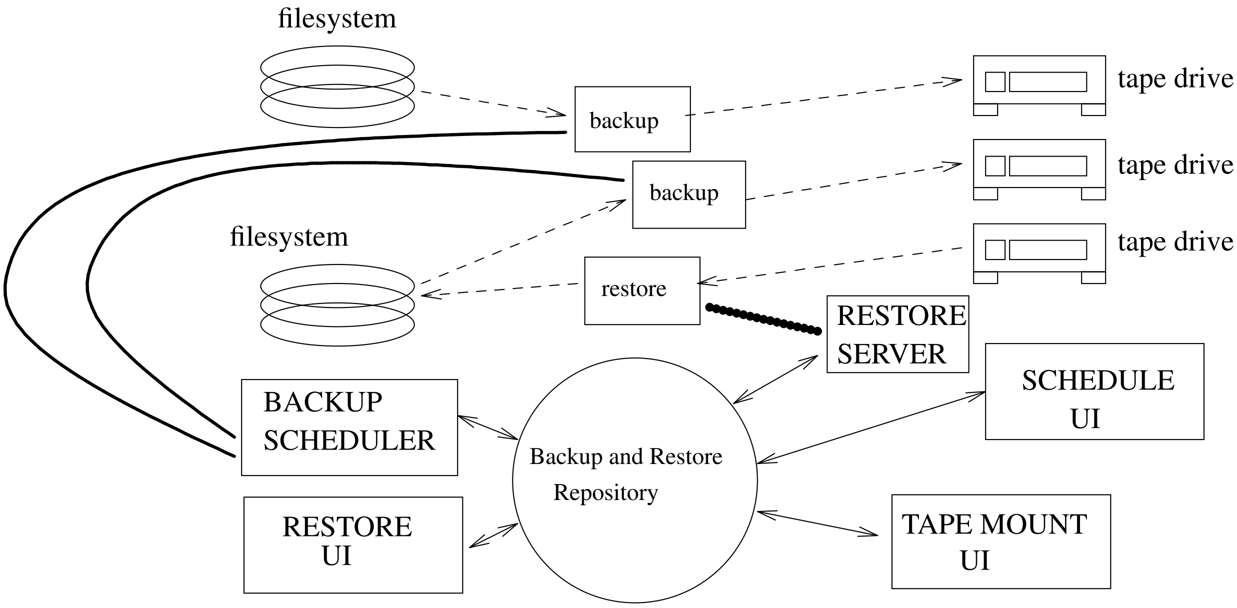
UNISOL® BART™

1. UNISOL® BART™ Overview

UNISOL BART™ makes backups effortless by allowing the easy scheduling of filesystem backups for your entire network, keeping track of your backup tapes, and by allowing users to schedule file restores using the on-line tape database. This cuts down on idle time, as users wait for their data to be replaced, as well as improving the efficiency of restoring data in the event of a loss.

An automated backup system is the best way to ensure reliable data protection. With BART, you can guarantee the integrity of data once it is distributed throughout your organization.

The following flow graph shows the interaction among the major BART subsystems, the flow of data between the BART processes and the interaction between the BART subsystems and the tape and disk devices:



2. Product Features

2.1 Automated and Interactive Backups.

BART's point and click interface allows the creation of a continuing backup schedule, by selecting the filesystems to be backed up and the desired backup level for each day in the backup cycle. The backup method is independent of the scheduler, allowing the use of vendor specific backup applications. Default backup methods include cpio and dump backups. All backup methods allow for compression and encryption of the backup files. Support of SCSI-II standard jukeboxes (such as the Exabyte EXB-210) allows for increased flexibility and a hands-off backup and restore operation.

2.2 Schedule

The schedule can be setup once and will continue to operate until the administrator makes a change (without having to reset it the next year). The schedule allows the user to set up when, where, how, and at what level the different filesystems will be backed up, while individual files and directories can be excluded using regular expressions. Staggered backups can maximize the amount of data backed up to each tape.

2.3 Archive

BART can perform an immediate online archive as well as a scheduled archive that moves files with old access times to more economical media (e.g. tape) for long term storage. Users can mark their own files for archival.

2.4 Restore

Files to be restored are selected from the On-line Catalog that displays all versions of a particular file and allows the selection of files for restoration. The selected files are placed in a staging area specified by the user (or by the administrator) or in their original location. When files are selected for restoration the system automatically locates the tape and if online it will restore the selected files. Otherwise, the operator is paged to view the database of requests and initiate the restore after mounting the appropriate tapes. Finally, a notification is sent to the user via e-mail with the status of completion of their restore request.

2.5 Tape Library Management

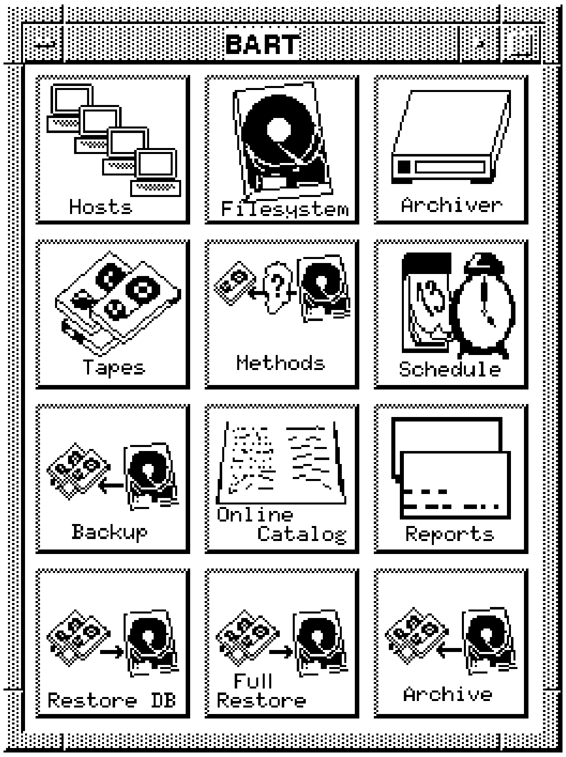
The tape library database tracks tapes and their contents, tape scheduling and expiration information, and enforces tape labels and tape expiration dates. The status (and output) of each scheduled backup is also kept for up to date reports or for later viewing by the administrator. The online database eliminates the need to search through tapes by loading and reading when the need to restore file arises saving both time and effort.

3. UNISOL BART User Interface

UNISOL BART provides a point-and-click user-interface using OSF/Motif for the effortless configuration and maintenance of the supported filesystems and tape devices.

3.1 Application Toolbar

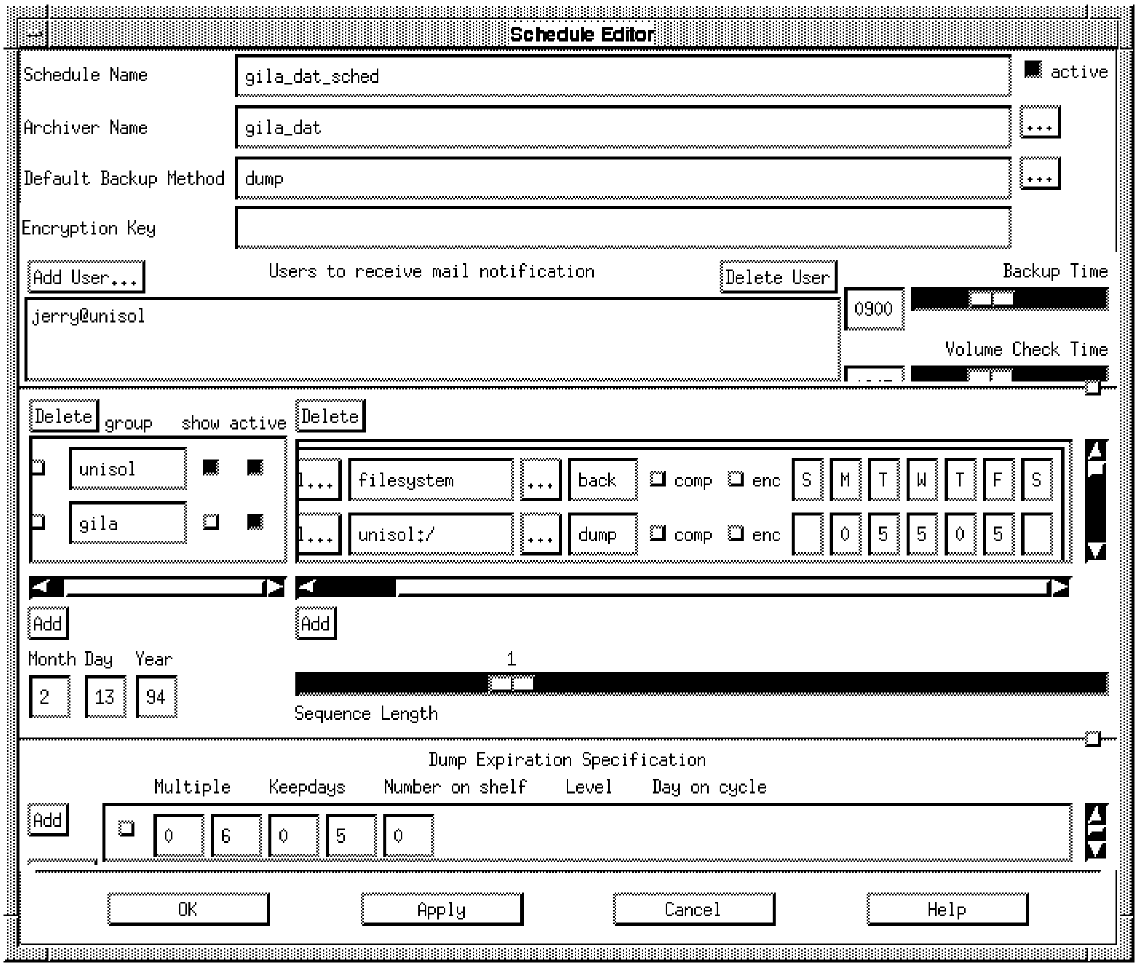
The following Motif screen shows the main application toolbar which depicts an icon for each of the main subsystems of the application:



Clicking the left mouse button on an icon selects the pointed subsystem and starts up an application window for the selected subsystem.

3.2 Scheduling Backups

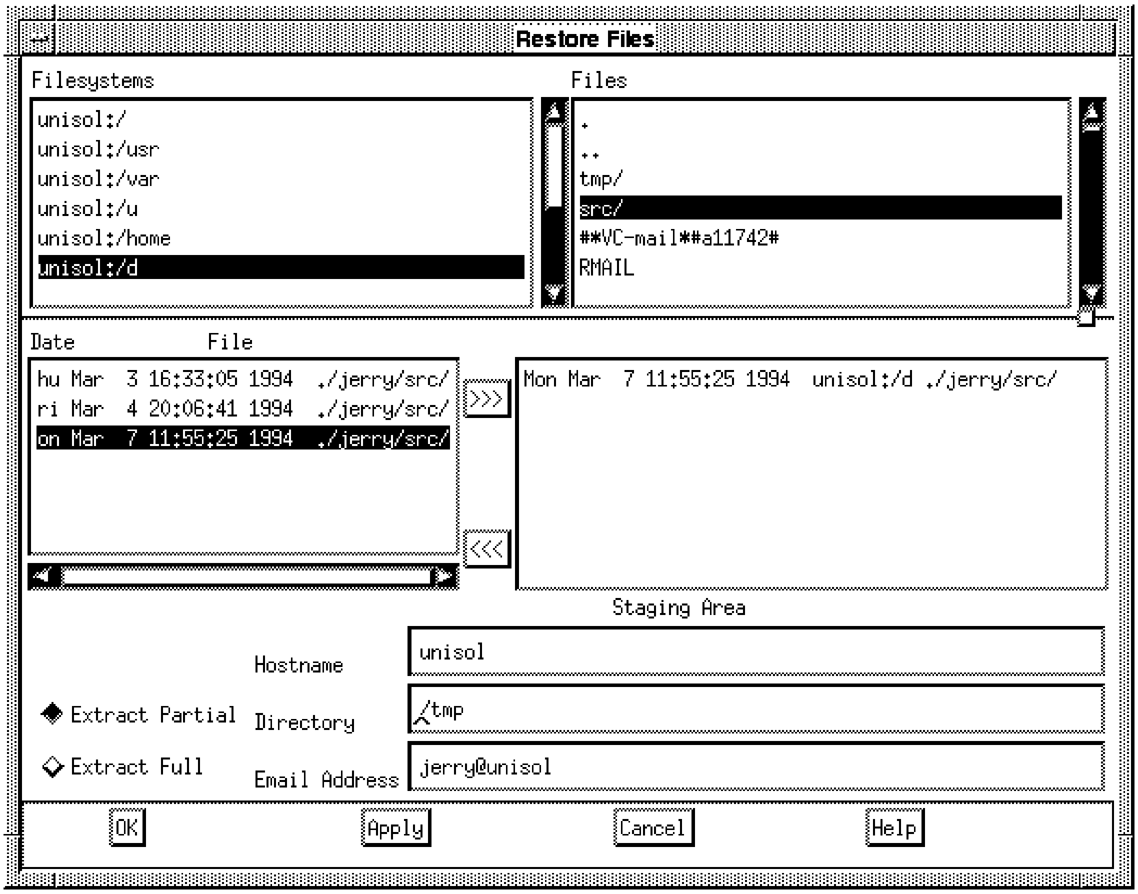
The application window for a particular schedule may look as follows:



The above schedule specifies a one-week backup cycle for systems *unisol* and *gila* with backups written in the *dump* format to archiver *gila_dat*. The schedule specifies that level 0 backups take place on Monday and Thursday, while level 5 backups take place on Tuesday, Wednesday and Friday. The schedule is currently *active* and is repeated every week. Mail will be sent with the backup status to user *jerry@unisol*. The number of days to keep this backup before the tape is expired is also specified for each level (e.g. keep level 5 dumps for 6 days).

3.3 File Restores

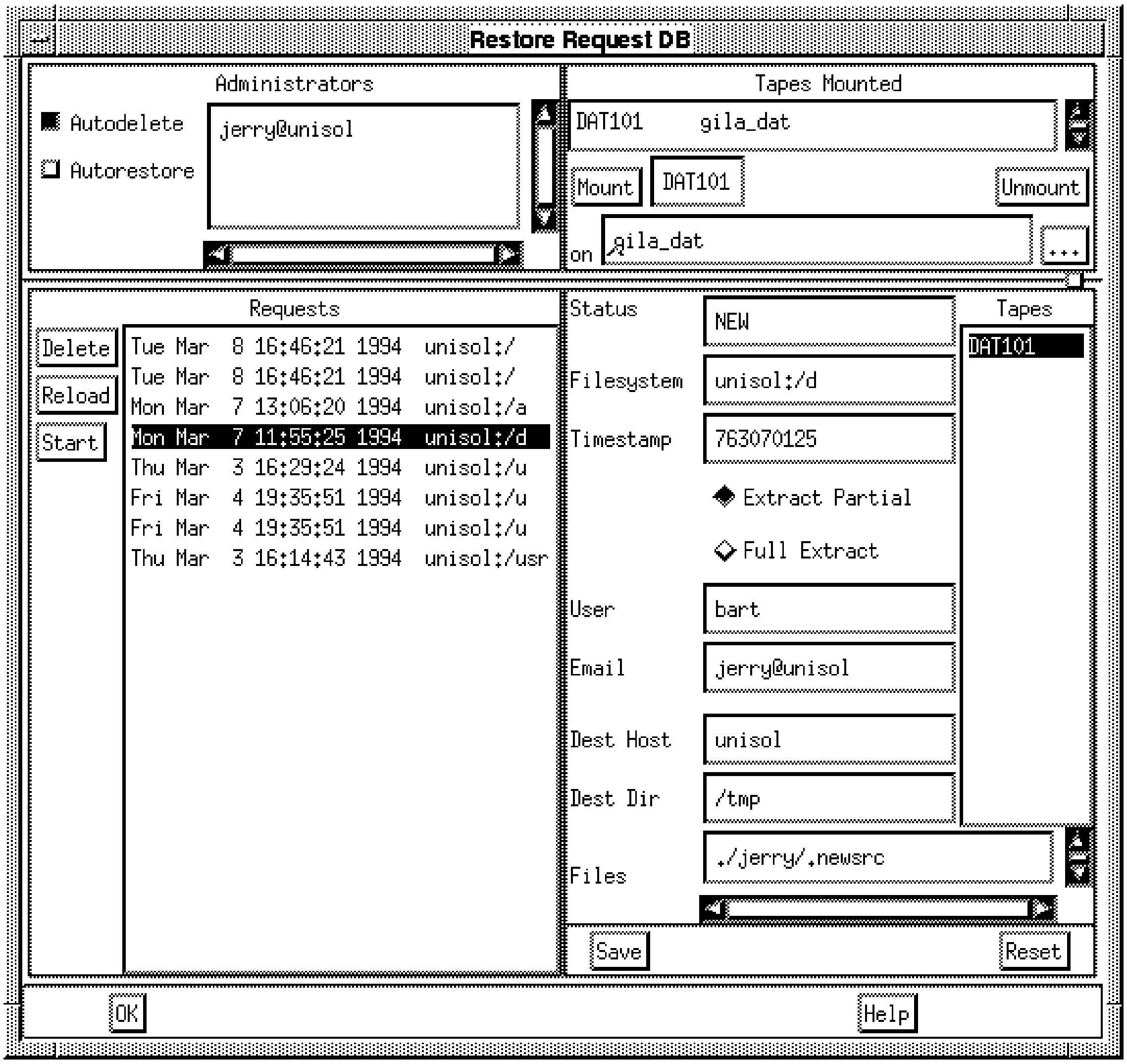
Users can easily request files to be restored by querying the on-line database and queueing the restore request for automatic file restoration or for approval by the system administrator. The user selects the files to restore with the screen:



This screen display the contents of the online backup database. Users can select one of the available filesystems to examine from the list in the upper left pane. After selecting a filesystem (unisol:/d in the above example) the filesystem structure is displayed in the upper right hand pane. The filesystem can be traversed by double clicking on directories to examine. When the file to restore is found, selecting it will produce a list of all versions of that file that exist on tapes in the tape library in the lower left pane. Selecting a file from this list and placing it in the lower right pane with the '>>>' button, the user can create a set of files to restore. Finally the destination of the restored files can be defined in the host and directory staging area fields. When the user selects OK or Apply the list is sent for processing by the administrator. After the files have been restored mail is sent to alert the user.

3.4 Manage Restore Requests

The administrator can allow the automatic restoration of user restore requests or he can prioritize, modify and approve the restore requests prior to the restoration of user files. The administrator's interface is depicted in the following screen:



Using this screen the administrator can prioritize and/or group together restore requests by mounting the appropriate tapes and selecting the requests for immediate execution.

The system administrator can also perform full filesystem restores as needed (usually to restore the state of a filesystem after a catastrophic disk crash).

4. Summary

Data Integrity and Security is one of the most important features that a system must maintain, however, it is the most overlooked System Administration function. The reasons being that a lot of companies don't recognize the need for comprehensive data backup and recovery systems and, for already overloaded System Administrators, manual backups are tedious, time consuming tasks. Hardware can be replaced, but lost data is gone forever.

With BART, information managers now have a reliable, automated backup process that is designed to minimize recovery time from data loss, backup data in the limited time window available, in a cost efficient manner. Companies can now consolidate multiple sources of data, avoiding the expense and headaches of buying individual backup software for each processor.