

CA MICS[®] Resource Management

Database Structure and Content Guide

Release 12.9



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Chapter 1: Database Structure

The CA MICS Database Structure and Content Guide enumerates the features provided with the database and also explains the structure, summarization pattern, data element content, and uses of the CA MICS Platform (Base Product) database files.

Refer to the Files chapter in the individual Product Guides or Application Extension Guide for a description of the information area files populated by each CA MICS Data Integration or Application Extension product.

Descriptions of the chapters and appendices follow:

Chapter 1 - Database Structure

The remainder of Chapter 1 describes the database structure, organization, and data content.

Chapter 2 - Administrative Information Area files

Chapter 2 describes the files in the Administrative Information Area in the CA MICS Database, lists the elements in each file, and describes how to use the information in the files. (The elements are described in Appendix A, the Data Dictionary.)

Chapter 3 - Field Developed Applications

Chapter 3 (member I3) is reserved for you to document the Field Developed Applications (or user components) you have installed into the CA MICS complex.

Appendix A - Data Dictionary

Appendix A lists CA MICS common elements, the data elements in the Administrative Information Area, and provides a place for you to document Field Developed Application data elements. For each element, it:

- describes the content of the element at the DETAIL timespan.
- classifies it by the TYPE specification.
- lists related elements.
- describes how CA MICS sets the value for the element.
- documents the range of valid values.
- describes how the element is summarized and provides usage notes.

This manual is part of the documentation for the CA MICS product. The manuals in the CA MICS documentation series are:

* GUIDES FOR THE END-USER *

CA MICS Database Structure and Content Guide
CA MICS Document Access Guide
CA MICS MICF Reference Guide
CA MICS MICF User Guide

* GUIDES FOR THE SYSTEM ADMINISTRATOR *

CA MICS How to Use the PSP
CA MICS Planning, Installation, Operation, and Maintenance
Guide (PIOM)
CA MICS Standard Reports Guide
CA MICS System Administrator Guide
CA MICS System Modification Guide

* PRODUCT GUIDES *

CA MICS Accounting and Chargeback Option Concepts and
Overview Guide
CA MICS Accounting and Chargeback Option User Guide
CA MICS Analyzer for TSO Guide
CA MICS Analyzer Option for CA IDMS Guide
CA MICS Analyzer Option for CICS Guide
CA MICS Analyzer Option for DB2 Guide
CA MICS Analyzer Option for IMS Guide
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If you have questions about the structure, content, use, or interpretation of the CA MICS database for which you cannot find answers in this or other CA MICS manuals, please contact CA MICS Product Support.

This section contains the following topics:

- [1.1 Design Features](#) (see page 10)
- [1.2 Database Structure and Organization](#) (see page 13)
- [1.3 Data Content](#) (see page 39)

1.1 Design Features

The Database is physically organized using the extensive SAS database management facilities. The resultant Database design consists of a related network of small, segmented SAS files providing standard physical access to selected portions of the stored data as well as the ability for relational data retrieval. The major features of the Database include:

- o A single, common method for storing and retrieving different data sources (e.g., SMF, CICS, DB2, RMF, etc.).

- o Multi-level data summarization capability to maintain data at the detail level as well as summarization to the daily, weekly, monthly, and annual levels.
- o Multi-level database storage providing for online, archive (offline), and backup storage of the Database.
- o Efficient processing of large volumes of measurement data (e.g., millions of records/day) to allow update of the Database from multiple data sources.
- o Common online inquiry and batch reporting facilities to access all data areas of the Database.
- o Segmentation of data into small, related SAS files that minimize the amount of data to be traversed for the majority of inquiry/reporting requirements.
- o Data integrity validation to ensure the accuracy and completeness of data maintained.
- o Backup/recovery facilities to enable restoration of part or all of the Database.
- o Special processing facilities to allow access to information not available in the standard online and offline Database.

The Database incorporates numerous considerations to maximize the user's capability to quickly and easily use the organized information. These considerations include:

- o Dictionary defined data elements enabling reference to data elements without requiring element format definition. The user need not be concerned about data element attributes, thereby saving valuable time in inquiry and program definition.
- o Standard file definitions that provide a common definition for a file in terms of data element labels, content, and format, regardless of where the file resides in the Database. In other words, the file definition for TSO System Activity is identical, regardless of whether the request is for a detail, daily, monthly, etc., level of the file.

- o Common retrieval keys are defined in all files to facilitate the user's selection, merging, and data manipulation. These common keys include such standard elements as system identification, date/time stamps, date, time, hour, day, zone, userids, etc. This common key provision enables the integration of unlike data sources (e.g., DB2 and RMF) to be easily accomplished.
- o Derived data elements (e.g., average response time) are pre-calculated and maintained in the database to minimize the user's access time to often-used elements of this type.
- o Data values are carried in decoded form (e.g., device type is 3390) and not the typical encoded value pattern (e.g., X'80') to improve data usability and reduce required analysis time.

This chapter describes how these features have been incorporated and addressed in the Database.

1.2 Database Structure and Organization

The CA MICS system is installed at a site as a group of one or more databases which share some libraries and data areas. The entire structure of data and code libraries is called a database complex. A sample database complex is shown in Figure 1-1.

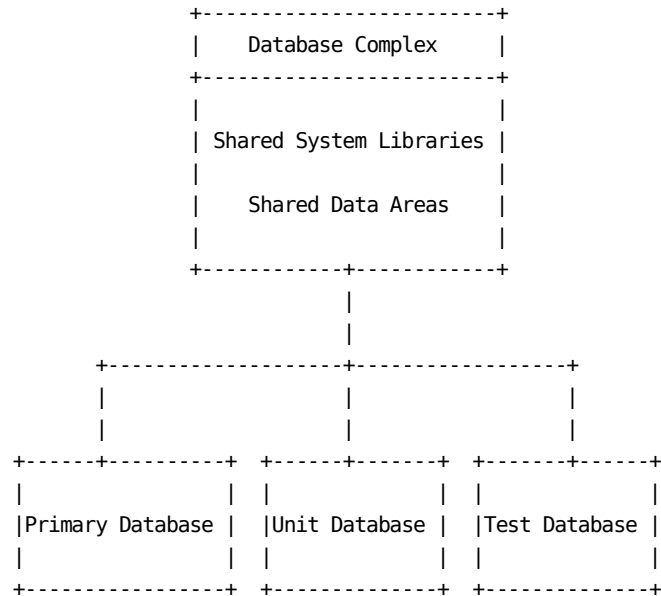


Figure 1-1. Database Complex Overview

The shared libraries contain programs, JCL, macros, parameter definitions, and documentation. The shared data areas include TABLES (used mostly by CA MICS Accounting and Chargeback), MCOLIB (a system control area), CAPACITY, etc. They contain SAS data files which apply to the entire complex and not just a particular database.

In the example above, the database complex consists of three databases (also called database units or unit databases). Each database contains data files and libraries of code, JCL, and parameters needed to define, update, and access these data files.

The different types of databases and their uses follow.

Unit - This is a normal production database.

- Primary - Every database complex contains a primary database. It is a database unit which is used to store some JCL which is kept at the database unit level, but which need not be stored in every database unit.
- Test - A test database is used for developing user components and testing user modifications to the CA MICS system. It is a normal database unit, but is treated specially by CA MICS Accounting and Chargeback and by the CA MICS JCL generation process.
- Special - Special databases are added temporarily to the CA MICS complex to perform special studies.

The data structure of every database is the same, regardless of the type. The remainder of this section and the sections that follow describe the structure of a single database.

The data maintained in each database is organized and separated according to the data's update and retrieval requirements. Economical and usable database update and retrieval facilities are realized through a five-way grouping of the data. These groups are termed timespans.

The timespans provide for unique retention, sequencing, organization, and summarization of the data. The timespans are DETAIL, DAYS, WEEKS, MONTHS, and YEARS. The data is further structured within a timespan.

The detail structure of the database is fully described in this chapter.

The raw measurement data that is read in to update the database is formatted and stored in the DETAIL timespan. This detail data is then processed to provide the user with several views of the same data, with each view appearing in the database at levels of summarization, starting with the data organized and summarized by day of the month (DAYS), then, week of the year (WEEKS), month of the year (MONTHS), and, finally, by year (YEARS).

Consequently, the user is able to select the data that is organized and summarized closest to the reporting requirement, resulting in less programmer time and machine resources consumed in satisfying the information request.

CA MICS' database organization facilitates both database updating and retrieval. Issues of database backup, online storage demands, frequency of data use, and requirements for long-term retention of data introduce additional database requirements that are satisfied through a multi-structure implementation.

CA MICS DATA STRUCTURES

The database timespans are stored in four distinctly different data structures: online, archive, backup, and special.

Online Data Structure

The online structure provides the data nucleus for daily updating, bringing the status of the online data current to the previous day's activity, including week-to-date, month-to-date, and year-to-date maintenance. The standard Management Objective and Exception Reports are generated directly, using the online data as input, resulting in an efficient, quick, and mount-free process. The online data may be accessed directly, through SAS or using the CA MICS Information Center Facility, to satisfy a large majority of short-term information requirements related to problem tracking and diagnosis; short-term capacity planning; daily, weekly, and monthly management and technical reporting; standards and security analysis; etc.

Archive Data Structure

The archive structure provides a less expensive method for retaining data for much longer retention periods than the data maintained online. The archive provides the means for retaining data for long-term capacity planning, forecasting, growth analysis, and user workload auditing.

The archive data is organized into two groupings: audit and history. Audit data is maintained for a select type of data in order to establish an audit trail for "units of work" as they were executed (e.g., TSO interactive programs, batch jobs, etc.). History data is maintained for data that is less frequently used as it ages, but is vital for longer term analysis requirements. The archive data is to be stored on magnetic tape or mass storage and should be retained for at least one year.

Backup Data Structure

The backup structure provides a complete daily backup of the data maintained online to ensure a fast, easy-to-use, and total online database recovery.

It is recommended that the database be backed up daily and stored on magnetic tape. The database can then be fully or partially (by timespan) restored at any time.

Special Data Structure

The special structure provides the data nucleus for satisfying the need for data not available in the online or archive data structure. The update and use of the special structure is completely separate from the other data structures. You can create a special database with any data you wish to use.

Figure 1-1a illustrates the relationship of the four data structures comprising the total CA MICS Database capability.

Note: CA MICS employs additional data structures for internal processes. For example, the optional incremental update facility employs the Incremental Database structure to support incremental updating of the Online Data Structure. Another example is the Work File data structure employed to support optional internal step restart. These internal process data structures are not typically used in normal CA MICS data retrieval and reporting, and are NOT discussed in this manual. See the Planning, Installation, Operation and Maintenance Guide for more information on internal process data structures.

The following sections describe and illustrate the database structure, organization, and use of the online, archive, and special data structures. The backup data structure is an image-copy of the online data as of the time that the last BACKUP job was successfully completed. The backup data structure is best understood by reviewing Section 4.8, BACKUP Operational Job, in the CA MICS Planning, Installation, Operation, and Maintenance Guide. Also review the actual BACKUP job stream contained in the CA MICS control statement library, prefix.MICS.CNTL, member BACKUP.

- 1 - Online Data Structure
- 2 - Archive Data Structure
- 3 - Special Data Structure

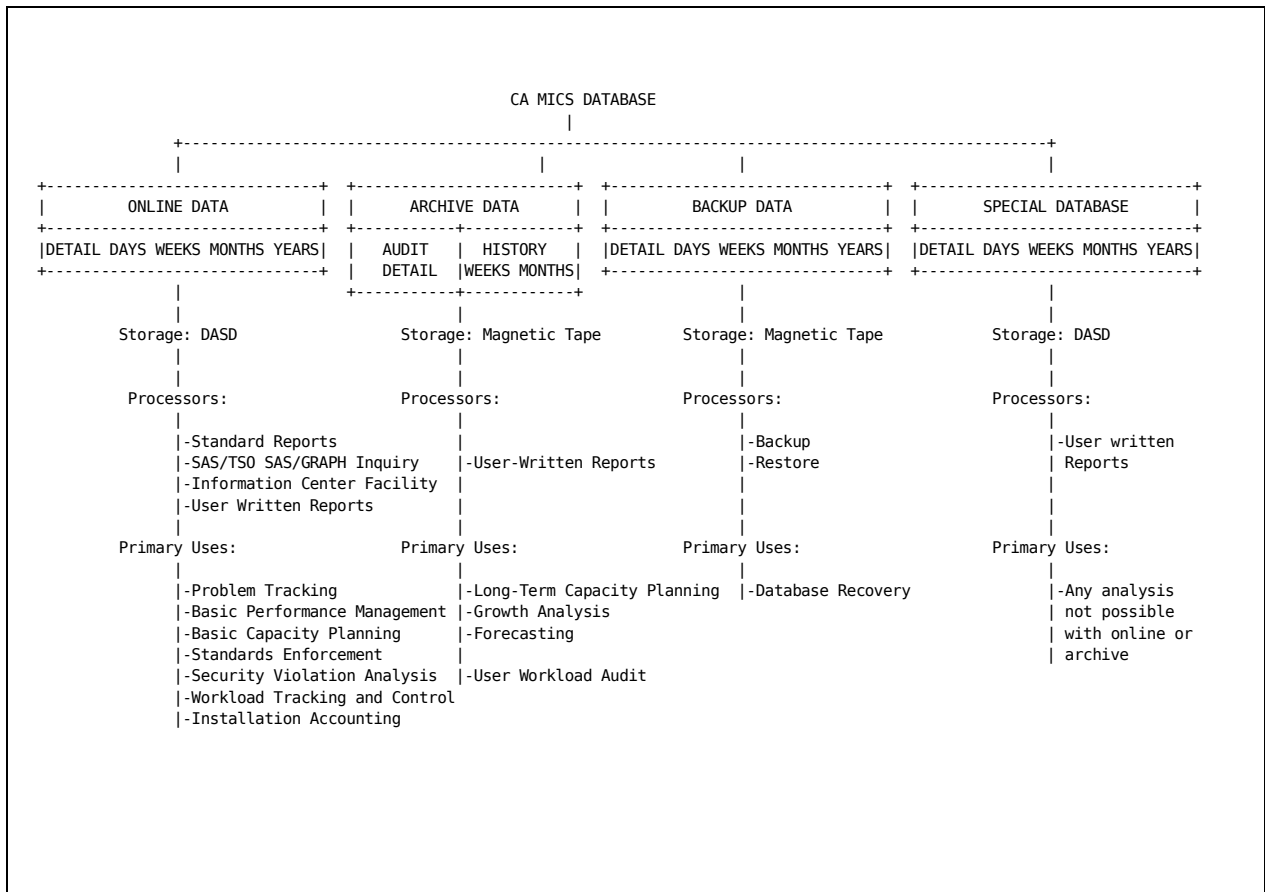


Figure 1-1a. Database Structure Overview

1.2.1 Online Data Structure

The data maintained online is structured in a unique design of numerous small, sequential SAS Files organized for individual, concatenated, group, or relational processing. This multiple file approach provides a Database capable of efficiently handling large update requirements (e.g., SMF, DB2, CICS, etc. data) and still providing quick online access.

In most other database approaches, the user requests a segment or information group for processing based on some sort of common key (e.g., system identification and jobname). Using the specified keys, the database manager searches a series of indexes to determine which records in the database are to be processed. Once they have been located, then the desired records are retrieved and the process is complete. In this example, both the location and processing of the database information is based on physical data organization.

Access to the CA MICS Database is also a two-part operation of location and retrieval. The location part, however, does not require any physical operation and only requires the user to name the SAS files that they wish to process. Since these files are generally quite small in size (e.g., hourly TSO system activity data for a given day is stored in a mini-file containing 24 records) the resultant processing time is relatively low.

To facilitate the logical location of a file, the Database is structured to allow the user to readily identify the required file to be processed as explained in the following six sections:

- 1 - Online Data Hierarchy
- 2 - Timespan (Database Level 1)
- 3 - Information Area (Database Level 2)
- 4 - File (Database Level 3)
- 5 - Cycle (Database Level 4)
- 6 - Example of Data Structure and Reference

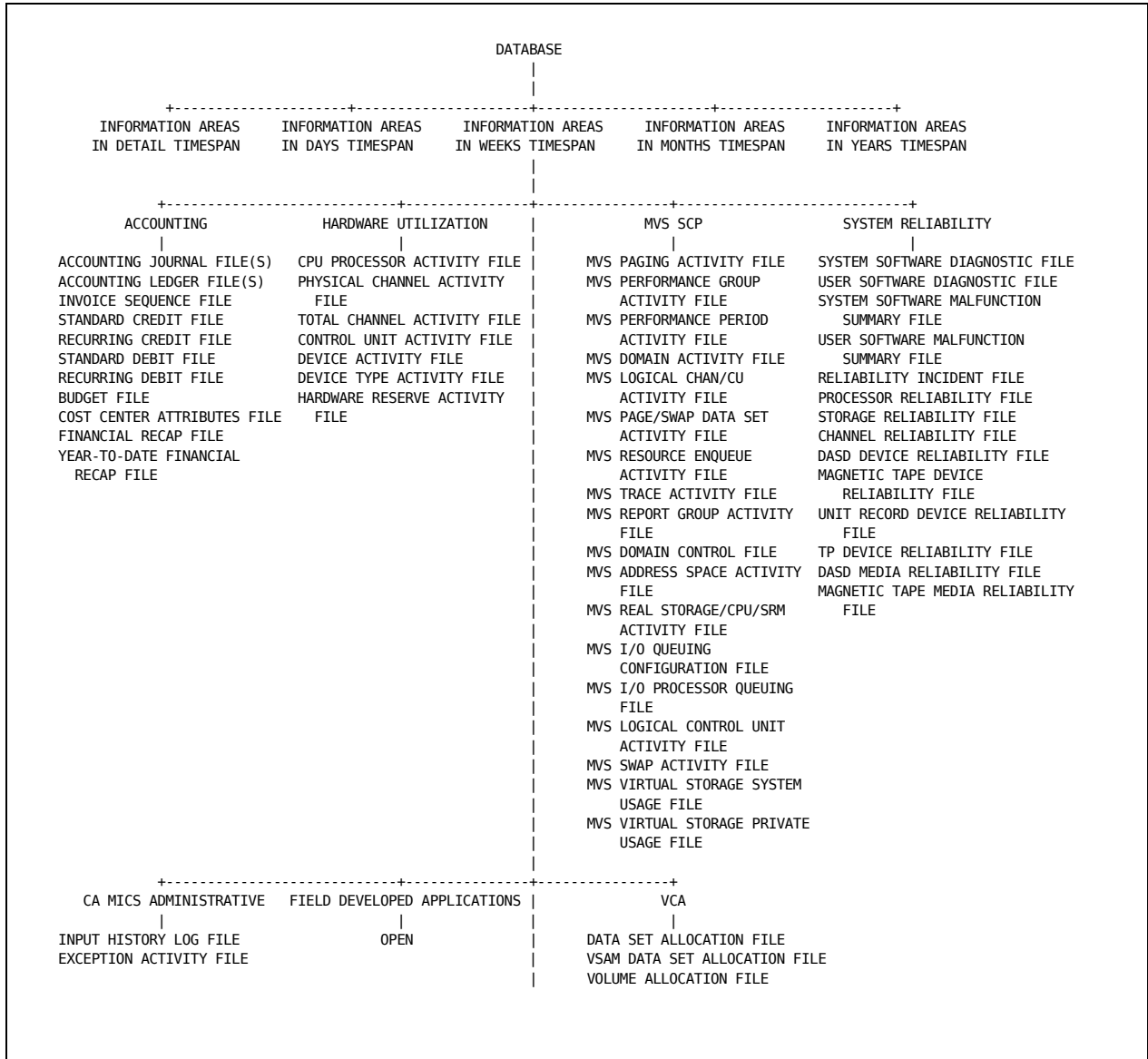


Figure 1-2. Database File Overview

1.2.1.1 Online Data Hierarchy

The online data is structured in a tree or hierarchical structure consisting of four levels; 1) Timespan, 2) Information Area, 3) File, and 4) Cycle. Figure 1-3 illustrates the level hierarchy.

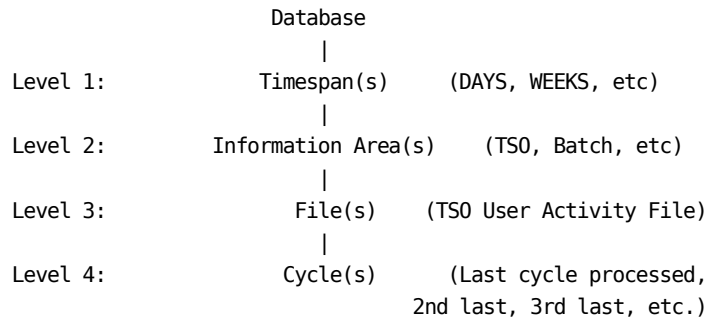


Figure 1-3. Online Data Hierarchy

The following sections describe each of the levels depicted above for storing data online and the discussion concludes with an example of the Database hierarchical design.

1.2.1.2 Timespan (Database Level 1)

The Timespan level is the highest level in the Database. It divides the database into five unique timespans by which they can be more effectively updated, archived, and retrieved. The definition of these five timespans are as follows:

YEARS: Contains data generally summarized and stored by zone within year. The installation may specify the number of years for which data will be maintained online in this Timespan.

Note: Zone is a user defined time-period definition used to delineate different service periods of a day and week (e.g., prime shift service).

MONTHS: Contains data generally summarized and stored by zone within month. The installation may specify the number of months for which data will be maintained online in this Timespan.

DAYS Timespan: The TSO system data has been summarized by hour within day for each SYSID. There is one record per SYSID quantifying TSO's total activity for each hour of a day for the number of days maintained in the database.

WEEKS Timespan: The TSO system data has been summarized by hour within zone and week for each SYSID. There is one record per SYSID quantifying TSO's total activity for an hour within a zone for the period of a week for the number of weeks maintained in the database.

MONTHS Timespan: The TSO system data has been summarized by zone within month for each SYSID. There is one record per SYSID quantifying TSO's total activity for a zone for the period of a month for the number of months maintained in the database.

YEARS Timespan: The TSO system data has been summarized by zone within year for each SYSID. There is one record per SYSID quantifying TSO's total activity for a zone for the period of a year for the number of years maintained in the database.

Consequently, if the requirement is to determine the resources consumed by TSO yesterday from 1:00 to 5:00 p.m., the DETAIL or DAYS Timespan files may be used. On the other hand, if a comparison of the TSO system's increase in resource usage over the last three years is required, the YEARS Timespan file is used.

This approach to providing data summarized and retained at different levels through the Timespan structure, is used to minimize the programming time required to write the program necessary to retrieve and manipulate the data and to minimize the computer resources required to process the program.

1.2.1.3 Information Area (Database Level 2)

The Information Area level is the second level within the database structure and is organized within each of the timespans. It serves to categorize the data stored within a timespan according to the CA MICS-defined Information Areas such as TSO, Batch, Hardware Utilization, and SCP.

The Information Areas maintained in the CA MICS Database are a function of the CA MICS products installed. The following describes a sample of Information Areas and the CA MICS products to which they belong.

ADMINISTRATION: The Administrative Information Area maintains exception data extracted from data stored in the other Information Areas. This Information Area is provided with the CA MICS Platform or Base Component.

TSO: The TSO Information Area maintains system and user measurement data quantifying the service, availability, load, and user activity of the Time-Sharing Option (TSO). The primary data source is CA TSO/MON PM (another CA product). This Information Area is provided with the CA MICS Analyzer for TSO.

HARDWARE UTILIZATION: The Hardware Utilization Information Area quantifies the usage of the hardware configuration, considering CPUs, PR/SM LPARs and Logical Processors, channels, control units, devices, storage groups, coupling facility, and caching subsystems, etc. The data source is the IBM Resource Measurement Facility (RMF) and is supported by the CA MICS RMF Component.

SCP: The SCP Information Area quantifies the use of the numerous z/OS system control program facilities, considering paging, performance groups, performance periods, domains, logical channels, logical control units, page/swap data sets, I/O queue configurations, and resource enqueues, etc. The data source is the IBM Resource Measurement Facility (RMF) and is supported by the CA MICS RMF Component.

BATCH: The Batch Information Area maintains system and user measurement data quantifying the service, availability, load, and user activity of batch, TSO, started task, APPC transaction program, UNIX System Services, and System Address Space workloads. The primary data source is the IBM System Management Facility (SMF) and is supported by the CA MICS Batch and Operations Analyzer.

OPERATIONS: The Operations Information Area maintains system and user data about availability, major operational actions, configuration changes, and user defined changes. The primary data source is the IBM System Management Facility (SMF) and is supported by the CA MICS Batch and Operations Analyzer.

Refer to the individual product guides for descriptions of the CA MICS information areas they support.

Figure 1-5 shows the database structure through level 2:

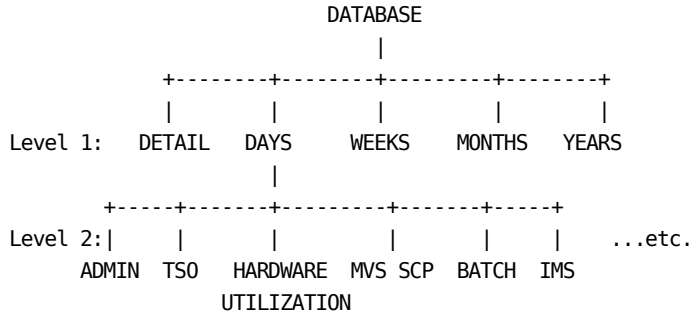


Figure 1-5. Information Area Level Structure

1.2.1.4 File (Database Level 3)

The File level is the third level within the Database structure and is organized uniquely within each Information Area. The File level identifies the unique data group that is processable as a file of information. The types of files that are maintained are a function of the Information Area and Timespan to which they belong. The files that are maintained are defined and explained in the Database Contents section.

The File level of the TSO Information Area is described to illustrate the level relationship.

Figure 1-6 illustrates the Database structure through level 3:

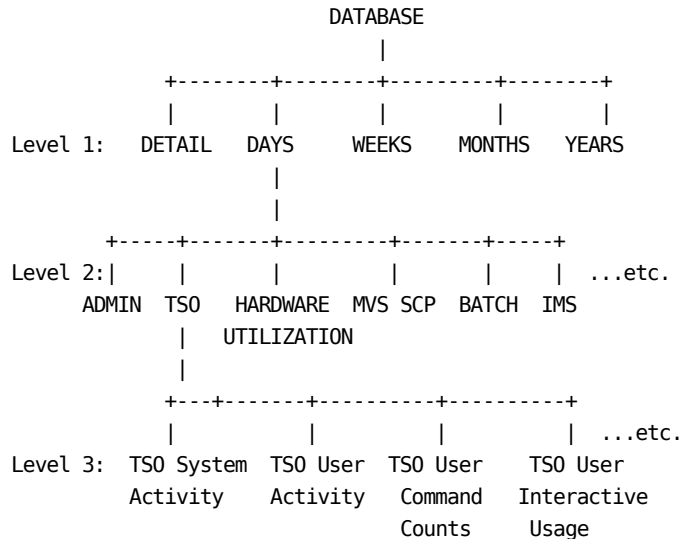


Figure 1-6. File Level Structure

1.2.1.5 Cycle (Database Level 4)

The Cycle level is the fourth and lowest within the database structure and is organized within File, Information Area, and Timespan. The Cycle level enables a File to be separated into N number of mini-files related to the actual processing cycles used in updating the Database.

This level is best explained through illustration. Assume that there is a requirement to retain fourteen days data for the TSO System Activity File in the DAYS Timespan. Keep in mind that in the DAYS Timespan a Cycle would normally contain the measurement data for a single day.

With the above requirement in mind, the user would define the Database to hold 14 days of data for the TSO System Activity File by specifying that 14 Cycles of the File should be retained online. In this manner, it is assumed that as each day is processed another Cycle for this File is created, until finally after 14 days the required data spanning 14 days is online.

Therefore, as in the case of the TSO System Activity File that must be maintained for fourteen days, a means to age Cycles is required. This is accomplished by having the Cycle occur within the File level once for each day it is to be maintained. Consequently, in this illustration, there will be fourteen unique TSO System Activity File Cycles aged as 01 (the last day or cycle processed), 02 (the 2nd last cycle), through 14 (the Cycle that was processed thirteen day's ago).

An aging procedure is used to manage the Cycles within a File. Prior to adding the newly created Cycle (today's data for the DAYS Timespan, for instance), the highest defined Cycle is deleted (14), and the remaining Cycles 01-13 are 'aged' to now become Cycles 02-14, so that the Cycle being added, is always inserted as the 01 Cycle.

It is important to understand that a Cycle is defined to contain data for a day, week, month, and year, for the DETAIL and DAYS, WEEKS, MONTHS, and YEARS Timespans respectively. This definition is based on the CA MICS Database update processing one day's data each day, and running the weekly, monthly, and yearly updates at their scheduled times.

In the Database design, each Cycle represents the SAS data set that is to be processed. By concatenating all of the Cycles, the full TSO System Activity File (all 14 days) may be processed.

Figure 1-7 illustrates the Database structure through level 4:

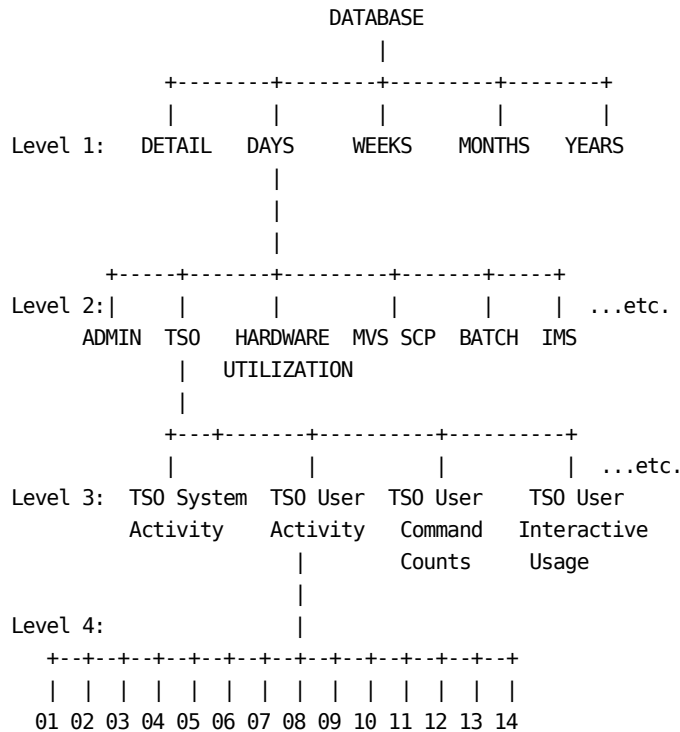


Figure 1-7. Cycle Level Structure

1.2.1.6 Example of Data Structure and Reference

It should be apparent by this time that the objective of the Database structure is to provide an integrated network of small data files, or "mini-files," which logically comprise the full Database but individually provide small files that may be quickly processed. This "mini-file" approach substantially reduces typical long reporting and updating run-times. This is accomplished because only a relatively small amount of data need be processed at any one time.

This section illustrates the application of the Database structure. The Database File and Data Element Content are fully explained in section 1.3, Data Content.

In order to illustrate the capability and flexibility of this structure consider the requirement to report on the activity for a TSO user for the month of July 2000. In many traditional approaches, such a requirement would necessitate that the necessary monthly files for July 2000 first be located and then processed through a lengthy run to produce the desired information. Such an information request is seldom efficiently and quickly satisfied.

With the CA MICS Database, however, the request would not only be satisfied with a minimum of resource consumption, but could even be provided as a response to an online TSO inquiry!

The hierarchical structure of small data files maintained in the Database reduces the time to locate and process data contained in the Database. All information retrieval requests go through two steps: 1) the physical location of the pertinent data, and 2) the processing of the located data. These steps are further explained in the following discussion.

Location of Data

The first step involves locating the individual SAS data set to be processed and involves four required database levels (Timespan, Information Area, File, Cycle). In our example, consider the following:

- o The Timespan to be used is MONTHS (monthly information),
- o The Information Area to be used is TSO,
- o The File to be processed is TSO User Activity (Request was for activity for a specific userid),
- o The Cycle to be read should be 06 assuming that the month in which the request was made is January 2001 (Current month cycle is 00, 12/2000 is 01, 11/2000 is 02, and so on until 07/2000 is 06 at the File level retained online.

With the above qualifications, the file to be processed within the Database has been located and is identified by the SAS file name, &PTSOM.TSOTSU06 (Note, that the file naming conventions will be fully discussed in section 1.3, Data Content, and reference to the file name is only used for purposes of explanation at this time).

It is important to recognize that the location of the required SAS file (&PTSOM.TSOTSU06) is based on understanding the database structure and DOES NOT REQUIRE PROCESSING OF THE DATABASE.

Processing of Located Data

The SAS report writing facilities may be used to select and report on the service, load, and activity of the specified userid, using the file identified in the first stage as input.

The resource requirements for processing the SAS file, &PTSOM.TSOTSU06, are relatively low due to the small number of records that must be processed. In this example the monthly TSO User Activity File is summarized by zone within userid, and there are a maximum number of three zones and a maximum number of 500 unique TSO userids. Therefore, the total number of records contained in this file would be less than or equal to 1,500 (3 x 500).

This file size is small enough to ensure that the elapsed processing time to satisfy this information request either as a batch or online process is in terms of minutes.

To illustrate using SAS to access the CA MICS database, consider the following SAS input examples (the SAS SET statement is used to access and input data from the Database):

Data for the month of July:

```
SET &PTSOM..TS0TSU06;
```

Data for the last three days:

```
SET &PTSOD..TS0TSU01 &PTSOD..TS0TSU02 &PTSOD..TS0TSU03;
```

Data for the last two years:

```
SET &PTS0Y..TS0TSU01 &PTS0Y..TS0TSU02;
```

1.2.2 Archive Data Structure

The archive data structure is a logical extension of the online structure and serves to maximize an installation's capability to economically retain data in the Database format, for long, if not indefinite, periods of time.

The archive data is maintained to address two primary requirements.

- 1 - Retain data on specific "units of work," such as batch job and program executions, TSO command and program executions, etc., over long periods of time.

The requirement is to be able to reconstruct the audit trail of which jobs, programs, commands, etc., a user used and when, (and, if necessary, in what order), spanning longer periods of time than would normally be expected to be available in an online database.

- 2 - Retain the weekly and monthly data summarized to quantify an installation's long-term performance and growth trends for the TSO, Hardware Utilization, MVS SCP, and Batch Information Areas, for extremely long, if not indefinite, periods of time.

The requirement is to provide a less expensive, but usable, storage for data that must be maintained for larger periods than the user would choose to retain online.

NOTE: In this discussion and in the sections that follow, the files and Timespans listed for archival storage reflect the structure shipped with the CA MICS system. The CA MICS Database Tailoring Facility may be used to alter this structure at your site.

The audit requirement is a specific need and generally applies only to files that record "transaction" activity. For example, it applies to DETAIL Files identifying job, program, and command execution. The audit requirement does not apply to the majority of Files maintained in the Database and is localized to a few Files.

The historical requirement, unlike the audit requirement, does not address the retention of detail data, and instead is directed at providing an economical and usable form of storage for all Files maintained in the WEEKS and MONTHS Timespans.

The archive data structure provides the user with workable alternatives to maintaining vast amounts of data online. The segmentation of archive data into audit and long-term history is based on the two different requirements that the archive structure must satisfy.

The archive data structure should not be considered as a backup to the online data. The archive data is an extension of the data maintained online and together the two structures provide the total CA MICS Database.

This multi-level storage and retrieval facility enables the installation to configure its Database in relation to its usage, storage, and retention requirements.

The following sections explain the relationship of the archive data to the online data, as well as its use and operation.

- 1 - Archive Audit Data
- 2 - Archive History Data

1.2.2.1 Archive Audit Data

The Archive Audit Data is comprised of a number of weekly tapes, each containing the detail audit data for the jobs, programs, commands, etc., that were executed for the week. The files CA MICS delivers with Archive Audit enabled are those with user identifiers, typically those on which installation accounting is based.

The accessing of a SAS file on tape is handled no differently than one on a disk, except for the JCL. The DD statement in the JCL simply points to the archive data set name, which has been cataloged as a tape data set. The processing restriction is that the user may only access one file at a time on the tape data set.

The archive audit data set is created at the end of each week as a standard part of the weekly database update processing (reference the Operation chapter of the Planning, Installation, Operation and Maintenance Guide). A generation data group is used as the means to control the retention of these data sets. The data set name for the audit data is

`'tapeprefix.MICS.AUDIT.filename'`

suffixes by the necessary generation data group identification numbers. Figure 1-10 illustrates the data set names as they would be referenced according to their position in the generation data group entries.

Generation Data Set Name	Audit Data Period
MICS.AUDIT.xxxxxx(0)	Last week's audit data
MICS.AUDIT.xxxxxx(-1)	Audit data: 2 weeks ago
MICS.AUDIT.xxxxxx(-2)	Audit data: 3 weeks ago
MICS.AUDIT.xxxxxx(-51)	Audit data: 52 weeks ago
MICS.AUDIT.xxxxxx(-52)	Audit data: 53 weeks ago
where xxxxxx identifies the specific File.	

Figure 1-10. Archive Data Set Generation Data Groups

NOTE: Before using Archive Audit, you should normally have at least seven cycles of DETAIL data available.

Some installations may choose to create archive audit tapes more frequently than weekly (e.g., a site might run the stand-alone AUDIT job three times each week) and thereby will need to retain less cycles of DETAIL data in the online database. See the Planning, Installation, Maintenance, and Operation Guide for more information on archive audit scheduling, the WEEKLY operational job, and the stand-alone AUDIT operational job.

1.2.2.2 Archive History Data

The Archived History Data is comprised of weekly and monthly master data sets, which contain the historical data for periods in excess of the online data retention limits. The archive history data is maintained so that there is a corresponding archive File for each File defined in the WEEKS and MONTHS Timespans online.

Figure 1-11 illustrates the update process performed with each File in the online WEEKS Timespan on a weekly basis. The activity from the previous week is read along with the cumulative weekly activity maintained in the archive data set (GDG level 0). The File representing last week's activity and the File containing the archive weeks history are input, interleaved, and output to create a new archive weeks history File (GDG data set level +1). Data that is older than the archive cut-off date is not output to the new archive weeks history File.

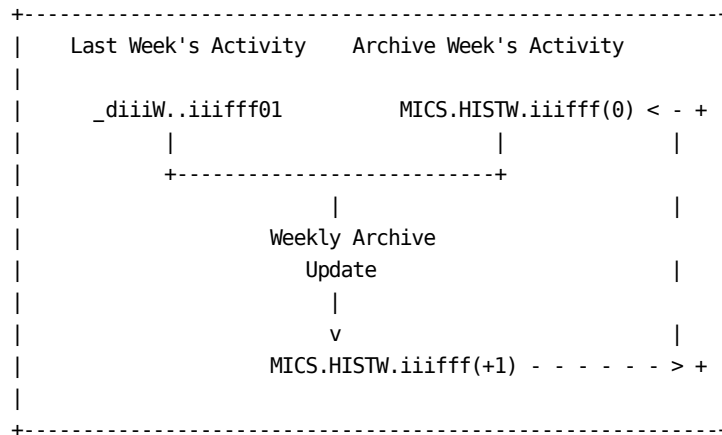


Figure 1-11. Archive Weekly Update Process

This archive process results in a single OS/390 GDG for each online defined File. The File is not broken up into Cycles as is the case with the online Files, and may be processed quite easily. By referencing the File's archive data set name and the SAS File name within the program, the entire history of a given File is retrievable.

The Files included in the archive weekly data if the default definitions are used include:

tapeprefix.MICS.HISTW.iiifff: These data sets contain the archived historical data for the WEEKS Timespan created on a weekly basis. The 'iiifff' part of each generation data group identifies the specific OS/390 data set that corresponds to the database File in the WEEKS Timespan that was archived. There is one GDG for each database File in the WEEKS Timespan. For specific file names, refer to Chapter 5, "Files", of each product's guide.

Figure 1-12 illustrates the update process performed with each File in the online MONTHS Timespan on a monthly basis. The activity from the previous month is read along with the cumulative monthly activity maintained in the archive data set (GDG level 0). The File representing last month's activity and the File containing the archive months history are input, interleaved, and output to create a new archive months history File (GDG data set level +1). Data that is older than the archive cut-off date is not output to the new archive months history File.

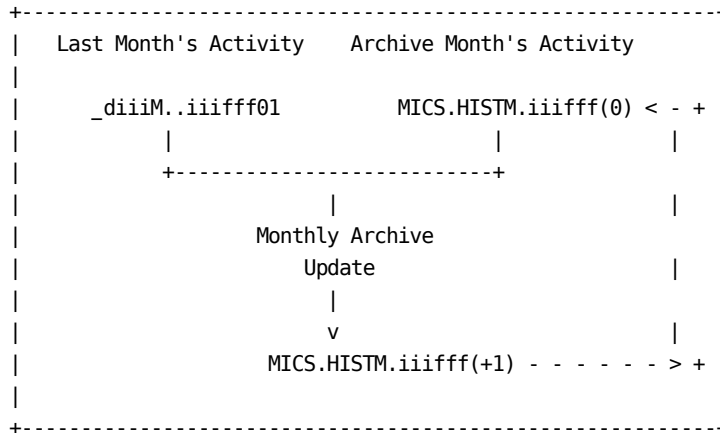


Figure 1-12. Archive Monthly Update Process

This archive process results in a single OS/390 GDG for each online defined File. The File is not broken up into Cycles as is the case with the online Files, and may be processed quite easily. By referencing the File's archive data set name and the SAS File name within the program, the entire history of a given File is retrievable.

The Files included in the archive monthly data include:

tapeprefix.MICS.HISTM.iiifff: These data sets contain the archived historical data for the MONTHS Timespan created on a monthly basis. The 'iiifff' part of each generation data group identifies the specific OS/390 data set that corresponds to the database File in the MONTHS Timespan that was archived. There is one GDG for each database File in the MONTHS Timespan. For specific file names, refer to Chapter 5, "Files", of each product's guide.

The accessing of a SAS file on tape is handled no differently than one on a disk, except for the JCL. The DD statement in the JCL simply points to the archive data set name, which has been cataloged as a tape data set. The processing restriction is that the user may access only one file at a time on the tape data set.

1.2.3 Special Data Structure

The CA MICS online and archive data structures should contain the information necessary to answer most of the questions that arise. There are times when the user may wish to access information that is not available in either of these data structures.

A process is available that allows the creation of databases without disruption of the normal CA MICS processing. This process is completely independent of the production CA MICS processing. It operates with its own databases and is controlled by its own checkpoint datasets.

Refer to Chapter 5, Special Processing, in the Planning, Installation, Operation, and Maintenance Guide for more information on this topic.

1.2.4 Derived Data Element Support

The Derived Data Element Option allows users to reduce the auxiliary storage used for database storage by eliminating derived data elements from DASD, and enabling convenient recreation of the derived data element values.

The derived data element option is activated by the `sharedprefix.MICS.PARMS(CPLXDEF)` parameter member. This member specifies the option as `DISK` or `COMP`. If the option is set to `DISK`, all files of all components will have derived data elements stored on DASD storage.

If the option is set to `COMP`, derived data elements will not be stored on DASD. These elements must be computed for each inquiry. This calculation consists of referencing a CA MICS autocall macro, `CALLDRV`, once per file retrieval from the CA MICS Database.

If you use the COMP option value and you wish to use derived data elements, you must request the calculation of these elements in your retrieval programs. Derived data elements are listed in an individual category in the data element detail lists in Chapter 5, "Files", of each of the product guides. The category name is "derived data elements."

To request derived element calculations in your programs, add a CALLDRV macro reference to the main data statements of your programs that use derived data elements. This macro will expand into SAS code that reconstructs derived data element values ONLY IF the derived elements are not on DASD. If the elements ARE on DASD, no code is expanded and no overhead incurred.

The CALLDRV macro reference must be coded in the form:

```
%CALLDRV(FFF=fff,CCC=ccc);
```

where "fff" is the file ID being input, and "ccc" is the ID of the component to which the file belongs.

For example, assume a program uses the derived element JOBPCSMS, the percent of jobs whose turnaround target objectives were not met. The program may resemble this:

```
DATA X;  
SET &PBATM..BATJOB01;  
IF JOBPCSMS GT 25 THEN OUTPUT;  
...
```

To include the CALLDRV reference, code:

```
DATA X;  
SET &PBATM..BATJOB01;  
%CALLDRV(FFF=JOB,CCC=SMF);    <-----  new line  
IF JOBPCSMS GT 25 THEN OUTPUT;  
...
```

1.3 Data Content

The Database Structure and Organization section presented the logical structure of the Database for both online and archive storage. This section presents database terminology that is a prerequisite to understanding the physical structure. This section provides an explanation of the naming conventions that apply to data sets, files, and data elements.

Data Set, File, and Data Element Label Conventions

An understanding of the labeling conventions that are employed in the definition of the Database will assist users in locating information contained in the database. These conventions have been defined by OS/390 data set, SAS file, and SAS Data Element (Note that standard SAS terminology for a data element is "variable" and the terms data element and variable are used interchangeably between the CA MICS and SAS documentation).

The following areas explain the labeling conventions for each category:

- 1 - OS/390 Data Set Naming Conventions
- 2 - Online SAS File Label Conventions
- 3 - Archive SAS File Label Conventions
- 4 - CA MICS Data Element Label Conventions
- 5 - CA MICS Data Element Categorization
- 6 - Common Data Elements

1.3.1 OS/390 Data Set Naming Conventions

The Database is physically organized as a series of online and archived OS/390 data sets, which associate to the Timespan level. The following data set names are the standard names assigned to these OS/390 data sets:

Database Online Storage

prefix.MICS.DETAIL,	DETAIL Timespan
prefix.MICS.DAYS,	DAYS Timespan
prefix.MICS.WEEKS,	WEEKS Timespan
prefix.MICS.MONTHS,	MONTHS Timespan
prefix.MICS.YEARS,	YEARS Timespan
sharedprefix.MICS.TABLES,	TABLES AREA

Database Archive Audit Storage

tapeprefix.MICS.AUDIT.xxxxxx(n),
xxxxxx is the SAS File Name

Database Archive Weekly History Storage

tapeprefix.MICS.HISTW.xxxxxx(n),
xxxxxx is the SAS File Name

Database Archive Monthly History Storage

tapeprefix.MICS.HISTM.xxxxxx(n),
xxxxxx is the SAS File Name

The data set name 'prefix' and 'tapeprefix' used above is defined by the installation.

Since these files may appear in every database in the Database Complex, the DD names used are formed from a root name plus a prefix character. The character used as a prefix is the character specified as the database identifier in the DATABASE statement of the JCLDEF parameter member. For example, if a Database Unit had a suffix of 'P' then the DD names would be as follows:

For the Online Files:

PDETAIL
PDAVS
PWEEKS
PMONTHS
PYEARS
PTABLES

For the Archive Files:

PAUxxxxxx
PHWxxxxxx
PHMxxxxxx

(where xxxxxx is a SAS file name)

1.3.2 Online SAS File Label Conventions

The SAS File Label plays an integral role in the use and access of the Database. As was mentioned in the Example of Data Structure and Reference section, the online Database contains "mini-files," each of which is a unique SAS file. The following discussion presents the conventions and rules for these file labels.

The SAS label that identifies a unique file within the Database contains two parts (part1.part2) where part1 names the Timespan (e.g., DAYS) and part2 the required File Cycle within that Timespan. Note that part1 is actually a SAS macro variable for the DDNAME defining the OS data set to be used, and in the definition of the Database, the DDNAME is directly related to the Timespan level.

Therefore, a SAS file label that is used for the SAS SET statement is defined as shown below:

```
                PART1.PART2
                &diiit..iiiffll
Database identifier_____||| ||| |
                ||| ||| |
Information Area level definition_| ||| |
                ||| |
Timespan level definition_____||| |
                ||| |
                File level definition_____||| |
                ||| |
                Cycle Level definition_____||| |
```

Database: Each database in the CA MICS system is assigned a unique one-character installation-defined identifier.

Information Area: The level names that may appear for Information Area include ADM, TSO, HAR, SCP, and BAT, for Administrative, TSO, Hardware Utilization, MVS SCP, and the Batch Information Areas respectively. See the individual product guides for a full list of Information Areas.

Timespan: The level names that may appear include X, D, W, M, Y, and T, for DETAIL, DAYS, WEEKS, MONTHS, YEARS, and TABLES respectively.

File: The names that may appear for Files are a function of each Information Area.

Cycle: The values that may appear for Cycle level must be in the two-digit numeric range of 01 to 99, with the upper value a function of how many Cycle versions (e.g., number of days, weeks, months, years) were defined for the File at installation. The 00 Cycle is supported for the WEEKS, MONTHS, and YEARS Timespan.

The following reflects several examples of referencing a specific SAS file in the (primary) Database:

&PTSOD..TSOTS001: The daily TSO System Activity File for yesterday.

&PTSOD..TSOTS002: The daily TSO System Activity File for two days ago.

&PTSOW..TS0TS001: The weekly TSO System Activity File for last week.

&PTSOW..TS0TS004: The weekly TSO System Activity File for four weeks ago.

&PTSOW..TS0TS000: The week-to-date TSO System Activity File for this week.

&PTSOM..TS0TS000: The month-to-date TSO System Activity File for this month.

THE %MFILE MACRO:

CA MICS also provides a SAS macro you can invoke in your programs to construct the SAS file label reference. The examples that follow use the %MFILE macro in SAS SET statements, but use of the macro is also allowed with other statements that require a file reference.

Statement Formats:

```
%MFILE(F=fff,TS=ttt,DB=x);  
%MFILE(F=fffcc,TS=ttt,DB=x);  
%MFILE(F=fffcc-cc,TS=ttt,DB=x);
```

where:

fff=file name key - e.g., JOB for the BATJOB file
cc=cycle number - e.g., 01
ttt=timespan - DETAIL, DAYS, WEEKS, MONTHS, YEARS, APPL
x=database unit identifier - single letter

The DB=x is optional. Will default to the current unit.

Example 1:

```
DATA X; SET &PBATX..BATJOB01;
```

can also be coded as:

```
DATA X; SET %MFILE(F=JOB,TS=DETAIL,DB=P);
```

Example 2:

```
DATA X; SET &PBATX..BATJOB02;
```

can also be coded as:

```
DATA X; SET %MFILE(F=JOB02,TS=DETAIL,DB=P);
```

Example 3:

```
DATA X;  
SET &PBATX..BATJOB03 &PBATX..BATJOB02 &PBATX..BATJOB01;
```

can also be coded as:

```
DATA X; SET %MFILE(F=JOB03-01,TS=DETAIL,DB=P);
```

1.3.3 Archive SAS File Label Conventions

The SAS File Label plays an integral role in the use and access of data stored in archive form. The following discussion presents the conventions and rules for these file labels.

The SAS label that identifies a unique file within the archive contains two parts (part1.part2) where part1 names the archive type and data set (e.g., DAYS) and part2 the required File. The SAS File Label must be associated with applicable OS data set name storing the SAS File.

Therefore, a SAS file label that is used for the SAS SET statement is defined as shown below, along with the required DD statement to allocate the associated data set.

```

                                PART1.PART2
                                aaiiff.iiiff
Archive type definition_____||| |
                                ||| |
                                ||| |
Information Area level definition_|_|_|
                                |
File level definition_____||

```

The JCL DD statement associated to File Label is:

```
//aaiiff DD DSN=prefix.MICS.type.aaiiff(0),DISP=SHR
        where 'type' is either AUDIT,HISTW, or HISTM.
```

Archive Type Definition: The archive type may include AU for Audit, HW for Weekly History, and HM for Monthly History.

Information Area: The level names that may appear for Information Area include ADM, TSO, HAR, SCP, and BAT, for Administrative, TSO, Hardware Utilization, MVS SCP, and the Batch Information Areas respectively. See the individual product guides for a full list of information areas.

File: The names that may appear for Files are a function of each Information Area.

The following reflects several examples of referencing a specific SAS file in each of the archive versions:

Retrieve Batch User Job Activity from last week's archive audit file:

```
//AUBATJOB DD DSN=prefix.MICS.AUDIT.BATJOB(0),DISP=SHR
SET AUBATJOB.BATJOB;
```

Retrieve CPU Processor Activity from the archive weekly history archive file:

```
//HWHARCPU DD DSN=prefix.MICS.HISTW.HARCPU(0),DISP=SHR
SET HWHARCPU.HARCPU;
```

Retrieve TSO System Activity from the archive monthly history archive file:

```
//HMTS0TS0 DD DSN=prefix.MICS.HISTM.TS0TS0(0),DISP=SHR  
  
SET HMTS0TS0.TS0TS0;
```

Note that the BAT_TS and BAT_ST files in the archive monthly history must be referenced as BAT0TS and BAT0ST to avoid a JCL error (underscore is an invalid character for data set or DD names), with the underscore being replaced by a zero.

1.3.4 CA MICS Data Element Naming Conventions

The several rules governing the definition of data element names used in the Database are discussed below.

Names must conform to all of the standard SAS naming conventions.

The first three characters of the name identify the SAS File in which the element is defined. These three character name prefixes are defined in the File Directory and Definitions section.

Common data elements do not have a three character name prefix (e.g., SYSID, YEAR, MONTH, etc.).

Data elements that have time stamp, date, or time formats are also qualified by their last two characters in the name, which should be 'TS' for a time-stamp format, 'TM' for a time format, and 'DT' for a date format. Note that there are a few data elements ending with TS, DT, or TM which are not time-stamps, dates, or times. In these cases, the data element's label identifies it correctly.

A data element typing is accomplished, where possible, with the middle (4th and 5th) character of the name. These two character codes specify the type of data element, including:

- o PC - Percentage
- o MP - Max Percentage
- o PS - Per Second Rate
- o MS - Max Per Second Rate
- o AV - Average
- o MX - Maximum
- o MN - Minimum

1.3.5 CA MICS Data Element Categorization

The data elements that are contained within each File in the CA MICS database are categorized according to their use and how they are acted upon by the CA MICS data management process.

There are eight data element categories, including:

- 1 - Common Control Data Elements
- 2 - Common Date and Time Data Elements
- 3 - Common Identification Data Elements
- 4 - Retained Data Elements
- 5 - Accumulated Data Elements
- 6 - Min/Max/Avg Data Elements
- 7 - Percentage Data Elements
- 8 - Derived (Computed) Data Elements

Each of these categories may be defined as follows.

Common Control Data Elements: Data elements that maintain a standard definition, even though they may appear in more than one File in the Database, and may be used for data sequencing, summarization, or selection.

Common Date and Time Data Elements: Data elements that are maintained in every File, except for Files maintained in the Administrative Information Area, that commonly define the dates and times identifying the processing periods for which data in the Files has been collected. The data elements include year, month, time zone, week of the year, day of the month, day of the week, ending hour of the period, starting date and time, and ending date and time of the period. The data elements may be used for data sequencing, summarization, or selection.

It is important that the user understand that the following date and time data elements lose significance as the File appears in different Timespans.

- o All date and time data elements are supported in the DETAIL and DAYS Timespans.
- o The DAY and DAYNAME data elements should not be used in the WEEKS, MONTHS and YEARS Timespans.
- o The WEEK data element should not be used in the MONTHS and YEARS Timespans.
- o The MONTH data element should not be used in the YEARS Timespan.

Common Identification Data Elements: Data elements that maintain a standard definition, even though they may appear in more than one File in the Database, and are used for purposes of level (CA MICS version) identification.

Retained Data Elements: Data elements that are uniquely defined for the File in which they are maintained, and contain the last value processed.

Accumulated Data Elements: Data elements that are uniquely defined for the File in which they are maintained, and contain the sum of all values processed, for a given File's level of data summarization.

Min/Max/Avg Data Elements: Data elements that are uniquely defined for the File in which they are maintained, and contain the minimum, maximum, or average value processed, for a given File's level of data summarization.

Percentage Data Elements: Data elements that are uniquely defined for the File in which they are maintained, and contain computed percentage or maximum percentage values, which are computed for a given File's level of data summarization.

Derived (Computed) Data Elements: Data elements that are uniquely, defined for the File in which they are maintained, and contain the results of special computations (e.g. paging rate per second), which are computed for a given File's level of data summarization.

1.3.6 Common Data Elements

Common data elements are generally data elements that have a common definition across database Information Areas or across files within an Information Area. Common data elements are used as the key data elements for sorting and summarization processes as well as their general use with SAS PROCs through the BY facility.

Common Data Elements, unlike the standard data elements, do not have a data element prefix, as was described in section 1.3.1.4, CA MICS Data Element Label Conventions. Instead, they have a mnemonic label, which is defined identically in each File in which they may appear.

The core set of CA MICS Platform common elements is listed, along with definitions, in Appendix A.2 of this guide. See the individual product guides for common elements associated with each product.

Chapter 2: Administrative Information Area Files

This chapter identifies each file in the ADM Information Area and defines its level of summarization and data sequencing. It also lists the elements contained in each file.

This section contains the following topics:

- [2.1 Exception Activity File](#) (see page 51)
- [2.2 Input History Log File](#) (see page 56)
- [2.3 Cycles Log File](#) (see page 60)
- [2.4 Split Index File](#) (see page 63)
- [2.5 Space Utilization File](#) (see page 67)

2.1 Exception Activity File

FILENAME=ADMEXCxx

The Exception Activity File contains data identifying user-defined exception conditions that have been recorded as an output of the DAY200 Exception Analyzer Step of the DAILY job stream. The data is maintained by system, user, if applicable, and exception type in the DAYS and MONTHS Timespans.

The following three sections describe the file's organization, list the data elements maintained, and provide usage hints.

- 1 - File Organization
- 2 - Data Elements List
- 3 - Usage Considerations

2.1.1 File Organization

The table below identifies data elements by which the file is sequenced and summarized in each timespan. N/A indicates that the file is not supported in a timespan. At the DETAIL level, data is sequenced but not summarized.

NOTE: The timespans in which a file is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

Timespan	Level of Data Granularity					
DETAIL	N/A					
DAYS	SYSID	ID	SEVERITY	INFOAREA	MGMTAREA	
	EXCCODE	EXCDESC1	COMMAND	PROGRAM	YEAR	
	MONTH	DAY	HOUR	ENDTS		
WEEKS	N/A					
MONTHS	SYSID	ID	SEVERITY	INFOAREA	MGMTAREA	
	EXCCODE	EXCDESC1	COMMAND	PROGRAM	YEAR	
	MONTH	ZONE				
YEARS	N/A					
TABLES	N/A					

Generation Date: Tue, May 12, 2009

NOTE: This file was generated with ESSENTIAL=ALL option in effect. All data elements defined in the file are generated.

NOTE: This file was generated with DERIVED=DISK option in effect. All computed data elements are kept on the file on auxiliary storage.

Figure 2-1. ADMEXC Timespan Granularity Chart

2.1.2 Data Elements List

The table below identifies data elements contained in this file. The entries for each data element are:

TIMESPAN: Defines the timespans in which the data element is supported. The timespans are indicated by the letters "XDWMYT" as follows:

X - DETAIL
 D - DAYS
 W - WEEKS
 M - MONTHS
 Y - YEARS
 T - TABLES AREA
 . - File is not supported

The timespan field also indicates Essential Elements with the letter E, if applicable.

DATA ELEMENT: The data element name.

DATA ELEMENT DESCRIPTION: The data element's long name.

The timespans in which a data element is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

GENERATION DATE: Tue, May 12, 2009

Note: Essential data elements are identified by an "E" under the Timespan asterisk (*) column.

Time- Span *	Data Element	Data Element Description (LABEL)
-----------------	-----------------	-------------------------------------

Sequence/Summary Data Elements

.D.M..E	COMMAND	- Command Name
.D...E	DAY	- Day of Month
.D.M..E	EXCCODE	- Exception Code
.D.M..E	EXCDESC1	- Exception Description Text
.D...E	HOUR	- Hour of Day
.D.M..E	ID	- Job or User ID

.D.M..E INFOAREA - Information Area
.D.M..E MGMTAREA - Management Area
.D.M..E PROGRAM - Program Name
.D.M..E SEVERITY - Severity Level
.D.M..E SYSID - System Identifier
.D...E WEEK - Week of Year
.D.M..E YEAR - Year of Century
.D.M..E ZONE - Time Zone

Common Data Elements

.D...E DAYNAME - Name of Day of Week
.D.M..E DBFILE - Information Area/File
.D.M..E ENDTS - End Time Stamp
.D.M..E INTERVLS - Number of Recording Intervals
.D.M..E MICSVER - CA MICS Version Number
.D.M..E MONTH - Month of Year
.D.M..E OBSERVNO - Observation Number
.D.M..E TIMESPAN - Time-Period

Retained Data Elements

.D...E EXCDESC2 - Exception Values Text

Accumulated Data Elements

.D.M..E EXCCOUNT - Count of Exception Occurrences

2.1.3 Usage Considerations

This section identifies any special considerations or techniques related to using the ADMEXC file. Additionally, several sample retrieval examples are provided to facilitate the use of this file.

In the examples, a SAS macro variable is used to specify the DDname part of the CA MICS file name. These macro variables are a standard part of CA MICS and are available for all files. The macro variable name has the form &diit, where d is the database identifier, iii is the information area name, and t is the timespan. For the examples, a database identifier of P is used. The identifier is installation dependent, so you should find out what the identifiers are at your installation.

Special Considerations/Techniques

1. The data element 'ID' contains the TSO userid or the batch jobname, for a TSO or batch based exception respectively.
2. The following data elements only have meaning when using the ADMEXCnn file in the DAYS timespan in that they lose significance once summarization has been performed. These data elements should only be referenced when using the ADMEXCnn file in the DAYS timespan.

EXCDESC2 - Exception Values Text

3. Care must be exercised in using the special date and time data elements contained in each CA MICS file. As the file's granularity increases in higher Timespans certain fields lose significance and should not be used in those cases.
 - o HOUR should not be used in MONTHS.
 - o DAY, DAYNAME, or WEEK should not be used in MONTHS.
4. The ENDTS and STARTTS, when appearing in the MONTHS Timespans, bounds the span of time over which the data has been summarized with STARTTS being the lowest date and time and ENDTS the highest date and time for the data summarized. The data elements STARTTS and ENDTS have different meanings when used in the DAYS Timespan with their purpose described below:
 - o STARTTS is not supported in this File.
 - o ENDTS represents the ENDTS of the record from which the exception was detected.

Retrieval Examples

1. Retrieve the detail exceptions identified yesterday:

```
DATA;  
SET &PADMD..ADMEXC01;  
PROC PRINT; VAR SYSID ENDTS ID EXCCODE EXCDESC1;
```

2. Report the number of exceptions by user for the last two months.

```
DATA;  
SET &PADMM..ADMEXC01 &PADMM..ADMEXC02;  
PROC FREQ; TABLES ID*EXCCODE;
```

3. Retrieve the detail exceptions processed yesterday:

```
DATA;  
SET &PADMD..ADMEXC01;  
ENDDT=DATEPART(ENDTS);  
IF ENDDT=TODAY()-1;  
PROC PRINT; VAR SYSID ENDTS ID EXCCODE EXCDESC1;
```

2.2 Input History Log File

FILENAME=ADMIHL01

The Input History Log File contains data identifying the raw data that has been input for CA MICS database updating over the last N days, where N is user-defined.

The file is maintained within the DAYS Timespan and is referenced by the label ADMIHL01. Note that this file is only maintained for one cycle and is therefore always referenced as DAYS.ADMIHL01.

The following three sections describe the file's organization, list the data elements maintained, and provide usage hints.

- 1 - File Organization
- 2 - Data Elements List
- 3 - Usage Considerations

2.2.1 File Organization

The table below identifies data elements by which the file is sequenced and summarized in each timespan. N/A indicates that the file is not supported in a timespan. At the DETAIL level, data is sequenced but not summarized.

NOTE: The timespans in which a file is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

Timespan	Level of Data Granularity
DETAIL	N/A
DAYS	ORGSYSID MICSCOMP *DESCEND IHLRUNTS
WEEKS	N/A
MONTHS	N/A
YEARS	N/A
TABLES	N/A

NOTE: This file was generated with ESSENTIAL=ALL option in effect. All data elements defined in the file are generated.

NOTE: This file was generated with DERIVED=DISK option in effect. All computed data elements are kept on the file on auxiliary storage.

Figure 2-2. ADMIHL Timespan Granularity Chart

2.2.2 Data Elements List

The table below identifies data elements contained in this file. The entries for each data element are:

TIMESPAN: Defines the timespans in which the data element is supported. The timespans are indicated by the letters "XDMYT" as follows:

- X - DETAIL
- D - DAYS
- W - WEEKS
- M - MONTHS
- Y - YEARS
- T - TABLES AREA
- . - File is not supported

The timespan field also indicates Essential Elements with the letter E, if applicable.

DATA ELEMENT: The data element name.

DATA ELEMENT DESCRIPTION: The data element's long name.

The timespans in which a data element is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

Note: Essential data elements are identified by an "E" under the Timespan asterisk (*) column.

Time- Span *	Data Element	Data Element Description (LABEL)
-----	-----	-----

Sequence/Summary Data Elements

- .D...E IHLRUNTS - CA MICS DAILY Job Run Time Stamp
- .D...E MICSCOMP - CA MICS Component Identification
- .D...E ORGSYSID - Originating System Identification

Common Data Elements

- .D...E MICSVER - CA MICS Version Number
- .D...E SYSID - System Identifier

Retained Data Elements

.D...E IHLFHITS - Force Range High Time Stamp
.D...E IHLFLOTS - Force Range Low Time Stamp
.D...E IHLRTNE - Routine Name
.D...E IHLSHITS - Select Range High Time Stamp
.D...E IHLSLOTS - Select Range Low Time Stamp

Accumulated Data Elements

.D...E IHLDDATE - Input Records Dropped - Date Check
.D...E IHLDOPTN - Input Records Dropped - Option
.D...E IHLDSHRT - Input Records Dropped - Short Records
.D...E IHLDUSER - Input Records Dropped - User Exit
.D...E IHLFORCD - Input Records Kept by Force
.D...E IHLKEPT - Input Records Kept

Minimum Data Elements

.D...E IHLLOWTS - Input Data Low Time Stamp

Maximum Data Elements

.D...E IHLHITS - Input Data High Time Stamp

2.2.3 Usage Considerations

This section identifies any special considerations or techniques related to using the ADMIHL file. Additionally, several sample retrieval examples are provided to facilitate the use of this file.

In the examples, a SAS macro variable is used to specify the DDname part of the CA MICS file name. These macro variables are a standard part of CA MICS and are available for all files. The macro variable name has the form &diit, where d is the database identifier, iii is the information area name, and t is the timespan. For the examples, a database identifier of P is used. The identifier is installation dependent, so you should find out what the identifiers are at your installation.

Special Considerations/Techniques

None.

Retrieval Examples

1. Retrieve the date/time ranges for the data processed yesterday:

```
DATA;  
SET &PADMD..ADMIHL01;  
PROC PRINT; VAR SYSID MICSCOMP IHLOWTS IHLHITS;
```

2. Report the date/time ranges processed for CA TSO/MON PM data over the last 10 days:

```
DATA;  
SET &PADMD..ADMIHL01;  
X=DATEPART(IHLOWTS);  
Y=DATEPART(IHLHITS);  
TENDAYS=TODAY()-10;  
IF X GE TENDAYS OR Y GE TENDAYS;  
IF MICSCOMP='TSO';  
PROC PRINT; VAR SYSID IHLOWTS IHLHITS;
```

2.3 Cycles Log File

FILENAME=ADMCYC01

The Cycles Log File contains one observation for each cycle within a component in your online CA MICS database. You can use the ADMCYC file to find the CA MICS cycle number in which data from a known date and time may reside.

The Cycles Log File is a parallel file, meaning that its record structure is similar to that of the Input History Log File (ADMIHL).

The following sections describe the file's organization and list the data elements maintained.

- 1 - File Organization
- 2 - Data Elements List

2.3.1 File Organization

The table below identifies data elements by which the file is sequenced and summarized in each timespan. N/A indicates that the file is not supported in a timespan. At the DETAIL level, data is sequenced but not summarized.

NOTE: The timespans in which a file is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

Timespan	Level of Data Granularity				
DETAIL	N/A				
DAYS	SYSID	MICSCOMP	MICSFILE	IHLCYCLE	
WEEKS	SYSID	MICSCOMP	MICSFILE	IHLCYCLE	
MONTHS	SYSID	MICSCOMP	MICSFILE	IHLCYCLE	
YEARS	SYSID	MICSCOMP	MICSFILE	IHLCYCLE	
TABLES	N/A				

Generation Date: Fri, Jul 9, 1999

NOTE: This file was generated with ESSENTIAL=ALL option in effect. All data elements defined in the file are generated.

NOTE: This file was generated with DERIVED=DISK option in effect. All computed data elements are kept on the file on auxiliary storage.

Figure 2-3. ADMCYC Timespan Granularity Chart

2.3.2 Data Elements List

The table below identifies data elements contained in this file. The entries for each data element are:

TIMESPAN: Defines the timespans in which the data element is supported. The timespans are indicated by the letters "XDMYT" as follows:

- X - DETAIL
- D - DAYS
- W - WEEKS
- M - MONTHS
- Y - YEARS
- T - TABLES AREA
- . - File is not supported

The timespan field also indicates Essential Elements with the letter E, if applicable.

DATA ELEMENT: The data element name.

DATA ELEMENT DESCRIPTION: The data element's long name.

The timespans in which a data element is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

GENERATION DATE: Tue, May 12, 2009

Note: Essential data elements are identified by an "E" under the Timespan asterisk (*) column.

Time- Span *	Data Element	Data Element Description (LABEL)
-----	-----	-----

Sequence/Summary Data Elements

-E IHLCYCLE - File Cycle
-E MICSCOMP - CA MICS Component Identification
-E MICSFILE - FILE ID
-E SYSID - System Identifier

Common Data Elements

.....E DAY - Day of Month
.....E MONTH - Month of Year
.....E WEEK - Week of Year
.....E YEAR - Year of Century

Minimum Data Elements

.....E IHLLOWTS - Input Data Low Time Stamp

Maximum Data Elements

.....E IHLHITS - Input Data High Time Stamp

2.4 Split Index File

FILENAME=ADMJHL01

The Split Index File contains data identifying the raw data that was processed by SMF Director. It is used internally by CA MICS and should not be modified.

The following three sections describe the file's organization, list the data elements maintained, and provide usage hints.

- 1 - File Organization
- 2 - Data Elements List
- 3 - Usage Considerations

2.4.1 File Organization

The table below identifies data elements by which the file is sequenced and summarized in each timespan. N/A indicates that the file is not supported in a timespan. At the DETAIL level, data is sequenced but not summarized.

NOTE: The timespans in which a file is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

Timespan	Level of Data Granularity
DETAIL	N/A
DAYS	ORGSYSID MICSCOMP *DESCEND JHLRUNTS JHLDSN
WEEKS	N/A
MONTHS	N/A
YEARS	N/A
TABLES	N/A

NOTE: This file was generated with ESSENTIAL=ALL option in effect. All data elements defined in the file are generated.

NOTE: This file was generated with DERIVED=DISK option in effect. All computed data elements are kept on the file on auxiliary storage.

Figure 2-2. ADMJHL Timespan Granularity Chart

2.4.2 Data Elements List

The table below identifies data elements contained in this file. The entries for each data element are:

TIMESPAN: Defines the timespans in which the data element is supported. The timespans are indicated by the letters "XDMYT" as follows:

X - DETAIL
D - DAYS
W - WEEKS
M - MONTHS
Y - YEARS
T - TABLES AREA
. - File is not supported

The timespan field also indicates Essential Elements with the letter E, if applicable.

DATA ELEMENT: The data element name.

DATA ELEMENT DESCRIPTION: The data element's long name.

The timespans in which a data element is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

Note: Essential data elements are identified by an "E" under the Timespan asterisk (*) column.

Time-Span *	Data Element	Data Element Description (LABEL)

Sequence/Summary Data Elements

.D...E JHLDSN - Split Data Set Name
.D...E JHLRUNTS - Update run datetime
.D...E MICSCOMP - CA MICS Component Identification
.D...E ORGSYSID - Originating System Identification

Retained Data Elements

.D...E JHLCLO - Dataset close time
.D...E JHLSTEP - Job step

Minimum Data Elements

.D....E JHLST - Start Datetime

Maximum Data Elements

.D....E JHLET - End time

2.4.3 Usage Considerations

This section identifies any special considerations or techniques related to using the ADMJHL file.

In the examples, a SAS macro variable is used to specify the DDname part of the CA MICS file name. These macro variables are a standard part of CA MICS and are available for all files. The macro variable name has the form &diit, where d is the database identifier, iii is the information area name, and t is the timespan. For the examples, a database identifier of P is used. The identifier is installation dependent, so you should find out what the identifiers are at your installation.

Special Considerations/Techniques

This file is used internally by CA MICS processing to identify and track the split indices processed by CA MICS. It should not be modified. The files processed by CA MICS are reported on the MICSLOG in each database update process. Consequently, retrieval examples are not included.

2.5 Space Utilization File

FILENAME=ADMSPC01

The Space Utilization File contains data identifying the space usage of the DAILY operational jobs, such as incremental and DAILY update.

The following three sections describe the file's organization, list the data elements maintained, and provide usage hints.

- 1 - File Organization
- 2 - Data Elements List
- 3 - Usage Considerations

2.5.1 File Organization

The table below identifies data elements by which the file is sequenced and summarized in each timespan. N/A indicates that the file is not supported in a timespan. At the DETAIL level, data is sequenced but not summarized.

NOTE: The timespans in which a file is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

Timespan	Level of Data Granularity
DETAIL	N/A
DAYS	SPCRUNTS
WEEKS	N/A
MONTHS	N/A
YEARS	N/A
TABLES	N/A

NOTE: This file was generated with ESSENTIAL=ALL option in effect. All data elements defined in the file are generated.

NOTE: This file was generated with DERIVED=DISK option in effect. All computed data elements are kept on the file on auxiliary storage.

Figure 2-2. ADMSPC Timespan Granularity Chart

2.5.2 Data Elements List

The table below identifies data elements contained in this file. The entries for each data element are:

TIMESPAN: Defines the timespans in which the data element is supported. The timespans are indicated by the letters "XDWMYT" as follows:

X - DETAIL
 D - DAYS
 W - WEEKS
 M - MONTHS
 Y - YEARS
 T - TABLES AREA
 . - File is not supported

The timespan field also indicates Essential Elements with the letter E, if applicable.

DATA ELEMENT: The data element name.

DATA ELEMENT DESCRIPTION: The data element's long name.

The timespans in which a data element is supported are defined by each installation when CA MICS is installed. Therefore, this table has been generated as part of the installation process to accurately reflect the CA MICS system at your installation.

Note: Essential data elements are identified by an "E" under the Timespan asterisk (*) column.

Time- Span *	Data Element	Data Element Description (LABEL)
-----------------	-----------------	-------------------------------------

Sequence/Summary Data Elements

.D...E SPCRUNTS - Space Reporting Run Time Stamp

Common Data Elements

.D...E DAY - Day of Month
 .D...E DAYNAME - Name of Day of Week
 .D...E DSNAME - Data Set Name
 .D...E HOUR - Hour of Day
 .D...E LIBNAME - SAS Libname

.D....E MICSCOMP - CA MICS Component Identification
.D....E MONTH - Month of Year
.D....E WEEK - Week of Year
.D....E YEAR - Year of Century
.D....E ZONE - Time Zone

Retained Data Elements

.D....E SPCALLOC - Tracks Allocated
.D....E SPCBLKS - Blocks Per Track
.D....E SPCBLKSZ - Block Size
.D....E SPCDVTYP - Device Type
.D....E SPCFREE - Tracks Free
.D....E SPCMEMCT - Number of Members
.D....E SPCPCMAX - Max Percent Tracks Used
.D....E SPCPCUSD - Percent Tracks Used
.D....E SPCSTEP - Job step
.D....E SPCTYPE - Library Type
.D....E SPCUSED - Tracks Used
.D....E SPCVOL - Number of Volumes

Maximum Data Elements

.D....E SPCMXUSD - Max Tracks Used

2.5.3 Usage Considerations

This section identifies any special considerations or techniques related to using the ADMSPC file. Additionally, retrieval examples are provided to facilitate the use of this file. MICF inquiry BASLA5 is also available to report on this file.

In the examples, a SAS macro variable is used to specify the DDname part of the CA MICS file name. These macro variables are a standard part of CA MICS and are available for all files. The macro variable name has the form &diit, where d is the database identifier, iii is the information area name, and t is the timespan. For the examples, a database identifier of P is used. The identifier is installation dependent, so you should find out what the identifiers are at your installation.

Special Considerations/Techniques

1. This file is only available at the DAYS timespan. It is sequenced by the SPCRUNTS data element but is not summarized.
2. This file is a spin file. This means only one cycle can exist, so when new observations are added to the file, older observations are removed based on the SPCUTILLIMIT specified in prefix.MICS.PARMS(EXECDEF).
3. Each observation is a snapshot of the space used by the file type (see SPCTYPE) during the operational update job step. The space utilization of the CA MICS database itself is reported prior to cycle aging, and may not reflect the space used at the end of the step (and job).

Retrieval Examples

1. Retrieve the work space usage for the DAY030 step executed yesterday:

```
DATA TEMP ;
SET &PADMD..ADMSPC01;
  IF DATEPART(SPCRUNTS)=TODAY()-1 AND
    LIBNAME =: 'WORK' and SPCSTEP = 'DAY030' ;
RUN;
PROC PRINT;
VAR MICSCOMP SPCSTEP LIBNAME
    SPCALLOC SPCUSED SPCMXUSD SPCPCUSD SPCPCMAX ;
```

```
RUN;
```

2. Retrieve all the observations from yesterday and order by MICS Component, step and execution date/time:

```
DATA TEMP ;  
  SET N0days.ADMSPC01;  
  IF DATEPART(SPCRUNTS)=TODAY()-5 ;  
RUN;  
PROC SORT IN=TEMP OUT=SORTED ;  
  BY MICSCOMP SPCSTEP descending sprunts ;  
RUN;  
PROC PRINT;  
VAR MICSCOMP SPCSTEP SPCRUNTS LIBNAME  
  SPCALLOC SPCUSED SPCMXUSD SPCPCUSD SPCPCMAX ;  
RUN;
```

Chapter 3: Field Developed Applications

Use this section to add data elements that are supported by your Field Developed Applications. Adding sections to this chapter can be done by following the instructions in the CA MICS System Modification Guide.

Appendix A: DATA DICTIONARY

The Data Dictionary is only available at your site, where it has been customized to your configuration and your product change level.

To see the Data Dictionary at your site, follow the instructions under Document Browse in the Document Access guide.