

**CENTER FOR NUCLEAR WASTE
REGULATORY ANALYSES**

ADMINISTRATIVE PROCEDURE

Proc. AP-018

Revision 1 Change 0

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ELECTRONIC FILE ARCHIVAL AND BACKUP PROCEDURES

EFFECTIVITY AND APPROVAL

Revision 1 of this procedure became effective on July 6, 2004. This procedure consists of the pages and changes listed below.

<u>Page No.</u>	<u>Change</u>	<u>Date Effective</u>
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Approvals

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AP-018 ELECTRONIC FILE ARCHIVAL AND BACKUP PROCEDURES

1. PURPOSE

The purposes of this procedure are to define backup, archive, and disaster recovery methods and processes and to delineate responsibilities for copying, storing, and retrieving data in the disk drives of CNWRA servers and clients.

2. DEFINITIONS

Administration Tool—A system administration utility with a graphical interface that enables administrators to maintain system database files, printers, serial ports, user accounts, and hosts.

Archive—The storage of backup or duplicate information outside the original device that was used to generate the information.

Backup—The process of copying electronic file system data to alternative media from the hard disk drive on which the data originally resided, (e.g., tape, CD-ROM, Zip disk) and the media that result from that process.

Client—A desktop unit that is dependent on a server for some of its processes (e.g., security).

Disaster Recovery—The recovery of data in case of a catastrophic event at the local site (e.g., fire, flood, malicious destruction of original files) using an archive that is safe from the disaster and its effects.

Disk Mirroring—A feature to guard against component failure by writing the same data to two or more disk drives at the same time.

Full backup—The backup of all selected data on a local area network (LAN).

Incremental Backup—The backup of data created or modified since the previous backup was performed. Incremental backups are performed more frequently than full backups.

LAN—The portions of a network that servers and processes have direct control over.

Multi-Volume Backup—A backup where the data to be copied require more than one tape cartridge or diskette.

Restore—The copying of files and directories from backup to hard disk for review or recovery.

Server—A host that communicates to a client. Commonly, server refers to a host that provides network processing and storage resources to one or more clients. These resources may include logon security, shared storage devices, e-mail, network printer control, and other

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functions that are performed more efficiently when centrally controlled. A server is connected to the clients it serves through a LAN.

3. RESPONSIBILITIES

3.1 Technical and Support Staff

Staff members shall familiarize themselves with the manufacturer's operating instructions for the appropriate media storage device prior to use. While it is not mandatory that staff members backup any other data on their desktop systems, it is a good practice to backup critical data. (See Section 4.1)

3.2 Windows Administrator

The Windows Administrator is responsible for ensuring an adequate supply of tapes to meet the backup requirements stated in Section 4.2.1. The Windows Administrator shall verify via the Administration Tool that the backups were performed successfully and change out the tapes at the appropriate time. The Windows Administrator is responsible for restoring data from the automated Windows backup system. The Windows Administrator will install any software updates or patches that pertain to the Windows servers.

3.3 UNIX Administrator

The UNIX Administrator is responsible for ensuring of an adequate supply of tape cartridges to meet the backup requirements stated in Section 4.2.2. The UNIX administrator will verify via the Administration Tool that the backups were performed successfully and change the tapes at the appropriate time. The UNIX Administration is responsible for restoring data from the automated UNIX backup system. The UNIX Administrator will install any software updates or patches that pertain to the UNIX backup server.

3.4 Information Management Systems Project Manager

The Information Management Systems (IMS) Project Manager will verify that the Windows and UNIX administrators perform their tasks correctly. The IMS Project Manager will provide staff support in the absence of either of the administrators and will contact vendors for hardware support, if required.

4. PROCEDURES

4.1 Desktop Backup

CNWRA staff members have multiple methods of data backup available at their desktop or through the support staff. Automated backup of hard drives ("D" and above) is accomplished in

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accordance with Section 4.2. Data must be on one of these drives to be part of the automated backup. Data stored on the "C" drive will not be part of the automated backup and are the responsibility of the individual staff members. Blank storage media are provided to support staff members by the IMS staff.

Technical and support staff desktop Windows personal computers have been equipped with read/writeable devices to allow individuals to create backups of critical data and computer records. These backups will be maintained by the individual users.

Sun Microsystems and Silicon Graphics UNIX based units have a tape drive (4mm or 8mm). These drives can be used to back up specific data. These backups will be maintained by the individual users.

4.2 Automated Network Backup

The CNWRA IMS group is responsible for automated network backup and archiving as defined in Section 3.

4.2.1 Backup of Windows Systems

Full backup of the Windows systems will be accomplished with a read/writeable device connected to the LAN. Full backups will be accomplished automatically once a month after normal business hours. Incremental backups will occur each evening of the normal work week.

The Windows Administrator switches full backup archives once a month. The most recent full backup is placed in the fireproof safe to become the local archive. The existing full backup archive in the fireproof safe is then transferred for disaster recovery purposes to the vault in Southwest Research Institute® (SwRI®) Building 139, the off-site storage facility. The full backup archive already at SwRI Building 139 is rotated back to the CNWRA for reuse when this monthly switch occurs.

Instructions for use of the backup/restore software are on the manufacturer's CD or in user manuals that are kept in the IMS Lab.

4.2.2 Backup of UNIX portion of CNWRA LAN

Full backups of UNIX systems will be accomplished automatically once a month after normal working hours. Incremental backups will occur each evening of the week. This system backs up all UNIX equipment.

The UNIX Administrator switches full backup archives once a month. The full backup archive is subsequently labeled and stored in the fireproof safe in the IMS Laboratory. The label includes the dates corresponding to the backup from the UNIX system. The existing full backup archive

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that is in the fireproof safe is then transferred for disaster recovery purposes to the vault in SwRI Building 139, the off-site storage facility. The full backup archive already at Southwest Research Institute Building 139 is then rotated back to the CNWRA for reuse.

The disk mirroring capabilities of the UNIX applications server provide a redundant file system to mitigate a hard disk failure in the primary UNIX applications server.

Specific instructions on using the backup/restore administration program are available in online help or the manufacturer's manuals.

4.3 ARCHIVE AVAILABILITY

At all times, one month's worth of daily incremental backups and the previous month's full backup will be available.

5. COMMERCIAL APPLICATIONS SOFTWARE

Commercial applications software is loaded on Drive "C:" and will not be backed up. However, original copies are kept in a fireproof safe for disaster recovery.

6. DATA RETRIEVAL

Incremental backup will be used to recover any file or set of files lost. Files can be recovered for three months. The backup tapes are reused after that. Full backup will be used to recover from a major disaster in which all data is lost.

7. Records

This procedure does not generate any QA records.