

MRBackup

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Chapter 1

MRBackup

1.1 MRBackup.guide

Welcome to MRBackup Professional!

Introduction

Requirements

Installation

Operation

User Interface

General Parameters Window

Options Window

Filters Window

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File Selector

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Concept Index

1.2 MRBackup.guide/Introduction

Introduction

MRBackup is a hard disk backup program for the Commodore Amiga family of computers. It provides a wide range of services to support Amiga file management and backup/restore of files to/from hard disk. Files can be backed up to:

- * Floppy disk, in AmigaDOS format
- * Floppy disk, in a special "fast" format
- * Any sequential file or device (local or networked) in "fast" format
- * SCSI streaming tape

A saveset catalog file is created for each saveset, allowing quick retrieval of individual files when necessary. Should the catalog file become damaged or lost, MRBackup can recreate it by scanning the saveset.

MRBackup is designed to behave well in your Amiga's multi-tasking environment. It does not "take over the machine" and will allow you to use your Amiga for other activities while backups are being performed. MRBackup is controlled by a flexible set of user-configurable parameters and offers a wide range of backup and restore options. Its Intuition-based user interface is designed for a pleasing appearance and ease of operation.

MRBackup uses the Amiga's speech capabilities to provide an effective means for presenting prompts, error conditions and requests for floppy disk insertions, etc. While DEVS:narrator.device and LIBS:translator.library are no longer shipped with the Amiga operating system, you can copy them from your older copies of the AmigaDOS installation disks and they will work just fine.

MRBackup provides optional data compression which will reduce the number of diskettes (or other media) required for a backup.

1.3 MRBackup.guide/Requirements

Requirements

The following minimum requirements should be met in order to assure proper operation of MRBackup Professional:

- * any Amiga system with at least 1 MB memory and AmigaDOS 2.04 or higher
- * at least 1 floppy disk drive or SCSI streaming tape drive (Archive Viper, Wangtek 50XX, TEAC 36XX, Sony DAT, etc.)
- * MRBackup will work with any hard drive supported by the AmigaDOS operating system.

1.4 MRBackup.guide/Installation

Installation

Since MRBackup Professional is shareware, you most likely downloaded it from a BBS or other information service in the form of an Lha archive. If you received it directly from MRsoftware, you can skip over this part and proceed to the permanent installation procedure. The MRBackup Professional archive must first be unpacked to a disk or directory. The archive contains the necessary directory structures to unpack it to your hard disk or a freshly formatted diskette without any other preparation. Simply change the current directory (CD) to the target area and use the following command to unpack the archive:

```
lha -xa x archive_name
```

where "archive_name" is the name of the MRBackup Professional archive (e.g. MRBK200.lha).

Permanent Installation Procedure

=====

Once the archive has been unpacked to the temporary installation directory, you must run the Installer (tm) to install the software in its permanent location. From the Workbench, you can simply double-click on the icon labeled "Install-MRBackup". From the CLI, you must enter the installation directory (e.g. CD MRBackup_200) and run the Installer with the Install-MRBackup script as its parameter:

```
Installer Install-MRBackup
```

IMPORTANT NOTE: this version of the software requires the definition of an AmigaDOS logical name, MRBackup:. This name is equated to the name of the partition or directory where MRBackup Professional is installed. This logical name will be created during installation. You will be requested for permission to make changes to your s:user-startup sequence file such that this name is defined each time you boot your

Amiga. If you choose "Skip this part" in response to this request, you must provide an alternate means for defining the MRBackup: logical name prior to using MRBackup Professional.

The MRBackup: Directory

=====

This section briefly describes the contents of the MRBackup directory. The only required subdirectory is the Help directory. None of the others are an absolute requirement but it is strongly suggested that you adopt this configuration.

Files in the MRBackup: Directory

The following files will be found at the top level of the MRBackup: directory.

Compressor

This program file is MRBackup Professional's data compression "engine". It is automatically started by MRBackup Professional when data compression or decompression is requested.

MRBackup

This is the MRBackup Professional program file.

Subdirectories in the MRBackup: Directory

The MRBackup: directory contains several subdirectories. These subdirectories provide a means for grouping files with a similar purpose.

Rexx

This directory contains a number of example ARexx scripts for use with MRBackup Professional. Use these as a guide for writing your own ARexx scripts.

Catalogs

Use this directory as a repository for catalog files created by the backup process.

Docs

This directory contains several document files providing additional information and details not available in the user manual. The file named Changes in this directory describes last-minute changes that could not be included in the user manual.

Lists_and_Logs

Use this directory to store listing and log files created by MRBackup Professional.

Prefs

This directory contains various MRBackup Professional "preferences" files including the MRBackup.init file and the filter file templates. You may also use this directory to save your custom preferences files.

Work

This is the default MRBackup working directory, used to store temporary files created by MRBackup during backup and restore operations.

1.5 MRBackup.guide/Operation

Operation

This manual assumes that you already know the basic operating principles of your Amiga and that you are familiar with its user interface. If this manual refers to an Amiga-specific procedure or feature with which you are not familiar, please refer to your Amiga owner's manual.

MRBackup may be started from the WorkBench by double-clicking its program icon or from the CLI by entering the appropriate command. The startup procedures for each environment are presented below.

Working Directory

=====

MRBackup requires an area for storing certain temporary information during the backup process. This area is called the "working directory". The working directory defaults to MRBackup:Work, but you may override this setting. The next two sections describe how this is done.

CLI Operation
The Command Line Interface

WorkBench Operation
The Workbench Interface

1.6 MRBackup.guide/CLI Operation

CLI Operation

=====

To start MRBackup from the CLI (Command Line Interface, also called the "Shell"), you can just type *MRBackup* at the command prompt. MRBackup supports the AmigaDOS standard 'ReadArgs' command-line template interface. To see MRBackup's command line template, simply invoke MRBackup with a question mark as its only parameter:

```
MRBackup ?
I=INIT/K,PD=PREFSDIR/K,WD=WORKDIR/K
:
```

The possible command line parameters are discussed below.

INIT=INIT_FILE

This option instructs MRBackup to initialize from INIT_FILE, rather than MRBackup:Prefs/MRBackup.init or MRBackup.init in the local directory. If INIT_FILE does not exist, MRBackup will terminate with an error message.

PREFSDIR=DIRECTORY_NAME

This option sets the default search directory for preferences files to DIRECTORY_NAME. If DIRECTORY_NAME does not exist, MRBackup will terminate with an error message.

WORKDIR=WORK_DIRECTORY

This option instructs MRBackup to use WORK_DIRECTORY, rather than MRBackup:Work, as the working directory. MRBackup must be able to write to this directory.

1.7 MRBackup.guide/WorkBench Operation

WorkBench Operation

=====

To start MRBackup from the WorkBench, simply double-click its program icon or an MRBackup project icon. MRBackup supports several icon Tool Types entries which can override its default behavior. To add or modify the Tool Types entries, you must use the Info command in the WorkBench menu. Refer to your Amiga owner's manual if you are unfamiliar with this procedure.

MRBackup recognizes the following Tool Types entries:

```
DIR=DEFAULT_DIRECTORY
PREFS=DEFAULT_DIRECTORY
WINDOW=CONSOLE_SPEC
```

These Tool Types are identical and instruct MRBackup to search DEFAULT_DIRECTORY when attempting to locate the preferences file.

WINDOW=CONSOLE_SPEC

This Tool Type entry instructs MRBackup to open its "background" console window according to CONSOLE_SPEC which should be a valid 'CON:' window specification (e.g. 'CON:0/0/640/200/MRBackup').

WORK=WORK_DIRECTORY

This Tool Type instructs MRBackup to use WORK_DIRECTORY, rather than MRBackup:Work, as the default working directory.

If you really want to get clever, you can make copies of MRBackup's project icon file (MRBackupDefault.info) and tune the Tool Types entries for each hard disk partition. How is this done? Using the CLI COPY command, make a copy of MRBackupDefaults.info for each partition. Example:

```
(CD to the directory where MRBackup resides)
COPY MRBackupDefaults.info MRBackup-DH0.info
COPY MRBackupDefaults.info MRBackup-DH1.info
(etc.)
```

For each icon, make the appropriate changes to the Tool Types entries.

1.8 MRBackup.guide/User Interface

User Interface

General Description

Menus

Windows

1.9 MRBackup.guide/General Description

General Description

=====

MRBackup employs the Amiga's Intuition graphical user interface to interact with the user. The result is consistent user interaction and concise information presentation. MRBackup can run "on" the WorkBench screen or on its own custom 4-color screen. MRBackup's various windows are presented with a pleasing 3-D appearance using the Amiga's "gadtools" support library. A pull-down menu provides access to MRBackup's many operations.

MRBackup Gadget Types

=====

A great deal of the user's interaction with MRBackup is accomplished via Intuition gadgets. There are essentially four types of gadget employed by MRBackup:

Cycle Gadget

Each time the gadget is clicked, a new value appears on its "face". This value represents its current setting. The gadget's surface appears to be raised with respect to the rest of the window.

Command Button

When a command button gadget is clicked, MRBackup will begin some activity such as a backup or restore or the opening of another window. The command button surface appears to be raised.

Text Display Gadget

The text display gadget is used to present textual information such as status and error messages. The contents of the gadget cannot be changed by the user. This gadget type has a recessed appearance with a single border.

Text Edit Gadget

The text edit gadget is used to accept and present textual information such as filenames. The gadget box appears to be flush with the surface of the window but is surrounded by a raised double border. When you click in a Text Edit gadget, a block cursor appears. You may perform all of the functions defined for an Amiga string gadget. Note: when changing the value of a Text Edit gadget, it is a good idea to hit the RETURN key to complete your change. This sends a special signal to MRBackup that the gadget's value has changed. If the value requires verification, it will be done immediately. Failure to use the RETURN key can delay this verification and be a potential cause for confusion.

1.10 MRBackup.guide/Menu

Menu

=====

MRBackup operations are invoked by menu selection, keyboard shortcuts or command button clicks. MRBackup has three pull-down menus which are accessible whenever the General Parameters window is active. These menus are:

Project Menu

Preferences Menu

Macros Menu

1.11 MRBackup.guide/Project Menu

Project Menu

The Project menu provides commands which activate MRBackup's primary operations. The commands in this menu are:

About

This command activates an information window which provides program version information and a summary of available memory.

Backup

This command begins the backup process.

Resume Backup

This command resumes a backup (AmigaDOS mode only) which was previously interrupted by user intervention, system crash or power failure.

Restore

This command begins a file restore process.

Rebuild Catalog

This command rebuilds a saveset catalog from an existing saveset.

Rewind Tape

This command attempts to rewind the tape drive specified in the Backup Path gadget of the General Parameters window.

Scan Tape

This command provides a summary report of the savesets found on the current tape cartridge. The tape drive is specified by the contents of the Backup Path gadget.

Utilities

This command activates MRBackup's file management utilities

Utilities

.

Verify Backup

This command verifies the contents of a saveset against a specific hard disk partition. A summary report is created which can be directed to a console window, a file or both.

Quit

This command instructs MRBackup to release all resources and terminate execution.

1.12 MRBackup.guide/Preferences Menu

Preferences Menu

The Preferences menu provides commands which allow the user to view, modify, load and save various MRBackup operating parameters. The commands available from the Preferences menu are:

Colors

This command is only available when a custom (non-Workbench) screen has been selected. A color palette requester is activated and the user may then make color changes to suit his/her preference. Colors should be chosen with care such that the 3-D relief features of MRBackup's windows are preserved.

Filters

This command activates the Filters window, allowing the user to view and change MRBackup's filter file specifications

Filter Files

.

Options

This command activates the Options window and allows the user to view or change MRBackup options related to backup and restore processing.

Screen Type

This command allows the user to select the type of screen that MRBackup will use. A sub-menu contains the choices Custom, Interlace and Workbench. A custom screen allows the user to specify his/her own color preferences but places additional memory demands on the system.

Interlace specifies a custom screen in interlace mode. MRBackup does not attempt to scale its windows and gadgets in this mode, so they will appear half-height. The Workbench screen is most economical in terms of memory required but the user is confined to the colors selected for the Workbench screen.

Load...

This command allows the user to load all of MRBackup's operating parameters directly from a file. A file requester will solicit the name of the file.

Save...

This command allows the user to save all of MRBackup's current operating parameters to a file. A file requester will solicit the name of the file.

1.13 MRBackup.guide/Macros Menu

Macros Menu

The Macros Menu provides a mechanism for launching ARexx scripts (see

Using ARexx with MRBackup

) directly from MRBackup. The first 10 items

in this menu are reserved for macro names (ARexx script names plus parameters) which the user defines. The other menu items are:

Other...

This command allows the user to select an ARexx script for one-shot execution (its name is not remembered). A file requester will solicit

the name of the ARexx Script.

Define...

This command allows the user to define any of the 10 "permanent" Macro menu items. A special requester will pop up and allow the user to view or change any of these entries. Note that these entries may also include command line parameters. Thus, a single macro name might be used with a different parameter (e.g. each disk partition on your system) to define the macro name entries in the menu.

1.14 MRBackup.guide/Windows

MRBackup Windows

=====

MRBackup Professional organizes its different functional areas into multiple windows, each with their own set of capabilities. These windows are:

- * General Parameters Window (see
 General Parameters Window
)
- * Options Window (see
 Options Window
)
- * Filters Window (see
 Filters Window
)
- * Status Display Window (see
 Status Display Window
)

1.15 MRBackup.guide/General Parameters Window

General Parameters Window

The General Parameters Window contains parameters common to most MRBackup operations. In addition to the usual text gadgets and command buttons, you will also notice several square buttons, labeled with a question mark (?). These are file requester gadgets. Each of these is associated with another gadget which specifies a device, directory or file name. When you click on a file requester gadget, a file requester window appears. With it, you can navigate your file system and easily select the appropriate name for the corresponding gadget.

The following paragraphs describe all of the gadgets in the General Parameters window. Please take the time to read this information carefully, as several important key concepts are presented here.

Media Type Button

Voice Button

Buffer (K) Gadget

Preferences Gadget

Home Path Gadget

Backup Path Gadget

Floppy Disk Icons

Listing Path Gadget

Log Path Gadget

Options Button

Filters Button

Backup Button

Restore Button

Utilities Button

1.16 MRBackup.guide/Media Type Button

Media Type Button

This gadget selects the type of backup or restore to be performed and cycles through the following range of values:

- * AmigaDOS
- * Fast Disk
- * SCSI Tape

See

The Backup Modes

.

1.17 MRBackup.guide/Voice Button

Voice Button

This is an ON/OFF button which enables or disables MRBackup's speech capability.

1.18 MRBackup.guide/Buffer (K) Gadget

Buffer (K) Gadget

When MRBackup performs input or output from/to a file, a certain amount of memory is set aside as a buffer (work area). This is done to minimize the number of physical disk accesses necessary to move data from/to a file. The bigger the buffer, the fewer disk accesses that are required to move a file. The default buffer size is 32K bytes (K = 1024, thus 32K = 32768 bytes). If your system has expanded memory, you can take advantage of it by increasing your buffer size. The maximum buffer size allowed is 512K. There is no practical benefit in specifying a buffer which is more than two times larger than the largest file on your system. This will simply waste memory which might be needed by other applications (remember - we can multitask while doing a backup or restore, so we don't want to overallocate resources to any one program).

1.19 MRBackup.guide/Preferences Gadget

Preferences Gadget

This gadget names the file where MRBackup's operating parameters (user preferences) are stored. If MRBackup is started without an explicit "initial file" specification (-i option from CLI, INIT=<name> tool types from WorkBench), the current directory is searched for "MRBackup.init".

If the file is not found there, the working directory (default = MRBackup:Prefs) is searched. You may change MRBackup's parameters (including this one), then use Save Preferences to record your new settings. You may also reinitialize MRBackup with another preferences file by changing this specification.

1.20 MRBackup.guide/Home Path Gadget

Home Path Gadget

The Home Path describes the device or directory where your files normally reside. During backup operations, files are copied from the location specified by the Home Path. During restore operations, files are copied to this location. You may type the Home Path value directly into the gadget box or you may use the file requester to assist you. The Home Path must specify a device, volume or directory name (not a file name).

1.21 MRBackup.guide/Backup Path Gadget

Backup Path Gadget

The Backup Path describes the destination (TO path) for files during a backup or the source (FROM path) for files during a restore. Normally, the backup path is the name of one of your floppy disk drives or the name of your tape drive. If one or more of the floppy disk icon gadgets is selected, the Backup Path is ignored. See

Backups

.

1.22 MRBackup.guide/Floppy Disk Icons

Floppy Disk Icons

MRBackup supports selection of up to four floppy disk devices (DF0: through DF3:.) for backup or restore. This allows you to preload your disk drives, reducing the frequency with which you must insert diskettes. MRBackup will cycle through the selected drives and prompt you for more diskettes only when all have been used or an error is detected. When you click on one of these icons, a check-mark will appear, indicating that the drive is selected. *Whenever floppy drives are selected in this fashion, the Backup Path specification is ignored.*

1.23 MRBackup.guide/Listing Path Gadget

Listing Path Gadget

MRBackup normally generates a listing during backups. This gadget specifies the file or device to receive the listing. You may type the listing path directly into the gadget or you may use its requester gadget to assist you. To send the listing directly to the printer, you would select "PRT:". To save the listing to a file on the hard disk, simply select the appropriate directory and file name. *If this gadget is cleared, no listing will be created.*

1.24 MRBackup.guide/Log Path Gadget

Log Path Gadget

MRBackup will optionally generate a log of all of its activities if the Log File gadget contains a valid pathname. This log will contain time-stamped progress reports and error messages. When errors are detected during a backup or restore, it is good practice to check the contents of the log for the cause and severity of these errors. *If this gadget is cleared, no log file will be created.*

1.25 MRBackup.guide/Options Button

Options Button

This command button activates the Options window and is provided as a convenient alternative to the equivalent menu command.

1.26 MRBackup.guide/Filters Button

Filters Button

This command button activates the Filters window and is provided as a convenient alternative to the equivalent menu command.

1.27 MRBackup.guide/Backup Button

Backup Button

This command button initiates a backup operation and is equivalent to the Backup menu command.

1.28 MRBackup.guide/Restore Button

Restore Button

This command button initiates a restore operation and is equivalent to the Restore menu command.

1.29 MRBackup.guide/Utilities Button

Utilities Button

This command button activates MRBackup's file utilities. It is equivalent to the Utilities menu command.

1.30 MRBackup.guide/Options Window

Options Window

The Options window presents parameters specific to backup and restore operations only. It can be activated directly via the Preferences/Options menu command or the Options command button on the General Parameters window. It is also activated whenever a backup or restore is started. You will note that certain gadgets are enabled or disabled depending upon the Media Type setting (see

General Parameters Window
) and on how the window was activated.

Test Date

Prefix

Compression

Est.

Decompression

Formatting

Filesystem

Force Copy

Split Big Files

Test Arc. Bits
Set Arc. Bits
Empty Dirs
Error Handling
Sort
Verify Writes
Saveset Comment
OK Button
Cancel Button

1.31 MRBackup.guide/Test Date

Test Date

The test date is used by backup operations only. If the test date is set to January 1, 1978 (beginning of AmigaDOS time), it has no effect. Otherwise, only files modified on or after the test date will be selected for backup. To change the test date, just click on the gadget box. A date requester will pop up, allowing you to easily change the test date. You may select the new date value either by pointing and clicking on the various date requester gadgets or by typing directly into each of the date fields. For your convenience, MRBackup also supports four (4) date formats (AmigaDOS, U.S., Canadian and International).

1.32 MRBackup.guide/Prefix

Prefix

During a backup, MRBackup normally names each backup volume with the word "Backup", combined with the current date and the disk sequence number. You can customize the backup volume names by supplying your own prefix. In this case, MRBackup will simply append the disk sequence number to whatever prefix you supply.

Example:

"DH0:Backup." Yields: "DH0:Backup.1", "DH0:Backup.2", etc.

1.33 MRBackup.guide/Compression

Compression

This gadget specifies the size of the compression codes, in bits, that are to be used when performing a backup. The values range from 12 bits through 16 bits or None (no compression performed). Smaller code sizes allow faster compression and lower memory requirements while compression with larger code sizes yields larger compression ratios but requires more time and more memory.

1.34 MRBackup.guide/Est.

Est.

This value is a compression estimate, specified as a percentage. Its range is 0 through 99 and it is only meaningful for AmigaDOS compatible backups. See

Data Compression
.

1.35 MRBackup.guide/Decompression

Decompression

The setting of this gadget is only meaningful during a restore operation. It specifies the maximum compression code size (in bits) to be decompressed when restoring files. Files that were compressed with larger compression codes will be restored in their compressed state. Though you would typically choose this setting to match the Compression setting, there may be reasons for setting it to a different value. See

Data Compression
.

1.36 MRBackup.guide/Formatting

Formatting

This gadget only has meaning when performing an AmigaDOS backup. It

selects the formatting method used to initialize each backup disk. Clicking on this gadget causes it to cycle through its range of values which are Normal, Quick and None, described below:

- Normal Use this setting for new disks which have never been formatted or when you simply want to completely reformat your backup disks. This method requires the most time.
- Quick Use this method for disks which have been previously formatted for AmigaDOS use. Only the filesystem root blocks are initialized, requiring very little time.
- None This is a special setting which should be used with care. You might wish to use this setting with diskettes which have been preformatted and are known to be empty or when "refreshing" a backup which is known to require only one diskette.

1.37 MRBackup.guide/Filesystem

Filesystem

This gadget is a companion to the Formatting gadget and is only meaningful when performing AmigaDOS backups with Formatting set to Normal or Quick. Its value toggles between FFS and Default. On Amiga systems equipped with WorkBench 2.04, you can elect to format your backup disks in Fast File System (FFS) format or the default filesystem for the disk being formatted.

1.38 MRBackup.guide/Force Copy

Force Copy

The Force Copy gadget is only relevant for restore operations. It is a cycle gadget which can be set to "Never", "Prompt" or "Always". When set to "Never" or "Prompt", MRBackup checks for the existence of each file before restoring it. If the file does not exist, it is restored. If the file does exist and its creation date is newer or the same date as the file in the saveset, the file is not automatically copied. If the "Never" option is selected, the file is skipped and a message is output to the log file. If the "Prompt" option is selected, MRBackup will ask for permission to restore the file.

** NOTE: **

When the "Always" option is selected, no check for existing files is performed. Files are always restored. If you are restoring files to an empty or newly-formatted partition, *use the "Always" option since

the "Never" and "Prompt" options impose a significant overhead and can noticeably slow down restore operations*.

1.39 MRBackup.guide/Split Big Files

Split Big Files

This button is only meaningful for the AmigaDOS backup mode. It is a Yes/No switch which enables or disables MRBackup's splitting of big files. A big file is one which is larger than the capacity of an empty diskette. If this gadget indicates Yes, MRBackup will split big files across multiple diskettes. Each diskette will have a special file, MRBackup.bigfile, in addition to its segment of the big file. This special file contains information describing the file segment on each diskette.

1.40 MRBackup.guide/Test Arc. Bits

Test Arc. Bits

When this button indicates Yes, MRBackup will only backup files whose archive bits are not set. AmigaDOS clears a file's archive bit whenever the file is modified. Using this option allows you to backup only files which have changed since the last time you did a backup with the Set Archive Bits option (below) enabled. This filtering is done in addition to any other filtering options you may be using. Please note that the AmigaDOS interpretation of the archive bit is reversed from that of the MS-DOS environment where a set bit indicates that the file has not been archived.

1.41 MRBackup.guide/Set Arc. Bits

Set Arc. Bits

If this button is enabled, MRBackup will set the archive bit on every file that it backs up. Note that the setting of archive bits is deferred until the backup is successfully completed. This guards against leaving the archive bits in a false state, should the backup fail.

1.42 MRBackup.guide/Empty Dirs

Empty Dirs

This gadget cycles between Keep and Omit and governs the disposition of empty directories when a backup is performed. When the Keep state is set, empty directories (directories containing no files or subdirectories) are preserved. When the Omit state is selected, empty directories are "pruned" from the backup. If you're not sure which setting is appropriate, choose Keep.

1.43 MRBackup.guide/Error Handling

Error Handling

MRBackup provides for interactive error recovery or automatic termination upon detection of an error. The range of values for error handling are:

Interactive	MRBackup asks how the error is to be handled
Abort	MRBackup will immediately abort a backup or restore upon detecting any error.

Normally, you will use the Interactive setting.

1.44 MRBackup.guide/Sort

Sort

This gadget governs the order in which files are copied during a backup. If Yes is chosen, files and directories are backed up in alphabetical order, perhaps at a slight penalty in speed but with the advantage of a well-ordered catalog and saveset. If No is chosen, files are backed up in the order that they are delivered to MRBackup by the filesystem.

1.45 MRBackup.guide/Verify Writes

Verify Writes

This setting is only meaningful for Fast Disk backups to floppy

diskettes. When set to Yes, each track is read back after it is written and compared to the data that was written. The user is informed of errors immediately. There is an approximate 50% increase in the time required to fill a diskette when write verification is enabled, but *it is highly recommended*.

1.46 MRBackup.guide/Saveset Comment

Saveset Comment

This is a comment which you can store with your Fast Disk or SCSI Tape saveset to clearly identify the nature of the backup. As an example, you might enter the following comment:

Special backup of partition XYZ: for Harry Herring.

1.47 MRBackup.guide/OK Button

OK Button

This button indicates that you are through setting options. If the options window was presented as the result of initiating a backup or restore, the operation will proceed.

1.48 MRBackup.guide/Cancel Button

Cancel Button

The Cancel button is only active when a backup or restore has been initiated. Clicking it will terminate the process and return you to the General Parameters window.

1.49 MRBackup.guide/Filters Window

Filters Window

The Filters window is activated by selecting Filters... from the Preferences menu or by clicking the Filters button on the General

Parameters window. This window presents your current filter file settings and allows you to change them. *To disable a particular filter, simply clear its respective gadget*. Also, note that each filter name gadget has an accompanying file requester gadget (raised button with a ?) to assist you with your selections. See

Filter Files

for more details on the format and purpose of filter files.

Backup Filter Gadget

Restore Filter Gadget

Compression Filter Gadget

Decompression Filter Gadget

OK Button

1.50 MRBackup.guide/Backup Filter Gadget

Backup Filter Gadget

This gadget specifies a file to be used to assist in selecting (or rejecting) files for a backup. If you don't want to use a backup filter, just clear this gadget (click in the gadget box and press the Right-Amiga and X keys simultaneously, then press return). The default backup filter file is MRBackup:Prefs/MRBackup.bflt. The file is self documenting.

1.51 MRBackup.guide/Restore Filter Gadget

Restore Filter Gadget

This gadget specifies a filter file to be used during a restore operation. The default restore filter name is MRBackup:Prefs/MRBackup.rflt.

1.52 MRBackup.guide/Compression Filter Gadget

Compression Filter Gadget

The compression filter is used during backups to inhibit the compression of certain files when compression is enabled. The compression filter file delivered with MRBackup, MRBackup.cflt , is self documenting. There are several built-in compression filter patterns in MRBackup. They are:

```
  #?.arc      - ARC archives
  #?.lzh     - LHARC archives
  #?.Z       - compressed files
  #?.ZIP     - PKAZIP archives
  #?.ZOO     - Zoo archives
```

Files of these types almost always expand when subjected to additional compression.

1.53 MRBackup.guide/Decompression Filter Gadget

Decompression Filter Gadget

The decompression filter is used during restore operations to inhibit the decompression of certain compressed files when decompression is enabled. Files specified with this filter will be restored in their compressed state. The decompression filter file delivered with MRBackup, MRBackup.dflt, is self documenting. If you prefer not to use a decompression filter, simply clear this gadget.

1.54 MRBackup.guide/Filters OK Button

OK Button

Click this button when you are finished viewing or changing your filter settings.

1.55 MRBackup.guide/Status Display Window

Status Display Window

The Status Display window informs you of MRBackup's progress during certain operations, such as backup and restore. The meanings of the various indicator gadgets are defined here.

Backup Volume Name Gadget

This gadget reports the name of the backup volume currently being used for a backup or restore operation.

Volume Number Gadget

This gadget indicates the sequence number of the backup media which is currently being accessed for backup or restore. It will increment by one for each successive floppy diskette but will remain at 1 for tape or file media.

Errors Gadget

This gadget displays the total number of errors detected during a backup or restore operation.

Progress Indicator Bar

This indicator displays the relative progress of the backup as a percentage of files and directories processed vs. the number of files and directories selected. (Note: this will probably change soon to reflect disk blocks processed vs. selected which is a much more accurate indicator of time remaining).

KB In Gadget

This gadget displays the total number of bytes, in K (1024 byte increments), which have been read into MRBackup.

KB Out Gadget

This gadget displays the total number of bytes, in K, which MRBackup has written to the destination media.

Ratio Gadget

This gadget displays, as a percentage of change, the effective compression ratio for backups and decompression ratio for restores. For example, when a value of 35% is displayed during a backup operation, then the cumulative size for all files backed up has been reduced by 35 per cent. When compression/decompression are disabled, N/A is displayed.

Rate (KBPS) Gadget

This indicator displays the relative data transfer rate as a measure of kilobytes per second. It is intended to provide you with a relative measure of backup performance. By changing various parameters (buffer size, tape driver buffering, etc.) and then observing changes in this indicator, you can tune your backup parameters to a combination which is optimal for your environment.

Elapsed Time Gadget

This indicator displays the amount of time which has elapsed since you started a backup or restore operation.

Transfer Time Gadget

This indicator displays the total time during which MRBackup has been actively transferring data during a backup or restore. This timer is suspended and resumed whenever user interaction occurs. Like the Throughput indicator, this indicator can also provide you with a relative measure of performance.

Current File or Directory Gadget

At the start of a backup, this gadget reports the name of each directory being scanned for files. During a backup or restore operation, this gadget reports the name of the directory being accessed (note: it was felt that reporting individual files here would adversely affect backup performance).

Status Gadget

This is a one-line text message which reports the current state of MRBackup or the last significant event or error.

STOP Button

This button allows you to terminate a backup or restore operation. As a safety measure, a requester will ask you to confirm this action before it takes effect.

Please note that when using a large buffer size, there may be a very noticeable delay when clicking the STOP or PAUSE gadgets. Just be patient- MRBackup will recognize the request as soon as the current buffer operation completes.

PAUSE / PROCEED Button

This gadget temporarily suspends all backup or restore activity. If you are closely monitoring the progress of a backup or restore and the phone rings, you can click PAUSE and be confident that things won't "get away from you". When you click the PAUSE gadget, its label changes to PROCEED. MRBackup will be suspended until this gadget is clicked again.

1.56 MRBackup.guide/File Selector

File Selector

The file selector is presented to you during backup and restore operations to enable you to "fine tune" the list of selected files. Before we discuss its operation, let's take a quick look at the graphical objects that make up the file selector. In the discussion that follows the term entry refers to both files and directories.

Level

Include

Exclude

Current Directory (unlabeled)

Entries

Selected

Disks

All

+ Here and down

+ Here

Up

None

- Here and Down

- Here

OK

CANCEL

The files available for selection/deselection are presented in the large box at the left of the file selector. Just to the right of this box, you will see a scroller gadget. When there are more files at a given level than can be viewed in the selection box, the drag bar (rectangle within the scroller) will be sized in proportion to the number of visible vs. total entries. You may click and drag this bar to reveal other entries at the current level. You may also scroll the list one item at a time by clicking on either of the small buttons at the bottom which have arrow indicators on them.

Each time you click on an entry in the list, it will toggle between selected and deselected. An entry in the selected state is preceded with a plus (+) sign. Unselected entries are preceded by a blank. Directory entries are indicated by a trailing forward slash (/)

character.

Just to the right of the selection indicator, there is a number followed by the letter 'k'. For file entries, this represents the size, in kilobytes (1 k = 1024 bytes), of the file. For directory entries, it represents the sum of the file sizes for selected files in that directory and lower level subdirectories.

To view the contents of directories (and their subdirectories), position the mouse pointer over a directory entry and double-click (two clicks, in rapid succession) on the entry. The display box will be redrawn with the contents of that directory and the Level indicator will be incremented. To return to the previous level, simply click on the Up button.

1.57 MRBackup.guide/Level

Level

This gadget reports the nesting level of the directory you are currently viewing. The top level is zero.

1.58 MRBackup.guide/Up

Up
--

When you click the Up gadget, the next higher directory level is displayed and the Level gadget is updated accordingly.

1.59 MRBackup.guide/Include

Include

This is a string gadget which works in conjunction with any of the Select buttons (later). The Include is a filename matching pattern (as used in the MRBackup filters) which is applied to each filename when one of the Select buttons is clicked. Only those names matching the pattern will be selected. If the Include is blank, no include matching is performed.

1.60 MRBackup.guide/Exclude

Exclude

This is a string gadget which works in conjunction with any of the Select buttons (later). The Exclude is very similar to the Include Pattern, except that filenames matching the pattern will be excluded from selection when a Select button is clicked. If both Include and Exclude patterns are specified, the Include pattern is applied first.

1.61 MRBackup.guide/All

All

When the All button is clicked, all entries in the selector file list are selected.

1.62 MRBackup.guide/+ Here and down

Select all, this level and below

This button causes all entries at the current level and lower (higher level numbers) to be selected.

1.63 MRBackup.guide/+ Here

Select all, this level only

This button causes all entries at the current level to be selected.

1.64 MRBackup.guide/None

None

This button has slightly different behavior, depending upon the Current Level setting. When the Level is zero (top level), all entries are deselected. When the Level is non-zero, all file and directory entries except the parent directories for the current level are deselected.

1.65 MRBackup.guide/- Here and Down

None, this level and below

This button causes all entries at and below the current directory level to be deselected.

1.66 MRBackup.guide/- Here

- Here

This button causes all entries at the Level to be deselected.

1.67 MRBackup.guide/Entries

Entries

This gadget reports the total number of entries (files and directories) contained in the file selector list.

1.68 MRBackup.guide/Selected

Selected

This gadget reports the total number of entries currently selected.

1.69 MRBackup.guide/Disks

Disks

For backup operations, this gadget provides a rough estimate of the number of disks required to hold the files currently selected. If file compression is enabled, the Compression Estimate value (entered by you) is factored into the disk estimate. The disk estimate value is meaningless for restore operations.

1.70 MRBackup.guide/OK

OK
--

Click this button when your file selection is complete and you wish to proceed with the current operation (backup or restore).

1.71 MRBackup.guide/CANCEL

CANCEL

Click this button when you wish to terminate the current operation (backup or restore).

1.72 MRBackup.guide/Current Directory (unlabeled)

Current Directory (unlabeled)

The long gadget above the file display box shows the full name of the current directory. It is empty when the Level is zero.

1.73 MRBackup.guide/Backups

Backups

The data and programs on your Amiga might well be worth more to you (in terms of cost to replace) than the machine itself. Hard disks fail. Systems "crash", causing irrecoverable damage to hard disk partitions. Backups are insurance against such probabilities. However, they often don't get done. The excuses are many and varied. "I'm too busy", "I meant to, but...", "I don't have enough floppy disks", etc. We are all guilty to varying degrees. Even the author of this backup program has been caught "with his pants down" on a couple of occasions (excuse #1). Needless to say, backups are not a fun way to use your Amiga and they require discipline to be done on a regular and effective basis. MRBackup goes a long way toward making this chore more pleasant.

MRBackup preserves all file attributes when backing up and restoring files. The file protection word (SPARWED), comment and modification date are all maintained. This is true for all backup modes.

The Backup Modes

Backup Schemes

The Backup Process

1.74 MRBackup.guide/The Backup Modes

The Backup Modes

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MRBackup Professional supports three backup modes: AmigaDOS, Fast Disk and SCSI Tape. MRBackup provides you the flexibility to choose the mode that is best suited to your needs (or budget!).

AmigaDOS Backup Mode

Fast Disk Backup Mode

SCSI Tape Backup Mode

1.75 MRBackup.guide/AmigaDOS Backup Mode

AmigaDOS Backup Mode

The AmigaDOS backup mode provides full compatibility with AmigaDOS and its tool set. That is, you can manipulate the files in an AmigaDOS saveset with the standard Amiga tools such as DIR, LIST, COPY, TYPE, etc. When backing up to diskette, MRBackup creates disk volumes which are accessible to the AmigaDOS filesystem. MRBackup also employs no hardware-specific "tricks" in this mode. If the disk hardware is supported by standard Amiga software, MRBackup will handle it (if you find an exception to this, please let us know!).

One important item to note is that you are not required to backup files to floppy diskettes. If you are fortunate enough to have a "spare" hard disk, a hard disk with removable media, lots of extra space or if you are connected to a network file server, you can use any of these for your backup destination. You can also perform backups from one directory to another.

1.76 MRBackup.guide/Fast Disk Backup Mode

Fast Disk Backup Mode

The Amiga's original filesystem (OFS), while providing a great deal of recoverability, suffers from poor performance. This is especially notable when accessing floppy disks. This can be overcome somewhat by adding more disk buffers via the AddBuffers command. Floppy disks can also be formatted with the FFS option (Fast File System). This enhances performance significantly, though floppy disks accessed in AmigaDOS mode are still slow.

MRBackup addresses this problem by providing a new diskette format. This format is called MRBackup Fast Disk Format (real catchy name, eh?). In a sense, this format is analagous to a streaming tape drive. Floppy disk head movement is minimized. The diskette is formatted as data is written to it and slightly more data can be written to the diskette (without using any compression techniques). Also, files are automatically split across volumes in Fast Disk mode, meaning that there is no unused space on your backup diskettes. At the same time, a high degree of integrity and recoverability has been designed in. Though this format cannot be read by the AmigaDOS filesystem(s), you will most likely prefer to use it for most general-purpose backups because it is so fast.

Another interesting feature of Fast Disk mode is that you can BACKUP TO A FILE OR ANY STREAM-ORIENTED DEVICE! This capability, in essence, simulates a very large capacity floppy diskette. You can then manage this backup file as a single entity. If you're fortunate enough to be connected to a networked file server with lots of available disk space, the advantages are tremendous! You can perform a full backup without changing disks, saving your backups in remote files while fully preserving the AmigaDOS attributes of the original files.

1.77 MRBackup.guide/SCSI Tape Backup Mode

SCSI Tape Backup Mode

The SCSI Tape backup mode supports a streaming tape drive with a SCSI (Small Computer Systems Interface) interface. It is essentially the same as Fast Disk mode, except that additional support and modified error-handling behavior are invoked for the tape drive. See

SCSI Tape Support
, for specific information.

1.78 MRBackup.guide/Backup Schemes

Backup Schemes

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There are many ways to backup your system. Each has its advantages and disadvantages. You may use one or more of them, depending upon your use of the Amiga. MRBackup is so flexible that you may come up with several other approaches not detailed here.

The Full Backup

The Incremental Backup

The Project Backup

1.79 MRBackup.guide/The Full Backup

The Full Backup

A full backup is the most desirable method if time and available backup media are not limiting factors. A complete "snapshot" of your hard disk partition(s) is taken, fully reflecting the state of your machine at that point in time. If you are using floppy disks to backup a large partition, however, you may find this approach quite burdensome. Given MRBackup's flexibility, however, you will quite likely find a mix of backup techniques that satisfy your needs.

Another thing to remember is that much of your commercial software already has a backup - the original disk (or the backup you made of the original disk if you followed typical vendor's instructions). If you have lots of commercial software installed on your hard disk, you should probably consider excluding the files which don't change (programs, examples, etc.) via the backup filter. This will dramatically cut down on the time and media required for a "full" backup.

1.80 MRBackup.guide/The Incremental Backup

The Incremental Backup

Incremental backups provide a reasonable alternative to the full backup if the proper procedures are followed. The incremental backup consists of a full system backup followed by one or more partial backups. The partial backups record only the files that have changed since the full backup was performed.

Incremental Backup Based On File Modification Date

Incremental Backup Based on Archive Bit Setting

1.81 MRBackup.guide/Incremental Backup Based On File Modification Date

Incremental Backup Based on File Modification Date

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Each time a file is written (modified), the AmigaDOS filesystem sets the file's modification date to the current date and time, as set in the Amiga's built-in clock. MRBackup can take advantage of this fact by comparing file modification dates against the Test Date setting in the Options window. Only files changed on or after the Test Date are selected for backup (see
 Test Date
).

A typical backup scenario for a date-sensitive backup might be:

- * Perform a full system backup to backup media set 1.
- * Perform incremental backup to backup media set 2.
- * Perform incremental backup to backup media set "n".
- * Repeat the sequence starting with step 1.

In the sequence above, there is an implied delay between steps. Depending upon your requirements and confidence level (degree of self-discipline?), the delay may range from several hours to a week or more (not much more!). You might choose a one month cycle (i.e. step 1 is repeated on the first Saturday of each month). Notice that multiple media sets (tapes, floppies, files, etc.) are required. When performing incremental backups, you must not destroy your previous saveset(s).

There is some room for variation here, however. You might want to maintain just two sets of backup media. The first set would contain the full backup, while the second set would contain all files which changed since the full backup was done. In this case, each time you perform the incremental backup, more backup media will be required to hold the additional files, assuming a dynamic system where files are being changed on a daily basis.

1.82 MRBackup.guide/Incremental Backup Based on Archive Bit Setting

Incremental Backup Based on Archive Bit Setting

In addition to maintaining the file modification date, AmigaDOS also maintains an archive indicator bit in each file protection word. Specifically, AmigaDOS clears the archive bit whenever a file is modified. Backup software, such as MRBackup, can set this bit when a file has been successfully backed up. When the Test Archive Bits gadget is set to ON, only files with cleared archive bits will be backed up. If the Set Archive Bits gadget is also on, MRBackup will set the archive bits of all files which have been backed up.

The sequence to observe when performing the archive bit backup is similar to that used for the date sensitive backup. However, you MUST use a different set of backup media for each unique step.

As an aside, MRBackup does not prevent you from doing a backup which combines date testing with archive bit testing. However, it is advised that you choose one method or the other for desirable results.

1.83 MRBackup.guide/The Project Backup

The Project Backup -----

If you're a software developer, you may be concentrating all of your work in a specific directory hierarchy. Likewise, if you're a graphics artist, you may have a specific area in which you work. In these instances, it is recommended that you do daily "full" backups of these selected areas. This can be accomplished by setting the Home Path to the name of the topmost directory for the project area and setting the Test Date gadget to January 1, 1978 and setting the Test Archive Bits gadget to "No".

Also, you may wish to define specific backup and compression filters for each special project area.

1.84 MRBackup.guide/The Backup Process

The Backup Process =====

Once you're sure that all settings are correct, you may begin the backup process. This is done by selecting the Backup command from the Project menu, by typing the keyboard shortcut, Right-Amiga + B, or by clicking the Backup button in the General Parameters window. MRBackup's main window will disappear and a smaller Status Display window will appear. This window informs you of the progress of the backup. As the backup proceeds, pop-up requesters will instruct you to insert/remove

media as necessary as well as alert you to other bits of information, error conditions, etc.

The first backup step performed is a scan of all files specified by the Home Path. While MRBackup is scanning, the Current File or Directory gadget in the Status Display window will display the name of the directory being scanned. Once the scan is complete, MRBackup will present its file selector (see

File Selector

). The file selector

displays the list of files that were considered eligible for backup, according to the backup parameters you have chosen. It then gives you the option to omit certain files (or groups of files) from this list.

Assuming that you completed the file selection process by clicking the OK button in the file selector window, MRBackup will proceed to backup your files. If you have selected either AmigaDOS or Fast Disk backup mode, you will be prompted to insert/remove diskettes as MRBackup requires your assistance.

When the backup is complete, make a quick check of the Errors gadget in the Status Display window. If it is non-zero, it would be a good idea to review the backup log to determine the nature of the errors before assuming that the saveset is acceptable.

1.85 MRBackup.guide/Restores

Restores

The file restoration process is the inverse of a backup. You would most likely do a full restore when rebuilding a disk partition. A partial restore might be done to recover files which were deleted accidentally.

Options Affecting a Restore

Restore Concepts

1.86 MRBackup.guide/Options Affecting a Restore

Options Affecting a Restore

=====

The following MRBackup settings take effect when performing a restore operation:

- * Backup Path - the source for the restore ("from" location).

- * Buffer - specifies the amount of memory to be used for file I/O buffering (same as backup).
- * Decompression - sets the upper code size limit for file decompression. Files compressed with code sizes larger than this limit will be restored in their compressed state.
- * Decompression Filter - compressed files whose names match one or more of the patterns in this file will not be decompressed during a restore.
- * Disk Selection Icons - optional selection of backup path (overrides Backup Path).
- * Error Handling - establishes the type of error handling employed during the restore.
- * Force Copy - determines behavior when restoring files that already exist.
- * Home Path - the target for the restore ("to" location).
- * Log File - records errors and progress messages during the restore.
- * Media Type - indicates the type of saveset we are restoring from (also referred to as "Backup Mode").
- * Voice On/Off - enables/disables MRBackup's speech capability.

1.87 MRBackup.guide/Restore Concepts

Restore Concepts

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There are some interesting and important items to be aware of when performing a restore. During a backup, MRBackup preserves the complete directory hierarchy for the files which are backed up. This may be cause for some confusion. Consider the following example. You perform a backup with the Home Path set to "DH0:" (your first hard disk partition). A portion of the files selected might look like

```
ARexx
ARexx/Docs
ARexx/Examples
ARexx/Tools
Docs
Docs/Amiga
Docs/Graphics
Docs/Utilities
... etc.
```

If you later restore the saveset with the Home Path again set to

"DH0:", your files will be restored to the same level in the hierarchy, as you would expect. However, when you do a backup and specify a *directory* as the Home Path (e.g. DH0:Docs/Utilities), the full directory hierarchy from the "top" of the partition through all levels included by the Home Path is preserved. For levels higher than the Home Path, only the directories are preserved (files are ignored). When you restore such a backup, the Home Path must be changed to the name of the partition (e.g. DH0:) to which you want the files recovered. Of course, if you wish to restore your saveset to a lower-level hierarchy, you are free to select any valid Home Path.

It is important to note that MRBackup will not overwrite an existing file with a file which has the same or earlier modification date unless you enable the Force Copy option (see

Force Copy

). During the restore,

a message will be displayed to the screen and written to the log file for each file that is skipped because of this condition.

1.88 MRBackup.guide/Utilities

Utilities

MRBackup's Utilities perform a variety of AmigaDOS file management operations. The top portion of the window contains gadgets for specifying file selection criteria and reporting status. The middle portion is a combined information display and file requester for interactively selecting individual files. The bottom portion of the window primarily contains "command buttons" which select the operation to be performed on the selected file(s).

When performing a Utilities operation, the affected files have a source (From) and, where appropriate, a destination (To). The file information display box in the center of this window multiplexes (switches) between the From and To modes, depending upon whether the From or To radio button is highlighted (selected). You will normally be interested in the From list, since that is the list of files which are acted upon. The To list is provided simply to let you preview the area to which files will be copied, compressed, etc.

From and To Buttons

From Gadget

To Gadget

Parent Directory Buttons

Drive Button

FileSpec Gadget
Info Gadget
All Button
None Button
Utility State Gadget
Utility Command Buttons

1.89 MRBackup.guide/From and To Buttons

From and To Buttons

The From and To buttons determine whether the source (From) or destination (To) directory is displayed in the file display area. These buttons are mutually exclusive and only one can be ON at a time. Clicking on either will cause the display box to be filled with information relevant to the appropriate path specification.

1.90 MRBackup.guide/From Gadget

From Gadget

The From gadget holds the source device or directory name. Upon activation of the Utilities window, this value defaults to the Backup Path setting in the General Parameters window. You may alter this value by typing directly into the gadget. It will also track your interactions with the file information display box or parent directory gadgets.

1.91 MRBackup.guide/To Gadget

To Gadget

The To gadget holds the destination device or directory name. Upon activation of the Utilities window, this value defaults to the Backup Path setting in the General Parameters window. You may alter this value by typing directly into the gadget. It will also track your interactions with the file information display box or parent directory gadgets.

1.92 MRBackup.guide/Parent Directory Buttons

Parent Directory Buttons

The From and To gadgets each have an arrow button to the right of their respective text boxes. Clicking on the arrow causes the selection to move up one level in the file hierarchy (the immediate parent). For instance, if the From selection is currently "DH0:Src/Lib/Amiga", clicking its associated arrow button will change the From selection to "DH0:Src/Lib".

1.93 MRBackup.guide/Drive Button

Drive Button

Clicking on the Drive button will cause the currently active selection (From or To, as determined by the From/To button settings) to cycle to the next disk drive (including RAM:, RAD:).

1.94 MRBackup.guide/FileSpec Gadget

Filespec Gadget

The FileSpec gadget (file specification) is applied to the From selection to restrict the files visible in the file information box. Typically, an AmigaDOS file name pattern is entered here. For instance, "#?" or "*" (default) allows all filenames to be seen. "#?.Doc" would allow only filenames ending in ".Doc" to be seen. The FileSpec does not apply to directory names, which are always visible.

1.95 MRBackup.guide/Info Gadget

Info Gadget

The Info gadget provides status information related to the current utility operation being performed.

1.96 MRBackup.guide/All Button

All Button

Clicking on the All button (beneath the lower right-hand corner of the file information display box) will select everything in the file information box, including entries which are out of view. Selected entries are displayed in reverse video.

1.97 MRBackup.guide/None Button

None Button

Clicking on the None button will cause all files in the file display area to be deselected.

1.98 MRBackup.guide/Utility State Gadget

Utility State Gadget

There is an unlabeled box in the upper right hand corner of the Utilities window. This gadget is used to display the current state of the Utilities "engine".

1.99 MRBackup.guide/Utility Command Buttons

Utility Command Buttons

At the bottom of the Utilities window is a set of gadgets (command buttons) which are labeled with the names of the Utilities processing options. Each one will be discussed separately below. One thing that they all have in common is that the From selection must be active before they may be used. Clicking any command button before the current process has completed will terminate the current process.

Compress Button

Compression Code Size Button

Decompress Button

Delete Button

Move Button

Copy Button

Set Bits Button

Clear Bits Button

SetDate Button

1.100 MRBackup.guide/Compress Button

Compress Button

This command button causes the selected files to be compressed, using the current Compression bit code setting and compression filter file in the MRBackup Parameters window. The From and To path specifications may indicate the same or different pathnames. If they are the same, the original file will be deleted and replaced with its compressed version (having a ".Z" suffix).

1.101 MRBackup.guide/Compression Code Size Button

Compression Code Size Button

This gadget, wedged between the Compress and Decompress gadgets, selects the maximum code size to be used when compressing or decompressing files. It steps through the range of compression code sizes each time it is clicked.

1.102 MRBackup.guide/Decompress Button

Decompress Button

This command button causes the selected files to be decompressed, using the current Decompression bit code setting and decompression filter file, as specified in the MRBackup main window. The From and To path specifications may indicate the same or different paths. If they are the same, the compressed file (having the ".Z" suffix) will be replaced by its decompressed version (".Z" suffix removed).

1.103 MRBackup.guide/Delete Button

Delete Button

Only the From specification is required for Delete. All selected files will be deleted from your system. Be careful!

1.104 MRBackup.guide/Move Button

Move Button

This button causes the currently selected files to be moved (renamed) to a new location. Move requires that the From and To specifications name different directories on the same device (renaming across devices is not allowed). All selected files will be moved from their current location to the To directory.

1.105 MRBackup.guide/Copy Button

Copy Button

The Copy command button requires different From and To specifications. The selected files are copied to the To path.

1.106 MRBackup.guide/Set Bits Button

Set Bits Button

The Set Bits command button provides the capabilities of the AmigaDOS "Protect" command. Below the Set Bits and Clear Bits command buttons, you will see eight gadgets with the letters "H,S,P,A,R,W,E,D". These letters are defined as follows:

- S - Script Bit
- P - Pure Bit
- A - Archived Bit
- R - Read Protection Bit
- W - Write Protection Bit
- E - Execute Protection Bit
- D - Delete Protection Bit

Set the appropriate buttons for the bits you wish to set, then click

the Set Bits command button. The bit pattern you have selected will be logically OR-ed with the current bit settings for the selected files.

The R, W, E and D indicators are somewhat confusing, as their meaning is inverted. A set bit actually means that the related operation is inhibited. For instance, when "W" is displayed, it actually means that the "W" bit is clear, allowing file write operations. To prevent a user from writing (changing) a file, you must SET its "W" bit.

1.107 MRBackup.guide/Clear Bits Button

Clear Bits Button

Clear Bits works in much the same fashion as Set Bits except that the selected bits are turned off. Only the selected bits will be affected - all others retain their current setting.

1.108 MRBackup.guide/SetDate Button

SetDate Button

The SetDate command button changes the file modification date for all selected files (only the "from" selection has meaning here). Upon selecting the SetDate command button, you will be presented with MRBackup's date requester. Simply select the date you wish to apply.

1.109 MRBackup.guide/ARexx Interface

MRBackup's ARexx Interface

The Amiga's multitasking operating system is one of its distinguishing features. The typical Amiga user is apt to be running several programs at any given time. With the addition of ARexx (the Amiga implementation of the Rexx language), programs equipped with an ARexx "software port" can communicate, share resources with one another or be operated under the control of an ARexx program.

The MRBackup ARexx Port

Using ARexx with MRBackup

MRBackup ARexx Commands

1.110 MRBackup.guide/The MRBackup ARexx Port

The MRBackup ARexx Port

MRBackup provides an ARexx interface which allows many of its operating parameters and features to be accessed this way. It is possible to run multiple "copies" of MRBackup. Thus, MRBackup creates a unique ARexx port name for each instance of MRBackup that is run. You can determine the ARexx port name by selecting the About item from MRBackup's Project menu.

The ARexx port name will always be of the form:

```
MRBackup_#<number>
```

where <number> is the number assigned to a given instance of MRBackup. Typically, with one copy of MRBackup running, the ARexx port name will be MRBackup_#1.

1.111 MRBackup.guide/Using ARexx with MRBackup

Using ARexx with MRBackup

This is not an ARexx tutorial. If you are unfamiliar with ARexx, you will have to obtain appropriate documentation. ARexx is bundled with AmigaDOS version 2.04 and beyond. It can also be purchased from

```
William S. Hawes  
P.O. Box 308  
Maynard, MA 01754  
(617) 568-8695
```

MRBackup's ARexx implementation requires that the 'results' option be enabled, since many commands return a value. Include the following statement in all of your MRBackup ARexx scripts:

```
options results
```

Commands which don't have a specific return value will set the result variable to either "OK" or "FAIL" to indicate success or failure.

Each MRBackup ARexx script must have a filename extension of ".mrbk" (e.g. DailyBackup.mrbk). Here is an example script which manipulates MRBackup's voice setting (on or off) and demonstrates its effects:

```
/* voice.mrbk */  
/* MRBackup: turn voice on and off. */
```

```
signal on ERROR
signal on BREAK_C

/* Enable command results. */
options results

/* Make sure that MRBackup is running. */
if ~(Show('P', 'MRBackup_#1')) then do
    say "You must run MRBackup first."
    exit 1
end

/* Select MRBackup's ARexx port. */
address "MRBackup_#1"

/* Bring MRBackup's screen to the front. */
poptofront

/* Tell the user what is going to happen. */
'notealert "This test turns the voice option off and on."'

/* Turn the voice capability off. */
'setvoice "no"'
/* Check the result of the previous command. */
if result ~= "OK" then do
    say "I could not turn the voice option off!"
    exit 1
end

/* The following message should be suppressed. */
'speak "You should not hear this message."'
if result ~= "OK" then do
    say "Attempt to speak failed."
    exit 1
end

call Delay(50)

/* Enable MRBackup's voice capability. */
'setvoice "yes"'
if result ~= "OK" then do
    say "I could not turn the voice option on!"
    exit 1
end

/* This time, the user should hear the message. */
'speak "This message is being brought to you by Ay Rexx."'
if result ~= "OK" then do
    say "Attempt to speak failed."
    exit 1
end

exit 0

/*--- Control-C interrupts come here. ---*/
```

```

break_c:

say "*** Control-C recieved. Stopped by user. ***"
exit 5

/*--- ARexx-detected errors come here. ---*/
error:

say "Error"
exit 6

/*--- End of script. ---*/

```

You will find a set of example ARexx scripts in the REXX directory on your MRBackup program diskette. Please refer to them when you need help in creating your own MRBackup ARexx applications. Specifically, examine the script named "template.mrbk". It provides an example of every MRBackup ARexx command.

1.112 MRBackup.guide/MRBackup ARexx Commands

MRBackup ARexx Commands

=====

This section details each of the ARexx commands supported by MRBackup. In the following discussion, certain notation conventions are adopted:

- * Command parameters (arguments) are often specified with enclosing angle brackets <>. The enclosed word or phrase connotes the type of value which should be substituted. For instance, a parameter denoted as <path> could take a value such as "DH0:Devs/Printers".
- * Optional parameters are enclosed in square brackets []. In these cases, the command's behavior with the optional parameter specified is contrasted with its behavior when the optional parameter is given.
- * Literal text values (e.g. "OK", "FAIL", etc.) are specified as quoted strings.

COMMAND: backup

RESULT: "OK" or "FAIL"

DESCRIPTION: This command starts a backup operation. Prior to issuing the backup command, all backup parameters (filter specifications, compression settings, etc.) should be set to their desired values.

COMMAND: dateformat <format_code>

RESULT: The current date format code (0-3).

DESCRIPTION: This command sets the format to be used when expressing date values as text. The dateformat setting not only affects the way that dates appear in printed output (e.g. MRBackup logs and listings) but it also determines the format of the date parameter expected by the 'settestdate' command. The <format_code> can be a value from 0 (zero) to 3 (three) and has these meanings:

0	-	DD-MMM-YY	(AmigaDOS)
1	-	YY-MM-DD	(International)
2	-	MM-DD-YY	(USA)
3	-	DD-MM-YY	(Candian)

COMMAND: getbackpath

RESULT: MRBackup's current Backup Path specification.

DESCRIPTION: This command obtains the current Backup Path specification and returns it via the result variable.

COMMAND: getbfilterpath

RESULT: MRBackup's current Backup Filter specification.

DESCRIPTION: This command obtains the current Backup Filter specification and returns it via the result variable.

COMMAND: getbufsize

RESULT: The current Buffer Size value.

DESCRIPTION: The getbufsize command obtains the current Buffer Size value (expressed as a multiple of "K", where "K" = 1024) and returns it via the result variable.

COMMAND: getcfilterpath

RESULT: The current Compression Filter specification.

DESCRIPTION: The getcfilterpath command obtains the current Compression Filter specification and returns it via the result variable.

COMMAND: getchoice <prompt> <choice_1> [... <choice_n>]

RESULT: user's choice selection

DESCRIPTION: getchoice provides a means for an ARexx script to present a requester to the user with a set of choices (up to 8), each appearing in a button. The result will be the choice string for the button selected by the user. Example:

```
'getchoice "Select an option" "A" "B" "C" "D"'
```

The above example presents four choices to the user. If the user were to click on the button labeled "B", then "B" would be returned as the result.

COMMAND: getcompression

RESULT: "None", "12-Bit", "13-Bit", "14-Bit", "15-Bit", "16-Bit"

DESCRIPTION: The getcompression command obtains the current Compression code size setting and returns it via the result variable.

COMMAND: getdecompression

RESULT: "None", "12-Bit", "13-Bit", "14-Bit", "15-Bit", "16-Bit"

DESCRIPTION: The getdecompression command obtains the current Decompression code size setting and returns it via the result variable.

COMMAND: getfilterpath

RESULT: The current Decompression Filter specification.

DESCRIPTION: The getfilterpath command obtains the current Decompression Filter specification and returns it via the result variable.

COMMAND: getfilemode

RESULT: "ASK", "APPEND" or "REPLACE"

DESCRIPTION: 'getfilemode' returns the current setting of the switch which controls MRBackup's behavior with regard to opening existing listing and log files. See 'setfilemode' for more details.

COMMAND: getforcedcopy

RESULT: "Never", "Always" or "Prompt"

DESCRIPTION: 'getforcedcopy' returns the current setting of the forced copy option which governs the behavior of MRBackup during a file restore process. For more info, see 'setforcedcopy'.

COMMAND: getformatting

RESULT: "None", "Quick", "Normal"

DESCRIPTION: The getformatting command obtains MRBackup's current Formatting setting and returns it in the result variable.

COMMAND: gethomepath

RESULT: MRBackup's Home Path specification.

DESCRIPTION: The gethomepath command obtains MRBackup's Home Path specification and returns it via the result variable.

COMMAND: getlistpath

RESULT: MRBackup's Listing Path specification.

DESCRIPTION: The getlistpath command obtains MRBackup's Listing Path specification and returns it via the result variable.

COMMAND: getlogpath

RESULT: MRBackup's Log Path specification.

DESCRIPTION: The getlogpath command obtains MRBackup's Log Path specification and returns it via the result variable.

COMMAND: getresult

RESULT: value of the last MRBackup ARexx 'result' code

DESCRIPTION: the 'getresult' command returns the internal result code for the previous ARexx command executed by MRBackup. The internal result code is reset to zero as a side-effect of this command.

COMMAND: getrfilterpath

RESULT: the current Restore Filter filename

DESCRIPTION: This command retrieves the current Restore Filter filename and returns it via the result variable

COMMAND: gettestdate

RESULT: the current Test Date value

DESCRIPTION: The gettestdate command fetches the current Test Date value (used for backup operations) and returns it in the ARexx result variable. The date is formatted according to the current date format.

COMMAND: ignorecatalog <yes_or_no>

RESULT: none

DESCRIPTION: The ignorecatalog command, with the "YES" parameter, instructs MRBackup to perform the next restore operation without reference to a backup catalog. This implies that the full saveset will be restored unless a restore filter is specified. This setting is "non-sticky". That is, as soon as a restore is started and this value is used, ignorecatalog

reverts to the "NO" (require catalog) setting.

COMMAND: keepemptydirs <yes_or_no>

RESULT: none

DESCRIPTION: The keepemptydirs command instructs MRBackup to preserve empty directories when performing a backup. The default state is "YES".

COMMAND: listing <yes_or_no>

RESULT: "OK" or "FAIL"

DESCRIPTION: The listing command enables or disables MRBackup's listing output, depending upon the <yes_or_no> parameter which must be either "YES" or "NO". Example:

```
listing "YES"
```

COMMAND: loadprefs <filename>

RESULT: the current preferences filename

DESCRIPTION: The loadprefs command causes some or all of MRBackup's operating parameters to be loaded from the specified <filename>. This file must conform to the format of the MRBackup.init file delivered with MRBackup Professional. The file may have been previously created with the Preferences/Save... menu command or it may be created by an editor, application or ARexx script. This method of setting MRBackup parameters is much more convenient than using the individual "set" ARexx commands.

COMMAND: notealert <message>

RESULT: "OK" or "FAIL"

DESCRIPTION: The notealert command provides access to MRBackup's informational requester. The text of <message> will be presented in a requester. The user must click the requester's OK button before program execution will proceed. The <message> string may contain embedded newline (line feed) characters.

COMMAND: poptofront

RESULT: "OK" or "FAIL"

DESCRIPTION: The poptofront insures that MRBackup's screen is the frontmost screen.

COMMAND: quit

RESULT: "OK" or "FAIL"

DESCRIPTION: The quit command instructs MRBackup to terminate. When used, this must be the last command issued to MRBackup.

COMMAND: releasecontrol

RESULT: "OK"

DESCRIPTION: the 'releasecontrol' command releases MRBackup from full ARexx control. It must be issued before exiting a script in which 'takecontrol' was invoked.

COMMAND: restore

RESULT: "OK" or "FAIL"

DESCRIPTION: The restore command instructs MRBackup to perform a file restore operation according to MRBackup's current settings.

COMMAND: setarcbits <yes_or_no>

RESULT: "OK" or "FAIL"

DESCRIPTION: The setarcbits command instructs MRBackup to enable/disable the setting of file archive bits during a backup operation. If the <yes_or_no> value is "YES", archive bits will be set upon successful completion of a backup.

COMMAND: setbackpath [<path>]

RESULT: "OK" or "FAIL"

DESCRIPTION: The setbackpath command instructs MRBackup to adopt a new Backup Path specification. The <path> parameter, if supplied, must be the name of a valid device, directory or filename (depending upon the current backup mode). If <path> is not given, the user will be presented with MRBackup's file requester.

COMMAND: setbackupmode <mode>

RESULT: the new backup mode setting

DESCRIPTION: The setbackupmode command sets the backup mode (media type) to one of "AmigaDOS", "FastDisk" or "SCSITape".

COMMAND: setbfilterpath [<path>]

RESULT: new backup filter file name

DESCRIPTION: The setbfilterpath command instructs MRBackup to adopt a new Backup Filter specification. The <path> parameter, if given, must be the

name of a valid text file containing MRBackup backup filter specifications. If <path> is not given, the user will be presented with MRBackup's file requester so that a file may be selected. Note that this command always returns the backup filter file name in effect upon its return. To test for failure, test the ARExx rc variable for a non-zero result.

COMMAND: setbufsize <value>

RESULT: new buffer size value

DESCRIPTION: The setbufsize command instructs MRBackup to use a new buffer size for backup/restore operations. The <value> parameter is expected to be a number expressed as a multiple of "K" (K = 1024). For example, a <value> of 64 would result in 65536 bytes being allocated for MRBackup buffering operations. The return value is always the buffer size (again, in K) in effect upon return from this command. If an error is detected, the ARExx rc variable will contain a non-zero error code.

COMMAND: setcatalogname <path>

RESULT: "OK" or "FAIL"

DESCRIPTION: The setcatalogname command allows the name of the saveset catalog file name to be set under program control. The <path> specified for the catalog file name is not verified.

COMMAND: setcfilterpath <path>

RESULT: new compression filter file name

DESCRIPTION: The setdfilterpath command instructs MRBackup to adopt a new Compression Filter file name specification. If <path> is given, it must be the name of an existing text file containing valid MRBackup filter patterns. If <path> is omitted, the user will be presented with MRBackup's file requester so that a file may be selected.

This command always returns the name of the Compression Filter file in effect upon its return. To check for command failure, test the ARExx rc variable for a non-zero value.

COMMAND: setcomment<comment_string>

RESULT: "OK"

DESCRIPTION: The setcomment command sets the saveset comment for the next backup to the value specified by the <comment_string> parameter. This value should be 80 characters or less.

COMMAND: setcompression <code_size>

RESULT: "OK" or "FAIL"

DESCRIPTION: The setcompression command instructs MRBackup to use a new

compression code size for subsequent backups. The valid values for <code_size> are:

None, 12-Bit, 13-Bit, 14-Bit, 15-Bit, 16-Bit

COMMAND: setdecompression <code_size>

RESULT: "OK" or "FAIL"

DESCRIPTION: The setdecompression command instructs MRBackup to use a new decompression code size limit for subsequent backups. The valid values for <code_size> are the same as those for the setcompression command.

COMMAND: setdfilterpath [<path>]

RESULT: new decompression filter file name

DESCRIPTION: The setdfilterpath command instructs MRBackup to adopt a new Decompression Filter file name specification. If <path> is given, it must be the name of an existing text file containing valid MRBackup filter patterns. If <path> is omitted, the user will be presented with MRBackup's file requester so that a file may be selected.

This command always returns the name of the Decompression Filter file in effect upon its return. To check for command failure, test the ARexx rc variable for a non-zero value.

COMMAND: setfilemode <mode_option>

RESULT: "OK" or "FAIL"

DESCRIPTION: 'setfilemode' sets a switch which governs MRBackup's behavior when opening an listing or log file. The <mode_option> can be one of the following:

"Ask" - MRBackup will ask whether to replace or append to the contents of an existing file.

"Append" - MRBackup will automatically append to the end of an existing file.

"Replace" - MRBackup will replace (erase) the contents of an existing file.

COMMAND: setforcedcopy <force_option>

RESULT: "OK" or "FAIL"

DESCRIPTION: 'setforcedcopy' sets a switch which governs the behavior of MRBackup during a file restore option. The <force_option> can be one of the following:

"Always" - MRBackup will unconditionally overwrite any existing

file during the restore process.

"Never" - MRBackup will not overwrite any file which is newer than the file being restored.

"Prompt" - MRBackup will ask for permission before overwriting a file with an older file. Older files will be overwritten with newer files, as usual.

This command has a significant impact on the overall performance of a restore operation. If "Always" or "Prompt" are used, MRBackup must first check for the existence of each file to be restored, comparing its modification date (if it exists) against the modification date of the file in the saveset. If you are restoring to an empty partition, it's a good idea to set the forced copy switch to "Always".

COMMAND: setformatting <format_option>

RESULT: same as getformatting

DESCRIPTION: The setformatting command tells MRBackup what type of floppy disk formatting to employ when doing a backup to floppy disk (AmigaDOS mode only). The <format_option> must be one of "None", "Quick" or "Normal". The result will always be the formatting option in effect upon return from this command. If a bad <format_option> is specified, the ARexx rc variable will be set to a non-zero value.

COMMAND: sethomepath [<path>]

RESULT: new Home Path specification

DESCRIPTION: The sethomepath command instructs MRBackup to adopt a new Home Path specification. If <path> is given, it must be a valid pathname that satisfies the requirements for the Home Path. If <path> is not given, the user is presented with MRBackup's file requester so that a new Home Path may be selected.

This command always returns the name of the Home Path in effect upon its return. To check for command failure, test the ARexx rc variable for a non-zero value.

COMMAND: setinfogadget <message>

RESULT: "OK"

DESCRIPTION: This command provides a means for an ARexx script to place a text <message> in MRBackup's Info gadget. Example:

```
setinfogadget 'I am about to start the backup.'
```

COMMAND: setlistpath [<path>]

RESULT: new listing pathname

DESCRIPTION: The setlistpath command instructs MRBackup to adopt a new Listing Path specification. If <path> is given, it must be a valid device name (e.g. PRT:, PAR:, etc.) or file name. If <path> is not given, the user will be presented with MRBackup's file requester to allow a selection.

The setlistpath command always returns the Listing Path specification in effect upon its return. To test for an error, check the ARexx rc variable for a non-zero value.

COMMAND: setlogpath [<path>]

RESULT: new log file name

DESCRIPTION: The setlogpath command instructs MRBackup to adopt a new Log Path specification. If <path> is given, it must be a suitable device, console or file specification for MRBackup's log messages. If <path> is not given, the user will be presented with MRBackup's file requester to allow a new selection.

The setlogpath command always returns the Log Path specification in effect upon its return. To test for an error, check the ARexx rc variable for a non-zero value.

COMMAND: setprefix <prefix_string>

RESULT: accepted prefix string

DESCRIPTION: The setprefix command allows an ARexx script to set the Prefix string used to create backup volume names. The result is the actual prefix string accepted, which may differ from <prefix_string> slightly if illegal characters exist in <prefix_string> or if it is too long (maximum of 20 characters).

COMMAND: setrfilterpath <pathname>

RESULT: the Restore Filter pathname

DESCRIPTION: This command sets the Restore Filter specification to <pathname>. This allows for selective file restores under ARexx control.

COMMAND: settestdate [<date_string> >]

RESULT: new Test Date specification

DESCRIPTION: The settestdate command instructs MRBackup to adopt a new Test Date specification. If <date_string> is given, MRBackup attempts to convert it to an AmigaDOS date value (DateStamp). If <date_string> is not given, MRBackup's date requester is activated to allow the user to enter the new test date.

The result will always be the Test Date in effect upon return from this command. If a <date_string> conversion error occurs, the ARexx rc variable

will be set to a non-zero result.

COMMAND: setvoice <yes_or_no>

RESULT: "OK" or "FAIL"

DESCRIPTION: The setvoice command enables or disables MRBackup's voice capability, depending upon the value of the <yes_or_no> parameter. A "YES" value enables voice, while a "NO" value disables it. Example:

```
setvoice "NO"
```

COMMAND: speak <message>

RESULT: "OK" or "FAIL"

DESCRIPTION: The speak command requests MRBackup to utter the text contained in the <message> parameter. The <message> is only spoken if MRBackup's voice is enabled (see getvoice/setvoice). Since MRBackup uses the Amiga's translator, you might want to experiment with certain sentences and phrases which aren't handled correctly. For instance, "MRBackup" sounds like "merbackup" while "M R backup" produces more desirable results.

COMMAND: splitfiles <yes_or_no>

RESULT: "OK" or "FAIL"

DESCRIPTION: The splitfiles command enables or disables MRBackup's splitting of "big files", depending upon the setting of the <yes_or_no> flag. A "YES" value enables file splitting while a "NO" value disables it. Note that this setting is only relevant to the AmigaDOS backup mode.

COMMAND: takecontrol

RESULT: "OK"

DESCRIPTION: the 'takecontrol' command places MRBackup under full ARExx control. Essentially, this inhibits many of MRBackup's error and information requesters to enable automated backup and restore. Certain requesters, such as those which require floppy disk insertions and removals, will still appear.

COMMAND: testarchbits <yes_or_no>

RESULT: "OK" or "FAIL"

DESCRIPTION: The testarchbits instructs MRBackup to test or ignore file archive bits during backup operations, depending upon the value of the <yes_or_no> parameter. If <yes_or_no> is "YES", only files whose archive bit is clear will be candidates for backup.

COMMAND: utilities

RESULT: "OK" or "FAIL"

DESCRIPTION: The utilities command activates MRBackup's utilities window. Script execution will be suspended until the user closes the Utilities window.

COMMAND: yesno <question>

RESULT: "YES" or "NO"

DESCRIPTION: The yesno command provides access to MRBackup's YES/NO requester. The <question> parameter should be a string containing a question. Script execution will be suspended until the user responds by clicking either the YES or NO buttons in MRBackup's requester. Upon return, the result variable will contain the user's response.

1.113 MRBackup.guide/Data Compression

Data Compression

MRBackup provides you with the ability to compress your files as they are written to a saveset and to decompress them when they are restored.

The primary motivation for doing this is to save space on the backup media and thus reduce the amount of media required to hold the saveset.

There is a performance penalty exacted for this, however. You must determine if the savings in space are worth the extra time required to perform the backup or restore of compressed files. The use of data compression also places extra demands on system memory which may be a consideration if you are running other programs (multitasking) while MRBackup is running.

Data Compression Method

The Compressor

Compression Estimating

1.114 MRBackup.guide/Data Compression Method

Data Compression Method

=====

MRBackup employs Lempel-Ziv compression. While this method does not yield the highest compression ratios, it is one of the faster software

compression algorithms available. Its ability to be adjusted through the use of user-specified code size limits allows you to make certain performance trade-offs. Larger code sizes will make greater temporary demands on system memory but will result in higher compression ratios.

When a file is compressed, special codes are written at the beginning of the compressed file to indicate that it is compressed and to record the size of the codes used for compression. Thus, you need not remember what code size was used to compress a particular file when you later decompress it.

1.115 MRBackup.guide/The Compressor

The Compressor

=====

MRBackup performs data compression with a separate program named Compressor. Whenever you start a backup with compression enabled or a restore with decompression enabled or if you compress/decompress individual files using the Utilities, MRBackup will check to see if the Compressor is running. If not, you will be asked for permission to start it. MRBackup will then enter into a "conversation" with the Compressor, requesting data to be processed and retrieving the results.

There are several advantages to this approach. Some of them are too technical to be discussed here. Of most importance to the user is that as a result, the MRBackup program is smaller. If data compression is not being used, less memory is being used by MRBackup. The Compressor program is designed to employ "overlays". When it is idle, it uses almost no Amiga resources since it releases the data compression code and buffer memory and waits for the next request to do something.

Starting and Stopping the Compressor Manually

=====

You may elect to start and stop the Compressor "manually" if you so desire. To start the Compressor, simply enter

```
RUN MRBackup:Compressor <nil: >nil:
```

from the Shell command prompt or double-click the Compressor icon. To stop the Compressor, enter

```
MRBackup:Compressor quit
```

from the Shell command prompt.

1.116 MRBackup.guide/Compression Estimating

Compression Estimating

=====

Compression estimating is useful when creating AmigaDOS save sets. It allows MRBackup to better determine if a file will fit on the current backup diskette when performing an AmigaDOS backup with compression enabled (it is irrelevant to Fast Disk and SCSI Tape backups). MRBackup does not know in advance what a file's size will be after it is compressed. Therefore, when determining if a file will fit on the current backup diskette, the file's full size is used. This can result in a significant amount of wasted space on each diskette. If you set the compression estimate to a non-zero value, MRBackup will apply this estimate when determining space available. A reasonable value to start with is 35 (%). This means that you expect most files to be 65% of their original size (100%-35%) when compressed. Please note that this may lead to occasional "disk full" errors, depending on how aggressive your estimate is. In this case, MRBackup will delete the partially copied file and force a new diskette. This is a feature you'll have to develop a "feel" for. Of course, you can always play "safe" and leave this value at zero.

1.117 MRBackup.guide/Filter Files

Filter Files

The term "filter" may sound strange to you, but you've probably heard and even used it many times without giving it a second thought. Surely you've heard of the coffee filter, which keeps the coffee grounds out of your freshly brewed pot of java. Air filters keep dust and dirt out of your electronic equipment and your environment. Oil filters keep your auto's engine clean.

MRBackup employs filename filters to accomplish something quite analogous. A set of filenames is "fed into" a filter and a subset of those filenames is allowed to "pass through" it. Each filter is simply a text file containing zero or more filename patterns. Each filter (backup, compression, decompression) has a specific purpose and operates on a particular set of filenames.

Filter File Format

Backup Filter

Compression Filter

Decompression Filter

1.118 MRBackup.guide/Filter File Format

Each filter file is simply a text file which can be created with any plain text editor or a word processor which can save plain ASCII text. They can also be created by some other program or ARexx script (hint!).

The filter file may contain any number of patterns, one per line. You may place comments in the file by placing a semi-colon (;) in the first character position. Empty lines are also ignored.

Filter Patterns

Filter patterns are expressed "relative" to a device or volume. That is, they must not include a volume or device name (the part preceding and including the colon in a full AmigaDOS filename). What they are relative to is implicit in their use. For instance, the backup filter patterns are relative to the "home" device, as are the compression filter patterns. Since decompression is performed during a restore, decompression filter patterns are implicitly relative to the "backup" device.

Filter patterns may be simple filenames, such as

```
Trashcan
Trashcan.info
```

or they may be quite exotic and complex patterns with "wildcard" notation, character class specifications, etc. Here is the definition of special characters which can be used in a filter pattern:

Character	Meaning
?	Match any single character.
%	Match the null string.
#<p>	Match zero or more occurrences of pattern <p>.
*	Match any pattern (same as #?).
<p1><p2>	Match pattern <p1> followed by pattern <p2>.
()	Parentheses group patterns together.
(<p1> <p2>)	Match if either <p1> or <p2> match (parentheses are required.).
[]	Character class (ex: [a-z] or [0-9]).
~<p>	Negation: match anything BUT pattern <p> Example: "~*.info" means all files except those ending in ".info" (quotes for illustration only)
'	Escape next special character. Useful for filenames which contain any special characters above.

The most common mistake that you are likely to make when creating your filter patterns is to omit the "leading context" from your patterns. For instance, if you want to omit all files named "junk.txt" from an operation, you must remember that the simple filename is actually part of a larger specification which includes all higher level directory names. Thus, to omit all files named "junk.txt", we might use the following pattern:

```
(junk.txt|#?/junk.txt)
```

This is a pattern grouping which recognizes "junk.txt" at the top level of a volume or (you can equate the vertical bar | to the word "or") at any level in the directory hierarchy. The pattern

```
#?junk.txt
```

is not "safe" since it will match ANY sequence of characters preceding "junk.txt" (somejunk.txt, myjunk.txt, morejunk.txt, etc.) which may not be what we wanted.

1.119 MRBackup.guide/Backup Filter

The Backup Filter is used to assist in the selection of files that are to be copied during a backup operation. When MRBackup performs its initial scan, the backup filter is applied to each file or directory name as it is encountered.

The Backup Filter has a dual personality. By default, its patterns are used to exclude selected files from a backup. However, there are two special patterns which change the meaning of the Backup Filter patterns. These patterns are

```
:INCLUDE:    and  
:EXCLUDE:
```

If the `:INCLUDE:` pattern appears in the Backup Filter file, subsequent patterns will be used to include files in the backup. Only files which match these patterns will be included in the backup. This can be a useful mechanism for backing up "disjoint" directory hierarchies without having to provide many exclude patterns.

If the `:EXCLUDE:` pattern appears in the Backup Filter file, subsequent patterns will be used to exclude files from the backup. If the `:INCLUDE:` pattern is also present in the filter file, the exclude patterns will be applied only to the files which satisfied the include patterns. That is, the include patterns take precedence, regardless of the appearance order of `:INCLUDE:` or `:EXCLUDE:`.

1.120 MRBackup.guide/Compression Filter

The Compression Filter is employed during a backup operation to inhibit file compression on certain files. It has no effect if the Compression gadget has been set to None.

Over time, you will notice that certain files have a tendency to expand, rather than compress, when subjected to MRBackup's compression algorithm. Such strange behavior! The compression algorithm takes advantage of the fact that most files contain data whose values are not evenly distributed. There tend to be many redundant data patterns which can be represented by fewer bits. However, certain files, such as programs, animations, graphics images, etc., do not compress well since they already contain very random data patterns.

MRBackup helps you alleviate this situation by providing you with a compression filter. When you detect files for which compression is a problem, enter the appropriate patterns into your compression filter file and MRBackup will cease trying to compress them. If you use a reasonable naming convention for certain classes of files (e.g. <file>.ilbm for IFF bitmap files), you can easily omit whole classes of files from compression.

1.121 MRBackup.guide/Decompression Filter

While file compression is a nice backup feature, you may also want to maintain certain files on your hard drive in a compressed state. If you perform a restore operation with decompression enabled, however, files that you wish to remain compressed will be decompressed. The decompression filter allows you to specify the files which you would like to restore in their compressed state. That is, patterns in the decompression filter inhibit file decompression.

1.122 MRBackup.guide/SCSI Tape Support

SCSI Tape Support

If you are regularly backing up more than 20MB of data, you really should consider the purchase of a streaming SCSI tape drive. Chances are, you already have the requisite SCSI interface controller (to interface and control your hard disk drive) so you will only need to acquire a tape drive. SCSI tape drives are becoming more and more affordable, with several good quality units available in the under \$300 price range. Tape cartridges cost about \$20 each. The time and aggravation you'll save are inestimable in their value. Also, since you'll be much more likely to perform regular backups with such a painless medium, your system will be much more secure. Do yourself a favor!

A SCSI tape handler is provided with MRBackup and is installed as a

part of the standard MRBackup installation procedure. To use it, you must perform the following steps:

- * If it isn't already present, copy the MRBackup tape handler, MRTape-Handler to the L: directory:

```
COPY MRBackup:L/mrtape-handler to L:
```

- * Copy the mountlist entry file to the DEVS: directory. The mountlist entry provided with MRBackup is named Devs/DosDrivers/MRTape. There is also a synchronous version named Devs/DosDrivers/MRTapeS. The MRTape mountlist entry contains the following:

```
/* This is a mountlist entry for the SCSI tape handler provided with */
/* MRBackup. Pay particular attention to the StartUp message. Its */
/* format is: */
/*      "<buffer_size>/<device_name>/<unit>/<luno>/<flags>" */
/* */
/* where */
/*      <buffer_size> is the total amount of buffer memory, specified */
/*      in K (K = 1024); */
/* */
/*      <device_name> is the SCSI device driver name; */
/* */
/*      <unit> is the SCSI unit number; */
/* */
/*      <luno> is the SCSI logical unit number (not currently used but */
/*      must be set to zero); */
/* */
/*      <flags> is a set of bits controlling certain tape drive options */
/*      The bit values, which may be added together are: */
/* */
/*          1   asynchronous mode, 0 = synchronous mode */
/*          2   use on-board buffer, 0 = don't use on-board buffer */
/*          4   Introduce 2 ms delay before each read/write. This may */
/*              help prevent bus lockup in async mode. */
/*          8   Introduce 4 ms delay (additive). */
/* */
/*      Example: to enable async mode and the on-board buffer, the */
/*      <flags> value would be 3 (1 + 2). */
/* */
/*      Other flag bits will be provided as new features are added. */
```

```
/* Default version of MRTape handler. */
```

```
Handler = l:mrtape-handler
StartUp = "60/scsi.device/4/0/3"
Stacksize = 6000
Priority = 5
GlobVec = -1
#
```

You may need to change the "Startup" line. The expression to the right of the equal sign (=) has the following format:

```
"<buffer_size>/<device_driver>/<device_number>/<luno>/<flags>"
```

The beginning and ending double quotes are required if you are using the standard AmigaDOS Mount command.

The <buffer_size> parameter is specified in multiples of K (K=1024). The example value of 128, above, provides double-buffering for the WangTek model 5XXX-ES tape drives, which have an internal 64K buffer.

The <device_driver> parameter specifies the device driver to be used to talk to the device. Use "scsi.device" with the CBM A2091 SCSI controller. Consult your owner's manual if you are using a non-Commodore SCSI controller. Also, note that this field is case-sensitive. If your device driver's name has upper case or mixed-case letters in its name, be sure you specify this field exactly as the driver is named.

The <device_number> parameter specifies the SCSI device number, usually established by jumpers or DIP switches or jumpers on your tape drive.

The <luno> (logical unit number) field is not currently supported and must be zero.

The <flags> parameter is a specially encoded value which selects certain features of the tape drive. Each bit position in the <flags> parameter has a unique value (1, 2, 4, etc.). Various feature selections can be made by adding these values together. The current feature values are:

- * 1 - asynchronous mode
- * 2 - use on-board hardware buffering

Thus, to select both asynchronous mode and on-board buffering, you would add these values together for a <flags> value of 3.

Once the above steps have been performed, you must mount the MRTAPE: device. This is done with the following command:

```
MOUNT MRTAPE:
```

You may then specify MRTAPE: as your Backup Path.

Special Features of MRTape-Handler

The tape handler provided with MRBackup, MRTape-Handler is designed to work with a wide array of tape devices from many different vendors. Though you may not redistribute this handler, you are welcome to use it with other Amiga applications. When used with MRBackup, MRTape-Handler can communicate certain information to MRBackup which will allow dynamic tuning of the buffers used to transfer data between the two processes.

Asynchronous vs. Synchronous Mode

Multiple Savesets on One Tape

Using MRBackup with Other Handlers

1.123 MRBackup.guide/Asynchronous vs. Synchronous Mode

Asynchronous vs. Synchronous Mode

=====

MRTape-Handler supports both synchronous and asynchronous tape access.

In synchronous mode, the program requesting a tape operation must wait until that operation completes before it can continue. In asynchronous mode, MRTape-Handler will attempt to complete the operation "on its own time", in parallel with the requesting program's activity. Thus, asynchronous mode generally yields better performance. However, we do not live in a perfect world. Certain combinations of tape drive and SCSI controller can lock up (hang) the Amiga when run in asynchronous mode. I have yet to see a definitive solution to the problem though many hardware "hacks" have been offered. Synchronous mode seems to fare better in these situations.

1.124 MRBackup.guide/Multiple Savesets on One Tape

Multiple Savesets on One Tape

=====

MRTape-Handler has the ability to "stack" multiple savesets on a single tape cartridge. This is achieved by a slight modification to the device naming conventions used by the MRTape-Handler. Normally, when you specify the tape device name as "MRTape:", the tape is rewound prior to the start of the backup and any information previously written to the tape is overwritten. To append a new saveset to the end of a tape cartridge which already contains one or more savesets, simply append an "A" to the tape device name (e.g. "MRTape:A"). Prior to writing the new saveset, the tape is positioned past the end of the last saveset on the tape.

To restore from a saveset which is not the first saveset on the tape, you must append the saveset number to the tape device name. Saveset numbers begin with zero. Therefore, to retrieve the third saveset, you must append a "2" to the tape device name. Example: "MRTape:2". The only "trick" to all of this is to remember the order of your savesets. MRBackup currently doesn't provide any means to record this information. Thus, you should keep this information in a notebook or in a text file on your system. Should you forget, however, this information is very easily retrieved with MRBackup's Scan Tape command. You should also be aware that this capability only exists for

"sequential access" tape drives such as the Archive, Tandberg, WangTek, Sony, etc. This is because MRBackup depends upon tape marks to separate its save sets. Drives which employ "direct access", such as the 3M drive, will not support this feature.

See the file named MRBackup:Docs/MRTape.DOC for the most recent list of MRTape-Handler capabilities.

1.125 MRBackup.guide/Using MRBackup with Other Handlers

Using MRBackup with Other Handlers

=====

The decision to use a tape handler, rather than embedding tape-specific code in MRBackup was an important one. Though there may be a minor penalty in performance, the net result is that MRBackup is adaptable to other third-party handlers (public domain, shareware or commercial) which may be developed for specific devices suitable for backups. If the tape handler supplied with MRBackup Professional doesn't appear to be performing optimally with your particular device, don't hesitate to try another handler which you suspect might work better. Of course, I would be very grateful for any information you pass on with regard to any problems you might encounter. I am constantly striving to improve the quality of MRBackup Professional.

1.126 MRBackup.guide/Tips

Tips

This section contains bits of information which will help you achieve maximum satisfaction and performance from MRBackup Professional. If you have a useful tip, please submit it and we'll incorporate it here.

Improving Throughput

1.127 MRBackup.guide/Improving Throughput

One important factor in the performance of the AmigaDOS filesystems is the number of disk buffers allocated to each partition. For hard disk drives, this value can be set when you partition the drive. The value can also be modified for any drive with the AmigaDOS 'AddBuffers' command. There is no set value that works well for all drives, but I

recommend that you use a value of at least 30 buffers. Bear in mind that using too many buffers can waste memory and perhaps even slow down filesystem performance.

The number of buffers assigned to a floppy disk drive has no effect on Fast Disk performance but will have an impact on AmigaDOS backups to floppy disks.

The 'Buffer' parameter in the General Parameters window now has a minimal effect on overall performance since most buffers used by MRBackup are automatically tuned to the best match between input and output devices.

If you are backing up to SCSI tape, the buffer size that you specify in the mountlist entry is very important. Most tape hardware has internal buffer memory. Data is held in this buffer until it fills, then is written to tape. If you specify a mountlist entry buffer size exactly matched to the capacity of the tape drive's internal buffer, you will achieve maximum parallel execution of the tape handler and MRBackup and thus maximum throughput. This is a case where more isn't necessarily better.

1.128 MRBackup.guide/Technical Support

Technical Support

If you have a problem with MRBackup, think you've discovered an "undocumented feature" or just need help, please call! I'll do my best to help you get the most out of MRBackup Professional. If you don't have telecommunications software or a modem, you can write to

MRsoftware
348 Indian Avenue
Portsmouth, RI 02871

(401) 846-7639

MRsoftware maintains an email account on BIX (markr) and a vendor support forum, amiga.vendors/mrsoftware

Users on either Usenet or Internet can send e-mail to mrr@mrsoft.network23.com.

MRsoftware has a customer support BBS where product updates and user support are provided. The BBS phone number is (401) 841-5844. The BBS is supported by a SupraFAXModem and will answer at 1200, 2400 or 9600 baud (8N1). The BBS software is AXsh which is a bit different than the typical BBS system (it's user interface is very much like the Unix operating system). Presently, two Login prompts must be satisfied to gain access to the BBS (this will probably change in the near future).

At the first Login prompt, always enter 'bbs' (without the quotes).

At the second Login prompt, do one of the following:

- * First-time callers must enter 'new' to register as a new BBS user, then follow instructions as they appear.
- * On subsequent calls, enter your BBS user name and password, as you chose them during your initial registration.

Do not forget your password! If you lose it, the only way you will be able to regain access to the BBS is to request a new one (it's encrypted, so even I don't know what it is.).

A special 'guest' account (password = guest) is also provided on the BBS. This account can be used to test-drive the BBS or to make special requests such as assigning a new password :-).

The latest shareware distribution archive of MRBackup Professional will always be available on the BBS in the public download directory. Other MRsoftware shareware and PD offerings are also available here.

Limited voice support is available by calling (401) 846-7639 on weekdays from 6:00 p.m. to 9:00 p.m. (EST). PLEASE DO NOT CALL AFTER 9:00 p.m.!!! Voice support is also available on weekends from 9:00 a.m. to 6:00 p.m. if you're lucky enough to catch me. In addition to MRBackup Professional development, I also have a 'life' which keeps me on the run.

1.129 MRBackup.guide/About the Author

About the Author

Full Name: Mark Richard Rinfret
Born: Exeter, NH 12/27/49
Hair Color: Brown
Eyes: Two! (Hazel)
Height: 6' 0"
Weight: Sufficient to withstand high winds or,
"Where did my shoes go?"
Marital Status: TRUE

Professional Status

I'm currently employed as a senior systems analyst with Stanley Bostitch (manufacturer of office products, construction tools and materials, etc.). I have over 19 years of software design/development and systems administration experience on a wide variety of military and commercial computer platforms and operating systems, including:

Amiga
AN/UYK-7, AN/UYK-44, AN/UYK-20
DEC/5000 (Ultrix)
DEC VAX, PDP-15, PDP-8
IBM RS/6000 (AIX)
Texas Instruments micros and minis

Macintosh
PC (DOS, Windows, OS/2)
Sun workstations
Silicon Graphics workstations

My computer language experience includes:

C, C++, Ada, Pascal, Rexx, CMS-2, SPL-I, FORTRAN, BASIC, FORTH,
and various assembly languages

I've also had much experience with the Oracle database manager (V6,
VAX) and SQL at both the scripting and API levels.

Amiga!

I bought my first Amiga in 1987. I currently own an A2500/030 and an
A2000 (my son's machine, also used for testing). For the curious, my
system configuration includes:

A2500/030, 5MB RAM
A2091 SCSI Controller
Quantum LPS-240S (internal)
Quantum P105S (external)
Sony SMO-E501 5 1/4" magneto-optical drive (281 MB per side, removable)
Tandberg 3600 series 150MB tape drive
SupraFAX modem
Panasonic KXP-4455 laser printer

My system is a registered Usenet node (mrsoft@network23.com) and I am on
BIX frequently as "markr".

Other Details

I'm married to Penny (a.k.a. Clotilde), my wife of 19 years (no -
that's not her age, that's how long we've been married!) and I'm a
happy (young!) grandfather of five little thumpers, an active member of
my church (former parish council chairman, former school board vice
chairman) and currently the Grand Knight of the Middletown, RI Knights
of Columbus, Council #4201. I love music and can play the saxophone
(fairly well), the guitar (so-so) and can stumble around a keyboard. I
have a somewhat offbeat sense of humor and love a good chuckle, even at
my own expense (good thing, since there's apparently an ample supply of
material :-).

1.130 MRBackup.guide/Concept Index

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