

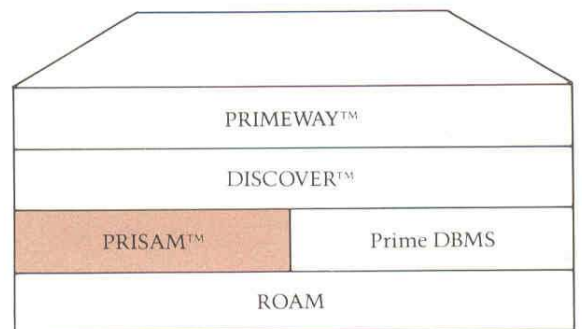
PRIME

PRISAM™

(Prime's Recoverable Indexed Sequential Access Method)

Features

- Manages indexed, relative and sequential files
- Supports user-defined transactions
- Provides for recovery from system halts
- Provides for media failure recovery
- Permits multivolume files
- Provides for software error recovery
- Allows up to 24 keys per file
- Permits concatenated keys
- Offers interactive, menu-driven File Administration Utility (FAU)
- Provides high transaction throughput



Description

PRISAM (Prime's Recoverable Indexed Sequential Access Method) data management software system is designed to provide solutions to users who require automatic recovery, simple file structures and strong performance in a transactional multi-user environment. PRISAM, like Prime DBMS, is based on ROAM (Recovery Oriented Access Method), a low-level access system for controlling concurrent data access and recovery.

PRISAM files are record-based, which means that all reading and writing takes place at the record level. PRISAM supports indexed, relative and sequential file organization. Record definitions and file maintenance can be accomplished easily through the PRISAM interactive, menu-driven File Administrator Utility (FAU).

Once PRISAM files are defined, users can access them in two ways: through high level COBOL statements in COBOL programs, or through a call level interface in Prime languages that support calls. In addition, a separate Prime data management product, the DISCOVER query language/reporter, can retrieve and update PRISAM files.

PRISAM, running on any Prime 50 Series™ computer with terminal support provided by Forms Management System (FORMS), offers users a powerful environment for developing high-performance transactional applications.

Recovery and Data Integrity

PRISAM, through ROAM, provides comprehensive recovery to protect data integrity and ensure high availability. Although most ROAM functions are invisible to the user, ROAM does contain several user utilities designed to work with transaction mode files. PRISAM and ROAM provide recovery from system halts, media failure and software errors.

User-Defined Transactions

At the heart of all PRISAM recovery functions is the user-defined transaction. Transactions essentially define the scope of the recovery or the recovery unit. Each file access that a program performs on a PRISAM file must occur within a transaction. If a transaction is interrupted before completion, any partial updates made are automatically rolled back so that data and currency (the position of the program within the file) are restored to their pre-transaction state. Any number of transactions may be performed in one program.

Prime users can access both PRISAM and Prime DBMS records in the same transaction. Users can thereby combine the power of a DBMS with the strong performance of PRISAM simple file structures. The recovery of both products is synchronized and maintained automatically through ROAM.

PRISAM transactions allow users to combine operations on a file into groups that succeed or fail as a unit. Information about changed records is recorded in After-Image and Before-Image files during normal operations.

Recovery from System Halt

Recovery from system halt, or roll-back recovery, refers to recovery from machine failures. If a system halt occurs, Before-Images of the affected PRISAM files will be applied to roll the current files back to a consistent pre-crash state. As a result, applications can be up and running again quickly.

Recovery from Storage Media Failure

In the event of a storage media failure, PRISAM provides roll-forward recovery. A PRISAM file is restored to a workable state by taking an older, archived version of the file and applying Before- and After-Images of records to bring the file back to the most current consistent state possible.

Recovery from Software Errors

Recovery from software errors, or clean up, is handled automatically by ROAM. However, PRISAM also offers manual clean up from application program and system software malfunctions, as a backup precaution.

PRISAM File Organization

PRISAM supports indexed, relative and sequential file organizations. A single PRISAM file can span multiple disk volumes on a single machine. Therefore, the size of a file is limited only by the physical disk space available. PRISAM lets users gain access to these files either randomly or sequentially for indexed and relative files, or sequentially for sequential files on a record-by-record basis. Definition of PRISAM records and file attributes is done through the combination of a file editor and PRISAM's interactive File Administrator Utility (FAU). The resulting record definitions and file attributes are stored as part of the PRISAM file and can be displayed and changed whenever necessary.

Indexed Files

Indexed files consist of data records and one or more indexes used to access those records. The records are logically ordered by keys, which consist of a data item or even a concatenation of data items defined within a record.

Concatenated keys may contain contiguous or non-contiguous items for greater flexibility. Up to 24 keys can be defined in each PRISAM file. Standard COBOL allows up to six keys to be accessed through the COBOL Language interface. The maximum length of each key is 600 bytes. Each key represents a separate index for that file.

Users can access indexed PRISAM files either sequentially or randomly by key value. Random access takes place according to a specific key value (e.g., READ record with key 1 = XXY). Sequential access takes place relative to a specific index, so that records are accessed according to ordered key values. The record with the lowest key value is the first record, and the record with the highest key value is the last record.

For example, for a PRISAM file containing inventory information with two keys defined (PARTNO and QUANTITY-ON-HAND), it is possible to read the PRISAM file in part number sequence or by ascending quantity on hand.

PRISAM files are flexible enough to evolve with an application. Additional keys, and thus indices, can be added later as needed.

Relative Files

Relative files are ordered by relative record numbers, which represent a record's position in the file relative to the beginning. The user assigns a record number to the record when it is inserted into the file. Records may be randomly placed in the file and randomly retrieved by relative record number, providing quick access.

Relative files can also be accessed sequentially by relative record number. The first record has the lowest relative record number, and the last record has the highest.

Sequential Files

Sequential files are arranged according to the order in which the records are originally put into the file. Sequential files have the advantage of fast access on a first-in, first-out (FIFO), or last-in, first-out (LIFO) basis, because records can be accessed in either forward or reverse order.

PRISAM Administration

There are two levels of administration provided for PRISAM files: the application level and the operational level.

The application level is addressed through the File Administrator Utility (FAU) and deals mainly with PRISAM file definitions and content. The File Administrator Utility simplifies maintenance through the use of interactive menus. Its functions include:

- Creating a PRISAM file description
- Deleting a PRISAM file and its description
- Displaying data descriptions
- Examining statistics
- Reorganizing data and indices

The operational or physical administration of PRISAM files is handled through the ROAM utilities. Their functions include:

- Back-up
- Recovery
- Copying PRISAM files
- Moving PRISAM files

Support and Training

Prime provides comprehensive education covering all aspects of application development, training, operation and administration. With the purchase of PRISAM, customers also receive a complete set of documentation and manuals.

Customer Service

Prime's worldwide Customer Service organization, including field support specialists and Customer Support Center specialists, provides high quality, competitively-priced systems service. The Customer Support Center serves as a clearing house for all reported problems, dispatching them to the appropriate function for timely resolution. In addition, Software Support Specialists work with customers to provide direct, timely, and accurate problem diagnosis and resolution. They ensure Prime's commitment to high product availability.

Software support is available to all customers who sign a standard software maintenance contract. A telephone hotline (toll-free in the U.S.) is available for customer assistance. In addition, software support provides on-site assistance, software update services, and problem reporting and escalation.

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