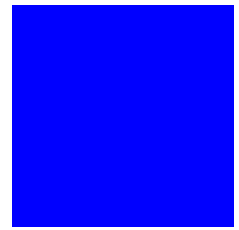


CIMS Lab, Inc.



CIMS Managed Archival and Retrieval Technology

User Guide

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Mailing Address

CIMS Lab, Inc.
3013 Douglas Blvd., Suite 120
Roseville, CA 95661-3842

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Preface

Today's Enterprise requires that large amounts of data be maintained over long periods of time. Some of this data, such as corporate DB2 or Oracle databases, relate directly to the day-to-day business goals of the organization. Other data sources such as System Management Facility (SMF) and Resource Management Facility (RMF) data relate to Chargeback, Resource Accounting and Capacity Planning functions within the organization. The Chargeback, Resource Accounting and Capacity Planning are then used as feeds to important corporate systems such as Forecasting, Product Profitability, General Ledger or Activity Based Costing/Management. Database products provide many tools and utilities for the storage and retrieval of the various data elements; however, the IS Manager responsible for SMF/RMF data has, in the past, been left with a few utilities that could be used for archival, and almost no facilities that could be used for the selective retrieval of data.

CIMSMART combines safe, effective, automated archival of SMF/RMF data with a comprehensive methodology for selectively retrieving specific data elements at a moment's notice. These data elements may then be fed into any reporting or processing system that uses standard SMF/RMF data as input. CIMSMART is an essential product for managing large volumes of SMF/RMF data.

Philosophy

Originally founded in 1974, CIMS has focused on meeting the financial and resource reporting requirements of Information Services Departments. CIMS has evolved with corporate IT management requirements. Focused commitment to client service and support sets CIMS apart from competing products. Our goal is to provide the best Chargeback, Resource Reporting Software and Utilities in the world at the lowest possible cost to our customers.

The CIMS Lab strongly believes in and executes the concept of continuous product improvement. Customers have access to CIMS product development personnel to ensure that customer feedback and other critical issues are incorporated into the next release of the product.

Contacting the CIMS Lab

You can contact us with any questions or problems you have. Please use one of the methods below to contact us.

For product assistance or information, contact:

| | |
|-------------------------|--|
| USA & Canada, toll free | (800) 283-4267 |
| International | (916) 783-8525 |
| FAX | (916) 783-2090 |
| World Wide Web | www.cimslab.com |

Our Mailing Address is:

CIMS Lab, Inc.
3013 Douglas Blvd., Suite 120
Roseville, CA 95661-3842

About This Guide

This guide explains how to use the CIMS Archival & Retrieval Technology System for SMF/RMF data.

This guide assumes that the appropriate CIMS components have been installed at your site. The instructions for installing the product are contained in *Chapter A, Installation* of this manual.

| Ch. No. | Chapter Name | Content Description |
|---------|--|--|
| 1 | <i>Introduction</i> | Overview of the functions and features of CIMSMART. |
| 2 | <i>1st Storage Tier</i> | Philosophy of Storage Tier 1 and the program used to create Storage Tier 1. |
| 3 | <i>2nd Storage Tier</i> | Philosophy of Storage Tier 2 and the program used to create Storage Tier 2. |
| 4 | <i>3rd Storage Tier</i> | Philosophy of Storage Tier 3 and the program used to create Storage Tier 3. |
| 5 | <i>Archival Utilities</i> | A description of the programs that allow historical SMF data to be added to the 2nd and 3rd Storage Tiers. |
| 6 | <i>Retrieval of Data</i> | Overview of the parameters used for selective retrieval of SMF records. |
| 7 | <i>Archive Contents Reporting Procedures</i> | A review of the various reports produced by CIMSMART. |
| 8 | <i>Utilities</i> | A description of the utility programs available within CIMSMART for the management of the data. |
| 9 | <i>ISPF/PDF Interface</i> | A direct online means of communicating with CIMSMART. |
| A | <i>Installation</i> | A description of the installation process. |
| B | <i>Data File Descriptions</i> | Available with Release 1.3 |
| C | <i>Sample Reports</i> | Available with Release 1.3 |

Conventions

Some or all of the following conventions appear in this guide:

| Symbol or Type Style | Represents | Example |
|-------------------------|--|--|
| Bold | a new term | ...called a source object . |
| <i>Alternate color</i> | (online only) hotlinked cross-references to other sections in this guide; if you are viewing this guide online in PDF format, you can click the cross-reference to jump directly to its location | ...see <i>Chapter 3, Data Migration</i> . |
| <i>Italic</i> | words that are emphasized | ...the entry <i>after</i> the current entry... |
| | the titles of other documents | <i>CIMS Chargeback for MVS Release Notes</i> |
| | syntax variables | <code>COPY filename</code> |
| Monospace | directories, file names, command names, computer code | <code>&HIGHLVL.SRCLIB</code> |
| | computer screen text, system responses, command line commands | Copy file? Y/N |
| Monospace bold | what a user types | ...enter RUN APP.EXE in the Application field |
| ▶ | choosing a command from a cascading menu | File ▶ Import ▶ Object |
| Highlighted Screen Text | used to callout screen text on character-based screen captures. (When viewed online, the screen text will be blue.) | Dataset.... Product.... Parmlib.... |

Introduction

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System Overview

The CIMSMART product archives SMF data whenever a Switch SMF command is issued. The data is ultimately written to an archive file that occupies one or more physical datasets residing on one or more tape volumes. Optionally, the data may be written to a DASD file that may be subsequently spooled to tape by DFHSM or a similar Storage Management System.

CIMSMART retrieves the desired data through the use of parameter selection statements. The parameter statements provide a range of options as to data selection.

CIMSMART is made up of several programs for archival and retrieval of SMF/RMF data. There are also several CIMSMART Utilities for data restoration and correction.

CIMSMART Archival Principles

Tiers

For maximum flexibility, CIMSMART uses a three tier archival design. The creation of the three tiers is as follows:

| | |
|---------------|--|
| Tier 1 | When a "Switch SMF" command is issued (either manually or when a recording cluster becomes full), IBM's User Exit "IEFU29" is invoked. "IEFU29" issues a Start command directed at a Procedure Library (PROCLIB) member (a model is supplied in the CIMSMART Datafile Library as the CIMSSMF member) necessary to run IBM's SMF Dump Utility (IFASMFDP). Storage Tier 1 is the collection of datasets that contain the SMF records dumped by IFASMFDP during a given day and the control information describing those datasets. Each execution of the Storage Tier 1 offload is referred to as the Catenation Event. |
|---------------|--|

Tier 2 Data is moved from Storage Tier 1 to Storage Tier 2 once per day. This process is referred to as the Daily Collection. During the Daily Collection, the Storage Tier 1 Control Cluster is accessed, and all SMF records for all System IDs time stamped as of the previous day are read from Storage Tier 1 and then written to a single Daily Collection File within Storage Tier 2.

Each 2nd tier dataset will reside on its own set of tape or DASD volumes. The entire collection of 2nd tier datasets is considered the Storage for Tier 2. Even though the entire collection of datasets is considered the Storage for Tier 2, each individual dataset within the Storage for Tier 2 is catalogued separately to allow easier access to information.

Tier 3 Data is moved from the Storage Tier 2 to Storage Tier 3 on a weekly, monthly or user defined basis. This process is known as the Consolidated History Load. During the Consolidated History Load, all SMF records for all System ID's time stamped earlier than a user-defined age are read from the Storage Tier 2 and written to one or more Weekly Consolidation Files in Storage Tier 3. The default is to remove all records older than 30 days. If this procedure is executed weekly, each of the individual files in the Storage Tier 3 will hold exactly one week's worth of data.

As records are moved from Storage Tier 2 to the Storage Tier 3, the user may elect to exclude specific record types from being stored in Storage Tier 3. This option allows the user to retain only historically relevant data for the long term.

Mirrored Tiers

To ensure the integrity of your SMF data, each of the three Storage Tier Control Clusters has its own mirrored cluster. When you install CIMSMART, two (2) Storage Control Clusters are allocated for each Tier (by default, these are called: Storage Tier Control Clusters 1A, 1B, 2A, 2B, 3A, and 3B).

Any time a change is made to the physical environment surrounding the archive (i.e., data is being introduced into the archive, or a utility program is about to modify a control cluster), the Storage Tier Control clusters are automatically backed up to their respective mirrors. Storage Tier Control Cluster 1A is backed up to Storage Tier Control Cluster 1B, Storage Tier Control Cluster 2A is backed up to Storage Tier Control Cluster 2B and Storage Tier Control Cluster 3A is backed up to Storage Tier Control Cluster 3B.

All of the six Storage Tier Control Clusters are defined as reusable so that they may be rewritten without the need to perform a DELETE and a DEFINE within IDCAMS. Subsequent restoration of the data may be performed at any time with a single CIMSMART Utility (CSMRSMFJ).

Historical Data

Raw, historical SMF data may be added to any of the three Storage Tiers at any time.

CIMSMART Master Control File

The CIMSMART Master Control File is used to hold all of the information necessary to manage the overall archive. The VSAM Control Clusters used to manage each of the Storage Tiers are standard Key-Sequenced Data Set (KSDS) structures. The CIMSMART Master Control File also contains special lock processing that indicates when the Master Control File is being updated by a CIMSMART process; thus, preserving data integrity.

When a retrieval request is processed, the Master Control File is accessed to determine the location of the Storage Tier Control Clusters. The Storage Control Clusters are, in turn, accessed to determine the location of the requested records. The Storage Tier Control Clusters are searched in reverse order... from Storage Tier 3 to Storage Tier 1.

CIMSMART Retrieval Principles

Once SMF records have been written to any of the 3 tiers in the Archive, they may be retrieved without regard to which tier they occupy. Retrieval requests may span multiple Storage Tiers.

The retrieval parameters offer a variety of options. Selection of records may be by:

- Date Range
 - Relative Month/Week/Day/Day of Week
- Time Period
- SMF System ID
- SMF Record Type
- SMF Record Subtype
- Specific fields within the SMF record
- From the CIMSMART Data Dictionary
- Dynamically defined

1st Storage Tier

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Introduction

When an SMF recording cluster (e.g. SYS1.MAN1, SYS1.MAN2 or SYS1.MANX, SYS1.MANY) becomes full, the SMF Writer Routine automatically switches recording (by invoking an SMF Switch command) from the active SMF cluster to an empty SMF cluster, and the switch command passes control to the IEFU29 SMF Dump Exit. Likewise, when a Switch SMF command is manually entered into the system, the recording of SMF data is switched to the next empty recording cluster, and control is passed to the IEFU29 SMF Dump Exit. If there are no empty control clusters available, the effect on SMF is not completely predictable. The most common outcome is for the SMF Writer Routine to simply stop creating SMF records. The resulting loss of data will have a direct impact on important, enterprise Financial Management, Project Management and Resource Forecasting systems.

To avoid these problems, IBM recommends that a user IEFU29 exit be used to invoke the SMF Dump Program (IFASMFDP) whenever the Switch SMF command is issued. The SMF Dump Program will dump the data from the current (full) recording cluster and reset the cluster to an "empty" condition. This automated process will insure that there is always an empty SMF Recording Cluster to accept data.

CIMSMART and SMF Dump Processing

For Storage Tier 1, CIMSMART makes use of the standard IBM facilities and follows the IBM recommendations for managing SMF data. An IEFU29 User Exit has been written to conform to the specifications provided by IBM. The User Exit issues a Start Command, which, in turn, invokes the IFASMFDP Utility to handle the actual unloading, and reinitializing of the active SMF cluster. A model Procedure for this process is provided in the CIMSMART Datafile Library as a member named CIMSSMFX.

The Start Command itself also passes as parameters to CIMSSMFX, the lower three nodes of the dataset name which is to be created by IFASMFDP. Those three nodes are:

- The letter "S" followed by the SMF System ID of the system for which SMF data is being dumped
- The letter "D" followed by the Julian Date (ccyyddd) for which the dump is to occur
- The letter "T" followed by the time (hhmmsst) for which the dump is to occur

The High Level Qualifier for the dataset name is specified as a parameter in the Procedure statement in the CIMSSMFX member. When the Start command is issued, the dataset name is constructed dynamically for the IFASMFDP execution. A subsequent step in the CIMSSMFX procedure executes the CSMRSMFC program, which adds the dataset name to the Storage Tier 1 Control Cluster.

Catenation Event

Storage Tier 1 is built by a series of (one or more) Catenation Events. A Catenation Event occurs in the following sequence:

- 1 A Switch SMF command is issued (automatically by the operating system or manually by the system operator).
- 2 The SMF User Exit IEFU29 issues an operating system Start command for the CIMSSMF procedure.
- 3 The CIMSSMF procedure, using the parameters passed to it, executes the IFASMFDP utility to dump the SMF data.
- 4 The CIMSSMF procedure executes program CSMRSMFC to add the IFASMFDP produced dataset to Storage Tier 1.

Storage Tier 1 contains all of the SMF datasets (and their corresponding records) that have been dumped during the day.

The dataset name of each SMF output file is comprised of:

- High Level Qualifier (user defined at installation)
- The letter "S"
- The SMF System ID (SID)
- The letter "D"
- The Julian Date (ccyyddd)
- The letter "T"
- The time (hhmmsst)

Example

```
CIMSMART.SIP01.D2000022.T1152159
```

The date and time in the dataset name is the date and time that the output file is created. It is recommended that each Storage Tier 1 dataset reside on disk and that sufficient disk space be available to contain at least one day's worth of data for all SMF System IDs managed by CIMSMART.

The user defined High Level Qualifier may be made up of one or more nodes, but the total length of the final dataset name must not exceed 44 characters (including periods).

This naming scheme allows for the simultaneous creation of unique data set names across all systems in the Enterprise.

Each dataset is catalogued in the System Catalogue.

IEFU29 User Dump Exit

The source code for the User SMF Dump Exit (IEFU29) can be found in the CIMSMART Datafile Library - Member Name CIMSU29. A slight modification to conform to local standards may be necessary before it is Assembled and Linked into SYS1.LPALIB.

Note • You must check your existing OS/390 installation and determine if an IEFU29 User Exit is already in place. If there is an existing exit, you must modify the CIMSMART exit code with the current IEFU29 code.

Note that the initial installation requires modifications to LPA and the operating system. See the Installation Appendix for further instructions.

CSMRSMFC Program

This program adds the dumped SMF dataset names to Storage Tier 1 Control Cluster. In order to preserve data integrity within the Master Control Record while the dataset name is being added to Storage Tier 1 Control Cluster, CSMRSMFC issues a system wide ENQ while it executes. This will prevent simultaneous updates from taking place. The exclusive use will be for a very short time.

CSMRSMFC Input

- Dataset Name from the Catenation Event

CSMRSMFC Output

- CIMSMART Master Control File
- Storage Tier 1 Control Cluster Updated

CSMRSMFC Control Statements

There are no Control Statements for this program.

Special Considerations

In order to prevent simultaneous updates to the Storage Tier 1 Control Cluster, the CSMRSMFC program issues an ENQ with a SCOPE of SYSTEMS, using a QNAME of CIMSSMF and an RNAME of CSMFMCTL. If the MIM product from Computer Associates is being used in place of GRS, it is necessary for the user to notify MIM that the QNAME of CIMSSMF is to have a SCOPE of SYSTEMS.

Defining CIMSMART's ENQ QNAME to the MIM product Multi Image Integrity

Within the MIMINIT PARMLIB member, it is possible to define GDIF's (feature of MII) processing mode.

When defining GDIIINIT PROCESS=ALLSYSTEMS, all ENQs with SCOPE=SYSTEMS are propagated within the MIM complex. Because CIMSMART's ENQ is always issued with SCOPE=SYSTEMS, no further action has to be taken by the customer.

When defining GDIIINIT PROCESS=SELECT, customer has to add CIMSMART's QNAME to the MIMQNAME member:

```
CIMSSMF GDIF=YES,SCOPE=SYSTEMS,EXEMPT=NO,ECMF=NO
```

(EMCF=NO means that no conflict messages are issued by MII's feature ECMF)

■ **1st Storage Tier**

Special Considerations

2nd Storage Tier

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Introduction

SMF generated data is moved to Storage Tier 1 every time an SMF Switch command has been issued and the Catenation Event occurs. When multiple, high-use systems are being managed by CIMSMART, the number of datasets within Storage Tier 1 can become large. It is recommended that all of the Storage Tier 1 data is moved to Storage Tier 2 on a daily basis.

The CIMSMART program used to move data from Storage Tier 1 to Storage Tier 2 is CSMRSMFG.

Daily Collection

Once per day the CIMSMART Daily Collection should be automatically started to migrate the SMF data from Storage Tier 1 to Storage Tier 2.

The name for each Storage Tier 2 dataset is set to:

- High Level Qualifier (user defined at installation)
- The literal "CIMSSMFD"
- The letter "D"
- The Julian Date (ccyyddd)
- The letter "T"
- The time (hhmmsst)

Example

```
CIMSMART.CIMSSMFG.D2000022.T1152159
```

The date and time found in Storage Tier 2 is derived from the generation date and time of the first SMF record in that file.

The user defined High Level Qualifier may span multiple nodes.

CSMRSMFG Program

CSMRSMFG reads the Storage Tier 1 Control Cluster and extracts all dataset names of all datasets that were created during the previous day. The SMF data is read and written to a single Daily File in Storage Tier 2.

Model JCL for the migration from Storage Tier 1 to Storage Tier 2 is contained in the CIMSMART Datafile Library member named CSMFL1L2.

As each individual Storage Tier 1 file is processed, the option is presented to have that file removed from Storage Tier 1. As each Storage Tier 1 file is processed, a separate file is created containing IDCAMS DELETE statements for the Storage Tier 1 file to be removed. The IDCAMS DELETE file may be executed in a subsequent step, or it may be retained for future reference should the user wish to keep the datasets for a period of time and manually delete them.

Because CSMRSMFG is executed only once per day, regardless of the number of SMF systems for which data is being processed, it **does not** issue an ENQ to ensure that simultaneous updates do not take place. Rather, a series of local locks have been defined as flags in the Master Control Record. When any of the four data reduction programs are underway (CSMRSMFG - Daily Process, CSMRSMFW - Direct Daily Archive, CSMRSMFH - Consolidated History Load, CSMRSMFL - Direct Consolidated History Load), they interrogate and set these flags. This will serialize the process of updating the various Storage Tier Control Clusters and will prevent loss of data integrity within the system.

The actual storage repository for Storage Tier 2 may be either Tape or DASD. If DASD is chosen, please be aware that a `SYSIN` statement must be included, telling the system that deferred mounting is not active. This statement reads:

```
DASD UNIT=SYSDA
```

The user is responsible for supplying the `DSNAME` of the dataset to be created on DASD. The dataset may be defined as a Generation Data Group.

Many organizations employ a variety of programs to analyze SMF data on a daily basis. These programs may be scheduled to run immediately after the SMF Dump Utility (IFASMFDP) is run or at a specific time each night. If this is the case in your organization, change the procedures to reflect the changes brought about by using CIMS`SMART` Daily Collection routines.

If you regularly run programs that process SMF data collected on the previous day (e.g. *CIMS for MVS (OS/390)* or *CIMS Capacity Planner*), it is possible to pass the SMF data directly to those programs without going through a separate extract step. Two DD statements (CSMFJCL and CSMFRDR) found in the CSMFL1L2 member in the CIMS`SMART` Datafile Library control the execution of these programs.

CSMFJCL - This DD statement points to a library containing the JCL necessary to run the programs that process yesterday's SMF data. This JCL is normally placed in the member "L1L2JCL" found in the CIMS`SMART` Datafile Library. If the CSMFJCL DD statement is present, the name of the archive dataset created by Storage Tier 2 is passed to the JCL in member L1L2JCL, and the job is submitted to the internal reader. The first step in the L1L2JCL member is a "WAIT" step. Since the JCL is passed through the Internal Reader, it is possible that the JOB may start before the submitting JOB ends and that the dataset name created by Storage Tier 2 may not be entered into the System Catalogue. This "WAIT" step checks to ensure that the passed dataset name is, indeed, catalogued.

CSMFRDR - This DD statement defines the internal reader.

If this feature is not desired, please "comment out" the above DD statements.

CSMRSMFG Input

- Files from Storage Tier 1

CSMRSMFG Output

- CIMSMART Master Control File
- Updated Storage Tier 1 Control Cluster
- Updated Storage Tier 2 Control Cluster
- Storage Tier 2 tape files
- Storage Tier 2 disk files (optional)
- A file of IDCAMS DELETE statements

CSMRSMFG Control Statements

Following is a summary of the control statements available for CSMRSMFG.

| CONTROL STATEMENT | PAGE # | DESCRIPTION |
|-------------------|--------|---------------------------|
| DASD UNIT=SYSDA | [3-4] | Redirects output to DASD. |

DASD UNIT=SYSDA

This statement must be present if Storage Tier 2 output is to go to DASD rather than tape (the default is to create the output on tape).

3rd Storage Tier

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Introduction

Once the daily SMF data is accumulated into Storage Tier 2 files for a given time period, these daily files may now be brought to the next level of archival within CIMSMART. Storage Tier 3 assumes a weekly archival; however, the archival process may occur at any desired interval (weekly, billing period, monthly, etc.). For the purposes of this document, the moving of data from Storage Tier 2 to Storage Tier 3 is based on a weekly cycle.

The CIMSMART program used to migrate SMF data from Storage Tier 2 to Storage Tier 3 is CSMRSMFH. Model JCL for the migration from Storage Tier 2 to Storage Tier 3 is contained in the CIMSMART Datafile Library member named CSMFL2L3.

Consolidated History Load

Data is moved from Storage Tier 2 to Storage Tier 3 once a week (bi-weekly, per billing period, monthly, etc.). This process is the Consolidated History Load.

The dataset name for each 3rd Storage Tier is set to:

- High Level Qualifier (user defined at installation)
- The literal "CIMSSMFH"
- The letter "D"
- The Julian Date (ccyyddd)
- The letter "T"
- The time (hhmmsst)

Example

```
CIMSMART.CIMSSMFH.D2000022.T1152159
```

The date and time found in Storage Tier 3 is derived from the generation date and time of the first SMF record in that file.

The user defined High Level Qualifier may span multiple volumes.

CSMRSMFH Program

CSMRSMFH reads the Storage Tier 2 Control Cluster and extracts all dataset names for all its associated datasets. The date and time for the latest record in each of these files is compared to the date and time specified as the retention period by the user. If the file date and time is earlier than the retention date and time, the file is marked for migration.

Example

Datafile member CSMFL2L3 is submitted on Monday, February 21. The FILTER=7 control statement specifies that the last seven (7) days of SMF data are to remain in Storage Tier 2. CSMRSMFH will migrate all Storage Tier 2 SMF files with a date February 14 and prior to Storage Tier 3.

The SMF data is written to an individual file within Storage Tier 3. As each individual Storage Tier 2 file is processed a separate file is created containing IDCAMS DELETE statements. The IDCAMS DELETE statement file may be executed in a subsequent step (for immediate deletion of the files), or it may be retained for the deletion of the files at a later date.

Because CSMRSMFH is executed only periodically regardless of the number of SMF Systems for which data is being processed, it **does** not issue an ENQ to ensure that simultaneous updates do not take place. Rather, a series of local locks have been defined as flags in the Master Control Record. When any of the four data reduction programs are underway (CSMRSMFG - Daily Process, CSMRSMFW - Direct Daily Archive, CSMRSMFH - Consolidated History Load, CSMRSMFL - Direct Consolidated History Load), they interrogate and set these flags. This will serialize the process of updating the various Control Clusters and will prevent loss of data integrity within the system.

CSMRSMFH Input

- Files from Storage Tier 2

CSMRSMFH Output

- CIMSMART Master Control File
- Storage Tier 2 Control Cluster Updated
- Storage Tier 3 Control Cluster Updated
- Storage Tier 3 tape files
- Storage Tier 3 disk files (optional)
- A file of IDCAMS DELETE statements

CSMRSMFH Control Statements

Following is a summary of the control statements available for CSMRSMFH.

| CONTROL STATEMENT | PAGE # | DESCRIPTION |
|---------------------|--------|--|
| DASD UNIT=SYSDA | [4-4] | Redirects output to DASD. |
| EXCLUDE SMF RECORDS | [4-4] | Excludes records from selection. |
| FILTER=1 | [4-4] | Specifies the amount of data to be retained in Storage Tier 2. |
| INCLUDE SMF RECORDS | [4-5] | Includes records from selection. |

DASD UNIT=SYSDA

This statement must be present if Storage Tier 3 output is to go to DASD rather than tape (the default is to create the output on tape).

The actual storage repository for Storage Tier 3 may be either Tape or DASD. If DASD is chosen, please be aware that a `SYSIN` statement must be included telling the system that deferred mounting is not active.

The user is responsible for supplying the `DSNAME` of the dataset to be created on DASD. Please note that the dataset may be defined as a Generation Data Group.

Example

```
DASD UNIT=SYSDA
```

EXCLUDE SMF RECORDS

Specifies SMF records to be excluded from the migration.

During the migration from Storage Tier 2 to Storage Tier 3, individual SMF Record types may be included or excluded from the migration. You may want to limit the number of SMF record types if you know you only need certain ones for reporting and processing reasons. The `INCLUDE SMF RECORDS` and `EXCLUDE SMF RECORDS` control the inclusion or exclusion of specific SMF records. If both the `INCLUDE SMF RECORDS` and `EXCLUDE SMF RECORDS` statements are coded, the `EXCLUDE` will be processed first, then the `INCLUDE`.

Commas without any spaces separate the records to be excluded; a range of records to be excluded is separated by a dash without any spaces. In the example, the following records have been excluded from Storage Tier 3:

- The type 1 through 30 SMF records (inclusive)
- The type 32 SMF record
- The type 75 RMF record
- The type 88 through 105 SMF records (inclusive)

Example

```
EXCLUDE SMF RECORDS=1-30,32,75,88-105
```

FILTER=1

This statement specifies the amount of data to be retained in Storage Tier 2. "`FILTER=1`" tells the program `CSMRSMFH` to migrate everything except the last (1) day.

Default is 30 days.

0 (zero) is a valid value.

INCLUDE SMF RECORDS

Specifies SMF records to be included for the migration.

During the migration from Storage Tier 2 to Storage Tier 3, individual SMF Record types may be included or excluded from the migration. You may want to limit the number of SMF record types if you know you only need certain ones for reporting and processing reasons. The `INCLUDE SMF RECORDS` and `EXCLUDE SMF RECORDS` control the inclusion or exclusion of specific SMF records. If both the `INCLUDE SMF RECORDS` and `EXCLUDE SMF RECORDS` statements are coded, the `EXCLUDE` will be processed first, then the `INCLUDE`.

Commas without any spaces separate the records to be selected; a range of records to be selected is separated by a dash without any spaces. In the example, the following records will be written to Storage Tier 3:

- The type 6 SMF record
- The type 30 SMF record (all sub types)
- The type 70 through 79 SMF records (inclusive)
- The type 101 SMF record

The type 110 SMF record

Example

```
INCLUDE SMF RECORDS=6,30,70-79,101,110
```

■ **3rd Storage Tier**

CSMRSMFH Program

Archival Utilities

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Introduction

After CIMSMAST is installed, you may wish to add historical SMF data (SMF data you already have dumped onto other archive files) directly into Storage Tier 2 or Storage Tier 3 without processing via the Catenation Event. CIMSMAST provides utility programs to archive data directly into Storage Tier 2 (CSMRSMFW) and directly into Storage Tier 3 (CSMRSMFL). These programs function in a similar manner to the standard programs for archival to Storage Tier 2 (CSMRSMFG) and Storage Tier 3 (CSMRSMFH).

CSMRSMFW Program - Storage Tier 2

This program is used to move SMF historical data directly into Storage Tier 2. For example, an installation that had previously used Generation Data Groups to keep track of historical SMF data may now easily move this data to Storage Tier 2.

Model JCL for loading data directly into Storage Tier 2 is contained in the CIMSMAST Datafile Library member named CSMFLDL2.

There are no data selection parameters for inclusion or exclusion of SMF data into Storage Tier 2. All input, SMF historical data is migrated.

CSMRSMFW Input

- Historical SMF data to be added to Storage Tier 2.

CSMRSMFW Output

- CIMSMAST Master Control File
- Storage Tier 2 Control Cluster
- Storage Tier 2 tape files
- Storage Tier 2 disk files (optional)

CSMRSMFW Control Statements

Following is a summary of the control statements available for CSMRSMFW.

| CONTROL STATEMENT | PAGE # | DESCRIPTION |
|-------------------|--------|---------------------------|
| DASD UNIT=SYSDA | [5-2] | Redirects output to DASD. |

DASD UNIT=SYSDA

This statement must be present if Storage Tier 2 output is to go to DASD rather than tape (the default is to create the output on tape).

CSMRSMFL Program - Storage Tier 3

This Archive program can be used to move SMF historical data directly into Storage Tier 3. For example, if an installation had previously used Generation Data Groups to keep track of historical SMF data, that data can be moved to the Archive using the CSMRSMFL program.

Model JCL for loading data directly into Storage Tier 3 is contained in the CIMSMART Datafile Library member named CSMFLDL3.

Selection Criteria

During the migration from Storage Tier 2 to Storage Tier 3, individual SMF Record types may be included or excluded from the migration. You may want to limit the number of SMF record types if you know you only need certain ones for reporting and processing reasons. The INCLUDE SMF RECORDS and EXCLUDE SMF RECORDS control the inclusion or exclusion of specific SMF records. If both the INCLUDE SMF RECORDS and EXCLUDE SMF RECORDS statements are coded, the EXCLUDE will be processed first, then the INCLUDE.

CSMRSMFL Input

- Historical SMF data to be added to Storage Tier 3

CSMRSMFL Output

- CIMSMART Master Control File
- Storage Tier 3 Control Cluster
- Storage Tier 3 tape files
- Storage Tier 3 disk files (optional)

CSMRSMFL Control Statements

Following is a summary of the control statements available for CSMRSMFL.

| CONTROL STATEMENT | PAGE # | DESCRIPTION |
|---------------------|--------|----------------------------------|
| DASD UNIT=SYSDA | [5-4] | Redirects output to DASD. |
| EXCLUDE SMF RECORDS | [5-4] | Excludes records from selection. |
| INCLUDE SMF RECORDS | [5-5] | Includes records from selection. |

DASD UNIT=SYSDA

This statement must be present if Storage Tier 3 output is to go to DASD rather than tape (the default is to create the output on tape).

The actual storage repository for Storage Tier 3 may be either Tape or DASD. If DASD is chosen, please be aware that a `SYSIN` statement must be included telling the system that deferred mounting is not active.

The user is responsible for supplying the `DSNAME` of the dataset to be created on DASD. Please note that the dataset may be defined as a Generation Data Group.

Example

```
DASD UNIT=SYSDA
```

EXCLUDE SMF RECORDS

Specifies SMF records to be excluded from the migration.

During the migration from Storage Tier 2 to Storage Tier 3, individual SMF Record types may be included or excluded from the migration. You may want to limit the number of SMF record types if you know you only need certain ones for reporting and processing reasons. The `INCLUDE SMF RECORDS` and `EXCLUDE SMF RECORDS` control the inclusion or exclusion of specific SMF records. If both the `INCLUDE SMF RECORDS` and `EXCLUDE SMF RECORDS` statements are coded, the `EXCLUDE` will be processed first, then the `INCLUDE`.

Commas without any spaces separate the records to be excluded; a range of records to be excluded is separated by a dash without any spaces. In the example shown, the following records will be excluded from Storage Tier 3:

- The type 1 through 30 SMF records (inclusive)
- The type 32 SMF record
- The type 75 RMF record
- The type 88 through 105 SMF records (inclusive)

Example

```
EXCLUDE SMF RECORDS=1-30,32,75,88-105
```

INCLUDE SMF RECORDS

Specifies SMF records to be included for the migration.

During the migration from Storage Tier 2 to Storage Tier 3, individual SMF Record types may be included or excluded from the migration. You may want to limit the number of SMF record types if you know you only need certain ones for reporting and processing reasons. The INCLUDE SMF RECORDS and EXCLUDE SMF RECORDS control the inclusion or exclusion of specific SMF records. If both the INCLUDE SMF RECORDS and EXCLUDE SMF RECORDS statements are coded, the EXCLUDE will be processed first, then the INCLUDE.

Commas without any spaces separate the records to be selected; a range of records to be selected is separated by a dash without any spaces. In the example shown, the following records will be written to Storage Tier 3:

- The type 6 SMF record
- The type 30 SMF record (all sub types)
- The type 70 through 79 SMF records (inclusive)
- The type 101 SMF record

The type 110 SMF record

Example

```
INCLUDE SMF RECORDS=6,30,70-79,101,110
```

Retrieval of Data

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Introduction

An SMF archival and retrieval system is only as good as its methodology for retrieving data. It does no good to have your data safely stored on tape or disk if you cannot access what you need when you need it. CIMSMART provides a robust set of parameters that allow quick and easy selection of any required record or set of records.

Retrieval Overview

The selective retrieval for SMF data is controlled by a group of control parameter statements. Some of the statement categories are:

- Date Range
 - The date selection is based on the generation date of the SMF record. The date range for the request can be specified in a variety of ways. The most basic form of the date range request is the Begin Date/ End Date combination.
- Time Period
 - The specific time the records were written to the SMF cluster (generation time) can also be used as a filtering parameter.
- SMF System ID
 - Up to five individual SMF System IDs can be used on the `SELECTED SYSTEM` statement, separated by commas.
- SMF Record Type
 - Retrieval of SMF records can be filtered using `INCLUDE/EXCLUDE` control statements. The `INCLUDE SMF RECORDS` and `EXCLUDE SMF RECORDS` control statements control the inclusion or exclusion of specific SMF records. If both the `INCLUDE SMF RECORDS` and `EXCLUDE SMF RECORDS` statements are coded, the `EXCLUDE` will be processed first, then the `INCLUDE`.
- SMF Record Subtype
 - If the SMF record type selected supports subtypes, the subtype of the record can be used as a filtering parameter.
- Day-of-Week Mask
 - Specific days of the week can also be used to further qualify the date range for SMF Record selection.
- Extract by Specific Field
 - In addition to the standard selection criteria statements, the `CSMRSMFR` program allows the user to interrogate specific fields within the body of the record to determine whether or not to select the record for retrieval. This is done through the `//CSMFDICT DD` statement.

Model JCL for retrieving data from the archive is contained in the CIMSMAST Datafile Library member named CSMFRETR.

The CIMSMAST program used for retrieval of SMF data is CSMRSMFR.

CSMRSMFR Program

Once SMF records have been written to any of the 3 Storage Tiers in the Archive, they may be retrieved without regard to which tier they occupy. Since retrieval requests may span multiple Storage Tiers, you do not have to be concerned with where the data resides, but can concentrate on the requirements of the data retrieval. The Master Control Record supplies the location of the data requested.

The output file produced by CSMRSMFR is in standard SMF format, and may be used without further modification by any product capable of reading raw SMF data. The CSMRSMFR output record format is:

- Record length = 32,760
- Record format = Variable Blocked Spanned
- Block size = 4,096

The CSMRSMFR program uses a parsing algorithm to process retrieval requests. The options used to control the selection criteria come from control parameters supplied in specialized DD statements and individual control card statements.

CSMRSMFR Input

- Single or multiple files from the 1st, 2nd or 3rd Storage Tier
- CIMSMAST Master Control Record

CSMRSMFR Output

- CSMFARCH Selected SMF records in standard SMF format
- TAPEVOLS Output provides a Tape Library Pick List of required volumes

CSMRSMFR Control Statements

Following is a summary of the control statements available for CSMRSMFR.

| CONTROL STATEMENT | PAGE # | DESCRIPTION |
|----------------------|--------|---|
| BEGIN DATE | [6-5] | Specify Begin Date for record selection. |
| BEGIN TIME | [6-5] | Specify Begin Time for record selection. |
| END DATE | [6-5] | Specify End Date for record selection. |
| END TIME | [6-5] | Specify End Time for record selection. |
| EXCLUDE SMF RECORDS | [6-5] | Excludes records from selection. |
| INCLUDE SMF RECORDS | [6-6] | Includes records for selection. |
| MAX TAPE MOUNT LIMIT | [6-6] | Specify the maximum number of tape volumes that must be mounted to satisfy the retrieval request. |
| RELATIVE BEGIN MONTH | [6-6] | Specify beginning monthly period in relation to current month. |
| RELATIVE BEGIN WEEK | [6-7] | Specify beginning weekly period in relation to current month. |
| RELATIVE DAY | [6-7] | Specify day in relation to current day. |
| RELATIVE END MONTH | [6-7] | Specify ending monthly period in relation to current month. |
| RELATIVE END WEEK | [6-7] | Specify ending weekly period in relation to current month. |
| RELATIVE MONTH | [6-7] | Specify monthly period in relation to current month. |
| RELATIVE WEEK | [6-8] | Specify weekly period in relation to current week. |
| RETRIEVE REGARDLESS | [6-8] | Override the default limit of five tape mounts. |
| SELECTED DAY | [6-8] | Specify day for record selection. |
| SELECTED DAYS | [6-8] | Specify day for record selection. |
| SELECTED SYSTEM | [6-8] | Specify selected system(s) for record selection. |
| SMF SUB TYPE | [6-9] | Specify SMF Sub Type for record selection. |

BEGIN DATE

The following statements requests records that were written to the SMF cluster beginning at midnight the morning of the 24th of June 1999 and continuing through to midnight on June 25th, 1999. Use this control statement with the END DATE control statement as shown.

Example

```
BEGIN DATE=06/24/1999  
END DATE=06/25/1999
```

BEGIN TIME

The following statement requests records that were written to the SMF cluster beginning at 3 p.m. and ending at 5 p.m. Use this control statement with the END TIME control statement as shown.

Example

```
BEGIN TIME=15.00  
END TIME=17.00
```

END DATE

The following statement requests records that were written to the SMF cluster through 11:59 p.m. on the 25th of June 1999 and continuing through to midnight on June 25th, 1999. Use this control statement with the BEGIN DATE control statement as shown.

Example

```
BEGIN DATE=06/24/1999  
END DATE=06/25/1999
```

END TIME

The following statement requests records that were written to the SMF cluster beginning at 3 p.m. and ending at 5 p.m. Use this control statement with the BEGIN TIME control statement as shown.

Example

```
BEGIN TIME=15.00  
END TIME=17.00
```

EXCLUDE SMF RECORDS

Specifies SMF records to be excluded from the retrieval.

During the retrieval from the archive, individual SMF Record types may be included or excluded. The INCLUDE SMF RECORDS and EXCLUDE SMF RECORDS control the inclusion or exclusion of specific SMF records. If both the INCLUDE SMF RECORDS and EXCLUDE SMF RECORDS statements are coded, the EXCLUDE will be processed first, then the INCLUDE.

Commas without any spaces separate the records to be excluded; a range of records to be excluded is separated by a dash without any spaces. In the example shown, the following records will be excluded from the output file:

- The type 1 through 30 SMF records (inclusive)
- The type 32 SMF record
- The type 75 RMF record
- The type 88 through 105 SMF records (inclusive)

Example

```
EXCLUDE SMF RECORDS=1-30,32,75,88-105
```

INCLUDE SMF RECORDS

Specifies SMF records to be included for the retrieval.

During the retrieval from the archive, individual SMF Record types may be included or excluded from the migration. The INCLUDE SMF RECORDS and EXCLUDE SMF RECORDS control the inclusion or exclusion of specific SMF records. If both the INCLUDE SMF RECORDS and EXCLUDE SMF RECORDS statements are coded, the EXCLUDE will be processed first, then the INCLUDE.

Commas without any spaces separate the records to be selected; a range of records to be selected is separated by a dash without any spaces. In the example shown, the following records will be written to the output file:

- The type 6 SMF record
- The type 30 SMF record (all sub types)
- The type 70 through 79 RMF records (inclusive)
- The type 101 SMF record
- The type 110 SMF record

Example

```
INCLUDE SMF RECORDS=6,30,70-79,101,110
```

MAX TAPE MOUNT LIMIT

If the number of tape volumes that must be mounted to satisfy the retrieval request is greater than the number specified, the program terminates with a return code of 1. The default for this parameter is 5. This allows the user to notify operation personnel when numerous tape mounts are required. A tape pick list is created to assist operators.

Example

```
MAX TAPE MOUNT LIMIT=5
```

RELATIVE BEGIN MONTH

You may select records based on months in relation to your current month. The example shows the appropriate entry if you were to select records for the past three months. To specify a range, use this control statement with RELATIVE END MONTH as shown.

Example

```
RELATIVE BEGIN MONTH=*-3  
RELATIVE END MONTH=*-1
```

RELATIVE BEGIN WEEK

You may select records based on weeks in relation to the current week. The example shows the appropriate entry if you were to select records for the past three weeks. To specify a range, use this control statement with `RELATIVE END WEEK` as shown.

Example

```
RELATIVE BEGIN WEEK=*-3  
RELATIVE END WEEK=*-1
```

RELATIVE DAY

Allows you to select records for a day relative to your current day. The following example shows the entry if you wanted to specify all records for the previous day.

Example

Or all records for yesterday.

```
RELATIVE DAY=*-1
```

RELATIVE END MONTH

You may select records based on months in relation to your current month. The example shows the appropriate entry if you were to select records for the past three months. To specify a range, use this control statement with `RELATIVE BEGIN MONTH` as shown.

Example

```
RELATIVE BEGIN MONTH=*-3  
RELATIVE END MONTH=*-1
```

RELATIVE END WEEK

You may select records based on multiple weeks in relation to the current week. The example shows the appropriate entry if you were to select records for the past three weeks. To specify a range, use this control statement with `RELATIVE BEGIN WEEK` as shown.

Example

```
RELATIVE BEGIN WEEK=*-3  
RELATIVE END WEEK=*-1
```

RELATIVE MONTH**Example**

Allows you to select all records for a one month period. The following example shows the entry if you wanted to specify all records for the previous month.

Example

```
RELATIVE MONTH=*-1
```

RELATIVE WEEK

Allows you to select records for a one week period relative to your current week. The following example shows the entry if you wanted to specify all records for the previous week.

Example

```
RELATIVE WEEK=*-1
```

RETRIEVE REGARDLESS

Example

To override the MAX TAPE MOUNT control statement, enter the following:

```
RETRIEVE REGARDLESS=YES
```

This statement will override the default limit of five tape mounts.

SELECTED DAY

Example

```
SELECTED DAY=WEDNESDAY
```

Requests SMF records for all Wednesdays in the date range.

SELECTED DAYS

Example

The following statement selects records for Tuesdays and Thursdays:

```
SELECTED DAYS=TUESDAY, THURSDAY
```

Example

To select all weekdays, enter the following:

```
SELECTED DAYS=WEEKDAYS
```

Example

Or perhaps you would like to request records for all Wednesdays for the past three months.

```
RELATIVE BEGIN MONTH=*-3  
RELATIVE END MONTH=*-1  
SELECTED DAY=WEDNESDAY
```

SELECTED SYSTEM

Example

```
SELECTED SYSTEM=IP01, IP02, IP03, IP04, IP05
```

The above is a request for SMF records for the named 5 Systems to be retrieved.

Example

To retrieve SMF records for all systems in the archive, specify:

```
SELECTED SYSTEM=####
```

SMF SUB TYPE

Commas without any spaces separate the subtypes to be selected; a range of subtypes to be selected is separated by a dash without any spaces. For example, SMF Record Type 30 supports the following subtypes:

- Subtype 1 (Start)
- Subtype 2 (Interval)
- Subtype 3 (Interval End)
- Subtype 4 (Step End)
- Subtype 5 (Job End)
- Subtype 6 (System Address Space)

Example

```
INCLUDE SMF RECORDS=30  
SMF SUB TYPE=1-3,5
```

This retrieval request for SMF Type 30 records would only retrieve sub types 1, 2, 3, and 5.

CIMSMART Retrieval Dictionary

In addition to retrieving records by using the standard selection criteria statements (as described above), CIMSMART allows the user to interrogate certain fields within a record to determine whether or not to select the record for retrieval. A set of statements that describe a selection criteria is referred to as a retrieval descriptor set.

All the record types and fields within those records that can be interrogated are described within the DATAFILE member @DICTENT.

To retrieve records based upon data contained within the records, program CIMSSMFR uses retrieval descriptor sets specified through the CSMFDICT DD statement.

These statements within the CSMFDICT file work together with the SMF tables distributed with CIMSMART to form a basic SMF data dictionary. Each table is a separate member in the CIMSMART load library. The names of the tables correspond to the SMF record number it maps. Currently SMF records types 6, 14, 15, 17, 18, 30, 61, 64, 65, 66, 83, 101, and 110 are supported. Check the DATAFILE member @DICTENT for the table names.

The CSMFDICT DD may contain one or more retrieval descriptor sets, each of which provide a search argument dealing with a specific field within a specific SMF record type. If the comparison for ANY of the descriptors sets is true, the record is selected for retrieval.

The retrieval descriptor sets only apply to the record type specified. If a record type does not have any retrieval descriptor sets AND it is still to be included (based upon the other selection criteria as specified in the `SYSIN DD`) it will be retrieved. If a record has a retrieval descriptor set AND it does not match ANY of the criteria it will NOT be retrieved.

Retrieval Descriptor Set Syntax

The syntax for a retrieval descriptor set is:

```
table_name  
field_name+offset(length)  
operator  
value
```

Where:

`table_name` = This is the table name to be loaded from the load library that contains the description of the SMF record being processed. This table contains offsets to several important fields within the SMF record. The valid `table_names` can be found in the `@DICTENT DATAFILE` member

`field_name+offset(length)` = This is the field name within the SMF record to be interrogated. The valid `field_names` can be found in the `@DICTENT DATAFILE` member.

Offset = Optional: The offset into the field to begin the comparison. (ex. `SMF30JBN+4` means to start the comparison at four bytes into the `SMF30JBN` field).

Length = Optional: The length of the comparison. (ex. `SMF30JBN(3)` means to compare the first three characters in the `SMF30JBN` field).

`operator` = The comparison operator to be applied. The valid operators are:

- EQ = equal to
- NE = not equal to
- LT = less than
- LE = less than or equal
- GE = greater than or equal
- GT = greater than

`value` = The value to be compared.

Example

Suppose the `CSMFDICT` file contained the following 2 retrieval descriptor sets:

```
CSMR030  
  SMF30JBN+2(4)  
    EQ  
      SCJN  
CSMR030
```

```
SMF30JBN+2(4)
EQ
  SGLJ
```

The following criteria would be applied only to SMF type 30 records (because table_name = CSMR030 and CSMR030 as described in the DATFILE member @DICTENT is for SMF 30 records):

| | |
|---------------|---|
| SMF30JBN+2(4) | Look at the 3rd, 4th, 5th, and 6th position of the SMF 30 Jobname field |
| EQ | If the above 4 characters are equal to ... |
| SJCN | the characters "SJCN" then select the record for retrieval |
| SMF30JBN+2(4) | Look at the 3rd, 4th, 5th, and 6th position of the SMF 30 Jobname field |
| EQ | If the above 4 characters are equal to ... |
| SGLJ | the characters "SGLJ" then select the record for retrieval |

So, if the SMF30JBN positions 3 through 6 equal SJCN or SGLJ the record will be selected. No other SMF type 30 records will be selected.

Example

Suppose you wanted to retrieve all SMF 30 subtype 4 records whose jobname starts with CIMS. First you would define to retrieve only SMF 30 subtype 4 records. You do this in the SYSIN DD.

```
//SYSIN DD *
INCLUDE SMF RECORDS=30
SMF SUB TYPE=4
```

Then you would have to add the jobname selection criteria. You do this by adding a retrieval descriptor set in the CSMFDICT DD.

```
//CSMFDICT DD *
CSMR030
  SMF30JBN(4)
    EQ
      CIMS
```

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Introduction

The CIMSMART program CSMRSMFQ provides several reports that may aid in the management of the Archive.

The program CSMRSMFQ program can create multiple reports during a single run. The program may extract information about any of the three Storage Tiers from the Master Control Record and the Storage Control Clusters.

CSMRSMFQ Program

The sample JCL for the running of CSMRSMFQ can be found in the CIMSMART Datafile Library member CSMFREPT.

The program CSMRSMFQ can produce the following reports:

- Tier Selection
- SMF System ID Selection
- Date Range
- Archive Contents Report
- Missing Data Periods
- Tape Volume Inventory
- Catalogued Dataset Inventory

CSMRSMQ Input

- CIMSMART Master Control File

CSMRSMFQ Output

- Various Reports

CSMRSMFQ Control Statements

Following is a summary of the control statements available for CSMRSMFQ.

| CONTROL STATEMENT | PAGE # | DESCRIPTION |
|--|--------|--|
| ARCHIVE DATASETS CREATED=YES | [7-3] | Prints list of data set names. |
| BEGIN DATE | [7-3] | Specify Begin Date for record selection. |
| END DATE | [7-3] | Specify End Date for record selection. |
| INCOMING DATASETS ARCHIVED=YES | [7-4] | Prints list of data set names. |
| SELECTED SYSTEM | [7-4] | Selects system IDs to be used. |
| SMF RECORD INVENTORY IN ARCHIVE=YES | [7-4] | Shows inventory for all record types in Master Control Record. |
| SMFILE=TIERn | [7-4] | Extracts data from Tier n control file. |
| TIME PERIOD REPRESENTED IN ARCHIVE=YES | [7-4] | Prints list in 15 minute increments showing if records have been archived. |
| VOLUMES ACTIVE IN INVENTORY=YES | [7-4] | Prints list of tape volumes by VOLSER. |

ARCHIVE DATASETS CREATED=YES

This report lists all of the specific dataset names that reside on the physical Tape Volumes in the specified archive via the SMFILE= control statement.

Example

```
ARCHIVE DATASETS CREATED=YES
```

BEGIN DATE

The following statements requests records that were written to the SMF cluster beginning at midnight the morning of the 24th of June 1999 and continuing through to midnight on June 25th, 1999. Use this control statement with the END DATE control statement as shown.

Example

```
BEGIN DATE=06/24/1999
END DATE=06/25/1999
```

END DATE

The following statement requests records that were written to the SMF cluster through 11:59 p.m. on the 25th of June 1999 and continuing through to midnight on June 25th, 1999. Use this control statement with the BEGIN DATE control statement as shown.

Example

```
BEGIN DATE=06/24/1999  
END DATE=06/25/1999
```

INCOMING DATASETS ARCHIVED=YES

This report lists all of the specific dataset names that reside on the physical Tape Volumes in the specified archive via the SMFILE= control statement.

Example

```
INCOMING DATASETS ARCHIVED=YES
```

SELECTED SYSTEM

Up to five individual SMF System IDs can be used on the SELECTED SYSTEM statement, separated by commas.

Example

```
SELECTED SYSTEM=IP01,IP02,IP03,IP04,IP05
```

The above is a request for SMF records for the named 5 Systems to be retrieved.

Example

To retrieve SMF records for all systems in the archive, specify:

```
SELECTED SYSTEM=#####
```

SMF RECORD INVENTORY IN ARCHIVE=YES

This report shows the inventory for all record types in the Master Control Record.

Example

To select the above report enter:

```
SMF RECORD INVENTORY IN ARCHIVE=YES
```

SMFILE=TIERn

This parameter specifies the STORAGE TIER control file where n equals 1, 2 or 3.

TIME PERIOD REPRESENTED IN ARCHIVE=YES

This reports shows, for each fifteen-minute period contained within the specified archive, whether or not records for that period have been archived.

Example

```
TIME PERIOD REPRESENTED IN ARCHIVE=YES
```

VOLUMES ACTIVE IN INVENTORY=YES

This report lists all of the Tape Volumes by Volume Serial Number (VOLSER) that contain data within the specified archive.

Example

```
VOLUMES ACTIVE IN INVENTORY=YES
```

Utilities

| | |
|---|------------|
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| CSMRSMFA Program | 8-2 |
| Dataset Catalog Check Utility | 8-2 |
| CSMRSMFB Program | 8-2 |
| Index Cluster Backup Utility | 8-2 |
| CSMRSMFD Program | 8-2 |
| Delete Physical File Utility | 8-2 |
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| Index Cluster Restore Utility | 8-3 |
| CSMRSMFN Program | 8-3 |
| Interactive Extract Program | 8-3 |
| CSMRSMFU Program | 8-4 |
| Problem Analysis and Repair Program | 8-4 |

Introduction

Several utilities are provided with the CIMSMART Product. The utility programs are primarily for the management of the Master Control File.

CSMRSMFA Program

Dataset Catalog Check Utility

During the creation of Storage Tier 2, an option within CIMSMART allows the SMF data under the control of CIMSMART to be passed to software that relies on a daily SMF file. It is possible for the software that relies on this SMF 2nd Storage Tier data to start before the necessary data set has been catalogued. CSMRSMFA eliminates this problem.

The program gets the necessary path dataset name and interrogates IDCAMS to determine if the dataset has been catalogued. If the dataset has not been catalogued, the program checks every second for twenty seconds of elapsed time to determine if the catalogue has taken place. If after 20 seconds, the necessary dataset has still not been catalogued, the program terminates and gives a Return Code of 4. If the data set is catalogued, the execution terminates normally with a Return Code of 0.

The JCL statements for the execution of CSMRSMFA program are found in the CIMSMART Datafile Library Member L1L2JCL.

CSMRSMFB Program

Index Cluster Backup Utility

This program performs the backup of the Storage Control Clusters. Storage Control Cluster 1A is backed up to 1B, Storage Control Cluster 2A is backed up to 2B and Storage Control Cluster 3A is backed up to 3B.

The JCL statements for the execution of CSMRSMFB program are found in the CIMSMART Datafile Library Member CSMFBKUP.

CSMRSMFD Program

Delete Physical File Utility

This utility is used to remove suspected or damaged physical files from the archive. The files themselves are not actually removed, but all references to the files are deleted from the appropriate Storage Control Cluster.

The JCL statements for the execution of CSMRSMFD program are found in the CIMSMART Datafile Library Member CSMFDELT.

CSMRSMFJ Program

Index Cluster Restore Utility

This program restores the Storage Control Clusters for Tier 1A, 2A and 3A from their respective backup clusters Tier 1B, 2B and 3B.

The JCL statements for the execution of CSMRSMFJ program are found in the CIMSMART Datafile Library Member CSMFRSTR.

CSMRSMFN Program

Interactive Extract Program

The CIMSMART retrieval program (CSMRSMFR) is used for retrieving a subset of SMF data based on selection criteria. Once that subset has been created, it is possible to further refine the selection by using additional selection parameters entered in this program.

The standard CIMSMART retrieval program easily performs the following data selection:

- All SMF 101 records
- Created within a date range of 10/21/99 through 10/30/99
- Written between the hours of 10:00 to 14:00
- Containing an Authorization ID of "DANNYQ"

It might be necessary to further refine the data search to only those records containing a specific Plan Name processed through a specific Connect Name. To achieve this level of granularity, process the output from the initial execution of the Retrieval Program through the Extract program.

The Extract program would be run against the Retrieval program's output, specifying the Plan Name under the CSMFDICT DD statement. The Extract program is run once again, this time specifying the Connect Name. Using multiple passes of the Extract program, it is possible to achieve an extremely high degree of granularity.

The JCL statements for the execution of CSMRSMFN program are found in the CIMSMART Datafile Library Member CSMFEXTR. See the Retrieval of Data section of this guide for control card input to CSMRSMFN (the control statements are the same as for program CSMRSMFR).

CSMRSMFU Program

Problem Analysis and Repair Program

When a serious problem occurs with one of the data reduction or data utility programs and the control flags are still set, it becomes necessary to restore the environment to its state prior to the occurrence of the error. Depending on when the error occurred, one or more actions may be necessary. All the information necessary for the restoration of the environment may be found in the Master Control File.

The CSMRSMFU Program performs the following functions:

- Restores all Storage Control Clusters from their respective backups
- Issues IDCAMS DELETE statements for any dataset being created when the error occurred
- Resets the flags so that the program that experienced the problem may be restarted

It is imperative that the problem that caused the error (SOC4, B37, etc.) be repaired before running this procedure.

The JCL statements for the execution of CSMRSMFU program are found in the CIMSMART Datafile Library Member MRFIXIT.

ISPF/PDF Interface

| | |
|---|------------|
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| Components | 9-2 |
| Report on the Archive Contents | 9-4 |
| Submit a Retrieval Request | 9-10 |
| Submit an Extract Request | 9-15 |
| View Retrieval/Extract Request Results | 9-16 |
| Build a Data Dictionary User Record Entry | 9-21 |
| Create/Update a Tier 4 Index | 9-24 |
| Multiple Record Facility | 9-27 |
| Special Authorized Functions | 9-38 |

Introduction

The CIMSMART ISPF/PDF Interface provides the user with direct online access to many of the facilities of the CIMSMART product, including contents reports, retrieval and extract functions, robust record display capabilities and easy access to many of the utilities. In addition, the ISPF/PDF Interface allows the user to create Data Dictionary Tables and to construct Tier 4 Indexes for non-CIMSMART repositories.

Components

The CIMSMART ISPF/PDF Interface is distributed as a set of the following libraries:

- CSMRCLIB which contains the CLISTS and REXX EXECs
- CSMRPLIB which contains the Panels
- CSMRSLIB which contains skeleton JCL
- CSMRMLIB which contains the messages

Once the libraries have been installed, the following changes must be made before the ISPF/PDF Interface can be used.

- 1** Edit the CIMSMART member of the CSMRCLIB
- 2** Change all occurrences of &PREFIX to your high level qualifier
- 3** Save the CIMSMART member of the CSMRCLIB
- 4** Edit the CSMRENT member of the CSMRCLIB
- 5** Change all occurrences of &PREFIX to your high level qualifier
- 6** Save the CSMRENT member of the CSMRCLIB
- 7** Execute the CIMSMART member of the CSMRCLIB

This will bring up the initial CIMSMART Panel. It looks like this:

```

CSMRP001          CIMSMART General Information
COMMAND ===>

          -      CIMSMART File Names      -

Master Control File : SYS2.CIMSSMF.CSMFMCTL
LOAD Library       : OAPRH.CIMSMART.LOAD.MODULES
Datafile Library   : OAPRH.CIMSMART.DATAFILE

Please specify Date Format: MM/DD/YY      (MM/DD/YY, DD.MM.YY, DD/MM/YY)

Display Reports on Workstation: NO
                               (YES or NO)

          -      Job Control Information    -

Submit Job Without Displaying JCL: NO
Print Class: *   Hold Print: YES  Printer Destination: LOCAL
JOB CARD:
: //OAPRHTS JOB (SYSTEMS),'GLJ',CLASS=Z,MSGCLASS=T,
: //          NOTIFY=OAPRH
:
:

```

Fill in the blank lines, specifying the dataset names of the CIMSMART Load Library, the Master Control File and the CIMSMART Datafile. You may also indicate the preferred date format for the ISPF/PDF panels.

In addition, please indicate whether or not Batch Jobs generated by many of the facilities of the ISPF/PDF Interface should be submitted without displaying the JCL. If the JCL is displayed, it provides the user an opportunity to modify the JCL before submitting the Job. The Batch JCL generation also incorporates some detailed information regarding printer details and this information may be specified on this panel. Finally please provide a valid Job Card, since many of the functions will result in the generation of a Batch Job that must be submitted for execution.

Once all of the information has been provided, the ISPF/PDF Interface is ready for operation. Please note that the variables set in the ISPF/PDF Interface are stored in a special section of the ISPF/PDF Profile (CSMR) and will be permanently saved only if the user exits from ISPF after setting those variables. If the session is canceled before the variables are stored, they must be re-initialized the next time the facility is entered.

The ISPF/PDF Interface is divided into 8 separate functional areas:

- 1 Report on the Archive Contents
- 2 Submit a Retrieval Request
- 3 Submit an Extract Request
- 4 View Retrieval/Extract Request Results

- 5** Build a Data Dictionary User Record Entry
- 6** Create/Update a Tier 4 Index
- 7** Multiple Record Functions
- 8** Special Authorized Functions

The initial panel that allows access to these facilities is shown below:

```
----- CIMSART Version 1.3.0 Primary Option          LIBRARIES ALLOCATED
OPTION ==>

  0  SETUP      - Initialize CIMSART Variables                USER - 0APRH
  1  REPORT     - Report on the Archive Contents              DATE  - 11/13/2000
  2  RETRIEVE  - Submit a Retrieval Request                  TIME  - 09:28
  3  EXTRACT   - Submit an Extract Request
  4  VIEW      - View Retrieval/Extract Request Results
  5  DATADICT  - Build a Data Dictionary User Record Entry
  6  TIER4     - Create/Update a Tier 4 Index
  7  LOGICAL   - Multiple Record Functions (Batch, DSNAME, TCP/IP, etc)
  9  AUTH      - Special Authorized Functions

X  EXIT       - Exit CIMSART ISPF/PDF Interface

Enter END command to terminate CIMSART ISPF/PDF Interface
```

Report on the Archive Contents

This facility is used to request one or more reports that display the contents of one of the three levels of the archive.

A Setup Panel and five separate reports are provided:

- 1** Display Records by SID and Type
- 2** Display Contents by Time
- 3** Display Incoming DSNAMEs
- 4** Display Outgoing DSNAMEs
- 5** Display Tape Volumes Owned

The set up panel allows the user to prepare for the reports. The panel is shown below.

```
CSMRP010          CIMSMART General Information
COMMAND ===>

          -      CIMSMART File Names      -

Master Control File : SYS2.CIMSSMF.CSMFMCTL
```

The reports themselves are requested from the following panel:

```
CSMRP100 ---- CIMSMART Archive Contents Display Main Menu -----
OPTION ==>

0  SETUP      - Initialize CIMSMART Variables                USER - 0APRH
1  RECORDS    - Display Records by SID and Type              DATE  - 11/13/2000
2  CONTENTS   - Display Contents by Time                     TIME  - 09:35
3  INCOMING   - Display Incoming DSNAMEs
4  OUTGOING   - Display Outgoing DSNAMEs
X  EXIT       - Exit CIMSMART ISPF/PDF Interface

Enter END command to terminate Archive Display Processing.
```

The Display Records by SID and Type panel is shown below:

```

CSMRP110 ----- CIMSMArt - Online Archive Records Display Facility -----
COMMAND ==>                                     RUN MODE ==> PROD

BEGIN DATE: *-2                                END DATE: *-2

SYSTEM ID: *

Archive Level to Display: DETAIL

Display Reports on Workstation: NO
                                   (YES or NO)

Please select  PENDING ,  DETAIL  or  HISTORY

Tier 1 (PENDING) contains the IFASMFDP DASD Files
Tier 2 (DETAIL) contains the Daily Consolidated Files on Tape
Tier 3 (HISTORY) contains the Historical Files on Tape

-----
Note: This panel will lock up your terminal until the report is generated.
-----

```

The report generated by this selection is shown below:

```

  Menu  Utilities  Compilers  Help
-----
ISRBROBA  OAPRH.CSMR                                     Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
                                ARCHIVE RECORD TYPE REPORT FOR THE CP
                                FOR 11/11/2000

```

| | ..0 | ..1 | ..2 | ..3 | ..4 | ..5 |
|-----|---------|--------|---------|-----|--------|--------|
| 00. | 0 | 0 | 9 | 9 | 31,472 | 3,226 |
| 01. | 0 | 0 | 0 | 0 | 94,178 | 32,910 |
| 02. | 0 | 789 | 0 | 24 | 3,382 | 0 |
| 03. | 72,078 | 0 | 75 | 0 | 0 | 0 |
| 04. | 0 | 96 | 173,450 | 0 | 0 | 0 |
| 05. | 0 | 0 | 0 | 0 | 0 | 0 |
| 06. | 103,634 | 11,538 | 0 | 0 | 77,219 | 9,544 |
| 07. | 48 | 48 | 960 | 48 | 624 | 192 |
| 08. | 29,100 | 0 | 0 | 0 | 0 | 0 |
| 09. | 36 | 0 | 37,787 | 0 | 24 | 0 |
| 10. | 0 | 27,254 | 48 | 0 | 0 | 0 |
| 11. | 978 | 0 | 0 | 0 | 0 | 0 |
| 12. | 0 | 0 | 0 | 0 | 0 | 0 |
| 13. | 0 | 0 | 0 | 0 | 0 | 0 |
| 14. | 0 | 0 | 0 | 0 | 0 | 0 |
| 15. | 0 | 0 | 0 | 0 | 0 | 0 |

The Display Contents by Time panel is shown below:

```

CSMRP120 ----- CIMSMArt - Online Archive Contents Display Facility -----
COMMAND ==>                                  RUN MODE ==> PROD

SYSTEM ID: *

Archive Level to Display: DETAIL

Please select  PENDING ,  DETAIL or  HISTORY

Tier 1 (PENDING) contains the IFASMFDP DASD Files
Tier 2 (DETAIL) contains the Daily Consolidated Files on Tape
Tier 3 (HISTORY) contains the Historical Files on Tape

-----
Note: This panel will lock up your terminal until the report is generated.
-----

```

The report generated is shown below:

```

Menu Utilities Compilers Help
-----
ISRBR0BA 0APRH.CSMR                               Line 0000033 Col 001 080
Command ==> _____ Scroll ==> CSR

                               TIME PERIOD REPRESENTED IN ARCHIVE

00000000000000000000000000000000000000001111111111111111111111111
0000111122223333444455556666777788889999000011112222333344445555
0134013401340134013401340134013401340134013401340134013401340
05050505050505050505050505050505050505050505050505050505050505
CPAC 10/12/2000 *****
CPAC 10/13/2000 *****
CPAC 10/14/2000 *****
CPAC 10/15/2000 *****
CPAC 10/16/2000 *****
CPAC 10/17/2000 *****
CPAC 10/18/2000 *****
CPAC 10/19/2000 *****
CPAC 10/20/2000 *****
CPAC 10/21/2000 *****
CPAC 10/22/2000 *****
CPAC 10/23/2000 *****
CPAC 10/24/2000 *****
CPAC 10/25/2000 *****

```

The Display Incoming DSNAMEs panel is shown below:

```

CSMRP130 ----- CIMSMART - Online Archive Records Display Facility -----
COMMAND ==>                                     RUN MODE ==> PROD

SYSTEM ID: *

Archive Level to Display: DETAIL

Please select PENDING , DETAIL or HISTORY

Tier 1 (PENDING) contains the IFASHFDP DASD Files
Tier 2 (DETAIL) contains the Daily Consolidated Files on Tape
Tier 3 (HISTORY) contains the Historical Files on Tape

-----
Note: This panel will lock up your terminal until the report is generated.
-----

```

The report generated is shown below:

```

  Menu Utilities Compilers Help
-----
ISRBROBA 0APRH.CSMR                               Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
                                INCOMING DATASETS ARCHIVED

DSNAME
SYS2.CIMSSMF.SCPAC.D1999262.T0227542
SYS2.CIMSSMF.SCPAC.D1999262.T0741078
SYS2.CIMSSMF.SCPAC.D1999262.T1154070
SYS2.CIMSSMF.SCPAC.D1999262.T1738106
SYS2.CIMSSMF.SCPAC.D1999262.T2328008
SYS2.CIMSSMF.SCPAC.D1999263.T0001062
SYS2.CIMSSMF.SCPAC.D1999263.T0344463
SYS2.CIMSSMF.SCPAC.D1999263.T0820282
SYS2.CIMSSMF.SCPAC.D1999263.T1151279
SYS2.CIMSSMF.SCPAC.D1999263.T1518435
SYS2.CIMSSMF.SCPAC.D1999263.T1819131
SYS2.CIMSSMF.SCPAC.D1999263.T2010487
SYS2.CIMSSMF.SCPAC.D1999263.T2217421
SYS2.CIMSSMF.SCPAC.D1999264.T0001127
SYS2.CIMSSMF.SCPAC.D1999264.T0317066
SYS2.CIMSSMF.SCPAC.D1999264.T0551254
SYS2.CIMSSMF.SCPAC.D1999264.T0857112

```


The Display Outgoing DSNAMES panel is shown below:

```

CSMRP140 ----- CIMSMART - Online Archive Records Display Facility -----
COMMAND ==>                                     RUN MODE ==> PROD

SYSTEM ID: *

Archive Level to Display: DETAIL

Please select PENDING , DETAIL or HISTORY

Tier 1 (PENDING) contains the IFASHFDP DASD Files
Tier 2 (DETAIL) contains the Daily Consolidated Files on Tape
Tier 3 (HISTORY) contains the Historical Files on Tape

-----
Note: This panel will lock up your terminal until the report is generated.
-----

```

The report generated is shown below:

```

  Menu  Utilities  Compilers  Help
-----
ISRBROBA  0APRH.CSMR                                     Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
                                     ARCHIVE DATASETS CREATED

VOLSER          DSNAME
200809          SYS2.CIHSSMF.CSMFSMFD.D1999319.T0320592
200805          SYS2.CIHSSMF.CSMFSMFD.D1999320.T0206370
205207          SYS2.CIHSSMF.CSMFSMFD.D1999321.T0248500
204211          SYS2.CIHSSMF.CSMFSMFD.D2000001.T0242055
202163          SYS2.CIHSSMF.CSMFSMFD.D2000002.T0242207
203720          SYS2.CIHSSMF.CSMFSMFD.D1999298.T0457198
204398          SYS2.CIHSSMF.CSMFSMFD.D1999307.T0245374
202437          SYS2.CIHSSMF.CSMFSMFD.D1999345.T0259339
204496          SYS2.CIHSSMF.CSMFSMFD.D1999346.T0252136
201766          SYS2.CIHSSMF.CSMFSMFD.D1999347.T0333475
206073          SYS2.CIHSSMF.CSMFSMFD.D2000003.T0302508
204982          SYS2.CIHSSMF.CSMFSMFD.D2000004.T0309577

201137          SYS2.CIHSSMF.CSMFSMFD.D2000005.T0219586
201890          SYS2.CIHSSMF.CSMFSMFD.D2000043.T0236445
202534          SYS2.CIHSSMF.CSMFSMFD.D2000044.T0207217
205879          SYS2.CIHSSMF.CSMFSMFD.D2000045.T0252057

```

Submit a Retrieval Request

This facility is used to create a Batch Job that will retrieve a selection of SMF or RMF records from the archive and write them to a Retrieval File. The records may be selected by SID and Date range, or they may be selected based on Record Type and/or Subtype. Selectivity may be further based on values inside the records as specified by a Data Dictionary.

The initial panel is shown below:

```
CSMRP200 --- CIMSART Version 1.3.0 Retrieval Request Menu -----
OPTION ==>

      0  SETUP      - Initialize Retrieval Variables                USER - 0APRH
      1  SIMPLE     - Simple Retrieval Request (Dates/Times)       DATE  - 11/13/2000
      2  COMPLEX    - Complex Retrieval Request                    TIME  - 09:52
      3  SUBTYPES   - Filtering Based on Subtypes
      4  TIER4      - Retrieval Using Tier 4 Index

      X  EXIT       - Exit CIMSART ISPF/PDF Interface

Enter END command to terminate CIMSART ISPF/PDF Interface
```

The Setup Panel is shown below:

```

          CIMSART Retrieval Variables
COMMAND ===>

          -   CIMSART File Names   -

Retrieval DSNNAME      : SYS2.CINSSMF.U120.SMF1418
Tier 4 Index           : SYS2.CINSSMF.CASCDS.U120.TIER4NDX

-----
PF1:  HELP      PF3:  EXIT      PF4:  RETURN TO PRIMARY MENU  ENTER:  TO PROCESS

```

The Simple Request Panel is shown below:

```

CSMRP210          CIMSART SIMPLE RETRIEVAL REQUEST
COMMAND ===>

Begin Date: *-2                End Date: *-2
Begin Time: 00:00              End Time: 03:00
System ID: *
DSName of the Output File: SYS2.CINSSMF.U120.SMF1517A

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```

This panel results in the following Batch Job being prepared for submission:

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDDE2  OAPRH.SPFTMP1.CNTL                      Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** ***** Top of Data *****
000001 //OAPRHTS JOB (SYSTEMS),'GLJ',CLASS=2,MSGCLASS=T,
000002 //      NOTIFY=OAPRH
000003 //CSHRSMFR EXEC PGM=CSHRSMFR
000004 //STEPLIB DD DISP=SHR,DSN=OAPRH.CIMSMART.LOAD.MODULES
000005 //CSMFNCTL DD DISP=SHR,DSN=SYS2.CIMSSMF.CSMFNCTL
000006 //CSMFOUT DD DISP=SHR,DSN=SYS2.CIMSSMF.U120.SMF1517A
000007 //CIMSPASS DD DISP=SHR,DSN=OAPRH.CIMSMART.DATAFILE(CIMSNUMS)
000008 //SYSPRINT DD SYSOUT=*
000009 //SYSMSGSDD DD SYSOUT=*
000010 //SYSIN DD *
000011 SELECTED SYSTEM=*
000012 BEGIN DATE=*-2
000013 END DATE=*-2
000014 BEGIN TIME=00:00
000015 END TIME=03:00
000016 /*
000017 /*
***** ***** Bottom of Data *****

```

A complex retrieval request includes selectivity by record type and may or may not include selectivity based on Data Dictionary values. The panel for the complex retrieval request is shown below:

```

CSMRP211          CIMSMART COMPLEX RETRIEVAL REQUEST
COMMAND ==>

Begin Date: *-2                      End Date: *-2
Begin Time: 00:00                     End Time: 03:00
System ID: *
DSName of the Output File: SYS2.CIMSSMF.U120.SMF1517A

Include Record Types: 14
      or Exclude Record Types:

Do You Want to Use The Data Dictionary:(Y or N): Y

OPTIONAL: The following parameters limit the retrieval request to the
           specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```

In this case, the Data Dictionary is being used to further isolate the records required. The panel that invokes the Data Dictionary selectivity is shown below:

```

CSMRP220          CIMSART COMPLEX RETRIEVAL REQUEST
COMMAND ===>

                                Data Dictionary
SHF Table Name: CSMR0014      Element Name: SMF14DSN
Element Offset: +00          Compare Length: 08
Type of Compare: EQ          Element Value: SYS2.CIM
(EQ, NE, LT, LE, GE, GT)    (Value being Compared For)
                                - or -
SHF Table Name:              Element Name:
Element Offset:              Compare Length:
Type of Compare:              Element Value:
(EQ, NE, LT, LE, GE, GT)    (Value being Compared For)
                                - or -
SHF Table Name:              Element Name:
Element Offset:              Compare Length:
Type of Compare:              Element Value:
(EQ, NE, LT, LE, GE, GT)    (Value being Compared For)
More: N                      (Y or N)
-----

```

The Batch Job generated for submission is shown below:

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDD2  0APRH.SPFTEMP1.CNTL                      Columns 00001 00072
Command ===> _____ Scroll ===> CSR
***** ***** Top of Data *****
000001 //0APRHTS JOB (SYSTEMS),'GLJ',CLASS=2,MSGCLASS=T,
000002 //          NOTIFY=0APRH
000003 //CSMRSMFR EXEC PGM=CSMRSMFR
000004 //STEPLIB DD DISP=SHR,DSN=0APRH.CIMSART.LOAD.MODULES
000005 //CSMFHCTL DD DISP=SHR,DSN=SYS2.CIHSSHF.CSMFHCTL
000006 //CSMFOUT DD DISP=SHR,DSN=SYS2.CIHSSHF.U120.SMF1517A
000007 //CINSPASS DD DISP=SHR,DSN=0APRH.CIMSART.DATAFILE(CIMSNUMS)
000008 //CSMFDICT DD *
000009     CSMR0014
000010         SMF14DSN+00(08)
000011             EQ
000012                 SYS2.CIM
000013     CSMR0061
000014         SMF61ENN+00(12)
000015             EQ
000016                 SYS2.CIHSSHF
000017 /*
000018 //CSMFINCL DD *
000019     14

```

Selectivity that involves record subtypes as well is invoked from the following panel:

```

CSMRP212          CIMSHART RETRIEVAL REQUEST WITH SUBTYPES
COMMAND ===>

Begin Date: *-2                End Date: *-2
Begin Time: 00:00              End Time: 03:00
System ID: *
DSName of the Output File: SYS2.CIMSSMF.U120.SMF1517A

Include Record Types: 30
      or Exclude Record Types:
Record Subtypes: 4

Do You Want to Use The Data Dictionary:(Y or N): N

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----
    
```

Selectivity from an optional Tier 4 Index requires the specification of the name of the VSAM Cluster that contains the Tier 4 Index. The panel that includes selectivity from the Tier 4 Index is shown below:

```

CSMRP213          CIMSHART RETRIEVAL REQUEST FROM TIER 4
COMMAND ===>

Begin Date: *-2                End Date: *-2
Begin Time: 00:00              End Time: 03:00
System ID: *
DSName of the Output File: SYS2.CIMSSMF.U120.SMF1517A

Include Record Types: 30
      or Exclude Record Types:
Record Subtypes: 4

Do You Want to Use The Data Dictionary:(Y or N): N

Tier 4 Index Name: SYS2.CIMSSMF.CASCDS.U120.TIER4NDX

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----
    
```

Submit an Extract Request

This facility is used to create a Batch Job that will Extract specific SMF or RMF records from the Retrieval File or any dataset containing SMF and RMF records. The records may be selected by SID and Date range, or they may be selected based on Record Type and/or Subtype. Selectivity may be further based on values inside the records as specified by a Data Dictionary.

The initial panel for the Extract Facility is shown below:

```
CSMRP300 ---- CIMSART Version 1.3.0 Extract Request Menu -----
OPTION ==>

      0  SETUP      - Initialize Extract Variables                USER - DAPRH
      1  SIMPLE     - Simple Extract Request (Dates/Times)      DATE  - 11/13/2000
      2  COMPLEX    - Complex Extract Request                   TIME  - 10:06
      3  SUBTYPES   - Filtering Based on Subtypes
      4  DATADICT   - Filtering Based on Data Dictionary Elements

      X  EXIT       - Exit CIMSART ISPF/PDF Interface

Enter END command to terminate CIMSART ISPF/PDF Interface
```

The options for the Extract Facility are similar to those provided for the Retrieval Facility. Simple, Complex and Subtype requests are self-explanatory. Selectivity based upon Data Dictionary values is shown below:

```

CSMRP313          CIMSMART EXTRACT REQUEST WITH DATA DICTIONARY
COMMAND ===>

Begin Date: *-2                End Date: *-2
Begin Time: 00:00              End Time: 03:00
System ID: *
DSName of the Input File: SYS2.CIMSSMF.U120.SMF1517A
DSName of the Output File: SYS2.CIMSSMF.U120.SMF1517A
Include Record Types: 30      or Exclude Record Types:
Record Subtypes: 4

Data Dictionary
  SMF Table Name: CSMR0030      Element Name: SMF30JBN
  Element Offset: +00          Compare Length: 4
  Type of Compare: NE          Element Value: PROD
  (EQ, NE, LT, LE, GE, GT)    (Value being Compared For)
OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```

View Retrieval/Extract Request Results

This facility is used to provide a display of the records retrieved or extracted by CIMSMART. Unlike the Retrieval or Extract Facilities, this facility provides a real time display of the records.

The retrieved records reside in the Retrieval File whereas the extracted records reside in the Extract File. Records or selected records may be displayed using IDCAMS or they may be displayed using the CIMSMART Ad Hoc Detail Reporting Facility or they may be displayed using the CIMS Report Writer. The use of the CIMS Report Writer presumes a valid license for that facility.

The initial Panel for this display facility is shown below:

```

CSMRP400 ---- CIMSART Version 1.3.0 Results Display Menu -----
OPTION ==>

      0  SETUP      - Initialize Results Display Variables          USER - 0APRH
      1  IDCAMSR   - IDCAMS Dump of the Retrieved Records         DATE  - 11/13/2000
      2  IDCAMSX   - IDCAMS Dump of the Extracted Records         TIME  - 10:14
      3  DETAILR   - Detailed Display of the Retrieved Records
      4  DETAILX   - Detailed Display of the Extracted Records
      5  SUMMARYR  - Summary Display of the Retrieved Records
      6  SUMMARYX  - Summary Display of the Extracted Records

      X  EXIT      - Exit CIMSART ISPF/PDF Interface

Enter END command to terminate CIMSART ISPF/PDF Interface

```

The IDCAMS Display option, either for the Retrieval File or for the Extract file, simply invokes IDCAMS and provides a hex dump of the records requested. The request panel for IDCAMS is shown below:

```

          CIMSART IDCAMS Display Retrieval Results Request
COMMAND ==>

DSN of the Retrieval File: SYS2.CIMSSMF.U120.SMF1517A

How Many Records to Display: 100

Display Reports on Workstation: NO
                               (YES or NO)

-----

```

The results of the request are shown below:

```

Menu  Utilities  Compilers  Help
-----
BROWSE      0APRH.CSHR                      Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR_
***** Top of Data *****
IDCAMS      SYSTEM SERVICES                      TIME: 10:17:46
RECORD SEQUENCE NUMBER - 1
000000      1E0E000B 18980100 315FC3D7 C1C3E2C4  C4C1D3F1 D3F2000A FE080100 315F404
000020      40404040 40402004 1C011800 00000F23  14010100 C3E2D4C6 C9D5D7E3 AB33080
000040      E2E8E2F2 4BC3C9D4 E2E2D4C6 4BE2C3D7  C1C348C4 F2F0F0F0 F3F1F44B E3F0F5F
000060      F5F5F9F2 40404040 40404040 40404040  40404040 80000105 00000000 0000000
000080      00000200 00000000 00000000 80000000  64013A00 00000040 05020000 0000000
0000A0      00004000 58006D5E 7FFF0000 00000000  00000000 0001C3C9 D4E2D4C6 4040404
0000C0      40404040 40404040 40404040 40404040  40404040 00AB3248 000000C0 0000320
0000E0      00000000 00000000 00000000 00000100  40005850 00170000 68000001 0303010
000100      00000000 00000000 0100315F 0393C3C9  D4E2D4C6 3030200F 10020000 0000076
000120      000003C0 00160014 0003E2E3 F1D4D3F1  D3F2C3E2 D4D9E2D4 C6C7
RECORD SEQUENCE NUMBER - 2
000000      5E2A000B 18980100 315FC3D7 C1C3E2D4  E2400006 00000000 0000002C 0028000
000020      00000054 00400001 C4C6E2D4 E2E5F1D9  C4C6E2D4 E261D4E5 E2400100 B4EBFCE
000040      FBC2A640 B4EBFCF9 0FA15081 00000000  E2C4C4C1 D3F1D3F2 000AFE08 0100315
000060      40404040 40404040 00000094 00580000  00010040 00300000 00000000 0000000
000080      00000000 00000000 00000000 00000000  00000000 E2E8E2F2 4BC3C9D4 E2E2D4C
0000A0      4BE2C3D7 C1C348C4 F2F0F0F0 F3F1F44B  E3F0F5F3 F5F5F9F2 40404040 4040404

```

It is possible to employ the CIMSMART Ad Hoc Detail Reporting Facility to display the records in a more user-friendly fashion. An example of the panels used to invoke the CIMSMART Ad Hoc Detail Reporting Facility are shown below:

```

CSMRP412 CIMSMART Detailed Display Retrieval Results Request
COMMAND ==>

Begin Date: *-2                      End Date: *-2
Begin Time: 00:00                    End Time: 03:00
System ID: *

DSN of the Retrieval File: SYS2.CIMSSH.F0120.SHF1517A

SMF Record Number: R014              (in the form Rnnn. eg, R030)
SMF Record Subtype: S0              (in the form Sn. S0 means none.)

Display Reports on Workstation: NO
                                   (YES or NO)

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```

The CIMSMART Ad Hoc Detail Reporting Facility is driven by Scripts created from the following panel:

```

CSMRP421   Display SMF Dataset Records: Specify Key

      Select the Dataset Name(s)
            to Display: *
            (Wild card allowed)

-----

```

The results of the display request are shown in the following panel:

```

  Menu  Utilities  Compilers  Help
-----
ISRBROBA  OAPRH.CSMR                               Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
                                'ONLINE DISPLAY'
USER KEY  DATE  RECORD TIME      JOBNAME      UOLSER      EXCP COUNT
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T0535592
          11/10  2:01:11.92      SDDAL1L2      CIMS.SMF      1,896
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T0633368
          11/10  2:01:39.07      SDDAL1L2      CIMS.SMF      1,807
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T0822093
          11/10  2:02:06.27      SDDAL1L2      CIMS.SMF      1,826
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T0910371
          11/10  2:02:24.31      SDDAL1L2      CIMS.SMF      1,800
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T0941122
          11/10  2:02:42.44      SDDAL1L2      CIMS.SMF      1,803
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T1011364
          11/10  2:03:10.97      SDDAL1L2      CIMS.SMF      1,803
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T1040388
          11/10  2:03:36.52      SDDAL1L2      CIMS.SMF      1,803
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T1110170
          11/10  2:03:58.05      SDDAL1L2      CIMS.SMF      1,813
USER KEY:SYS2.CIMS.SMF.SCPAC.D2000314.T1139451

```

If the user is authorized to use the CIMS Report Writer (CRW), the records retrieved or extracted may be displayed in a nicely formatted report. The panel used to invoke the CIMS Report Writer is shown below:

```

                                CIMS03 SMART CRW Display Retrieval Results Request
COMMAND ===>

Begin Date: 02/22/2000                End Date: 02/23/2000
Begin Time: 00:00                    End Time: 24:00
System ID: ALIJ
DSN of the Retrieval File: CIMS03.SMFRECDS.TEST

CRW Loadlib DSN: CIMS04.STAGE.LOAD.MODULES
CRW SWOPTION Dsname: CIMS04.CIMS.REPTLIB(SWOPTION)

SMF Record Number: R030              (in the form Rnnn. eg, R030)
SMF Record Subtype: S0                (in the form Sn. S0 means none.)

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)
DAYS:    :          :          :          :          :
-----
PF1: Help  PF3: Prior Screen  PF4: Primary Option Menu  ENTER: To Process

```

The selectivity criteria are shown on the following panel:

```

                                Display Type 30 SMF Records: Select Key
COMMAND ===>

Select Key Type: 1
(JOBNAME=1
PGMNAME=2
RACF User ID=3
Abend/Completion Code=4

Select Value of Key to Display: *      (Wild card allowed)

-----
PF1: Help  PF3: Prior Screen  PF4: Primary Option Menu  ENTER: To Process

```

The results of the report request are shown below:

```

Menu  Utilities  Compilers  Help
-----
BROWSE      CIMS03.CSMR                               Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSM
***** Top of Data *****
PGM: SR030S02      CIMSMART ISPF/PDF INTERFACE      PAGE 1
      CPU ACTIVITY REPORT USING SMF TYPE 30 RECORDS 03/07/00

      READER      READER
      START      START
JOBNAME  DATE      TIME      PROGRAM      CPU TIME      CPU TIME
      IN SECONDS  HH:MM:SS
-----
ABTSLOB1 02/22/00  14:55:01.88 ABCSTLB2      426.47      0:07:06
ABTSLOB1 02/22/00  14:55:01.88      885.10      0:14:45

ABTSLOB1                                1,311.57

AHBKPU   02/22/00  17:04:51.68 BARRTRAN      0.41      0:00:00
AHBKPU   02/22/00  17:04:51.68      0.41      0:00:00

AHBKPU                                0.82

BHUSBLCR 02/22/00  16:53:35.79 IEBCGENER      0.22      0:00:00
BHUSBLCR 02/22/00  16:53:35.79 SORT          0.07      0:00:00
BHUSBLCR 02/22/00  16:53:35.79      0.29      0:00:00

BHUSBLCR                                0.58

CIMS03AL 02/22/00  18:01:31.82 SPECTWTR      0.28      0:00:00
CIMS03AL 02/22/00  18:01:31.82      0.28      0:00:00
CIMS03AL 02/22/00  18:04:07.06 SPECTWTR      0.53      0:00:01

```

Build a Data Dictionary User Record Entry

This facility is used to construct a Data Dictionary Table for an SMF User Record or for an SMF record for which no Data Dictionary Table has been provided. The Data Dictionary Table contains labels and offset information that allows CIMSMART to reference a field by a label when using a key field such as Job Name to select a specific set of SMF records. The Data Dictionary facility is used during the Retrieval process or during the Extract process.

The initial Data Dictionary Panel is shown below:

```
CSMRP500 ---- CIMSART Version 1.3.0 Data Dictionary Menu -----  
OPTION ==>  
  
0  SETUP    - Initialize Data Dictionary Variables          USER - 0APRH  
1  DEFINE   - Define Table Variables                       DATE  - 11/13/2000  
2  COMPILE  - Compile Table Variables                      TIME  - 10:28  
3  REVIEW   - Review Table Variables  
  
X  EXIT     - Exit CIMSART ISPF/PDF Interface  
  
Enter END command to terminate CIMSART ISPF/PDF Interface
```

A setup panel is provided to supply certain variables to the process. This panel is shown below:

```
CSMRP050    CIMSART Data Dictionary Variables  
COMMAND ===>  
  
          - CIMSART File Names -  
  
CIMSART DATAFILE DSNAME: 0APRH.CIMSART.DATAFILE  
Assembler Program Name : ASHA90  
Assembler Program LOADLIB: ASNA.U1R2M0.SASMMOD1  
  
-----
```

The Define facility differs from the Compile facility in that it invokes the Assembler, but not the Linkage Editor. The basic concepts in either case are identical. The Define Facility entry panel is shown below:

```

CSMRP511 IMSMART Data Dictionary Build: Compile Variables
COMMAND ==>

Table Name: CSMR0255      Macro Name:                or Copy Member: #SMF255

Field Name: SM255JBN      Field Length: 8            Field Offset: 36

Field Name:                Field Length:                Field Offset:

Field Name:                Field Length:                Field Offset:

Field Name:                Field Length:                Field Offset:

Field Name:                Field Length:                Field Offset:

Field Name:                Field Length:                Field Offset:

-----

```

The resultant Batch Job ready for submission is shown below:

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDDE2      0APRH.SPFTEMP1.CNTL                      Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
000001 //0APRHTS JOB (SYSTEMS),'GLJ',CLASS=2,MSGCLASS=T,
000002 //          NOTIFY=0APRH
000003 //C          EXEC PGM=ASMA90,
000004 //          PARM='OBJECT,LINECOUNT(60),XREF(SHORT)',
000005 //          REGION=0M
000006 //STEPLIB DD DISP=SHR,DSN=ASMA.U1R2H0.SASHM0D1
000007 //SYSLIB DD DSN=SYS1.HACLIB,DISP=SHR
000008 //          DD DSN=0APRH.CINSMART.DATAFILE,DISP=SHR
000009 //SYSUT1 DD UNIT=3390,SPACE=(CYL,(10,5)),DSN=
000010 //SYSPUNCH DD DUMMY
000011 //SYSPRINT DD SYSOUT=*
000012 //SYSLIN DD DISP=(,PASS),UNIT=3390,SPACE=(CYL,(5,5,0)),
000013 //          DCB=(BLKSIZE=400),DSN=RLOADSET
000014 //SYSPRINT DD SYSOUT=*
000015 //SVSHSGS DD SYSOUT=*
000016 //SYSIN DD *
000017 CSMR0255 CSECT
000018          QSL2DCTX SM255JBN,C,0,0,0,SM255JBN-36,,0,0
000019 *          END OF THE TABLE

```

It is also possible to display the supported SMF and RMF records in the distributed Data Dictionary. The Display of this information is shown below:

```

Menu Utilities Compilers Help
-----
ISRBR0BA  OAPRH.CIMSMART.DATAFILE(@DICTENT) - 01.08  Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
TABLE      DESCRIPTION
-----
CSMR0006  SMF TYPE 06 RECORD: PRINT SERVICES FACILITY
CSMR0014  SMF TYPE 14 RECORD: DATASET CLOSE (INPUT)
CSMR0015  SMF TYPE 15 RECORD: DATASET CLOSE (OUTPUT)
CSMR0017  SMF TYPE 17 RECORD: DATASET DELETE
CSMR0018  SMF TYPE 18 RECORD: DATASET RENAME
CSMR0030  SMF TYPE 30 RECORD: JOB ACCOUNTING
CS6R0042  SMF TYPE 42 SUBTYPE 6 RECORD: DATASET ACTIVITY INTERVAL
CSMR0061  SMF TYPE 61 RECORD: ICF CATALOG ENTRY CHANGE STATISTICS
CSMR0064  SMF TYPE 64 RECORD: USAM CLUSTER STATISTICS
CSMR0065  SMF TYPE 65 RECORD: ICF CATALOG ENTRY DELETE STATISTICS
CSMR0066  SMF TYPE 66 RECORD: ICF CATALOG ENTRY RENAME STATISTICS
CSMR0080  SMF TYPE 80 RECORD: RACF ACTIVITY
CSMR0083  SMF TYPE 83 RECORD: RACF EXCEPTION
CSMR0101  SMF TYPE 101 RECORD: DB2 ACCOUNTING RECORD
CSMR0110  SMF TYPE 110 RECORD: CICS MEASUREMENT FACILITY RECORD
CSFR0118  SMF TYPE 118 RECORD: TCP/IP FTP RECORD
CSTR0118  SMF TYPE 118 RECORD: TCP/IP TELNET RECORD

```

Create/Update a Tier 4 Index

This facility is used to create or update a Tier 4 Index. The Tier 4 Index provides access to historical SMF and RMF data that had been archived using IFASMFDP and IEBGENER or a product from a different vendor.

For example, the Computer Associates product named JARS/SMF provides a LISTH option in their SMFD program that creates a listing of the entire repository of SMF data in their archive. This listing may be used to build a bridge to that archive using the facilities of CIMSMART.

Optionally, such a bridge can be created manually by specifying the names and date ranges of the datasets in a non-CIMSMART archive.

The initial panel for this facility is shown below:

```
CSMRP600 ---- CIMSART Version 1.3.0 Tier 4 Index Create Menu -----  
OPTION ==>  
  
0  SETUP      - Initialize Tier 4 Index Variables           USER - 0APRH  
1  LISTH      - Create Tier 4 Index From LISTH Output       DATE - 11/13/2000  
2  MANUAL     - Create Tier 4 Index Manually                TIME - 10:35  
3  SMFUTIL    - Create Tier 4 Index from SMFUTIL  
  
X  EXIT       - Exit CIMSART ISPF/PDF Interface  
  
Enter END command to terminate CIMSART ISPF/PDF Interface
```

The LISTH option panel is shown below:

```
CSMRP610          CIMSART TIER 4 INDEX CREATE FROM LISTH  
COMMAND ===>  
  
LISTH Output File DSNAME: SYS2.CIMSSMF.CSMFDEV.LISTH.SCDS  
  
-----
```

This results in a Batch Job ready for submission as shown below:

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDDE2  0APRH.SPFTENP1.CNTL                      Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
000001 //0APRHTS JOB (SYSTEMS),'GLJ',CLASS=2,MSGCLASS=T,
000002 //      NOTIFY=0APRH
000003 //*****
000004 /* THIS JOBSTREAM IS USED TO CONVERT A JARS SMF HISTORICAL ARCHIVE
000005 /* INTO A CIMSMART TIER 4 INDEX USING THE OUTPUT LISTING CREATED
000006 /* BY THE LISTH FACILITY OF JARS SMF
000007 //*****
000008 //STDELETE EXEC PGM=IDCAMS
000009 //SYSPRINT DD SYSOUT=*
000010 //SYSIN DD *
000011 DELETE -
000012 ('SYS2.CIMSSMF.CASCDS.U120.TIER4NDX') -
000013 CLUSTER
000014 //*****
000015 //STALLOC EXEC PGM=IDCAMS
000016 //SYSPRINT DD SYSOUT=*
000017 //SYSIN DD *
000018 DEFINE CLUSTER -
000019 (NAME ('SYS2.CIMSSMF.CASCDS.U120.TIER4NDX') -

```

Alternatively, the user may wish to construct the Tier 4 Index manually using the following panel:

```

CSMRP611      CIMSMART TIER 4 INDEX CREATE MANUALLY
COMMAND ==>

Initialize the Tier 4 Index Cluster (Y or N): N

Tape Vol Ser: 204051      SMF SID: CPAC      File Seq: 0001
DSNAME: SYS2.CIMSSMF.TAPETEST.FILE01
From Date: 01/01/1999 To Date: 01/01/1999 Dump Date: 06/01/1999
From Time: 00:00:00 To Time: 24:00:00 Dump Time: 00:00:00

Tape Vol Ser: 204051      SMF SID: CPAC      File Seq: 0002
DSNAME:
From Date: 01/02/1999 To Date: 01/02/1999 Dump Date: 06/01/1999
From Time: 00:00:00 To Time: 24:00:00 Dump Time: 00:00:00

Tape Vol Ser: 204051      SMF SID: CPAC      File Seq: 0003
DSNAME: 44
From Date: 01/03/1999 To Date: 01/03/1999 Dump Date: 06/01/1999
From Time: 00:00:00 To Time: 24:00:00 Dump Time: 00:00:00
-----

```

which results in the following Batch Job ready for submission:

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDD2  OAPRH.SPFTEMP1.CNTL                               Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** ***** Top of Data *****
000001 //OAPRHTS JOB (SYSTEMS),'GLJ',CLASS=2,MSGCLASS=T,
000002 //          NOTIFY=OAPRH
000003 //*****
000004 //* THIS JOBSTREAM IS USED TO MANUALLY BUILD A TIER 4 INDEX
000005 //*****
000006 //*****
000007 //ST1SCDS EXEC PGM=CSMRSHFF,REGION=0H,TIME=10
000008 //STEPLIB DD DISP=SHR,DSN=OAPRH.CIMSMART.LOAD.MODULES
000009 //SYSNAP DD SYSOUT=*
000010 //SYSUDUMP DD SYSOUT=*
000011 //SYSPRINT DD SYSOUT=*
000012 //SYSMSGSD DD SYSOUT=*
000013 //CSMFT4DS DD DISP=(,PASS,DELETE),
000014 //          UNIT=SYSDA,SPACE=(CYL,(10,10))
000015 //SYSIN DD *
000016 SMFILE=MANU
000017 //SYSUT1 DD *
000018 *
000019 UOLID:204051

```

Multiple Record Facility

In order to make CIMSMART somewhat easier to use, the multiple record facility has been provided. This facility allows the user to Retrieve or Extract sets of related records based on a uniform set of criteria. For example, suppose the user wanted to retrieve all of the relevant records for a specific Job. It is possible to use the panels shown above to specify all of the SMF record types (6, 14, 15, 17, 18, 30, 42, 61,64,65,66) and to provide all of the Data Dictionary information used to select those records. It is easier, however, to merely specify the Job Name and to let CIMSMART determine the makeup of the remainder of the input statements.

In the first panel, the user selects whether the request is for Retrieval (1), Extract (2) or Display (3). This panel is show below.

```
CSMRP700 ---- CIMSMART Version 1.3.0 Record Set Options -----
OPTION ==>

1  RETRIEVE - Retrieve a Logical Record Set          USER - 0APRH
2  EXTRACT  - Extract a Logical Record Set          DATE  - 11/13/2000
3  DISPLAY  - Display a Logical Record Set          TIME  - 10:41

X  EXIT     - Exit CIMSMART ISPF/PDF Interface

Enter END command to terminate CIMSMART ISPF/PDF Interface
```

If the request is for retrieval, the panel shown below is displayed:

```
CSMRP710 ---- CIMSMART Version 1.3.0 Record Set Retrieval -----
OPTION ==>

1  BATCH    - Retrieve the Records for a Batch Job    USER - 0APRH
2  DSNNAME  - Retrieve the Records for a Dataset     DATE  - 11/13/2000
3  DSNINTUL - Retrieve Dataset Interval Records     TIME  - 10:42
4  TCP/IP   - Retrieve the Records for TCP/IP
5  TELNET   - Retrieve Telnet Records by LU Name
6  FTP      - Retrieve FTP Records by DSNNAME
7  MQSERIES - Retrieve MQ Series Records
8  OS390WEB - Retrieve Records for Domino and http under OS/390

X  EXIT     - Exit CIMSMART ISPF/PDF Interface

Enter END command to terminate CIMSMART ISPF/PDF Interface
```

If the request is for a Batch Job, the panel shown below is displayed:

```

CSMRP711          CIMSMART BATCH RECORD SET RETRIEVAL
COMMAND ===>

Begin Date: *                End Date: *
Begin Time: 00:00           End Time: 24:00
System ID: CPAC

DSName of the Output File: SYS2.CIMSSMF.U120.SMFR1418

Batch Job Name: SDDA*
(Wild Cards or Fragments Accepted)

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :
-----

```

Simply provide the Batch Job Name or a fragment of the job name if a set of Batch Jobs is indicated, along with the count of the number of significant characters in the name. For example, if you wanted to retrieve all of the records for Batch Jobs beginning with the characters PROD, the significant Character Count would be 4.

The following shows the JCL that is generated as a result of such a request.

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDDE2  OAPRH.SPFTMP1.CNTL                               Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** ***** Top of Data *****
000001 //OAPRHTS JOB (SYSTEMS),'GLJ',CLASS=Z,MSGCLASS=T,
000002 //          NOTIFY=OAPRH
000003 //CSMRSHFR EXEC PGH=CSMRSHFR
000004 //STEPLIB DD DISP=SHR,DSN=SYS2.CIMSMART.LOAD.MODULES
000005 //CSHFHCTL DD DISP=SHR,DSN=SYS2.CIMSSMF.CSHFHCTL
000006 //CSHFOUT DD DISP=SHR,DSN=SYS2.CIMSSMF.U120.SMFR1418
000007 //CIMSPASS DD DISP=SHR,DSN=SYS2.CIMSMART.DATAFILE(CIMSUMS)
000008 //CSMFDICT DD *
000009     CSMR0006
000010         SMF6JBN+00(5)
000011         EQ
000012         SDDA*
000013     CSMR0014
000014         SMF14JBN+00(5)
000015         EQ
000016         SDDA*
000017     CSMR0015
000018         SMF15JBN+00(5)
000019         EQ

```

Alternatively, if the user wanted to retrieve all records related to a specific Data Set Name, the DSNAME would be provided along with the significant character count:

```

CSMRP712          CIMSMART DATASET RECORD SET RETRIEVAL
COMMAND --->

Begin Date: *                End Date: *
Begin Time: 00:00           End Time: 24:00
System ID: CPAC

DSName of the Output File: SYS2.CIMSSMF.U120.SMFR1418

Dataset Name: SYS2.C*.T*.
(Wild Cards, Generic Nodes or Fragments Accepted)

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```

and the following JCL would be generated:

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDDE2  OAPRH.SPFTEMP1.CNTL                               Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** ***** Top of Data *****
000001 //OAPRHTS JOB (SYSTEMS),'GLJ',CLASS=Z,MSGCLASS=T,
000002 //          NOTIFY=OAPRH
000003 //CSMRSMFR EXEC PGM=CSMRSMFR
000004 //STEPLIB DD DISP=SHR,DSN=SYS2.CIMSMART.LOAD.MODULES
000005 //CSMFCTL DD DISP=SHR,DSN=SYS2.CIMSSMF.CSMFCTL
000006 //CSMFOUT DD DISP=SHR,DSN=SYS2.CIMSSMF.U120.SMFR1418
000007 //CIMSPASS DD DISP=SHR,DSN=SYS2.CIMSMART.DATAFILE(CIMSNUNMS)
000008 //CSMFDICT DD *
000009          CSMR0014
000010          SMF14DSN+00(11)
000011          EQ
000012          SYS2.C*.T*.
000013          CSMR0015
000014          SMF15DSN+00(11)
000015          EQ
000016          SYS2.C*.T*.
000017          CSMR0017
000018          SMF17DSN+00(11)
000019          EQ

```

If you wanted to retrieve only the Data Set Interval Records (SMF Type 42 Subtype 6), you would use the following:

```

CSMRP713          CIMSMART DATASET INTERVAL RECORD SET RETRIEVAL
COMMAND ==>

Begin Date: *                End Date: *
Begin Time: 00:00            End Time: 24:00
System ID: CPAC

DSName of the Output File: SYS2.CIMSSMF.U120.SMFR1418

Dataset Name: SYS2.C*.T*.
(Wild Cards, Generic Nodes or Fragments Accepted)

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```

and the following JCL would be generated:

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDDE2      0APRH.SPFTEMP1.CNTL                      Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** ***** Top of Data *****
000001 //0APRHTS JOB (SYSTEMS),'GLJ',CLASS=2,MSGCLASS=T,
000002 //          NOTIFY=0APRH
000003 //CSMRSHFR EXEC PGM=CSMRSHFR
000004 //STEPLIB DD DISP=SHR,DSN=SYS2.CIMSHART.LOAD.MODULES
000005 //CSMFHCTL DD DISP=SHR,DSN=SYS2.CIMSSMF.CSMFHCTL
000006 //CSMFOUT DD DISP=SHR,DSN=SYS2.CIMSSMF.U120.SMFR1418
000007 //CINSPASS DD DISP=SHR,DSN=SYS2.CIMSHART.DATAFILE(CIMSNUMS)
000008 //CSMFDICT DD *
000009 CS6R0042
000010 S42DSN+00(11)
000011 EQ
000012 SYS2.C*.T*.
000013 //CSMFINCL DD *
000014 42
000015 /*
000016 //CSMFSUBT DD *
000017 6
000018 /*
000019 //SYSPRINT DD SYSOUT=*

```

If you wanted to retrieve all of the TCP/IP records, you would use the following:

```

CSMRP714      CIMSHART TCP IP RECORD SET RETRIEVAL
COMMAND ==>

Begin Date: *-20                      End Date: *-2
Begin Time: 00:00                      End Time: 03:00
System ID: *
DSName of the Output File: SYS2.CIMSSMF.U120.SMF1517A

OPTIONAL: The following parameters limit the retrieval request to the
           specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```


and the following JCL would be generated:

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
ISREDDE2 0APRH.SPFTEMP1.CNTL Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
000001 //0APRHTS JOB (SYSTEMS),'GLJ',CLASS=2,MSGCLASS=T,
000002 // NOTIFY=0APRH
000003 //CSHRSMFR EXEC PGM=CSHRSMFR
000004 //STEPLIB DD DISP=SHR,DSN=0APRH.CIMSMART.LOAD.MODULES
000005 //CSMFNCTL DD DISP=SHR,DSN=SYS2.CIMSSMF.CSMFNCTL
000006 //CSMFOUT DD DISP=SHR,DSN=SYS2.CIMSSMF.U120.SMF1517A
000007 //CIMSPASS DD DISP=SHR,DSN=0APRH.CIMSMART.DATAFILE(CIMNUMS)
000008 //CSMFINCL DD *
000009 118
000010 /*
000011 //CSMFSUBT DD *
000012 005
000013 /*
000014 //SYSPRINT DD SYSOUT=*
000015 //SYSMSG DD SYSOUT=*
000016 //CIMSDUMP DD SYSOUT=*
000017 //SYSIN DD *
000018 SELECTED SYSTEM=*
000019 BEGIN DATE=-*20

```

If the request was for and Extract rather than for a Retrieval, you would use the Extract Panels instead of the Retrieval Panels. The resultant JCL would be similar.

```

CSMRP720 ---- CIMSMART Version 1.3.0 Record Set Extract -----
OPTION ==>

1 BATCH - Extract the Records for a Batch Job USER - 0APRH
2 DSNAME - Extract the Records for a Dataset DATE - 11/13/2000
3 DSMINTVL - Extract Dataset Interval Records TIME - 11:05
4 TCP/IP - Extract the Records for TCP/IP
5 TELNET - Extract Telnet Records by LU Name
6 FTP - Extract FTP Records by DSNAME
7 MQSERIES - Extract MQ Series Records
8 OS390WEB - Extract Records for Domino and http under OS/390

X EXIT - Exit CIMSMART ISPF/PDF Interface

Enter END command to terminate CIMSMART Record Set Extract

```

Once the records have been retrieved, several displays are possible. Of course, you can always use the Display Functions shown above in the Section entitled "View Retrieval/Extract Request Results" or you can use the composite displays available with this facility.

These options are show below:

```
CSMRP730 ---- CINSMART Version 1.3.0 Record Set Display -----
OPTION ==>

      1 BATCH      - Display the Records for a Batch Job           USER - 0APRH
      2 DSNNAME    - Display the Records for a Dataset            DATE  - 11/13/2000
      3 DSNINTVL   - Display Dataset Interval Records            TIME  - 11:06
      4 TCP/IP     - Display the Records for TCP/IP
      5 TELNET     - Display Telnet Records by LU Name
      6 FTP        - Display FTP Records by DSNNAME
      7 MQSERIES   - Display MQ Series Records
      8 OS390WEB   - Display Records for Domino and http under OS/390

      X EXIT      - Exit CINSMART ISPF/PDF Interface

Enter END command to terminate CINSMART Record Set Display
```

If you wanted to see a display incorporating virtually all of the Batch Job associated records, you would use the panel below:

```

CSMRP731 CIMSART Formatted Display Retrieval Results Request
COMMAND ==>

Begin Date: *-20                      End Date: *-2
Begin Time: 00:00                     End Time: 03:00
System ID: *

DSN of the Retrieval File: SYS2.CIHSMF.U120.SMF1517A

Display Reports on Workstation: NO
                               (YES or NO)

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```

and the resultant display would look like this:

```

Menu Utilities Compilers Help
-----
ISRBROBA 0APRH.CSMR                      Line 00000000 Col 001 080
Command ==>                               Scroll ==> CSR
***** Top of Data *****
SYSSID  JOB NAME  PGM NAME  PGM  DATE IN  TIME IN  DATE OUT  TIME OUT  C/CDE
CPAC    SDDAL1L2  CSMRSMFG  001  11/10   02:00:04  11/10    02:08:56  *I3*
CPAC    SDDAL1L2  CSMRSMFG  001  11/10   02:00:04  11/10    02:08:56  0000
CPAC    SDDADCAF  CSMRSMFA  001  11/10   02:08:56  11/10    02:08:56  *I3*
CPAC    SDDADCAF  CSMRSMFA  001  11/10   02:08:56  11/10    02:08:56  0000
CPAC    SDDAL1L2  IDCAMS    001  11/10   02:08:56  11/10    02:09:04  *I3*
CPAC    SDDAL1L2  IDCAMS    001  11/10   02:08:56  11/10    02:09:04  0000
CPAC    SDDADCAF  SSA1WKLD  001  11/10   02:08:56  11/10    02:21:04  *I3*
CPAC    SDDADCAF  SSA1WKLD  001  11/10   02:08:56  11/10    02:21:04  0000
CPAC    SDDA001B  ADSHI002  001  11/10   01:41:10  11/10    02:41:10  *I2*
***** Bottom of Data *****

```

If you merely wanted to see the dataset-related records, you would use the following panel:

```

Menu  Utilities  Compilers  Help
-----
ISRBROBA  OAPRH.CSMR                               Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
SYSSID  DATE      TIME      JOB/USER  DISP  FUNCTION  VOLSER  RECFH  LRECL  BLKSIZ
DSNAME=SYS2.CIMSSMF.SCPAC.D2000314.T0535592
  CPAC  11/10  02:01:11  SDDAL1L2  OLD  INPUT    CIMSMF  UBS    32767   279
DSNAME=SYS2.CIMSSMF.PROD.TIER1A.CTL.DATA
  CPAC  11/10  02:01:12  SDDAL1L2      UPDATE  CIMSMF  USAM    1096
DSNAME=SYS2.CIMSSMF.PROD.TIER1A.CTL.INDEX
  CPAC  11/10  02:01:12  SDDAL1L2      UPDATE:C CIMSMF  USAM     505
DSNAME=SYS2.CIMSSMF.PROD.TIER1A.CTL.DATA
  CPAC  11/10  02:01:12  SDDAL1L2      UPDATE  CIMSMF  USAM    1096
DSNAME=SYS2.CIMSSMF.PROD.TIER1A.CTL.INDEX
  CPAC  11/10  02:01:12  SDDAL1L2      UPDATE:C CIMSMF  USAM     505
DSNAME=SYS2.CIMSSMF.PROD.TIER2A.CTL.DATA
  CPAC  11/10  02:01:12  SDDAL1L2      UPDATE  CIMSMF  USAM    1096
DSNAME=SYS2.CIMSSMF.PROD.TIER2A.CTL.INDEX
  CPAC  11/10  02:01:12  SDDAL1L2      UPDATE:C CIMSMF  USAM     505
DSNAME=SYS2.CIMSSMF.SCPAC.D2000314.T0633368
  CPAC  11/10  02:01:39  SDDAL1L2  OLD  INPUT    CIMSMF  UBS    32767   279
DSNAME=SYS2.CIMSSMF.PROD.TIER1A.CTL.DATA
  CPAC  11/10  02:01:39  SDDAL1L2      UPDATE  CIMSMF  USAM    1096

```

Note that this example is used in concert with the records that were retrieved for a specific Job. Only the DSNAME records are show in the display:

```

CSMRP733 CIMSMART Formatted Display Retrieval Results Request
COMMAND ==>

Begin Date: *-20                               End Date: *-2
Begin Time: 00:00                             End Time: 03:00
System ID: *

DSN of the Retrieval File: SYS2.CIMSSMF.U120.SHF1517A

Display Reports on Workstation: NO
                               (YES or NO)

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----

```

If you wanted to see the Data Set Interval records associated with that Job, select:

```
CSMRP733 CIMSMA RT Formatted Display Retrieval Results Request
COMMAND ==>

Begin Date: *-20                      End Date: *-2
Begin Time: 00:00                     End Time: 03:00
System ID: *

DSN of the Retrieval File: SYS2.CIMSSMF.U120.SMF1517A

Display Reports on Workstation: NO
                               (YES or NO)

OPTIONAL: The following parameters limit the retrieval request to the
          specific|day(s) (1st 3 characters eg, WED=Wednesday, ALL=All Days)

DAYS:      :      :      :      :      :      :
-----
```

along with Record Selectivity criteria:

```
CSMRP743   Display Dataset Interval Records: Select Key

Select Key Type: 2

(Job Name:DSNAME=1
 DSNAME:Job Name=2
 UOLSER:Job Name:DSNAME=3
 Storage Group Name:DSNAME=4)

Select Value of Key to Display: *      (Wild card allowed)

-----
```

and the following display would be produced:

```

Menu  Utilities  Compilers  Help
-----
ISRBROBA  0APRH.CSHR                               Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
                                     'ONLINE DISPLAY'
USER KEY  DATE  RECORD TIME      S42JDCOD      S42DSTYP      S42DSCOD      IOCOUNT
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T0535592      SDDAL1L2
      11/10    2:01:11.92                                1              128              442
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T0633368      SDDAL1L2
      11/10    2:01:39.08                                1              128              421
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T0822093      SDDAL1L2
      11/10    2:02:06.27                                1              128              425
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T0910371      SDDAL1L2
      11/10    2:02:24.31                                1              128              418
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T0941122      SDDAL1L2
      11/10    2:02:42.44                                1              128              420
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T1011364      SDDAL1L2
      11/10    2:03:10.97                                1              128              420
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T1040388      SDDAL1L2
      11/10    2:03:36.52                                1              128              420
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T1110170      SDDAL1L2
      11/10    2:03:58.05                                1              128              422
USER KEY:SYS2.CIMSSMF.SCPAC.D2000314.T1139451      SDDAL1L2

```

Special Authorized Functions

This facility is used to build and submit batch jobs that invoke many useful CIMSMART utilities. For example, when the integrity of the archive is potentially compromised by a system ABEND, the MRFIXIT utility is used to recover that integrity. By the same token, unwanted datasets can be removed from the archive or the control clusters in the archive can be backed up or restored.

WARNING • The use of these utilities by unauthorized personnel is not recommended.

The initial entry panel for this facility is shown below:

```

----- CIMSART Special Authorized Functions Main Menu -----
OPTION ==>

      0  SETUP    - Initialize Master Control File DSNAME      USER - 0APRH
      1  MRFIXIT - Repair and Reset Master Control Flags      DATE - 03/07/2000
      2  DELETE  - Delete File from Archive                   TIME - 06:28
      3  CSHRDMPR - Dump and Clear Dump Required Clusters
      4  BACKUP  - Backup Tier Control Clusters
      5  RESTORE - Restore Tier Control Clusters
      6  SNOOPY  - Display SMF Active Cluster Full
      X  EXIT    - Exit CIMSART ISPF/PDF Interface

Enter END command to terminate Archive Display Processing.

```

Each of the options results in a set of Batch JCL ready for submission.

The results from Option 1, for example, are shown below:

```

  File  Edit  Confirm  Menu  Utilities  Compilers  Test  Help
-----
EDIT          0APRH.SPFTENP1.CHTL                      Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** ***** Top of Data *****
000001 //0APRHTS JOB (SYSTEMS),'GLJ',CLASS=Z,MSGCLASS=T,
000002 //          NOTIFY=0APRH
000003 //ST1RESET EXEC PGH=CSMF5MFU
000004 //STEPLIB DD DISP=SHR,DSN=SYS2.CIHSSMF.CSHFDEV.U120.LOADLIB
000005 //CSMFCTL DD DISP=SHR,DSN=SYS2.CIHSSMF.CSMFCTL
000006 //SYSPRINT DD SYSOUT=*
000007 //SYSMSG DD SYSOUT=*
000008 //CSMFCAMS DD UNIT=SYSDA,SPACE=(TRK,(1,1)),DISP=(,PASS)
000009 //SYSIN DD DUMMY
000010 //ST2DEL EXEC PGH=IDCAMS
000011 //SYSPRINT DD SYSOUT=*
000012 //SYSIN DD DISP=(OLD,DELETE),DSN=*.ST1RESET.CSMFCAMS
***** ***** Bottom of Data *****

```




Installation

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Introduction

The installation of the CIMSMART product is a straightforward process. There are, however, several security and knowledge requirements that should be addressed in the selection of the install personnel. The person performing the install should:

- Have access to the CIMS Lab, Inc. web site at <http://www.cimslab.com>
- Have the ability to FTP files from the CIMS Lab, Inc. web site to a PC or the mainframe
- Have the ability to upload files from the PC to the mainframe
- Have the security access necessary to perform TSO SEND and RECEIVE commands and allocate files
- Have a good working knowledge of JCL
- Have a familiarity with SMF Data and concepts (SMFPRMnn)
- Be able to have a system operator issue the necessary commands to install the MVS related components and/or IPL the MVS LPAR
- Have the security access necessary to install operating system exit (IEFU29)
- Have the security access necessary to copy exits to an Authorized (APF [SYS1.LPALIB]) Library
- Have the security access necessary to copy a member (CIMSSMFX) to a JES accessible PROCLIB
- Be able to create a security system entry for a member (CIMSSMFX) to execute IFASMFDP dump program and reinitialize the SMF cluster

Dataset Names

Careful attention should be given to the selection of the high level qualifiers used within CIMSMART. There are several different types of datasets used within the product, which (depending on the installation) might require the use of different high level qualifiers. The dataset types used by CIMSMART are:

Program Datasets

These are the CIMSMART datasets from the install media. The qualifiers would be for the CIMSMART Datafile Library, Object Library, Link JCL Library, Load Library, ISPF CLISTS, ISPF Panels, ISPF Messages and ISPF Skeletons.

Master File and Index Clusters

Six VSAM Index Clusters (three primary and three backups) are used to manage the Storage Tiers in the archive. They are individual VSAM KSDS clusters and may be shared across systems.

As many environments have a separate syntax for naming VSAM datasets, there may be a requirement for this high level qualifier to differ from the others used for the install.

Archive Dataset

The HLQ (High Level Qualifier) of the Archive dataset should be carefully selected so that the Archive file is not inadvertently deleted. The HLQ may be one or two levels (e.g., CIMSMART.ARCHIVE) and will be attached to the front of each file name that is created during the archive process. The CIMSMART product relies on the tape datasets being catalogued, so the HLQ should be set up in such a manner that the catalogue used to contain the archive datasets is accessible from all relevant systems.

It is often desirable to have three separate high level qualifiers specified for the installation and operation of CIMSMART.

Installation Steps

Step 1 - Download the CIMSMART product from the Web

The CIMSMART product is available from the CIMS Lab, Inc. web site at <http://www.cimslab.com>. You can download the self-extracting executable (CIMSMART.EXE) from the web site. This executable contains ten (10) files. One of the files, README.TXT, explains the steps involved in installing the partitioned datasets (PDS's) from the zip file.

The following are the same instructions contained within README.TXT. *Always refer to the README.TXT for the latest installation instructions!*

▶ 1.1 Supplied files

Run the Self-Extract, by executing CIMSMART.EXE, to extract the following files from the archive. These files will require approximately 1.6 MB of space. There are a total of ten (10) files included with the download.

| Name | Description |
|--------------|--|
| DATAFILE.SEQ | A TSO transmitted sequential dataset containing the CIMSMART JCL control library |
| OBJECT.SEQ | A TSO transmitted sequential dataset containing the CIMSMART program object code |
| LINKJCL.SEQ | A TSO Transmitted sequential dataset containing the CIMSMART JCL required to build executable load modules from the CIMSMART object code |
| ALLOC.JCL | A sample JCL member that allocates the CIMSMART product datasets |
| INSTJOB1.JCL | A sample JCL member that restores the actual CIMSMART datasets from the sequential files |
| README.TXT | Installation instructions |
| CSMRCLIB.SEQ | A TSO transmitted sequential dataset containing the ISPF interface CLISTS and REXX EXECs. |

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| Name | Description |
|--------------|---|
| CSMRMLIB.SEQ | A TSO transmitted sequential dataset containing the ISPF interface messages. |
| CSMRPLIB.SEQ | A TSO transmitted sequential dataset containing the ISPF interface panels. |
| CSMRSLIB.SEQ | A TSO transmitted sequential dataset containing the ISPF interface skeletons. |

Step 2 - Install Product Components

The following stages must be performed to install the product.

- ▶ 2.01. Allocate a temporary installation PDS on MVS

The target dataset should have the following dataset attributes:

```
SPACE UNITS: BLKS
BLKS:       5 (primary)
           2 (secondary)
DIRBLKS:    1
RECFM:      FB
LRECL:      80
BLKSIZE:    6160
DSORG:      PO
```

- ▶ 2.02. Transfer the files ALLOC.JCL and INSTJOB1.JCL

Perform an ASCII transfer for these two files to the PDS allocated in Step 2.01 as members, ALLOC and INSTJOB1, respectively:

- a Convert the data from ASCII to EBCDIC
- b Append CRLF (carriage return/line feed) sequences

- ▶ 2.03 Modify the ALLOC JCL on MVS

This JCL will pre-allocate the TSO transmitted sequential datasets and, optionally, the CIMSMART product libraries.

Edit the JCL and change the following to meet your installation requirements:

| | |
|---------|---|
| &HLQ | = The high-level qualifier of your CIMSMART install |
| &UNIT | = The disk unit name for your site |
| &VOL | = The volume for the CIMSMART datasets to reside on |
| &DELETE | = "LT" to delete the sequential datasets = "LE" to bypass deleting the sequential datasets |
| &ALLOC | = "LT" to allocate the CIMSMART load library = "LE" to bypass allocation of the load library |

Note • The first time you run ALLOC, set &DELETE to "LE" and set &ALLOC to "LT".

- ▶ 2.04 Submit the ALLOC JCL

The job should complete with a return code zero (0). Investigate any non-zero return code.

Note • A non-zero return code will occur on STEP01 if the sequential files do not exist. This is OK.

A non-zero return code will occur on STEP04 if you change the &ALLOC to "LT" and any of the CIMSMART libraries are already allocated. This is OK.

- ▶ 2.05 Transfer the files to sequential datasets on MVS

Follow the chart below:

| Extracted Zip File | MVS Dataset Name |
|--------------------|---------------------------|
| DATAFILE.SEQ | HLQ.CIMSMART.DATAFILE.SEQ |
| OBJECT.SEQ | HLQ.CIMSMART.OBJECT.SEQ |
| LINKJCL.SEQ | HLQ.CIMSMART.LINKJCL.SEQ |
| CSMRCLIB.SEQ | HLQ.CIMSMART.CSMRCLIB.SEQ |
| CSMRMLIB.SEQ | HLQ.CIMSMART.CSMRMLIB.SEQ |
| CSMRPLIB.SEQ | HLQ.CIMSMART.CSMRPLIB.SEQ |
| CSMRSLIB.SEQ | HLQ.CIMSMART.CSMRSLIB.SEQ |

where HLQ = Your CIMSMART high-level dataset qualifier.

Perform a binary transfer for the files:

- * DO NOT convert the data from ASCII to EBCDIC
- * DO NOT append CRLF (carriage return/line feed) sequences

- ▶ 2.06 Modify the INSTJOB1 JCL on MVS

This JCL will restore the TSO transmitted sequential datasets to partitioned datasets.

Edit the JCL and change the following to meet your installation requirements:

| | |
|-------------------------|--|
| EDIT THE JOBCARD | |
| &USER | = Your user ID |
| &HLQ | = The high-level qualifier for your CIMSMART install |

- ▶ 2.07 Submit the INSTJOB1 JCL

This job must complete with a return code zero (0) to be successful. Investigate any non-zero return code.

- ▶ 2.08 Modify the LINKPROC JCL in the HLQ.LINKJCL Library

This member is a PROCEDURE that will be used to link the CIMSMART object modules into CIMSMART load modules.

Edit the procedure and change the following to meet your installation requirements:

| | |
|---------|-----------------------------|
| OBJECT | The CIMSMART object library |
| SYSLMOD | The CIMSMART load library |

▶ 2.09 Modify the INSTJOB2 JCL in the HLQ.CIMSMART.LINKJCL Library

This JCL member will create all of the CIMSMART load modules by linking the CIMSMART object (using the above LINKPROC procedure).

Edit the JCL and change the following to meet your installation requirements:

EDIT THE JOBCARD

| | |
|------|---|
| &HLG | = The high-level qualifier of your CIMSMART install |
|------|---|

▶ 2.19 Submit the INSTJOB2 JCL

The job should complete with a zero return code. Investigate any non-zero return code.

Step 3 - Tailor Datafile Library

The CIMSMART JCL Datafile Library, HLO.CIMSMART.DATFILE, contains all of the JCL members necessary to utilize CIMSMART. Tailor the following JCL members to conform to your installation standards. You will need to edit the Jobcards, dataset high-level qualifiers, and storage parameters. JCL members include:

| Member | Description |
|----------|--|
| CSMFBKUP | Backs up all index clusters |
| CSMFCTL1 | Adds a dataset to the Storage Tier 1 data store |
| CSMFDELT | Deletes a 2nd tier dataset from the control cluster |
| CSMFEXTR | Reads the SMF file and extracts all records that match the selection criteria. The program can be used to make multiple passes against a set of SMF records, in effect providing an "and" capability against a selected subset provided by CSMRSMFR. |
| CSMFINIT | Deletes, allocates, and initializes Master Control Record and Index clusters |
| CSMFJCL | Job version of CIMSSMFX. It executes IFASMFDP to dump the SMF dataset and runs the contents through CIMSMART |
| CSMFLDL2 | Sends SMF data directly into 2nd tier consolidated history archive |
| CSMFLDL3 | Sends SMF data directly into 3rd tier consolidated history archive |
| CSMFL1L2 | Migrates Storage Tier 1 data into the 2nd tier |
| CSMFL2L3 | Migrates Storage Tier 2 data into the 3rd tier |
| CSMFREPT | Extracts, formats, and prints various reports against the CIMSMART data tier archives |
| CSMFRETR | Based on selection criteria, retrieves SMF historical data from the CIMSMART data tier archives |
| CSMFRSTR | Restores index clusters from backups |
| CSMFSNIF | Snoops around and prints SMF utilization statistics |
| CSMFTERM | Deletes Master Control Record and index clusters |
| MRFIXIT | Resets locks in Master Control Record |

Step 4 - Allocate the Master File and Index Clusters

The CIMSMART Master File manages the entire system. It is a flat file with a single large record that is easily and quickly updated. The Master File DSNAME is ENQed while the Master Control Record is being updated by one of the programs, although the actual

update period is extremely short. This means that there is virtually no disruption in service due to the unavailability of resources. Refer to [Chapter B, Data File Descriptions](#) for detailed file descriptions.

Six VSAM Index Clusters (three primary and three backups) are used to manage the Storage Tiers in the archive. They are individual VSAM KSDS clusters and may be shared across systems.

The JCL for performing the DELETE/DEFINE IDCAMS step is found in the CIMSMART Datafile Library, Member Name = CSMFINIT.

As the first step in this job is an IDCAMS DELETE... if the clusters do not exist (as in the first time CSMFINIT is run) a return code of 8 is to be expected.

Step 5 - Tailor, Assemble and Link IEFU29

The IEFU29 User Exit is invoked whenever a Switch SMF occurs. This exit is used to issue the Start command for the task that will cause the filled Cluster to be unloaded and reformatted. The User Exit constructs the output dataset name based on the SMF SID, the date and time the request was issued, plus a user-defined High Level Qualifier.

The source code and JCL to modify, assemble and link edit the IEFU29 User Exit is located in the JCL Datafile Library (HLQ.CIMSMART.DATAFILE) as member ASMU29. You must check your existing OS390 installation and determine if a IEFU29 User Exit is already in place. If there is an existing exit, you must modify the CIMSMART exit code with the existing code. Remember that IEFU29 must be copied to an APF-Authorized library, probably SYS1.LPALIB.

Step 6 - Modify SMFPRMnn member in SYS1.PARMLIB

The SMFPRMnn member of SYS1.PARMLIB must be changed to include reference to the IEFU29 User Exit once the User Exit has been tailored and installed. Please refer to the IBM System Management Facilities manual for detailed instructions.

Note • The default member provided by IBM is SMFPRM00 the actual member that controls the SMF collection for the specific LPAR may differ as to the last two digits used (e.g. SMFPRM01, SMFPRM02, etc.).

Step 7 - Copy the CIMSMART member CIMSSMF to a JES-Accessible PROCLIB

The IEFU29 User Exit issues a Start Command for CIMSSMF, specifying through variable tokens the name of the SMF cluster to be dumped and the output dataset name of the file to be created. Please modify the CIMSSMF member to conform to local standards and copy it to an appropriate library.

Step 8 - Create a Security System Entry for CIMSSMF

Because the CIMSSMF task executes the IFASMFDP program that creates the output dataset and reinitializes the SMF cluster, the User named CIMSSMF must be defined to your security system with:

- Create access for the High Level Qualifier defined for the output dataset name
- Control access for the SMF clusters so that the cluster just dumped can be reinitialized.

Step 9 - Enable new SMF processing

Once all of the above steps are taken to setup the new SMF parameters and CIMSMART exit processing, you must enable the SMF exit and the new SMF parameters in MVS:

- Have the system operator issue a SETPROG LPA,MODNAME=IEFU29 to add the new exit to the LPA list.
- Have the system operator enter the SET SMF=nn, where nn is the LPAR number of the system being modified

OR

- IPL the MVS LPAR

Step 10 - Install the ISPF Interface

The CIMSMART ISPF/PDF Interface is distributed as a set of the following libraries:

- CSMRCLIB which contains the CLISTS and REXX EXECs
- CSMRPLIB which contains the Panels
- CSMRSLIB which contains skeleton JCL
- CSMRMLIB which contains the messages

Once the libraries have been installed, the following changes must be made before the ISPF/PDF Interface can be used.

- 1 Edit the CIMSMART member of the CSMRCLIB
- 2 Change all occurrences of &PREFIX to your high level qualifier
- 3 Save the CIMSMART member of the CSMRCLIB
- 4 Edit the CSMRENT member of the CSMRCLIB
- 5 Change all occurrences of &PREFIX to your high level qualifier
- 6 Save the CSMRENT member of the CSMRCLIB
- 7 Execute the CIMSMART member of the CSMRCLIB



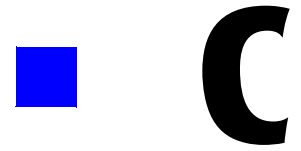
Data File Descriptions

Available with v1.3

Please check the CIMS Lab website for availability updates: www.cimslab.com.
Projected May 1, 2000.

■ **Data File Descriptions**

Available with v1.3



Sample Reports

Available with v1.3

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Projected May 1, 2000.

■ **Sample Reports**

Available with v1.3



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