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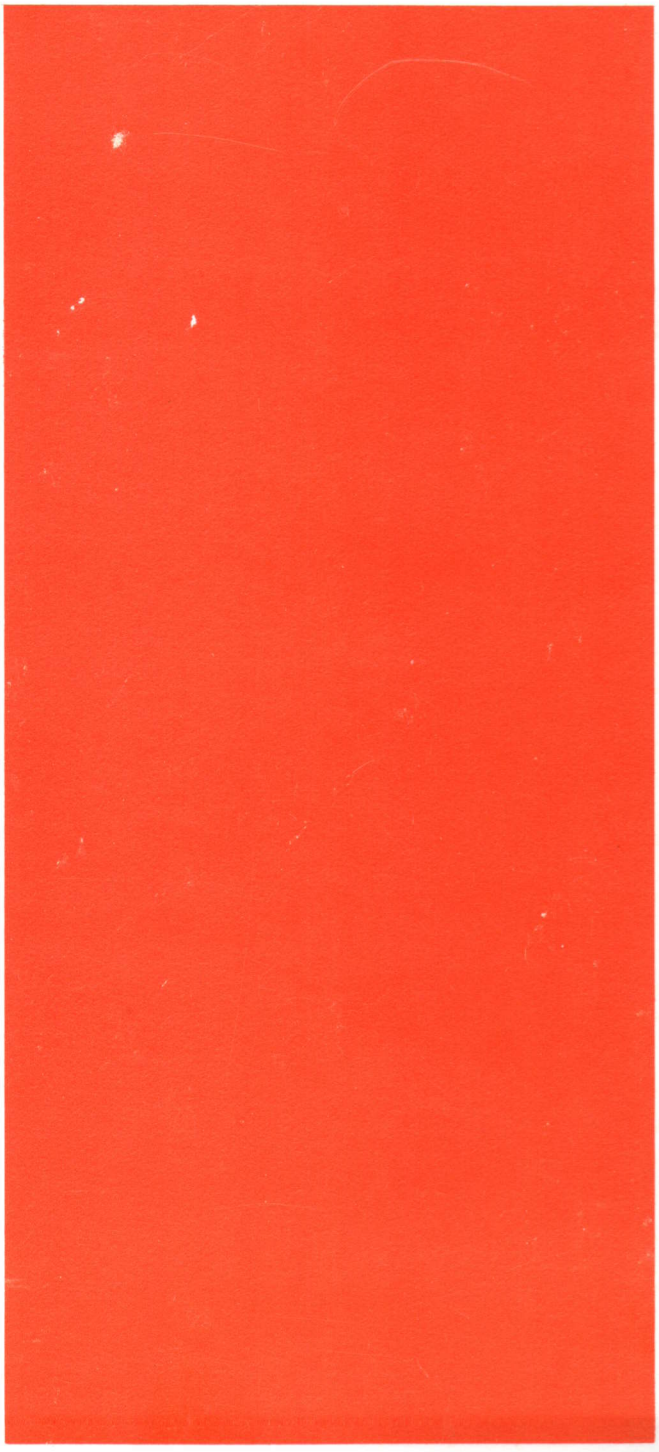
MULTICS ADMINISTRATORS' MANUAL-REGISTRATION AND ACCOUNTING ADMINISTRATOR

SERIES 60 (LEVEL68)

SOFTWARE



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MULTICS ADMINISTRATORS' MANUAL — REGISTRATION AND ACCOUNTING ADMINISTRATOR ADDENDUM D

SUBJECT

Additions and Changes to the Manual

SPECIAL INSTRUCTIONS

This is the fourth addendum to AS68, Revision 0, dated November 1976.

This manual is one of five manuals that constitute the *Multics Administrators' Manual* (MAM).

Project	Order No. AK51
Registration and Accounting	Order No. AS68
System	Order No. AK50
Resource Control	Order No. CC74
Communications	Order No. CC75

Insert the attached pages into the manual according to the collating instructions on the back of this cover. Throughout the manual, change bars in the margins indicate technical additions and changes; asterisks denote deletions.

Note:

Insert this cover after the manual cover to indicate the updating of the document with Addendum D.

SOFTWARE SUPPORTED

Multics Software Release 10.0

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COLLATING INSTRUCTIONS

To update the manual, remove old pages and insert new pages as follows:

Remove	Insert
iii through v, blank	iii through v, blank
1-3, 1-4 1-4.1, blank 1-5, blank	1-3 through 1-5, blank
6-11, 6-12 6-12.1, 6-12.2	6-11, 6-12 6-12.1, 6-12.2
6-17, 6-18	6-17, 6-18
6-41, 6-42	6-41, 6-42
i-1, blank	i-1, blank

File No.: 1L13, 1U13

7/82

AS68D

SERIES 60 (LEVEL 68)

MULTICS ADMINISTRATORS' MANUAL — REGISTRATION AND ACCOUNTING ADMINISTRATOR

SUBJECT

Description of Commands and Procedures to Be Used by Registration and Accounting Administrators on the Multics System

SPECIAL INSTRUCTIONS

This manual is one of three manuals that constitute the *Multics Administrators' Manual* (MAM).

Project Administrator	(Order No. AK51)
Registration and Accounting Administrator	(Order No. AS68)
System Administrator	(Order No. AK50)

SOFTWARE SUPPORTED

Multics Software Release 4.0

ORDER NUMBER

AS68, Rev. 0

November 1976

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PREFACE

Multics system administration software controls the use of system resources and keeps records about how they are used. It supports rationing of resources, provides system security services, and produces usage reports and bills as required.

The administrative and resource control functions of the Multics system comprise a sizeable subsystem. They are designed to be expanded or optionally bypassed and to allow flexibility for each Multics site.

There are four kinds of administrators who manage Multics system administration facilities: the project administrator, the registration and accounting administrator (referred to as the accounting administrator), the system security administrator, and the system administrator. The only administrator which a site must have is a system administrator.

The reference manuals for Multics administrators are collectively referred to as the Multics Administrators' Manual (MAM). Throughout this document, references to the MAM are as follows:

Document	Referenced In Text As
Project (Order No. AK51)	MAM Project
Registration and Accounting (Order No. AS68)	MAM Accounting
System (Order No. AK50)	MAM System
Resource Control (Order No. CC74)	MAM RCP
Communications (Order No. CC75)	MAM Communications

The MAM Project is a guide to the operation of programs in the project-administration area. The information in this manual is of interest not only to project administrators but also to accounting administrators (who may function as project administrators) and to system administrators (who may function in any administrative capacity).

File No.: 1L13

8/81

AS68C

The MAM Accounting is a guide to the operation of Multics billing and accounting programs. It is necessary that both the accounting and system administrators know how to perform the Multics billing operations.

The MAM System is a guide to the overall administration of the Multics system. This manual discusses the contents of administrative directories and data bases and special user identities (such as the daemons), describes installation parameters and system logs, explains the various tasks that are the responsibility of the system administrator, and includes the commands needed to carry out these responsibilities. Also, the functions of the system security administrator are explained in the MAM System.

The MAM RCP is a guide to the management of peripheral I/O devices and storage volumes which can be mounted on some of these devices. This manual describes the registering and deregistering of such resources, controlling the access to these resources, and the pertinent administrative commands and user commands and subroutines.

The MAM Communications is a guide to the operation of the Multics Communication System. This manual includes information on terminal types, line types, and channel management.

The primary reference manuals for user and system programmers of the Multics system are collectively referred to as the Multics Programmers' Manual (MPM). These manuals contain general information and programs needed by an accounting administrator and are, therefore, referenced throughout this document. For convenience, these references are as follows:

Document	Referenced In Text As
Reference Guide (Order No. AG91)	MPM Reference Guide
Commands and Active Functions (Order No. AG92)	MPM Commands
Subroutines (Order No. AG93)	MPM Subroutines
Subsystem Writers' Guide (Order No. AK92)	MPM Subsystem Writers' Guide
Peripheral Input/Output (Order No. AX49)	MPM Peripheral I/O
Communications Input/Output (Order No. CC92)	MPM Communications I/O

Changes in AS68, Revision 0, Addendum D

Information on permissible password contents has been added to the glossary and to the change, chcpass, and chpass commands. Also, where applicable within these commands, and within the register command, the user/system dialogue has been updated.

CONTENTS

SECTION I

INTRODUCTION

SYSTEM ADMINISTRATION

The overall function of Multics system administration is to provide an operating environment, control usage within that environment, and account for the use of system resources. The system administrator, the system security administrator, the registration and accounting administrator, and the project administrator carry out the tasks necessary to system administration. The responsibilities of the registration and accounting administrator are described in detail in this manual.

The administrative and resource-control functions of Multics comprise a sizeable subsystem. This subsystem, like the rest of the operating system, can easily be modified due to its open-ended, modular design. This kind of design anticipates continued growth in terms of both technological improvements and installation requirements. It also supports many optional facilities that a particular installation can bypass if it chooses.

The registration and accounting responsibilities at Multics installations are designed so they can be delegated to a nonsophisticated user, called the registration and accounting administrator. However, at many installations, the responsibilities of this administrator are carried out by the system administrator. It is up to the system administrator at each site to determine if he wants to delegate the responsibilities of registration and accounting or carry them out himself. This manual assumes that the accounting administrator identity is being used at the site (i.e., tasks are designated as being carried out by the accounting administrator).

REGISTRATION AND ACCOUNTING ADMINISTRATOR

A registration and accounting administrator (referred to as the accounting administrator) is a registered Multics user in charge of user registration and billing operations. He logs in the same way as other users and, after he logs in, a process is created for him in the same way as for other users. An accounting administrator differs from other Multics users in that:

- An accounting administrator is restricted by a special process overseer to the use of a limited set of administrative commands not available to other users.
- An accounting administrator has access to certain segments to which other users do not.

- An accounting administrator uses special programs to manipulate the accounting data bases. In general, these programs do not make privileged calls; they are ordinary PL/I programs that manipulate data in ordinary ways. However, the data for these programs are accounting records and control segments, and other users have no access to this information.

- The system grants certain requests for an accounting administrator that it does not grant for other users. In particular, the initializer process installs system tables for this administrator, allowing him to change passwords, add new users, or make other modifications to the system tables.

The accounting administrator is a user on the SysAdmin project. He has a special process overseer:

accounts_overseer_

that provides him with a set of commands designed for accounting administration. These commands are described in this document. Although an accounting administrator has access control privileges that potentially enable him to destroy any segment in the system, he is constrained in his special command system and can perform only a certain specific set of accounting functions.

The environment provided by accounts_overseer_ is very different from that provided to other Multics users. A system administrator who sometimes logs in as an accounting administrator should be aware that the commands described in this manual do not function as described here when called from a process overseer different from accounts_overseer_. Instructions for the use of these commands by a system administrator are given in the MAM System.

The accounting administrator registers new projects and new users on the system. He may be assigned to function as a project administrator for undelegated projects. He performs the daily, weekly, and monthly accounting jobs and does the billing for the site. Project registration and administration is described in Section II, "Project Registration and Administration." New user registration is described in Section III, "User Registration." Accounting procedures are found in Section IV, "Daily Processing," and billing procedures are described in Section V, "Billing." The commands used by the accounting administrator are described in Section VI, "Administrative Commands."

GLOSSARY

accounting update
: The process of computing resource usage for each logged-in user, saving it for later use by accounting routines, and logging out any user whose usage exceeds the limit specified by the project administrator. This function is performed by the answering service at an installation-specified interval (every 15 minutes, by default).

alias
: An alternative to a Person_id or a Project_id that a user can type when logging in. It may be up to eight characters long, must begin with a lowercase letter, and must be unique at the site. The typical value for a Person_id alias is the user's initials. Not every Person_id and Project_id need an alias. Aliases are intended as a convenience for Person_ids and Project_ids with long, hard-to-type names. Since giving every Person_id an alias would double the size of the PNT hash table, the system administrator should establish some policy for the assignment of aliases.

anonymous user
A user who is not registered as an identifiable person on the Multics system. An anonymous user has an asterisk(*) value for the personid keyword statement in the PMF.

answering service
A subsystem that runs in the initializer process; responds to requests from users to be logged in and logged out; responds to requests from administrators for system table installations; executes commands typed by the operator; and performs accounting updates.

billing
The process of computing the total resource usage of each user and each project, preparing bills and other reports addressed to various administrative personnel, and then resetting the usage figures to zero. Billing is run by the accounting administrator. It is recommended that billing be run at the end of each month, on or before the last day of the month. Terminology in documentation and program output (e.g., "month-to-date charges") assumes this recommendation is followed.

crank
The absentee job that performs various accounting functions. The usage figures gathered by the accounting updates are copied, by the crank, into data bases that are used in billing. Month-to-date summaries are produced. Projects past their cutoff limits are cut off (users on these projects are no longer permitted to log in). The printing of cutoff warning messages is based on the usage figures computed daily by the crank. It is recommended that the crank be run daily near the end of operations. Terminology in documentation and program output (e.g., "daily report") assumes this recommendation is followed.

daemon
One of several system service processes that perform such tasks as process creation, backup, network control, and printing segments on the line printer.

home directory
The directory that is the working directory of a user when he first logs in to the system (also known as the initial working directory). Although the home directory for the accounting administrator is:

```
>udd>SysAdmin>Person_id
```

his normal working directory, which is set by the restricted environment in which he works, is:

```
>udd>SysAdmin>admin
```

master group table (MGT)
A table maintained by the system administrator that specifies the work classes and load control groups to which users are assigned.

password
A character string of from one through eight ASCII printing characters including backspace, but excluding space and semicolon. "HELP", "help", "quit", and "?" are interpreted uniquely by the password processor and are therefore unacceptable as password specifications for an interactive login. A password is supplied by a user and known only to him and the software that controls access to the system. When supplied with the user's Person_id at log-in time, it validates the identity of the user.

Person_id
: A unique name assigned to each user of the system. It is usually some form of the user's name (usually his surname). The name must be from one to 20 characters long, usually begins with a capital letter, and may not contain punctuation characters. A password is associated with the Person_id. The Person_id can be used to identify a person on several projects.

person name table (PNT)
: A multisegment file referenced by the system when a user attempts to log in; it contains all the valid Person_ids. Associated with each Person_id in the PNT is a login alias, default project, password, date and time of last login, and terminal identification of last login.

process
: A program or group of programs in execution: an address space and an execution point. Each logged-in user has his own process. (See "Process" in Section I of the MPM Reference Guide.)

programmer number
: An optional number (e.g., an employee number) that can be associated with a Person_id. A programmer number is used for external recordkeeping purposes. The number may be from one to eight digits long.

project
: A set of users grouped together for accounting and access control purposes.

project administrator
: A person who has the access to specify spending limits and other attributes for the users on a particular project. The project administrator maintains the project master file (PMF). If the duties of project administration are not delegated to a project administrator, they may be performed by an accounting or system administrator.

project directory
: A directory inferior to the >user_dir_dir directory that usually contains the home directories for each user on the project. It has a storage system quota that limits the total amount of storage the project may occupy.

project definition table (PDT)
: A compiled project master file (PMF).

project master file (PMF)
: An ASCII segment giving the names, attributes, and account limits of the users of a particular project. It is created and modified using any Multics editor and is compiled into a project definition table (PDT).

Project_id
: The name assigned to a project. The name must be from one to nine characters long, must begin with a capital letter or a digit, and must be unique at the site.

rate_structure
: A set of prices for various system resources. The system administrator assigns a rate structure to each project, and the project is charged according to the prices in that rate structure.

registration and accounting administrator
: A special class of system administrator who has limited access to register users and run the billing software only.

secondary storage quota
: The amount of secondary storage that a project may occupy. The project administrator may subdivide this quota among directories inferior to the project directory or he may set the quota of directories inferior to the project directory to zero and allow users to charge their usage to the project directory quota.

system administrator
: A highly privileged user who maintains system data bases, such as the system administrator table (SAT), that control when and by whom the system can be accessed. The system administrator has access to all Multics commands, has the ability to alter any operating parameter of the system, and may make emergency repairs. He is also concerned with the basic rules (and prices) for use of system resources.

system administrator table (SAT)
: A binary segment containing the projects that use the system, the privileges delegated to these projects, and the names of the project administrators.

system security administrator
: A system administrator whose primary responsibility is the integrity of the system and maintenance of the access control mechanisms.

system table installation
: The installation of a system table by the answering service at the request of a system, accounting, or project administrator. The install command sends a table installation request to the answering service. The answering service checks the contents of the new table for validity, then merges them with the contents of the current system copy of the table (if any), and finally replaces the current copy with the merged copy. (The current copy cannot simply be replaced by the new one, since the former contains information about the current state of the system not contained in the latter.) Changes implied by the contents of the new table take effect immediately.

time-record product, trp
: The amount of time that a record is in storage. The time-record product is the basis for charging for disk storage. The time-record product is also referred to as the time-page product or tpp.

user
: A person or logical entity, such as a daemon, who is registered on the Multics system and, therefore, has the ability to log in. Each user is associated with a project and is identified for access control purposes by the concatenation of his Person_id, Project_id, and tag. A person may be registered as a user on more than one project; thus one person can be two different users (since a user is identified by the combination of his Person_id, Project_id, and tag.)

user registration file (URF)
: A multisegment file containing each user's full name, mailing address, programmer number, log-in alias, and Person_id. This data base is referenced when registering a new user and when performing administrative operations such as printing mailing labels.

User_id
: A character string representing a user or group of users. It consists of three components: Person_id.Project_id.tag. A User_id is often used as an argument to a command. Depending on the specific command, sometimes all the components are not specified (for example, the tag component is often omitted). The star convention may be used, also depending on the command being invoked. (Refer to the relevant command description in the MPM Commands to see if the command in question accepts these conventions).

SECTION 2

PROJECT REGISTRATION AND ADMINISTRATION

PROJECT REGISTRATION

Project registration establishes a project as a known entity in the Multics system. It sets up the project directory, the Project_id, the essential accounting information, any special privileges or restrictions on the project, and lists at least one person as a user on the project. A project administrator (who does not have to be registered on the project) may also be appointed.

Before a project can be registered, the following information must be supplied to the accounting administrator:

1. The name and address of the principal investigator.
   The principal investigator is the person within the management structure who is responsible for the project.

2. The name and address of the project supervisor.
   The project supervisor is responsible for all aspects of the project. He is the person in direct contact with the daily activities of the project, keeping track of each user's workload and usage requirements. The project supervisor is generally a user of the system and often is the project administrator. A detailed report of the usage of each user on the project is sent to the supervisor by the monthly billing run.

3. A user list.
   The user list identifies all users who can log in on a given project. Each project must have at least one user. The user list is made up of Person_ids. The project registration command issues a warning for any Person_id on this list that is not registered. Such Person_ids remain on the user list of the project, but the users assigned these Person_ids are unable to log in until their Person_ids are registered. See Section III, "User Registration," for details.

4. The account and requisition numbers of the project, and the rate structure if other than the default.
   The account and requisition numbers serve as authorization for the project and ensure that the proper project gets billed for system usage. The rate structure determines the rates at which the project will be charged for its usage.

5. A spending limit for the project.
   A dollar limit amount is set for each project (an unlimited fund or open account can also be designated). If the project exceeds the dollar limit, no users on the project are able to log in; however, the project continues to incur disk and registration charges.

6. A termination date (if known or applicable) for the project.
   The termination date specifies a cutoff date for a project. After this date, no users on the project are able to log in; however, the project continues to incur disk and registration charges.

7. Initial quota, and project directory logical volume.
   Each project is assigned an initial storage system quota. The quota is given in records; it can be increased or decreased as necessary by the accounting administrator with permission from the system administrator. If the project directory is to be on a logical volume other than the default (the sons_volume of >udd>), the project directory must be pre-created by the system administrator (using the create_dir command with the -logical_volume argument) before the accounting administrator registers the project.

8. Billing name.
   The name and address of the person to whom bills for the project should be sent. This can be the same person as the principal investigator or it can be a financial administrator who receives bills for a number of different projects. The bill sent to this person differs from the user usage report sent to the supervisor in that the bill is a one page summary of the project's charges, while the usage report is more detailed, containing one page per user.

9. The User_id of the project administrator.
   If a project is going to be delegated to a project administrator, the accounting administrator must be given the Person_id and Project_id of the perspective project administrator and the name of the directory that will contain the project's project master file (PMF).

10. A Project_id, which must be unique at the site.

The complete sequence for adding a new project to the system is as follows:

1. Register the project using the new_proj command. (A detailed example of project registration is included in the description of the new_proj command.)

2. Register new users using the register command. (See Section III, "User Registration," for more details.)

The new_proj and register commands are described in Section VI, "Administrative Commands."

PROJECT ADMINISTRATION

If a project is not delegated to a project administrator, an accounting administrator or system administration must perform the project administrative tasks. An accounting administrator who functions as a project administrator must use the special commands provided him instead of the commands used by a delegated project administrator. These commands are described in Section VI.

To add a user to an existing undelegated project, an accounting administrator uses the upmf command. If the user is not already registered on the system, the command types a warning message. If this message is printed, the user remains on the user list of the project but is unable to log in until he is registered as a user on the system.

To delete a user from an undelegated project, the accounting administrator uses the dpmf command. This command deletes the user from the project only. The user remains registered on the system, and his address and password remain in effect.

SECTION III

USER REGISTRATION

User registration establishes a person as a known entity on the Multics system. It assigns a unique Person_id and initial password to the user. Optionally, a default Project_id and a login alias may be assigned.

Before a new user can be registered, the following information must be supplied to the accounting administrator:

1. User's full name -- Last, First, Middle (name or initial)

2. User's mailing address

3. Initial password

The following optional information may also be supplied:

4. Default Project_id

5. Desired Person_id, if different from last name

6. Programmer number (if used at the site)

7. Card Input Password

To register a new card user, the standard register command is used. To change a card user's password, the chcpass command is used (see Section 6 for a description of this command).

A new user is registered using the register command. A detailed example of user registration is included in the description of the register command in Section VI. The ison command is used to determine if a person is already registered.

By default, new users are registered with all access isolation mechanism (AIM) control parameters set at system_low. If an installation is using AIM, a system administrator (or system security administrator) can change these parameters. See "Nondiscretionary Access Control" in Section VI of the MPM Reference Guide for a discussion of AIM features and Section XII of the MAM System for information on controlling AIM parameters.

A user's registration data may be altered by use of the change command. This is a general utility editing command that is used to make many changes at the same time. To change individual items, use the chaddr, chalias, chdf_proj, chname, chpass, chcpass, and chprog commands.

SECTION IV

DAILY PROCESSING

The daily accounting and statistics reports are produced by two absentee jobs that run automatically every night and reschedule themselves to run again the next night. The first absentee job gathers information needed for disk storage accounting. The second uses this information, plus that gathered by the accounting updates performed every 15 minutes by the answering service, to compute month-to-date charges. These charges are stored in the billing data bases. It also processes statistics on system operation. Both jobs produce reports that are dprinted for the administrative personnel at the site.

DISK REPORTING JOB

The disk reporting job is controlled by the dodrp.absin segment. The job stores the current disk usage figures in the projfile segment. These figures are picked up later by the accounting job and used to charge the project for disk usage.

The disk report job is restartable, so that if the system crashes during its run, the job is automatically rerun.

DAILY ACCOUNTING JOB

The accounting job is controlled by the crank.absin segment. This job updates the data bases that are used for billing. Every day, first thing in the morning, the accounting administrator should read the output from the crank. In addition, he should log in and invoke the day command (described in Section VI) to verify that no errors occurred during the running of the crank. If everything ran correctly, the accounting administrator merely replies "yes" to the "Delete?" question and logs out. Otherwise, if something has gone wrong with the crank, the accounting administrator should contact the system administrator immediately.

The crank is not restartable. If a system or process error interrupts it, it cannot be restarted. It will refuse to run the next night unless the system administrator fixes the problem, completes the interrupted processing in his own process, and resets the abort_crank flag (see the value command in Section VI). Therefore, it is very important to contact the system administrator immediately if the crank fails.

SECTION V

BILLING

It is recommended that billing be done by the accounting administrator once a month, usually on or before the last day of the month. Information for billing is taken by the bill command from the following segments that are updated during the daily processing. These segments are found in >udd>SysAdmin>admin.

billing_footnote — This segment is optional. If present, all the text in it is printed at the bottom of each project's usage summary (on the mailing copy only). This segment can be used to announce forthcoming price changes or make other announcements to the administrators for each project. A system administrator must set up the billing_footnote segment.

disk_stat — This segment is used in the preparation of the disk usage report (see the disk_report command in Section VI). It is created by the absentee disk reporting job.

miscfile — This segment is the journal for miscellaneous charges and credits associated with a project. On both the short and long bills, all entries for a particular project are located in this segment and printed. (If the total of miscellaneous charges and credits in the projfile segment does not match the total from adding the individual entries in the miscfile segment, an error comment is printed and the total from miscfile is actually billed.) This segment is created by the charge command (described in Section VI).

PDTs — These per-project data bases are the copied PDT segments in >udd>SysAdmin>admin>safe_pdts. Each one contains the complete usage data for each user for the billing period. These segments are prepared by the daily accounting job (called the crank).

projfile — This segment is used to obtain the disk usage figures stored in it by the disk_report command. The project title and the name and address of the project supervisor are also used to create headings on the long and short bills.

reqfile — This segment contains the charges that are actually billed. Daily processing has updated the reqfile segment from the figures in the PDTs, so the two should agree. (An error comment is printed if they do not, and the reqfile values are used.) The name and address of the person in charge of the account as well as requisition numbers, amounts, and cutoff dates are also extracted from this segment.

today.use_totals — This segment is used in the preparation of the usage summary report (system_month.report).

A status report may be prepared for any project at any time by use of the proj_mtd command (described in Section VI). This command prints out a summary of the charges accumulated for the project during the current month.

The procedure for preparing a bill consists of three steps: preparation, actual running off of the output, and cleanup operations once the bill is judged correct.

PREPARATION

The preparation phase consists of checking to see that a disk usage report has been run recently. The command:

```
bill prepare
```

does most of this. The accounting administrator should also make sure that the billing_footnote segment is up-to-date and that all miscellaneous charges have been input. Contents of the miscfile can be printed by use of the pmisc command. Miscellaneous charges and credits are entered by use of the charge and credit commands (described in Section VI). Entries are deleted using the dmisc command (also described in Section VI).

RUNNING THE BILL

The actual running of the bill is initiated by typing:

```
bill run MM DD YY
```

where MM DD YY is the date on which the billing is being run -- ideally the last day of the month. If an installation requires card output from billing runs, the running of the bill is initiated by typing:

```
bill run MM DD YY arg
```

where MM DD YY are as above and arg is an argument accepted by a command called to punch cards. Provision is made for the output of billing information to be tailored to the needs of the individual site. To use this feature, the system administrator must write a program, or modify the existing card punch program, to produce the information in the format needed at the site. He must also modify the bill command (in biller.ec) to execute this program. Typing:

```
bill run MM DD YY arg
```

where MM DD YY are as above and arg is an argument accepted by the site-dependent program that produces billing output in the desired format. The accounting administrator should not supply the arg argument unless directed to do so by the system administrator.

The run processing prepares all of the reports and bills described below. It dprints one copy of the bills in the highest queue before starting on the usage summary report.

bill	This report is a listing, by account number, of the charges made to each account. One line is printed for each project, showing the charges this month and the charges to date, face amount, and requisition balance.
diskreport	This report shows each project's disk usage for the month. It also has a map of every directory in the hierarchy that has a disk quota, giving its current usage, its charge for the month, and its quota.
long_bill	This report is intended for retention and filing. It contains the same complete information as the mailing_copy report without the footnotes, distribution page, and list of current prices.
mailing_copy	This report is a complete breakdown and justification of charges for each project. For each project, the bill has from one to five sections: 1. Charge summary, by user 2. Interactive usage, by user 3. Absentee usage, by user 4. I/O daemon usage, by user 5. Other charges (tape, high-speed line, etc.), by user In addition, the charge summary shows the project's disk and miscellaneous charges, lists the current prices, and may have (as a footnote) a message to all project supervisors. A distribution page is produced before each project's bill.
miscs.print	This report is a listing of all miscellaneous charges and credits for the month.
msum	This report is the monthly summary. It has one line per requisition or purchase order and gives the same information as in the bill report.
short_bill	This report consists of just the charge summaries from the long_bill. The prices and footnotes are suppressed. An grand total page is printed. This report is intended for the use of system administrators and others who find the long_bill too bulky.
system_month.report	This report gives a summary of Multics usage for the billing period.

As soon as the accounting administrator has examined his copy of the bill and found no errors, he types:

```
bill accept arg
```

where arg can be the name of a month, a Julian date, or any name that uniquely identifies the billing run. If errors are detected in the bill, the accounting administrator should not invoke the "bill accept" command; he should contact the system administrator immediately.

The "bill accept" command does the following:

1. Dprints copies of the billing output and reports for administrators and project supervisors.

2. Copies the segments used to create the bill into the >udd>SysAdmin>admin>HF directory. The names of these segments are prefixed by the argument specified to the "bill accept" command (e.g., the reqfile segment is copied into the arg.reqfile segment.)

3. Resets the accounting data bases for the next month.

4. Resets the disk meters in the directory branches.

5. Reinitializes the monthly statistics printed out in the daily and monthly reports.

CLEANING UP

Once the bills have been mailed out, and everybody who should have a copy has one, the accounting administrator should delete the bills from the disk by typing:

```
bill delete
```

The amount of storage required by the bills varies, depending on the number of users registered on the system and the number of sessions used during the month. It may come to several thousand disk records. The accounting administrator must be sure he has enough quota before starting the billing run.

ACCESS REQUIREMENTS

The billing programs and exec_coms set the required access to all segments needed in order to run bills, but only for users registered on the SysAdmin project. It is expected that the person running bills will be logged in on this project. It is not recommended that someone on another project attempt to run bills, because this will create access problems.

SECTION VI

ADMINISTRATOR COMMANDS

This section contains descriptions of the Multics commands used by accounting administrators. These commands are designed with special error checking facilities, and most of them prompt the accounting administrator for input. They are intended to be used from within the restricted environment of an accounting administrator and they assume that the accounting administrator's working directory is:

>udd>SysAdmin>admin

Instructions for the use of these commands by a system administrator are given in the MAM System.

Each description contains the name of the command (including the abbreviated form, if any), discusses the purpose of the command, and shows the correct usage. Notes and examples are included when deemed necessary for clarity. The discussion below briefly describes the content of the various divisions of the command descriptions.

Name

The "Name" heading lists the full command name and its abbreviated form. The name is usually followed by a discussion of the purpose and function of the command and the expected results from the invocation.

Usage

This part of the command description first shows a single line that demonstrates the proper format to use when invoking the command and then explains each element in the line. The single line contains the full command name (or its abbreviated form) followed by the valid arguments. Some commands have required arguments; some commands have optional arguments. Most commands have both required and optional arguments; in general, the required arguments precede the optional arguments.

Any argument enclosed by braces ({}) is an optional argument. Any other argument is a required argument. Anything specifically identified as "-control_arg" in the usage line must be preceded by a minus sign in the actual invocation of the command. For example, the usage line:

```
commandname path {-control_arg} {xxx}
```

means that the command has one required argument and two optional arguments. Therefore, any of the following command lines are valid:

```
commandname path
commandname path -control_arg
commandname path xxx
commandname path -control_arg xxx
commandname path1 {path2 ... pathN}
```

If a command accepts more than one of a specific type of argument, an "s" is added to the argument name. For example, the usage line:

```
commandname paths {-control_args}
```

means that the user must specify at least one pathname and may specify none, one, or several control arguments.

If a command accepts multiple arguments that must be in a specific order, the usage line is as follows:

```
commandname xxx1 yyy1 ... xxxn yyyn
```

to show that although several xxx and yyy arguments can be given, they must be given in pairs.

In many cases, the control arguments take values. For simplicity, common values are indicated as follows:

STR	any character string; individual command descriptions indicate any restrictions (e.g., must be chosen from specified list; must not exceed 136 characters).
N	number; individual command descriptions indicate whether it is octal or decimal and any other restrictions (e.g., cannot be greater than 4).
DT	date-time character string in a form acceptable to the convert_date_to_binary_ subroutine described in the MPM Subroutines.
path	pathname of an entry; unless otherwise indicated, it may be either a relative or an absolute pathname.

The lines below are samples of control arguments that take values:

```
-access_name STR, -an STR
-ring N, -rg N
-date DT, -dt DT
-home_dir path, -hd path
```

Notes

Comments or clarifications that relate to the command as a whole are given under the "Notes" heading. Also, where applicable, the required access modes, default condition (invoking the command without any arguments), and any special case information are included.

Examples

The examples show different valid invocations of the command. An exclamation mark (!) is printed at the beginning of each user-typed line. This is done only to distinguish user-typed lines from system-typed lines. The results of each example command line are either shown or explained.

Other Headings

Additional headings are used in some descriptions, particularly the more lengthy ones, to introduce specific subject matter. These additional headings may appear in place of, or in addition to, the notes.

REFERENCE TO COMMANDS BY FUNCTION

The following paragraphs describe the accounting administrator's command repertoire arranged according to function and described briefly. Some of the commands appear under more than one function.

Accounting and Billing Commands

bill	prepares monthly bills
charge	enters miscellaneous charges into the miscfile
credit	enters miscellaneous credits into the miscfile
day	prints output from the crank
disk_report	calculates a disk usage report
dmisc	deletes miscellaneous credits and charges from the miscfile
pmisc	prints contents of miscfile
proj_mtd	prints month-to-date report on project's usage
setcrank	schedules absentee daily accounting job
setdisk	schedules absentee disk reporting job

Project Manipulation Commands

delegate	delegates project to a project administrator
dproj	deletes a project
edit_proj	edits all project registration data items
new_proj	adds a new project
recov	generates new PMF from binary PDT
undelegate	returns control of project to accounting administrator
who_delg	prints project administrators of project

Undelegated Project Administration Commands

add_anon	adds anonymous user to project
cu	creates user's home directory
dpmf	removes user from project
pmf	edits PMF, converts to PDT, installs
recov	generates new PMF from binary PDT
rename_proj	renames project
upmf	adds user to project

System Table Manipulation Commands

install	installs a system table
pmf	edits PMF, converts to PDT, installs
recov	generates new PMF from binary PDT

User Registration Commands

chaddr	changes user's mailing address
chalias	changes user's log-in alias
change	changes user's registration data
chdf_proj	changes user's default project
chname	changes user's mailing name
chpass	changes user's password
chprog	changes user's programmer number
ison	tells if person is registered
register	registers new users

Card Input Registration Commands

chcpass	changes user's card input password

Miscellaneous Commands

check_log	scans log segment for initializer messages
value	reads and sets values in value_seg

add_anon

Name: add_anon

The add_anon command adds an anonymous user to an undelegated project; the accounting administrator assigns this user a home directory and an initial procedure and can also assign a password if he wishes.

Usage

```
add_anon Project_id initproc homedir {password}
```

where:

1. Project_id
   is the name of the project under which the anonymous user is to be registered.

2. initproc
   is the name of the process overseer.

3. homedir
   is the pathname of the anonymous user's home directory.

4. password
   is the password assigned to the anonymous user.

Example

To add an anonymous user (who does not have a password) to the Proj5 project, type:

```
!   add_anon Proj5 process_overseer_ >udd>Proj5
    Warning: anonymous user has no password
    r 15:57 1.372 102

    From Initializer.SysDaemon.z (install)  1602.0:
    installed Proj5.pdt for SA1.SysAdmin
```

To add an anonymous user, with the 3-character password cjt, to the Proj8 project, type:

```
!   add_anon Proj8 process_overseer_ >udd>Proj8 cjt
    r 15:57 1.372 102

    From Initializer.SysDaemon.z (install)  1557.0:
    install Proj8.pdt for SA1.SysAdmin
```

bill

Name: bill

The bill command calls the biller.ec segment (in the directory >udd>SysAdmin>lib) to perform billing operations. See Section V, "Billing," for a detailed discussion of billing.

Usage

bill function {args}

where:

1. function
   is one of the following:

   prepare
   prepares the billing data bases for billing.

   run
   runs the billing programs

   accept
   prints the bills, cleans up the old billing data bases, and creates new one.

   delete
   deletes the current months bills from the storage system.

2. args
   are arguments accepted by the particular billing function.

Example

To prepare for billing, type:

```
! bill prepare
```

To run the bills, type:

```
! bill run MM DD YY
  or
! bill run MM DD YY arg
```

where MM DD YY is the date on which the billing is being run and arg is an argument accepted by a command to output billing in a site-dependent format. See Section V for details.

To accept a bill, type:

```
! bill accept arg
```

where arg is a month, a Julian date, or any name the uniquely identifies the billing run.

To clean up after the bills are printed, type:

```
! bill delete
```

card_change

Name: card_change

This command is obsolete and has been deleted from this manual. The change command is used to modify user registration data. This command is described in this section. *

card_change

This page intentionally left blank.

card_register

Name: card_register

This command is obsolete and has been deleted from this manual. The register command is used to register new users. This command is described in this section.

*

card_register

This page intentionally left blank.

chaddr

Name: chaddr

The chaddr command changes the address of one user.

Usage

chaddr Person_id {address}

where:

1. Person_id
   is the Person_id of the user whose address is to be changed.

2. address
   is the new address of the user. It must be enclosed in quotes if it contains blanks or other special characters. If this argument is omitted, the chaddr command prints the user's old address and then waits for the accounting administrator to either enter the new address (which should not be enlosed in quotes in this case) or enter a null line (to retain the old address).

Examples

To change the address for user Jones to MS 486, type:

```
!   chaddr Jones "MS 486"
    r 1557 1.372 1.258 102
```

To make the same change, but first check on the old address, type:

```
!   chaddr Jones
    MS 203
!   MS 486
    r 1557 1.372 1.258 102
```

Name: chalias

The chalias commands gives a user a login alias or changes his existing alias. The alias can be a maximum of eight characters; the first character must be a lowercase letter. Only one alias per user is allowed. An alias is particularly useful for a user with a long or complex name.

Usage

```
chalias Person_id {alias}
```

where:

1. Person_id
   is the Person_id of the user whose login alias is to be changed.

2. alias
   is the new login alias of the user. If this argument is omitted, the chalias command prints the user's old alias and waits for the accounting administrator to either enter the new one or enter a null line (to retain the old alias).

Example

To change user Jones' alias to "waj", type:

```
!    chalias Jones waj
     r 15:57 1.372 102
```

Name: change

The change command is used to review and possibly modify user registration data in the URF and PNT. Each item is typed out. The administrator can leave the item unchanged by typing a carriage return, or he can replace the item by typing new data.

Usage

change {Person_id {item}} {new_value}

where:

1. Person_id
   is the Person_id of a user whose registration data is to be changed. If it is omitted, the change command asks for it.

2. item
   is the item to be changed. If it is omitted, every item is displayed and a new value is requested. Item can only be given if Person_id is given. Item may be any one of the following keywords:

   addr
   User's mailing address

   cpass
   card input password

   name
   full name (Last First I.: title)

   notes
   any miscellaneous information

   proj
   default project

   pass
   login password

   progn
   programmer number

3. new_value
   is the new value for item. If it is omitted, the old value is displayed and a new value is requested.

Notes

1. The chaddr, chalias, chcpass, chdf_proj, chname, chpass, and chprog commands can be used to change some of the individual items in the PNT and avoid the need to type the item name or to be prompted for new values of all items.

2. The item argument can be: name, addr, progn, notes, proj, pass, or cpass to change individual items, as described below.

3. The user's last name can be a maximum of 32 characters. The field for the user's first name and middle initial can be a maximum of 24 characters. The user's name should be given last name first, then a comma, the first name, a space, and then middle initial followed by a period. Names of the form "Smith, J. Alfred" are also allowed. If the user has a title (e.g., Prof., Capt., Dr.), the title (maximum of 8 characters) should follow the name and be separated from the name by a colon, for example:

   Smith,John J.:Prof.

4. The address field can be a maximum of 32 characters; slashes can be used to separate lines of an address.

5. The programmer number and default project ID can be a maximum of 32 and 9 characters, respectively.

6. Notes can be a maximum of 32 characters. This field can hold miscellaneous information such as phone number, additional address information, position within the organization, etc.

7. The password and card input password can be from one through eight ASCII printing characters, including backspace, but excluding space and semicolon. "HELP", "help", "quit", and "?" are interpreted uniquely by the password processor and are therefore unacceptable as password specifications for an interactive login. A response of either a blank line or an asterisk ("*") will leave the password unchanged.

8. The accounting administrator can type "stop" at any time to abort all the changes he has made for a particular user and start over.

Examples

In the following example, address and default project are to be changed for user Smith. An exclamation point precedes entries typed by the administrator; an exclamation point followed by nothing indicates a carriage return.

```
!   change Smith
    Full name:                  *Smith, John
    Full name                   !
    Address:                    MS 149
    Address                   ! MS 204
    Prog. number:               1234
    Prog. number                !
    Notes:                      Tel.  324-9261
    Notes                       !
    Project ID:                 Quark
    Project ID                ! Physics
    Password:                   !
    Card Input Password:        !

    r 10.07 1.486 34
```

The following example shows how the administrator would change a single item, in this case, the telephone number maintained in the notes item for user Smith. If "notes" were omitted, each item would be displayed, and a new value requested, as above.

```
!   change Smith notes
    Notes:                          Tel.  324-9261
    Notes                       !   Tel.  324-9200

    r 10:07 1.486 34
```

charge

Name: charge

The charge command enters miscellaneous charges into the miscfile. For each transaction, the Project id, the amount, and an explanation are required. All three input items for a transaction can be put on the same line or they can be supplied one at a time. To exit from this command, type "x" instead of a Project id. The miscfile segment is printed using the pmisc command. Credits and deletions are made to the miscfile using the credit and dmisc commands, respectively.

Usage

charge

Example

To charge the Alpha project for some manuals, type:

```
!   charge
    project
!   Alpha
    amt
!   10.55
    explanation
!   manuals ordered 6/23 Jones
    project
!   x
    r 1557 1.372 1.258 102
```

chcpass

Name: chcpass

The chcpass command changes the user's card input password in the PNT found in >sc1. Thus, even if the user has changed his password with the -cpw control argument on the ++PASSWORD card, the chcpass command overrides the user's change.

A card input password may consist of from one through eight ASCII printing characters, including backspace, but excluding space and semicolon.

Usage

chcpass Person_id

where Person_id is the Person_id of the user whose card input password is to be changed.

Example

To change the card input password for user Jones, type:

```
!   chcpass Jones
    Password
!   cardpass    (printer is turned off)
    Password again:
!   cardpass    (printer is turned off)
    r 15:45 64:979 5097
```

chdf_proj

Name: chdf_proj

The chdf_proj command changes the default project for a single user. It changes the user's default project in the PNT found in >sc1. Thus, even if the user has changed his default project with the -change_default_project control argument to the login command, the chdf_proj command overrides the user's change.

Usage

chdf_proj Person_id Project_id

where:

1. Person_id
   is the Person_id of the user whose default project is to be changed.

2. Project_id
   is the new default project for the user.

Example

To give user Smith a default project of Proj3, type:

```
!     chdf_proj Smith Proj3
      r 1557 1.372 1.258 102
```

check_log

Name: check_log

The check_log command scans the log segment for initializer messages. Sometimes a user is unable to log in; if so, the initializer places a message in the log.

Usage

check_log Person_id

where Person_id is the Person_id of the user whose log entry is to be checked.

Notes

The following is a list of the messages and explanations for refusing login:

bad_pass	bad password
badpers	person not in PNT, either not added or mistyped
no_name	no name given
pwlocked	password locked by administrator
bad_proj	Project_id typed by user does not exist in SAT
no_pdt	project'pdt/s pdt ipdt/s not in >pdt/sc1>pdt; mepdt/spdt/sage with pdt/starpdt/s alpdt/so typed online
not_pdt	user not in PDT for project; the user is not registered on the project
anon_pw	bad anonymous-user password
already	user already logged in and does not have the "multip" attribute in the PMF (absentee does not count)
absdate	user absolute cutoff date (set by project administrator) exceeded
limitu	user dollar limit (set by project administrator) exceeded
mnthlim	user per-month dollar limit (set by project administrator) exceeded
shiftlim	user per-shift dollar limit (set by project administrator) exceeded
abslimit	user absolute cutoff dollar limit (set by project administrator) exceeded
hd_make	user home directory does not exist and cannot be created

sys_full	system full according to load units
saturate	system full according to maximum number of users
cant_bum	system full, user cannot find anyone to bump
groupmax	load control group at absolute maximum
no_group	load control group in SAT not in master_group_table segment (in the udd>SysAdmin>admin directory)
nf_nosec	system not full, group full, no secondary
sysgrpfl	system full, group full, cannot bump
projothr	project cut off for some other reason
prog_err	programming error in answering service (lg_ctl_)

Example

To see why user Jones cannot log in, type:

```
! check_log Jones
  702 09/22/71 1333.2 0 lg_ctl_: no  ¦  Jones.Multics  1541
  022 chn tty302 reason bad_pass
  r 1557 1.372 1.258 102
```

This message says that the user could not log in because he gave the wrong password. His terminal identification is 022, and his channel is tty302. This message has severity 0 (so it is not typed to the operator, just logged) and is the 702nd entry in the current log.

chname

Name: chname

The chname command changes the mailing name for one user. The full name must be enclosed in quotes if it is given on the command line. If the new name is not given, the old name is displayed and a change is accepted.

Usage

chname Person_id {mailing_name}

where:

1. Person_id
   is the Person_id of the user whose mailing name is to be changed.

2. mailing_name
   is the new mailing name of the user. It must be enclosed in quotes. If this argument is omitted, the chname command prints the old mailing name and then waits for the accounting administrator to enter the user's new mailing name (which should not be enclosed in quotes in this case) or enter a null line (to retain the old value).

Example

To change the mailing name for user Jones, type:

```
!   chname Jones "Jones,W. Alfred"
    r 1557 1.372 1.258 102
```

To make the same change, but first check the old mailing name, type:

```
!   chname Jones
    Jones, Alfred
!   Jones,W. Alfred
    r 1558 1.261 1.114 97
```

Name: chpass

The chpass command changes the password for a single user. It changes the user's password in the PNT found in >sc1. Thus, even if the user has changed his password with the -change_password control argument to the login command, the chpass command overrides the user's change.

A password may consist of from one through eight ASCII printing characters including backspace, but excluding space and semicolon.

"HELP", "help", "quit", and "?" are interpreted uniquely by the password processor and are therefore unacceptable as password specifications for an interactive login. Entering "quit" terminates the login attempt, while "HELP", "help", or "?" results in an explanatory message and repeat of the password prompt.

Usage

chpass Person_id

where Person_id is the Person_id of the user whose password is to be changed.

Example

To change the password for user Jones, type:

```
!   chpass Jones
    Password
!   comein       (printer is turned off)
    Password again:
!   comein       (printer is turned off)
    r 15:45 64.979 5097
```

chprog

Name: chprog

The chprog command changes the programmer number for one user. The programmer number must be all numeric. It can be up to sixteen characters long. (Some installations use the employee number assigned by the company in this field.) If the new programmer number is not supplied, the old value is displayed and a change is accepted.

Usage

chprog Person_id {prog_no}

where:

1. Person_id
   is the Person_id of the user whose programmer number is to be changed.

2. prog_no
   is the new programmer number. If this argument is omitted, the chprog command prints the old programmer number and then waits for the accounting administrator to either enter the new programmer number of a null line (to retain the old number).

Example

To change the programmer number for user Smith, type:

```
! chprog Smith 7399
  r 1557 1.372 1.258 102
```

To make the same change, but first print the old programmer number, type:

```
! chprog Smith
  7299
! 7399
  r 1558 1.261 1.114 97
```

credit

Name: credit

The credit command enters miscellaneous credits into the miscfile. For each transaction, the Project_id, the amount, and an explanation are required. All three input items for a transaction can be put on the same line or they can be supplied one at a time. To exit from this command, type "x" instead of a Project_id. The miscfile segment is printed using the pmisc command. Charges and deletions are made to the miscfile using the charge and dmisc commands, respectively.

Usage

credit

Example

To credit the Alpha project for a crash, type:

```
!    credit
     project
!    Alpha
     amt
!    23.00
     explanation
!    system crash 6/23 Smith
     project
!    x
     r 1557 1.372 1.258 102
```

cu

Name: cu

The cu command creates a user's home directory. Home directories are created automatically when a PDT containing a new user is installed. In rare cases, it may be necessary to execute this function separately.

Usage

```
cu Person_id Project_id
```

where:

1. Person_id
   is the Person_id of the user whose home directory is to be created.

2. Project_id
   is the Project_id of the project under which the user's home directory is created.

Example

To create the home directory >udd>Gamma>Jones, type:

```
! cu Jones Gamma
  r 1557 1.372 1.258 102
```

Name: day

Every night, a self-rescheduling absentee job called the "crank" is run. It records the daily charges of users and checks for users who should be cut off. The day command prints the output from the crank on the terminal and asks whether or not to delete the output. Unless there was an error, the absentee output segment should be deleted.

Usage

day

Example

The output from the crank has this general appearance:

```
!   day

    Absentee user Accountant.SysAdmin logged in ...
    r 0330 1.372 1.258 102
    Begin charging for 7/31/76 2355.0 to 8/9/76 2345.1
    cut 3, warned 7, total charge $45678.90
    r 1557 1.372 1.258 102

    Absentee user Accountant.SysAdmin logged out ...
    Delete?
!   yes
```

delegate

Name: delegate

The delegate command gives a project administrator control over a project's PMF. Once this is done, the project administrator can add and delete users and set resource-usage limits on users in the project. There may be up to four project administrators for the project.

The delegate command edits the SAT to show that a project administrator can install PDTs for a particular project. It also sets access on the proj_admin_seg segment (in the >sc1 directory) and the >sc1>update directory so the project administrator can install his PDT.

A delegated project is under control of the project administrator only. The accounting administrator receives an error message if he attempts to execute the add_anon, dpmf, upmf, or pmf commands on a delegated project. The accounting administrator can use the undelegate command if he wishes to take a project back from a project administrator, in order to have the project under his control, or to delegate it to some new project administrator.

Usage

```
delegate Project_id path User_id
```

where:

1. Project_id
   is the Project_id of the project to be assigned a project administrator.

2. path
   is the pathname of the directory in which the PMF is placed. This pathname is usually the pathname of the project directory.

3. User_id
   is the User_id, specified as Person_id.Project_id, of the project administrator.

Example

To give Jones.Gamma control of the Beta project (placing the PMF in >udd>Beta), type:

```
! delegate Beta >udd>Beta Jones.Gamma
archive: Beta appended to delegated_pmf.archive
r 15:57 1.372 102

From Initializer.SysDaemon.z (install)  1430.0:
installed sat for SA1.SysAdmin
```

disk_report

Name: disk_report, drp, disk_auto

The disk_report command calculates disk usage and creates a disk usage report. The administrator can invoke the disk_report command to cause a manual disk usage calculation. Normally, though, disk usage is calculated automatically every night by the absentee job, dodrp.absin, that executes the disk_auto command.

Usage

```
disk_report
```

Note

The sweep program is used to get quota for all directories into the disk_stat data segment (in >udd>SysAdmin>admin). The charge_disk program then charges these usage figures to projects in their "projfile" entries. A printable segment, called diskreport, is produced but not automatically printed. To print copies of this segment, type "rqm diskreport". See the rqm command.

This command examines a large fraction of all the directories in the hierarchy, placing a heavy load on the system. Its use during peak load hours should be avoided if possible.

Example

To run a disk report, type:

```
!   disk_report
    $ Creating disk usage report.
    $ Following figure is total quota/current use
    75500/64432
    dir:  5500/4432
    seg: 70000/60000
    Charged 906 directories out of 910 to 108 projects
    r 1557 1.372 1.258 102
```

dmisc

Name: dmisc

The dmisc command deletes charges from the miscfile. For each transaction, the Project_id and the number of the miscfile entry are required. The number of the miscfile entry is printed using the pmisc command. Both input items for a transaction can be put on the same line or they can be supplied one at a time. To exit from this command, type "x" instead of a Project_id. Charges and credits are made to the miscfile using the charge and credit commands, respectively.

Usage

```
dmisc
```

Example

```
!    dmisc
     project
!    Alpha
     number
!    23
     project
!    x
     r 1557 1.372 1.258 102
```

Name: dpmf

The dpmf command deletes a user from a PMF for an undelegated project that is managed by an accounting administrator and then installs the new PDT.

Usage

```
dpmf Project_id Person_id
```

where:

1. Project_id
   is the Project_id of the project from which a user is to be deleted.

2. Person_id
   is the Person_id of the user to be deleted from the project.

Example

To delete user Black from the Gamma project, type:

```
! dpmf Gamma Black
r 1557 1.372 1.258 102
```

dproj

Name: dproj

The dproj command deletes a project. It edits the SAT to remove the project entry, sets the date off for the project, and deletes the project directory and all of its contents.

Usage

dproj Project_id

where Project_id is the Project_id of the project to be deleted.

Example

To delete the Delta project, type:

```
!    dproj Delta

     quota   used   directory name
     1000     5      >udd>Delta
      250     2      >udd>Delta>Person_id1
                     . . .
     1250     7      Total
     delete_dir: do you want to delete the directory >udd>Delta??
!    yes
     r 15:57 1.372 102

     From Initializer.SysDaemon.z (install)  1558.0:
     install sat for SA1.SysAdmin
```

If the accounting administrator answers "yes" to the question about deleting the directory, the project directory and all segments and directories inferior to the project directory are deleted. The project is charged for disk usage until the project directory is deleted.

If the accounting administrator answers "no" to this question, the project's directory and segments are not deleted, and the project continues to accumulate storage charges. The accounting administrator should not answer "no" unless there is some exceptional reason for doing so; if he does, the project directory has to be deleted later by a system administrator.

edit_proj

Name: edit_proj

The edit_proj command provides a single facility for the editing of all project data. The command can be invoked in two ways. Either all the data items that are part of project registration can be printed one at a time or a single data item can be changed.

Usage

```
edit_proj Project_id {keyword {newvalue}}
```

where:

1. Project_id
   is the Project_id of the project whose registration data items are to be edited. If this is the only argument specified, edit_proj prints each data item one at a time and waits for a response from the accounting administrator before proceeding. The accounting administrator may respond with any one of the following:

carriage return	to leave the item unchanged
a new value	to replace the printed value
stop	to exit immediately from the edit_proj command without making any changes

2. keyword
   is the particular data item to be changed. The valid keywords are:

title	t
investigator	inv
investigator_address	inv_addr
supervisor	sup
supervisor_address	sup_addr
supervisor_phone	sup_phone
account	acct
requisition	req
requisition_amount	amt
cutoff_date	cutoff
billing_name	billto
billing_address	billat
group	grp
attributes	attr
grace	gr
administrator	admin
quota	q
alias	aka
groups	gps
min_ring	min
max_ring	max

edit_proj

max_foreground	maxfg
max_background	maxbg
abs_foreground_cpu_limit	absfgcpulim
pdir_quota	pdq
rate_structure	rs

3. newvalue
   is the new value of the data item identified by the specified keyword. This argument cannot be given unless the keyword argument is also given. If newvalue is omitted, the edit_proj command asks for it. In both cases, the old value is printed.

Notes

The meanings of the following parameters are explained in the MAM Project, Order No. AK51, under the PMF description:

group
attributes
grace
min_ring
max_ring
max_foreground
max_background
abs_foreground_cpu_limit
pdir_quota

Examples

To review all the registration data items of the States project and change the project's quota to 200, type:

```
!    edit_proj States
     Title:                Data Reduction for all States
!
     Investigator:         Mr.  J.  Lee
!
     Address:              Room 22
!
     Supervisor:           Dr.  Brown
!
     Address:              Room 6
!
     Phone:                555-1212
!
     Requistion:           PO3344-J
!
     Amount:               open
!
     Cutoff date:          01/01/84 1935.1
!
     Billing name:         Fiscal Office
!
     Address:              Room 8
!
     Rate structure:       default
!
     Group:                Other
!
     Attributes:           anonymous, preempting, brief, vinitproc,
                           vhomedir, nostartup, v_outer_module
!
     Grace:                2880
!
     Project administrators.  Type "." to delete.
     Administrator ID: Brown.States
!
     Administrator ID:
!
     Quota:                100
!    200
     Alias:
!
     Do you wish to review?
!    no
     r 19:39 2.661 197

     From Initializer.SysDaemon.z (install)  1940.0:
     installed sat for SA1.SysAdmin
```

edit_proj

Another way to accomplish the same quota change is to type:

```
!    edit_proj States quota 200
```

If the accounting administrator requests a change to either the requisition or account number of the project, he is asked a question to which he must respond with one of the following words:

drop	to cause the charges to the old account and requisition to be eliminated
transfer	to cause the charges to be transferred from the old account and requisition to the new account and requisition
bill	to cause the charges to be billed to the old account and requisition, and the new account and requisition to start off with a clean slate.

For example:

```
!    edit_proj States req P05566-J
     What is the disposition of charges of
     $1233.79 to account 70906, req P03344-J?  !    bill
     r 19:39 2.661 197
```

edit_proj

If the accounting administrator requests a change to either the requisition or account number of the project, he is asked a question to which he must respond with one of the following words:

drop — to cause the charges to the old account and requisition to be eliminated

transfer — to cause the charges to be transferred from the old account and requisition to the new account and requisition

bill — to cause the charges to be billed to the old account and requisition, and the new account and requisition to start off with a clean slate.

For example:

```
! edit_proj States req P05566-J
  What is the disposition of charges of
  $1233.79 to account 70906, req P03344-J? ! bill
  r 1939 2.661 11.828 197
```

install

Name: install

The install command installs a system table. Many of the other commands described in this document that modify system tables also automatically install them. Therefore, this command should only be used after a command whose documentation indicates that a system table is modified but not installed or when an operation that usually installs a system table is interrupted by a system failure before it can do so.

Usage

install path

where path is the pathname of the system table to be installed or is one of the following keywords:

sat or smf.cur.sat
: invokes the daily_summary command (described in MAM System) before the SAT is installed.

If any other pathname is given, the specified system table is installed as described in the install command found in the MAM System. *

Example

To install the current SAT, type:

```
! install smf.cur.sat
r 15:57 1.372 102

From Initializer.SysDaemon.z (install) 1605.0:
installed sat for SA1.SysAdmin
```

ison

Name: ison

The ison command prints "true" or "false" depending on whether or not a person is registered in the PNT. It then lists all users in the URF who have a last name that matches the name argument.

Usage

ison name

where name is the last name of the person who may be registered on the system.

Example

To check whether user Jones is registered, type:

```
!   ison Jones
    true
    Personid for "Jones, Herbert R." is "HJones"
    Personid for "Jones, Peter" is "Jones"
    Personid for "Jones, W. Alfred" is "AJones"
    Number of users with last name "Jones" is 3
    r 1557 1.372 1.258 102
```

misc

Name: misc

The misc command has been replaced with the charge, credit, and dmisc commands. These commands are described in this document. Invoking the misc command is the same as invoking the charge command.

new_proj

Name: new_proj

The new_proj command requests all project registration data, including the initial list of users, and installs the new PDT and SAT. The new_proj command exits immediately and stops whatever it is doing when the accounting administrator types "stop" in response to any question. At the end of input, the accounting administrator is asked if he wants to review the data; if he replies "yes", all of the project registration data are printed out. The new_proj command assumes default values for the project's attributes, grace, and load control group. These items can be changed when the input is reviewed or later by using the edit_proj command (described in this document).

Usage

new_proj Project_id

where Project_id is the Project_id of the project to be registered. The Project_id must be from one to nine characters long, must begin with a capital letter or a digit, and must be unique at the site.

Example

To add a new project named Gamma, type:

```
! new_proj Gamma
```

First, the system asks for the project title. This field should be a short description of the purpose of the project. It can be up to 52 characters long.

```
    Title:
!   Gamma Ray Research
```

Next, the system asks for the name and address of the principal investigator. This is the individual in the management structure who is responsible for the project. Both name and address can be up to 32 characters long.

```
    Investigator:
!   Albert W.  Jones
    Address:
!   MS 310
```

new_proj

The system next asks for the name, address, and telephone number of the project supervisor. This is the individual in direct contact with the project's day-to-day activities. The detailed user usage report, produced by monthly billing, is sent to this person. He can be the same person as the principal investigator. (Typing "=" in response to the request for the supervisor's name causes the principal investigator's name and address to be used.) Often, the supervisor is registered as a user or project administrator for the project. The name and address can each be up to 32 characters long. The telephone number can be up to 16 characters long.

```
Supervisor:
! Mr. Melvin Fooch
Address:
! MS 350
Phone:
! x1234
```

At this point, the system asks for the external account number and the requisition number. Each of these "numbers" can be a maximum of 12 characters.

```
Account:
! 11792x
Requisition:
! AB123456
```

The system next asks for the cutoff limits for the project. The funds limit is a dollar amount (enter "open" or "0" to show an open amount). The date cutoff limit is a date, expressed as mm/dd/yy. If the project exceeds either of these limits, all users on the project are prevented from logging in, but the project continues to incur disk and registration charges until the project is deleted. (The funds limit is stored internally as a floating-point value.)

```
Amount:
! open
Cutoff date:
! 7/30/74
```

Next, the system asks for the name and address to which bills for the project's usage should be sent. The name and address can each be up to 32 characters long. Typing "=" in response to the request for the billing name causes the principal investigator's name and address to be used.

```
Billing name:
! Fiscal Office, L. Spottswood
Address:
! MS 501
```

new_proj

The accounting administrator is now asked if the project is to be delegated and, if so, to supply the name(s) of the project administrator(s) and the directory to which the PMF should be moved.

```
        Is this project delegated?
!       yes
        PMF directory:
!       >udd>Gamma
        Enter administrator IDs (Person_id.Project_id).  Type "." to exit.
        Administrator ID:
!       Benway.Gamma
        Administrator ID:
!       .
```

Finally, the accounting administrator is asked to specify the amount of quota on the project directory and enter the initial list of users. Notice when Benway is added to the project's user list a warning is returned stating that Benway is not registered in the PNT. Benway remains on the project's user list but is unable to log in until the accounting administrator registers him in the PNT using the register command.

```
        Quota:
!       100
        Enter initial list of users.  Type "." to exit.
        Person:
!       Benway
        WARNING: Benway is not registered.
        Person:
!       Smith
        Person:
!       Jones
        Person:
!       .

        Input for "Gamma" complete

        Do you wish to review?
!       no
        r 19:37 6.732 669

        From Initializer.SysDaemon.z (install)  1937.0:
        installed sat for SA1.SysAdmin

        From Initializer.SysDaemon.z (install)  1937.0:
        installed Gamma.pdt for SA1.SysAdmin
```

Notes

If the system crashes during the new_proj command, the project may have been incompletely added to the system. If this happens, the accounting administrator MUST NOT try to add the project again from the beginning. The help of a system administrator is necessary to complete the adding of the project. All terminal output should be saved and no other project registrations attempted until a system administrator has checked and corrected the files.

new_smf

Name: new_smf

This command is obsolete and has been deleted from this manual.

Name: pmf

The pmf command edits a PMF (for an undelegated project) with the qedx editor, converts the edited PMF to a PDT, and installs the PDT. It first puts the administrator into the qedx editor after reading in the segment and allows him to make any changes he wants. After the administrator exits from qedx, the command converts the PMF to a PDT and signals the initializer to install the PDT. The command takes care of updating the pmf.archive segment (in the >udd>SysAdmin>admin directory) as well. See the MPM Commands for details on use of the qedx command.

Usage

pmf path

where path is the pathname of the PMF to be edited.

Example

To edit the segment named Operator.pmf, type:

```
!   pmf Operator
    Edit.
!   (editing commands)
!   w
!   q
    r 15:57 1.372 102

    From Initializer.SysDaemon.z (install) 1558.0:
    installed Operator.pdt for SA1.SysAdmin
```

pmisc

Name: pmisc

The pmisc command prints the contents of the miscfile. It is useful as a check to be sure that all entries in the miscfile are correct before the bills are run. The accounting administrator can print the miscellaneous charges and credits for an individual project or he can print the entire miscfile. He can also print the charges and credits for specific dates. The dates must be in the form mm/dd/yy or mm/dd. If more than one date appears on the same line, they must be separated by spaces. Type "x" instead of a Project_id to exit from the command.

Usage

pmisc

Notes

The pmisc command first asks the accounting administrator to enter the name of the project whose miscfile entries he wants to review. If the accounting administrator types "all" in response to this request, the entries for all projects in the miscfile are printed.

The pmisc command then asks the accounting administrator to enter the dates on which the charges to be reviewed were incurred. If the accounting administrator types "all" in response to this request, all the entries in the miscfile are printed.

Example

To print the entries for the Alpha project incurred on July 9 and July 12, type:

```
!   pmisc
    project
!   Alpha
    dates
!   7/9/76 7/12/76
    07/09/76  23  Alpha  4.50  manual
    07/12/76  32  Alpha  7.60  manual
    project
!   x
    r 1557 1.234 1.001 115
```

To print all the entries in the miscfile, type:

```
!    pmisc
     project
!    all
     dates
!    all
     07/01/76  1  Gamma  23.56  manuals
     .
     .
     .
     07/29/76  207  Beta  .50  news bulletin
     r 1557 1.234 1.001 115
```

To print all the entries for the Time project, type:

```
!    pmisc
     project
!    Time
     dates
!    all
     07/02/76  8  Time  9.00  text book
     .
     .
     .
     07/15/76  59  Time  5.00  fine
     project
!    x
     r 1557 1.234 1.001.115
```

Name: proj_mtd

The proj_mtd command types a month-to-date report for any project's usage. The report lists all users on the project and their dollar totals, as well as disk and miscellaneous charges. This command does not accept additional arguments as the project administrator's proj_usage_report command does. It prints a more complete summary of the project's usage charges because the accounting administrator has access to more accounting data than the project administrator does.

Usage

proj_mtd Project_id

where Project_id is the Project_id of the project whose usage report is to be printed.

Example

To get a report of the usage for the SAIL project, type:

```
!   proj_mtd SAIL
    Month to date for proj SAIL

    Name                logins      charge

    White                 11     $ 133.41
    Brown                  0     $   0.00

    2 users               11     $ 133.41

    registration                 $  20.00
    misc                         $   0.00
    disk                         $ 176.08

    Total                        $ 329.49

    r 1557 1.372 1.258 102
```

Name: recov

The recov command generates a new PMF from the system's binary PDT; it is used if a project's PMF is destroyed. It is also used to recover a project's PMF when the project is undelegated.

Usage

```
recov Project_id
```

where Project_id is the Project_id of the project whose PMF is to be recovered.

Example

Suppose the Proj2 project loses its PMF. To get a new one, type:

```
!  recov Proj2
    r 1557 1.372 1.258 102
```

Name: register

The register command registers a new user. It enters his Person_id in both the URF and PNT segments. If a person is already a user of Multics, or if he was once registered and was not removed, this command should not be used since the user is still in the URF and PNT segments.

The accounting administrator can type "stop" at any time to abort the processing of the current user; for instance, he may want to abort if he misspells the user's last name or if the user is already registered.

Usage

register

Example

Refer to the change command in this document for the list of rules about a user's name, password, alias, and programmer number to be followed when registering a new user. To register a user, type:

```
! register

    Enter full name (Last, First I.)
    Full name           ! Smith, Robert M.

    Enter mailing address
    Address             ! CISL

    Enter programmer number
    Prog number         ! 2424

    Enter notes
    Notes               ! temporarily assigned to project

    Enter default project
    Project ID          ! Maint

    Password            ! letmein  (printer is turned off)

    Password again:     ! letmein  (printer is turned off)

    Card Input Pasword: ! cardpass (printer is turned off)

    Password again:     ! cardpass (printer is turned off)
```

Programmer number, notes, default project, and card input password are optional and may be ommitted by typing a carriage return in response to the prompt.

register

At this point, the system attempts to generate a unique Person_id for the person being registered by trying first his last name alone and then his last name prefixed by his initials. If either of these attempts can be used, the system makes a tentative assignment and asks if the Person_id is acceptable. If neither of these attempts can be used (because they are already Person_ids), or if the administrator rejects the system's tentative assignment, the register command asks for a Person_id and then checks to make sure that the identifier entered by the accounting administrator is unique. The administrator may use the ison command before registration to see all Person_ids for the persons last name.

```
        Person_id "Smith" is already used by "Smith, Frank X."
        Trying "RSmith" for Person_id.
        Person_id assigned is "RSmith"
        Is this ok?
!       no
        Please suggest a Person_id for "Smith, Robert M."
!       RMSmith
        Person_id assigned is "RMSmith"
        Is this ok?
!       yes
```

The accounting administrator can add more users at this time, or he can exit from the register command.

```
        More users to add?
!       no
        r 15:57 1.372 102
```

At this point, the user has been added to both the URF and PNT segments.

Name: rename_proj

The rename_proj command is used to rename a project. It changes the project's name in the SAT and installs it; it renames the system copy of the project's PDT and changes the project name stored in that PDT; and it renames the project directory. If the project is not delegated, it renames and edits the PMF and replaces it in the pmf.archive segment, deleting the copy with the old name from the archive.

NOTE: The system administrator must set access on the segments contained in the renamed project directory so that users on the renamed project have access to them.

Usage

rename_proj Project_id1 Project_id2 {new_project_alias}

where:

1. Project_id1
   is the Project_id of the project whose name is to be changed.

2. Project_id2
   is the new Project_id of the project.

3. new_project_alias
   is the new project alias, if it is to be changed. If this argument is omitted, the old project alias, if any, is unchanged.

Notes

To change the default project for users now on project AAA, the system administrator can use the chdf_proj command (once for each user). If the accounting administrator does not change the users' default projects, users with users' default projects AAA can change the default project to BBB when they log in (by using the -change_default_project control argument to the login command).

Example

To rename project AAA to BBB, type:

```
! rename_proj AAA BBB
r 15:57 1.372 102

From Initializer.SysDaemon.z (install) 1557.0:
installed sat for SA1.SysAdmin
```

Name: rqm

The rqm command requests the dprinting of a report for all administrators.

Usage

rqm path

where path is the pathname of the segment to be dprinted.

Example

To send a copy of the disk usage report to all administrators, type:

```
!   rqm diskreport
    r 1557 1.372 1.258 102
```

Name: setcrank

The setcrank command schedules the absentee job that performs the accounting segment update. Unless the absentee job crashes or the absentee job queues are lost, there is no need to execute this command. To check whether a job is scheduled, invoke the list_absentee_request command (described in Section III of the MPM Commands).

Usage

```
setcrank
```

Example

If the accounting update absentee job is not scheduled, type:

```
! setcrank
  3 already requested
  r 1557 1.372 1.258 102
```

setdisk

Name: setdisk

The setdisk command schedules the absentee job that performs disk reporting. Unless the absentee job crashes or the absentee job queues are lost, there is no need to execute this command. To check whether a job is scheduled, invoke the list_absentee_request command (described in Section III of the MPM Commands).

Usage

```
setdisk
```

Example

If the disk reporting absentee job is not scheduled, type:

```
! setdisk
  4 already requested
  r 1557 1.372 1.258 102
```

Name: undelegate

The undelegate command allows the accounting administrator to regain control of a project that was delegated. He can then either control the project himself or delegate it to some other user.

Usage

```
undelegate Project_id
```

where Project_id is the Project_id of the project to be undelegated.

Example

To have the Alpha project controlled by Jones.Alpha instead of Smith.Alpha, type:

```
!   undelegate Alpha
    archive: Alpha appended to pmf.archive
    r 15:57 1.372 102

    From Initializer.SysDaemon.z (install) 1557.0:
    installed sat for SA1.SysAdmin

!   delegate Alpha >udd>Alpha Jones.Alpha
    archive: Alpha appended to delegated_pmf.archive
    r 16:02 1.896 64

    From Initializer.SysDaemon.z (install)  1602.0:
    installed sat for SA1.SysAdmin
```

upmf

Name: upmf

The upmf command adds a user to a project. It is used only on projects that are not delegated. The command extracts the project's PMF from the pmf.archive segment (in the >udd>SysAdmin>admin directory), edits the PMF to add the new entry, converts the PMF to a PDT, signals the initializer to install the PDT, and replaces the edited PMF in pmf.archive. The user is added with no individual attributes, just those of the project. To give individual attributes to the user, use the pmf command.

Usage

```
upmf Project_id Person_id
```

where:

1. Project_id
   is the Project_id of the project on which a user is to be added.

2. Person_id
   is the Person_id of the user to be added to the project.

Example

To add user Jones to the Gamma project, type:

```
! upmf Gamma Jones
r 15:57 1.372 102

From Initializer.SysDaemon.z (install)  1557.0:
installed Gamma.pdt for SA1.SysAdmin
```

Name: value

The value command may be used to read the current value of items in the system control segment, value_seg (in >udd>SysAdmin>lib), and to alter these values. This command has two entry points: value$dump and value$set.

Entry: value$dump

This entry point is used to read values in the value_seg segment.

Usage

value$dump {value_name}

where value_name can be one of the following:

crank_time	the time of day that the crank runs.
disk_time	the time of day that the disk accounting runs (this should be before the crank).
abort_crank	"true" if crank is to abort, else "false".
last_crank	the date and time of the last crank.
last_diskreport	the date and time of the last disk report.
weekly_time	the time for the weekly report. This is an offset, in the form "2300. 6 days."
XXX_dest	a string passed as the argument to the -destination control argument of the dprint command. Some of the valid strings are: directorN installation director (where 0≤N≤7) adminN system administrator (where 0≤N≤1) assuranceN system assurance (where 0≤N≤1) sysprgN system programming (where 0≤N≤2)
XXX_addr	a string passed as the argument to the -header control argument of the dprint command. Some of the valid strings are the same as in XXX_dest above.
admin_online	User_id of user to receive "crank ran" message.

Notes

The command:

```
value$dump
```

with no argument prints all defined values.

The value command allows an arbitrary set of values to be defined. The values listed above are the ones defined by default. Additional values can be defined, if necessary, for use in site dependent modifications to the administrative exec_coms.

Example

To read the current value of admin_online, type:

```
!    value$dump admin_online
     Jones.SysAdmin
     r 2103 1.011 1.110 69
```

Entry: value$set

This entry point is used to set values in the value_seg segment.

Usage

```
value$set value_name value
```

where:

1. value_name
   is either the name assigned to a value in value_seg or is a new name to be added to value_seg.

2. value
   is the value to be assigned to value_name. If it contains blanks or other special characters, it must be enclosed in two levels of quotes.

Example

To reset the value of admin_online, type:

```
!    value$set admin_online Smith.SysAdmin
     r 2103 1.011 1.110 69
```

To set the value of director1_dest and then check the value set, type:

```
!    value$set director1_dest """469 Holland Ave."""
     r 2104 1.011 1.110 69

!    value$dump director1_dest
     "469 Holland Ave."
     r 2104 1.011 1.110 69
```

who_delg

Name: who_delg

The who_delg command may be used to determine if a project has been delegated. All project administrators are listed for a delegated project.

Usage

who_delg {Project_id}

where Project_id is the Project_id of the project in question. If this argument is omitted, a list of all delegated projects is printed.

Example

To determine the project administrator(s) for project Proj8, type:

```
!    who_delg Proj8
     List of Delegated Projects as of 05/19/75 2223.7
               Project        Administrator
               Proj8          Jones.Proj8
     r 2103 1.005 1.356 112
```

APPENDIX A

SAMPLE FORMS

Generating a few forms for the use of the site accounting office can simplify system operations noticeably. The forms enable the system administration personnel to make sure that the necessary information is obtained.

The following forms will probably be required:

person registration
project registration
project administration request
project administration request confirmation
tape registration
retrieval request
system problem/complaint
credit request
card processing request
configuration change log
user accounts all-purpose letter
user tape log
miscellaneous charge input
crash analysis
backup tape log

Obviously each installation has its own peculiar requirements so no fixed set of forms is supplied. However, samples of the first four forms in the above list are provided on the following pages. These forms, which probably are used most often, have been used successfully at several Multics sites.

Person Registration for Multics System

This form is only needed for people who have never been registered on Multics before.

Name _____
Last First Middle

Mailing address _____

Telephone _____

Programmer number _____ (if any)

Each person registered on the Multics system is assigned a "Person_id" (1-22 characters long), which is unique at this site. The Person_id is usually the last name (beginning with a capital letter) if possible; if someone else with the same name is already registered, the Person_id will be the last name with initials prefixed (e.g., Smith, JSmith, JRSmith). If you wish to be assigned a Person_id with initials prefixed, even if not needed for uniqueness, please supply that Person_id: _____

Default Project_id _____

Registered persons must also be authorized to use a particular project by the project administrator for the project.

Please attach a slip of paper with a personal password. The password may be 1-8 characters long (letters and digits only).

You may change your default Project_id or your password online any time you wish; consult the login command description in the MPM Commands.

Please return this form to:

(Supply appropriate accounting address)

If you have any problems with your registration, please contact (Supply appropriate accounting phone number).

Person_id assigned_____Date _____

By _____

Project Registration for Multics System

Project Title _____

_____

Principal Investigator _____

Address _____

Project Supervisor _____

Address _____

Phone _____

Billing name _____

Billing address _____

Each project is assigned a Project_id (1-9 characters long, beginning with a capital letter or a digit) for identification and access control purposes. Please suggest a Project_id for your project:

_____

Initial disk quota _____records (default 25)

Acct No. _____ Requisition or P.O. _____

If you wish to administer your project online, please supply the following information:

Directory for PMF _____

Administrator (Person_id.Project_id) _____

Project_id assigned _____Date _____

By _____

Multics Project Administration Request

TO: (Supply appropriate accounting address.)

FROM: _____

DATE: _____

SUBJECT: Project_id _____

( ) Please delete the project and all its disk storage. Scratch all tapes and release all lockers associated with the project.

( ) Please add the following persons to the project. Person registration forms are attached for any persons not previously registered.

_____ _____ _____

_____ _____ _____

_____ _____ _____

( ) Please delete the following persons from the project. Do not delete their directories.

_____ _____ _____

_____ _____ _____

_____ _____ _____

( ) Please give project administrator status to the following user (i.e., delegate the project).

Directory for PMF _____

Administrator (Person_id.Project_id) _____

Date done _____ By _____

Multics Project Administration Request Confirmation

TO: (Project supervisor) _____

FROM: (Supply appropriate accounting address.)

DATE: _____

SUBJECT: Project_id _____

( ) Your project has been set up on Multics as requested.

( ) Your project has been deleted as requested.

( ) The following users have been added to your project.

_____	_____	_____
_____	_____	_____
_____	_____	_____

( ) The following users have been deleted from your project. You should delete their directories once you have copied any segments that you wish to preserve.

_____	_____	_____
_____	_____	_____
_____	_____	_____

( ) Your project has been delegated to a project administrator. He may now add and delete users and control resource limits.

Directory for PMF _____

Administrator (Person_id.Project_id) _____

Date done _____ By _____

INDEX

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ORDER NO. AS68-00D

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SERIES 60 (LEVEL 68)

MULTICS ADMINISTRATORS' MANUAL REGISTRATION AND ACCOUNTING ADMINISTRATOR ADDENDUM B

SUBJECT

Additions and Changes to the Description of Commands and Procedures Used by Registration and Accounting Administrators on the Multics System

SPECIAL INSTRUCTIONS

This is the second addendum to AS68, Revision 0, dated November 1976. This manual is one of five manuals that constitute the *Multics Administrators' Manual* (MAM).

Project	Order No. AK51
Registration and Accounting	Order No. AS68
System	Order No. AK50
Resource Control	Order No. CC74
Communications	Order No. CC75

Insert the attached pages into the manual according to the collating instructions on the back of this cover. Throughout the manual, change bars in the margins indicate technical additions and changes; asterisks denote deletions.

Note:

Insert this cover after the manual cover to indicate the updating of the document with Addendum A.

SOFTWARE SUPPORTED

Multics Software Release 8.0

ORDER NUMBER

AS68-00B

October 1979

26051
5C1179
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Remove	Insert
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3-1, 3-2	3-1, 3-2
6-3 through 6-6	6-3 through 6-6
6-7, 6-7.1 6-7.2, 6-7.3 6-7.4, 6-8	6-7, blank 6-7.1, 6-7.2 6-7.3, 6-7.4 blank, 6-8
6-9 through 6-12	6-9 through 6-12
6-12.1, 6-12.2	6-12.1, 6-12.2
6-21, 6-22	6-21, 6-22
6-25 through 6-30	6-25 through 6-30
6-35 through 6-38	6-35 through 6-38
6-41 through 6-44	6-41 through 6-44
6-47 through 6-50	6-47 through 6-50
i-1, blank	i-1, blank

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10/79

AS68B

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SERIES 60 (LEVEL 68)

MULTICS ADMINISTRATORS' MANUAL 8 — REGISTRATION AND ACCOUNTING ADMINISTRATOR ADDENDUM A

SUBJECT

Additions and Changes to the Description of Commands and Procedures Used by Registration and Accounting Administrators on the Multics System

SPECIAL INSTRUCTIONS

This is the first addendum to AS68, Revision 0, dated November 1976.

This manual is one of four manuals that constitute the *Multics Administrators' Manual* (MAM).

Project Administrator	Order No. AK51
Registration and Accounting Administrator	Order No. AS68
System Administrator	Order No. AK50
Communications Administration	Order No. CC75

Insert the attached pages into the manual according to the collating instructions on the back of this cover.

Throughout the manual, change bars in the margins indicate technical additions and changes; asterisks denote deletions. These changes will be incorporated into the next revision of this manual.

Sections 3 and 6 have been updated to include administration of card input users, as well as other minor additions.

Note:

Insert this cover after the manual cover to indicate the updating of the document with Addendum A.

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AS68A, Rev. 0

January 1979

22716
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6-3, 6-4	6-3, 6-4
6-7, 6-8	6-7, 6-7.1 6-7.2, 6-7.3 6-7.4, 6-8
	6-12.1, 6-12.2
6-27, 6-28	6-27, blank 6-27.1, 6-28
6-35, 6-36	6-35, 6-36
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