude and Include cannot both be 1
Include (see Exclude)	0 = do not apply GUIincl.d.txt 1 = apply GUIincl.d.txt and display the option to set include files and folders <b>Notes:</b> 1. Exclude and select files can be defined prior to installation and be applied during the installation process. 2. Exclude and Include cannot both be 1.
HideAdminBackups	0 = Show administrator backups in list. 1 = Hide administrator backups. The default is 0.
HidePasswordProtect	0 = Show password protect checkbox. 1 = Hide password protect check box. The default is 0.
NetworkUNCPath	< <i>server share name</i> >, for example, \\myserver\share\folder

Setting	Values
BackupPartition	0 = First partition on a specified drive 1 = Second partition on a specified drive 2 = Third partition on a specified drive 3 = Fourth partition on a specified drive  Drives are specified in the following sections:  [BackupDisk] = local hard disk drive  [SecondDisk] = second local hard disk drive  [USBDisk] = USB hard disk drive <b>Note:</b> Partitions must already exist. If not set, the user will be prompted to establish the partition (if there is more than one partition on the destination drive when the destination drive is selected in the user interface).

After IBM Rescue and Recovery is installed, the following configurations can be altered in the TVT.TXT file that is located in the installed directory. They will be initialized with the values assigned during installation. See previous section for descriptions of these parameters.

---

## Scheduling backups and associated tasks

The scheduler is not designed to be specific to IBM Rescue and Recovery. However, the configuration is stored in the same TVT.TXT file. When IBM Rescue and Recovery is installed, it will populate the scheduler with the appropriate settings. The configuration settings for the scheduler are shaded in the settings table. The settings that are used exclusively for the scheduler are marked with bold lines.

Here is a description of the structure for the scheduler:

- Location: Install folder
- Entry for each scheduled "job"
- Script to run
- Named pipe to be used for progress notifications (optional)
- Schedule information (monthly, weekly, daily, (weekday, weekend - multiple schedules (e.g. Tuesdays and Fridays) can be supported by creating two schedules))
- Variables to pass to functions

Consider the following example: For the case of IBM Rescue and Recovery performing incremental backup on schedule, with callbacks before and after the backup, the following entry instructs the application accordingly:

```
[SCHEDULER]
Task1=RapidRestoreUltra
[RapidRestoreUltra]
Task="c:\program files\ibm\rapid restore ultra\
rrucmd.exebackup.bat"
TaskParameters=BACKUP location=L name="Scheduled"
```

```
ScheduleFrequency=2
ScheduleDayOfTheMonth=31
ScheduleDayOfTheWeek=2
ScheduleHour=20
ScheduleMinute=0
ScheduleWakeForBackup=0
Pre="c:\program files\antivirus\scan.exe"
Post="c:\program files\logger\log.bat"
```

---

## Mapping a network drive for backups

The Map Network Drive function relies on the mapdrv.ini file which is located in the C:\IBMTools\Utils\mnd directory. All information is stored in the DriveInfo section.

The UNC entry contains the computername and share of the location you are attempting to attach to.

The NetPath entry is output from the mapdrv.exe contains the actual name which was used when making the connection.

User and Pwd entries - The username and password entries are encrypted.

The following is an example entry for mapping a network drive:

```
[DriveInfo]
UNC=\\server\share
NetPath=\\9.88.77.66\share
User=11622606415119207723014918505422010521006401209203708202015...
Pwd=11622606415100000000014918505422010521006401209203708202015...
```

For deployment, this file can be copied onto multiple computers that will use the same username and password. The UNC entry is overwritten by Rapid Restore Ultra based on a value in the TVT.TXT.

## Setting up user accounts for network backups

When the RRUBackups directory is created on the network share, the service makes it a read only folder, and assigns it access rights so that *only* the account that created the folder has full control over the folder.

In order to complete a merge operation, MOVE permissions exist for the User account. If logged in with an account other than the account that created the folder initially (i.e., administrator), the merge process will fail.



---

## Appendix D. Command line tools for IBM Rescue and Recovery with Rapid Restore

Rescue and Recovery features can also be invoked locally or remotely by corporate IT administrators through the command line interface. Configuration settings can be maintained via remote text file settings.

---

### Rescue and Recovery boot manager control (BMGR32)

The boot manager interface command-line interface is `bmgr32`. It resides in the directory `c:\IBMTOOLS\UTILS`. The following table presents the switches and their results for `bmgr32`.

<b>bmgr32 switch</b>	<b>Result</b>
<code>/B0</code>	Boot to partition 0 (based on the order in the partition table)
<code>/B1</code>	Boot to partition 1
<code>/B2</code>	Boot to partition 2
<code>/B3</code>	Boot to partition 3
<code>/BS</code>	Boot to the IBM Service Partition
<code>/BW</code>	Boot to the Rescue and Recovery protected partition
<code>/CFG&lt;file&gt;</code>	Apply the configuration file parameters. (See the following section for details regarding the configuration file.)
<code>/D&lt;n&gt;</code>	Apply changes to disk n, where n is 0-based, (default: n=0)
<code>/H0</code>	Hide partition 0
<code>/H1</code>	Hide partition 1
<code>/H2</code>	Hide partition 2
<code>/H3</code>	Hide partition 3
<code>/HS</code>	Hide the IBM Service Partition
<code>/P12</code>	Hide the IBM Service Partition by setting partition type to 12
<code>/INFO</code>	Display HDD information
<code>/M0</code>	Rescue and Recovery environment is located in the Service Partition
<code>/M1</code>	Rescue and Recovery environment is located in the C:\ partition (dual boot Windows and Windows PE)
<code>/M2</code>	Rescue and Recovery environment is located in the Service Partition with DOS (dual boot Windows PE and DOS; IBM Preload Only)
<code>/OEM</code>	Computer is not an IBM Computer. This forces a second check for the F11 (default) key press after POST. This may be required for older IBM systems. This is also the default setting for the OEM version of Rescue and Recovery.
<code>/IBM</code>	System is an IBM Computer
<code>/Q</code>	silent
<code>/V</code>	verbose
<code>/R</code>	Reboot computer

<b>bmgr32 switch</b>	<b>Result</b>
/U0	Unhide partition 0
/U1	Unhide partition 1
/U2	Unhide partition 2
/U3	Unhide partition 3
/US	Unhide IBM service partition
/F<mbr>	Load the RRE master boot record program.
/U	Unload RRE master boot record program.
/?	List command line options.

## RRUcmd

The primary Rapid Restore Ultra command line interface is RRUcmd. The command is located in the C:\Program Files\IBM\IBM Rapid Restore Ultra\ subdirectory. Refer to the following information to use the command line interface for Rapid Restore Ultra.

### Syntax:

RRUcmd <command> <location=<c>> [name=<abc> or level=<x>] [silent]

<b>Command</b>	<b>Result</b>
Backup	To initiate a normal backup operation (must include location and name parameters)
Restore	To initiate a normal restore operation (must include location and level)
List	To list files that are included in the backup level (must include location and level)
Basebackup	To initiate an alternative base backup (not to be used as a basis for incremental backups) (must include location, name, & level) (level must be > 99) (if another base backup with the same level already exists, it will be overwritten)
Copy	Copy backups from one location to another (also known as archive) (must include location)
Delete	Delete backups (must include location)
Location=<c>	One or more of the following can be selected with the associated result.  L for primary local hard drive  U for USB HDD  S for second local hard drive  N for network
name=<abc>	Where <i>abc</i> is the name of the backup
level=<x>	Where <i>x</i> is a number from 0 (for the base) to max number of incremental backups (only used with the restore option)

## FTR

The File Transfer Recovery command can be used to invoke the File Transfer process. The Command file is located in the C:\Program Files\IBM\IBM Rapid Restore Ultra directory. The following switches are available:

### Syntax:

FTR [/h /b /u /v /sr]

Switch	Result
/sr	Launches to the Single File Restore view, to get individual files from backups.
/h	Displays list of command line options.
/b	Launches and sets "backup" as the source.
/u	Launches and sets "unbacked up files" as the source.
/v	Turns on verbose debugging.

### Sample Command:

C:\Program Files\IBM\IBM Rapid Restore Ultra\FTR /SR

## Mapdrv

The mapdrv command will invoke the GUI to map a network drive. The mapdrv.exe command can be found in the C:\IBMTTOOLS\UTILS\MND directory. The map network drive interface supports the following switches:

### Syntax:

mapdrv [switches]

Switch	Result
/rru	Reads and saves, UNC, encrypted UserID and encrypted Password in C:\IBMTTOOLS\Utils\mnd\mapdrv.ini file, prompts user if connection can not be made (unless /s is also specified)
/nodrive	Make network connection without assigning drive letter to the connection
/s	Silent. Do not prompt the user regardless of whether connection is made--only effective if used in conjunction with /rru Return codes: 0 = success, > 0 = failed

### Sample Command:

C:\IBMTTOOLS\UTILS\MND\mapdrv /rru

## cfgmod

cfgmod provides a method of updating the TVT.TXT file via a script. The cfgmod command can be found in the C:\Program Files\IBM\IBM Rapid Restore Ultra directory. If you modify the backup schedule this command must be followed by reloadsched. This utility must be run with administrator privileges.

### Syntax:

cfgmod <TVT.TXT> <mod file>

The format of the mod file requires one line per entry. Each entry includes a section number (delimited by [ and ]), followed by a parameter name, followed by "=", followed by the value. For example, to adjust the backup schedule, the mod file entries could be as follow:

```
[RapidRestoreUltra]ScheduleFrequency=1  
[RapidRestoreUltra]ScheduleHour=8  
[RapidRestoreUltra]ScheduleMinute=0
```

## **reloadsched**

### **Sample Command:**

```
C:\Program Files\IBM\IBM Rapid Restore Ultra\reloadsched
```

This command reloads the scheduled settings that are defined in TVT.TXT. If you make changes to TVT.TXT for scheduling, you must perform this comand to activate the changes.

---

## Appendix E. User Tasks

Users may not be able to perform certain tasks, based upon user rights. The following tables outline basic task capability with the Limited User/User, Power User, and Administrator default OS user ID permissions. The tasks and capabilities differ by Windows operating system.

---

### Windows XP

The following table presents the tasks that "limited," "power," and "administrative" users can perform in Rescue and Recovery.

<b>Windows XP users can perform the following:</b>	<b>Limited User</b>	<b>Power User</b>	<b>Administrator</b>
Create Rescue Media ISO	No	No	Yes (with command line provided below)
Create bootable CD media	Yes	Yes	Yes
Create USB HDD bootable media	No	No	Yes
Initiate backup	Yes	Yes	Yes
Initialize restore in Rescue and Recovery Environment (RRE)	Yes	Yes	Yes
Perform single-file restore in RRE	No (Windows) Yes (RRE)	No (Windows) Yes (RRE)	Yes
Set include and exclude in the Rapid Restore Ultra interface	Yes	Yes	Yes
Backup to a network drive	Yes	Yes	Yes
Schedule backups	Yes	Yes	Yes

---

### Windows 2000

The following table presents the tasks that "limited," "power," and "administrative" users can perform in Rescue and Recovery.

<b>Windows 2000 users can perform the following:</b>	<b>Limited User</b>	<b>Power User</b>	<b>Administrator</b>
Create Rescue Media ISO	No	No	Yes (with command line provided below)
Create bootable CD media	Yes	Yes	Yes
Create USB HDD bootable media	No	No	Yes
Initiate backup	Yes	Yes	Yes
Initialize restore in Rescue and Recovery Environment (RRE)	Yes	Yes	Yes
Perform single-file restore in RRE	No (Windows) Yes (RRE)	No	Yes

<b>Windows 2000 users can perform the following:</b>	<b>Limited User</b>	<b>Power User</b>	<b>Administrator</b>
Set include and exclude in the Rapid Restore Ultra interface	Yes	Yes	Yes
Backup to a network drive	No	No	Yes
Schedule backups	Yes	Yes	Yes

Administrators can use the following command lines to create the Rescue Media ISO. These command lines will enable you to make the required ISO file and it will be automatically be placed in the C:\IBMTTOOLS\RRCD directory:

```
:: This line will create the ISO silently and not burn it
c:\IBMTTOOLS\Python22\python c:\IBMTTOOLS\utils\spi\mkspiim.pyc
 /scripted
:: This line will create the ISO with user interaction and not burn it
c:\IBMTTOOLS\Python22\python c:\IBMTTOOLS\utils\spi\mkspiim.pyc
 /noburn
```

---

## Appendix F. Best practices for building IBM Rescue and Recovery into a new roll-out

A usage scenario can best illustrate the power of Rescue and Recovery. This scenario will start with the configuration of the hard disk drive and cover several updates through the life cycle of a deployment.

1. Prepare the hard disk drive in your donor system.
  - If you want to start from a fresh hard disk drive, consider cleaning out the Master Boot Record on the primary hard disk drive.
2. Remove all storage devices (second hard disk drives, USB hard disk drives, USB Memory Keys, PC Card Memory, and so forth) from your system, except the primary hard disk drive that you are going to install Windows on.
3. Create a DOS boot diskette and place the file CLEANDRV.EXE on it.

**Attention:** Running the following command will erase the entire contents of the target hard disk drive. After running, you will be unable to recover any data from the target hard disk drive.
4. Boot the diskette (only one storage device attached).
5. At the DOS prompt, type the following command:  
CLEANDRV /D0 /Y
6. Install your operating system and applications. Build your donor system as though you were not installing Rescue and Recovery. The last step in the process is to install Rescue and Recovery.
7. Extract the install shield EXE to the directory C:\RRTEMP.
  - If you are going to install Rescue and Recovery on multiple systems, performing this process one time will reduce the install time on each machine by roughly one-half.
8. Assuming that the install file is located in the root of the C drive, create a file EXE\_EXTRACT.CMD. EXE\_EXTRACT.CMD will extract the file C:\SETUP\_IBMRRXXXX.EXE (where XXXX is the build ID) to C:\RRTEMP.

Table 1. EXE\_EXTRACT.CMD

```
:: This package will extract the WWW EXE to the directory c:\RRTemp for an
:: administrative install.
@ECHO OFF
:: This is the name of the EXE (Without the .EXE)
set BUILDID=setup_ibmrr1033
:: This is the drive letter for the Setup_ibmrr1033.exe
:: NOTE: DO NOT END THE STRING WITH A "\". IT IS ASSUMED TO NOT BE THERE.
SET SOURCEDRIVE=C:
:: Create the RRTemp directory on the HDD for the exploded WWW EXE
MD c:\RRTemp
:: Explode the WWW EXE to the directory c:\RRTemp
start /WAIT %SOURCEDRIVE%\%BUILDID%.exe /a /s /v"/qn
TARGETDIR=c:\RRTemp"
```

Assuming that you want to customize the settings for Rapid Restore Ultra 4.0, you can make many customizations prior to the installation of Rescue and Recovery . Some examples in this scenario are as follows:

- Change Maximum Number if incremental backups to 4

- Set Rapid Restore Ultra 4.0 to perform an incremental backup every day at 1:59 p.m. to the local hard disk drive and call it "Scheduled"
  - Hide the Rapid Restore Ultra user interface to all users not in the local Administrators Group
1. Create a custom TVT.TXT (modified entries are in bold)

Table 2. TVT.TXT

```
[Scheduler]
Task1=RapidRestoreUltra
Task2=egatherer
[egatherer]
ScheduleFrequency=2
Task=c:\IBMT00LS\egatherer\launcheg.exe
ScheduleHour=0
ScheduleMinute=0
ScheduleDayOfTheWeek=0
ScheduleWakeForBackup=0
[RapidRestoreUltra]
LastBackupLocation=0
CustomPartitions=0
Exclude=0
Include=0
CustomStorageSettings=1
MaxNumberOfIncrementalBackups=4
MaxBackupSize=0
EncryptBackupData=1
UUIDMatchRequired=0
PasswordRequired=0
DisableArchive=0
DisableRestore=0
DisablePreferences=0
DisableSFR=0
CPUPriority=3
Yield=0
Ver=4.0
Task=C:\Program Files\IBM\IBM Rapid Restore Ultra\rrucmd.exe
TaskParameters=BACKUP location=L name="Scheduled"
ScheduleFrequency=1
ScheduleHour=13
ScheduleMinute=59
HideGUI=0
GUIGroup=Administrators
[RestoreFilesFolders]
WinHiddenFolders=%RRUBACKUPS%,%MININT%,%PREBOOT%
PEHiddenFolders=%RRUBACKUPS%,%MININT%,%PREBOOT%,Z:\
AllowDeleteC=FALSE
```

2. In the same directory as the new TVT.TXT, create a file called INSTALL.CMD (see box below), which will perform several actions:
  - a. It will copy the custom TVT.TXT into the install package created in C:\RRTemp.
  - b. It will perform a silent install of Rescue and Recovery without a reboot at the end.
  - c. It will start the IBM Rapid Restore Ultra service so that a base backup can be performed.
  - d. After the service is started, the environment to create an ISO image of the RRE Rescue CD will be set up (this is normally performed as part of a reboot) and the ISO image will be created.
  - e. It will create the base backup and reboot the system.



Table 3.

```
:: Copy custom TVT.txt here
copy tvt.txt "c:\RRTemp\program files\IBM\IBM Rapid Restore Ultra"
:: Install using the MSI with no reboot (Remove "REBOOT="R" to force
a reboot)
start /WAIT msiexec /i "c:\RRTemp\IBM Rescue and Recovery with Rapid Restore.msi"/
qn REBOOT="R"
:: Start the service. This is needed to create a base backup.
start /WAIT net start "IBM Rapid Restore Ultra Service"
:: Make an ISO file here - ISO will reside in c:\IBMTTOOLS\rrcd
:: Set up the environment
set PATH=%PATH%;%SystemDrive%\IBMTTOOLS\Python22
set PATHEXT=%PATHEXT%;.PYW;.PYO;.PYC;.PY
set TCL_LIBRARY=%SystemDrive%\IBMTTOOLS\Python22\tcl\tcl8.4
set TK_LIBRARY=%SystemDrive%\IBMTTOOLS\Python22\tcl\tk8.4
set PYTHONCASEOK=1
set RRU=c:\Program Files\IBM\IBM Rapid Restore Ultra\
set PYTHONPATH=C:\IBMTTOOLS\utils\support;C:\IBMTTOOLS\utils\logger
:: The next line will create the ISO silently and not burn it
c:\IBMTTOOLS\Python22\python c:\IBMTTOOLS\utils\spi\mkspiim.pyc /scripted
:: Take the base backup... service must be started
C:
cd "c:\Program Files\IBM\IBM Rapid Restore Ultra"
RRUcmd.exe backup location=L name=Base level=0
:: Reboot the system
c:\IBMTTOOLS\Utils\bmgr32.exe /R
```

Assuming you have deployed R&R in your environment and now you realize a couple of things you would like to change with RRU4. These things are:

- You would like more than 4 incremental backups and would like to change it to 10.
- The backup time of 1:59pm interferes in some way with your environment. You would like to change the time to 10:24 A.M.
- You would like to allow all users on your systems to access the RRU User Interface.
- You would like to yield the system to other processes during a scheduled backup. Your evaluation after experimentation determines that the proper value of Yield= in your environment should be 2 instead of the standard value of 0.

To do this on multiple machines, complete the following procedure:

1. Create a MOD file called UPDATE.MOD with the following contents:

```
[RapidRestoreUltra] MaxNumberOfIncrementalBackups=10
[RapidRestoreUltra] ScheduleHour=10
[RapidRestoreUltra] ScheduleMinute=24
[RapidRestoreUltra] GUIGroup=
[RapidRestoreUltra] Yield=2
```

2. Create a short INSTALL.CMD file and using a systems management tool of your choice push the INSTALL.CMD file and UPDATE.MOD to your target systems.

3. Once on the systems, run INSTALL.CMD, the contents of which are:

```
:: Merge the changes into TVT.TXT
"%RRU%cfgmod.exe" "%RRU%tvt.txt" update.mod
:: Reset the scheduler to adopt the new scheduled backup time without a reboot
"%RRU%reloadsched.exe"
```

Now let's say that you wanted to make a major change to your system such as a Service Pack update to Windows. Before you install the service pack, you would like to force an incremental backup on the system and identify that backup by name. To do this:

1. Create a file FORCE\_BU.CMD, the contents of which are:

```
:: Force a backup now
"%RRU%rrucmd" backup location=L name="Backup Before XP-SP2 Update"
```
2. Push it down to your target systems.
3. Once the FORCE\_BU.CMD file is on the target system, start it.

After realizing the benefits of RRU4 for a period of time, you would also like to gain benefit of the RRE. For demonstration purposes a sample script is provided that will extract the control file for the RRE desktop, allow you to edit it (we will change two entries), and then insert it back into the RRE.

1. Obtain IBMRRUTIL.EXE from the IBM Web site. To modify the desktop of the RRE we will use the following UPDATE\_RRE.CMD script to demonstrate several processes.
  - First we will use IBMRRUTIL.EXE to get a file from the RRE environment.
  - The files to be extracted from the RRE are defined by the file GETLIST.TXT.
  - We then create a directory structure to put files back into the RRE when we are finished.
  - We then make a copy of the file for safe keeping and then edit it.

2. In the example, we want to change the home page that gets opened when a user clicks on the "Open Browser" entry in the RRE. Our example will open the page <http://www.ibm.com/thinkvantage>. To make the change, when Notepad opens with PEAccessIBMen.ini, edit the line:

```
button13 = 8, "Open browser", Internet.bmp, 1, 1, 0,
%sysdrive%\Preboot\Opera\Opera.EXE, http://www.pc.ibm.com/cgi-bin
/access_IBM.cgi?version=4&link=gen_support&country=
__COUNTRY__&language=__LANGUAGE__
```

to read:

```
button13 = 8, "Open browser", Internet.bmp, 1, 1, 0,
%sysdrive%\Preboot\Opera\Opera.EXE,
http://www.ibm.com/thinkvantage
```

3. We then copy the new version into the directory structure for placing files into the RRE.
4. Finally we put the new version of the file into the RRE and reboot the system into the RRE.

Table 4. Update\_RRE.CMD

```
@ECHO OFF
:: Obtain the PEAccessIBMen.ini file from the RRE
c:\RRDeployGuide\IBMRRUTIL\ibmrrutil -g getlist.txt
c:\RRDeployGuide\GuideExample\RREOriginal
:: Make a directory to put the edited file for import back into the RRE
md c:\RRDeployGuide\GuideExample\put\preboot\usrintfc
:: Open the file with notepad and edit it.
ECHO.
ECHO Edit the file c:\RRDeployGuide\GuideExample\RREOriginal\
PEAccessIBMen.ini (file will open automatically)
pause
:: Make a copy of original file
copy c:\RRDeployGuide\GuideExample\RREOriginal\preboot\usrintfc\
PEAccessIBMen.ini c:\RRDeployGuide\GuideExample\RREOriginal\preboot\usrintfc\
PEAccessIBMen.original.ini
Notepad
c:\RRDeployGuide\GuideExample\RREOriginal\preboot\usrintfc\
PEAccessIBMen.ini
pause
copy c:\RRDeployGuide\GuideExample\RREOriginal\preboot\usrintfc\
PEAccessIBMen.ini c:\RRDeployGuide\GuideExample\put\preboot\usrintfc
:: Place the updated version of the PEAccessIBMen into the RRE
c:\RRDeployGuide\IBMRRUTIL\ibmrrutil -p c:\RRDeployGuide\GuideExample\put
ECHO.
ECHO Reboot to the RRE to see the change
pause
c:\IBMTTOOLS\UTILS\bmgr32.exe /bw /r
```

5. Create GETLIST.TXT:

```
\preboot\usrintfc\PEAccessIBMen.ini
```

Finally, you have done some analysis and determine there are files that you need to ensure get backed up and there are other files that do not need to be backed up since they reside on the and can be obtained after a system restore.

1. Create a custom set of ibmincl and ibmexcl files.
2. Place the files in a directory with NSF.CMD. NSF.CMD copies these files into the proper location.

In the example, we will use Lotus Notes and the IBM File and Folder Encryption example that is discussed in another section of this Deployment Guide (see “Including and excluding files in backups” on page 23).