ChangeMan® SSM

Change Tracking User's Guide

Contents

Welcome to ChangeMan SSM

This document describes ChangeMan® SSM (System Software Manager for z/OS), a product of Serena Software, Inc., a Micro Focus company.

ChangeMan SSM detects and tracks changes within groups of applications or system data sets, synchronizes local or remote operating environments, and restores environments to a clean and working state. ChangeMan SSM detects changes to data sets, PDS members, or full DASD volumes using a unique fingerprinting technology.

Before You Begin   See the README for the latest updates and corrections for this manual. You can access the README through the Micro Focus SupportLine website at https://supportline.microfocus.com/.

Objective   This manual provides information to help you:

- Understand the ChangeMan SSM Change Tracking component.

- Perform administrative tasks in online and batch.

- Use the Online Change Tracking facility.

- Use the Batch Change Tracking facility.

Audience   This manual is intended for anyone responsible for the following functions:

- Performing administrative tasks for ChangeMan SSM.

- Analyzing information on tracked components.

- Recovering selected versions of members and PDSs.

Change Bars   Change bars in the left margin identify substantive changes to the text of this manual in SSM 8.4.

Manual Organization

The following table briefly describes the chapters in the *ChangeMan SSM Change Tracking User's Guide*.

This chapter . . .	Contains this information . . .
1.	Introduction. Explains the Change Tracking component of ChangeMan SSM.
2.	Online Administration. Explains how to use the change tracking administration online panels. A detailed description of each parameter displayed in the panels is also provided.
3.	Batch Administration. Explains how to use the change tracking administration batch commands. Command structure, stacking, and parameter descriptions are provided.

This chapter . . .	Contains this information . . .
4.	Online Change Tracking. Describes the change tracking online panels and each parameter displayed in the panels.
5.	Online Change Tracking (HFS). Describes the change tracking online panels for Hierarchical File System (HFS) files and also describes each parameter displayed in the panels.
6.	Batch Change Tracking. Explains how to use the change tracking batch commands. Command structure, stacking, and parameter descriptions are provided.
7.	Managing Archives. Describes the ChangeMan SSM archiving facilities.
8.	Administrator Processes. Describes situations that an administrator might encounter and provides scenarios to resolve them.
Glossary	Defines terms used within ChangeMan SSM.
Index	Index of subjects.

Guide to Documentation

The following sections provide basic information about ChangeMan SSM documentation and related documents.

ChangeMan SSM Documentation Suite

The ChangeMan SSM documentation consists of the README file and the following manuals. Registered customers can download these documents from the Micro Focus SupportLine website at: <u>https://supportline.microfocus.com/</u>.

Title	Description
ChangeMan® SSM Detection and Synchronization Guide	Instructions for using the Detection and Synchronization Component.
ChangeMan® SSM Data Extraction User's Guide	Instructions for using the Data Extraction Component.
ChangeMan® SSM Messages Guide	A listing of ChangeMan SSM error and information messages and their meaning.

Title	Description
ChangeMan® SSM Getting Started Guide	Provides: ■ An overview of the ChangeMan SSM components. ■ Instructions for setting up your environment to get started quickly. ■ Instructions for performing the most commonly used functions.
ChangeMan® SSM Installation Guide	Provides instructions for installing the three components: ■ Change Tracking ■ Detection and Synchronization ■ Data Extraction.

Using the Manuals

The manuals use Adobe Portable Document Format (PDF). To view PDF files, use Adobe® Reader®, which is freely available from www.adobe.com.

TIP Be sure to download the *full version* of Reader. The more basic version does not include the search feature.

PDF Document Features

This section highlights some of the main Reader features. For more detailed information, see the Adobe Reader online help system.

The PDF manuals include the following features:

■ **Bookmarks.** All of the manuals contain predefined bookmarks that make it easy for you to quickly jump to a specific topic. By default, the bookmarks appear to the left of each online manual.

■ **Links.** Cross-reference links within a manual enable you to jump to other sections within the manual and to other manuals with a single mouse click. These links appear in blue.

■ **Printing.** While viewing a manual, you can print the current page, a range of pages, or the entire manual.

■ **Advanced search.** Starting with version 6, Adobe Reader includes an advanced search feature that enables you to search across multiple PDF files in a specified directory. (This is in addition to using any search index created by Adobe Catalog—see step 3 below.)

Multiple Document Search

Adobe Reader Version 6 and higher supports multiple document search. To search across multiple PDF documents concurrently, perform the following steps:

1 In Adobe Reader, select Edit > Search (or press CTRL+F).

2 In the text box, enter the keywords for which you want to search.

3 Select the **All PDF Documents in** option, then browse to select the folder in which you want to search. (If you have a document open that has an Adobe Catalog index

attached, you can leave the **In the index named...** option selected to search across all the manuals in the index.)

4 Optionally, select one or more of the additional search options, such as **Whole words only** or **Case-Sensitive**.

5 Click the **Search** button.

For more information, see Adobe Reader's online help.

Online Help

ChangeMan SSM includes an online help system that offers the following:

Attribute	Description
Guidance Information	Press F1 in the command field to display an overview of the current panel.
Index	A list of key words from which you can access detailed information on each subject. Press F1 from the main menu of each of the components to access the menu.
Field Sensitive Help	Field sensitive help is available for every field on the ISPF panels. Place the cursor on the field and press F1 for help.

Chapter 1
Introduction

This chapter gives an overview of the ChangeMan SSM Change Tracking component.

ChangeMan SSM Solutions

ChangeMan SSM is a comprehensive suite of change management solutions. Together, these solutions assist all organizational personnel in detecting, tracking, reporting, implementing, distributing, and recovering from changes to the MVS environment. ChangeMan SSM provides solutions for both small data centers as well as large, complex environments with multiple LPARs, CPUs, and sites.

ChangeMan SSM also assists with data center consolidations and mergers/acquisitions.

ChangeMan SSM consists of three components:

- Change Tracking

- Detection and Synchronization

- Data Extraction

These components provide you with toolsets to detect changes and synchronize environments at the data set, PDS member, and VSAM record level.

Fingerprinting Technology

All ChangeMan SSM components use Fingerprinting technology. Like DNA mapping that uniquely identifies a human, Fingerprint technology uniquely identifies a file by creating an 8-byte *token* representing the contents *(the content Fingerprint)* of any PDS member or data set. When the contents of a data set or member changes, so does its token. As long as the contents of the data set or member does not change, the generated token will not change. This means that a data set can be copied to another volume, distributed to a remote site, or reblocked without incurring a change to its token.

ChangeMan SSM uses Fingerprint technology to detect differences in the contents of one or more members, an entire data set, a group of data sets, a volume, or group of volumes regardless of the naming conventions. For partitioned data sets, one token is generated for each member, and one for the entire PDS.

For VSAM KSDS clusters, ChangeMan SSM generates one token per record, and one composite token for the entire data component. These tokens are stored externally in a Fingerprint data set. The VSAM Fingerprint representations are evaluated to determine the changed records. By comparing the current VSAM Fingerprint data set with a previous one, the added, updated, and deleted records are identified. To synchronize VSAM clusters, ChangeMan SSM creates a VSAM Change Basket containing only the added, deleted, and changed records. The Change Basket, created in a Base environment, is transferred to local or remote environments for Import processing to synchronize the Target cluster.

Flat files and flattened databases can also be Fingerprinted at the record level. Flat files can be Fingerprinted as either KEYED or TEXT format. A Fingerprint token is produced for each record of the flat file. The record token is a six-byte representation of the content of a record. If the flat file has a user specified key, then the token is the six-byte representation plus the key.

PDS member-level directory tokens can optionally be used as an additional determination of change (when a change occurs in the PDS directory during the comparison and

synchronization processes). Refer to the EXTENDEDSYNC command in the *ChangeMan SSM Detection and Synchronization Guide*.

Change Tracking Component

This component provides two auditing/tracking facilities:

- Batch Interval Change Tracking (BICT)

- Real Time Change Tracking (RTCT)

Once application or system critical data sets are defined to the Change Tracking Component, any updates made (at the PDS member level) are identified and recorded in a ChangeMan SSM database. Regardless of the tool used to commit the change (online, batch, standard or non-standard), the change is detected. Using Fingerprinting technology, all updates are detected, even if the MVS system on one LPAR is brought down, or the HPSRTO task is stopped for a period of time.

When the Change Tracking Component detects a change, it can automatically back up the changed member to the *Delta Master* database (this is an optional user selection). By enabling you to recover prior versions of members, you can view and analyze changes in system, software product, or application software, for problem determination and immediate recovery.

The following optional features are available when using Real Time Change Tracking:

- Notification of Change Events

  Specified users can be notified when a change occurs in a tracked data set. The notification is available through email or TSO.

- Member Level Security (MLS)

  MLS prevents unauthorized users from updating protected entities.

- Member Reference Tracking (MRT)

  If you only want to see "references" to data sets and members, you can use MRT to identify which users or jobs referenced the data set or member and when.

Fingerprinting or Tracking Large Objects

When fingerprinting or tracking large objects (for example, those with a large number of events), it may be necessary to increase the region size of the job to avoid S878-10 ABENDs. Eligible jobs are those that execute HPSTRACK, HPSINTEG, HPSMAINT, HPSTRANS, and also the SSMSTAR started task.

It may be necessary to increase the REGION parameter for the job step to 256MB or higher. Performing operations on large objects in online mode also requires that you increase the SIZE parameter on the TSO LOGON screen to a minimum of 64MB. A region size of 64MB is also recommended for the SSM started task jobs.

Batch Interval Change Tracking (BICT)

BICT requires that the HPSGLOBE program be executed at user-specified intervals of time to determine and identify changes to the environment being tracked. This facility does not require any intercepts to be placed on the system.

BICT identifies and captures any changes made to the tracked environment since the last GLOBAL capture. Interim changes are not captured.

The TSO and email notification facilities are *not* available using the BICT method of change tracking.

Real Time Change Tracking (RTCT)

RTCT provides an automated facility to track system, software, and application changes. All changed members are stored in a ChangeMan SSM database along with specific information as to who made the change, the type of change, the program used, and the date and time the change occurred.

The ChangeMan SSM side-by-side compare facility determines the exact changes made to particular members (load or source); you can also use interfaces to COMPAREX or IBM's SuperC to determine the changes made to particular members.

RTCT supports the following data set types:

- Partitioned Data Sets (PDS and PDSE)

- Physical Sequential and Extended Sequential data sets (PS)
  NOTE Multivolume sequential data sets are supported

- Direct Access data sets (DA)

NOTE Tracking VSAM data sets (all types), however, requires a periodic run of the HPSGLOBE program with the PARM='GLOBAL,VSAMONLY', which can be initiated by your job scheduling software.

There are several intercepts that must be implemented for RTCT (described in the following topic).

The TSO and email notification facilities are available using the RTCT method of change tracking.

The following topics explain the three elements supporting RTCT:

- SERNET Started Task

- ChangeMan SSM Subtasks

- Dynamic SVC Interceptions

SERNET Started Task

SERNET (previously called SERENA/Network) provides communication and other services on the mainframe server for Serena products. SERNET runs as a started task on an LPAR. Multiple SERNET started tasks can be run on a single processor.

RTCT runs as an application under a SERNET instance. The ChangeMan SSM started task (SSMSTAR) consists of the SERNET started task plus the ChangeMan SSM subtasks (HPSSTART and HPSRTO).

ChangeMan SSM Subtasks

- Synchronous Subtask (HPSSTART)

  After initialization, SERNET first attaches the ChangeMan SSM subtask (HPSSTART) and makes the SSCVT control block known to it. The HPSSTART program then attaches a second subtask (HPSRTO) that runs asynchronously.

- Asynchronous Subtask (HPSRTO)

  Upon initialization, the subtask HPSRTO intercepts the CLOSE and STOW SVCs. HPSRTO uses the SVCUPDTE macro (recommended by IBM) to dynamically front-end them. Additionally, HPSRTO allocates a storage table that is made available to the front-end code.

  When HPSRTO is attached, the ChangeMan SSM Site Master database is read to initialize a tracked object list in a tree data structure. Only the data sets or files (objects) in this tree are subject to tracking. This eliminates the tracking of undesired data sets or files.

  When either a STOW or a CLOSE is detected for a tracked data set, the appropriate front-end code stores an information node in the storage table; this code is optimized for speed.

  Asynchronously, HPSRTO compares the information in the storage table against the object tree. If an update to an object has occurred, HPSRTO triggers the CAPTURE function to record the update.

  HPSRTO may attach additional subtasks as needed.

> **NOTE** The ChangeMan SSM LOG data set contains messages issued by HPSRTO. The timestamp displayed in these messages is the date/time of when the message was issued, which corresponds to when the events were processed. To see when the events actually took place, run an Events Report or History Report. The ChangeMan SSM LOG is not meant to replace the Events Report, but to report on the activity of the started task.

Dynamic SVC Interceptions

The HPSFCLOS and HPSFSTOW intercepts are front-ended to the current CLOSE and STOW SVCs in the SVC table. If an SVC routine is already front-ended, the ChangeMan SSM intercept is added in front of the existing front-end for that SVC.

When the MRT feature is being used, the intercepts (HPSFATCH, HPSFBLDL, HPSFLINK, HPSFLOAD, and HPSFXCTL) are front-ended to the current ATTACH, BLDL, LINK, LOAD, and XCTL SVCs in the same manner as HPSFCLOS and HPSFSTOW.

When the subtask HPSRTO is quiesced, the intercepts are disabled but not removed from the system. So, the front-end code remains in the system without any effect until the ChangeMan SSM started task is brought up again or the next IPL occurs.

IEBCOPY or EXCP Updates

By intercepting the CLOSE SVC, the HPSRTO subtask differentiates between standard and EXCP updates. Using MODE=SECURE, data sets updated in place are fingerprinted.

The StarTool FDM product, for example, makes global updates to partitioned data sets using EXCP processing. IEBCOPY, as another example, does not issue the STOW SVC, therefore MODE=SECURE (default) must be specified to track all member activities.

RTCT uses fingerprinting to detect all updates. Change events (ADD, UPDATE, DELETE, RENAME, ZAP and LINKEDIT) are recorded along with the time, USERID, JOBNAME and program used to make the change.

Sysplex Support

Multiple LPARs in a sysplex environment can share the same set of tracking databases across the environments. Regardless of which LPAR the change is committed on, RTCT detects the change and records the updates in the common databases.

Member Level Security

Data set and member patterns can be defined to the Member Level Security (MLS) feature as protected entities. MLS prevents unauthorized users from updating protected entities. If an update is attempted by an unauthorized user, the attempted member-level change will store the member under a new internally-generated name. Alternatively, MLS can be set up to abend the job with a U913-38 message when the update attempt is made. This feature prevents unauthorized updates, renames, or deletes at the member level.

To take advantage of MLS, you only need to define protected members to the MLS feature; it is *not* necessary to also define the data set to Change Tracking.

For more information, refer to the MLS Administrator functions.

> **NOTE** Entities defined to MLS are only protected from change through standard applications (such as TSO/ISPF) that issue the standard IBM STOW SVC. MLS does not protect entities from update if the entire PDS is overlaid (such as with IEBCOPY). For more information, refer to the *ChangeMan SSM Installation Guide*, under topic "Member-Level Security (MLS) - Optional".

Member Reference Tracking

The Member Reference Tracking (MRT) facility is installed with the Change Tracking component. MRT allows you to detect and report references to members of PDSs. Read and update access is tracked on existing members that you define to the MRT system, and where standard I/O routines are used.

> **NOTES**
>
> - The *creation* of a *new* member is not initially tracked by MRT; new members can be tracked using the core facilities of Change Tracking. However, subsequent references to new members will be tracked by MRT if they are defined to the MRT system.
> - LPA modules, which are loaded into memory at IPL time, are not tracked by MRT.

You can also define members to be excluded from MRT. This allows you to filter out references to high-activity members at the beginning of MRT processing, which greatly enhances performance. Member references that pass the exclusion check are then filtered against the PDS and member names that you defined for inclusion in MRT (by dataset and member name).

The following diagram illustrates the MRT configuration:
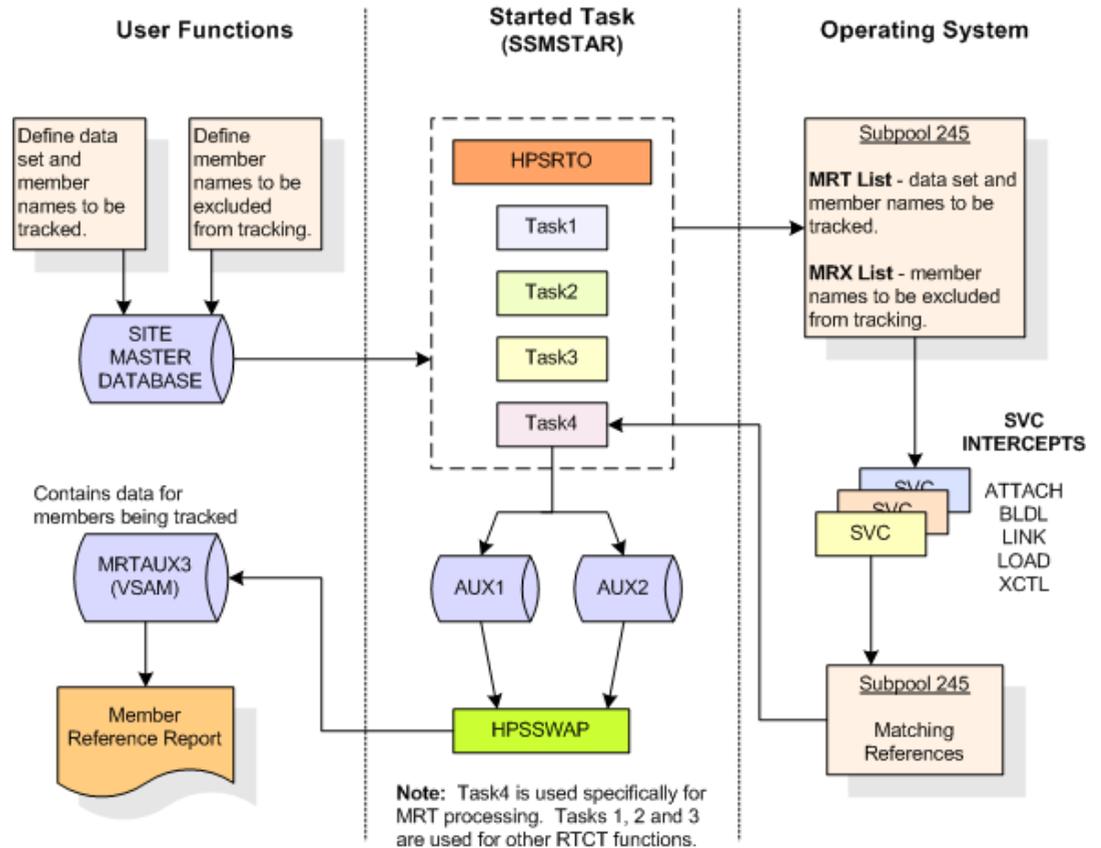
Processing flow:

1   You define which members are tracked and which are excluded by MRT, using online panels or batch commands. PDS/member names to be tracked, and member names to be excluded, are stored in the Site Master Database and also copied into two tables in storage (MRT List and MRX List).

2   The MRT system (which runs as part of the started task) collects information captured by 5 of the intercepts: HPSFATCH, HPSFBLDL, HPSFLINK, HPSFLOAD, and HPSFXCTL.

3   MRT first checks the exclusion table (MRX List) to see if the member is excluded from MRT tracking. Members defined as excluded are not processed any further. This allows high-activity members to be filtered out at the very beginning of the process.

4   When standard I/O routines are used, member names *not* in the exclusion table are then filtered against the tracking table (MRT List). References to datasets/members that match a pattern in the table are written to another table in storage (Matching References) by the intercepts.

5   An asynchronous task pulls entries out of the Matching References storage table and writes them to one of the Swap files (AUX1 or AUX2). When the current Swap file is full, the task starts writing to the other Swap file, and the contents of the first Swap file is used to update the MRTAUX3 VSAM file.

For example:

When AUX1 fills up, a swap is done to AUX2, and the data on AUX1 is written to the AUX3 VSAM file. The cycle continues . . . when AUX2 fills up, a swap is done to AUX1 and the data on AUX2 is written to the AUX3 VSAM file, and so on.

A swap also occurs when the started task comes down.

To initiate a manual swap, issue the following command:

/F *taskname*,SYN,MRTSWAP

where *taskname* is the started task name, SYN is the application name, and MRTSWAP is the command name.

> **NOTE** If you are about to run an MRT report job to see the latest references (while the started task is up), a manual swap will ensure that the MRTAUX3 VSAM file contains the most recent data collected by the intercepts.

6   A batch report is available to see which data sets and members have been referenced; a batch program and JCL are provided. By specifying various filter parameters, you select the reference data that displays on the report. This report can also show which data sets and members have not been referenced (a Zero Reference Report). The Zero Reference report is useful for determining, for example, which software modules are seldom or never used.

7   E-mail notifications are available for the post-approval of changes.

Chapter 2
Online Administration

This chapter tells how to administer the ChangeMan SSM using the Online Change Tracking facility.

Change Tracking Administration Overview

The ChangeMan SSM Online Change Tracking facility provides online access to the change tracking functions. These functions are accessed from Option A of the *ChangeMan SSM Main Menu*.

ChangeMan SSM administrative functions exist on three levels:

- Site
- Department
- Group

The Site Administrator, specified during product installation, defines and controls the departments within the site.

The Department Administrator defines and manages the groups within a Department.

The Group Administrator controls the content of the Groups: the objects or data sets being defined to the tracking software and the users authorized to work in the group. A separate administration facility is provided for Hierarchical File System (HFS) files.

Change Tracking Administration also provides for the administration of Member Level Security (MLS) and Member Reference Tracking (MRT).

Change Tracking Administration operates under one of two Security methods:

- SAF Security
- TSO ID Security

The HPSPARMS member of the Install library determines which Security method is in place. This member is set up during the Change Tracking Component installation. The $ADMSET job, which is also set up and executed during the Change Tracking Component installation, specifies the Site Administrators and can specify other users and functions. Refer to the *ChangeMan SSM Installation Guide* for complete descriptions of the HPSPARMS member and the $ADMSET job.

Change Tracking Administrators (SAF Security)

Administration access is strictly controlled through the SAF facility.

Using RACF, for example, the Site Administrator defines a Department by using Option 1 on the *Change Tracking Administration* menu or by using the DEPTADD comand in batch. But, a RACF profile having the Department name must also be specified in a RACF Class. The name of this Class must be the same as the name defined in the CTCLASS parameter in the HPSPARMS PARMLIB.

Department and Group Administrators are also defined in terms of RACF. A Department Administrator is anyone whose TSO ID has (at least) UPDATE access to the profile, and a Group Administrator within the Department has READ access to the profile, but not UPDATE or ALTER access.

Note that if the Site Administrator can create the RACF profile, RACF will automatically give the Site Administrator ALTER access to that profile, allowing the Site Administrator to

act as a Department Administrator or a Group Administrator. Otherwise, the Site Administrator must be explicitly defined as a Department Administrator or a Group Administrator.

Note also the MLS and MRT Administration are separate Administration functions that are controlled by their own profiles.

Change Tracking Administrators (TSO ID Security)

A Site Administrator is assigned during the installation process by editing the HPSPARMS PARMLIB member. Site Administrators are specified by their TSO IDs.You should assign at least two Site Administrators, as many as five Site Administrators can be assigned.

Department and Group Administrators are also specified by their TSO IDs.

A Site Administrator is automatically a Department Administrator for all departments created. This allows the Site Administrator to perform any necessary functions if the Department Administrator is unavailable.

An object group (which contains the datasets, members, and files being tracked) can have only one Group Administrator assigned to it, but the Group Administrator can assign.

A Site Administrator is automatically an Alternate Administrator for all Group Administrators. This allows the Site Administrator to perform any necessary functions if the Group Administrator is unavailable.

Site Administration

The Site Administrator has the following functions (the associated batch function commands are enclosed in parentheses):

- Creating Departments (DEPTADD).

- Deleting Departments (DEPTDEL).

- Updating Departments (DEPTUPD).

- Displaying Departments (SHOW).

Department Administration

The Department Administrator has the following major functions (the associated batch function commands are enclosed in parentheses):

- Defining Groups (GRPADD)

- Deleting Groups (GRPDEL)

- Displaying Groups (SHOW)

- Defining HFS Groups (HFSGRPADD)

- Deleting HFS Groups (HFSGRPDEL)

- Displaying HFS Groups (SHOW)

- Refresh the User Authorization Tables (Not Applicable)

- Move a Group to another Department

- Move an HFS Group to another Department

Group Administrator

The Group Administrator has the following major functions:

- Define Objects

- Delete Objects

- Display Objects within a Group

- Display all Objects

- Move Objects to another Group

- Authorize Users

- Update User's Name

- Revoke Users

Alternate Group Administrator (TSO ID Security)

If ChangeMan SSM is operating uder TSO ID Security, before the ChangeMan SSM Main Menu displays, alternate Group Administrators receive the following panel listing all the Group Administrators to which they have been assigned as an alternate Administrator.

```
HPSCALT           SSM Alternate Group Administrator Selection       Row 1 of 4
 Command ===>                                               SCROLL===> CSR


              You are designated as an Alternate Group Administrator.
          If you wish to act on behalf of another Group Administrator,
                  select that person's ID from the list below.

 Press ENTER to continue or END to exit


     USERID    Administrator Name
     -------   --------------------
  _  DJONES    Diane Jones
  _  JADAMS    John Adams             (conferred)
  _  LINCOLN   Abe Lincoln           (conferred)
  _  SSMITH    Susan Smith

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```

To accept the role as an alternate Group Administrator, select a Group Administrator from the list and press Enter.

> **NOTE** A Site Administrator is automatically an alternate administrator for all Group Administrators. This allows the Site Administrator to perform any necessary functions if the Group Administrator is unavailable.
>
> When "(conferred)" is displayed to the right of the Administrator Name field, it indicates that the Site Administrator was automatically (but not specifically) assigned as an alternate.

Member Reference Tracking (MRT)

You can track references to data sets and members by using the Member Reference Tracking facility (MRT).

If SAF Security is being used, administrators of MRT must be specified in the MRT SAF profile named in the CTMRTADMIN parameter in HPSPARMS.

If TSO ID Security is being used, as a Group Administrator, you administer MRT.

From the *Change Tracking Administration* Menu, select Option 6 to perform the following functions:

- Display the Member Reference Tracking List.

- Update the Member Reference Tracking List.

- Display the Global Excluded Member List.

- Update the Global Excluded Member List.

These options are described in more detail in "MRT Administrator Menu" on page 90.

> **NOTE**
>
> You can also perform these functions in batch mode using the following commands:
>
> - SHOW=MRT
>
> - MRTDEF
>
> - MRTDEL
>
> - SHOW=MRE
>
> - MREDEF
>
> - MREDEL
>
> - SHOW=MRX
>
> - MRXDEF
>
> - MRXDEL
>
> See Chapter 3, "Batch Administration" on page 97 for a detailed explanation of these commands.

To see a report of data sets and members that have been referenced, you can run a batch job to execute the HPSMRTRP program. The batch report JCL is in the MRTRPT member of the SAMPLES library. Various parameters can be specified to tailor the report output. See "Member Reference Tracking - Report and File Maintenance" on page 128 for more information.

Access Menus

The Change Tracking Component menu you are permitted to access depends on the role(s) assigned to you. Unlike the Change Detection and Synchronization Components, the Change Tracking functions are available only to assigned users.

A user can be assigned to one or more of the following roles:

- Site Administrator. Assigns Department Administrators. Initial site master administration is not necessary if the $ADMSET job was executed while installing the Change Tracking Component.

- Department Administrator. Creates and removes Groups for a Department.

- Group Administrator (and alternate Group Administrator, if TSO ID security is being used) administers Groups within a Department, defines objects and assigns users to Groups.

- User. No administrative authority.

Another difference from the Change Detection and Synchronization Components is that the Change Tracking Component has online and batch administrative functions. These functions are accessed through administration menus.

Depending on your assigned role, you can access different menus. Menus for roles that you are not assigned to will not be available.

Exit Change Tracking

To exit the Change Tracking Component from the *Change Tracking Menu*, do one of the following:

- Type X, then press Enter (or press F4 at any time).

- From any of the subordinate panels, press END to return to the *Change Tracking Menu,* type X, then press Enter (or press F4 at any time).

Main Menu

The *ChangeMan SSM Main Menu* is the first menu displayed when logging into ChangeMan SSM (unless you are using TSO ID authority and are an alternate Group Administrator, in which case you will first see the *Alternate Group Administrator Selection* panel).

From this menu, you can select only those functions that are associated with the roles assigned to you. Selectable functions are highlighted.

```
HPS@PRI1 ---- ChangeMan SSM Main Menu (Ver 8.3.4)   Time: 13:49:14 ------------
Option ===>

Select one of the highlighted functions:

0 Options                      - Review or Modify Parameters

A Administration              - Change Tracking Administrator Functions
C Change Tracking             - History, Problem Determination, Recovery
Z HFS Change Tracking         - HFS History, Problem Determination

S Detection and Synchronization - Detect Changes and Synchronize MVS data
H HFS - Detect and Synchronize  - Detect Changes and Synchronize HFS data
D Data Extraction             - Extract Changed Data in KSDS, other VSAM,
                                 PS or DA files and Flattened Databases
U Utilities                   - Utilities and Self-guided Product Demos

X Exit
                            ChangeMan SSM
                Copyright (c) 1999-2013 - Serena Software, Inc.
                          All Rights Reserved.

Press END to Exit
```

To select an option, type the option letter of the menu item you want to access, or type 0 (zero) for the Options panel, then press Enter.

The following table describes the options available from the *ChangeMan SSM Main Menu*.

Function	Description
0	Options. This option allows the user to review the defaults in effect, set up a preferred compare utility, specify a personal JCL library, and set up JOB cards. Various product functions which generate batch jobs use this information to create and save the job in the user's private library.
A	Administration. Displays the ChangeMan SSM Administration Menu. This menu provides access to functions used by the Site, Department, Group, MLS, and MRT administrators. For more information, see "Options Panel" on page 29.
C	Change Tracking. Displays the ChangeMan SSM Change Tracking User Menu. This menu provides access to the Change Tracking Component functions. See "Online Change Tracking" on page 137 for more information about the Change Tracking Component functions.
Z	HFS Change Tracking. Displays the ChangeMan SSM HFS Change Tracking User Menu. This menu provides access to the HFS Change Tracking Component functions. See "Online Change Tracking" on page 137 for more information about the HFS Change Tracking Component functions.
S	Synchronization. Displays the ChangeMan SSM Detection and Synchronization User Menu. This menu provides access to the Detection and Synchronization Component functions.
H	HFS - Detect and Synchronize. Displays the ChangeMan SSM Detection and Synchronization Menu for HFS functions.

Function	Description
D	Data Extraction. Displays the ChangeMan SSM Data Extraction User Menu. This menu provides access to the Data Extraction Component functions.
U	Utilities. Displays the ChangeMan SSM Utilities Menu.
X	Exit. Exits ChangeMan SSM.

Options Panel

Option 0 (zero) of the Main Menu is the primary panel for displaying ChangeMan SSM defaults and specifying user options. Only designated administrators have access to this panel and its functions.

```
HPSUOPTN ------ ChangeMan SSM Defaults and User Options (8.4.0.00) ------------
Command ===>

The Administrator can modify the defaults by editing the member HPSPARMS
in the HPSPLIB library: XYZPRD.SSM834U.PARMLIB

Defaults in effect:
  SSM Site Master              ==> XYZPRD.SSM83U.SITE.MASTER
  SSM Object Master            ==> XYZPRD.SSM83U.OBJECT.MASTER
  SSM Delta Master             ==> XYZPRD.SSM83U.DELTA.MASTER
  Print Utility                ==> VPSPRINT
  Allowed Number of Nodes for temporary SMS data sets:  ==> 4
  Allocation Parameters for temporary SMS data sets:    ==> TRK,(120,060)
User Defaults to be set:
  Report Disposition Panel ==> Y         Y-Display panel, N-Delete report
  Comparison Utility       ==> BUILT-IN  BUILT-IN/COMPAREX/SUPERC
  Your JCL Library         ==> SSM834.JCL
  JOB Card Statements:
==> //USER001  JOB (Account),'ChangeMan SSM',
==> //         CLASS=A,NOTIFY=USER001,MSGCLASS=X
==> //*
==> //*
```

The HPSPARMS member in the HPSPLIB library specifies the defaults.

The following table describes the functions available from the *ChangeMan SSM Defaults and User Options* panel.

Function	Description
Report Disposition Panel	Report Disposition Panel. Specifies whether (Y) or not (N) to display the report disposition panel; if the panel is not displayed (N), the report is automatically deleted.
Comparison Utility	Comparison Utility. Specifies the comparison utility to use: BUILT-IN, COMPAREX, or SUPERC.
Your JCL Library	Your JCL Library. Specifies the PDS where ChangeMan SSM-created jobs will be stored if they are saved. This PDS must be preallocated.
(JCL Line 1)	User Job card; Specifies the Job card for the user.

Function	Description
(JCL Line 2)	User Job card (contd.); Specifies additional Job card information for the user.
(JCL Line 3)	User Job card (contd.); Specifies additional Job card information for the user, if needed.
(JCL Line 4)	User Job card (contd.); Specifies additional Job card information for the user, if needed.

Administration Menu

Option A of the Main Menu is the primary menu panel for all administrator functions. Only designated administrators have access to this panel and its functions.

```
HPS@ADM1 --------------- Change Tracking Administration ----------------------
Option ===>

Select one of the highlighted functions:

1 Site Administrator          - Create/Delete/Update Departments

2 Department Administrator     - Manage Groups within a Department
   Dept. ==>

3 Group Administrator          - Manage Objects and Users within a Group
   Dept. ==>

4 HFS Group Administrator      - Manage HFS Objects and Users within a Group
   Dept. ==>

5 MLS Administrator            - Administer Member-Level Security
6 MRT Administrator            - Administer Member Reference Tracking

X Exit

Press END to Exit
```

Type the option number of the function you want to use, then press Enter. For Options 2, 3, and 4, if the department is known, enter its name in the Dept. field before typing the Option number and pressing Enter.

The following table describes the functions available from the *Change Tracking Administrator Menu*.

Function	Description
1	Site Administrator. This function/role creates, removes, and updates departments.
2	Department Administrator. This function/role defines groups within a department.
3	Group Administrator. This function/role defines objects within a group, makes groups available or unavailable to users, and enables refreshing of the user authorization tables.

Function	Description
4	HFS Group Administrator. This function/role defines objects within an HFS group, makes HFS groups available or unavailable to users, and enables refreshing of the user authorization tables.
5	MLS Administrator. This function/role administers Member-Level Security (MLS).
6	MRT Administrator. This function/role administers Member Reference Tracking (MRT).
X	Exit. This option exits the panel.

Site Administrator Menu

Option 1 of the Change Tracking Administration panel is the menu for the Site Administrator. Only a designated Site Administrator has access to this panel and its functions. The Site Administrator can create, delete, update, and display Departments.

```
HPSMNUSA ----------------- Site Administrator Menu -------------------------
Option ===>

Site Administrator Options:

1  Create Departments            - Add departments to the site
2  Delete Departments            - Remove departments from the site
3  Update Departments            - Update department descriptions
4  Display Departments           - List department definitions

X  Exit

Press END to Exit
```

Type the option number of the function you want to use, then press Enter. Type 'X' and press Enter to exit the panel.

The following table describes the functions available from the *ChangeMan SSM Site Administrator Menu*.

Function	Description
1	Create Departments. This option enables the addition of departments to the site.
2	Delete Departments. This option enables the deletion of departments from the site.
3	Update Departments. This option enables the updating of department descriptions.
4	Display Departments. This option lists the departments, their descriptions and their group counts.
X	Exit. This option exits the panel.

Create Departments

Option 1 of the Site Administrator panel enables the Site Administrator to create departments.

```
HPSADM2                  Create Departments                  Row 1 of 8
Command ====>                                         SCROLL===> CSR

To define a Department, enter the Department Name / Description on a new line.

Lcmd: (I)nsert, (D)elete a blank line or an empty (*) Department

Press ENTER to continue or END to exit

Object Master:    DRVDEV.SSM83U.OBJECT.MASTER
Owner Department: System
Date Created:     2010/07/29

    Department           Description            Group Count
    ----------------     --------------------   -----------
_   UTLCOM_____     UtlCom Internal_____       0004
_   SOFTWAREDEVELOP_     Software Development       0004
_   TECHDOCDEPT_____     Doc Development_____       0001
_ * EMPTYDEPT_____     Dept without Groups_       0000
_   _____     _____
_   _____     _____
_   _____     _____
_   _____     _____
```

The Site Administrator may define one or more departments, There are two restrictions for creating a department:

- The department name is limited to 16 characters.

- The department name must be unique within the site.

If SAF security is in use, a SAF profile with the department name must be created and UPDATE access must be given to the TSO ID of any administrator of that department.

Enter the department name and description on an empty line and press Enter to create a new department.

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Create Departments* panel.

Parameter	Description
Line Command	The line command specification area, directly preceding each line of the department information area, is the active point of this panel. I inserts a blank line. D delete a null line or an empty Department, which is indicated by an asterisk (*) to the left of the name of the Department.
Department	The name of the department

Parameter	Description
Description	The description of the department
Group Count	The number of groups attached to the department

Delete Departments

Option 2 of the Site Administrator panel deletes departments. The Site Administrator can delete departments.

```
HPSADM2                    Delete Departments                    Row 1 of 4
Command ====>                                          SCROLL===> CSR


To delete an empty (*) department, enter D on the corresponding line.


Lcmd: (D)elete


Press ENTER to continue or END to exit

Object Master:    DRVDEV.SSM83U.OBJECT.MASTER
Owner Department: System
Date Created:     2009/07/29


    Department          Description          Group Count
    ----------------    --------------------    -----------
_   SERENA_____    Serena Internal_____      0005
_   SOFTWAREDEVELOP_    Software Development      0004
_   TECHDOCDEPT_____    Doc Development_____      0002
_ * XYZ1DOCDEPT_____    XYZ Doc Dev_____      0000
****************************** Bottom of data ******************************
```

The Site Administrator can delete a department only if it has no Groups assigned to it. An empty department is marked with an asterisk (*) to the left of the Department name.

Enter a "D" in the line command column and press Enter to remove a department.

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Remove Departments* panel.

Parameter	Description
Line Command	The line command specification area, directly preceding each line of the department information area, is the active point of this panel. D delete an empty department, which is indicated by an asterisk (*) to the left of the name of the department.
Department	The name of the department
Description	The description of the department
Group Count	The number of groups attached to the department (must be zero (0000) to remove)

Update Departments

Option 3 of the Site Administrator panel updates departments. The Site Administrator can modify department descriptions.

```
HPSADM2                       Update Departments                      Row 1 of 3
Command ====>                                               SCROLL===> CSR


To update a department description, over-type the Description field



Press ENTER to continue or END to exit

Object Master:    DRVDEV.SSM83U.OBJECT.MASTER
Owner Department: System
Date Created:     2009/07/29


    Department          Description           Group Count
    ---------------     --------------------  -----------
    UTLCOM_____    UtlCom Internal_____      0004
    SOFTWAREDEVELOP_    Software Development      0004
    TECHDOCDEPT_____    Doc Development_____      0001
****************************** Bottom of data ******************************
```

Over-type the description field and press Enter to update the description.

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Update Departments* panel.

Parameter	Description
Department	The name of the department
Description	The description of the department
Group Count	The number of groups attached to the department

Display Departments

Option 4 of the Site Administrator panel displays the departments defined in the site.

```
HPSADM1                      Display Departments                   Row 1 of 3
Command ====>                                             SCROLL===> CSR


Press END to exit


Object Master:    DRVDEV.SSM83U.OBJECT.MASTER
Owner Department: System
Date Created:     2009/07/29


   Department         Description           Group Count
   ----------------   --------------------  -----------
   UTLCOM             UtlCom Internal          0004
   SOFTWAREDEVELOP    Software Development     0004
   TECHDOCDEPT        Doc Development          0001
***************************** Bottom of data ******************************
```

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Display Departments* panel.

Parameter	Description
Department	The name of the department
Description	The description of the department
Group Count	The number of groups attached to the department

Department Administrator Menu

If Option 2 is entered on the Change Tracking Administration menu and the department name is also entered, skip the following panel.

If Option 2 is entered without entering the department Name, the following panel displays:

```
HPS@ADM2           Available Departments for User - USER001        Row 1 of 1
Command ====>                                             SCROLL===> CSR


Select (S) a department from the list below:

Press ENTER to continue or END to exit


   Department         Description           Group Count
   ----------------   --------------------  -----------
_  TECHDOCDEPT        Doc Development_____      0001
***************************** Bottom of data ******************************
```

Type 'S' next to the department that you want to administer, then press Enter.

Type 'X' and press Enter to exit the panel.

The following table describes the functions available from the *ChangeMan SSM Available Departments for User* panel.

Parameter	Description
Line Command	The line command specification area, directly preceding each line of the department information area, is the active point of this panel. S select the Department
Department	The name of the department
Description	The description of the department
Group Count	The number of groups attached to the department

This is the menu for the Department Administrator.

```
HPSMNUDA ------- Department TECHDOCDEPT      Administrator Menu ---------------
Option ===>

Department Administrator Options:

1  Define Groups                  - Add new group(s) to the department
2  Delete Groups                  - Remove group(s) from the department
3  Display Groups                 - List all groups in the department

4  Define HFS Groups              - Add new group(s) to the department
5  Delete HFS Groups              - Remove group(s) from the department
6  Display HFS Groups             - List all groups in the department

7  Refresh ISPF Tables            - Refresh user authorization tables

8  Move Group                     - Move a group to another department
9  Move HFS Group                 - Move HFS group to another department

X  Exit

Press END to Exit
```

Only a designated Department Administrator has access to this panel and its functions. The Department Administrator can create, remove, update, and display groups for the specified department. Type the option number of the function you want to use, then press Enter.

Type 'X' and press Enter to exit the panel.

The following table describes the functions available from the *ChangeMan SSM Department Administrator Menu*.

Function	Description
1	Define Groups. This option enables the addition of Groups to the Department.
2	Delete Groups. This option enables the removal of Groups from the Department.
3	Display Groups. This option lists the Groups, their Departments, descriptions, and Group counts.

Function	Description
4	Define HFS Groups. This option enables the addition of HFS Groups to the Department.
5	Delete HFS Groups. This option enables the removal of HFS Groups from the Department.
6	Display HFS Groups. This option lists the HFS Groups, their Departments, descriptions, and Group counts.
7	Refresh ISPF Tables. This option refreshes the user authorization tables.
8	Move Group. This option moves a group and its components to another department. The administrator must have Department Administrator authority for both departments to issue the command. The "To Department" must already be defined and must not already contain a Group with the same name as the Group being moved.
9	Move HFS Group. This option moves an HFS group and its components to another department. The administrator must have Department Administrator authority for both departments to issue the command. The "To Department" must already be defined and must not already contain a Group with the same name as the Group being moved.
X	Exit. This option exits the panel.

Define Groups

Option 1 of the Department Administrator menu defines groups. The Department Administrator can define new groups.

```
HPSCONG3     Define Groups - Department TECHDOCDEPT            Row 1 of 7
Command ===>                                          SCROLL===> CSR

To define Groups, enter each Group Name on a new line

Lcmd: (I)nsert, (D)elete a blank line or an empty (*) Group

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count    Creation Date
_   *  XYZ06DOC     0002          0000          2010/05/18

_       _____
_       _____
_       _____
_       _____
_       _____
***************************** Bottom of data ******************************
```

The Department Administrator may define one or more object groups for tracking objects. The object group is defined in the object master database. There are two restrictions for creating a group:

- The group name is limited to eight characters.

- The group name must be a unique name within the department.

If SAF security is in use, READ access to the department profile must be given to any Group Administrator within the department.

Enter the group name on an empty line or enter an "I" in the line command column to create an empty line, then press Enter to create a new group.

When the group is created, the department admin ID will be automatically added as a user in the new group.

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Define Groups* panel.

Parameter	Description
Department	The name of the department is displayed on the top line.
Line Command	The line command specification area, directly preceding each line of the department information area, is the active point of this panel. I insert a blank line following the current line. D delete the current line or the empty group, which is indicated by an asterisk (*) to the left of the name of the group.
Group Name	The name of the group
User Count	The number of users attached to the group
Object Count	The number of objects attached to the group
Creation Date	The date on which the group was created

Delete Groups

Option 2 of the Department Administrator panel is used to delete groups.

```
HPSCONG3     Delete Groups - Department TECHDOCDEPT                Row 1 of 2
Command ===>                                           SCROLL===> CSR

To delete an empty (*) Group, enter D on the corresponding line.

Lcmd: (D)elete

Press ENTER to continue or END to exit

    Group Name   User Count   Object Count    Creation Date
_    XYZ83DOC      0002           0001          2010/05/18
_  * XYZ67DOC      0001           0000          2010/06/12
***************************** Bottom of data ******************************
```

The Department Administrator may delete a group only if there are no objects being tracked by the group. An empty group is marked with an asterisk (*) to the left of the Group Name.

Enter a "D" in the line command column and press Enter to remove a group.

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Remove Departments* panel.

Parameter	Description
Line Command	The line command specification area, directly preceding each line of the group information area, is the active point of this panel. D delete the empty group, which is indicated by an asterisk (*) to the left of the name of the group.
Group Name	The name of the group
User Count	The number of users attached to the group
Object Count	The number of Objects attached to the group (must be zero (0000) to delete)
Creation Date	The date on which the group was created

Display Groups

Option 3 of the Department Administrator panel displays groups.

```
HPSCONG1     Display Groups - Department TECHDOCDEPT               Row 1 of 1
Command ===>                                            SCROLL===> CSR


Press END to exit


Group Name   User Count   Object Count   Creation Date
 XYZ83DOC      0002          0000           2010/05/18
****************************** Bottom of data ******************************
```

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Display Groups* panel.

Parameter	Description
Group Name	The name of the group
User Count	The number of users attached to the group
Object Count	The number of objects attached to the group
Creation Date	The date on which the group was created

Define HFS Groups

Option 4 of the Department Administrator menu defines HFS groups. The Department Administrator can define new HFS groups.

```
HPSCONG3     Define Groups - Department TECHDOCDEPT                Row 1 of 7
Command ===>                                            SCROLL===> CSR

To define Groups, enter each Group Name on a new line

Lcmd: (I)nsert, (D)elete a blank line or an empty (*) Group

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count   Creation Date
_  *  XYZ06DOC      0002          0000           2010/05/18
_     _____
_     _____
_     _____
_     _____
_     _____
_     _____
****************************** Bottom of data ******************************
```

The Department Administrator may define one or more HFS object groups for tracking HFS objects. The HFS object group is defined in the Object Master database.There are two restrictions for creating an HFS group:

- The group name is limited to eight characters.

- The group name must be a unique name within the department.

If SAF security is in use, READ access to the department profile must be given to any Group Administrator within the department.

Enter the HFS group name on an empty line or enter an "I" in the line command column to create an empty line, then press Enter to create a new group.

When the HFS group is created, the department admin ID will be automatically added as a user in the new HFS group.

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Define (HFS) Groups* panel.

Parameter	Description
Department	The name of the department is displayed on the top line.
Line Command	The line command specification area, directly preceding each line of the department information area, is the active point of this panel.
	I insert a blank line following the current line.
	D delete the current line or the empty HFS group, which is indicated by an asterisk (*) to the left of the name of the HFS group.
Group Name	The name of the HFS group
User Count	The number of users attached to the HFS group
Object Count	The number of objects attached to the HFS group
Creation Date	The date on which the HFS group was created

Delete HFS Groups

Option 5 of the Department Administrator panel is used to delete HFS groups.

```
HPSCONG3     Delete Groups - Department TECHDOCDEPT                  Row 1 of 2
Command ===>                                              SCROLL===> CSR


To delete an empty (*) Group, enter D on the corresponding line.


Lcmd: (D)elete


Press ENTER to continue or END to exit


     Group Name    User Count    Object Count    Creation Date
_      SSM83DOC       0002            0001          2010/05/18
_   *  XYZ67DOC       0001            0000          2010/06/12
***************************** Bottom of data *****************************
```

The Department Administrator may delete an HFS group only if there are no objects being tracked by the HFS group. An empty HFS group is marked with an asterisk (*) to the left of the Group Name.

Enter a "D" in the line command column and press Enter to remove an HFS group.

Press End to exit the panel.

The following table describes the parameters displayed in the *Delete Groups* panel.

Parameter	Description
Line Command	The line command specification area, directly preceding each line of the HFS group information area, is the active point of this panel. D delete the empty HFS group, which is indicated by an asterisk (*) to the left of the name of the HFS group.
Group Name	The name of the HFS group
User Count	The number of users attached to the HFS group
Object Count	The number of Objects attached to the HFS group (must be zero (0000) to delete)
Creation Date	The date on which the HFS group was created

Display HFS Groups

Option 6 of the Department Administrator panel displays HFS groups.

```
HPSCONG1     Display Groups - Department TECHDOCDEPT              Row 1 of 2
Command ===>                                          SCROLL===> CSR

Press END to exit

Group Name    User Count    Object Count     Creation Date
 SSM83DOC        0002          0001            2010/05/18
 XYZ67DOC        0001          0000            2010/06/12
****************************** Bottom of data ******************************
```

Press End to exit the panel.

The following table describes the parameters displayed in the *ChangeMan SSM Display Groups* panel.

Parameter	Description
Group Name	The name of the HFS group
User Count	The number of users attached to the HFS group
Object Count	The number of objects attached to the HFS group
Creation Date	The date on which the HFS group was created

Refresh ISPF Tables

Option 7 of the Department Administrator panel refreshes the ISPF user authorization tables.

```
HPSMNUDA ------- Department TECHDOCDEPT     Administrator Menu --------------
Option ===>

Department Administrator Options:

1  Define Groups               - Add new group(s) to the department
2  Delete Groups               - Remove group(s) from the department
3  Display Groups              - List all groups in the department

4  Define HFS Groups           - Add new group(s) to the department
5  Delete HFS Groups           - Remove group(s) from the department
6  Display HFS Groups          - List all groups in the department

7  Refresh ISPF Tables         - Refresh user authorization tables

X  Exit

Press END to Exit


               ---------------------------------------------
               | HPS009I Group/Object view refresh complete. |
               ---------------------------------------------
```

When you first enter ChangeMan SSM, ISPF tables are built from the Object master. The ISPF tables are automatically updated whenever you make online updates. The ISPF tables are *not* updated if a batch job, or another administrator updates information.

Enter "7" and press Enter. After a pause, the system returns with a message specifying that the refresh is complete.

Press End to exit the panel.

Group Administrator Menu

If Option 3 is entered on the Change Tracking Administration menu and the department name is also entered, skip the following panel.

If Option 3 is entered without entering the department name, the following panel displays:

```
HPS@ADM2          Available Departments for User - USER001        Row 1 of 3
Command ====>                                            SCROLL===> CSR

Select (S) a department from the list below:

Press ENTER to continue or END to exit


   Department        Description          Group Count
   ---------------   --------------------  -----------
_  UTLCOM            UtlCom Internal_____     0004
_  SOFTWAREDEVELOP   Software Development     0004
_  TECHDOCDEPT       Doc Development_____     0001
****************************** Bottom of data ******************************
```

Type 'S' next to the department that you want to administer, then press Enter.

Type 'X' and press Enter to exit the panel.

The following table describes the functions available from the *ChangeMan SSM Available Departments for User* panel.

Parameter	Description
Line Command	The line command specification area, directly preceding each line of the department information area, is the active point of this panel. S select the department
Department	The name of the department
Description	The description of the department
Group Count	The number of groups attached to the department

This is the primary panel for the Group Administrators.

```
HPSMNUGA ------- Group Admin Menu - Department UTLCOM           --------------
Option ===>


Select one of the highlighted functions:

0  Data Set Filtering            - Update Excluded Data Set list

1  Define Objects                - Add object(s) to Change Tracking
2  Delete Objects                - Release object(s) from tracking
3  Display Objects Within Group  - All objects defined to the group
4  Display All Objects           - All objects defined to all groups
M  Move Objects                  - Move object(s) to another group

5  Authorize Users               - Make a group available to user(s)
6  Update Name or Profile        - Update user's name or SAF profile
7  Revoke Users                  - Make a group unavailable to user(s)
R  Refresh ISPF Tables           - Refresh user authorization tables

A  Alternate Group Administrators - Assign or Revoke

X  Exit

Press END to Exit
```

Only assigned Group Administrators have access to this panel and its functions. Group Administrators are named and managed by the Department Administrators. ChangeMan SSM Group Administrators manage one or more object groups by controlling:

- All of the object groups currently defined in the selected Department.

- Users' access to the object groups.

To set up the Change Tracking component, you must execute Options 1 and 5 from this panel.

Type the option number or letter of the function you want to use, then press Enter.

The following table describes the functions available from the *ChangeMan SSM Group Admin Menu*.

Function	Description
0	Data set filtering. This option allows the user to update the Excluded Data Set list.
1	Define Objects. This option defines objects to a previously-defined object group.
2	Delete Objects. This option deletes objects from an object group.
3	Display Objects Within Group. Displays all objects defined to the group.
4	Display All Objects. Display all objects defined to all groups.

Function	Description
M	Move Objects. This option allows an object to be moved from one change tracking group to another. The source and target change tracking group can be a SAF-based or TSO-based department (administrator), with the exception that a move from a SAF-based department to a TSO-based department is not allowed.
5	Authorize Users. Make a group available to user(s).
6	Update Name. Update a user's name.
7	Revoke Users. Make a group unavailable to a user.
R	Refresh ISPF tables. Refresh the user authorization tables.
A	Alternate Group Administrators. Used in TSO ID Security.
X	Exit. Exits this panel.

Dataset Filtering Panel

Option 0 (zero) of the Group Admin Menu is the panel for updating the Excluded Data Set list. Only the designated Group Administrator has access to this panel and its functions.

This panel is used to create and maintain a persistent list of explicit dsn's or dsn patterns which you don't wish to track. Data set names, retrieved from the catalog and displayed using the *Define Objects* panel will not include those which match an entry in this list.

 In Batch mode, an EXCL statement will be generated for each entry in this list.

```
HPSDSFLT Update Excluded Data Set List (Change Tracking)         Row 1 of 9
Command ===>                                          SCROLL===> CSR

Lcmd: (D)elete, (I)nsert, (R)epeat.

Press END to save changes, CANCEL to exit without saving.

   Data Set Name or Pattern

_   0LOG_____
_   3LOAD/_____
_   _____
_   _____
_   _____
_   _____
_   _____
_   _____
_   _____
***************************** Bottom of data ******************************
```

The following table describes the functions available from the *Update Excluded Data Set List (Change Tracking)* panel.

Function	Description
Line Command	The line command specification area directly precedes each line of the data set name or pattern. D delete the current line. I insert a blank line following the current line. R repeat the current line.
Data Set Name or Pattern	The name of a data set to be excluded or a data set name pattern as described in the Appendix of the *Detection and Synchronization Guide*.

When you are finished, press End/PF3 to save your changes, or type CANcel on the command line and press Enter to exit the panel without saving.

Define Objects

Option 1 of the Group Admin menu defines objects for tracking in an object group. The object group must have been defined previously.

```
HPSCONG2      Define Objects - Department UTLCOM                    Row 1 of 4
Command ===>                                             SCROLL===> CSR

Enter S to Select the Group where Objects will be defined.


Lcmd: (S)elect

Delta Tracking      ===>  Y          (Y or N; applies to PDS(E) data sets only)
Cataloged Data Sets ===>  Y          (Y or N)
Object Define Mode  ===>  ONLINE     (ONLINE or BATCH)


Press ENTER to continue or END to exit

    Group Name   User Count   Object Count    Creation Date
_     ACCTSPAY     0001          0000           2010/04/28
_     ACCTSREC     0001          0001           2010/04/28
_     HUMANRSC     0001          0000           2010/04/28
_     LEGAL        0001          0001           2010/05/30
_     PAYROLL      0002          0004           2010/04/28
****************************** Bottom of data ******************************
```

Data set change tracking can be done as delta, or non-delta tracking. Non-delta tracking only detects the change events without identifying the actual changes. Delta tracking detects the change events and backs up the changed members to the ChangeMan SSM database.

NOTE Seqential data sets cannot be delta-tracked; if they are defined as DELTA=Y, the object is defaulted to DELTA=N.

How to use this panel:

1 Change the default values for the Delta Tracking, Cataloged Data Sets, and Object Define Mode fields, if necessary.

2 Select the group where objects are to be defined by entering an S next to the group name.

3 Press Enter.

The following table describes the parameters displayed in the *Define Objects* panel.

Parameter	Description
Department	The name of the department is displayed on the top line.
Delta Tracking	Y indicates that the objects being defined will be delta tracked. At the time of capture, in addition to change events being detected, the new members and changed members are identified and backed up to the delta master database. N indicates that non-delta tracking is in force, and, therefore only change events are detected and stored in the site master database. If delta tracking is requested, the group admin will receive an HPS048E message to confirm the tracking request. This is a safeguard to eliminate any unnecessary expansion of the delta master database space requirements. Delta Tracking Facility is for PDS members only.
Cataloged Data Sets	Y indicates that the objects being defined are cataloged. In this case a catalog search is performed to show a list of all matching objects. N indicates that the objects are not cataloged. A panel is provided where the user can specify the required volser specification to build the JCL.
Object Define Mode	ONLINE indicates that a limited number of objects are being defined. BATCH indicates that a large number of data sets will be defined, and therefore, the batch method is the recommended method. BATCH will display a panel to create, save, and/or submit the batch JCL.
Line Command	S denotes Select, which causes the software to select the object group for next step processing.
Group Name	All of the object groups that are currently associated with this group admin UserID, and in which the Group Administrator is defined as a user.
User Count	The number of users currently assigned to each object group.
Object Count	The number of objects that are being tracked in each object group.
Creation-Date	The creation date of each object group.

Define Objects

The previously-selected object group is to have one or more objects defined as members of the object group. These are the data sets to be tracked.

```
HPSCONOR                       Define Objects                    Row 1 of 3
Command ====>                                              SCROLL===> CSR

Enter one or more explicit or generic DSN(s) on each line

Lcmd:  (I)nsert, (R)eplicate, (D)elete

Press ENTER to continue or END to exit

Department, Group Name ===> UTLCOM, ACCTSREC
Type of data set(s)    ===> NONVSAM              (VSAM, NONVSAM, All)

   Explicit or Pattern DSNs, similar to ISPF 3.4

_  _____
_  _____
_  _____
***************************** Bottom of data ******************************
```

Type a value for the Type of data sets field, and data set names for the Explicit or Pattern DSN fields.

Note that any Dataset Filtering specified in Option 0 on the *Group Admin Menu* will be applied before the objects are displayed. If the object or pattern of objects are filtered out by Dataset Filtering, they cannot be defined.

NOTE When an object is defined to Change Tracking, the following attributes can be missing: DSORG, BLKSIZE, RECFM, and LRECL. The data set can also be uninitialized. Objects with missing attributes will be defined to Change Tracking, but will be marked as "pending", and will not be tracked until the missing attributes are supplied.

The following table describes the fields on the panel:

Parameter	Description
Department, Group Name	The department and the group name of the objects being defined.
Type of data sets	VSAM indicates that the objects being defined are VSAM clusters. Accordingly, only VSAM clusters are resolved from the pattern specified. NONVSAM indicates that objects being defined are not VSAM. This will cause suppression of VSAM clusters from the resolved list. ALL signifies that both VSAM and non-VSAM objects will be selected.

Parameter	Description
Line Command	I denotes Insert; insert a blank line following the current line. R denotes Replicate; repeat the current line. D denotes Delete; delete the current line.
Explicit or Pattern DSNs	Data Set Names (Objects) Type the explicit data set names and/or those generic data set names that you want to comprise this object group. See "Catalog Search" on page 206 for information on specifying pattern names. Any number or type of data sets may be entered for an object group. There are no restrictions as to the type of data set in a group; different types of data sets (source, load) may coexist in a group. If necessary, use the Lcmd commands and scrolling to manipulate beyond the limits of the initial panel. Data sets can be added or deleted at any time to an existing group.

Optionally, enter line commands for the Explicit or Pattern DSN fields, then press Enter.

Resolved Objects

This panel displays the results of the directory search initiated by the entries on the previous panel.

```
HPSCONOI                   Resolved Objects - NONVSAM            Row 1 to 4 of 4
 Command ====>                                                   SCROLL===> CSR

 To Exclude undesired data sets, enter X on corresponding line(s)


 Lcmd: (X) Exclude


 Press ENTER to continue or END to exit
                                                      Catlg    Volser
   Objects to be Initialized for Tracking            Volser   To Use
 _ XYZ34.SSM830.LOAD                                 SRSM4C    catlg
 _ XYX34.SSM830.MESSAGES                             SRSM51    catlg
 _ XYZ34.SSM830.PANELS                               SRSM75    catlg
 _ XYZ34.SSM830.SKELS                                SRSM5A    catlg
 ***************************** Bottom of data ******************************



    EssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssN
    e HPS401W HSM migrated data sets are excluded.  Press END or ENTER. e
    DssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssM
```

Optional. Type an X (Exclude) command for the data set names that are to be excluded from the Initialize for Tracking process.

Press Enter to add the currently-displayed files to Change Tracking in the current group.

Refer to the following table for help completing the panel fields:

Parameter	Description
Group Name	The previously-selected object group is displayed on the top line.
Line Command	X denotes Exclude; exclude the item indicated by the presence of the command from further processing. It may be used concurrently on multiple lines.

Objects to be Initialized for Tracking	Data Set Name
	
	    All data sets selected and the results of the resolution of generic data sets are displayed for possible action. Any unwanted data sets can now be excluded.
	
	Catlg VOLSER
	
	    The cataloged VOLSER for this data set.
	
	VOLSER to Use
	
	    To override the use of the catalog when tracking this data set, overtype this field with the VOLSER of the pack where the file resides. The specified volume must be online for this function to succeed.

When the displayed list reflects the DSNs that you want to add to this group, press Enter to initialize them for tracking.

Initialize Object Group

The previously-resolved data sets (objects) will be initialized. After the Data Set List is resolved, if no line command is specified, press Enter to start the initialization process.

If batch mode was specified, the JCL required to perform the define process is generated.

This represents the first tracking for these data sets. Any changes from this point are noted.

If delta tracking is specified, the data set members (source or load) are backed up to the delta master database. This VSAM file contains compressed versions of the initial members, and the subsequent changes.

```
HPSCONO3              Objects Initialization in Progress        ROW 1 OF 4
Command ====>                                               SCROLL===> CSR
HPS219I Group DETECT is updated. RTO Automatic Refresh will detect changes.
Press END to Exit
          Tracked Object(s)
 XYZ34.SSM830.LOAD                             *DEFINED
 XYZ34.SSM830.MESSAGES                         *DEFINED
 XYZ34.SSM830.PANELS                           *DEFINED
 XYZ34.SSM830.SKELS                            *DEFINED
*************************** BOTTOM OF DATA ******************************
```

A message (*DEFINED) indicates the result of the request. When the initialization has completed and you have finished reviewing the information, press Enter to return to the *Change Tracking User Menu*.

The following table describes the parameters displayed in the *Objects Initialization in Progress* panel:

Parameter	Description
Tracked Objects	All objects currently associated with this group. Each data set is initialized for delta or non-delta tracking, as was requested.
*DEFINED	The specified objects have been defined to the selected object group.

Delete Objects

Option 2 of the Group Admin menu deletes tracked objects (data name entry records) from an object group, in either online or batch mode. The objects must currently be defined in the object group.

```
HPSCONG4     Delete Objects - Department UTLCOM                    Row 1 of 3
Command ===>                                          SCROLL===> CSR

To Delete Objects from a Group, enter S to select the group first

Lcmd: (S)elect

Object Delete Mode  ===>  ONLINE     (ONLINE or BATCH)
JCL Member Name     ===>  DELETE     (User JCL Library member name if BATCH)

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count   Creation Date
_    ACCTSPAY     0001           0000           2010/04/28
_    ACCTSREC     0001           0001           2010/04/28
_    HUMANRSC     0001           0000           2010/04/28
***************************** Bottom of data *****************************
```

The following table describes fields on this panel:

Parameter	Description
Department	The department of the group in which the objects exist is displayed on the top line.
Line Command	S denotes Select; select the object group.
Object Delete Mode	Type ONLINE or BATCH.
JCL Member Name	The member name to contain the JCL generated from this panel (if you chose BATCH Object Delete Mode). Use the default or type a new member name.
Group Name	All the groups that are currently associated with this Group Administrator.
User Count	The number of users currently assigned to each object group.

Parameter	Description
Object Count	The number of objects that are currently being tracked in each object group.
Creation Date	The creation date of each object group.

First, enter the Object Delete Mode. If you enter BATCH, fill in the JCL Member Name field.

To select the object group, type the S (Select) line command for the desired Group Name, then press Enter.

The previously-selected object group is to have one or more objects (data sets) deleted from it.

```
HPSCONO2 Delete Objects - Dept/Grp  UTLCOM/ACCTREC                 Row 1 of 1
Command ===>                                                  SCROLL ===> CSR

To Delete an Object, enter D on corresponding line

Memo-Delete Option is YES
Lcmd: (D)elete

Press Enter to continue or End to Exit
                                                          Delta
   Tracked Object                                  Volser Tracked
_  USER001.V001.DAT.SRC                             catlg    N
****************************** Bottom of data ******************************
```

The following table describes fields on this panel:

Parameter	Description
Dept/Grp	The department and the group in which the objects exist is displayed on the top line.
Line Command	D – Delete; delete the tracked object from this group.
Tracked Objects	All the tracked objects (data sets) in the object group.
Volser	For cataloged data sets, this field displays catlg. For uncataloged data sets, it specifies the volser where the data set resides.
Delta Tracked	For delta-tracked data sets, this field displays Y. For non-delta tracked, it specifies N. If a delta-tracked object is deleted from the group, all of the backup members and versions (in the delta master database) are deleted. **NOTE** Seqential data sets cannot be delta-tracked; if they are defined as DELTA=Y, the object is defaulted to DELTA=N.

To delete objects, type the D (Delete) line command for each of the tracked objects that are to be removed from tracking this group, then press Enter.

A message (*DELETED) indicates the result of the delete request.

> **NOTE** If the Memo-Delete Option display field is YES, deleted objects will be removed from Change Tracking but their history will be retained within the SSM databases until HPSMAINT is run. You can reinstate a memo-deleted object by defining it again to the same or a new Department-Group before the object is purged.
>
> If the Memo-Delete Option display field is NO, the object delete function will completely remove the deleted objects and their history.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified *object* name. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in object-name order will be scrolled to the top of the list.

Display Objects Within Group

Option 3 of the Group Admin menu displays the objects in a group.

```
HPSCONG3     Group Objects Display - Department UTLCOM            Row 1 of 5
Command ===>                                              SCROLL===> CSR

To Display Objects, enter S on the corresponding line

Lcmd: (S)elect

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count    Creation Date
_     ACCTSPAY     0001          0000           2010/04/28
_     ACCTSREC     0001          0001           2010/04/28
_     HUMANRSC     0001          0000           2010/04/28
_     LEGAL___     0001          0001           2010/05/30
_     PAYROLL_     0002          0004           2010/04/28
***************************** Bottom of data ******************************
```

The following table describes the fields on this panel:

Parameter	Description
Department	The department in which the groups exist is displayed on the top line.
Line Command	Type an S next to a Group Name to display tracked objects for that group.
Group Name	All the groups that are currently associated with this Group Administrator.
User Count	The number of users currently assigned to each object group.
Object Count	The number of objects that are currently being tracked in each object group.
Creation Date	The creation date of each object group.

Display Objects in a Group

From the *Group Display* panel, enter the S (Select) line command for the desired Group Name, then press Enter. The *Object Group Display* panel is displayed.

```
HPSCONO1 Display Objects - Dept/Grp  UTLCOM/ACCTSREC                 Row 1 of 1
Command ===>                                             SCROLL===> CSR

Press END to Exit

                                                         Delta
 Tracked Object                                 Volser  Tracked
 USER001.V001.DAT.SRC                            catlg     NO
****************************** Bottom of data ******************************
```

The following table describes the parameters displayed in the *Object Group Display* panel.

Parameter	Description
Dept/Grp	The department and the group in which the objects exist is displayed on the top line.
Tracked Object	All the tracked objects (data sets) in the object group.
Volser	For cataloged data sets, this field indicates catlg. For uncataloged data sets, it specifies the *volser* where the data set resides.
Delta Tracked	For delta tracked data sets, this field displays YES. For non-delta tracked, it displays NO. **NOTE** Seqential data sets cannot be delta-tracked; if they are defined as DELTA=Y, the object is defaulted to DELTA=N.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified *object* name. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in object-name order will be scrolled to the top of the list.

When you finish reviewing the information, press END (or PF3) to return to the *Group Object Display* panel.

Display All Objects

Option 4 of the Group Admin menu displays tracked objects for *all* groups for *all* administrators.

```
HPSCONO4    Object Display - All Departments, All Groups        Row 1 of 344
Command ===>                                                 SCROLL===> CSR

Press END to Exit
                                            Delta
Tracked Object                         Volser T Dept.          Group

BEXGLE.XMLOUT                          SX4M70 N USRV20          LPARB
ZEE.SCEERUN7                           ZX4RR1 N USRV20          SYSTEM
ZEE180.SCEECICS                        SRSM70 N USRV20          LPARB
XYZDEV.DRVL.GHYT.#000075.JCL            catlg N USRV20          DRVGHYT
XYZDEV.DRVL.GHYT.#000075.LOD            catlg N USRV20          DRVGHYT
XYZDEV.DRVL.GHYT.#000075.LST            catlg N USRV20          DRVGHYT
XYZDEV.DRVL.GHYT.#000075.SRC            catlg N USRV20          DRVGHYT
XYZDEV.DRV5X0.TRACES.LINKLIB            catlg N USRV20          SYSTEM
XYZDEV.DRV530I.CUSTOM.LINKLIB           catlg N USRV20          SYSTEM
```

NOTE Each time that Option 4 is executed, the Object master file is read, so the resulting list contains the latest information.

The following table describes the parameters displayed in the *Object Display* panel.

Parameter	Description
Tracked Object	Tracked objects for all groups for all administrators.
Volser	For cataloged data sets, *catlg* is displayed. For uncataloged data sets, the *volser* where the data set resides is displayed.
Delta T	For delta-tracked data sets, Y is displayed. For non delta-tracked, N is displayed. **NOTE** Seqential data sets cannot be delta-tracked; if they are defined as DELTA=Y, the object is defaulted to DELTA=N.
Dept.	The name of the department.
Group	The group name.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified *object* name. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in object-name order will be scrolled to the top of the list.
SORT *column*	Sort the listed items by any column which has a yellow column heading. If no column is specified, the default is to sort by *object*.

When you finish reviewing the information, press END to return to the *Group Admin Menu* panel.

Authorize Users

When a Department Administrator defines a Group, that individual automatically becomes a user of that Group. Option 5 of the Group Admin menu authorizes other users to access the object group to view change events.

The reason for Groups, and users in Groups, is that ChangeMan SSM users want to see their tracking environment only (data sets they define to tracking that they are concerned with), not all tracked data sets.

The following panel displays when you select Option 5 from the Group Admin menu.

```
HPSCONG3     Authorize Users - Department UTLCOM                      Row 1 of 4
Command ===>                                               SCROLL===> CSR

To Authorize User(s) to a Group, enter S to select the Group first.

Lcmd: (S)elect

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count    Creation Date
_      ACCTSPAY     0001          0000          2010/04/28
_      ACCTSREC     0001          0001          2010/04/28
_      HUMANRSC     0001          0000          2010/04/28
_      LEGAL___     0001          0001          2010/05/30
***************************** Bottom of data *****************************
```

The following table describes the parameters displayed in the *Authorize Users - Department* panel:

Parameter	Description
Department	The department in which the groups exist is displayed on the top line.
Line Command	S denotes Select; it causes the software to select the object group for the next step of processing.
Group Name	All the groups that are currently associated with this Group Administrator.
User Count	The number of users currently assigned to each object group.
Object Count	The number of objects that are currently being tracked in each object group.
Creation Date	The creation date of each object group.

Select an object group and press Enter; the *Authorize Users - Group* panel displays. The appearance of this panel varies, depending on whether or not the group is authorized by a SAF profile (if the CTUSERSAFAUTH parameter in HPSPARMS is set to YES, a group can be managed by associating a SAF profile with the group).

The following topics describe how to authorized users by TSO UserID or SAF Profile.

Authorizing Users by TSO UserID

After you select a group from the *Authorize Users - Department* panel, the following panel displays if the group is not authorized by a SAF Profile.

```
HPSCONU2              Authorize Users - Group ACCTSREC              Row 1 of 4
Command ====>                                               SCROLL===> CSR

To authorize a User, enter the user's TSOid and name on a new line.

Lcmd: (I)nsert, (D)elete

Press ENTER to continue or END to exit

   Userid        Name
_  USER001_      UtlCom Internal_____

_  _____      _____
_  _____      _____
_  _____      _____
****************************** Bottom of data ******************************
```

Enter the TSO user IDs and names of users to be authorized for this group, then press Enter.

The following table describes fields on this screen:

Parameter	Description
Group Name	The object group previously selected. This is not an editable field.
Line Command	I – Insert; insert a blank line following the current line. D – Delete; deletes the current line. A user already authorized cannot be deleted using this command. This is for editing only; lines generated in editing may be deleted.
UserID	The TSO UserID of the person being authorized as a user is entered.
Name	The name of the person being authorized as a user is entered. Names may be up to twenty characters.

A message (Authorized) indicates the result of the authorization request.

Authorizing Users With a SAF Profile

After you select a group from the *Authorize Users - Department* panel, the following panel displays if the group is authorized by a SAF Profile.

```
HPSCONU2             Authorize Users - Group HUMANRSC              Row 1 of 4
Command ====>                                          SCROLL===> CSR

To authorize Users, enter the SAF Profile Name for this Group.



Press ENTER to continue or END to exit

   Userid      Profile Name
    SAF____     _____

****************************** Bottom of data ******************************
```

Enter the SAF profile name for this group, then press Enter.

Update Name

Option 6 of the Group Admin menu updates either:

- the name of a user who is authorized to a group

- the SAF Profile name associated with a group

The following panel displays when you select Option 6:

```
HPSCONG3     Update Name - Department UTLCOM                   Row 1 of 3
Command ===>                                           SCROLL===> CSR

To Update User's name, enter S to select the Group first.

Lcmd: (S)elect

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count   Creation Date
_      ACCTSPAY     0001           0000         2010/04/28
_      ACCTSREC     0001           0001         2010/04/28
_      HUMANRSC     0001           0000         2010/04/28
****************************** Bottom of data ******************************
```

Items on this screen are:

Parameter	Description
Department	The department in which the groups exist is displayed on the top line.
Line Command	S denotes Select; select the object group.

Parameter	Description
Group Name	Lists all groups that are currently associated with this Group Administrator.
User Count	The number of users currently assigned to each object group.
Object-Count	The number of objects that are currently being tracked in each object group.
Creation-Date	The creation date of each object group.

Select a group and press Enter.

If the group is authorized by a SAF Profile, the following panel displays:

```
HPSCONU2            Update User Name - Group HUMANRSC              Row 1 of 1
Command ====>                                          SCROLL===> CSR

To update a Group's Profile, over-type the Profile Name field.



Press ENTER to continue or END to exit

   Userid       Profile Name
    SAF____      GROUPPROF01_____
```

To update a Group's Profile, over-type the Profile Name field and press Enter.

If the group is not authorized by a SAF Profile, the following panel displays:

```
HPSCONU2            Update User Name - Group ACCTSREC              Row 1 of 1
Command ====>                                          SCROLL===> CSR

To update a user's name, over-type the Name field on the appropriate line.



Press ENTER to continue or END to exit

   Userid      Name
   USER001_     UtlCom Internal_____
****************************** Bottom of data ******************************
```

The names of all authorized users of this group are listed. Overtype the names as needed and press Enter.

A message (UPDATED) indicates the result of the update request.

Revoke Users

Option 7 of the Group Admin menu revokes users' access to an object group.

The following panel displays when you select Option 7:

```
HPSCONG3     Revoke Users - Department UTLCOM                       Row 1 of 3
Command ===>                                               SCROLL===> CSR

To revoke User(s) from a Group, enter S to select the Group first.

Lcmd: (S)elect

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count    Creation Date
_   *  ACCTSPAY      0001          0000          2010/04/28
_      ACCTSREC      0001          0001          2010/04/28
_   *  HUMANRSC      0001          0000          2010/04/28
***************************** Bottom of data ******************************
```

The following table describes the parameters displayed in the *Revoke Users - Department* panel:

Parameter	Description
Department	The department in which the groups exist is displayed on the top line.
Line Command	S denotes Select; it causes the software to select the object group for the next step of processing.
Group Name	All the groups that are currently associated in this Group Administrator.
User Count	The number of users currently assigned to each object group.
Object Count	The number of objects that are currently being tracked in each object group.
Creation Date	The creation date of each object group.

Select a group and press Enter.

If the group is authorized by a SAF Profile, the following panel displays:

```
HPSCONU2                Revoke Users - Group HUMANRSC                  Row 1 of 1
Command ====>                                              SCROLL===> CSR

To delete a Profile, enter D on the corresponding line.

Lcmd: (D)elete

Press ENTER to continue or END to exit

   Userid        Profile Name
_    SAF____        GROUPPROF01_____
```

To delete a Profile, enter D in the line command field and press Enter.

If the group is not authorized by a SAF Profile and the group has one or more authorized users, the following panel displays:

```
HPSCONU2                    Revoke Users - Group ACCTSREC                 Row 1 of 1
Command ====>                                             SCROLL===> CSR


To revoke a user, enter R on the corresponding line.


Lcmd: (R)evoke


Press ENTER to continue or END to exit


   Userid        Name
_  USER001_      UtlCom Internal_____
****************************** Bottom of data ******************************
```

To revoke a Userid, enter R in the line command field and press Enter.

Refresh ISPF Tables

Option R of the Group Admin menu refreshes the user authorization tables. The Department Administrator can also refresh ISPF tables.

```
HPSMNUGA ------- Group Admin Menu - Department UTLCOM           ---------------
Option ===>

Select one of the highlighted functions:

0  Data Set Filtering            - Update Excluded Data Set list

1  Define Objects                - Add object(s) to Change Tracking
2  Delete Objects                - Release object(s) from tracking
3  Display Objects Within Group  - All objects defined to the group
4  Display All Objects           - All objects defined to all groups
M  Move Objects                  - Move object(s) to another group

5  Authorize Users               - Make a group available to user(s)
6  Update Name or Profile        - Update user's name or SAF profile
7  Revoke Users                  - Make a group unavailable to user(s)
R  Refresh ISPF Tables           - Refresh user authorization tables

A  Alternate Group Administrators - Assign or Revoke

X  Exit
                 ---------------------------------------------
Press END to E | HPS009I Group/Object view refresh complete. |
                 ---------------------------------------------
```

When you first enter ChangeMan SSM, ISPF tables are built from the Object master. The ISPF tables are automatically updated whenever you make online updates. The ISPF tables are *not* updated if a batch job, or another administrator updates information.

Enter "R" and press Enter. After a pause, the system returns with a message specifying that the refresh is complete.

Press End to exit the panel.

HFS Group Administrator Menu

If Option 4 is entered on the Change Tracking Administration menu and the department name is also entered, skip the following panel.

If Option 4 is entered without entering the department name, the following panel displays:

```
HPS@ADM2          Available Departments for User - USER001        Row 1 of 3
Command ====>                                            SCROLL===> CSR

Select (S) a department from the list below:

Press ENTER to continue or END to exit


   Department        Description           Group Count
   ----------------  --------------------  -----------
_  UTLCOM            UtlCom Internal_____      0004
_  SOFTWAREDEVELOP   Software Development      0004
_  TECHDOCDEPT       Doc Development_____      0001
***************************** Bottom of data *******************************
```

Type 'S' next to the department that you want to administer, then press Enter.

Press PF3 to exit the panel.

The following table describes the functions available from the *Available Departments for User* panel.

Parameter	Description
Line Command	The line command specification area, directly preceding each line of the department information area, is the active point of this panel. S select the department
Department	The name of the department
Description	The description of the department
Group Count	The number of HFS groups attached to the department

This is the primary panel for the HFS Group Administrators.

```
HPSMNUGA ----- HFS Group Admin Menu - Department TECHDOCDEPT      ------------
Option ===>


Select one of the highlighted functions:

0  Data Set Filtering             - Update Excluded Data Set list

1  Define HFS Objects             - Add object(s) to Change Tracking
2  Delete HFS Objects             - Release object(s) from tracking
3  Display Objects Within Group   - All objects defined to the group
4  Display All HFS Objects        - All objects defined to all groups
M  Move HFS Objects               - Move object(s) to another group

5  Authorize Users                - Make a group available to user(s)
6  Update Name or Profile         - Update user's name or SAF profile
7  Revoke Users                   - Make a group unavailable to user(s)
R  Refresh ISPF Tables            - Refresh user authorization tables

A  Alternate Group Administrators - Assign or Revoke

X  Exit

Press END to Exit
```

Only assigned Group Administrators have access to this panel and its functions. HFS Group Administrators are named and managed by the Department Administrators. ChangeMan SSM HFS Group Administrators manage one or more HFS object groups by controlling:

- All of the HFS object groups currently defined in the Selected Department.

- All tracked object definitions in object groups.

- Users' access to the object groups.

To set up the Change Tracking Component, you must execute Options 1 and 5 from this panel.

Type the option number or letter of the function you want to use, then press Enter.

The following table describes the functions available from the *HFS Group Admin Menu*.

Function	Description
0	Data set filtering. Not used.
1	Define HFS Objects. This option defines HFS objects to a previously-defined object group.
2	Delete HFS Objects. This option deletes HFS objects (data sets) from an HFS object group.
3	Display Objects Within Group. Displays all HFS objects defined to the HFS group.
4	Display All Objects. Display all HFS objects defined to all HFS groups.

Function	Description
M	Move HFS Objects. This option allows an object to be moved from one change tracking group to another.
	The source and target change tracking group can be a SAF-based or TSO-based department (administrator), with the exception that a move from a SAF-based department to a TSO-based department is not allowed.
5	Authorize Users. Make an HFS group available to user(s)
6	Update Name. Update a user's name
7	Revoke Users. Make an HFS group unavailable to a user.
R	Refresh ISPF tables. Refresh the user authorization tables.
A	Alternate Group Administrators. Not used if RACF security is used.
X	Exit. Exits this panel.

Dataset Filtering Panel

Option 0 (zero) of the HFS Group Admin Menu is not used.

Define HFS Objects

Option 1 of the HFS Group Admin menu defines HFS objects for tracking in an HFS object group. The object group must have been defined previously.

```
HPSCONH3   Define HFS Objects - Department TECHDOCDEPT            Row 1 of 1
Command ===>                                          SCROLL===> CSR


Enter S to Select the Group where Objects will be defined.


Lcmd: (S)elect


Object Define Mode  ===>  ONLINE      (ONLINE or BATCH)


Press ENTER to continue or END to exit


     Group Name    User Count    Object Count     Creation Date
_    HFS001        0001          0008             2010/08/09
***************************** Bottom of data *****************************
```

How to use this panel:

1 Select the group where objects are to be defined by entering an S next to the group name.

2 Press Enter.

The following table describes the parameters displayed in the *Define HFS Objects* panel.

Parameter	Description
Department	The name of the Department is displayed on the top line.
Object Define Mode	ONLINE indicates that a limited number of objects are being defined. BATCH indicates that a large number of objects will be defined, and therefore, the batch method is the recommended method. BATCH will display a panel to modify, save, and/or submit the batch JCL.
Line Command	S denotes Select, which causes the software to select the object Group for next step processing.
Group Name	All of the object groups that are currently associated with this Group admin UserID, and in which the HFS Group Administrator is defined as a user.
User Count	The number of users currently assigned to each object Group.
Object Count	The number of HFS objects that are being tracked in each object group.
Creation-Date	The creation date of each object Group.

Define HFS Objects

The previously-selected HFS object Group is to have one or more HFS objects defined as member of the HFS object Group. These are the files to be tracked.

```
HPSCONHR                       Define HFS Objects                   Row 1 of 10
Command ====>                                              SCROLL===> CSR


Enter a filename or filename pattern on each line

Lcmd:  (I)nsert, (R)eplicate, (D)elete

Press ENTER to continue or END to exit

Department, Group Name ===> TECHDOCDEPT,      HFS001

   Explicit or Pattern Filenames

_  _____
_  _____
_  _____
_  _____
_  _____
_  _____
_  _____
_  _____
_  _____
****************************** Bottom of data ******************************
```

Enter directory and/or file names for the Explicit or Pattern Filenames fields. The following table describes the fields on the panel:

Parameter	Description
Department, Group Name	The Department and the HFS Group name of the HFS objects being defined.
Line Command	I denotes Insert; insert a blank line following the current line. R denotes Replicate; repeat the current line. D denotes Delete; delete the current line.
Explicit or Pattern File Names	HFS File Names (objects) Type the explicit HFS file names and/or those generic HFS file names that you want to comprise this HFS object group. Any number of HFS files may be entered for an HFS object Group. If necessary, use the Lcmd commands and scrolling to navigate beyond the limits of the initial panel. HFS files can be added or deleted at any time to an existing HFS Group.

Optionally, enter line commands for the Explicit or Pattern Filenames fields, then press Enter.

Resolved HFS Objects

This panel displays the results of the HFS directory search initiated by the entries on the previous panel.

```
HPSCONHI                    Resolved Objects - HFS                   Row 1 of 40
Command ====>                                            SCROLL ===> CSR


Lcmds: To Exclude unwanted files, enter X on ( ) file line(s)
       To Expand one or more directories, enter E on (D) directory line(s)


Press ENTER to continue or END to exit

 ( ) HFS Objects to be Initialized for Tracking        Panel 01 of 39
     --------------------------------+----------------------------- -Feedback-
_    /x/User02/.sh_history
_ D /x/User02/a/
_ D /x/User02/ab/
_    /x/User02/abc
_ D /x/User02/b/
_ D /x/User02/base/
_    /x/User02/binlist
_ D /x/User02/c/
_ D /x/User02/dira/
_ D /x/User02/dirb/
_    /x/User02/file.list
_    /x/User02/file1
_    /x/User02/file11
```

Type an X (Exclude) command for the HFS file or the directory name that is to be excluded from the Initialize for Tracking process.

Type an E (Expand) to expand a directory (marked with a D to the left of the name).

Note that any directories left in the list will not be tracked.

Press Enter to add the currently displayed files to HFS Change Tracking in the current HFS Group.

Refer to the following table for help completing the panel fields:

Parameter	Description
Line Command	X denotes Exclude; exclude the item indicated by the presence of the command from further processing. It may be used concurrently on multiple lines. E denotes Expand; expand a directory (marked with a D to the left of the name.
Panel nn of 39	Specifies the panel (n = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name.

When the displayed list reflects the HFS files that you want to add to this HFS Group, press Enter to initialize them for tracking.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified HFS *object* name. The search starts at the top of the list and each *object* name in the list is examined starting with its first character. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in HFS Object-name order will be scrolled to the top of the list.
VIEW {LEFT |RIGHT|nn}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels. VIEW LEFT (or V L) moves the display one panel to the left. VIEW RIGHT (or V R) moves the display one panel to the right. VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

Initialize Object Group

The previously-resolved files (objects) will be initialized. After the HFS Object List is resolved, if no line command is specified, press Enter to start the initialization process.

If batch mode was specified, the JCL required to perform the define process is generated.

This represents the first tracking for these HFS files. Any changes from this point are noted.

```
HPSCONH5                  Objects Initialization in progress          Row 1 of 13
Command ====>                                               SCROLL ===> CSR

Press END to Exit

                                                                      Total: 16

Tracked Object(s)                                          Panel 01 of 39
--------------------------------+------------------------------
/x/User02/abc                                                       *Duplicate
/x/User02/binlist                                                   *Duplicate
/x/User02/file.list                                                 *Duplicate
/x/User02/file1                                                     *Duplicate
/x/User02/file11                                                    *Duplicate
/x/User02/file3                                                     *Duplicate
/x/User02/subd/big                                                  Defined
/x/User02/subd/test1                                                Defined
/x/User02/subd/test2                                                Defined
/x/User02/subd/test3                                                Defined
/x/User02/subd/test4                                                Defined
/x/User02/subd/test5                                                Defined
/x/User02/subd/test6                                                Defined
------------------------------------------------------------------------------
| HPS219I Group HFS001 updated.  RTCT Automatic Refresh will detect changes. |
------------------------------------------------------------------------------
```

A message to the right of each file name indicates the result of the request. When the initialization has completed and you have finished reviewing the information, press Enter to return to the *Change Tracking User Menu*.

The following table describes the parameters displayed in the *Objects Initialization in progress* panel:

Parameter	Description
Total	The total number of tracked objects
Tracked Objects	All objects currently defined in this HFS group.
Panel nn of 39	Specifies the panel (n = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name.
(Defined or Duplicate)	Defined: the specified object has been defined to the selected HFS object group. *Duplicate: the specified object already exists in the HFS group.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified *object* name. The search starts at the top of the list and each *object* name in the list is examined starting with its first character. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in object-name order will be scrolled to the top of the list.

VIEW {LEFT |RIGHT|nn}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels.
	    VIEW LEFT (or V L) moves the display one panel to the left.
	    VIEW RIGHT (or V R) moves the display one panel to the right.
	    VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

Delete HFS Objects

Option 2 of the HFS Group Admin menu deletes tracked HFS objects from an HFS object group, in either online or batch mode. The HFS objects must currently be defined in the HFS object group.

```
HPSCONG4      Delete Objects - Department TECHDOCDEPT                 Row 1 of 1
Command ===>                                                SCROLL===> CSR

To Delete Objects from a Group, enter S to select the group first

Lcmd: (S)elect

Object Delete Mode  ===>  ONLINE      (ONLINE or BATCH)
JCL Member Name     ===>  DELETE      (User JCL Library member name if BATCH)

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count    Creation Date
_      HFS001        0001          0009          2010/08/09
****************************** Bottom of data ******************************
```

The following table describes fields on this panel:

Parameter	Description
Department	The department of the HFS group in which the HFS objects exist is displayed on the top line.
Line Command	S denotes Select; select the HFS object group.
Object Delete Mode	Type ONLINE or BATCH.
JCL Member Name	The member name to contain the JCL generated from this panel (if you chose BATCH Object Delete Mode). Use the default or type a new member name.
Group Name	All the HFS groups that are currently associated with this group.
User Count	The number of users currently assigned to each HFS object group.
Object Count	The number of HFS objects that are currently being tracked in each HFS object Group.
Creation Date	The creation date of each HFS object group.

First, enter the Object Delete Mode. If you enter BATCH, fill in the JCL Member Name field.

To select the object Group, type the S (Select) line command for the desired HFS Group Name, then press Enter.

The previously-selected HFS object Group is to have one or more HFS objects (files) deleted from it.

```
HPSCONH2 Delete HFS Objects - Dept/Grp  TECHDOCDEPT/HFS001   Row 1 to 12 of 20
Command ===>                                                SCROLL ===> CSR

To Delete an Object, enter D on corresponding line

Memo-Delete Option is YES
Lcmd: (D)elete

Press Enter to continue or End to Exit

   Tracked Object                                 Panel 01 of 39
   -------------------------------+------------------------------
_  /u/alfors/.sh_history
_  /u/alfors/binlist
_  /u/alfors/file.list
_  /u/alfors/file1
_  /u/alfors/file11
_  /u/alfors/file111
_  /u/alfors/file111a
_  /u/alfors/file2
_  /u/alfors/file3
_  /u/alfors/file5
_  /u/alfors/file6
_  /u/alfors/file7
```

The following table describes fields on this panel:

Parameter	Description
Dept/Grp	The department and the HFS group, in which the HFS objects exist, is displayed on the top line.
Line Command	D – Delete; delete the tracked HFS object from this HFS group.
Tracked Object	All the tracked HFS objects (files) in the HFS object group.
Panel nn of 39	Specifies the panel (n = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name

To delete HFS objects, type the D (Delete) line command for each of the tracked HFS objects that are to be removed from tracking this HFS group, then press Enter.

A message (*Deleted) indicates the result of the delete request.

NOTE If the Memo-Delete Option display field is YES, deleted objects will be removed from Change Tracking but their history will be retained within the SSM databases until HPSMAINT is run. You can reinstate a memo-deleted object by defining it again to the same or a new Department-Group before the object is purged.

If the Memo-Delete Optpion display field is NO, the object delete function will completely remove the deleted objects and their history.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified *object* name. The search starts at the top of the list and each *object* name in the list is examined starting with its first character. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in object-name order will be scrolled to the top of the list.
VIEW {LEFT |RIGHT|nn}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels. VIEW LEFT (or V L) moves the display one panel to the left. VIEW RIGHT (or V R) moves the display one panel to the right. VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

Display HFS Objects Within Group

Option 3 of the HFS Group Admin menu displays the HFS objects in an HFS group.

```
HPSCONG3     Group Objects Display - Department TECHDOCDEPT        Row 1 of 1
Command ===>                                              SCROLL===> CSR

To display Objects, enter S on the corresponding line.

Lcmd: (S)elect

Press ENTER to continue or END to exit

     Group Name    User Count    Object Count    Creation Date
_     HFS001__      0001            0009           2010/08/09
***************************** Bottom of data *****************************
```

The following table describes the fields on this panel:

Parameter	Description
Department	The department in which the HFS groups exist is displayed on the top line.
Line Command	Type an S next to an HFS Group Name to display tracked HFS objects for that HFS group.
Group Name	All the HFS groups that are currently associated with this Group Administrator.
User Count	The number of users currently assigned to each HFS object group.
Object Count	The number of HFS objects that are currently being tracked in each HFS object group.
Creation Date	The creation date of each HFS object group.

Display HFS Objects in a Group

From the *Group Display* panel, enter the S (Select) line command for the desired HFS Group Name, then press Enter. The *Display Objects - Dept/Group* panel is displayed.

```
HPSCONH1 Display Objects - Dept/Grp  TECHDOCDEPT/HFS001          Row 1 of 22
Command ===>                                           SCROLL ===> CSR

Press END to Exit

Tracked Object                                 Panel 01 of 39
-------------------------------+-------------------------------
/x/User02/.sh_history
/x/User02/abc
/x/User02/binlist
/x/User02/file.list
/x/User02/file1
/x/User02/file11
/x/User02/file111
/x/User02/file111a
/x/User02/file2
/x/User02/file5
/x/User02/file6
/x/User02/file7
/x/User02/final.test
/x/User02/in
/x/User02/long name with spaces
/x/User02/noread
```

The following table describes the parameters displayed in the *Display Objects - Dept/Grp* panel.

Parameter	Description
Dept/Grp	The Department and the HFS Group in which the HFS objects exist is displayed on the top line.
Tracked Object	All the tracked HFS objects (files) in the HFS object Group.
Panel nn of 39	Specifies the panel (n = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified *object* name. The search starts at the top of the list and each *object* name in the list is examined starting with its first character. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in object-name order will be scrolled to the top of the list.
VIEW {LEFT |RIGHT|nn}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels. VIEW LEFT (or V L) moves the display one panel to the left. VIEW RIGHT (or V R) moves the display one panel to the right. VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

When you finish reviewing the information, enter END to return to the *Group Objects Display - Department* panel.

Display All HFS Objects

Option 4 of the HFS Group Admin menu displays tracked HFS objects for *all* HFS Groups for *all* administrators.

```
HPSCONH4  HFS Object Display - All Departments, All Groups      Row 1 of 185
Command ===>                                            SCROLL ===> CSR

Press END to Exit

Tracked Object                    Panel 01 of 39 Dept.          Group
--------------------------------+--------------------
/x/User02/.sh_history                            UTLCOM         HFSINT
/x/User02/.sh_history                            SOFTWAREDEVELOP HFSXYZ1
/x/User02/.sh_history                            SOFTWAREDEVELOP HFSXYZ1
/x/User02/.sh_history                            SOFTWAREDEVELOP HFSXYZ1
/x/User02/.sh_history                            TECHDOCDEPT    HFS001
/x/User02/a/1/b/test5                            SOFTWAREDEVELOP HFSXYZ1
/x/User02/a/2/b/test5                            SOFTWAREDEVELOP HFSXYZ1
/x/User02/a/3/b/test5                            SOFTWAREDEVELOP HFSXYZ1
/x/User02/a/5/b/test5                            SOFTWAREDEVELOP HFSXYZ1
/x/User02/ab/file                                SOFTWAREDEVELOP HFSTEST
/x/User02/abc                                    UTLCOM         HFSINT
/x/User02/abc                                    SOFTWAREDEVELOP HFSXYZ1
/x/User02/abc                                    SOFTWAREDEVELOP HFSTEST
/x/User02/base/simple.file                       SOFTWAREDEVELOP HFS2
/x/User02/binlist                                UTLCOM         HFSINT
/x/User02/binlist                                SOFTWAREDEVELOP HFSXYZ1
/x/User02/binlist                                TECHDOCDEPT    HFS001
```

NOTE Each time that Option 4 is executed, the Object Master file is read, so the resulting list contains the latest information.

The following table describes the parameters displayed in the *HFS Object Display - All Departments, All Groups* panel.

Parameter	Description
Tracked Object	Tracked HFS objects for all HFS Groups for all administrators.
Panel nn of 39	Specifies the panel (n = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name.
Dept.	The name of the Department.
Group	The HFS group name.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified *object* name. The search starts at the top of the list and each *object* name in the list is examined starting with its first character. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in object-name order will be scrolled to the top of the list.
SORT *column*	Sort the listed items by any column which has a yellow column heading. If no column is specified, the default is to sort by *object*.
VIEW {LEFT |RIGHT|nn}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels. VIEW LEFT (or V L) moves the display one panel to the left. VIEW RIGHT (or V R) moves the display one panel to the right. VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

When you finish reviewing the information, press END to return to the HFS *Group Admin Menu*.

Authorize Users

When an HFS Department Administrator defines an HFS group, that individual automatically becomes a user of that HFS group. Option 5 of the HFS Group Admin menu authorizes other users to access the HFS object group to view change events.

The reason for HFS groups, and users in HFS groups, is that ChangeMan SSM users want to see their tracking environment only (files they define to tracking that they are concerned with), not all tracked data sets.

The following panel displays when you select Option 5 from the HFS Group Admin menu.

```
HPSCONG3      Authorize Users - Department TECHDOCDEPT              Row 1 of 1
Command ===>                                             SCROLL===> CSR

To authorize Users to a Group, enter S to select the Group first.

Lcmd: (S)elect

Press ENTER to continue or END to exit


     Group Name    User Count    Object Count    Creation Date
_      HFS001         0001           0009          2010/08/09
_      HFS002         N/A            0000          2010/08/18
****************************** Bottom of data ******************************
```

The following table describes the parameters displayed in the *Authorize Users - Department* panel:

Parameter	Description
Department	The department in which the groups exist is displayed on the top line.
Line Command	S denotes Select; it causes the software to select the HFS object group for the next step of processing.
Group Name	All the HFS groups that are currently associated with this Group Administrator.
User Count	The number of users currently assigned to each HFS object group.
Object Count	The number of objects that are currently being tracked in each HFS object group.
Creation Date	The creation date of each HFS object group.

Select an object group and press Enter; the *Authorize Users - Group* panel displays. The appearance of this panel varies, depending on whether or not the group is authorized by a SAF profile (if the CTUSERSAFAUTH parameter in HPSPARMS is set to YES, a group can be managed by associating a SAF profile with the group).

The following topics describe how to authorized users by TSO UserID or SAF Profile.

Authorizing Users by TSO UserID

After you select a group from the *Authorize Users - Department* panel, the following panel displays if the group is not authorized by a SAF Profile.

```
HPSCONU2               Authorize Users - Group HFS001                Row 1 of 3
Command ====>                                            SCROLL===> CSR

To authorize a User, enter the user's TSOid and name on a new line.

Lcmd: (I)nsert, (D)elete

Press ENTER to continue or END to exit

   Userid      Name
_  USER002_    Doc Development_____
_  _____    _____
_  _____    _____
****************************** Bottom of data *******************************
```

Enter the TSO user IDs and names of users to be authorized for this group, then press Enter.

The following table describes fields on this screen:

Parameter	Description
Group Name	The HFS object group previously selected. This is not an editable field.
Line Command	I – Insert; insert a blank line following the current line. D – Delete; deletes the current line. A user already authorized cannot be deleted using this command. This is for editing only; lines generated in editing may be deleted.
UserID	The valid TSO UserID of the person being authorized as a user is entered. UserID can be eight characters, maximum.
Name	The name of the person being authorized as a user is entered. Names may be up to twenty characters.

A message (Authorized) indicates the result of the authorization request.

Authorizing Users With a SAF Profile

After you select a group from the *Authorize Users - Department* panel, the following panel displays if the group is authorized by a SAF Profile.

```
HPSCONU2            Authorize Users - Group HFS002              Row 1 of 4
Command ====>                                          SCROLL===> CSR

To authorize Users, enter the SAF Profile Name for this Group.



Press ENTER to continue or END to exit

   Userid      Profile Name
    SAF____      _____

****************************** Bottom of data ******************************
```

Enter the SAF profile name for this group, then press Enter.

Update Name

Option 6 of the HFS Group Admin menu updates either:

- the name of a user who is authorized to an HFS group

- the SAF Profile name associated with an HFS group

The following panel displays when you select Option 6:

```
HPSCONG3      Update Name - Department TECHDOCDEPT              Row 1 of 1
Command ===>                                           SCROLL===> CSR

To update User Names, enter S to select the Group first.

Lcmd: (S)elect

Press ENTER to continue or END to exit

     Group Name   User Count   Object Count   Creation Date
_     HFS001        0001          0009          2010/08/09
_     HFS002        N/A           0000          2010/08/18
****************************** Bottom of data ******************************
```

Items on this screen are:

Parameter	Description
Department	The department in which the HFS groups exist is displayed on the top line.
Line Command	S denotes Select; select the HFS object group.
Group Name	Lists all groups that are currently associated with this HFS Group Administrator.

Parameter	Description
User Count	The number of users currently assigned to each HFS object group.
Object-Count	The number of HFS objects that are currently being tracked in each HFS object group.
Creation-Date	The creation date of each HFS object group.

Select a group and press Enter.

If the group is authorized by a SAF Profile, the following panel displays:

```
HPSCONU2            Update User Name - Group HFS002            Row 1 of 1
Command ====>                                       SCROLL===> CSR

To update a Group's Profile, over-type the Profile Name field.



Press ENTER to continue or END to exit

   Userid       Profile Name
    SAF____      GROUPPROF01_____
```

To update a Group's Profile, over-type the Profile Name field and press Enter.

If the group is not authorized by a SAF Profile, the following panel displays:

```
HPSCONU2            Update User Name - Group HFS001            Row 1 of 1
Command ====>                                       SCROLL===> CSR

To update a user's name, over-type the Name field on the appropriate line.



Press ENTER to continue or END to exit

   Userid       Name
   USER002_     Doc Development_____
****************************** Bottom of data ******************************
```

The names of all authorized users of this group are listed. Overtype the names as needed and press Enter.

A message (UPDATED) indicates the result of the update request.

Revoke Users

Option 7 of the HFS Group Admin menu revokes users' access to an HFS object group.

The following panel displays when you select Option 7:

```
HPSCONG3      Revoke Users - Department TECHDOCDEPT                 Row 1 of 1
Command ===>                                              SCROLL===> CSR

To revoke User(s) from a Group, enter S to select the Group first.

Lcmd: (S)elect

Press ENTER to continue or END to exit

      Group Name    User Count    Object Count    Creation Date
_      HFS001__       0001           0009           2010/08/09
_      HFS002__       0002           0014           2010/08/10
_      HFS007__       0001           0004           2010/08/17
***************************** Bottom of data *****************************
```

The following table describes the parameters displayed in the *Revoke Users - Department* panel:

Parameter	Description
Department	The department in which the HFS groups exist is displayed on the top line.
Line Command	S denotes Select; it causes the software to select the HFS object group for the next step of processing.
Group Name	All the HFS groups that are currently in this Department.
User Count	The number of users currently assigned to each HFS object group.
Object Count	The number of HFS objects that are currently being tracked in each object group.
Creation Date	The creation date of each HFS object group.

Select a group and press Enter.

If the group is authorized by a SAF Profile, the following panel displays:

```
HPSCONU2                  Revoke Users - Group HFS002                 Row 1 of 1
Command ====>                                              SCROLL===> CSR

To delete a Profile, enter D on the corresponding line.

Lcmd: (D)elete

Press ENTER to continue or END to exit

   Userid       Profile Name
_    SAF____       GROUPPROF01_____
```

To delete a Profile, enter D in the line command field and press Enter.

If the group is not authorized by a SAF Profile and the group has one or more authorized users, the following panel displays:

```
HPSCONU2                 Revoke Users - Group HFS001                  Row 1 of 1
Command ====>                                                SCROLL===> CSR


To revoke a user, enter R on the corresponding line.


Lcmd: (R)evoke


Press ENTER to continue or END to exit


   Userid        Name
_  USER002_      Doc Development_____
***************************** Bottom of data *******************************
```

To revoke a Userid, enter R in the line command field and press Enter.

Refresh ISPF Tables

Option R of the HFS Group Admin menu refreshes the user authorization tables. The Department Administrator can also refresh ISPF tables.

```
HPSMNUGA ----- HFS Group Admin Menu - Department TECHDOCDEPT      -------------
Option ===>

Select one of the highlighted functions:

0  Data Set Filtering          - Update Excluded Data Set list

1  Define HFS Objects          - Add object(s) to Change Tracking
2  Delete HFS Objects          - Release object(s) from tracking
3  Display Objects Within Group - All objects defined to the group
4  Display All HFS Objects     - All objects defined to all groups
M  Move HFS Objects            - Move object(s) to another group

5  Authorize Users             - Make a group available to user(s)
6  Update Name or Profile      - Update user's name or SAF profile
7  Revoke Users                - Make a group unavailable to user(s)
R  Refresh ISPF Tables         - Refresh user authorization tables

A  Alternate Group Administrators  - Assign or Revoke

X  Exit
               ---------------------------------------------
Press END to E | HPS009I Group/Object view refresh complete. |
               ---------------------------------------------
```

When you first enter ChangeMan SSM, ISPF tables are built from the Object master. The ISPF tables are automatically updated whenever you make online updates. The ISPF tables are *not* updated if a batch job, or another administrator updates information.

Enter "R" and press Enter. After a pause, the system returns with a message specifying that the refresh is complete.

Press End to exit the panel.

MLS Administrator Menu

Option 5 of the Change Tracking Administration menu provides a selection of functions for administering Member-Level Security (MLS).

```
HPSMNUML ---------- Member-Level Security Administrator Menu -----------------
Option ===>

 Member-Level Security Options:
1  Define Protected Entities      - Add a protected entity to MLS
2  Delete Protected Entities      - Remove an entity from MLS
3  Show MLS Protected Entities    - Display currently-protected entities
4  Update MLS Protected Entities  - Update the protected entity list

X  Exit

Press END to Exit
```

If SAF Security is being used, administrators of MLS must be specified in the MLS SAF profile named in the CTMLSADMIN parameter in HPSPARMS.

If TSO ID Security is being used, as a Site Administrator, you administer MLS.

Only assigned administrators have access to this panel and its functions. The administrator can define, delete, display, and update protected entities.

Type the option number of the menu item that you want to use, then press Enter.

The following table describes the functions available from the *ChangeMan SSM Member-Level Security Administrator Menu*.

Function	Description
1	Define Protected Entities. Add a protected entity to MLS.
2	Delete Protected Entities. Remove an entity from MLS.
3	Show MLS Protected Entities. Display currently-protected entities.
4	Update Protected Entities. Update the protected entity list.
X	Exit. Exits this panel.

Define Protected Entities

Option 1 of the Member Level Security Administrator menu defines entities that are to be protected.

```
HPSTMDEF --------------- SSM Define Protected Entity -----------------------
Command ===>

Specify an explicit DSN, and a member name or pattern ending with an *.
A member pattern of "*" will protect all the members in the specified DSN.

  RTORACFID: YES    RTOCLASS: $DRVDEV

Explicit Data Set Name   ==>
Protected Member Pattern ==> *         (explicit member name or pattern)

Access List 1 ==>
Access List 2 ==>

Note: "Access List" is a either a comma-delimited list of TSO Userid's
      or, if RTORACFID is set to YES in HPSPARMS, a SAF profile name
      in the security class defined by the RTOCLASS parameter.

Press ENTER to continue or END to exit
```

The specified entities can be either an explicit DSN or selected members of a DSN specified by member names or a member pattern ending with an asterisk (*).

The entries in Access List 1 and 2 depend on the value of RTORACFID:

- If RTORACFID = 'YES', the entry must be a SAF profile name specified in the RACF Security Class defined in the RTOCLASS parameter.

- If RTORACFID = 'NO', the entries must be a list of one or more TSO Userids; multiple Userids must be separated by commas.

The following table describes the parameters displayed in the *SSM Define Protected Entity* panel.

Parameter	Description
Explicit Data Set Name	The name of the data set to be protected, a fully-qualified data set name without quotes.
Protected-Member Pattern	The explicit name of a member to be protected, or a pattern that ends in an asterisk (*).
Access List 1	A SAF profile name or one or more TSO IDs separated by commas. A maximum of 60 characters can be entered in this field.
Access List 2	If Access List 1 is full, one or more TSO IDs separated by commas. A maximum of 60 characters can be entered in this field.

Delete Protected Entities

Option 2 of the Member Level Security Administrator menu deletes entities from the list of protected entities.

```
---------------------- SSM Delete Protected Entity -----------------------
Command ===>

Specify the exact DSN and member pattern of the entity you wish to delete.

Explicit Data Set Name   ==>
Protected Member Pattern ==> *          (explicit member name or pattern)


Press ENTER to continue or END to exit
```

The specified entities can be either an explicit DSN or selected members of a DSN specified by member names or a member pattern ending with an asterisk (*).

The following table describes the parameters displayed in the *SSM Delete Protected Entity* panel.

Parameter	Description
Explicit Data Set Name	The name of the data set to be protected, a fully-qualified data set name without quotes.
Protected-Member Pattern	The explicit name of a member to be protected, or a pattern that ends in an asterisk (*).

Show MLS Protected Entities

Option 3 of the Member Level Security Administrator menu displays a list of the protected entities.

```
 Menu   Utilities  Compilers  Help
─────────────────────────────────────────────────────────────────────────────
 ISRBROBA  USER001.SYN06153.T1646184.OUTLIST         Line 00000000 Col 001 080
 Command ===>                                                Scroll ===> PAGE
******************************** Top of Data *********************************
Command    Column  10        20       30       40       50       60        7
Count-seg  ....+....+....+....+....+....+....+....+....+....+....+....+....+....
    1      "  SHOW=MLS
           "*
Member    Dsname     (MLS PROTECTED ENTITIES)
Pattern   Access List

TEST*     XZSHTON.SSM830.LOD1PDS
                    NONE   .

TEST*     XZSHTON.SSM830.LOD1PDSE
                    NONE   .

TEST*     XZSHTON.SSM830.LOD2PDS
                    NONE   .

TEST*     MASHTON.SSM830.LOD2PDSE
                    NONE   .
```

The specified entities can be either an explicit DSN or selected members of a DSN specified by member names or a member pattern ending with an asterisk (*).

The following table describes the parameters displayed in the *Show MLS Protected Entities* panel.

Parameter	Description
Member Pattern	The explicit name of a member that is protected, or a pattern that ends in an asterisk (*).
Dsname	The fully-qualified name of the data set to be protected.
Access List	The name of the SAF profile used to grant access or A list of one or more TSO Userids authorized to update the protected entity.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified *object* name. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in object-name order will be scrolled to the top of the list.

Update MLS Protected Entities

Option 4 of the Member Level Security Administrator menu updates the list of protected entities.

```
HPSTMUPD                 Update Protected Entities List            Row 1 of 4
Command ====>                                              SCROLL===> CSR

  RTORACFID: YES    RTOCLASS: $CMNDEV

Lcmd: (D)elete, (I)nsert, (R)epeat.
Type: (N)Entity Name, (1)Access List 1, (2)Access List 2.

Press END to save changes, CANCEL to exit without saving.

  Type   Data Set Name                              Member      MLS
         Access List (1)                                        Security
         Access List (2)


_   N    AAA.BBB.CCC                                ALLMEM*     SAF
    1    MLSSECPROFILE


_   N    USER001.LIB.SRC                            HPS*        SAF
    1    MLSSECPROF2
```

This panel displays a list of the currently-defined MLS-protected entities and allows this list to be updated as required.

To save any updates made to the list, enter END on the command line or press the END or PF3 key. Enter CANcel to exit without saving the updates.

Each entry in the Protected Entities List consists of up to three input lines:

- An explicit DSN or selected members of a DSN specified by member names, or a member pattern ending with an asterisk (*)

- An access list of TSO userids or a SAF profile name defining the users authorized to modify the member(s)

- A second access list (if needed)

The following table describes the parameters displayed in the *Show MLS Protected Entities* panel.

Parameter	Description
Line Command	I – Insert; insert a blank line following the current line. D – Delete; delete the current line. R – Repeat; repeat the current line.
Type	The data type of the input line: N – Data Set Name and Member (pattern) 1 – Access List - line 1 2 – Access List - line 2 (if used)
Data Set Name	A fully-qualified data set name without quotes; no TSO prefix is assumed.
Member	The name of an explicit member to be protected, or a member pattern ending with an asterisk (*).
MLS Security	The type of security checking (SAF or TSO) used if an attempt is made to update this entity while MLS is active. If you modify the entity, MLS security for the entity will be changed to match the current RTORACFID setting.

MRT Administrator Menu

Option 6 of the Change Tracking Administration menu provides a selection of functions for administering Member Reference Tracking (MRT).

```
HPSMNUMR ------------ Member Reference Tracking Admin Menu -------------------
Option ===>

 Member Reference Tracking Options:
1  Display MRT                      - Display Member Reference Tracking list
2  Update MRT                       - Update Member Reference Tracking list
3  Display MRT Exclusions           - Display Global Excluded Member list
4  Update MRT Exclusions            - Update Global Excluded Member list

X  Exit

Press END to Exit
```

Type the option number of the function you want to use, then press Enter.

The following table describes the functions available from the *ChangeMan SSM Member Reference Tracking Admin Menu*.

Function	Description
1	Display MRT. Display the Member Reference Tracking List.
2	Update MRT. Update the Member Reference Racking List.
3	Display MRT Exclusions. Display the Global Excluded Member List.

Function	Description
4	Update MRT Exclusions. Update the Global Excluded Member List.
X	Exit. Exits this panel.

Display MRT

Option 1 of the Member Reference Tracking Admin menu displays the data set and member name patterns defined to the Member Reference Tracking system.

```
 HPSMRDIS                   Member Reference Tracking List          Row 1 of 12
 Command ====>                                              SCROLL===>

 Press END to exit

 Type  Data Set Name                                 Member

   X   XYZDEV.ABC83U.LPA
       XYZDEV.ABC83U.S*                              LPST*
       XYZDEV.ABC83U.S*                              LPSZU*
       XYZDEV.ABC83U.S*                              TSTINIT
       UXER001.*
   X   USER001.DRM.*                                 *
   X   USER001.SSM83.*
   X   USER001.SSM83.LOAD
   X   OLNHTON.*                                     *
       WSER70.*                                      LPS*
   X   WSER70.BIG*
       WSER70.DEV.C*
```

> **NOTE** An X in the *Type* field indicates that the data set and member name pattern entered on the line is to be excluded from Member Reference Tracking.

The following table describes the parameters displayed in the *Member Reference Tracking List* panel.

Parameter	Description
Type	The data set and member name or pattern are included in ( ) or excluded from (X) Member Reference Tracking.
Data Set Name	The data set included in or excluded from Member Reference Tracking.
Member	The member name or member name pattern included in or excluded from Member Reference Tracking.

Update MRT

Option 2 of the Member Reference Tracking Admin menu allows the administrator to add data set and member name patterns to the Member Reference Tracking system, and to update/delete existing patterns.

```
HPSMRDEF             Update Member Reference Tracking List        Row 1 of 10
Command ====>                                            SCROLL===> CSR

Lcmd: (D)elete, (I)nsert, (R)epeat.
Type: ( ) Track this, (X)Exclude this

Press END to save changes, CANcel to exit without saving.

  Type  Data Set Name                          Member
_   X   XYZDEV.SSM83U.LPA
_       XYZDEV.SSM83U.S*                       LPST*
_       XYZDEV.SSM83U.S*                       LPSZU*
_       XYZDEV.SSM83U.S*                       TSTINIT
_       USER001.*
_   X   USER001.DRM.*                          *
_   X   USER001.SSM83.*
_   X   USER001.SSM83.LOAD
_   X   OLNHTON.*                              *
_   X   WSER70.DEMO.LPARA.*                    SYSXSYS
```

To save any updates made to the list, enter END on the command line or press the END or PF3 key. Enter CANcel to exit without saving the updates.

NOTES

The MRTDEF member in the SAMPLES library can be used to define data set and member name patterns to be *included* in batch mode.

The MREDEF member in the SAMPLES library can be used to define data set and member name patterns to be *excluded* in batch mode.

The following table describes the parameters displayed in the *Update Member Reference Tracking List* panel.

Parameter	Description
Line Command	I – Insert; insert a blank line following the current line. D – Delete; delete the current line. R – Repeat; repeat the current line.
Type	The data set and member name or pattern are included in ( ) or excluded from (X) Member Reference Tracking.
Data Set Name	The data set included in or excluded from Member Reference Tracking.
Member	The member name or member name pattern to be excluded from Member Reference Tracking.

Display MRT Exclusions

Option 3 of the Member Reference Tracking Admin menu displays member names and patterns that have been defined as excluded from the Member Reference Tracking system.

```
HPSMRMXD              Member Reference GLOBAL Exclusion List        Row 1 of 38
Command ====>                                               SCROLL===> CSR

Press END to exit

   Member

   ADY*
   ALLOC
   ALTLIB
   BLS*
   CALL
   CEE*
   CSQ*
   CSV*
   DFH*
   DFS*
   DSN*
   ERB*
```

NOTE The MRXDEF member in the SAMPLES library can be used to add common member prefixes to the MRX list. These prefixes are recommended to filter out high-activity members from MRT processing. If any of these prefixes overlap with members whose references you are tracking, you will need to remove them or make them more specific.

The following table describes the parameters displayed in the *Member Reference GLOBAL Exclusion List* panel.

Parameter	Description
Member	The member name or member name pattern to be excluded from Member Reference Tracking.

Update MRT Exclusions

Option 4 of the Member Reference Tracking Admin menu allows the administrator to to update member names and patterns to be excluded from the Member Reference Tracking system.

```
HPSMRMXU        Update Member Reference GLOBAL Exclusion List     Row 1 of 38
Command ====>                                          SCROLL===> CSR

Lcmd: (D)elete, (I)nsert, (R)epeat.

Press END to save changes, CANcel to exit without saving.

    Member
_   ADY*
_   ALLOC
_   ALTLIB
_   BLS*
_   CALL
_   CEE*
_   CSQ*
_   CSV*
_   DFH*
_   DFS*
_   DSN*
```

To save any updates made to the list, enter END on the command line or press the END or PF3 key. Enter CANcel to exit without saving the updates.

> **NOTE** The MRXDEF member in the SAMPLES library can be used to add common member prefixes to the MRX list. These prefixes are recommended to filter out high-activity members from MRT processing. If any of these prefixes overlap with members whose references you are tracking, you will need to remove them or make them more specific.

It is highly recommended that you run the MRXDEF job to prevent performance problems.

The following table describes the parameters displayed in the *Update Member Reference GLOBAL Exclusion List* panel.

Parameter	Description
Line Command	I – Insert; insert a blank line following the current line. D – Delete; delete the current line. R – Repeat; repeat the current line.
Member	The member name or member name pattern in or excluded from Member Reference Tracking.

Report on Referenced Data Sets and Members

To see a report of data sets and members that have been referenced, run a batch job to execute program HPSMRTRP. You an also create a "Zero Reference" report which identifies tracked members in tracked data sets that were not referenced during a specified time

period.The JCL can be found in the MRTRP member of the INSTALL library. Various parameters can be specified to tailor the report output.

Refer to "Member Reference Tracking - Report and File Maintenance" on page 128 for more details.

Chapter 3

Batch Administration

The ChangeMan SSM *Change Tracking Administration Facility* provides commands for use in batch mode to set up and maintain the ChangeMan SSM Change Tracking Component.

These batch functions provide an alternative to performing the online functions of the Site, Department, and Group Administrators.

This chapter provides information on each of the commands, including examples for proper usage.

Command Structure

The general format for the batch commands in ChangeMan SSM is as follows:

```
Command=(Parameter=(Subparameter=(value,...),Parameter=...))
```

There are no spaces in the commands. In the following commands, the space surrounding **=** is for clarity only.

Subparameter values must be completely specified on a single line.

Multiple subparameter values can be specified on separate, consecutive lines.

Parameters are enclosed in parentheses. If there is only one parameter in the command, the parentheses may be omitted.

All commands, parameters, and subparameters may be abbreviated to the level of non-ambiguity in its group. For example, the USERDEL command may be abbreviated as USERDE or USERD. The minimum abbreviation for each command, parameter, or subparameter is indicated by underlining, for example:

<u>USERD</u>EL

Command Summary

```
DEPTADD        = ( DEPARTMENT = department_id,
                   NAME = department_name )

DEPTDEL        = ( DEPARTMENT = department_id )

DEPTUPD        = ( DEPARTMENT = department_id,
                   NAME = department_name )

GRPADD         = ( ( ADMIN = tso_userid | DEPARTMENT = saf_dept ),
                   GROUP = group_name )

GRPADMADD      = ( ID = tso_userid,
                   NAME = 'user_name' )

GRPADMDEL      = ( ID = tso_userid )

GRPADMUPD      = ( ID = tso_userid,
                   NAME = 'username' )

GRPALTADD      = ( ID = tso_userid,
                   ADMIN = admin_id,
                   NAME = 'user_name' )

GRPALTDEL      = ( ID = tso_userid,
                   ADMIN = admin_id )

GRPALTUPD      = ( ID = tso_userid,
                   ADMIN = admin_id,
                   NAME = 'username' )

GRPDEL         = ( ( ADMIN = tso_userid | DEPARTMENT = saf_dept ),
                   GROUP = group_name )

HFSGRPADD      = ( ( ADMIN = tso_userid | DEPARTMENT = saf_dept ),
                   GROUP = group_name )

HFSGRPDEL      = ( ( ADMIN = tso_userid | DEPARTMENT = saf_dept ),
                   GROUP = group_name )

HFSMOVEGRP     = ( FROMDEPT = (tso_userid | saf_dept) ,
                   GROUP = group_name ,
                   TODEPT = (tso_userid | saf_dept) )

HFSMOVEOBJ     = ( FILENAME = ( '/path/file' ) ,
                   FROMDEPT = (tso_userid | saf_dept) ,
                   FROMGROUP = group_name ,
                   TODEPT = (tso_userid | saf_dept) ,
                   TOGROUP = group_name )

MLSDEFINE      = ( DSN = (partitioned_data_set),
                   MEMBER = (member_pattern),
                   ACCESSLIST = (userid1,userid2) | (racf_profile) )
```

```
MLSDELETE      = ( DSN = (partitioned_data_set),
                 MEMBER = (member_pattern) )

MOVEGRP        = ( FROMDEPT = (tso_userid | saf_dept) ,
                 GROUP = group_name ,
                 TODEPT = (tso_userid | saf_dept) )

MOVEOBJ        = ( DSN = dsn ,
                 FROMDEPT = (tso_userid | saf_dept) ,
                 FROMGROUP = group_name ,
                 TODEPT = (tso_userid | saf_dept) ,
                 TOGROUP = group_name ,
                 VOL = volser )

MREDEF         = ( DSN = partitioned_data_set_name,
                 MEMBER = member_name )

MREDEL         = ( DSN = partitioned_data_set_name,
                 MEMBER = member_name )


MRTDEF         = ( DSN = partitioned_data_set_name,
                 MEMBER = member_name )

MRTDEL         = ( DSN = partitioned_data_set_name,
                 MEMBER = member_name )

MRXDEF         = ( MEMBER = member_name )

MRXDEL         = ( MEMBER = member_name )

OMADMADD       = ( ID = tso_userid,
                 NAME = 'user_name' )

OMADMDEL       = ( ID = tso_userid )

OMADMUPD       = ( ID = tso_userid,
                 NAME = 'user_name' )

SHOW           = ( MLS,
                   MRE,
                   MRT.
                   MRX,
                   REBUILD )

SITEADMADD     = ( ID = siteadmin_profile_name,
                 NAME = 'id_name' )

SITEADMDEL     = ( ID = siteadmin_profile_name )

SITEADMUPD     = ( ID = siteadmin_profile_name,
                 NAME = 'id_name' )
```

```
USERADD        = ( DEPARTMENT = department_id,
                   (GROUP = group_name | HFSGROUP = group_name),
                    ID = tso_userid,
                    NAME =  'user_name' )
```

NOTE The SAF version of the USERADD command is:

```
USERADD = ( DEPARTMENT = department_id,
               (GROUP = group_name | HFSGROUP = group_name),
                PROFILE = saf_profile )
```

```
USERDEL        = ( DEPARTMENT = department_id,
                   (GROUP = group_name | HFSGROUP = group_name),
                    ID = tso_userid )
```

NOTE The SAF version of the USERDEL command is:

```
USERDEL = ( DEPARTMENT = department_id,
               (GROUP = group_name | HFSGROUP = group_name))
```

```
USERUPD        = ( DEPARTMENT = department_id,
                   (GROUP = group_name | HFSGROUP = group_name),
                    ID = tso_userid,
                    NAME = 'user_name' )
```

NOTE The SAF version of the USERUPD command is:

```
USERUPD = ( DEPARTMENT = department_id,
               (GROUP = group_name | HFSGROUP = group_name),
                PROFILE = saf_profile )
```

Change Tracking Administration Commands

Each of the Change Tracking Administration commands is described in detail on the following pages. A description of each of the parameters and subparameters, and examples are provided.

DEPTADD

The DEPTADD command defines a Department name to the tracking environment.

```
DEPTADD = ( DEPARTMENT = department_id,
               NAME = department_name )
```

The minimum abbreviation for this command is DEPTADD.

The following table describes the DEPTADD command parameters:

Parameter	Description
DEPARTMENT	Identifies the Department, a 16-character name that uniquely identifies the Department.
NAME	Describes the Department with a meaningful name.

Example

The following sequence of commands defines two Departments.

```
DEPTADD=(DEPARTMENT=DEPT001,NAME='Dev Department')
DEPTADD=(DEPARTMENT=DEPT046,NAME='Doc Department')
```

DEPTDEL

The DEPTADD command deletes a Department from the tracking environment.

```
DEPTDEL = ( DEPARTMENT = department_id )
```

The minimum abbreviation for this command is DEPTDEL.

The following table describes the DEPTADD command parameters:

Parameter	Description
DEPARTMENT	Identifies the Department, a 16-character name that uniquely identifies the Department.

Example

The following command deletes a Department.

```
DEPTDEL=DEPARTMENT=DEPTAPPL
```

DEPTUPD

The DEPTUPD command updates the name of an already defined Department.

```
DEPTUPD = ( DEPARTMENT = department_id,
            NAME = department_name )
```

The minimum abbreviation for this command is DEPTUPD.

The following table describes the DEPTUPD command parameters:

Parameter	Description
DEPARTMENT	Identifies the Department, a 16-character name that uniquely identifies the Department.
NAME	Specifies the new Department name.

Example

The following command updates a Department name.

```
DEPTUPD=(DEPARTMENT=USER001,NAME=App Department)
```

GRPADD

The GRPADD command defines a group name to the tracking environment.

A group may contain all data set types (VSAM, PS, DA, PDS(E)).

```
GRPADD = ( ( ADMIN = tso_userid | DEPARTMENT = saf_dept ),
           GROUP = group_name )
```

The minimum abbreviation for this command is GRPADD.

The following table describes the GRPADD command parameters:

Parameter	Description
ADMIN	For TSO ID security, specifies the TSO User ID of the administrator for the group. The default is the TSO User ID of the current job. ADMIN and DEPARTMENT are mutually exclusive.
DEPARTMENT	For SAF security, specifies the name of the Department to contain the Group. ADMIN and DEPARTMENT are mutually exclusive.
GROUP	Identifies the group by a meaningful name. This is an eight character name that uniquely identifies a collection of data sets that are to be added to this group. A volume group, for example, may be defined to indicate all data sets on a volume, to identify the group uniquely. The ADMIN/DEPARTMENT ID is attached to the group name (as a user) internally.

Example

The following sequence of commands defines six groups.

```
GRPADD=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=RESVOLGP)
GRPADD=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=APFGRP)
GRPADD=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=SYSIGRP)
GRPADD=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=PROCLIB)
GRPADD=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=CLIST)
GRPADD=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=APPLABC)
```

GRPADMADD

The GRPADMADD command assigns a Group Administrator to the object master database. The Site Administrator decides who the Group Administrators will be. This command can be executed only by the Site Administrator. Site Administrators can assign themselves as the Group Administrators.

```
GRPADMADD = ( ID = tso_userid,
              NAME = 'user_name' )
```

The following table describes the GRPADMADD command parameters:

Parameter	Description
ID	The ID parameter specifies the TSO UserID of the person that is to be assigned as the Group Administrator.
NAME	The NAME parameter specifies the name of the person assigned as the Group Administrator. This can be a maximum of twenty characters, enclosed in quotes.

Example

The following commands assign three Group Administrators on the object master:

```
GRPADMADD=(ID=someuser,NAME='Nicole Franklin')
GRPADMADD=(ID=thisuser,NAME='Larry Duke')
GRPADMADD=(ID=thatuser,NAME='Bill Able')
```

GRPADMDEL

The GRPADMDEL revokes a Group Administrator from the object master database.

This command can be executed only by the object master database administrator.

A Group Administrator can be deleted only after the groups they have defined are deleted.

```
GRPADMDEL = ( ID = tso_userid )
```

The following table describes the GRPADMDEL command parameters:

Parameter	Description
ID	The ID parameter specifies the TSO UserID of the person assigned as the Group Administrator.

Example

The following commands revoke the assigned Group Administrators from the object master:

```
GRPADMDEL=ID=thisuser
GRPADMDEL=ID=thatuser
```

GRPADMUPD

The GRPADMUPD command updates the name of a previously-assigned Group Administrator to the object master database.

This command can be executed by the Site Administrator only.

```
GRPADMUPD = ( ID = tso_userid,
              NAME = 'username' )
```

The following table describes the GRPADMUPD command parameters:

Parameter	Description
ID	Specifies the TSO UserID of the person assigned as the Group Administrator.
NAME	Specifies the new name of the previously-assigned Group Administrator. This can be a maximum of twenty characters, enclosed in quotes.

Example

The following command updates the name of a Group Administrator to the object master database.

```
GRPADMUPD=(ID=someuser,NAME='Henry Fox')
```

GRPALTADD

The GRPALTADD command assigns an alternate Group Administrator to a Group Administrator, which allows the alternate Group Administrator to access objects belonging to the Group Administrator.

```
GRPALTADD = ( ID = tso_userid,
              ADMIN = admin_id,
              NAME = 'user_name' )
```

GRPALTADD cannot be specified in the same job step with GRPADD, GRPADMADD, or USERADD.

The following table describes the GRPALTADD command parameters:

Parameter	Description
ID	The TSO User ID of the person to be assigned as an alternate Group Administrator.
ADMIN	The TSO User ID of the Group Administrator that the alternate Group Administrator may act as.
NAME	The name of the person to be assigned as an alternate Group Administrator. Maximum of twenty characters, enclosed in quotes.

Example

The following command assigns an alternate Group Administrator to a Group Administrator.

```
GRPALTADD=(ID=thisuser,ADMIN=thatuser,NAME='Nicole Franklin')
```

GRPALTDEL

The GRPALTDEL command removes an alternate Group Administrator from a Group Administrator.

```
GRPALTDEL = ( ID = tso_userid,
              ADMIN = admin_id )
```

The following table describes the GRPALTDEL command parameters:

Parameter	Description
ID	The TSO User ID of the alternate Group Administrator to be deleted.
ADMIN	The TSO User ID of the Group Administrator that the alternate Group Administrator is assigned to.

Example

The following command removes the alternate Group Administrator from the Group Administrator:

```
GRPALTDEL=(ID=thisuser,ADMIN=thatuser)
```

GRPALTUPD

The GRPALTUPD command updates the name of a previously-assigned alternate Group Administrator.

```
GRPALTUPD = ( ID = tso_userid,
              ADMIN = admin_id,
              NAME = 'username' )
```

The following table describes the GRPALTUPD command parameters:

Parameter	Description
ID	The TSO User ID of the alternate Group Administrator.
ADMIN	The TSO User ID of the Group Administrator that the alternate Group Administrator is assigned to.
NAME	The new name of the alternate Group Administrator. Maximum of twenty characters, enclosed in quotes.

Example

The following command updates the name of an alternate Group Administrator.

```
GRPALTUPD=(ID=thisuser,ADMIN=thatuser,NAME='Nicole Fox')
```

GRPDEL

The GRPDEL command deletes all objects from the group, revokes all users authorities from the group, then removes the group from the object master database. Use this

parameter only if the entire group (and its associations) should be removed from the system.

This command is an enhancement to the online Option 7 (Delete Groups) function, which requires all users and objects to be removed from tracking before the group can be deleted.

```
GRPDEL = ( ( ADMIN = tso_userid | DEPARTMENT = saf_dept ),
           GROUP = group_name )
```

The following table describes the GRPDEL command parameters:

Parameter	Description
ADMIN	For TSO ID security, specifies the TSO User ID of the administrator who created the group. The default is the TSO User ID of the current job. ADMIN and DEPARTMENT are mutually exclusive.
DEPARTMENT	For SAF security, specifies the name of the Department which contains the Group. ADMIN and DEPARTMENT are mutually exclusive.
GROUP	The GROUP parameter specifies an existing group name to be deleted.

Example

The following sequence of commands deletes the tracked objects from the groups, revokes the users from the groups, and removes the groups from the object master database.

```
GRPDEL=(GROUP=APFGRP,
        DEPARTMENT=SALESINTL)
GRPDEL=(GROUP=SYS1GRP,
        DEPARTMENT=ACTSRCV)
```

HFSGRPADD

The HFSGRPADD command defines an HFS group name to the tracking environment.

```
HFSGRPADD = ( ( ADMIN = tso_userid | DEPARTMENT = saf_dept ),
              GROUP = group_name )
```

The minimum abbreviation for this command is HFSGRPA.

The following table describes the HFSGRPADD command parameters:

Parameter	Description
ADMIN	For TSO ID security, specifies the TSO User ID of the administrator for the group. The default is the TSO User ID of the current job. ADMIN and DEPARTMENT are mutually exclusive.
DEPARTMENT	For SAF security, specifies the name of the Department to contain the Group. ADMIN and DEPARTMENT are mutually exclusive.
GROUP	Identifies the group by a meaningful name. This is an eight character name that uniquely identifies a collection of files that are to be added to this group.

Example

The following sequence of commands defines two groups.

```
HFSGRPADD=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=APFGRP)
HFSGRPADD=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=SYSIGRP)
```

HFSGRPDEL

The HFSGRPDEL command deletes all objects from the group, revokes all users authorities from the group, then removes the group from the object master database. Use this parameter only if the entire group (and its associations) should be removed from the system.

This command is an enhancement to the online Option 7 (Delete Groups) function, which requires all users and objects to be removed from tracking before the group can be deleted.

```
HFSGRPDEL = ( ( ADMIN = tso_userid | DEPARTMENT = saf_dept ),
              GROUP = group_name )
```

The minimum abbreviation for this command is HFSGRPD.

The following table describes the HFSGRPDEL command parameters:

Parameter	Description
ADMIN	For TSO ID security, specifies the TSO User ID of the administrator who created the group. The default is the TSO User ID of the current job. ADMIN and DEPARTMENT are mutually exclusive.
DEPARTMENT	For SAF security, specifies the name of the Department which contains the Group. ADMIN and DEPARTMENT are mutually exclusive.
GROUP	The GROUP parameter specifies an existing group name to be deleted.

Example

The following sequence of commands deletes the tracked objects from the groups, revokes the users from the groups, and removes the groups from the object master database.

```
HFSGRPDEL=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=APFGRP)
HFSGRPDEL=(DEPARTMENT=SOFTWAREDEVELOP,GROUP=SYSIGRP)
```

HFSMOVEGRP

The HFSMOVEGRP command moves an HFS group and its components from one department to another. The administrator must have Department Administrator authority for both departments to issue the command.

The target department must already be defined and must not already contain a Group with the same name as the Group being moved.

The source and target departments can be SAF-based or TSO-based, with the exception that a move from a SAF-based department to a TSO-based department is not allowed.

The HFSMOVEGRP command can also be issued using Option 9 (Move HFS Group) on the Department Administrator menu.

```
HFSMOVEGRP    = ( FROMDEPT = (tso_userid | saf_dept) ,
                  GROUP = group_name ,
                  TODEPT = (tso_userid | saf_dept) )
```

The minimum abbreviation for this command is HFSMOVEG.

The following table describes the HFSMOVEGRP command parameters:

Parameter	Description
FROMDEPT	The Department name from which the Group will be moved. Enter a TSO User ID or a SAF department.
GROUP	The Group name to be moved.
TODEPT	The Department name to which the Group will be moved. **NOTE** A move from a SAF-based department to a TSO-based department is not allowed.

HFSMOVEOBJ

The HFSMOVEOBJ command moves HFS objects from one change tracking group to another.

The source and target change tracking group can be a SAF-based or TSO-based department (administrator), with the exception that a move from a SAF-based department to a TSO-based department is not allowed.

The HFSMOVEOBJ command can also be issued using Option M (Move HFS Objects) on the HFS Group Admin menu.

```
HFSMOVEOBJ    = ( FILENAME = ( '/path/file' ) ,
                  FROMDEPT = (tso_userid | saf_dept) ,
                  FROMGROUP = group_name ,
```

```
                         TODEPT = (tso_userid | saf_dept) ,
                         TOGROUP = group_name )
```

The minimum abbreviation for this command is HFSMOVEO.

The following table describes the HFSMOVEOBJ command parameters:

Parameter	Description
FILENAME	The explicit path name of the Object to be moved.
FROMDEPT	The Department name from which the Objects will be moved. Enter a TSO User ID or a SAF department.
FROMGROUP	The Group name from which the Objects will be moved.
TODEPT	The Department name to which the Objects will be moved. **NOTE** A move from a SAF-based department to a TSO-based department is not allowed.
TOGROUP	The Group name to which the Objects will be moved.

MLSDEFINE

The MLSDEFINE command defines a new protected entity to member level security (MLS).

This command is an alternative to the online Option 1 (Define Protected Entities) or Option 4 (Update MLS Protected Entities) functions under the Member-Level Security Administrator menu.

```
    MLSDEFINE = ( DSN = (partitioned_data_set),
                  MEMBER = (member_pattern),
                  ACCESSLIST = (userid1,userid2) | (racf_profile) )
```

The protected entity is defined as the concatenation of the DSN and MEMBER parameters.

The following table describes the MLSDEFINE command parameters:

Parameter	Description
DSN	The DSN parameter specifies a data set name.

Parameter	Description
MEMBER	The MEMBER parameter specifies one of the following: ■ an explicit member name. ■ a member name pattern ending with *. ■ * to indicate all members.
ACCESSLIST	The ACCESSLIST parameter is specified as follows, depending on which MLS method is enabled: ■ If the Internal method is enabled (by specifying RTORACFID=NO in HPSPARMS), specify a list of users who are authorized to edit members defined through this protected entity. A User ID of NONE restricts access from all User IDs, thus preventing editing of the member by any User ID. ■ If the SAF method is enabled (by specifying RTORACFID=YES in HPSPARMS), specify a single RACF profile name which is defined in the security class specified in the RTOCLASS parameter in HPSPARMS. The profile name is limited to a maximum of 16 characters.

Examples

The following sequence of commands defines two protected entities, assuming the Internal method is enabled.

```
MLSDEFINE=(DSN=SYS1.PROD,
           MEMBER=PROD*,
           ACCESSLIST=(USER54,USER117))
MLSDEFINE=(DSN=FROZEN.LIBRARY,
           MEMBER=*,
           ACCESSLIST=(NONE))
```

The following sequence of commands defines one protected entity, assuming the SAF method is enabled.

```
MLSDEFINE=(DSN=SYS1.PROD,
           MEMBER=PROD*,
           ACCESSLIST=(PROF1))
```

MLSDELETE

The MLSDELETE command deletes a protected entity from member level security (MLS).

This command is an alternative to the online Option 2 (Delete Protected Entities) or Option 4 (Update MLS Protected Entities) functions under the Member-Level Security Administrator menu.

```
            MLSDELETE = ( DSN = (partitioned_data_set),
                          MEMBER = (member_pattern) )
```

The following table describes the MLSDELETE command parameters:

Parameter	Description
DSN	The DSN parameter specifies a data set name.
MEMBER	The MEMBER parameter specifies one of the following: an explicit member name. a member name pattern ending with *. * to indicate all members.

Example

The following sequence deletes two protected entities.

```
    MLSDELETE=(DSN=SYS1.PROD,
               MEMBER=PROD*)
    MLSDELETE=(DSN=FROZEN.LIBRARY,
               MEMBER=*)
```

MOVEGRP

The MOVEGRP command moves a group and its components from one department to another. The administrator must have Department Administrator authority for both departments to issue the command.

The target department must already be defined and must not already contain a Group with the same name as the Group being moved.

The source and target departments can be SAF-based or TSO-based, with the exception that a move from a SAF-based department to a TSO-based department is not allowed.

A group can also be moved using Option 8 (Move Group) on the Department Administrator menu.

```
    MOVEGRP    = ( FROMDEPT = (tso_userid | saf_dept) ,
                   GROUP = group_name ,
                   TODEPT = (tso_userid | saf_dept) )
```

The following table describes the MOVEGRP command parameters:

Parameter	Description
FROMDEPT	The Department name from which the Group will be moved. Enter a TSO User ID or a SAF department.
GROUP	The Group name to be moved.
TODEPT	The Department name to which the Group will be moved. **NOTE** A move from a SAF-based department to a TSO-based department is not allowed.

MOVEOBJ

The MOVEOBJ command moves an object from one change tracking group to another.

The source and target change tracking group can be a SAF-based or TSO-based department (administrator), with the exception that a move from a SAF-based department to a TSO-based department is not allowed.

The MOVEOBJ command can also be issued using Option M (Move Objects) on the Group Admin menu.

```
MOVEOBJ   = ( DSN = dsn ,
              FROMDEPT = (tso_userid | saf_dept),
              FROMGROUP = group_name ,
              TODEPT = (tso_userid | saf_dept) ,
              TOGROUP = group_name ,
              VOL = volser )
```

The following table describes the MOVEOBJ command parameters:

Parameter	Description
DSN	The explicit data set name of the Object to be moved.
FROMDEPT	The Department name from which the Objects will be moved. Enter a TSO User ID or a SAF department.
FROMGROUP	The Group name from which the Objects will be moved.
TODEPT	The Department name to which the Objects will be moved. **NOTE** A move from a SAF-based department to a TSO-based department is not allowed.
TOGROUP	The Group name to which the Objects will be moved.
VOL	Specify an explicit volume serial number. The VOL parameter applies only to the DSN parameter, and only if the data set is uncataloged.

MREDEF

The MREDEF command defines specific data set and member name patterns to be excluded from the Member Reference Tracking system (MRT).

This command is an alternative to specifying X in the *Type* field using the online Option 2 (Update MRT) under the Member Reference Tracking Admin Menu.

```
MREDEF = ( DSN = partitioned_data_set_name,
           MEMBER = member_name )
```

The following table describes the MREDEF command parameters:

Parameter	Description
DSN	The DSN parameter specifies one of the following: ■ an explicit data set name ■ a data set name pattern ending with an asterisk
MEMBER	The MEMBER parameter specifies one of the following: ■ an explicit member name ■ a member name pattern ending with an asterisk ■ a single asterisk or space to indicate all members

Example

The following sequence of commands defines two entities to be excluded by the MRT system.

```
MREDEF=(DSN=SYS1.PROD,
        MEMBER=PRODIMP)
MREDEF=(DSN=FROZEN.LIBRARY,
        MEMBER=DATERTN)
```

MREDEL

The MREDEL command deletes excluded DSN/member entities from the Member Reference Tracking system (MRT).

This command is an alternative to deleting an excluded entry using the online Option 2 (Update MRT) under the Member Reference Tracking Admin Menu.

```
MREDEL = ( DSN = partitioned_data_set_name,
           MEMBER = member_name )
```

The following table describes the MREDEL command parameters:

Parameter	Description
DSN	The DSN parameter specifies one of the following: ■ an explicit data set name ■ a data set name pattern ending with an asterisk
MEMBER	The MEMBER parameter specifies one of the following: ■ an explicit member name ■ a member name pattern ending with an asterisk ■ a single asterisk or space to indicate all members

> **NOTE** If you enter a pattern name with an asterisk, only the pattern name is deleted. For example, if you enter member name pattern *PROD**, the *PROD** entry is deleted; but if there are also entries for explicit member names, such as PRODIMP and PRODEXP, they will *not* be deleted.

Example

The following sequence of commands deletes excluded entities from the MRT system.

```
MREDEL=(DSN=SYS1.PROD,
        MEMBER=PRODIMP)
MREDEL=(DSN=FROZEN.LIBRARY,
        MEMBER=DATERTN)
```

MRTDEF

The MRTDEF command defines data set and member name patterns to be tracked by the Member Reference Tracking system (MRT).

This command is an alternative to defining included data set and member name patterns using the online Option 2 (Update MRT) under the Member Reference Tracking Admin Menu.

```
MRTDEF = ( DSN = partitioned_data_set_name,
           MEMBER = member_name )
```

The following table describes the MRTDEF command parameters:

Parameter	Description
DSN	The DSN parameter specifies one of the following: ■ an explicit data set name ■ a data set name pattern ending with an asterisk
MEMBER	The MEMBER parameter specifies one of the following: ■ an explicit member name ■ a member name pattern ending with an asterisk ■ a single asterisk or space to indicate all members

Example

The following sequence of commands defines two entities to be tracked by the MRT system.

```
MRTDEF=(DSN=SYS1.PROD,
        MEMBER=PROD*)
MRTDEF=(DSN=FROZEN.LIBRARY,
        MEMBER=*)
```

MRTDEL

The MRTDEL command deletes entities from the Member Reference Tracking system (MRT).

This command is an alternative to deleting included data set and member name patterns using the online option 2 (Update MRT) under the Member Reference Tracking Admin Menu.

```
MRTDEL = ( DSN = partitioned_data_set_name,
           MEMBER = member_name )
```

The following table describes the MRTDEL command parameters:

Parameter	Description
DSN	The DSN parameter specifies one of the following: ■ an explicit data set name ■ a data set name pattern ending with an asterisk
MEMBER	The MEMBER parameter specifies one of the following: ■ an explicit member name ■ a member name pattern ending with an asterisk ■ a single asterisk or space to indicate all members

NOTE If you enter a pattern name with an asterisk, only the pattern name is deleted. For example, if you enter member name pattern *PROD**, the *PROD** entry is deleted; but if there are also entries for explicit member names, such as PRODIMP and PRODEXP, they will *not* be deleted.

Example

The following sequence of commands deletes entities defined to the MRT system.

```
MRTDEL=(DSN=SYS1.PROD,
        MEMBER=PROD*)
MRTDEL=(DSN=FROZEN.LIBRARY,
        MEMBER=*)
```

MRXDEF

The MRXDEF command defines member/pattern names to be excluded from the Member Reference Tracking system (MRT).

This command is an alternative to the online Option 4 function (Update MRT Exclusions) under the Member Reference Tracking Admin Menu.

```
MRXDEF = ( MEMBER = member_name )
```

The following table describes the MRXDEF command parameter:

Parameter	Description
MEMBER	The MEMBER parameter specifies one of the following: ■ an explicit member name ■ a member name pattern ending with an asterisk

Example

In the following example, the member ALLOC and all members that start with the letters DFH will be excluded from the MRT system.

```
MRXDEF=(MEMBER=ALLOC)
MRXDEF=(MEMBER=DFH*)
```

MRXDEL

The MRXDEL command deletes member/pattern names that were defined as excluded from the Member Reference Tracking system (MRT).

This command is an alternative to the online Option 4 function (Update MRT Exclusions) under the Member Reference Tracking Admin Menu.

```
MRXDEL = ( MEMBER = member_name )
```

The following table describes the MRXDEL command parameter:

Parameter	Description
MEMBER	The MEMBER parameter specifies one of the following: ■ an explicit member name ■ a member name pattern ending with an asterisk

NOTE If you enter a pattern name with an asterisk, only the pattern name is deleted. For example, if you enter member name pattern *PROD**, the *PROD** entry is deleted; but if there are also entries for explicit member names, such as PRODIMP and PRODEXP, they will *not* be deleted.

Example

In the following example, the member name FREE and the member name pattern IDC* will be deleted from the Excluded Member list in the MRT system.

```
MRXDEL=(MEMBER=FREE)
MRXDEL=(MEMBER=IDC*)
```

OMADMADD

The OMADMADD command assigns the Site Administrator to this object master database. At least two Site Administrators should be designated.

This command can be executed only by the Site Administrator.

```
OMADMADD = ( ID = tso_userid,
             NAME = 'user_name' )
```

The following table describes the OMADMADD command parameters:

Parameter	Description
ID	The ID parameter specifies the TSO UserID of the person assigned as the Site Administrator.
NAME	The NAME parameter specifies the name of the person assigned as the Site Administrator. This can be a maximum 20 characters, enclosed in quotes.

Example

The following commands assign three Site Administrators to the object master database.

```
OMADMADD=(ID=someuser,NAME='Joe Fox')
OMADMADD=(ID=someuser,NAME='Nicole Franklin')
OMADMADD=(ID=someuser,NAME='Bill Able')
```

OMADMDEL

The OMADMDEL revokes (removes) the Site Administrator from the object master database. This command can be executed only by the Site Administrator.

```
OMADMDEL = ( ID = tso_userid )
```

The following table describes the OMADMDEL command parameters:

Parameter	Description
ID	The ID parameter specifies the TSO UserID of the person assigned as the Site Administrator.

Example

The following command revokes the Site Administrator from the object master database:

```
OMADMDEL=(ID=someuser)
```

OMADMUPD

The OMADMUPD command updates the name of the Site Administrator for this object master. This command can be executed only by the Site Administrator.

```
OMADMUPD = ( ID = tso_userid,
             NAME = 'user_name' )
```

The following table describes the OMADMUPD command parameters:

Parameter	Description
ID	TSO UserID of the person assigned as the Site Administrator.
NAME	Name of the person assigned as a Site Administrator. This can be a maximum twenty characters, enclosed in quotes.

Example

The following command updates the name of the previously-assigned Site Administrator.

```
OMADMUPD=(ID=someuser,NAME='Henry Jackson')
```

SHOW

The SHOW command issued with no parameters displays the entire hierarchy of administrators, object groups, users, and tracked objects in the object master database.

This command is not a restricted service; it can be executed by any user.

```
SHOW      = ( MLS,
              MRE,
              MRT.
              MRX,
              REBUILD )
```

The following optional parameters are used to list only specific items:

Parameter	Description
MLS	Lists all protected entities defined to member level security.
MRE	Lists specific data set names/patterns and member names/patterns excluded from tracking by MRT.
MRT	Lists data set names/patterns and member names/patterns being tracked by MRT.
MRX	Lists member names and patterns excluded from tracking by MRT.

REBUILD Parameter

The REBUILD parameter enables the reconstruction of an existing environment on another sysplex.

The REBUILD parameter parses the output of a SHOW report and converts that output into a control card stream suitable for input to HPSTRACK. The generated commands in the control card stream can then be edited as needed and the resulting job input to HPSTRACK on the target sysplex.

REBUILD requires a //REBUILD DD statement which defines the output file. The RECFM and LRECL values are hard-coded in the program, but the statement must supply a DCB=BLKSIZE=nnnnn parameter where nnnnn must be some multiple of 80.

If the //REBUILD DD statement is missing or the file cannot be opened, the REBUILD parameter is ignored.

Examples

The following commands list only those items for MLS, MRE, MRT, and MRX.

```
SHOW=MLS
SHOW=MRE
SHOW=MRT
SHOW=MRX
```

The following command displays the entire hierarchy of administrators, object groups, users, and tracked objects in the object master database. Additionally, the output is parsed and converted into a control card stream suitable for input to HPSTRACK.

```
SHOW=REBUILD
```

SITEADMADD

The SITEADMADD command assigns a Site Administrator.

```
SITEADMADD = ( ID = siteadmin_profile_name,
               NAME = 'description' )
```

The following table describes the SITEADMADD command parameters:

Parameter	Description
ID	Identifies the Site Administrator profile name, which is specified in the CTSITEADMIN parameter in HPSPARMS, up to 16 bytes long if SAF authority is in effect.
NAME	Describes the Site Administrator profile with a meaningful name.

Example

The following commands assign three Group Administrators on the object master:

```
SITEADMADD=(ID=SITEADMINS,NAME='Site Admins')
```

SITEADMDEL

The SITEADMDEL revokes a Site Administrator.

```
SITEADMDEL = ( ID = siteadmin_profile_name )
```

The following table describes the SITEADMDEL command parameters:

Parameter	Description
ID	Identifies the Site Administrator profile name, which is specified in the CTSITEADMIN parameter in HPSPARMS, up to 16 bytes long if SAF authority is in effect.

Example

The following command deletes a Site Administrator profile.

```
SITEADMDEL=ID=SITEADMINS
```

SITEADMUPD

The SITEADMUPD command updates the description of a previously-assigned Site Administrator profile.

```
SITEADMUPD = ( ID = siteadmin_profile_name,
               NAME = 'description' )
```

The following table describes the SITEADMUPD command parameters:

Parameter	Description
ID	Identifies the Site Administrator profile name, which is specified in the CTSITEADMIN parameter in HPSPARMS.
NAME	Describes the Site Administrator profile with a meaningful name.

Example

The following command updates the description of the Site Administrator profile.

```
SITEADMUPD=(ID=SITEADMINS,NAME='Site Administrators')
```

USERADD

USERADD authorizes a user to work on an object group. The Group Administrator determines the users of a group.

This command can be executed only by the Group Administrator. When a Department Administrator defines a Group, that administrator automatically becomes a user in the group.

```
USERADD = ( DEPARTMENT = department_id,
            (GROUP = group_name | HFSGROUP = group_name),
             ID = tso_userid,
             NAME =  'user_name' )
```

The following table describes the USERADD parameters:

Parameter	Description
DEPARTMENT	Identifies the Department, a 16-character name that uniquely identifies the Department
GROUP	Specifies the non-HFS group to which authorization is to be granted. GROUP and HFSGROUP are mutually exclusive.
HFSGROUP	Specifies the HFS group to which authorization is to be granted. GROUP and HFSGROUP are mutually exclusive.

Parameter	Description
ID	Specifies the TSO UserID of the person to be assigned as a user.
NAME	Specifies the name of the person to be assigned as a user. This can be a maximum twenty characters, enclosed in quotes.

Example

The following commands assign three users to perform functions on the object group specified.

```
USERADD=(DEPARTMENT=APPLDPT,GROUP=APPL1,ID=someuser,
        NAME='Joe Fox')
USERADD=(DEPARTMENT=APPLDPT,GROUP=APPL2,ID=someuser,
        NAME='Nicole Franklin')
USERADD=(DEPARTMENT=APPLDPT,GROUP=APPL3,ID=someuser,
        NAME='Bill Able')
```

SAF Command

The SAF version of the USERADD command is:

```
USERADD = ( DEPARTMENT = department_id,
            (GROUP = group_name | HFSGROUP = group_name),
             PROFILE = saf_profile )
```

USERDEL

The USERDEL command revokes the authority of a user to perform functions in a group. This command can be executed by the Group Administrator only.

```
USERDEL = ( DEPARTMENT = department_id,
            (GROUP = group_name | HFSGROUP = group_name),
             ID = tso_userid )
```

The GROUP/HFSGROUP and ID parameters are required.

The following table describes the USERDEL command parameters:

Parameter	Description
DEPARTMENT	Identifies the Department, a 16-character name that uniquely identifies the Department
GROUP	Specifies the non-HFS group to which authorization is to be removed. GROUP and HFSGROUP are mutually exclusive.
HFSGROUP	Specifies the HFS group to which authorization is to be removed. GROUP and HFSGROUP are mutually exclusive.
ID	Specifies the TSO UserID of the person to be removed.

The following commands revoke the user's authorities from the specified groups.

```
USERDEL=(DEPARTMENT=APPLDPT,GROUP=APPL1,ID=USER12)
USERDEL=(DEPARTMENT=APPLDPT,GROUP=APPL2,ID=USER13)
USERDEL=(DEPARTMENT=APPLDPT,GROUP=APPL3,ID=USER17)
```

SAF Command

The SAF version of the USERDEL command is:

```
USERDEL = ( DEPARTMENT = department_id,
            (GROUP = group_name | HFSGROUP = group_name))
```

USERUPD

The USERUPD command updates a user name of a previously-authorized user. This command can be executed by the Group Administrator only.

```
USERUPD = ( DEPARTMENT = department_id,
            (GROUP = group_name | HFSGROUP = group_name),
             ID = tso_userid,
             NAME = 'user_name' )
```

The GROUP/HFSGROUP, ID, and NAME parameters are required.

The following table describes the USERUPD command parameters:

Parameter	Description
DEPARTMENT	Identifies the Department, a 16-character name that uniquely identifies the Department
GROUP	Specifies the non-HFS group to which authorization has been granted. GROUP and HFSGROUP are mutually exclusive.
HFSGROUP	Specifies the HFS group to which authorization has been granted. GROUP and HFSGROUP are mutually exclusive.
ID	Specifies the TSO UserID of the person assigned as a user.
NAME	Specifies the new (or updated) name of the assigned user. This can be a maximum twenty characters, enclosed in quotes.

Example

The following command updates the user name.

```
USERUPD=(DEPARTMENT=APPLDPT,GROUP=APFGRP,ID=someuser,
         NAME='Henry Jackson')
```

SAF Command

The SAF version of the USERUPD command is:

```
USERUPD = ( DEPARTMENT = department_id,
            (GROUP = group_name | HFSGROUP = group_name)),
             PROFILE = saf_profile )
```

Administration Commands Sample JCL

This example job shows how to set up a minimum administrative environment for the Change Tracking Component. This JCL can be found in the $ADMSET member in the INSTALL library.

Section 1 of the example shows how to use the administrative commands for SAF security; Section 2 shows how to use the administrative commands for TSO UserID Security.

```
//jobname  JOB
//*
//**********************************************************************
//*  This job sets up a minimum administrative environment for the
//*   Change Tracking component.
//*
//*  If you will be using SAF authority checking, create a job
//*   consisting of Section 1 of this member only.
//*
//*  If you will be using only TSO ID authority, create a job
//*   consisting of Section 2 of this member only.
//*
//**********************************************************************
//*
//* Section 1 - Use SAF Authority Checking
//*
//**********************************************************************
//*
//*  Two sample Departments are defined by this job:
//*
//*      "Department1" and "Department2".
//*
//*  Two sample Groups are defined in "Department1" by this job:
//*
//*      "Group1" and "Group2".
//*
//*
//*  Before submitting this job, create the following SAF definitions:
//*
//* 1.  Define a Class whose name matches the value specified in
//*      the CTCLASS parameter in HPSPARMS.  Activate the class.
//*
//* 2.  Define a Profile in that class whose name matches the
//*      value specified in the CTSITEADMIN parameter in HPSPARMS.
//*
//* 3.  Grant UPDATE authority to that profile to one or more
//*      TSO Id's that will act as Site Administrator.
//*
//* 4.  Define two Profiles in that class named "Department1" and
//*      "Department2" (fill in department names of your choosing).
//*
//* 5.  Grant ALTER authority to these profiles to one or more
//*      TSO Id's that will act as Department Administrators.
//*
//* 6.  Grant UPDATE authority to the "Department1" profile to one or
//*      more TSO Id's that will act as Group Administrator for that
//*      department.
//*
//*
```

```
//*   Make the following changes in Section 1:
//*
//*           CAPS ON;
//*           X ALL; F somnode ALL;
//*                   change as required.
//*
//*           X ALL; F SiteAdmPrf;
//*                   Change this to match the value specified in the
//*                   CTSITEADMIN parameter in HPSPARMS.
//*
//*           X ALL; F Department1 all;
//*                   Specify the name of the first department to be
//*                   defined.  This name may be from 1 to 16 alpha-
//*                   numeric characters.
//*
//*           X ALL; F Department2 all;
//*                   Specify the name of the second department to be
//*                   defined.
//*
//*           X ALL; F Group1 all;
//*                   Specify the name of the first group to be defined
//*                   in "Department1".  This name may be from 1 to 8
//*                   alpha-numeric characters.
//*
//*           X ALL; F Group2 all;
//*                   Specify the name of the second group to be defined
//*                   in "Department1".
//*
//* ----------------------------------------------------------------
//*
//*           X ALL; f tsoid2 all;
//*                   Specify the TSO Id of someone who will have Change
//*                   Tracking User authority only - for "Group1" in
//*                   "Department1".
//*
//*           NOTE:   NAME can be a maximum 20 characters, mixed case,
//*                   and may contain spaces between words.
//*
//*
//* Alternatively, by setting the CTUSERSAFAUTH parameter in HPSPARMS
//* to YES, Change Tracking User authority to a Group can be managed
//* by associating a SAF profile with the Group, and granting Users
//* READ authority to that profile: see "GroupProfileName" (below).
//*
//* ----------------------------------------------------------------
//*
//*
//*   DESCRIPTIONS:
//*   -------------
//*
//*   STEP1:  This step assigns the CTSITEADMIN parameter value from
//*           HPSPARMS which is used to identify Site Administrators.
//*
//*           This step must be submitted by someone who has at least
//*           UPDATE authority to the SAF Profile of the same name
//*           (usually the product installer).
//*
//*
//*   STEP2:  In this step, the Site Administrator creates one
//*           or more Departments.
//*
//*           This step must be submitted by a Site Administrator.
//*
//*
```

```
//*  STEP3:  In this step, the Department Administrator defines one or
//*          more groups and assigns users to work with those groups.
//*
//*          Define 2 Groups (command GRPADD)
//*          Authorize a second user of the groups (command USERADD)
//*
//*          This step must be submitted by a Department Administrator.
//*
//*
//*  NOTE:   This job assumes that the submitter has SAF authority for
//*  -----   all the administrative roles:
//*                  o  Site Admin
//*                  o  Department Admin
//*                  o  Group Admin
//*
//*-------------------------------------------------------------------
//*
//*
//*-------------------------------------------------------------------
//*
//JOBLIB   DD  DISP=SHR,DSN=CMNDEV.SSM83U.LOAD
//         DD  DISP=SHR,DSN=SERPRD.LICENSE.LINKLIB
//*        DD  DISP=SHR,DSN=STRPRD.SERCOMC.LOAD
//*
//STEP1    EXEC PGM=HPSTRACK,REGION=4M
//HPSPLIB  DD  DISP=SHR,DSN=CMNDEV.SSM83U.PARMLIB(HPSPARMS)
//SERLIC   DD  DISP=SHR,DSN=CMNDEV.SSM83U.LICENSE.DATA
//SYSPRINT DD  SYSOUT=*
//HPSIN    DD  *
SITEADMADD=(ID=SSMADMIN,NAME='Site Administrators')
//*
//STEP2    EXEC PGM=HPSTRACK,REGION=4M
//HPSPLIB  DD  DISP=SHR,DSN=CMNDEV.SSM83U.PARMLIB(HPSPARMS)
//SERLIC   DD  DISP=SHR,DSN=CMNDEV.SSM83U.LICENSE.DATA
//SYSPRINT DD  SYSOUT=*
//HPSIN    DD  *
DEPTADD=(DEPARTMENT=SERENA,NAME='Serena Internal')
DEPTADD=(DEPARTMENT=SOFTWAREDEVELOP,NAME='Software Development')
//*
//STEP3    EXEC PGM=HPSTRACK,REGION=4M
//HPSPLIB  DD  DISP=SHR,DSN=CMNDEV.SSM83U.PARMLIB(HPSPARMS)
//SERLIC   DD  DISP=SHR,DSN=CMNDEV.SSM83U.LICENSE.DATA
//SYSPRINT DD  SYSOUT=*
//HPSIN    DD  *
GRPADD=(DEPARTMENT=SERENA,GROUP=SALES)
GRPADD=(DEPARTMENT=SERENA,GROUP=PAYROLL)
*
* Uncomment the following lines if TSOID's are used to establish
*   User authority to Groups.
*
*USERADD=(DEPARTMENT=Department1,GROUP=Group1,                   <===
*         ID=tsoid2,NAME='User2 Name')                           <===
*
* Uncomment the following lines if SAF Profiles are used to establish
*   User authority to Groups.
*
*USERADD=(DEPARTMENT=Department1,GROUP=Group1,                   <===
*         PROFILE=GroupProfileName)                              <===
//*
*
USERADD=(DEPARTMENT=SERENA,GROUP=PAYROLL,
         ID=TMSMITH,NAME='Mary Smith')
//*
```

```
//**********************************************************************
//*
//* Section 2 - Use TSO ID authority
//*
//**********************************************************************
//*
//*
//*   Two sample groups are defined by this job:
//*         TESTGRP and SYSTEM.
//*
//*
//*   Make the following changes:
//*
//*           CAPS ON;
//*          X ALL; F somnode ALL;
//*                  change as required.
//*
//*          X ALL; F Userid1 ALL;
//*                  Specify your own TSO Userid (the TSOid that you
//*                  specified in the HPSPARMS member, for the
//*                  SITEADMINS parameter).
//*
//*          X ALL; F Userid2 ALL;
//*                  Specify the second TSO Userid that you specified
//*                  in the HPSPARMS member, for the SITEADMINS
//*                  parameter.
//*
//*          NOTE:   NAME can be a maximum 20 characters, mixed case,
//*                  and may contain spaces between words.
//*
//*   DESCRIPTIONS:
//*   -------------
//*
//*   STEP1:  This step assigns two TSOids as initial Object Master
//*           / Site Administrators.  These users will be able to
//*           define and delete Departments.
//*
//*           This step must be submitted by a Site-Master Admin
//*           (usually the product installer), defined as such in
//*           the SITEADMINS parameter in HPSPARMS.
//*
//*           NOTE:  There can be a maximum of five Site Admins.  If
//*                  you have not defined them all during the install,
//*                  you can define them in the future.  Refer to the
//*                  $ADMSET2 job.
//*
//*
//*   STEP2:  In this step, a Site Administrator defines one or
//*           more Departments.  The TSOid's named as Departments
//*           become the administrator of their department.  These
//*           users will be able to define and delete Groups.
//*
//*           Define two Departments (DEPTADD).
//*
//*           This step must be submitted by a Site Administrator.
//*
//*
//*   STEP3:  In this step, a Department Admin defines one or
//*           more Groups and assigns users to work with those groups.
//*
//*           Define 2 Groups (GRPADD).
//*           Authorize 2 users to work with the groups (USERADD).
//*
//*           This step must be submitted by a Department Administrator.
```

```
//*
//*
//*  NOTE:   This job assumes that the submitter (userid1) is defined
//*  -----   as a Site Admin in the SITEADMINS parameter in HPSPARMS.
//*
//*-----------------------------------------------------------------
//*
//*JOBLIB   DD  DSN=somnode.CMNSSM.LOAD,DISP=SHR                   <===
//*         DD  DSN=somnode.SERCOMC.LOAD,DISP=SHR                  <===
//*         DD  DSN=somnode.LICENSE.LOAD,DISP=SHR                  <===
//*
//*STEP1    EXEC PGM=HPSTRACK,REGION=4M
//*HPSPLIB  DD  DISP=SHR,DSN=SYS1.PARMLIB(HPSPARMS)                <===
//*SERLIC   DD  DISP=SHR,DSN=somnode.LICENSE.DATA                  <===
//*SYSPRINT DD  SYSOUT=*
//*HPSIN    DD  *
OMADMADD=(ID=Userid1,NAME='User-Name1')     OM / Site Admin1      <===
OMADMADD=(ID=Userid2,NAME='User-Name2')     OM / Site Admin2      <===
//*
//*STEP2    EXEC PGM=HPSTRACK,REGION=4M
//*HPSPLIB  DD  DISP=SHR,DSN=SYS1.PARMLIB(HPSPARMS)                <===
//*SERLIC   DD  DISP=SHR,DSN=somnode.LICENSE.DATA                  <===
//*SYSPRINT DD  SYSOUT=*
//*HPSIN    DD  *
DEPTADD=(ID=Userid1,NAME='User-Name1')      Department (Admin)    <===
DEPTADD=(ID=Userid2,NAME='User-Name2')      Department (Admin)    <===
//*
//*STEP3    EXEC PGM=HPSTRACK,REGION=4M
//*HPSPLIB  DD  DISP=SHR,DSN=SYS1.PARMLIB(HPSPARMS)                <===
//*SERLIC   DD  DISP=SHR,DSN=somnode.LICENSE.DATA                  <===
//*SYSPRINT DD  SYSOUT=*
//*HPSIN    DD  *
GRPADD=(GROUP=TESTGRP)                       Group                <===
GRPADD=(GROUP=SYSTEM)                        Group
*
USERADD=(GROUP=TESTGRP,ID=Userid2,NAME='User-Name2')  a 2nd User  <===
USERADD=(GROUP=SYSTEM,ID=Userid2,NAME='User-Name2')   a 2nd User  <===
//*
```

Member Reference Tracking - Report and File Maintenance

To see a report of data sets and members that have been referenced or not referenced, you can run a batch job to execute program HPSMRTRP. The JCL can be found in the MRTRP member of the INSTALL library.

The MRTRP job allows you to:

- Specify various filter parameters to select records from the MRTAUX3 VSAM file.

- Optionally archive and/or delete the selected records.

- Print the report and/or direct the report data to a sequential file.

- Optionally create a "Zero Reference" report which identifies tracked members in tracked data sets that were not referenced during a specified time period.

If you run the MRTRP job while the started task is up, you may want to perform a manual swap to ensure that the latest references are reported. To initiate a manual swap, issue the following command:

```
/F taskname,SYN,MRTSWAP
```

where *taskname* is the started task name, SYN is the application name, and MRTSWAP is the command name.

MRTRP JCL

Following is an example of the MRTRP member in the INSTALL library.

```
//jobname  JOB (accounting),'programmer',MSGCLASS=x,
//            MSGLEVEL=(1,1),NOTIFY=tsoid
//*
//*
//*      Member Reference Tracking - Report and File Maintenance
//*
//*
//* This job will produce a report of records selected from the
//* MRTAUX3 Vsam file.  It also allows for the optional archiving
//* and/or deletion of the selected records.  The ARCHIVE function
//* copies the selected records to a flat file which may be used,
//* for backup purposes, as input to an IDCAMS REPRO job to restore
//* the file.  The REPORT parameter controls the printing (or not)
//* of the report itself, and also allows the report data to be
//* directed to a sequential file which might be used as input to
//* a spreadsheet or other reporting tool.
//*
//* If ARCHIVE is requested, you must uncomment the SCRTCH1 step and
//* the AUX3OUT DD statement below - before running this job.
//*
//* If REPORT = FILE (or BOTH), you must uncomment the SCRTCH2 step
//* and the DATA DD statement below - before running this job.
//*
//*
//*SCRTCH1 EXEC PGM=IEFBR14
//*DD1      DD  DSN=somnode.CMNSSM.MRTAUX3.ARCHIVE.Dyymmdd,
//*             DISP=(MOD,DELETE),
//*             UNIT=SYSDA,SPACE=(TRK,1)
//*
//*SCRTCH2 EXEC PGM=IEFBR14
//*DD2      DD  DSN=somnode.CMNSSM.MRTDATA.Dyymmdd,
//*             DISP=(MOD,DELETE),
//*             UNIT=SYSDA,SPACE=(TRK,1)
//*
//PRINT    EXEC PGM=HPSMRTRP,REGION=40M
//STEPLIB  DD  DISP=SHR,DSN=somnode.CMNSSM.LOAD
//SITEMSTR DD  DISP=SHR,DSN=somnode.CMNSSM.SITE.MASTER
//MRTAUX3  DD  DISP=SHR,DSN=somnode.CMNSSM.MRTAUX3
//*AUX3OUT  DD  DSN=somnode.CMNSSM.MRTAUX3.ARCHIVE.Dyymmdd,
//*             DISP=(,CATLG),
//*             UNIT=SYSDA,SPACE=(TRK,(prim,sec)),
//*             DCB=(RECFM=FB,LRECL=164,BLKSIZE=nnnnn)
//*DATA     DD  DSN=somnode.CMNSSM.MRTDATA.Dyymmdd,
//*             DISP=(,CATLG),
//*             UNIT=SYSDA,SPACE=(TRK,(prim,sec)),
//*             DCB=(RECFM=FB,LRECL=140,BLKSIZE=nnnnn)
//REPORT   DD  SYSOUT=*
//SYSPRINT DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//HPSIN    DD  *

* Utilize from none to all of the parameters below.  All filters
* except FROM and TO may have a generic value (by specifying "*" as
* the final character).  If two (or more) filters are used, a record
* must meet both (all) criteria in order to be selected.  Put an "*"
* in column one (or remove the line) for a parm that is not needed.

* If FROM and/or TO are specified, a "yyyy/mm/dd" value must be given.
*   To further restrict the search to a specific time range, supply
*   an "_hh", "_hh:mm", or "_hh:mm:ss" value after the date, as shown
*   below.  For FROM, the default time is _00:00:00.  For TO, the
*   default is _23:59:59.
```

```
* If INCLUSIVE is specified, both FROM and TO must be specified.
*   This parameter will cause a given record to be selected only if
*    its First and Last Reference date/time values <both> lie between
*    the FROM and TO values supplied.

* If ZEROREF is specified, it should be the first parameter supplied.
*   This parameter will cause a "Zero Reference" report to be created,
*   which identifies all tracked members in all tracked datasets (after
*   filtering by DSNAME and/or MEMBER) which were NOT referenced during
*   the FROM/TO interval.  All parameters except DSNAME, MEMBER, FROM,
*   TO, INCLUSIVE and REPORT will be ignored with this option, and the
*   Member Reference Tracking report will not be produced.

*ZEROREF (Generates the Zero-Reference report)
 FROM     = yyyy/mm/dd_hh:mm:ss
 TO       = yyyy/mm/dd_hh:mm:ss
*INCLUSIVE   (see note above)
 DSNAME  =
 MEMBER  =
 SYSTEM  =
 VOLSER  =
 AUTHID  =
 JOBNAME =
 PROCSTEP=
 JOBSTEP =

*REPORT  = {PRINT|YES (default)} | FILE | BOTH | NO  (choose one)
*ARCHIVE (Causes selected records to be written to AUX3OUT)
*DELETE  (Causes selected records to be deleted from the MRTAUX3 file)
//*
```

Parameters

There are two types of parameters:

- Filter parameters to:
    - select records from the MRTAUX3 VSAM file.
    - optionally create a Zero Reference report.
- Processing parameters to:
    - archive and/or delete the selected records.
    - print and/or direct the report data to a sequential file.

Parameter Rules

1   You can specify from none to all of the parameters. However, if ZEROREF is specified, all parameters except DSNAME, MEMBER, FROM, TO, and REPORT will be ignored.

2   Parameters can be coded in any order.

3   For parameters not needed, you can do any of the following to ignore them:
    - Code an "*" in column one.
    - Leave the parameter value blank; for example, MEMBER =   .
    - Remove the line for the parameter.

4 All filters except FROM and TO may have a generic value (by specifying "*" as the final character).

5 If two (or more) filters are used, a record must meet both (all) criteria in order to be selected.

Filter Parameters

Parameter	Description
ZEROREF	Generates the Zero Reference report
<u>FROM</u> =	Specify a date in the format: *yyyy/mm/dd* To further restrict the search to a specific time range, supply *hh*, *hh:mm*, or *hh:mm:ss* after the date, as follows: *yyyy/mm/dd_hh:mm:ss* The default for *hh:mm:ss* is 00:00:00.
<u>TO</u> =	Specify a date in the format: *yyyy/mm/dd* To further restrict the search to a specific time range, supply *hh*, *hh:mm*, or *hh:mm:ss* after the date, as follows: *yyyy/mm/dd_hh:mm:ss* The default for *hh:mm:ss* is 23:59:59.
INCLUSIVE	If INCLUSIVE is specified, both FROM and TO must be specified as well. This parameter causes a given record to be selected only if its First and Last Reference date/time values lie between the FROM and TO values supplied.
<u>DSNA</u>ME =	Specify a partitioned data set name.
<u>MEMBER</u> =	Specify a member name.
<u>SYS</u>TEM =	Specify a system name.
<u>VOL</u>SER =	Specify a VOLSER.
<u>AUTHID</u> =	Specify an AUTHID.
<u>JOBNAME</u> =	Specify a job name.
<u>PROCSTEP</u> =	Specify a PROC step name.
<u>JOBSTEP</u> =	Specify a job step name.

Processing Parameters

Parameter	Description
REPORT =	Specify one of the following. The default is PRINT or YES. ■ PRINT or YES Indicates that report data is to be printed. ■ FILE Report data will be written *only* to the DATA DD statement. You must also uncomment the SCRTCH2 step and the DATA DD statement. ■ BOTH Report data will be written to the SYSPRINT DD statement *and* to the DATA DD statement. You must also uncomment the SCRTCH2 step and the DATA DD statement. ■ NO No report data will be produced. **NOTE** The sequential file produced when you specify FILE or BOTH contains only data (no column headers). There are record layouts for this file in the INSTALL library: AUX3DATA contains the layout for Assembler; AUX3DATC contains the layout for COBOL.
ARCHIVE	Causes selected records to be written to AUX3OUT. The data on the AUX3OUT file is in a format that can be used as input to an IDCAMS REPRO job; it can be copied to another MRTAUX3 VSAM file, or used to restore data to the original MRTAUX3 VSAM file. If you choose this parameter, you must also uncomment the SCRTCH1 step and the AUX3OUT DD statement before running the job.
DELETE	Causes selected records to be deleted from the MRTAUX3 file. **NOTE** Using this function requires update access to the MRTAUX3 file.

Report Sample

The following parameters were used to select records from the MRTAUX3 VSAM file and write a report to Sysout:

```
FROM    = 2009/07/03
TO      = 2009/07/03
DSNAME  = CMNDEV.CMN530*
MEMBER  = CMN*
```

It is not necessary to specify REPORT = PRINT because that is the default.

The following report was produced:

```
2009.192 15:47:37      ChangeMan SSM - Member Reference Tracking Data

Parameters Used:
   FROM:       2009/07/03_00:00
   TO:         2009/07/03_23:59
   DSN:        CMNDEV.CMN530*
   MEM:        CMN*


Data Set Name
              Member   Last Referenced      First Referenced    . . .Count

CMNDEV.CMN530.EXITS
              CMNEXINS 2009/07/03_10:29:19  2009/07/03_10:29:19  . . .    2
              CMNEXINS 2009/07/03_12:45:36  2009/07/03_12:45:36  . . .    1
              CMNEX001 2009/07/03_10:29:19  2009/07/03_10:29:19  . . .    4
              CMNEX001 2009/07/03_12:45:36  2009/07/03_12:45:36  . . .    4
              CMNEX009 2009/07/03_10:34:24  2009/07/03_10:29:19  . . .    1
              CMNEX009 2009/07/03_12:45:37  2009/07/03_12:45:37  . . .    1
              CMNEX014 2009/07/03_10:34:24  2009/07/03_10:29:19  . . .    2
              CMNEX014 2009/07/03_12:45:37  2009/07/03_12:45:37  . . .    1
              CMNEX023 2009/07/03_10:34:24  2009/07/03_10:29:19  . . .    3
              CMNEX023 2009/07/03_12:45:37  2009/07/03_12:45:37  . . .    3
              CMNEX028 2009/07/03_10:34:24  2009/07/03_10:29:21  . . .    4
              CMNEX028 2009/07/03_12:45:37  2009/07/03_12:45:37  . . .    1
              CMNEX033 2009/07/03_10:29:21  2009/07/03_10:29:21  . . .    1
              CMNEX033 2009/07/03_12:45:37  2009/07/03_12:45:37  . . .    2
              CMNEX035 2009/07/03_10:34:24  2009/07/03_10:29:21  . . .    1
              CMNEX035 2009/07/03_12:45:37  2009/07/03_12:45:37  . . .    1
              CMNEX101 2009/07/03_10:34:24  2009/07/03_10:29:21  . . .    3
              CMNEX101 2009/07/03_12:45:37  2009/07/03_12:45:37  . . .    3


CMNDEV.CMN530U.DEVCUST.PANELS
              CMNGGP03 2009/07/03_14:17:00  2009/07/03_14:17:00  . . .    3
              CMNGGP03 2009/07/03_14:10:02  2009/07/03_14:10:02  . . .    1
              CMNGLP03 2009/07/03_14:17:43  2009/07/03_14:17:43  . . .    2
              CMNGLP03 2009/07/03_14:10:03  2009/07/03_14:10:03  . . .    2
              CMN91123 2009/07/03_14:14:13  2009/07/03_14:14:13  . . .    4
              CMN91123 2009/07/03_14:15:14  2009/07/03_14:09:08  . . .    1
              CMN92110 2009/07/03_14:12:38  2009/07/03_14:12:38  . . .    1


   Total Records Read:      002658
                Selected:   000140
```

NOTE

The following fields were removed from the above report for illustration purposes:

- System (optional key field)

- Volser (optional key field)

- Authid (optional key field)

- Jobname (optional key field)

- ProcStep

- JobStep

If your MRTAUX3 VSAM file was defined with any of the optional key fields, you will see an asterisk to the left of those data fields on the report.

Chapter 4
Online Change Tracking

This chapter describes the ChangeMan SSM online change tracking functions, and includes step-by-step instructions for their use. These functions are accessed from the *Change Tracking User Menu* (Option C on the ChangeMan SSM Main Menu).

The change tracking component monitors data sets for change. When detected, the changed members are compressed and stored in the ChangeMan SSM delta master.

In addition to storing the changed object, the capture facility retrieves information (change events) about the object. The change events, which are stored in the site master, report data set and member-level change events in system and application software.

> **NOTE** The change tracking component intercepts all changes to datasets being tracked. However, it is possible for some changes that occur in rapid succession to be skipped while events are being recorded. For example, if member XYZ is updated by events A, B, and C within seconds of each other, it is possible that only events A and C will be recorded.

> **NOTE** When a tracked data set (PDS or PDSE) is deleted while the started task is up, the system will log a SCRATCH event, as expected, but it will also generate a member DELETE event for every member in the library.

Access Change Tracking Menus

Accessing a change tracking component menu is dependent upon your role. Unlike the change detection and synchronization components, the change tracking functions are available only to assigned users. A user can be assigned one or more of the following:

- Site Master Administrator. The initial site master administration is not necessary if the *$ADMSET* job was executed while installing the Change Tracking component.

- Department Administrator

- Group Administrator

- User

Another difference from the change detection and synchronization components is that the change tracking component has online administrative functions. These functions are accessed through administration menus.

When you log on to ChangeMan SSM, the ChangeMan SSM Main Menu displays:

```
HPS@PRI1 ---- ChangeMan SSM Main Menu (Ver 8.4.0)   Time: 13:49:14 ------------
Option ===>

 Select one of the highlighted functions:

 0 Options                      - Review or Modify Parameters

 A Administration               - Change Tracking Administrator Functions
 C Change Tracking              - History, Problem Determination, Recovery
 Z HFS Change Tracking          - HFS History, Problem Determination

 S Detection and Synchronization - Detect Changes and Synchronize MVS data
 H HFS - Detect and Synchronize  - Detect Changes and Synchronize HFS data
 D Data Extraction              - Extract Changed Data in KSDS, other VSAM,
                                  PS or DA files and Flattened Databases
 U Utilities                    - Utilities and Self-guided Product Demos

 X Exit
                            ChangeMan SSM
                Copyright (c) 1999-2013 - Serena Software, Inc.
                        All Rights Reserved.

 Press END to Exit
```

There are two access categories to non-administrative Change Tracking functions:

- TSO IDs assigned as a user with one or more administrative roles:

- Users assigned as a User with no administrative roles.

    The Administration option is displayed with a different color (low intensity blue). This indicates that these functions are not available.

    If the user is not defined as a user to any tracked group, then the Change Tracking option is not available.

Select C (Change Tracking). The *Change Tracking User Menu* displays.

```
HPSMENUU ------------ Change Tracking User Menu - USER001---------------------
Option ===>

1  Capture Object or Browse Events      - Make Object Tracking current
2  Capture Group and Browse Events      - Make Group Tracking current
3  Query Events and Report              - Show Events in an Object or Group

4  Recover Members                      - Recovery of changed members
5  Recover Entire PDS through Batch     - Recovery of all members to a date/time

6  Tracking Summary on an Object        - Object physical characteristics
7  Tracked Groups                       - List of Tracked Groups
8  Tracked Objects                      - Tracked Objects in all Groups

9  Compare Filtered Members             - Side by Side (Source or Load)

L  Load Tracking Data to a DB2 table    - Loads tracking data for DB2 query

V  View TSO notifications               - Receives RTO TSO notification messages

X  Exit

Press END to Exit
```

Exit Change Tracking Component

To exit the change tracking component from the Change Tracking User Menu, type X, then press Enter.

From the subordinate panels, press End to return to the Change Tracking User Menu, type X, then press Enter.

Select User Function

The Change Tracking User Menu is the primary panel for all non-administrative change tracking functions.

```
HPSMENUU ------------ Change Tracking User Menu - USER001 --------------------
Option ===>

1  Capture Object or Browse Events    - Make Object Tracking current
2  Capture Group and Browse Events    - Make Group Tracking current
3  Query Events and Report            - Show Events in an Object or Group

4  Recover Members                    - Recovery of changed members
5  Recover Entire PDS through Batch   - Recovery of all members to a date/time

6  Tracking Summary on an Object      - Object physical characteristics
7  Tracked Groups                     - List of Tracked Groups
8  Tracked Objects                    - Tracked Objects in all Groups

9  Compare Filtered Members           - Side by Side (Source or Load)

L  Load Tracking Data to a DB2 table  - Loads tracking data for DB2 query

V  View TSO notifications             - Receives RTO TSO notification messages

X  Exit

Press END to Exit
```

Items on the panel are:

Option	Name	Description
1	Capture Object or Browse Events	Makes the information current for the individual object.
2	Capture Group and Browse Events	Makes the information current for all objects in the group.
3	Query Events and Report	Provides reporting functions by event type or event category for a selected object, or the entire group.
4	Recover Members	Allows users to selectively recover the prior versions of source or load modules backed up in the delta master database to either the source data set or a target data set with similar attributes. This function is applicable to delta-tracked objects.
5	Recover Entire PDS	Creates the batch JCL to recover a delta-tracked PDS. The PDS may be recovered to any date or time.
6	Tracking Summary on an Object	Displays a summary of the software and system information regarding a tracked object.

Option	Name	Description
7	Tracked Groups	Displays all groups to which you have been defined as a user.
8	Tracked objects	Displays all objects that are defined in the object master database for a tracked group.
9	Compare Filtered Members	Allows two groups of PDS members (source and load) to be fingerprinted. Pairs of members from the filtered list can be selected for a byte-level comparison. BASE only can be specified to compare members in one group of PDS members.
L	Load Tracking Data to DB2 Table	This function creates the JCL to load a DB2 table with the information from the tracking database. This function requries the DB2 environment to be set up during the installation process.
V	View TSO notifications	This option performs a TSO RECEIVE command and then displays the output using the ISPF BROWSE function. If there are no notifications, the Change Tracking User Menu is redisplayed.
X	Exit	Exits this panel; the ChangeMan SSM Main menu is displayed.

To select a function, type the option number of the function, then press Enter (or press End to return to the Main Menu).

Option 1 - Capture Object or Browse Events

This function provides access to all of the tracking functions at the individual object level.

```
HPSUGR1              Capture Object Events (Select Group)          Row 1 of 3
Command ===>                                              SCROLL===> CSR


To Capture Object Events, enter S to select the Department-Group first


Lcmd: (S)elect a Department-Group


Last Global Capture  ===>  2009/09/26_17:24


Press ENTER to continue or END to exit
                                              Total      Delta-Tracked
  Department       Group     Creation-Date  Object Count  Object Count
_ TECHDOCDEPT      XYZ83DOC    2009/05/18        3             1
_ TECHDOCDEPT      TSTDEF01    2009/09/18        0             0
_ TECHDOCDEPT      XYZ67DOC    2009/06/12        0             0
****************************** Bottom of data ******************************
```

Fields on this panel are described in the following table:

Parameter	Description
Last Global Capture	The date and time for the last global tracking performed by the *HPSGLOBE* batch program. The format is: `yyyy/mm/dd_hh:mm` If no global capture for this site master database has occurred, the *Not done* message is displayed.
Line Command	S - Select; select the specified item.
Department	The name of the Department that contains the Group
Group	The name of the Group
Creation Date	The object group's creation date is displayed as: `yyyy/mm/dd_hh:mm`
Total Object Count	The total number of objects in this object group (delta-tracked and non-delta-tracked objects).
Delta Tracked Object Count	The number of objects in this group defined as delta-tracked. The delta tracking option is set when the object is initially defined by the Group Administrator. A zero in this column indicates that none of the objects in the group are defined for member level backup.

A second panel is used if the user is assigned to more than one object group.

```
HPSUOB1                 Tracked Objects in Group:  DEV              ROW 1 OF 9
Command ====>                                              SCROLL===> CSR


Lcmd: (C)apture, (N)ew, (B)rowse, (L)ast member events, (E)vents Summary


Press ENTER to continue or END to Exit
                                             Event DS     Latest
  Tracked Objects                      Vol  Count ORG  Event-date-time
_ SER.DEV.CNTL                         catlg     1 PDS  2009/10/03_18,20
_ SER.DEV.INSTALL                      catlg   186 PDS  2009/09/24_10:27
_ SER.DEV.LINKLIB                      catlg    75 PDS  2009/09/24_10:27
_ SER.DEV.LIST                         catlg    41 PDS  2009/08/24_10:27
_ SER.DEV.MAC                          catlg    20 PDS  * No-time-stamp
_ SER.DEV.MESSAGES                     catlg    78 PDS  2009/08/24_10:35
_ SER.DEV.PANELS                       catlg   206 PDS  2009/08/24_13:56
_ SER.DEV.SKELS                        catlg    23 PDS  2009/08/24_10:33
_ SER.DEV.SRL                          catlg    23 PDS  2009/08/24_13:46
****************************** BOTTOM OF DATA ******************************
```

Items on this panel are:

Parameter	Description
Tracked Objects	C - Capture; process the specified object and determine if any events have occurred since the last capture. Upon completion, tracking is current for the particular object. If the object is delta-tracked, member-level update events trigger the backup function for the updated member. For these object types, the members incur an update and a backup. The backup function is applicable only to delta-tracked PDS data sets. **NOTE** Seqential data sets cannot be delta-tracked; if they are defined as DELTA=Y, the object is defaulted to DELTA=N. The N, B, L, and E line commands do not perform a capture. Only one tracked object can be processed at a time. N - New; display new events; this command must be preceeded by a Capture. B – Browse; display the latest event for each object in the group. The information is as of the last capture. L – last member events; display only the last event for each member. The information is as of the last capture. E – Event Summary; display an event summary for the specified object. The event-oriented information on the event summary is as of the last capture. All objects currently associated in the active group are displayed.
Vol	Displays either *catlg* for cataloged data sets, or the actual *volser*, for uncataloged data sets.
Event Total	Total number of events recorded for this object. For delta-tracked objects, one backup event is created during the initial define of the object. A zero indicates that no change has been detected since the initial define of the object.
DSORG	Data Set organization type, where: ■ DA indicates direct access data sets ■ PO indicates partitioned data set (PDS and PDSE). ■ PS indicates physical sequential. ■ VS indicates VSAM.
Latest Event	Date and time of the last event known to the software for this object. The format is *yyyy/mm/dd_hh:mm*. The information is as of the last capture. The *No-time-stamp* message indicates that since the installation or last initialization, no event has occurred for this item; hence there has been no change.

Use this procedure to select an object group:

1 Type the S (Select) line command for the Group Name desired, then press Enter.

The Tracked Objects in Group panel displays.

2 Type a line command for the desired tracked objects, then press Enter.

The next panel is determined as follows:

- If the DSORG of the object selected is PO, and if the function requested is:
  - N (New), go to "View Results of PDS "New"" on page 147.
  - B (Browse), go to "View Results of PDS "Browse"" on page 148.
  - E (Event Summary), go to "View Results of Object "Event Summary"" on page 149.
- If the DSORG of the object selected is VS, and if the function requested is:
  - N (New), go to "View Results of VSAM "New"" on page 150.
  - B (Browse), go to "View Results of VSAM "Browse"" on page 151
- If the DSORG of the Object selected is DA or PS:
  - The process is similar to the VS (VSAM) DSORG

Option 2 - Capture Group and Browse Events

This function provides access to all the tracking functions at the object group level. This is the intermediate level of the tracking functions.

The Capture Group Events panel displays only for users who have access to more than one object group. Otherwise, the software bypasses the panel and implicitly selects the object group.

```
HPSUGR1              Capture Object Events (Select Group)           Row 1 of 3
Command ===>                                              SCROLL===> CSR


To Capture Object Events, enter S to select the Department-Group first


Lcmd: (S)elect a Department-Group


Last Global Capture  ===>  2009/09/26_17:24


Press ENTER to continue or END to exit
                                                Total       Delta-Tracked
  Department        Group       Creation-Date  Object Count  Object Count
_ TECHDOCDEPT       XYZ83DOC    2009/05/18          3             1
_ TECHDOCDEPT       TSTDEF01    2009/09/18          0             0
_ TECHDOCDEPT       XYZ67DOC    2009/06/12          0             0
****************************** Bottom of data ******************************
```

Items on this panel are:

Parameter	Description
Last Global Capture	Date and time for the last global tracking performed by the RTCT Started Task or the HPSGLOBE batch program. The format is *yyyy/mm/dd_hh:mm*. If the *Not done* message is displayed, no global capture for this site master database has occurred yet.
Line Command	S – Select; select the specified item for next step processing.

Parameter	Description
Department	The name of the Department that contains the Group
Group	The name of the Group
Creation Date	Object group's creation date in yyyy/mm/dd_hh:mm format.
Total Object Count	Total number of objects in this object group (delta-tracked and non-delta-tracked objects).
Delta Tracked Object Count	Number of delta-tracked objects in this group. The delta-tracking option is set when the object is defined. A zero in this column indicates that none of the objects in the group is defined for member-level backup.

Use this procedure to select an object group:

1 Type the S (Select) line command for the Group Name desired, then press Enter.

The Tracked Objects in Group panel displays.

2 Type a line command for the desired tracked objects, then press Enter.

The next panel is determined as follows:

- If the DSORG of the object selected is PO, and if the function requested is:

  - N (New), go to "View Results of PDS "New"" on page 147.

  - B (Browse), go to "View Results of PDS "Browse"" on page 148.

  - E (Event Summary), go to "View Results of Object "Event Summary"" on page 149.

- If the DSORG of the object selected is VS, and if the function requested is:

  - N (New), go to "View Results of VSAM "New"" on page 150.

  - B (Browse), go to "View Results of VSAM "Browse"" on page 151

- If the DSORG of the Object selected is DA or PS:

  - The process is similar to the VS (VSAM) DSORG.

Capture Events

When the capture has completed, the results are displayed:

```
HPSUOB2             Capture in progress - Group ( DEV      )        ROW 1 OF 9
Command ====>                                            SCROLL===> CSR
HPS244I CAPTURE function is successful.
Lcmd: (N)ew, (B)rowse, (L)ast event for each member, (E)vent Summary

Press ENTER to continue or END to exit
                                                                    DS
  Events                        Tracked Objects              Vol  ORG
_     0  *CAPTURED SER.DEV.CNTL                              catlg PDS
_     0  *CAPTURED SER.DEV.INSTALL                           catlg PDS
_    21  *CAPTURED SER.DEV.LINKLIB                           catlg PDS
_     7  *CAPTURED SER.DEV.LIST                              catlg PDS
_     9  *CAPTURED SER.DEV.MAC                               catlg PDS
_     0  *CAPTURED SER.DEV.MESSAGES                          catlg PDS
_     3  *CAPTURED SER.DEV.PANELS                            catlg PDS
_     0  *CAPTURED SER.DEV.SKELS                             catlg PDS
N     4  *CAPTURED SER.DEV.SRL                               catlg PDS
***************************** BOTTOM OF DATA *****************************
```

Items on this panel are:

Parameter	Description
Line Command	N – New; display the latest event for each object in the group that had activity in the last capture interval. That interval is the time between the current capture and the previous capture.
	B – Browse; display the latest event for each object in the group. The information is as of the last capture.
	L – Last event for each member; displays the latest event for each member in the PDS.
	E – Event Summary; displays an event summary for the specified object. Event-oriented information on the event summary is as of the last capture.
	Functions N, B, and E do not perform captures themselves.
Events	Number of events detected during the just-completed capture for each object is reported.
Capture	Status of the capture.
Tracked Objects	Displays all objects currently associated in this group.
Vol	Displays either *catlg*, for cataloged data sets, or the actual *volser* for uncataloged data sets.

Parameter	Description
DSORG	Displays the data set organization type: ■ DA indicates direct access data set. ■ PO indicates partitioned data set (PDS and PDSE). ■ PS indicates physical sequential. ■ VS indicates VSAM.
Latest Event Date	Date and time in *yyyy/mm/dd_hh:mm format* of the last event known to the software for this object. The information is as of the last capture. The *No Events* message indicates that no event has occurred for thisd item since the installation or last initialization; hence there has been no change.

Use this procedure to view an event:

1 Type a line command for the desired tracked object to view the event, then press Enter.

2 The next panel is determined by the following sequences:

■ If the DSORG of the object selected is PO, and the function requested is:

- N (New), go to "View Results of PDS "New"" on page 147.

- B (Browse), go to "View Results of PDS "Browse"" on page 148.

- E (Event Summary), go to "View Results of Object "Event Summary"" on page 149.

■ If the DSORG of the object selected is VS, DA, or PS, and the function requested is:

- N (New), go to "View Results of VSAM "New"" on page 150.

- B (Browse), go to"View Results of VSAM "Browse"" on page 151

View Results of PDS "New"

The List of Events panel displays only those events that have occurred since the previous capture and the events just completed (new).

```
HPSUEVT                     List of Events (PDS)                    Row 1 of 4
Command ====>                                              SCROLL===> CSR

Press END to exit


Event Count: 77     Object: SER12.DEV.SRL


Begin-Date--Time  End---Date--Time  Event    Member    Jobname   New-name
2009/10/12_09:31  2009/10/12_09:31  Backup   HPSZUSER  SER12
2009/09/24_13:46  2009/10/12_09:31  Added    HPSZUSER  SER12
2009/10/12_09:31  2009/10/12_09:31  Backup   SYNC      SER13
2009/10/06_07:53  2009/10/06_07:54  Update   SYNC      SER13
****************************** BOTTOM OF DATA ******************************
```

Items on this panel are:

Parameter	Description
Event Count	Total number of all events for this object since it was initialized or defined to tracking.
Object	The tracked object's name.
Begin-Date--Time End---Date--Time	Date/time range for the event, which is between the current capture (End-Date-Time) and the previous capture (Begin-Date-Time). The format is *yyyy/mm/dd_hh:mm*.
Event	Event type of the last event detected for this member.
Member	Member name of the tracked object that meets the qualifications of this panel.
Jobname	UserID from the ISPF user fields (if available), or the name of the job that updated the member.
New Name	For a rename event, this field shows the new name of the member.

When you have completed reviewing the information, press End to return to the previous panel.

View Results of PDS "Browse"

The List of Events panel displays all events that have been collected for the selected object.

```
HPSUEVT                      List of Events (PDS)                   Row 1 of 7
Command ====>                                           SCROLL===> CSR

Press END to exit


Event Count: 77     Object: SER12.DEV.SRL


Begin-Date--Time  End---Date--Time  Event    Member    Jobname   New-name
2009/10/12_13:46  2009/10/12_09:31  Delete   HPSCOMPR
2009/10/12_13:46  2009/10/12_09:31  Delete   HPSEXPAN
2009/10/12_13:46  2009/10/12_09:31  Rename   HPSTRACK            NEWTRACK
2009/10/12_09:31  2009/10/12_09:31  Backup   HPSZUSER  SER12
2009/09/24_13:46  2009/10/12_09:31  Added    HPSZUSER  SER12
2009/10/12_09:31  2009/10/12_09:31  Backup   SYNC      SER13
2009/10/06_07:53  2009/10/06_07:54  Update   SYNC      SER13
```

Items on this panel are:

Parameter	Description
Event Count	Total number of all events for this object since it was initialized or defined to tracking.
Object	The tracked object's name.

Parameter	Description
Begin-Date--Time End---Date--Time	Date/time range for the event, which is between the current capture (End-Date-Time) and the previous capture (Begin-Date-Time). The format is *yyyy/mm/dd_hh:mm*.
Event	Event type of the last event detected for this member.
Member	Member name of the tracked object that meets the qualifications of this panel.
Jobname	UserID from the ISPF user fields (if available), or the name of the job that updated the member.
New Name	For a rename event, this field shows the new name of the member.

When you have reviewed the information, press End to return to the previous panel.

View Results of Object "Event Summary"

The Tracking Summary on an Object panel displays a composite summary of system and software information for the selected object as of the last capture.

This panel is entered from the panel C.1.(Select) when the function requested is E (Event Summary), or the panel C.6.

```
HPSUSUM                      Tracking Summary on an Object
Command ====>

Press END to Exit

Tracked Object            ====>  SYS1.PARMLIB
Initialization Time Stamp ====>  2005/10/21_11:03       <Ext: hhhhhh-hhhhhh>
                                                         01 022695-022919
*--*--* As of Last Capture: 2009/08/11_09:42 *--*--*--*  _____
|                                                     |  _____
*   Number of Events Captured Since Start:        82  *  _____
|   Current Number of Events:                     82  |  _____
*   Time of Last Event: 2005/12/08_17:44              *  _____
|   Object is Delta-Tracked: Y                        |  _____
*                                                     *  _____
*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*  _____
                                                        _____
*--*--*--*  Object's Physical Characteristics  *--*--*--*  _____
|  Volser:        Z4SRR1      Tracks Alloc:     225  |  _____
*  Creation Date: 1997/03/27  Tracks Used:       15  *  _____
|  Last Open Date: 2005/12/08  Nr of Members:     81  |  _____
*  DSORG/RECFM:    PO  FB                            *  _____
*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*  _____
```

When you have reviewed the information, press End to return to the previous panel.

Items on this panel are:

Parameter	Description
Tracked Object	Tracked object's data set name.
Initialization Time Stamp	Date and time that this object was first defined to SSM and captured; the format is *yyyy/mm/dd_hh:mm*.
As of Last Capture	Date and time that this object was last captured; the format is *yyyy/mm/dd_hh:mm*.
Number of Events Captured Since Start	Total number of events recorded for this object. This represents all events since the data set was initialized or defined to tracking.
Current Number of Events	Total number of events recorded that are available for reporting for this object.
Time of Last Event	Time of the capture when the last event was detected. If it is the same as the Last Capture time, then there was current activity. If not, then the activity occurred before the last capture. The format is *yyyy/mm/dd_hh:mm*.
Object's Physical Characteristics	System catalog DASD information.
< EXT: hhhhhh-hhhhhh >	Addresses of the first 16 extents for the object. The smaller the number of extents, the less fragmented the data set. If there are more than three, you may encounter degraded performance.

View Results of VSAM "New"

The List of Events panel displays only events that occurred since the two most recent captures.

```
HPSUVSM                     List of Events (VSAM)              Row 1 of 2
Command ====>                                          SCROLL===> CSR
Tracked Object     ===> Detect.Object.Master
Historic Event Cnt ===> 2
Current Statistics ===> (Tot) 322     (Add) 163    (Upd) 129    (Del)30
Beg-date/time      End-date/time      Event      Add   Update   Delete
2009/09/24_11:09  2009/10/07_11:43    Update      14     78       30
2009/09/24_10:31  2009/09/24_11:09    Update     149     51        0
***************************** BOTTOM OF DATA *********************************
```

Items on this panel are:

Parameter	Description
Tracked Object	Tracked object's data set name.
Historic Event Count	Total number of events for this object since the data set was initialized or defined to tracking.

Parameter	Description
Current Statistics	Events for this VSAM object that are currently in the catalog. ■ Tot – total number of records in the VSAM data set ■ Add – number of added records ■ Upd – number of updated records ■ Del – number of deleted records.
Event Time Range	Time range for this event is between the current capture and the previous capture; the format is *yyyy/mm/dd_hh:mm*. The reportable event occurred in the time range displayed.
Event	Event type that was detected for this object. An update event is further qualified by delete/insert/update information. When a VSAM REORG is performed, the delete/insert/update statistics are set to zero.
Add	Number of records added into this VSAM data set in the event time range.
Update	Number of records updated in this VSAM data set in the event time range.
Delete	Number of records deleted from this VSAM data set in the event time range.

When you have reviewed the information, press Enter to return to the Change Tracking User Menu.

View Results of VSAM "Browse"

The List of Events (VSAM) panel displays the events that occurred in each capture interval for the selected object.

If processing at the object level, this panel is entered from the Tracked Objects to Select panel if the B (Browse) function requested, and the DSORG is VS.

```
HPSUVSM                    List of Events (VSAM)              ROW 1 OF 4
Command ====>                                            SCROLL===> CSR
Tracked Object     ===> DETECT.OBJECT.MASTER
Historic Event Cnt ===> 4
Current Statistics ===> (Tot) 344     (Add) 173     (Upd) 134     (Del) 37
Beg-date/time      End-date/time       Event      Add    Update   Delete
2009/09/24_11:09  2009/10/07_11:43    Update      14       78        30
2009/09/24_10:31  2009/09/24_11:09    Update     149       51         0
2009/09/23_10:00  2009/09/24_11:00    Update       0        5         6
2009/09/22_10:00  2009/09/23_10:00    Update      10        0         1
```

Items on this panel are:

Parameter	Description
Tracked Object	Tracked object's data set name.
Historic Event Count	Total number of events for this object since the data set was initialized or defined to tracking.
Current Statistics	Events for this VSAM object that are currently in the catalog. ■ Tot – total number of records in the VSAM data set ■ Add – number of added records ■ Upd – number of updated records ■ Del – number of deleted records.
Event Time Range	Time range for this event is between the current capture and the previous capture; the format is *yyyy/mm/dd_hh:mm*. The reportable event occurred in the time range displayed.
Event	Event type that was detected for this object. An update event is further qualified by delete/insert/update information. When a VSAM REORG is performed, the delete/insert/update statistics are set to zero.
Add	Number of records added into this VSAM data set in the event time range.
Update	Number of records updated in this VSAM data set in the event time range.
Delete	Number of records deleted from this VSAM data set in the event time range.

When you have reviewed the information, press Enter to return to the Change Tracking User Menu.

Option 3 - Query Events

This option allows you to query events by type or category.

Enter an S to select a single object, or G to include all objects events in the group. In the following example, all objects in the SYSTEM group will be selected.

```
HPSUGR2      Query Events  ( Last Global: 2009/09/26_17:24 )        Row 1 of 3
Command ===>                                               SCROLL===> CSR

To Query events, by TYPE or CATEGORY, enter a line command.

Lcmd: (S) Select a Department-Group and then an Object within the Group.
      (G) Select all the Objects within a Department-Group.

Press ENTER to continue or END to exit
                                               Total       Delta-Tracked
  Department        Group      Creation-Date  Object Count  Object Count
_ TECHDOCDEPT       XYZ83DOC   2009/05/18         3             1
_ TECHDOCDEPT       TSTDEF01   2009/09/18         0             0
_ TECHDOCDEPT       XYZ67DOC   2009/06/12         0             0
***************************** Bottom of data ******************************
```

Select Event Type or Event Category

After selecting a group (or a specific object within a group) from the *Query Events* panel, a statistical table of events is created for the object(s). In the following example, a summary of event statistics is displayed for all of the objects in the SYSTEM group.

```
HPSUEV1                  Events Statistics for Group: SYSTEM
 Command ====>


 Enter S to select Type(s) and/or Category from one column at a time.

 Object: All Objects in the Group have been evaluated       Events: 6,100
                                               Last Global: 2005/08/15_15:57
 ( _ )  1202 Added    ( _ )    47 Uncat    Last Capture: n/a
 ( _ )  1218 Delete   ( _ )     0 DS-upd
 ( _ )  1670 Update   ( _ )   198 Reloc
 ( _ )   276 Status   ( _ )    24 Comprs
 ( _ )    43 Linked   ( _ )     1 Scrtch   ( _ )      0 VS-upd
 ( _ )     0 Zapped   ( _ )    84 Migrat   ( _ )      0 VS-reo
 ( _ )     7 Rename   ( _ )     0 NameTo   ( _ )      0 VS-def
 ( _ )  1307 Backup   ( _ )     0 NameFr   ( _ )      0 VS-del
 ( _ )    23 Restore  ( _ )   354 DATASET  ( _ )      0 VSAM
 ( _ )  5746 MEMBER (Selects all events except Backup and Restore)


 Optional: Member Selection:     ==>                             * Pattern
           Other Filters: Jobname ==>         Userid ==>
           Period: Last n Hours   ==> 99                      1 thru 99
                   or Yesterday   ==>                         Y or blank
                   or Last n Days ==>                         1 thru 999
                   or Date Range  ==>             To ==>      yyyy/mm/dd
```

The ability to view the events for an entire object group makes it possible to quickly determine if there has been any particular activity (such as a ZAP) for any of the objects in the group. If you are tracking a group of 100 critical load libraries, the fact that there

have been no ZAP events in the entire set is very important information for auditors and quality assurance groups.

Items on the *Event Statistics for Group* panel:

Parameter	Description
Group name	The selected group name is displayed in the heading.
Object	The object name, if a specific object was selected; otherwise, "All Object(s) in the Group have been Evaluated" is displayed.
Events	The total number of events evaluated.
Event types and categories	Enter an S in the associated field to select event types or an event category. Event categories are displayed in upper case; the categories are: ■ MEMBER – Includes all member type events in the 1st column. ■ DATA SET – Includes all data set level events in the 2nd column. ■ VSAM – Includes all VSAM types of events in the 3rd column. When a category is selected, all event types in the selected category are displayed (except as noted below). Selected events and categories can be restricted by using the optional *Member Selection*, *Other Filters*, and *Period* fields.
Event types and categories (continued)	Event types in the MEMBER category (column one): ■ Added – Member added to a PDS. ■ Delete – PDS member deleted from a PDS. ■ Update – PDS member whose content has changed. ■ Status – PDS member whose status has changed (ISPF user fields). ■ Linked – A member in a load library has been link-edited. ■ Zapped – A member in a load library has been zapped. ■ Rename – A member in a PDS has been renamed. ■ Backup – A member in a PDS has been updated and hence, backed up by the last capture. ■ Restore – A member in a PDS has been restored by ChangeMan SSM's RESTORE/RECALL function. ■ MEMBER category – Although the total includes all events in the MEMBER category, selecting this category for the statistics report will exclude Backup and Restore events.

Parameter	Description
	Event types in the DATA SET category (column two):
	▪ Uncat – An object has been uncataloged.
	▪ DS-upd – A non-PDS object has been updated.
	▪ Reloc – An object has been relocated on the DASD.
	▪ Comprs – A PDS object has been compressed.
	▪ Scrtch – An object has been scratched.
	▪ Migrat – An object has been migrated to another volume.
	▪ NameTo – An object has been renamed to a new name.
	▪ NameFr – An object has been renamed from an old name.
	▪ DATA SET category – Includes all events in the data set
	Event types in the VSAM category (column three):
	▪ VS-upd – VSAM data set has been updated.
	▪ VS-reo – VSAM data set has been reorganized.
	▪ VS-def – VSAM data set has been defined.
	▪ VS-del – VSAM data set has been deleted.
	▪ VSAM category – Includes all events in the VSAM category.
Member Selection	Optional. One or more explicit member names or member patterns can be specified, separated by commas. For example: HPS*,UTL*. To select all members, specify an *, or leave blank.
Other Filters	Optional. Select events by Jobname and Userid filters.
	▪ Jobname – Enter an explicit or generic (ending in *) value. Events with a matching jobname will be included in the generated report.
	▪ Userid – Enter an explicit or generic (ending in *) value. Events with a matching userid will be included in the generated report.

Parameter	Description
Period	Optional. A time range can be specified for the selected event types. Enter one of the following mutually-exclusive specifications; leave blank to *not* use the restriction: ■ Last n Hours – Enter the number of hours to be included. For example, '24' indicates from the current time yesterday to the same time today. ■ Yesterday – Enter a Y to restrict the statistics report to changes made yesterday. ■ Last n Days – Enter the number of days to be included. For example, '002' indicates yesterday and today. ■ Date Range – Enter the start date for a range of dates to be included in the statistics report. The *To* field is required when a start date is specified. The date format is yyyy/mm/dd.

To select event types or an event category:

1 Enter an S in the associated line command fields for the event or category.

2 Optionally, supply values for the Member Selection, Other Filters, and Period fields.

3 Press Enter to display a report of event statistics.

View Event Statistics

A report displays for the event types selected from the *Event Statistics for Group* panel. In this example, the MEMBER category was selected.

```
 Menu  Utilities  Compilers  Help
 -------------------------------------------------------------------------------
 ISRBROBA  USER20.SYN05234.T1327294.OUTLIST          Line 00000000 Col 001 080
 Command ===>                                                  Scroll ===> PAGE
 ******************************** Top of Data *********************************
 Command    Column  10        20        30        40        50        60        7
 Count-seg  ....+....+....+....+....+....+....+....+....+....+....+....+....+....
    1-1  "EVENTS=(GROUP=SYSTEM,ADMIN=USER20,
     -2  "        INCLOBJ=/,
     -3  "        REPORT=(SELECT=(MEMBER),
     -4  "                HOURS=99))
          "*
   100 events currently for object: CEE.SCEERUN2
     1 events currently for object: CMNDEV.CMN5X0.TRACES.LINKLIB
     5 events currently for object: CMNDEV.CMN530I.CUSTOM.LINKLIB
   100 events currently for object: CMNDEV.CMN530U.ASSEMBLE
    89 events currently for object: CMNDEV.CMN530U.COPYLIB
    16 events currently for object: CMNDEV.CMN530U.DEVCUST.LINKLIB
   100 events currently for object: CMNDEV.CMN530U.LINKLIB
   100 events currently for object: CMNDEV.CMN540.BASE.LINKLIB
    15 events currently for object: CMNDEV.CMN540.DEVBASE.LINKLIB
    11 events currently for object: CMNDEV.CMN540.DEVSUBR.LINKLIB
     6 events currently for object: CMNDEV.CMN540.PROMO.LINKLIB
   100 events currently for object: CMNDEV.CMN540.TEST.LINKLIB
```

When you have completed reviewing the information, press End to specify the disposition for this report (print, delete, keep).

Option 4 - Recover Members

This feature allows you to recover selected versions of PDS member backups. It is applicable to delta-tracked objects only.

Member versions can be recovered over the current member, or recovered to an alternate data set. You can also Browse, View, and Compare versions before recovering them.

Selecting a Group and Tracked Object

The following panel is the first to display after choosing Option 4.

```
HPSUGR1               Recover Members (Select Group)              Row 1 of 3
Command ===>                                           SCROLL===> CSR


To Recover a backup Member enter S to select the Department-Group first

Lcmd: (S)elect a Department-Group

Last Global Capture  ===>  2009/09/26_17:24

Press ENTER to continue or END to exit
                                              Total      Delta-Tracked
  Department         Group     Creation-Date  Object Count  Object Count
_ TECHDOCDEPT        XYZ83DOC  2009/05/18         3             1
_ TECHDOCDEPT        TSTDEF01  2009/09/18         0             0
_ TECHDOCDEPT        XYZ67DOC  2009/06/12         0             0
***************************** Bottom of data ******************************
```

Select the group that contains the object from which members are to be recovered and press Enter.

The Tracked Objects in Group panel displays.

```
HPSUOB1               Tracked Objects in Group:  TESTGRP         ROW 1 OF 4
 Command ====>                                         SCROLL===> CSR


 Lcmd: (S)elect a Delta-Tracked Object

 Press ENTER to continue or END to Exit
                                         Event DS      Latest
  Tracked Objects                        Vol  Count ORG Event-date-time
S USER73.TEST.PDS                         catlg  28 PDS  2009/06/06_10:54
_ USER73.TEST.PDSE                        catlg   6 PDSE 2009/06/06_10:54
_ USER73.TEST1.PDSELOD                    catlg  16 PDSE 2009/06/06_10:54
_ USER73.TEST1.PDSLOD                     catlg   5 PDS  2009/06/06_10:54
***************************** Bottom of data ******************************
```

Select the object from which to recover members and press Enter.

Specifying the Recover Parameters

From the Recover Member(s) from Delta Master panel you can enter specifications for the Recover operation.

```
HPSURES1            Recover Member(s) from Delta Master
Command ====>


Delta Tracked Data Set:      ===> USER73.TEST.PDS

Member to recover         ===> *         (Explicit member, or * for a list)
Recovery Mode             ===> ONLINE    (ONLINE or BATCH)

Pre-Existing or NEW Compatible TARGET Data Set:
 (Optional)  Data Set Name:   ===>

-- NEW ALLOCATION MAY BE SPECIFIED FOR BATCH RECOVERY ONLY --

 (NEW)       DASD Unit  ===>            (SYSDA,SYSALLDA...)
             Space Units ===>           (TRK,CYL,BLK)
             Primary    ===>            (1-99999)
             Secondary  ===>            (0-99999)
             Directory  ===>            (1-99999)

Member Name    ===> RECOVER   (Saved member name in the user JCL library)

Press ENTER to start online recovery or END to exit
```

Supply the following parameters:

Field	Description
Member to recover	Specify an explicit member name or an '*****'. ■ An explicit member name generates a list of all backup versions for the specified member. ■ An '*****' generates a list of all existing backups for *all members* in the PDS. One or more backup members can be selected from the returned list.
Recovery Mode	■ BATCH recovers members to either a new or existing target data set. The recovered members will have an 'nn' suffix. The generated JCL is displayed on a subsequent panel. ■ ONLINE recovers members to an existing target data set and *replaces* like-named members. The recovery is performed in the foreground.
Data Set Name	Required for BATCH mode. Optional for ONLINE mode. ■ For BATCH mode, the data set can be pre-existing or new. For new data sets, you must enter the allocation parameters. ■ For ONLINE mode, the data set must be pre-existing. If no data set name is specified, versions are recovered to the original delta tracked data set.

Field	Description
New Allocation parameters	Type the parameters if a new target data set name was specified (and BATCH mode was selected).
Member Name	The member name in your [Product Name 1 short] JCL library where the generated JCL will be saved.

After filling in the fields, press Enter.

Selecting Versions

If you specified an explicit member name in the Member to recover field, the following panel displays with the versions for that member.

```
HPSURES2            Backed up Versions of Member (A4)            Row 1 of 1
Command ====>                                        SCROLL===> CSR

Lcmd: (B)rowse, (C)ompare, (R)ecover or (V)iew version(s).

Press ENTER to continue or END to exit

Delta-Tracked Data Set ===> WSER20.TEST.PDS

   Ver Member    Newname   Begin-date/time      End-date/time
            VV MM Created     Changed       Size  Init    ID
_    0 A4                  2011/05/25_09:43:48 2011/05/25_09:43:48
            01.05 00/04/30 10/12/02 15:39    13     7 WSER20
****************************** Bottom of data ******************************
```

Fields on the panel include:

Field	Description
Ver	Backups are displayed in reverse chronological order, where 0 refers to the latest version, and -1 refers to the next preceding version. Valid values are 0 to -999.
Member	Name of the member that you specified on the preceding panel.
Newname	You have the option of specifying a new member name in the Newname field (if you specified Online mode on the previous panel). This will prevent an existing member in the library from being overlaid.
	The Begin-date/time and End-date/time fields display the range in which the backup event occurred. Dates are displayed in yyyy/mm/dd format; times are displayed in hh:mm:ss format.
VV	Member version number (taken from ISPF statistics).

Field	Description
MM	Member modification number (taken from ISPF statistics). **NOTE** VV MM starts at 01 00 when a source member is created. MM increments each time the source member is changed. When it gets to 99, it stops incrementing. You can use ISPF panel 3.5 to arbitrarily set VV to whatever you want, whenever you want. Setting the VV causes MM to go back to 00.
Created	Date, in yy/mm/dd format, that the member was added to the PDS or PDSE (taken from ISPF statistics).
Changed	Date (yy/mm/dd format) and time (hh:mm format) that the member was last changed (taken from ISPF statistics).
Size	Number of lines currently in the member (taken from ISPF statistics).
Init	Number of lines originally in the member (taken from ISPF statistics).
ID	TSO ID of the user who last changed the member (taken from ISPF statistics).

Note that Browse, Compare, and View are ONLINE functions. Only Recover can be either ONLINE or BATCH.

If you specified an '*' in the Member to recover field, the following panel displays with all versions for all members of the PDS.

```
HPSURES3              Backed up Versions of Member (*)              Row 1 of 112
Command ====>                                             SCROLL===> CSR

Lcmd: (B)rowse, (C)ompare, (R)ecover or (V)iew version(s).

Press ENTER to continue or END to exit

Delta-Tracked Data Set ===> WSER20.TEST.PDS

   Member    Newname   Begin-date/time      End-date/time
         VV MM Created      Changed       Size  Init   ID
_   A0                   2011/05/25_09:43:48 2011/05/25_09:43:48
         01.00 10/10/07 10/10/07 13:10     1     1 WSER20
_   A1                   2011/08/18_12:17:29 2011/08/18_12:17:29
         01.07 10/03/17 11/08/18 12:17     7     1 WSER20
_   A10                  2011/05/25_09:43:48 2011/05/25_09:43:48
         01.00 10/10/22 10/10/22 12:38     5     5 WSER20
_   A12                  2011/05/25_09:43:48 2011/05/25_09:43:48
         01.00 10/12/07 10/12/07 16:58     3     3 WSER20
_   A2                   2011/05/25_09:43:48 2011/05/25_09:43:48
         01.00 10/05/05 10/05/05 23:49    -- ...-- WSER20
_   A3                   2011/05/25_09:43:48 2011/05/25_09:43:48
         01.15 00/04/30 10/12/02 13:48   206   150 WSER20
 ****************************** Bottom of data ******************************
```

From either of these panels you can use the following line commands for the listed member versions:

- Browse

- View

- Compare

- Recover

Any number of versions can be selected with the Browse, View, and Recover commands; two versions must be selected with the Compare command. The Compare request is processed after all other line command requests.

Command	Description
Browse	Type a B next to the members you want to browse.
View	Type a V next to the members you want to view.

Command	Description
Compare	Type a C next to the two backup versions you want to compare. These versions will be recovered to temporary PDS/PDSE data sets. The compare program specified in the HPSPARMS parmlib member is invoked to compare the recovered versions, as follows:
	■ If the compare program is SUPERC, the ISPF SuperC dialog is invoked with the two temporary data set names filled in on the panel. On exit from this dialog, the temporary data sets are deleted and the member version list is redisplayed.
	■ If the compare program is COMPAREX or BUILT-IN, the compare report is written to a temporary data set and then displayed in ISPF Browse mode.
	On exit from browsing the compare report, the temporary input data sets are deleted and a report disposition panel, HPSUREP, is displayed. You can print, delete, or keep the report data set in either batch or online mode, depending on what options you select and which print utility program is specified in the HPSPARMS parmlib member. On exit, the member version list is redisplayed.
Recover	Type an R next to the members you want to recover.
	■ In Online mode, the backup versions are recovered to the target data set specified on panel HPSURES1. If no target data set was specified, a warning is given before recovering the version to the original delta-tracked library. However, if a new member name is specified in the Newname field, the version is recovered to the new name, and no warning message is issued.
	■ In Batch mode, a single job is generated and displayed in ISPF mode. It contains the Recover requests for all selected versions. Target member names are automatically generated by appending or overlaying the end of the original member name with a two-digit suffix. The Newname field is not applicable in Batch mode.
	TIP When recovering multiple backup versions, specify meaningful names to identify the different versions. For example, if two versions of *HPSCOMPR* are recovered to the original library, consider naming them *HPSCOMP1* and *HPSCOMP2*.

Press Enter to execute the command (or press End to return to the Change Tracking User Menu).

Option 5 - Recover Entire PDS (Batch)

This feature allows you to recover selected versions of a PDS. It is applicable to delta-tracked objects only.

Selecting a Group and Tracked Object

The following panel is the first to display after choosing Option 5.

```
HPSUGR1              Recover PDS (Select Group)                   Row 1 of 3
Command ===>                                           SCROLL===> CSR


To Recover a PDS to a date/time, enter S to select the Department-Group first

Lcmd: (S)elect a Department-Group

Last Global Capture  ===>  2009/09/26_17:24

Press ENTER to continue or END to exit
                                            Total       Delta-Tracked
  Department       Group     Creation-Date  Object Count Object Count
_ TECHDOCDEPT      XYZ83DOC  2009/05/18         3             1
_ TECHDOCDEPT      TSTDEF01  2009/09/18         0             0
_ TECHDOCDEPT      XYZ67DOC  2009/06/12         0             0
***************************** Bottom of data *******************************
```

Select the group that contains the object to recover and press Enter.

The Tracked Objects in Group panel displays.

```
 HPSUOB1                 Tracked Objects in Group:  TESTGRP          ROW 1 OF 4
 Command ====>                                           SCROLL===> CSR


 Lcmd: (S)elect a Delta-Tracked Object

 Press ENTER to continue or END to Exit
                                            Event DS      Latest
   Tracked Objects                     Vol  Count ORG  Event-date-time
 S USER73.TEST.PDS                     catlg   28 PDS  2009/06/06_10:54
 _ USER73.TEST.PDSE                    catlg    6 PDSE 2009/06/06_10:54
 _ USER73.TEST1.PDSELOD                catlg   16 PDSE 2009/06/06_10:54
 _ USER73.TEST1.PDSLOD                 catlg    5 PDS  2009/06/06_10:54
 ***************************** Bottom of data *************************
```

Select the object to recover and press Enter.

Specifying the Recover Parameters

From the Recover Entire PDS panel you can enter specifications for the Recover operation.

```
HPSURES6                    Recover Entire PDS
Command ====>


Specify the desired recovery day or date/time, and the Target PDS.

PDS to recover: USER73.TEST.PDS                            Vol: catlg
Recover PDS as of:
          Today        ==>                      (Y or Blank)
          Yesterday    ==>                      (Y or Blank)
          N Days Ago   ==>                      (001 thru 999)
          Date-Time    ==> 2011/10/24  =>       (YYYY/MM/DD => HH:MM:SS)


Recovery PDS:          ==>

(New only) DASD Unit   ==>           (SYSDA,SYSALLDA...)
          Space Units  ==>           (TRK,CYL,BLK)
          Primary      ==>           (1-99999)
          Secondary    ==>           (0-99999)
          Directory    ==>           (1-99999)

Saved Member Name  ==> RECOVPDS  (Saved member name in user JCL library)

Press ENTER to generate recovery JCL or END to exit
```

Supply the following parameters:

Field	Description
Recover PDS as of	Specify one of the following options: ■ Today – Specify Y or blank. If Y is specified, the PDS is recovered to the most current backup. ■ Yesterday – Specify Y or blank. If Y is specified, the PDS is recovered to its status as of yesterday at midnight. ■ N days ago – Specify a number from 001-999. The PDS is recovered to its status N days ago, at midnight. ■ Date Time – Specify a date (and optionally a time). This allows the PDS to be recovered to a specific date and time. If no time is specified, the PDS is recovered to midnight of the specified day.
Recovery PDS	Identify the target data set for the recovered members. If the PDS exists, it must have attributes that are compatible with the original PDS.
Allocation parameters	If the Recovery PDS does not exist, specify the DASD Unit, Space Units, Primary allocation, Secondary allocation, and Directory blocks. The DSORG is automatically set to match the original PDS.
Saved Member Name	The member name in your [Product Name 1 short] JCL library where the generated JCL will be saved.

Option 6 - Object Tracking Summary

This function provides a tracking summary for any tracked object, displaying both tracking data and the data set physical characteristics.

```
HPSUGR1                     Tracking Summary (Select Group)          Row 1 of 3
Command ===>                                              SCROLL===> CSR

To Display latest Events, enter S to select the Department-Group first

Lcmd: (S)elect a Department-Group

Last Global Capture  ===>  2009/09/26_17:24

Press ENTER to continue or END to exit
                                              Total       Delta-Tracked
  Department         Group      Creation-Date Object Count Object Count
_ TECHDOCDEPT        XYZ83DOC   2009/05/18        3             1
_ TECHDOCDEPT        TSTDEF01   2009/09/18        0             0
_ TECHDOCDEPT        XYZ67DOC   2009/06/12        0             0
****************************** Bottom of data ******************************
```

This panel includes the following items:

Parameter	Description
Last Global Capture	Date and time of the last global capture performed by the *HPSGLOBE* batch program. The format is *yyyy/mm/dd_hh:mm*. If the *Not done* message is displayed, no global capture for this object master has occurred.
Line Command	S – select the specified item.
Department	The name of the Department that contains the Group
Group	The name of the Group
Creation Date	Group creation date, displayed in *yyyy/mm/dd_hh:mm* format.
Total Object Count	Number of objects in this group (delta-tracked, and non-delta-tracked).
Delta-Tracked Object Count	Number of objects in this group that are defined as delta-tracked. The delta-tracking option is set when the object is defined by the Group Administrator. A zero in this column indicates that no objects in the group are defined for member-level backup.

Use this procedure to view the tracking summary of an object:

1 Type S (Select) for the group name containing the desired object, then press Enter.

The Tracked objects in Group panel displays.

```
HPSUOB1                 Tracked Objects in Group:  DEV              ROW 1 OF 10
Command ====>                                            SCROLL===> CSR

Lcmd: (S)elect

Press ENTER to continue or END to Exit
                                                 Event DS      Latest
 Tracked Objects                            Vol  Count ORG  Event-date-time
_USER17.APF.DETECT.LINKLIB                  catlg   40 PDS  2009/11/11_13:00
_USER17.DETECT.JCL                          catlg  164 PDS  2009/11/13_16:38
_USER17.DETECT.V820.INSTALL                 catlg   99 PDS  2009/11/01_13:00
_USER17.DETECT.V820.INSTALL.COPY            catlg   54 PDS  2009/10/09_13:00
_USER17.DETECT.V820.LINKLIB                 catlg   42 PDS  2009/10/28_13:00
_USER17.DETECT.V820.MESSAGES                catlg   51 PDS  2009/09/09_13:00
_USER17.DETECT.V820.PANELS                  catlg  135 PDS  2009/11/04_13:00
_USER17.DETECT.V820.SAMPLES                 catlg  137 PDS  2009/10/30_13:00
_USER17.DETECT.V820.SAMPLES.COPY            catlg  579 PDS  2009/11/12_13:00
_USER17.DETECT.V820.SKELS                   catlg   20 PDS  2009/09/09_13:00
***************************** BOTTOM OF DATA ********************************
```

This panel displays the following items:

> **Group Name** – Name of the previously-selected group. Objects displayed on this panel are all part of this group. This is not an editable field.

> **Tracked Objects** – List of all objects in the active group.

> **Vol** – The volser where the data set resides. If it is cataloged, *catlg* is displayed, otherwise *volser* is displayed.

> **Event Count** – The number of reportable (retained) events for this object. If this value exceeds 9999, the three right-most digits will be replaced by a "K" before being displayed. The number of retained events may be less than the total number of events captured for this object (controlled by the ROLLOFF value specified in HPSPARMS). The total number of events can be found on the *Tracking Summary on an Object* screen.

> **DSORG** - Data Set organization type, where:

>> PO - partitioned data set (PDS and PDSE)

>> PS - physical sequential

>> VS - VSAM

> **Latest Event-date-Time** – Date and time of the last event known to the software for this object. The information is as of the last capture.
> The format is *yyyy/mm/dd_hh:mm.*

The No-Events message (if displayed) indicates that no event has occurred for this item since the installation or last initialization; hence, there has been no change.

2 Type S (Select) for the tracked object.

The Tracking Summary on an Object panel displays. This panel displays a summary of system and software information for the selected object as of the last capture.

```
HPSUSUM                    Tracking Summary on an Object
Command ====>


Press END to Exit


Tracked Object           ====>  SYS1.PARMLIB
Initialization Time Stamp ====>  2005/10/21_11:03        <Ext: hhhhhh-hhhhhh>
                                                          01 022695-022919
*--*--* As of Last Capture: 2009/09/02_09:15 *--*--*--*  _____
|                                                     |  _____
*  Number of Events Captured Since Start:        82   *  _____
|  Current Number of Events:                     82   |  _____
*  Time of Last Event: 2009/08/14_11:18               *  _____
|  Object is Delta-Tracked: Y                         |  _____
*                                                     *  _____
*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*  _____
                                                         _____
*--*--*--*  Object's Physical Characteristics  *--*--*--*  _____
|  Volser:       X4SRR1      Tracks Alloc:      225   |  _____
*  Creation Date: 1997/03/27  Tracks Used:       15   *  _____
|  Last Open Date: 2009/08/14  Nr of Members:    81   |  _____
*  DSORG/RECFM:    PO  FB                              *  _____
*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*  _____
```

This panel displays the following items:

Tracked Object – Data Set name of tracked object.

Initialization Time Stamp – Date and time that this object was first defined to SSM and captured. The format is *yyyy/mm/dd_hh:mm.*

As of Last Capture – Date and time that this object was last captured by the software. The format is *yyyy/mm/dd_hh:mm.*

Number of Events Captured Since Start – The total number of events recorded for this object. This represents all events since the object was first defined to tracking.

Current Number of Events – Total number of events recorded for this object that are still available for reporting.

Time of Last Event – Time of the capture when the last event was detected.

If it is the same as the *As of Last Capture* time, there was current activity. If not, then the activity occurred before the last capture. The format is *yyyy/mm/dd_hh:mm.*

Object's Physical Characteristics – System catalog DASD information.

< Ext: hhhhhh-hhhhhh > – The addresses of the first 16 extents for the object.

The fewer the extents, the less fragmented the data set. If there are more than three extents, performance may be degraded.

Option 7 - Display Tracked Groups

The Display Tracked Groups function provides a display of all the groups you are defined to as a user. This is an information-only panel.

```
HPSUGRP                         Tracked Groups                     Row 1 of 1
Command ===>                                               SCROLL===> CSR

Last Global Capture ===>  2009/09/26_17:24

Press END to exit


                               Group         Total      Delta-Tracked
 Department         Group    Creation-Date  Object Count   Object Count
 USER001           NEWGRP1    2009/07/14        0              0
****************************** Bottom of data ******************************
```

This panel includes the following items:

Parameter	Description
Last Global Capture	Date and time of the last global capture performed by the *HPSGLOBE* batch program. The format is *yyyy/mm/dd_hh:mm* If the *Not done* message is displayed, no global capture for this object master has occurred.
Department	The name of the Department that contains the Group
Group	The name of the Group
Group Creation-Date	Group creation date, displayed in *yyyy/mm/dd_hh:mm* format.
Total Object Count	Number of objects in this group (delta-tracked and non-delta-tracked objects).
Delta-Tracked Object Count	Number of objects in this group that are defined as delta-tracked. The delta-tracking option is set when the object is defined by the Group Administrator. A zero in this column indicates that no objects in the group are defined for member-level backup.

Option 8 - Display Tracked Objects

The Display Tracked Objects function displays the tracked objects in all groups that you are defined to as a user. This is an information-only panel.

```
HPSUOBJ                          Tracked Objects                      Row 1 of 3
Command ====>                                              SCROLL===> CSR


Last Global Capture  ====>  2009/09/26_17:24


Press END to exit


                                                 DS   Department      Group
Tracked Object                         Volser  Org  Name            Name
SYS1.PARMLIB                           X5SRR1  PDS  TECHDOCDEPT     XYZ83DOC
USER001.SSM83.JCL                      CATLG   PDSE TECHDOCDEPT     XYZ83DOC
USER001.SSM83.LOG                      CATLG   PS   TECHDOCDEPT     XYZ83DOC
****************************** Bottom of data *******************************
```

When you have completed reviewing the information, press END to return to the Change Tracking User Menu.

This panel includes the following items:

Parameter	Description
Last Global Capture	Date and time of the last global capture performed by the HPSGLOBE batch program. The format is *yyyy/mm/dd_hh:mm* If the *Not done* message is displayed, no global capture for this object master has occurred.
Tracked Objects	All objects currently defined in this object master.
Volser	Displays either CATLG, for cataloged data sets, or the actual *volser* for uncataloged data sets
Department Name	Name of the Department in which the Group resides.
Group Name	Name of the Group in which the object resides.
DSORG	Data Set organization type, where: ■ DA – direct access data sets. ■ PO – partitioned data set (PDS and PDSE). ■ PS – physical sequential. ■ VS – VSAM.

Option 9 - Compare Filtered Members

The Compare Filtered Members function allows you to filter and compare members in one or two PDS environments. Any two members can be selected and compared.

The BASE PDS panel allows you to specify the BASE environment, along with the comparison and reporting parameters.

```
HPSDSYN1                     BASE PDS (1 of 2)                 Row 1 of 13
Command ====>                                           SCROLL===> CSR


Enter an explicit SOURCE or LOAD PDS (or patterns) on the line(s) below:

Members reside within ONE environment  ==> N    Y: BASE only   N:BASE and TARG
Explicit Member/Pattern ending with *  ==> *

Compare like-named cataloged vs. non-cataloged DSNs/patterns ==> N   Y/N
                                       Specify VOLSER ==>

Reporting Options TYPE(S)  ==> ADD,UPD,DEL  Specify a list: ADD,UPD,DEL or ALL
Reporting Options RECORD   ==> Y            N: Report the first segment only
                                            Y: Report the entire record

Cataloged PDS (or Pattern) ==> Y  -(Y or N) Y: Resolve data sets from catalog
Sync                       ==> N  -(Y or N) N: Do not report equal members
OutSync                    ==> Y  -(Y or N) Y: Filter only the differences
Sort by Token              ==> N  -(Y or N) N: List sorted by Member Name

Press ENTER to continue or END to exit

   Explicit PDS (or patterns similar to ISPF 3.4)
_  _____
_  _____
_  _____
_  _____
```

This panel includes the following parameters:

Parameter	Description
Members reside within ONE environment	Y – Compare members in the BASE environment only. N – Compare members in both the BASE and TARG environments.
Explicit Member/ Pattern ending with *	Type one of the following: ▪ explicit member name ▪ member name pattern, ending with * ▪ *
Compare like-named cataloged…	Y - Copy the DSNs/patterns from this panel to the Target data set panel to facilitate comparing cataloged and uncataloged data sets having the same name. N - Do not copy the DSNs/patterns from this panel to the Target panel.

Parameter	Description
Specify VOLSER	For like-named DSNs, specify a 6-character alphanumeric volume name to be propagated to the Target data set panel Volser field.
Reporting Options TYPE(S)	Type of record events to report. The options are: ■ ADD – Report added records. ■ ALL – Report all records. ■ DEL – Report deleted records. ■ EQU – Report unchanged (equal) records. ■ NO – Report no records (summary only). ■ UPD – Report updated records. You may specify up to three options, separated by commas. For example: ADD, UPD, ALL
Reporting Options RECORD	Y – Display entire record in the report. N – Display only the part of the record that fits on one line of the report. When processing LOAD modules, Y causes the entire CSECT to be printed, while N causes only updated segments of the CSECT to be printed.
Cataloged PDS	Y – resolve data sets from the catalog. N – uncataloged data sets. You will be prompted for a volser on the next panel.
Sync	This option is ignored if you specified Y for *"Members reside within ONE environment"*. Y – report equal members in both environments. N – exclude equal members.
Outsync	This option is ignored if you specified Y for *"Members reside within ONE environment"*. Y – report unequal members in both environments. N – exclude unequal members.
Explicit or Pattern DSN	Explicit or pattern data set name of the PDS source or load libraries to compare. If Cataloged PDS = Y, the pattern is resolved from the catalog; if Cataloged PDS = N, the DSN must be explicit. See "Catalog Search" on page 206 for information on specifying pattern names.

Use this procedure to compare the members:

1 Specify the base environment, the comparison and report parameters, and one or more data set names.

Refer to the preceding table for explanations of these parameters.

When the parameters are completed on BASE PDS (1 of 2), press Enter.

The Resolved Data Sets (BASE) panel is displayed.

```
------------------- Resolved Data Sets (BASE) ----------------- Row 1 of 4
Command ====>                                            SCROLL===> CSR

Enter X to Exclude any data set. Overtype Volser(s) for Uncataloged DSN(s).

Lcmd:  X

Press ENTER To Continue or END to Exit

  Data Sets Involved in the Compare Process       Volser
_ DETECT.PDS.LINKLIB                              HPS001
_ DETECT.PDS.PANELS                               HPS001
_ DETECT.PDS.SOURCE                               HPS002
X DETECT.PS.DATA                                  HPS001
************************** Bottom of data ***************************
```

2   Press Enter to fingerprint the base environment.

3   Exclude data sets that are not involved in the comparison; to do so, type X in the Lcmd field to select the data sets, then press Enter.

4   Overtype the *volser*s for any uncataloged data sets, then press Enter. The environment is fingerprinted again.

The TARG PDS panel displays.

```
HPSDSNY2          TARG PDS or a NULL Entry (2 of 2)          Row 1 of 13
Command ====>                                            SCROLL===> CSR

Enter a second PDS, or press ENTER without a specification to denote NULL

Cataloged PDS      ===> Y     - Y or N (N: For an uncataloged PDS)

   Explicit PDS; No entry indicates NULL
_  DETECT2_____
_  _____
_  _____
_  _____
_  _____
************************** Bottom of data **************************
```

5   Specify the TARG environment (do not use wildcards in the data set name patterns).

Cataloged PDS

Y – resolve the PDS data set names through the catalog.

N – uncataloged data sets.

Explicit or Pattern DSN

Explicit or pattern data set name of the PDS source or load libraries to compare. If cataloged is specified, the pattern is resolved from the catalog; if catalog is not specified, the DSN must be explicit.

When the environment is specified, press Enter; the Resolved Data Sets panel displays.

```
-------------------- Resolved Data Sets (TARGET) ------------- Row 1 of 4
Command ====>                                            SCROLL===> CSR


Enter X to Exclude any data set. Overtype Volser(s) for Uncataloged DSN(s)


Lcmd:  X


Press ENTER To Continue or END to Exit

  Data Sets Involved in the Compare Process        Volser
_ DETECT2.PDS.LINKLIB                              HPS001
_ DETECT2.PDS.PANELS                               HPS001
_ DETECT2.PDS.SOURCE                               HPS002
X DETECT2.PS.DATA                                  HPS001
************************* Bottom of data *****************************
```

6   Press Enter to fingerprint the TARG environment, then type X in the Lcmd field for each data set that is to be excluded from the environment.

When you have completed the selection of data sets that are to be excluded, press Enter.

7   Overtype the *volser*s for any uncataloged data sets, then press Enter.

The environment is fingerprinted again, and the Member List to Compare panel displays.

```
HPSDSYN3                    Member List To Compare              Row 1 of 24
Command ====>                                            SCROLL===> CSR

(S)elect one pair of members to be compared

Press ENTER to continue or END to exit

  Group      Type Member     Fingerprint     Volser  Data Set Name

_ B               ISREDRT  DED6D725-00000DC6  XYZM31  DETECT2.ISPF.ISPPROF
_ T               ISREDRT                     XYZM31  DETECT2.ISPF.ISPPROF
_ B               ISREDIT  F63282C6-000002B7  XYZM31  DETECT2.ISPF.ISPPROF
_ T               ISREDIT                     XYZM31  DETECT2.ISPF.ISPPROF
_ B               ISRLLIST 219460B2-000006F7  XYZM31  DETECT2.ISPF.ISPPROF
_ T               ISRLLIST                    XYZM31  DETECT2.ISPF.ISPPROF
_ B               ISRPROF  3A542BA5-00000C2D  XYZM31  DETECT2.ISPF.ISPPROF
_ T               ISRPROF                     XYZM31  DETECT2.ISPF.ISPPROF
```

8   The Member List to Compare panel displays the members resolved from the settings specified in .

Use the S Lcmd to select the two members that are to be compared, then press Enter.

The comparison report displays.

```
 Menu  Utilities  Compilers  Help
 ------------------------------------------------------------------------
BROWSE USER14.SYN98362.T1727334.OUTLIST     Line 00000000 Col 001 080
 Command ===>                                         Scroll ===> CSR
************************** Top of Data**************************
Command   Column  10        20        30        40        50        60
Count-seg
    ...!...!...!...!...!....!....!....!....!....!....!....!....!....!...
    1-1   "DATACOMP=(BASEDSN=DETECT.PDS.SOURCE,BASEMEM=HPS04,
     -2   "          TARGDSN=USER14.CBK.MSGS,TARGMEM=HPS04,
     -3   "          REPORT=(SBS=Y,
     -4   "                  ALL,
     -5   "                  COMPLETE=N))

Vol=(HPS002)  Base=DETECT.PDS.SOURCE(HPS04)
dsorg=PO  recfm=FB  lrecl=80  blksize=6,000

Vol=(HPS002)  Targ=USER14.CBK.MSGS(HPS04)
23  19                              ||
24  20 HPS046                       || HPS046
25  21 'HPS046E Vaild line commands ar||'HPS046E Vaild line commands ar
26  22                              ||
27  23 HPS047                       || HPS047
28  24 'HPS047E Specify Delta Trackin ||'HPS047E Specify Delt Tracking
29  25                              ||
30  26 HPS048                       || HPS048
31  27 'HPS048E Delta Tracking is reqe||'HPS048E Delta Tracking is reque
32  28 '                            ||  '
33  29 HPS049                       || HPS049
34  30 'HPS049E Specification of "*" n||'HPS049E Specification of "*" n
35  31 '                            ||  '
36  32                              ||
PS1617I  HPSDCOMP  Comparison Summary:
                            0 Inserted    =>
                            4 Deleted     <=
                            0 Updated     <> or ¦¦
                            0 Moved       ~~
                           32 Unchanged   ||
************************** Bottom of Data **************************
```

9   Press Exit (F3) to close the report; at that time, you will have the option of printing, saving, or deleting the report.

Option L - Load Tracking Data to DB2 table

This function allows you to load tracking data into a DB2 table, so that it can be queried with SQL.

It is assumed that the database administrator has created the DB2 environment, and the DB2 table used by this function. If this has not been done, the DBA must run the *DB2SETUP* JCL. Refer to the *ChangeMan SSM Installation Guide* for details.

If you select Option L (Load Tracking Data to DB2 table) from the Change Tracking User Menu (see page 139), the "Load the Tracking into DB2" panel displays.

```
HPSDB2LD -------------- Load The Tracking Data Into DB2 ----------------------
Command ===>

This panel allows the user to specify the name of an existing DB2 table
which will be loaded with Change Tracking history data.

 Specify your DB2 Table Name   ===>                        (eg. SSM8610.TRACK)

 Optionally select: Department ===>                   Group ===>

             and Date Range ===>           To ===>            yyyy/mm/dd

             or Yesterday  ===>                                Y or blank


 Member Name  ===> DB2LOAD   (Saved member name in the user JCL library)

Press ENTER to continue or END to exit
```

Type the name of the DB2 table that is to be loaded with change tracking data.

For example, assume that you have created a table named *SSM8610.TRACK*, and that the table is to be loaded with tracking data. In this example, *SSM8610* is the table owner, and *TRACK* is the table name.

The table name must be in the format: *owner.tablename*.

To load this table with data, specify the table name in the *Specify your DB2 Table Name* field.

For an explanation of other fields on this panel, place your cursor on the data entry portion of the field and press PF1 to display help for that field.

The panel then builds the appropriate JCL for loading the specified DB2 table with the change tracking data.

When the job runs, a history report is created which contains the number of events by type. Following are the event-type codes displayed and their meaning:

Member Events	
Code	**Description**
ADD	Added - Member added to a PDS.
DEL	Delete - Member deleted from a PDS.
UPD	Update - PDS member whose content has changed.
STA	Status - PDS member whose status has changed (ISPF user fields).
LNK	Linked - A member in a load library has been link-edited.
ZAP	Zapped - A member in a load library has been zapped.
REN	Rename - A member in a PDS has been renamed.

Member Events	
Code	**Description**
BKP	Backup - A member in a PDS has been updated and hence, backed up by the last capture.
RES	Restore - A member backup has been accessed.

Data Set Events	
Code	**Description**
UNC	Uncat - An object has been uncataloged.
DSU	DS-upd - A non-PDS object has been updated.
REL	Reloc - An object has been relocated on the DASD.
CMP	Comprs - A PDS object has been compressed.
SCR	Scrtch - An object has been scratched.
MIG	Migrat - An object has been migrated to another volume.
TO	NameTo - An object has been renamed to a new name.
FRM	NameFr - An object has been renamed from an old name.

VSAM Events	
Code	**Description**
VSU	VS-upd – VSAM data set has been updated.
VSR	VS-reo – VSAM data set has been reorganized.
DEF	VS-def – VSAM data set has been defined.
DEL	VS-del – VSAM data set has been deleted.

Option V - View TSO Notifications

This option performs a TSO RECEIVE command and then displays the output using the ISPF BROWSE function.

> **NOTE** The SSMNOTE task must be running to enable this option. Refer to the *ChangeMan SSM Installation Guide* for information about the SSMNOTE task.

If there are no notifications, or if the SSMNOTE task is not running, the following message is displayed:

```
INMR003I You have no messages or data sets to receive.
***
```

When you press Enter, the Change Tracking User Menu is redisplayed.

Chapter 5

Online Change Tracking (HFS)

This chapter describes the ChangeMan SSM online change tracking functions for HFS files. It includes step-by-step instructions for their use. These functions are accessed from the *HFS Change Tracking User Menu* (Option Z on the *ChangeMan SSM Main Menu*).

The HFS change tracking component monitors HFS files (objects) for change and the capture facility retrieves information (change events) about the HFS objects. These change events, which are stored in the Site Master, report HFS file change events.

NOTE The change tracking component intercepts all changes to files being tracked. However, it is possible for some changes that occur in rapid succession to be skipped while events are being recorded. For example, if file x/y/z is updated by events A, B, and C within seconds of each other, it is possible that only events A and C will be recorded.

Access Change Tracking Menus

Accessing an HFS change tracking component menu is dependent upon your role. Unlike the change detection and synchronization components, the change tracking functions are available only to assigned users. A user can be assigned one or more of the following roles:

- Site Administrator

- Department Administrator

- Group Administrator

- User

Another difference from the change detection and synchronization components is that the HFS change tracking component has online administrative functions. These functions are accessed through the Administration menu, Option A of the ChangeMan SSM Main Menu.

When you log on to ChangeMan SSM, the ChangeMan SSM Main Menu displays:

```
HPS@PRI1 ---- ChangeMan SSM Main Menu (Ver 8.4.0)   Time: 13:49:14 ------------
Option ===>

Select one of the highlighted functions:

0 Options                    - Review or Modify Parameters

A Administration             - Change Tracking Administrator Functions
C Change Tracking            - History, Problem Determination, Recovery
Z HFS Change Tracking        - HFS History, Problem Determination

S Detection and Synchronization - Detect Changes and Synchronize MVS data
H HFS - Detect and Synchronize  - Detect Changes and Synchronize HFS data
D Data Extraction            - Extract Changed Data in KSDS, other VSAM,
                               PS or DA files and Flattened Databases
U Utilities                  - Utilities and Self-guided Product Demos

X Exit
                          ChangeMan SSM
                Copyright (c) 1999-2013 - Serena Software, Inc.
                          All Rights Reserved.

Press END to Exit
```

Select Z (HFS Change Tracking). The HFS Change Tracking User Menu displays.

```
HPSMENHU ---------- HFS Change Tracking User Menu - USER001 ------------------
Option ===>

1  Capture Object or Browse Events     - Make Object Tracking current
2  Capture Group and Browse Events     - Make Group Tracking current
3  Query Events and Report             - Show Events in an Object or Group

6  Tracking Summary on an Object       - Object information
7  Tracked Groups                      - List of Tracked Groups
8  Tracked Objects                     - Tracked Objects in all Groups

X  Exit

Press END to Exit
```

Note that Options 4 and 5 are not present on this menu.

Exit HFS Change Tracking Component

To exit the change tracking component from the HFS Change Tracking User Menu, type X, then press Enter.

From the subordinate panels, press End to return to the HFS Change Tracking User Menu, type X, then press Enter.

Select HFS User Function

The HFS Change Tracking User Menu is the primary panel for all non-administrative change tracking functions.

```
HPSMENHU ---------- HFS Change Tracking User Menu - USER001 ------------------
Option ===>

1  Capture Object or Browse Events     - Make Object Tracking current
2  Capture Group and Browse Events     - Make Group Tracking current
3  Query Events and Report             - Show Events in an Object or Group

6  Tracking Summary on an Object       - Object information
7  Tracked Groups                      - List of Tracked Groups
8  Tracked Objects                     - Tracked Objects in all Groups

X  Exit

Press END to Exit
```

Items on the panel are:

Option	Name	Description
1	Capture Object or Browse Events	Makes the information current for the individual HFS object.
2	Capture Group and Browse Events	Makes the information current for all HFS objects in the group.
3	Query Events and Report	Provides reporting functions by event type or event category for a selected HFS object, or the entire HFS group.
6	Tracking Summary on an Object	Displays a summary of the software and system information regarding a tracked HFS object.
7	Tracked Groups	Displays all HFS groups that are defined in the object master database.
8	Tracked Objects	Displays all HFS objects that are defined in the object master database.
X	Exit	Exits this panel.

Note that Options 4 and 5 are not present.

To select a function, type the option number of the function, then press Enter (or press End to return to the Main Menu).

Option 1 - Capture HFS Object or Browse Events

This function provides access to all of the tracking functions at the individual HFS object level.

```
HPSUGR1              Capture Object Events (Select Group)           Row 1 of 2
Command ===>                                               SCROLL===> CSR


To Capture Object Events, enter S to select the Department-Group first


Lcmd: (S)elect a Department-Group


Last Global Capture  ===>  2010/07/28_14:27


Press ENTER to continue or END to exit
                                             Total      Delta-Tracked
  Department          Group     Creation-Date  Object Count  Object Count
_ TECHDOCDEPT         HFS001      2010/08/09        9            0
_ TECHDOCDEPT         HFS002      2010/08/18        5            0
***************************** Bottom of data ******************************
```

Fields on this panel are described in the following table:

Parameter	Description
Last Global Capture	The date and time for the last global tracking performed by the *HPSGLOBE* batch program. The format is: `yyyy/mm/dd_hh:mm` If no global capture for this site master database has occurred, the *Not done* message is displayed.
LIne Command	S - Select; select the specified item.
Department	The name of a department that contains HFS Groups
Group Name	All HFS groups currently defined as part of this object master database are displayed.
Creation Date	The HFS object group's creation date is displayed as: `yyyy/mm/dd_hh:mm`
Total Object Count	The total number of HFS objects in this HFS object group.
Delta Tracked Object Count	Number of objects in this group that are defined as delta-tracked; the value is always 0 (zero).

A second panel displays the objects.

```
HPSUHOB1              Tracked Objects in Group:  HFS001          Row 1 of 9
Command ====>                                           SCROLL ===> CSR


Lcmd: (C)apture, (N)ew, (B)rowse, (L)ast events, (E)vents summary


Press ENTER to continue or END to exit

  Tracked Objects                          Panel 01 of 39 Event    Latest
  -------------------------------+-------------------- Count Event-date-time
_ /x/User02/.sh_history                                 1 2010/08/14_09:12
_ /x/User02/binlist                                     0 * No-time-stamp
_ /x/User02/file.list                                   0 * No-time-stamp
_ /x/User02/file1                                       8 2010/08/14_09:13
_ /x/User02/file3                                       6 2010/08/14_12:04
_ /x/User02/file4                                       1 2010/08/18_14:39
_ /x/User02/file5                                       0 * No-time-stamp
_ /x/User02/final.test                                  0 * No-time-stamp
_ /x/User02/long name with spaces                       0 * No-time-stamp
****************************** Bottom of data ******************************
```

Items on this panel are:

Parameter	Description
Line Command	The N, B, L, and E line commands do not perform a capture. Only one tracked HFS object can be processed at a time. C - Capture; process the specified object and determine if any events have occurred since the last capture. Upon completion, tracking is current for the particular object N - New; display the latest events for the selected HFS object if it had activity in the last capture interval. That interval is the time between the current capture and the previous capture. B – Browse; display events for the selected HFS object. The information is as of the last capture. L – last file events; display only the last event for the selected file. The information is as of the last capture. E – Event Summary; display an event summary for the specified HFS object. The event-oriented information on the event summary is as of the last capture. All HFS objects currently associated in the active HFS group are displayed.
Page nn of 39	Specifies the panel (n = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name.
Event Count	Total number of events recorded for this object.
Latest Event-date-time	The date and time of the most recent event. The format is: `yyyy/mm/dd_hh:mm`

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the HFS object name. If a match is found, the entry will be scrolled to the top of the list.

Command	Description
LOCATE *object*	Locate the first entry with the specified HFS *object* name. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in HFS object-name order will be scrolled to the top of the list.
VIEW {LEFT |RIGHT|n}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels. ■ VIEW LEFT (or V L) moves the display one panel to the left. ■ VIEW RIGHT (or V R) moves the display one panel to the right. ■ VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

Use this procedure to select an HFS object group:

1 Type the S (Select) line command for the HFS Group Name desired, then press Enter.

The Tracked Objects in Group panel displays.

2 Type a line command for the desired tracked objects, then press Enter.

The next panel is determined as follows:

■ N (New), go to "View Results of File "New"" on page 186.

■ B (Browse), go to "View Results of File "Browse"" on page 187.

■ E (Event Summary), go to "View Results of File "Event Summary"" on page 188.

Option 2 - Capture Group and Browse Events

This function provides access to all the tracking functions at the HFS object group level. This is the intermediate level of the tracking functions.

The Capture Group Events panel displays:

```
HPSUGR1                        Capture Group Events                 Row 1 of 2
Command ===>                                                   SCROLL===> CSR


To Capture Group Events, enter S on the corresponding line


Lcmd: (S)elect a Department-Group


Last Global Capture  ===>  2010/07/28_14:27


Press ENTER to continue or END to exit
                                                   Total       Delta-Tracked
  Department          Group      Creation-Date  Object Count  Object Count
_ TECHDOCDEPT         HFS001      2010/08/09         9              0
_ TECHDOCDEPT         HFS002      2010/08/18         5              0
***************************** Bottom of data ******************************
```

Items on this panel are:

Parameter	Description
Last Global Capture	Date and time for the last global tracking performed by the HPSGLOBE batch program. The format is *yyyy/mm/dd_hh:mm*. If the *Not done* message is displayed, no global capture for this site master database has occurred yet.
Line Command	S – Select; select the specified item for next step processing.
Department	Name of the Department in which the HFS group resides
Group Name	Name of the HFS group in which each HFS object resides.
Creation Date	The HFS object group's creation date in yyyy/mm/dd_hh:mm format.
Total Object Count	Total number of HFS objects in this HFS object group.
Delta Tracked Object Count	Number of objects in this group that are defined as delta-tracked; the value is always 0 (zero).

Capture Events

When the capture has completed, the results are displayed.

```
HPSUHOB2           Capture in progress: Group ( HFS001   )           Row 1 of 9
Command ====>                                              SCROLL ===> CSR


Lcmd: (N)ew, (B)rowse, (L)ast event, (E)vent Summary


Press ENTER to continue or END to exit
                                                             Panel 01 of 39
 Evts        Tracked Objects ----------------+------------------------------
_   0 *Failed   /x/User02/.sh_history
_   0 Captured  /x/User02/binlist
_   0 Captured  /x/User02/file.list
_   0 *Failed   /x/User02/file1
_   0 Captured  /x/User02/file3
_   0 Captured  /x/User02/file4
_   0 Captured  /x/User02/file5
_   0 Captured  /x/User02/final.test
_   0 Captured  /x/User02/long name with spaces
****************************** Bottom of data ******************************
                 ----------------------------------------
                 | HPS244I CAPTURE function is successful. |
                 ----------------------------------------
```

Items on this panel are:

Parameter	Description
Line Command	N – New; display the latest events for the selected HFS object if it had activity in the last capture interval. That interval is the time between the current capture and the previous capture. B – Browse; display all events for the selected HFS object. The information is as of the last capture. L – Last event for each file; displays the latest event for the selected file. E – Event Summary; displays an event summary for the specified HFS object. Event-oriented information on the event summary is as of the last capture. Functions N, B, and E do not perform captures themselves.
Page nn of 39	Specifies the panel (n = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name
Evts	Number of new events detected during the just-completed capture for each HFS object is reported.
(Capture)	Status of the capture.
Tracked Objects	Displays all HFS objects currently associated in this HFS group.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the HFS object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified HFS *object* name. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in HFS object-name order will be scrolled to the top of the list.
VIEW {LEFT |RIGHT|n}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels. ■ VIEW LEFT (or V L) moves the display one panel to the left. ■ VIEW RIGHT (or V R) moves the display one panel to the right. ■ VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

Use this procedure to view an event:

1 Type a line command for the desired tracked object to view the event, then press Enter.

2 The next panel is determined by the following sequences:

- N (New), go to "View Results of File "New"" on page 186.
- B (Browse), go to "View Results of File "Browse"" on page 187.
- E (Event Summary), go to "View Results of File "Event Summary"" on page 188.

View Results of File "New"

The List of Events panel displays only those events that have occurred since the previous capture and the capture just completed (new).

```
HPSUHFS                      List of Events (HFS)                   Row 1 of 1
Command ====>                                              SCROLL===> CSR

Press END to exit                                               Events: 3

Object: /x/User01/file1

Begin-Date--Time  End---Date--Time  Event    Jobname    Program    Stepname
2010/09/13_12:29  2010/09/13_12:34  Update
***************************** Bottom of data *****************************
```

Items on this panel are:

Parameter	Description
Events	Total number of all events for this object since it was initialized or defined to tracking.
Object	The tracked object's name.
Begin-Date--Time End---Date--Time	Date/time range for the event, which is between the current capture (End-Date-Time) and the previous capture (Begin-Date-Time). The format is *yyyy/mm/dd_hh:mm*.
Event	Event type of the last event detected for this file.
Jobname	UserID from the ISPF user fields (if available), or the name of the job that updated the file.
Program	UserID from the ISPF user fields (if available), or the name of the job that updated the file.
Stepname	UserID from the ISPF user fields (if available), or the name of the job step that updated the file.

When you have completed reviewing the information, press End to return to the previous panel.

View Results of File "Browse"

The List of Events panel displays all events that have been collected for the selected object.

```
HPSUHFS                       List of Events (HFS)                   Row 1 of 3
Command ====>                                             SCROLL===> CSR

Press END to exit                                             Events: 3

Object: /x/User02/file1


Begin-Date--Time  End---Date--Time  Event     Jobname    Program    Stepname
2010/09/13_12:29  2010/09/13_12:34  Update
2010/09/11_14:28  2010/09/12_11:49  Update
2010/09/11_14:20  2010/09/11_14:20  Update    USER29     IKJEFT01   USER29
***************************** Bottom of data ******************************
```

Items on this panel are:

Parameter	Description
Events	Total number of all events for this object since it was initialized or defined to tracking.
Object	The tracked object's name.
Begin-Date--Time End---Date--Time	Date/time range for the event, which is between the current capture (End-Date-Time) and the previous capture (Begin-Date-Time). The format is *yyyy/mm/dd_hh:mm*.
Event	Event type of the last event detected for this file.

Parameter	Description
Jobname	UserID from the ISPF user fields (if available), or the name of the job that updated the file.
Program	UserID from the ISPF user fields (if available), or the name of the job that updated the file.
Stepname	UserID from the ISPF user fields (if available), or the name of the job step that updated the file.

When you have reviewed the information, press End to return to the previous panel.

View Results of File "Event Summary"

The Tracking Summary on an Object panel displays a composite summary of system and software information for the selected HFS object as of the last capture.

If processing at the HFS object level, this panel is entered from the panel when the function requested is E (Event Summary.

```
HPSUHSUM                  Tracking Summary on an Object
Command ====>

Press END to Exit

Tracked Object ===> /x/User02/.sh_history


Initialization Time Stamp  ===>  2010/08/07_08:59

*--*--* As of Last Capture: 2010/08/14_09:12 *--*--*--*--*
|                                                         |
*   Number of Events Captured Since Start:         1     *
|   Current Number of Events:                      1     |
*   Time of Last Event: 2010/08/14_09:12                 *
|   Object is Delta-Tracked: No                          |
*                                                         *
*--*--*--*  Object's Filesystem Characteristics *--*--*--*
|                                                         |
*   Create time: 2010/08/14_09:12:43  Volume: XYHFS2     *
|   Attrib time: 2010/08/14_09:12:44  Size  : 1498       |
*   Modify time: 2010/08/14_09:12:44  Blocks: 1          *
|                                                         |
*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*
```

When you have reviewed the information, press End to return to the previous panel.

Items on this panel are:

Parameter	Description
Tracked Object	File name of the tracked HFS object.
Initialization Time Stamp	Date and time that this HFS object was first defined to SSM and captured. The format is *yyyy/mm/dd_hh:mm*.
As of Last Capture	Date and time that this HFS object was last captured; the format is *yyyy/mm/dd_hh:mm*.

Parameter	Description
Number of Events Captured Since Start	Total number of events recorded for this HFS object. This represents all events since the file was initialized or defined to tracking.
Current Number of Events	Total number of events recorded that are available for reporting for this HFS object.
Time of Last Event	Time of the capture when the last event was detected. If it is the same as the Last Capture time, then there was current activity. If not, then the activity occurred before the last capture. The format is *yyyy/mm/dd_hh:mm*.
Object is Delta_Tracked	Indicates whether (Yes) or not (No) the HFS object is delta-tracked.
Object's Filesystem Characteristics	HFS object Filesystem information.
Create Time	Date and time that this HFS object was created. The format is *yyyy/mm/dd_hh:mm.*
Volume	The volume on which this HFS file resides.
Attrib Time	The most recent date and time that this HFS file's attributes changed. The format is *yyyy/mm/dd_hh:mm.*
Size	The size of the HFS object in bytes
Modify Time	The most recent date and time that this HFS object changed. The format is *yyyy/mm/dd_hh:mm.*
Blocks	The number of blocks used by this HFS object.

When you have reviewed the information, press Enter to return to the Change Tracking User Menu.

Option 3 - Query Events

This option allows you to query events by type or category.

Enter an S to select a single HFS object, or G to include all objects events in the HFS Group. In the following example, all objects in the HFS001 Group of the TECHDOCDEPT Department will be selected.

```
HPSUGR2     Query Events  ( Last Global: 2010/07/28_14:27 )        Row 1 of 2
Command ===>                                            SCROLL===> CSR

To Query events, by TYPE or CATEGORY, enter a line command.

Lcmd: (S) Select a Department-Group and then an Object within the Group.
      (G) Select all the Objects within a Department-Group.

Press ENTER to continue or END to exit
                                                Total      Delta-Tracked
  Department        Group     Creation-Date  Object Count  Object Count
G TECHDOCDEPT       HFS001      2010/08/09        22            0
_ TECHDOCDEPT       HFS002      2010/08/18         0            0
****************************** Bottom of data ******************************
```

Select Event Type or Event Category

After selecting a group (or a specific HFS object within an HFS Group) from the *Query Events* panel, a statistical table of events is created for the HFS object(s). In the following example, a summary of event statistics is displayed for all of the HFS objects in the HFS001 Group of the TECHDOCDEPT Department.

```
HPSUHEV1                 Events Statistics for Group: HFS001
Command ====>

Enter S to select Type(s) and/or Category from one column at a time.

Object: All Objects in the Group have been evaluated

Events: 5
                                      Last Global:  2011/07/28_14:27
( _ )     5 Update                    Last Capture: n/a
( _ )     0 Status
( _ )     0 Delete
( _ )     5 HFS      (Selects all events)

Optional Filters:       Jobname ==>
                         Userid ==>
          Period: Last n Hours   ==>                        1 thru 99
                  or Yesterday   ==>                        Y or blank
                  or Last n Days ==>                        1 thru 999
                  or Date Range  ==>        To ==>          yyyy/mm/dd
```

The ability to view the events for an entire HFS object group makes it possible to quickly determine if there has been any particular activity for any of the HFS objects in the HFS Group.

Items on the *Event Statistics for Group* panel:

Parameter	Description
HFS Group name	The name of the selected HFS Group is displayed in the heading.
Object	The HFS object name if a specific object was selected; otherwise, "All Object(s) in the Group have been Evaluated" is displayed.
Events	The total number of events evaluated.
Last Global	The date and time of the last global capture performed by the *HPSGLOBE* batch program. The format is *yyyy/mm/dd_hh:mm*. If the *Not done* message is displayed, no global capture for this object master has occurred
n Update	This selection includes in the statistics report the objects that have been updated; this selection can be restricted by using the Optional Filters. The *n* parameter specifies the number of update events that have occurred.
Last Capture	The date and time of the most recent capture; the format is *yyyy/mm/dd_hh:mm*.
n Status	This selection includes in the statistics report the objects whose statuses have changed; this selection can be restricted by using the Optional Filters. The *n* parameter specifies the number of status change events that have occurred.
n Delete	This selection includes in the statistics report the objects that have been deleted; this selection can be restricted by using the Optional Filters. The *n* parameter specifies the number of delete events that have occurred.
n HFS	This selection includes in the statistics report all events; this selection can be restricted by using the Optional Filters. The *n* parameter specifies the number of events that have occurred.

Parameter	Description
Other Filters	Optional. Select events by Jobname and Userid filters. Jobname – Enter an explicit or generic (ending in *) value. Events with a matching jobname will be included in the generated report. Userid – Enter an explicit or generic (ending in *) value. Events with a matching userid will be included in the generated report.
Period	Optional. A time range can be specified for the selected event types. Enter one of the following mutually-exclusive specifications; leave blank to *not* use the restriction: ■ Last n Hours – Enter the number of hours to be included. For example, '24' indicates from the current time yesterday to the same time today. ■ Yesterday – Enter a Y to restrict the statistics report to changes made yesterday. ■ Last n Days – Enter the number of days to be included. For example, '02' indicates yesterday and today. ■ Date Range – Enter the start date for a range of dates to be included in the statistics report. The *To* field is required when a start date is specified. The date format is yyyy/mm/dd.

To select event types or an event category:

1   Enter an S in the associated line command fields for the event or category.

2   Optionally, supply values for the Filters and Period fields.

3   Press Enter to display a report of event statistics.

View Event Statistics

A report displays for the event types selected from the *Event Statistics for Group* panel. In this example, the HFS category was selected.

```
 ISRBROBA   USER001.ZYN06260.X2049264.OUTLIST          Line 00000000 Col 001 080
 Command ===>                                                    Scroll ===> PAGE
******************************* Top of Data **********************************
Command    Column  10        20        30        40        50        60        7
Count-seg  ....+....+....+....+....+....+....+....+....+....+....+....+....+....
   1-1   "HFSEVENTS=(DEPARTMENT=TECHDOCDEPT,GROUP=hFS001,
    -2   "  INCLOBJ='/u/alfors/file1',
    -3   "  REPORT=(SEL=(HFS)))
         "*
      3 events currently for object: /u/alfors/file1

HPS1599I  HPSTRACK  20:49:26 Summary of group=HFS001    Department=TECHDOCDEPT
                                 1 objects selected.
                                21 objects not selected.
                                22 total objects in group.
                                 3 events detected in selected objects.

                                Accumulated events by selectable type and c
                                 0 Added
                                 3 Update
                                 0 Status
                                 0 Delete
```

When you have completed reviewing the information, press End to specify the disposition for this report (print, delete, keep).

Option 6 - Object Tracking Summary

This function provides a tracking summary for any tracked HFS object, displaying both tracking data and the file's physical characteristics.

The Tracking Summary panel displays only for users who have access to more than one HFS Group; otherwise, the panel is bypassed as the software implicitly selects the HFS Group.

```
HPSUGR1                      Tracking Summary (Select Group)          Row 1 of 2
Command ===>                                                       SCROLL===> CSR

To Display latest Events, enter S to select the Department-Group first

Lcmd: (S)elect a Department-Group

Last Global Capture  ===>  2010/07/28_14:27

Press ENTER to continue or END to exit
                                             Total       Delta-Tracked
  Department       Group     Creation-Date Object Count  Object Count
_ TECHDOCDEPT      HFS001     2010/08/09        22            0
_ TECHDOCDEPT      HFS002     2010/08/18         0            0
***************************** Bottom of data ********************************
```

This panel includes the following items:

Parameter	Description
Last Global Capture	Date and time of the last global capture performed by the *HPSGLOBE* batch program. The format is *yyyy/mm/dd_hh:mm*. If the *Not done* message is displayed, no global capture for this object master has occurred.
Line Command	S – select the specified item.
Department	Name of the Department in which the HFS group resides.
Group	Name of the HFS Group in which each HFS object resides.
Creation Date	HFS Group creation date, displayed in *yyyy/mm/dd_hh:mm* format.
Total Object Count	Number of objects in this group (delta-tracked, and non-delta-tracked).
Delta-Tracked Object Count	Number of objects in this group that are defined as delta-tracked; the value is always 0 (zero).

Use this procedure to view the tracking summary of an object:

1   Type S (Select) for the HFS Group name containing the desired object, then press Enter.

The Tracked objects in Group panel displays.

```
HPSUHOB1              Tracked Objects in Group:  HFS001           Row 1 of 22
Command ====>                                             SCROLL ===> CSR


Lcmd: (S)elect


Press ENTER to continue or END to exit


  Tracked Objects                        Panel 01 of 39   Event    Latest
  -------------------------------+------------------       Count Event-date-time
_ /x/User02/.sh_history                                      0 * No-time-stamp
_ /x/User02/abc                                              0 * No-time-stamp
_ /x/User02/binlist                                          0 * No-time-stamp
_ /x/User02/file.list                                        0 * No-time-stamp
_ /x/User02/file1                                            3 2010/09/13_12:34
_ /x/User02/file11                                           0 * No-time-stamp
_ /x/User02/file111                                          0 * No-time-stamp
_ /x/User02/file111a                                         0 * No-time-stamp
_ /x/User02/file2                                            2 2010/09/13_12:34
_ /x/User02/file3                                            0 * No-time-stamp
```

This panel displays the following items:

Tracked Objects in Group – Name of the previously-selected HFS Group. HFS objects displayed on this panel are all part of this HFS Group. This is not an editable field.

Lcmd: – Specifies the Line Command: S – select the specified item. This is not an editable field.

Tracked Objects – List of all HFS objects in the active HFS Group.

Panel 01 of 39 – Specifies the panel (nn = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name. This is not an editable field.

Event Count – The number of reportable (retained) events for this HFS object. If this value exceeds 9999, the three right-most digits will be replaced by a "K" before being displayed. The number of retained events may be less than the total number of events captured for this HFS object (controlled by the ROLLOFF value specified in HPSPARMS). The total number of events can be found on the *Tracking Summary on an Object* screen.

Latest Event-date-Time – Date and time of the last event known to the software for this HFS object. The information is as of the last capture.
The format is *yyyy/mm/dd_hh:mm.*

The No-Events message (if displayed) indicates that no event has occurred for this item since the installation or last initialization; hence, there has been no change.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the HFS object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified HFS *object* name. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in HFS object-name order will be scrolled to the top of the list.
VIEW {LEFT |RIGHT|n}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels. ■ VIEW LEFT (or V L) moves the display one panel to the left. ■ VIEW RIGHT (or V R) moves the display one panel to the right. ■ VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

2   Type S (Select) for the tracked object.

The Tracking Summary on an Object panel displays. This panel displays a summary of system and software information for the selected object as of the last capture.

```
HPSUHSUM                    Tracking Summary on an Object
Command ====>

Press END to Exit

Tracked Object ===> /x/User02/file3


Initialization Time Stamp  ===>  2010/07/13_13:51

*--*--* As of Last Capture: 2010/08/31_17:46 *--*--*--*--*
|                                                        |
*  Number of Events Captured Since Start:        7    *
|  Current Number of Events:                     7    |
*  Time of Last Event: 2010/08/30_21:57                *
|  Object is Delta-Tracked: No                         |
*                                                      *
*--*--*--*  Object's Filesystem Characteristics *--*--*--*
|                                                        |
*  Create time: 2010/08/14_12:31:38  Volume: XYHFS2   *
|  Attrib time: 2010/08/29_13:10:29  Size  : 9 2      |
*  Modify time: 2010/08/24_11:42:40  Blocks: 1         *
|                                                        |
*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*--*
```

This panel displays the following items:

Tracked Object – File name of the tracked object.

Initialization Time Stamp – Date and time that this HFS object was first defined to SSM and captured. The format is *yyyy/mm/dd_hh:mm.*

As of Last Capture – Date and time that this HFS object was last captured by the software. The format is *yyyy/mm/dd_hh:mm.*

Number of Events Captured Since Start – The total number of events recorded for this HFS object. This represents all events since the HFS object was first defined to tracking.

Current Number of Events – Total number of events recorded for this HFS object. This represents all events since the file was initialized or defined to tracking.

Time of Last Event – Time of the capture when the last event was detected.

If it is the same as the *As of Last Capture* time, there was current activity. If not, then the activity occurred before the last capture. The format is *yyyy/mm/dd_hh:mm.*

Object is Delta-Tracked – Specifies whether (Yes) or not (No) the HFS object object is delta-tracked.

Object's Filesystem Characteristics – HFS object Filesystem information.

Create Time – Date and time that this HFS object was created. The format is *yyyy/mm/dd_hh:mm.*

Volume – The volume on which this HFS file resides.

Attrib Time – The most recent date and time that this HFS file's attributes changed. The format is *yyyy/mm/dd_hh:mm.*

Size – The size of the HFS object in bytes.

Modify Time – The most recent date and time that this HFS object changed. The format is *yyyy/mm/dd_hh:mm.*

Blocks – The number of blocks used by this HFS object.

Option 7 - Display Tracked Groups

The Display Tracked Groups function provides a display of all the groups you are defined to as a user. This is an information-only panel.

```
HPSUGRP                           Tracked Groups                        Row 1 of 2
Command ===>                                               SCROLL===> CSR

Last Global Capture ===>  2010/07/28_14:27

Press END to exit


                            Group        Total      Delta-Tracked
 Department       Group   Creation-Date Object Count  Object Count
 TECHDOCDEPT      HFS001    2010/08/09      22            0
 TECHDOCDEPT      HFS002    2010/08/18       0            0
****************************** Bottom of data ******************************
```

This panel includes the following items:

Parameter	Description
Last Global Capture	Date and time of the last global capture performed by the RTCT Started Task. The format is *yyyy/mm/dd_hh:mm* If the *Not done* message is displayed, no global capture for this object master has occurred.
Department	Name of the Department in which the HFS group resides
Group	Name of the HFS Group in which each HFS object resides.
Group Creation-Date	HFS Group creation date, displayed in *yyyy/mm/dd_hh:mm* format.
Total Object Count	Number of HFS objects in this HFS Group.
Delta-Tracked Object Count	Number of objects in this group that are defined as delta-tracked; the value is always 0 (zero).

Option 8 - Display Tracked HFS Objects

The Display Tracked HFS Objects function displays the tracked HFS objects in all groups that you are defined to as a user. This is an information-only panel:

```
HPSUHOBJ                      Tracked HFS Objects                     Row 1 of 11
Command ====>                                              SCROLL ===> CSR


Last Global Capture  ====>  2010/07/28_14:27


Press END to exit


Tracked Object                          Panel 01 of 39 Department      Group
--------------------------------+-------------------- Name            Name
/x/User02/.sh_history                                 TECHDOCDEPT     HFS001
/x/User02/binlist                                     TECHDOCDEPT     HFS001
/x/User02/file.list                                   TECHDOCDEPT     HFS001
/x/User02/file1                                       TECHDOCDEPT     HFS001
/x/User02/final.test                                  TECHDOCDEPT     HFS001
/x/User02/long name with spaces                       TECHDOCDEPT     HFS001
/x/file.txt                                           TECHDOCDEPT     HFS002
/x/xyxemyh                                            TECHDOCDEPT     HFS002
/x/abcqa21.src(backup)                                TECHDOCDEPT     HFS002
/x/abcqa21.src)                                       TECHDOCDEPT     HFS002
/x/DFTDUMP.20050825.092916.16842914                   TECHDOCDEPT     HFS002
****************************** Bottom of data *******************************
```

When you have finished reviewing the information, press END to return to the HFS Change Tracking User Menu.

This panel includes the following items:

Parameter	Description
Last Global Capture	Date and time of the last global capture. The format is *yyyy/mm/dd_hh:mm* If the *Not done* message is displayed, no global capture for this Object Master has occurred.
Tracked Objects	All HFS objects currently defined in this Object Master.
Panel nn of 39	Specifies the panel (nn = 01 - 39) displayed; each panel displays 32 bytes of the HFS file name
Department Name	Name of the Department in which the HFS group resides
Group Name	Name of the HFS group in which each HFS object resides.

Commands

The following commands may be issued from this panel:

Command	Description
FIND *string*	Find the next entry containing the specified *string* in the HFS object name. If a match is found, the entry will be scrolled to the top of the list.
LOCATE *object*	Locate the first entry with the specified HFS *object* name. If a matching entry is found, it will be scrolled to the top of the list. If a matching entry is not found, the entry preceding it in HFS object-name order will be scrolled to the top of the list.
VIEW {LEFT |RIGHT|n}	View one of the 32-byte panels that displays HFS filenames and all or part of the panel to its immediate right. The amount of information displayed depends on the screen space available. There are 39 panels. ■ VIEW LEFT (or V L) moves the display one panel to the left. ■ VIEW RIGHT (or V R) moves the display one panel to the right. ■ VIEW nn (or V nn) displays panel number nn (nn = 01 - 39)

Chapter 6
Batch Change Tracking Facilities

Data sets can be delta-tracked using ChangeMan SSM fingerprint technology. The ChangeMan SSM batch change tracking facility includes commands to execute Change Tracking functions for large-scale environments.

This chapter describes each of the change tracking commands, including usage examples. Change tracking batch functions are available only to authorized users.

Sample JCL for Batch Change Tracking

Here is an example of JCL required for batch change tracking:

```
//JOB
//*
//*----------------------------------------------------
//* This is sample JCL required to perform batch
//* Change Tracking.
//*----------------------------------------------------
//*
//STEP1      EXEC PGM=HPSTRACK,REGION=4096K
//STEPLIB   DD   DSN=somnode.CMNSSM.LOAD,DISP=SHR
//          DD   DSN=somnode.SERCOMC.LOAD,DISP=SHR
//SYSPRINT  DD   SYSOUT=*
//SYSUDUMP  DD   SYSOUT=*
//HPSIN     DD   *

 (Specify ChangeMan SSM commands here)

/*
```

NOTE The HPSTRACK program can also be called from a REXX program. For an example, see the REXXTRAC sample program in the ChangeMan SSM SAMPLES library.

Security UserID

The change tracking commands in this chapter are categorized as user commands.

When defining a group, the Department Administrator is assigned as a user of the group.

You can use the online facilities (Authorize Users), or the USERADD batch command to define other TSO UserIDs.

The security UserID (Auth-ID) of a batch-submitted job is verified against the information in the site master database to determine if you have the authority to execute these commands.

When a group is defined, the Department Name is concatenated with the group name to make the name unique. For example, if a group called CICS is defined in two different Departments (department1 and department2), the two groups would be named *DEPARTMENT1.CICS* and *DEPARTMENT2.CICS* internally to ChangeMan SSM.

To unambiguously identify a group when batch commands are used, the DEPARTMENT parameter can be specified. If this parameter is missing, the TSO UserID of the submitted job is used to identify the group internally.

Command Structure

The general format for the batch commands is:

```
Command=(Parameter=(Subparameter=(value,value,...),
           Parameter=...))
```

There are no spaces in the commands.

Parameters are enclosed in parentheses (if there is only one parameter, the parentheses can be omitted).

Subparameter values must be completely specified on a single line.

Multiple subparameter values can be specified on separate, consecutive lines.

All commands, parameters, and subparameters can be abbreviated to the level of non-ambiguity in its group. For example, the INCLCLUS parameter can be abbreviated as INCLCLU or INCLC.

An underscore can indicate:

- A default value if the parameter is not specified. For example, AUTORECALL=(Y|<u>N</u>). In this example, N is the default value.

- You must specify one or more values if you specify the associated parameter. For example, CAPTURE=(DEPARTMENT=(_),... In this example, you must specify a value for DEPARTMENT.

  If the underscore is followed by an asterisk, you can specify a wildcard. For example, for GROUP = (_*), you could specify GROUP=(GRP1*) to include GRP10, GRP11, GRP12, GRP100, and so on.

- A purely notational symbol that makes a user-supplied parameter more readable. For example, `FOR=(YESTERDAY|n_number_of_days),...In this example, n_number_of_days means that you need to supply a number-of-days value such as 30.`

Command Summary

```
AUTORECALL = ( Y | N )

CAPTURE    = ( DEPARTMENT = ( _ ) ,
               EXCLOBJ = ( _,... ) ,
               GROUP = ( _ ) ,
               INCLOBJ = ( _,... ) )

DEFINEDS   = ( DEPARTMENT = _ ,
               DELTA = ( Y | N ) ,
               DSN = ( _,... ) ,
               EXCLDSN = ( _,... ) ,
               EXCLVOL = ( _,... ) ,
               GENERIC = ( _,... ) ,
               GROUP = ( _ ) ,
               INCLDSN = ( _,... ) ,
```

```
                             INCLVOL = ( _,... ) ,
                             SIMULATE ,
                             TYPE = ( PO|PS|DA|LOAD|PDS|TEXT|SRC ) ,
                             VOL = _ )

            DEFINEVS   = ( DEPARTMENT =  _,
                             CLUSTER = ( _,... ) ,
                             EXCLCLUS = ( _,... ) ,
                             EXCLVOL = ( _,... ) ,
                             GENERIC = ( _,... ) ,
                             GROUP = ( _ ) ,
                             INCLCLUS = ( _,... ) ,
                             INCLVOL = ( _,... ))

            DELETEDS   = ( DEPARTMENT = _ ,
                             DSN = ( _,... ) ,
                             GROUP = _ ,
                             VOL = _ )

            EVENTS     = ( DEPARTMENT = ( _ ) ,
                             EXCLOBJ = ( _,... ) ,
                             GROUP = ( _ ) ,
                             INCLOBJ = ( _,... ) ,
                             LIST = ( Y | N ) ,
                             REPORT = ( EXCLMEM = ( _,... ) ,
                                       FOR = ( YESTERDAY | n_number_of_days ) ,
                                       FROM = ( yyyy/mm/dd_hh:mm ) ,
                                       HOURS = ( n_number_of_hours ) ,
                                       INCLMEM = ( _,... ) ,
                                       LATEST,
                                       SELECT = ( MEMBER | DATA SET | VSAM | ... ),
                                       TO = ( yyyy/mm/dd_hh:mm ) ) )

            HFSCAPTURE = ( (ADMIN = ( _ ) | DEPARTMENT = ( _ ) ),
                             EXCLOBJ = ( _,... ) ,
                             GROUP = ( _ ) ,
                             INCLOBJ = ( _,... ) )

            HFSDEFINE  = ( (ADMIN = ( _ ) | DEPARTMENT = ( _ ) ),
                             EXCLUDE = ( _,... ) ,
                             FILE = ( '/path/file',... ) ,
                             GROUP = ( _ ) ,
                             INCLUDE = ( _,... ) ,
                             SIMULATE

            HFSDELETE  = ( (ADMIN = ( _ ) | DEPARTMENT = ( _ ) ),
                             GROUP = ( _ ) ,
                             OBJECT = ( '/path/file' ) )

            HFSEVENTS  = ( (ADMIN = ( _ ) | DEPARTMENT = ( _ ) ),
                             EXCLOBJ = ( _,... ) ,
                             GROUP = ( _ ) ,
                             INCLOBJ = ( _,... ) ,
```

```
                            REPORT = ( FOR = ( YESTERDAY | n_number_of_days ) ,
                                       FROM = ( yyyy/mm/dd hh:mm ) ,
                                       HOURS = ( n_number_of_hours ) ,
                                       LATEST ,
                                       SELECT = ( HFS | (STATUS,DS_UPD,SCRTCH) )
                                       TO = ( yyyy/mm/dd_hh:mm ) ) )
  .
HISTORY    = ( (DD = _ | DSN = _) ,
               (COLUMNHEAD | DB2LOAD) ) ,
               (DEPARTMENT = ( _ ) , GROUP | HFSGROUP = ( _ | _* | * )
               (FROM = yyyy/mm/dd , TO = yyyy/mm/dd) | YESTERDAY)

MODE       = ( HYPER | QUICK | SECURE )

NOECHO

RECOVER    = ( DEPARTMENT = ( _ ) ,
               ( DATETIME = yyyy/mm/dd_hh:mm:ss | VERSION = _ ) ,
               FOR = ( TODAY | YESTERDAY | n_days_ago ) ,
               DD = ( _ ) ,
               DSN = ( _ ) ,
               GROUP = ( _ ) ,
               MEMBER = ( _ ) ,
               INCLMEM = ( _ ) ,
               EXCLMEM = ( _ ) ,
               NEWNAME = ( _ ) ,
               OBJECT = ( _ ) ,
               VOLSER = ( _ ) )

TRACE      = ( OFF | ON )

VSAMOPEN   = ( Y | N )
```

Wildcards and Pattern Names

Data Set, Object, and Cluster Name Wildcards

The following special characters can be used to specify a pattern of data sets, objects, or clusters in the INCLDSN, EXCLDSN, INCLOBJ, EXCLOBJ, INCLCLUS, or EXCLCLUS parameters.

NOTE For information on specifying patterns names with HFS parameters, see .

Character	Description
*	Node specification. If ***** is the only character in a node, then any character string in the node is accepted. If ***** is the last character in a string, then any node that begins with the specified string is selected, regardless of any final characters.

Character	Description
?	Character specification. Any character in the position specified by ? satisfies the selection requirements.
/	Search terminator notation. Any characters beyond the / are accepted. A pattern without a / character implies that the pattern characters correspond exactly to the data set name characters. For example, *2ABC* selects all data sets in which the second node is exactly *ABC*, whereas *2ABC/* selects all data sets that have a second node beginning with *ABC*.
!string!	String search delimiter. Any string in a data set name that matches the string enclosed with this character meets the criterion for exclusion. For example, *!string!*.
n	Node number indicator. The *n* parameter can have values between one and twenty-two, numbered left to right. The last node (right-most node) in a data set name is also the zero node. For example, given *node1.node2.node3.node4*, then *node4* could be referenced by the zero indicator).

Catalog Search

The GENERIC parameter and some of the online panels use the Catalog Search Interface (CSI) of DFSMS, which is the same search facility used in ISPF 3.4.

NOTE The panel fields that use the CSI are indicated with text that says the pattern name is similiar to ISPF Option 3.4. The commands that support pattern names in the GENERIC parameter are noted in those command/parameter descriptions.

SSM supports all of the patterns that ISPF 3.4 supports; however, SSM does not use the option "Include Additional Qualifiers" because it can cause large numbers of catalog entries to be retrieved, which then have to be filtered by the user. If you need additional qualifiers, use * or ** to indicate which nodes you want beyond the nodes explicitly defined in the pattern.

The following table describes how to specify pattern names using wildcards with the CSI. For more information, refer to the IBM DFSMS documentation.

Character	Description
*	A single asterisk by itself indicates that either a qualifier or one or more characters within a qualifier can occupy that position. An asterisk can precede or follow a set of characters.
**	A double asterisk indicates that zero or more qualifiers can occupy that position. A double asterisk cannot precede or follow any characters; it must be preceded or followed by either a period or a blank.
%	A single percent sign by itself indicates that exactly one alphanumeric or national character can occupy that position.

Member Name Patterns

The following patterns can be used to specify a pattern of members in the EXCLMEM and INCLMEM parameters of the EVENTS REPORT sub-command:

Pattern	Description
`<(string)`	Includes all member names which are alphabetically less than the string value. For example, INCLMEM<(TEST) selects all member names which are alphabetically less than TEST.
`>(string)`	Includes all member names which are alphabetically greater than the string value. For example, INCLMEM>(TEST) selects all member names which are alphabetically greater than TEST.
`=(string*)`	Includes all member names which begin with the string value. For example, INCLMEM=(TEST*) selects all member names which begin with TEST.

Volume Name Wildcards

The following special characters can be used to specify a pattern of volumes in the INCLVOL and EXCLVOL parameters.

Wildcard	Definition
/,*	Search terminator notation. Any character beyond this character in a volume specification is accepted. For example, in the pattern DEV*, all volumes that have DEV as the first three characters will be selected. The pattern DEV/ is identical to DEV*.

NOTE Wildcards cannot be used with the VOL parameter.

Using Pattern Names With HFS Parameters

Pattern names can be used with the FILE, INCLUDE, EXCLUDE, INCLOBJ, and EXCLOBJ parameters of the HFS commands.

A double asterisk is used as the final two characters of a path name. All subdirectories and files under the double asterisk are included. For example:

   /u/test/**   indicates all subdirectories and files under /u/test .

NOTE A double asterisk must be the final two characters of the string. For example:

    /u/test/**/data   is invalid.

System Symbolics

System symbolics can be used in a number of parameters in the Batch Change Tracking facility.

NOTE System symbolics are not supported in the ISPF panels.

Using Symbolics in Command Parameters

The following batch command parameters support system symbolic values:

VOLSER

INCLVOL

EXCLVOL

NEWDSNTOVOL

DSN

INCLDSN

EXCLDSN

CLUSTER

INCLCLUS

EXCLCLUS

GENERIC

Using Symbolics in HPSPARMS Parameters

The following HPSPARMS parameters support system symbolic values within the DSN specification:

SITEMASTER

OBJECTMASTER

DELTAMASTER

Command Stacking

Command stacking is allowed. Stacked commands are executed in the order of entry. Following is an example of command stacking:

```
DEFINEDS=(DEPARTMENT=SYSDDEPT,GROUP=SYSTEM,
          DSN=SYS1.LINKLIB)

DEFINEVS=(DEPARTMENT=SYSDDEPT,GROUP=VSAM,
          INCLVOL=(SER004,SER005),
          INCLCLUS=SER12.VSAM/)

DEFINEVS=(DEPARTMENT=SYSDDEPT,GROUP=APPL,
          GENERIC=USER12.HPS41*)
```

The first command defines a non-VSAM data set. The second command defines all VSAM data sets residing on the two volumes, and having the specified naming pattern. The third command defines all application software packages with the specified naming pattern to the group *APPL*.

There is no limit to the number of stacked commands that can be specified.

Reserved DDs

Following are the reserved DDs for ChangeMan SSM:

DD	Description
//HPSIN DD	All commands input to ChangeMan SSM must be provided through the specification of this DD statement.
//HPSPLIB DD	This DD points to the PARMLIB data set where the source parameter members HPSPARMx are found.
	At least one parameter member must be created.
	This DD may be required for the ISPF interface ($SSMV8 CLIST), or the batch jobs executing (HPSTRACK, HPSINTEG, or HPSMAINT).
	At sites where there are multiple versions of ChangeMan SSM installed, the DD must be specified pointing to the correct HPSPARMx member for that system's tracking component PARMLIB member.
	For sites with a single ChangeMan SSM system, a default data set and member may be specified during the install, eliminating the need to specify this DD.
//DETECT DD	This DD points to a LOG data set to record the conditions during the ISPF interface. This DD is required only for the ISPF interface, and, therefore, should be specified in the $SSMV8 CLIST.

Comments

The commands following the HPSIN DD can be commented by placing an asterisk in the first column.

Blank lines are allowed.

Following is an example of commented JCL:

```
//JOB
//*------------------------------------------------------------
/*JOBPARM S=SYSA
//*
//* This job will select all load libraries that fit a given name
//* pattern(s) and reside on a groups of volumes. It defines
//* them for non-delta tracking (DELTA=N).Cataloged or uncataloged
//* data sets can be defined for tracking.
//*
//* Note: Each defined object is opened for input before define
//*       is allowed. Security protection is not violated.
//*
//STEP1    EXEC PGM=HPSTRACK,REGION=4096K
//STEPLIB  DD   DSN=somnode.CMNSSM.LOAD,DISP=SHR
//         DD   DSN=somnode.SERCOMC.LOAD,DISP=SHR
//*HPSPLIB DD   DSN=SYS1.PARMLIB(HPSPARMS),DISP=SHR
//SYSPRINT DD   SYSOUT=*
//HPSIN    DD   *
* TRACE=ON
* AUTORECALL=Y
*------------------------------------------------------------
  DEFINEDS=(GROUP=LOADAPPL,
           DEPARTMENT=SYSDDEPT,
           DELTA=N,
           TYPE=LOAD,
           INCLDSN=SYSP.PROD/,
           INCLVOL=SER*)
```

Command Descriptions

The change tracking commands, including parameters, subparameters, and examples, are described in the remaining portion of this chapter.

AUTORECALL

AUTORECALL directs ChangeMan SSM to recall all migrated data sets before continuing with a task.

Specify AUTORECALL=Y to have ChangeMan SSM identify any migrated data sets associated with the task, and recall them from the archive system before proceeding with the requested task.

HSM-migrated data sets and SAMS:DISK archived data sets are detected by this command.

AUTORECALL can be used for any system locate function issued by ChangeMan SSM.

The general format of the AUTORECALL command is:

```
AUTORECALL = ( Y | N )
```

The AUTORECALL command parameters are:

Parameter	Description
YES	Processing waits for any migrated data sets to be recalled before continuing with an operation.
NO	Default. Do not attempt to recall migrated data sets.

AUTORECALL must be the first command specified. Comments can be entered before the command.

If AUTORECALL=Y is specified, the data set names or patterns of the migrated data sets must be exactly and unambiguously specified.

The following example demonstrates how to use the AUTORECALL command. In the example, if a data set resolved by the specified generic data set name pattern has been archived, the DEFINEDS function will wait until the data set is recalled before proceeding.

```
AUTORECALL=Y
DEFINEDS=(GROUP=CICS,
          GENERIC=CICS*,
          DELTA=Y)
```

CAPTURE

The CAPTURE command identifies the change events and stores them in the ChangeMan SSM site master database.

If the partitioned data set objects in the group are designated as being delta-tracked, any add or update eventcauses the new (or updated) member to be backed-up in compressed format in the ChangeMan SSM delta master database.

All compressed backups are stored in the VSAM delta master database in a GDG-type structure or format.

The general format of the CAPTURE command is:

```
CAPTURE = ( DEPARTMENT = ( _ ) ,
            EXCLOBJ = ( _,... ) ,
            GROUP = ( _ ) ,
            INCLOBJ = ( _,... ) )
```

If RTCT is active on the system, this batch process is not necessary.

This process can be run daily using your site's job scheduler to capture any new events for a specific group.

The command parameters are:

Parameter	Description
DEPARTMENT	Specifies the name of the Department which contains the Group, or (for TSO ID security) the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job.
EXCLOBJ	Excludes an explicit data set name or data set name pattern for objects that are to be excluded from the capture process. The default (N) indicates no object exclusion. Multiple data set names or name patterns can be specified (separated by commas). Wildcards can be used; refer to "Wildcards and Pattern Names" on page 205 for descriptions. The minimum abbreviation for this parameter is EXCLO.
GROUP	Specifies the group name to be investigated for any change events. If no INCLOBJ, or EXCLOBJ parameters are specified, all the objects in the group will be involved in the capture process.
INCLOBJ	Selects a pattern of objects in the group for the capture function. Objects can be both VSAM and non-VSAM. INCLOBJ can restrict the selection of objects from the group. The default (no INCLOBJ parameter) indicates selection of all the objects in the group. Multiple patterns can be specified (separated by commas). Wildcards can be used; refer to "Wildcards and Pattern Names" on page 205 for descriptions. The minimum abbreviation for this parameter is INCLO.

The following examples demonstrate how to use the CAPTURE command.

CAPTURE Example 1

This CAPTURE command indicates that only the specified explicit object in the group will be captured.

The QUICK mode for the process identifies the updated members first, without investigating all the members, and then identifies the appropriate events to the site master database.

If the object has been defined as delta-tracked, any updated or new members are backed up in compressed format to the ChangeMan SSM delta master database, in addition to capturing the events.

```
MODE=QUICK
   CAPTURE=(GROUP=SYSTEM,
       DEPARTMENT=SYSDDEPT,
       INCLOBJ=SYS1.PARMLIB)
```

CAPTURE Example 2

This sequence of CAPTURE commands specifies the three groups to be captured. Highly critical and frequently updated groups of data sets can be captured in any desired period using a job scheduler.

If no INCLOBJ/EXCLOBJ parameters are specified, all objects in the group are involved in the process.

```
MODE=QUICK
CAPTURE=(DEPARTMENT=SYSDDEPT,GROUP=SYSTEM)
CAPTURE=(DEPARTMENT=SYSDDEPT,GROUP=PROD)
CAPTURE=(DEPARTMENT=SYSDDEPT,GROUP=CRITICAL)
```

The security UserID (designated by the scheduler) must be an authorized user of the object group.

CAPTURE Example 3

This sequence of CAPTURE commands specifies the two groups to be captured.

If the DEPARTMENT parameter is not specified, the job's UserID is assumed to identify the group uniquely.

MODE=SECURE directs ChangeMan SSM to investigate all members of selected objects in the group. Thus, in-place updates of source modules are also detected as change events.

```
MODE=SECURE

CAPTURE=GROUP=AUDIT1
CAPTURE=GROUP=AUDIT2
```

DEFINEDS

The DEFINEDS command defines non-VSAM data sets to the tracking component. Cataloged and uncataloged data sets can be defined. Optionally, partitioned data sets can be defined as delta-tracked. DEFINEDS can be run periodically, using your site job scheduler software, to identify and automatically add any new data sets to a track group that conform to your specified commands.

> **NOTE** When an object is defined to the tracking component, the following attributes can be missing: DSORG, BLKSIZE, RECFM, and LRECL. The data set can also be uninitialized. Objects with missing attributes will be defined, but will be marked as "pending", and will not be tracked until the missing attributes are supplied.

> **NOTE** ChangeMan SSM does not track VTOC data sets (cataloged or uncataloged).

> **NOTE** Seqential data sets cannot be delta-tracked; if they are defined as DELTA=Y, the object is defaulted to DELTA=N.

If either a source or load PDS is defined for delta tracking, initially all members are compressed and stored in the delta master database. This process establishes the initial base version of the member-level backup.

Periodic runs of the capture function (online or batch) identify the updated and added members for partitioned data sets, and automatically backs them up to the delta master database. The ChangeMan SSM compression algorithm compresses source members about 75%, and compresses load modules about 40%.

At the time of the initial define, if the size of a PDS member is less than 32k, compression is not performed. These members are still backed up in non-compressed format.

The HPSGLOBE program performs the capture function for all tracked objects in all groups. This program is documented in the *ChangeMan SSM Installation Guide*.

Content-identical members in a PDS or across partitioned data sets are backed up only once. Internally, an occurrence value determines how many members reference a single backup copy. This is a performance feature of ChangeMan SSM that saves space in the delta master database.

For guidelines and examples on how to define Indirect Referenced data sets to tracking, see .

The general format of the DEFINEDS command is:

```
DEFINEDS = ( DEPARTMENT = _ ,
             DELTA = ( Y | N ) ,
             DSN = ( _,... ) ,
             EXCLDSN = ( _,... ) ,
             EXCLVOL = ( _,... ) ,
             GENERIC = ( _,... ) ,
             GROUP = ( _ ) ,
             INCLDSN = ( _,... ) ,
             INCLVOL = ( _,... ) ,
             SIMULATE ,
             TYPE = ( PO|PS|DA|LOAD|PDS|TEXT|SRC ) ,
             VOL = _ )
```

The minimum abbreviation for this command is DEFINED.

The command parameters are:

Parameter	Description
DEPARTMENT	Specifies the name of the Department which contains the Group, or (for TSO ID security) the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job.
DELTA	Indicates that defined objects will be delta-tracked (applies to PO data sets only).
DSN	Designates one or more explicit non-VSAM data sets for tracking.
EXCLDSN	Specifies an explicit or pattern of non-VSAM data sets for exclusion to be added to tracking. The default (absence of parameter) is that all partitioned data sets (PO), physical sequential data sets (PS), and direct access data sets (DA) are selected (if not limited by the TYPE parameter). Multiple patterns can be specified (separated by commas). The minimum abbreviation for this parameter is EXCLD.

Parameter	Description
EXCLVOL	Excludes volumes that had been previously selected with the INCLVOL parameter.
	EXCLVOL is either an explicit six-character volume serial number, or a generic volume serial number ending with an asterisk.
	Multiple volume serial numbers, separated by commas, can be excluded from the previously-selected group.
	Patterns and explicit volume serial numbers can be used in the same definition.
	The ***** wildcard indicates that any subsequent character in a volume specification is accepted. For example, in the pattern *DEV**, all volumes with the first three characters of *DEV* are selected. The pattern *DEV/* is identical to *DEV**.
	The ? wildcard indicates that any character in the position specified by the ? character satisfies the selection requirements.
	The minimum abbreviation for this parameter is EXCLV.
GENERIC	Performs a catalog search based on the specified data set name patterns.
	GENERIC is mutually exclusive with the EXCLVOL and INCLVOL parameters.
	Specify one or more data set name patterns following the same rules used for ISPF 3.4. See "Catalog Search" on page 206 for more information.
	In general, catalog processing is faster than volume (INCLDSN) processing.
GROUP	Specifies the group name in which the objects are to be defined for tracking.
	GROUP is an eight character name that has already been defined by the Group Administrator through the online or batch facilities of ChangeMan SSM.
	The combination of DEPARTMENT and GROUP uniquely identifies the group.
INCLDSN	Specifies a pattern of non-VSAM data sets for tracking.
	The default (no parameter) is that all partitioned data sets (PDS and PDSE), physical sequential data sets (PS), and direct access data sets (DA) are selected (if not limited by the TYPE parameter).
	Multiple patterns can be specified, separated by commas.
	Wildcards can be used; refer to "Wildcards and Pattern Names" on page 205 for descriptions.
	The minimum abbreviation for this parameter is INCLD.
	In general, volume processing is slower than catalog (GENERIC) processing.

Parameter	Description
INCLVOL	Enables you to define a large number of cataloged or uncataloged data sets for tracking; INCLVOL specifies a single volume (or group of volumes) to search for selecting the specified data set name patterns. INCLVOL is either an explicit six-character volume serial number, or a generic volume serial number, followed by an asterisk or a question mark wildcard character. Multiple volume serial numbers can be specified, separated by commas. Patterns and explicit volume serial numbers can be used in the same definition. To identify a set of data sets, INCLDSN and EXCLDSN parameters are used. The minimum abbreviation for this parameter is INCLV.
SIMULATE	Enables the simulation of definitions to a group without affecting the master files. A batch job run in SIMULATE mode bypasses all master file updates. **NOTE** A Change Tracking Administrator can specify SIMULATE mode on the ISPF panels which enable batch definition of data sets or HFS files to Change Tracking.
TYPE	Allows the selection of data sets by their DSORG. If not specified, all non-VSAM data sets are selected, unless restricted by the INCLVOL, INCLDSN, EXCLVOL, or EXCLDSN parameters. Multiple types can be specified, separated by commas. The valid values for this subparameter are: ■ PO – Partitioned data sets (either source, load, or text) ■ PS – Physical sequential data sets ■ DA – Direct access data sets ■ SRC – Source libraries (including JCL, panels, and messages) ■ LOAD – Load libraries ■ PDS – Equivalent to PO TEXT Equivalent to SRC
VOL	Specify a volume serial number. The VOL parameter applies only to the DSN parameter.

The following examples demonstrate how to use the DEFINEDS command.

DEFINEDS Example 1

This DEFINEDS command specifies that the entire software package with the pattern *DETECT.V830* to be defined for non-delta tracking.

```
DEFINEDS=(GROUP=LOADAPPL,
        DEPARTMENT=SYSDDEPT,
        DELTA=N,
        GENERIC=DETECT.V830)
```

DEFINEDS Example 2

This DEFINEDS command specifies that all volumes whose *volser* begins with *VOL* (excluding *VOL003*, if found) are to be searched, selecting all data sets of type *SRC*.

This includes all partitioned data sets other than load libraries (RECFM=U).

DELTA=Y specifies that all PO data sets found on volumes identified by the *INCLVOL* and *EXCLVOL* parameters (excluding load libraries), will be defined as delta tracked objects. Members of these data sets are initially backed up in the delta master database. After the initial define, anytime a capture runs, the changed members will incur an additional backup.

```
DEFINEDS=(DEPARTMENT=SYSDDEPT,
    GROUP=SRCGRP,
    INCLVOL=VOL*,
    EXCLVOL=VOL003,
    DELTA=Y,
    TYPE=SRC)
```

DEFINEDS Example 3

The first DEFINEDS command specifies that all SYS1 data sets on the residence volume (SYS42P) are selected for tracking.

The second DEFINEDS command defines similar uncataloged data sets on the alternate system residence volume (SYS42C).

Neither of these groups of data sets are to be delta-tracked.

```
DEFINEDS=(DEPARTMENT=SYSDDEPT,
    GROUP=SYS42P,
    DELTA=N,
    INCLVOL=SYS42P,
    INCLDSN=SYS1/)
DEFINEDS=(DEPARTMENT=SYSDDEPT,
    GROUP=SYS42C,
    DELTA=N,
    INCLVOL=SYS42C,
    INCLDSN=SYS1/)
```

DEFINEDS Example 4

This DEFINEDS command specifies two explicit data sets being defined for tracking. delta tracking was not requested.

They are not defined as delta-tracked.

```
DEFINEDS=(DEPARTMENT=SYSDDEPT,
    GROUP=SYSRES,
    DELTA=N,
    DSN=(DETECT.V820.PANELS,
    DETECT.V820.LINKLIB))
```

Indirectly Referenced Data Sets

If a data set is indirectly referenced, it is cataloged internally as ******.

When the data set is defined to change tracking, ChangeMan SSM defines it as an uncataloged data set. Therefore, depending on which *SYSRES* volume you *IPL*'ed from, your tracking environment will point to the data sets on that volume only.

Indirectly referenced data sets are stored internally as:

```
DSN+VOLSER (44+6)
```

which is similar to an uncataloged data set. Therefore, when defining indirectly referenced data sets to tracking, you should define them for every volume they reside on.

For example, when having *IPL*'ed off of *SYSRES* volume (*SYS42P*), the internal key of the *SYS1.LINKLIB* data set will be stored as:

```
SYS1.LINKLIB+SYS42P
```

and when having *IPL*'ed off of another SYSRES volume (*SYS42C*), internally the tracking information is stored as:

```
SYS1.LINKLIB+SYS42C
```

Using this technique, ChangeMan SSM tracks them as two different data sets, and switching the volumes does not cause any loss of change tracking information. Performing this operation in a batch mode provides the capability to define indirectly referenced data sets for multiple SYSRES volumes at one time, no matter which SYSRES is active at the time.

The following examples demonstrate how this is accomplished.

Indirect Reference Example 1

The first DEFINEDS command specifies that all *SYS1* data sets on the system residence volume (*SYS42P*) are selected for tracking. The second DEFINEDS command defines similar uncataloged data sets on the alternate system residence volume (*SYS42C*). As shown, neither of these groups of data sets is requested to be delta-tracked.

```
DEFINEDS=(DEPARTMENT=SYSDDEPT,
          GROUP=SYS42P,
          DELTA=N,
          INCLVOL=SYS42P,
          INCLDSN=SYS1/)
DEFINEDS=(DEPARTMENT=SYSDDEPT,
          GROUP=SYS42C,
          DELTA=N,
          INCLVOL=SYS42C,
          INCLDSN=SYS1/)
```

Indirect Reference Example 2

Similar to the preceding example, the specified data set will be defined to the groups for tracking.

```
DEFINEDS=(GROUP=APMVSTE1,
          DELTA=N,
          INCLVOL=MVSTE1,
          DSN=(SYS1.LINKLIB,
               SYS1.LINKLIB2,
               SYS1.LINKLIB3))
DEFINEDS=(GROUP=APMVSTE2,
          DELTA=N,
          INCLVOL=MVSTE2,
          DSN=(SYS1.LINKLIB,
               SYS1.LINKLIB2,
               SYS1.LINKLIB3))
```

DEFINEVS

The DEFINEVS command defines VSAM data sets to the tracking component.

```
DEFINEVS = ( DEPARTMENT =  _,
             CLUSTER = ( _,... ) ,
             EXCLCLUS = ( _,... ) ,
             EXCLVOL = ( _,... ) ,
             GENERIC = ( _,... ) ,
             GROUP = ( _ ) ,
             INCLCLUS = ( _,... ) ,
             INCLVOL = ( _,... ))
```

The minimum abbreviation for this command is DEFINEV.

DEFINEVS can be run periodically, using your site's job scheduler software, to identify and automatically add any new data sets to a track group that conforms to your specified commands.

The DEFINEVS command parameters are:

Parameter	Description
DEPARTMENT	Specifies the name of the Department which contains the Group, or (for TSO ID security) the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job.
CLUSTER	Designates one or more explicit VSAM data set names for tracking. The minimum abbreviation is CLUS.
EXCLCLUS	Restricts the selection of clusters. The default (no parameter) is no exclusion; hence, selection is governed by the INCLCLUS parameter. Use wildcards; refer to "Wildcards and Pattern Names" on page 205. The minimum abbreviation for this parameter is EXCLC.

Parameter	Description
EXCLVOL	Excludes a subset of the volumes that have been selected with INCLVOL. EXCLVOL is either: ■ an explicit six-character volume serial number ■ a generic volume serial number ending with an asterisk ■ a six-character *volid* with a ? as a wildcard character substitute. Refer to the *ChangeMan SSM Detection and Synchronization Guide* Appendix for details on wildcard specifications. The minimum abbreviation for this parameter is EXCLV.
GENERIC	Performs a catalog search based on the specified data set name patterns. GENERIC is mutually exclusive with the EXCLVOL and INCLVOL parameters. Specify one or more data set name patterns following the same rules used for ISPF 3.4. See "Catalog Search" on page 206 for more information.
GROUP	Specifies the group name in which the objects will be defined for tracking. This is an eight-character name that has already been defined by the Group Administrator through the online or batch facilities of ChangeMan SSM.
INCLCLUS	Restricts the selection of clusters when using the INCLVOL parameter. The default (no parameter) indicates that all VSAM clusters on the specified volumes will be selected. Multiple patterns can be specified, separated by commas. Use wildcards; refer to "Wildcards and Pattern Names" on page 205. The minimum abbreviation for this parameter is INCLC.
INCLVOL	Specifies a single volume (or a pool of volumes) for selecting the desired VSAM data set patterns. INCLVOL is either: ■ an explicit six-character volume serial number, or ■ a generic volume serial number ending with an asterisk. Multiple volume serial numbers can be specified, separated by commas. Patterns and explicit volume serial numbers can be present in the same definition. INCLVOL is mutually exclusive with the GENERIC parameter which is used for catalog processing versus volume processing. Use of the INCLVOL=* is not recommended for data centers with over 200 DASD volumes. Instead, use the GENERIC parameter to perform a catalog search (if data sets are cataloged). The minimum abbreviation is INCLV.

The following examples demonstrate how to use the DEFINEVS command.

DEFINEVS Example 1

This DEFINEVS command specifies that the pool of volumes (VOL*) is to be searched, defining all VSAM data sets found for tracking.

For VSAM tracking only, the catalog information is needed to determine if the VSAM file has been updated.

```
DEFINEVS=(GROUP=VSAM,
    DEPARTMENT=SYSDDEPT,
    INCLCLU=/,
    INCLVOL=VOL*)
```

DEFINEVS Example 2

This DEFINEVS command specifies three explicit VSAM files for tracking.

```
DEFINEVS=(DEPARTMENT=SYSDDEPT,
    GROUP=VSAMPROD,
    CLUSTER=(PROD.VSAM1,PROD.VSAM2,PROD.VSAM3))
```

DEFINEVS Example 3

This DEFINEVS command specifies the pattern of VSAM files to be defined for tracking. A catalog search is performed to resolve the data sets specified by the GENERIC parameter.

```
DEFINEVS=(DEPARTMENT=SYSDDEPT,
    GROUP=VSAMPROD,
    GENERIC=(PROD.VSAM*))
```

DELETEDS

The DELETEDS command deletes VSAM and non-VSAM data sets defined to the tracking component. Both cataloged and uncataloged data sets can be deleted. DELETEDS is only allowed for authorized administrators (see the following description for the DEPARTMENT parameter).

The general format of the DELETEDS command is:

```
DELETEDS = ( DEPARTMENT = _ ,
            DSN = ( _,... ) ,
            GROUP = _ ,
            VOL = _ )
```

The minimum abbreviation for this command is DELETED.

The DELETEDS command parameters are:

Parameter	Description
DEPARTMENT	Specifies the name of the Department which contains the Group, or (for TSO ID security) the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job.
DSN	Designates one or more explicit VSAM or non-VSAM data sets to be deleted from tracking.
GROUP	Specifies the group name in which the objects have been defined.
VOL	Specifies the volume serial number for uncataloged data sets, or for data sets that were defined by volume.

The following example demonstrates how to use the DELETEDS command.

DELETEDS Example

This DELETEDS command specifies that the SYS1.LINKLIB data set will be deleted from the change tracking component.

```
DELETEDS=(GROUP=LOADAPPL,
        DEPARTMENT=SYSDDEPT,
        DSN=SYS1.LINKLIB)
```

EVENTS

The EVENTS command reports the change events captured in real time (RTCT), or in batch (BICT). Flexible selection and reporting criteria are provided to generate a high-level (group) or a detailed (data set/member) change event report.

```
EVENTS = ( DEPARTMENT = ( _ ) ,
           EXCLOBJ = ( _,... ) ,
           GROUP = ( _ ) ,
           INCLOBJ = ( _,... ) ,
           LIST = ( Y | N ) ,
           REPORT = ( EXCLMEM = ( _,... ) ,
                      FOR = ( YESTERDAY | n_number_of_days ) ,
                      FROM = ( yyyy/mm/dd_hh:mm ) ,
                      HOURS = ( n_number_of_hours ) ,
                      INCLMEM = ( _,... ) ,
                      LATEST,
                      SELECT = (MEMBER | DATA SET | VSAM | ...),
                      TO = ( yyyy/mm/dd_hh:mm ) ) )
```

The minimum abbreviation for this command is EVENT.

Refer to the *Events* and *EventFor* members in the Samples library for more information.

The EVENTS command parameters are:

Parameter	Description
DEPARTMENT	Specifies the name of the Department which contains the Group, or (for TSO ID security) the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job.
GROUP	Specifies the group name to be investigated for any change events. If no other INCLOBJ or EXCLOBJ parameters are specified, all objects in the group will be involved in the process.
INCLOBJ	Selects the tracked objects from the group. If no object is explicitly specified, all objects in the group are selected. The default (no parameter) indicates selection of all the objects in the group. Multiple patterns can be specified, separated by commas. Wildcards can be used; refer to "Wildcards and Pattern Names" on page 205 for descriptions. The minimum abbreviation is INCLO.
EXCLOBJ	Restricts the selection of objects. The default (no parameter) indicates no objects are excluded. Multiple patterns can be specified, separated by commas. Wildcards can be used; refer to "Wildcards and Pattern Names" on page 205 for descriptions. The minimum abbreviation is EXCLO.
LIST	Y - Produce a reverse chronological list of events for any selected (explicit or implicit) tracked object in the specified group. N - Default; do not produce a list. If the REPORT parameter is not specified, LIST is enforced as the default.
REPORT	Produces a report, based on users requirements. Refer to "EVENTS (REPORT Parameter)" on page 224 for information on using this parameter.

The following examples demonstrate how to use the EVENTS command.

EVENTS Example 1

All events for all tracked data sets within the *SYSTEM* group are reported.

```
EVENTS=(GROUP=SYSTEM,
    DEPARTMENT=SYSDDEPT,
    LIST=YES)
```

EVENTS Example 2

A single object from the *SYSTEM* group has been specified. *MEMBER* indicates that all member events (except Backup and Restore) are to be reported.

```
EVENTS=(GROUP=SYSTEM,
    DEPARTMENT=SYSDDEPT,
    INCLOBJ=SYS1.PARMLIB,
    REPORT=(SELECT=MEMBER))
```

EVENTS Example 3

All data sets that have the character string *LINKLIB* anywhere in their names will be selected from the *SYSTEM* group. A report of the specific event types (zap and linkedit) that have occurred over the specified time period is requested.

```
EVENTS=(GROUP=SYSTEM,
    DEPARTMENT=SYSDDEPT,
    INCLOBJ='LINKLIB',
    REPORT=(SELECT=(ZAP,LINKED) ,
        FROM=2009/03/30,
          TO=2009/04/01))
```

EVENTS (REPORT Parameter)

The REPORT parameter produces a customized report based on change events and event types that you specify.

```
REPORT = ( EXCLMEM = ( _,... ) ,
            FOR = ( YESTERDAY | n_number_of_days ) ,
            FROM = ( yyyy/mm/dd_hh:mm ) ,
            HOURS = ( n_number_of_hours ) ,
            INCLMEM = ( _,... ) ,
            LATEST,
            SELECT = ( MEMBER | DATASET | VSAM | ... ) ,
            TO = ( yyyy/mm/dd_hh:mm ) )
```

The REPORT parameters are:

Parameter	Description
EXCLMEM	Excludes explicit members (or pattern of members) from the report. If EXCLMEM is not specified, no members are excluded. The minimum abbreviation is EXCLM. For information on specifying patterns, refer to "Member Name Patterns" on page 207.
FOR	Indicates the past number of days for which events are to be selected. Specify one of the following options: ■ **YESTERDAY** – indicates yesterday's events. ■ *N* – indicates the past *N* days and is a number from 1-99. For example, to select today's events, enter FOR=1. The minimum abbreviation is FOR.
FROM	Indicates the start date and time of events to be selected. The format is YYYY/MM/DD_HH:MM. The default for HH:MM is 00:00. The FROM parameter must be specified if the TO parameter is specified. The minimum abbreviation is FR.
HOURS	Indicates the past number of hours for which events are to be selected. Specify a number from 1-99. The minimum abbreviation is HOURS.
INCLMEM	Includes explicit members (or pattern of members) in the report. If INCLMEM is not specified, all members are included. The minimum abbreviation is INCLM. For information on specifying patterns, refer to "Member Name Patterns" on page 207.
LATEST	Reports the latest event that exists for a data set. Provides a short report in which no more than one event per object PDS/member is reported. The minimum abbreviation LATEST.

Parameter	Description
SELECT	Indicates the category of events or event types. The categories are: • MEMBER – includes *added, delete, update, status, linked, zapped, rename* • DATASET – includes *uncat, ds-upd, reloc, comprs, scrtch, migrat, nameto, namefr* • VSAM – includes *vs-upd, vs-reo, vs-def, vs-del* Individual event types may also be specified, such as *added* and *update*. See "Event types and categories" on page 154 for a description of categories and event types. The minimum abbreviation is SEL.
TO	Indicates the end date and time of events to be selected. The format is YYYY/MM/DD_HH:MM. If the TO parameter is specified, the FROM parameter must also be specified. If the FROM parameter is specified, the TO parameter defaults to to the following values unless specified otherwise: • YYYY/MM/DD - the default is the current date • HH:MM - the default is 23:59 The minimum abbreviation is TO.

EVENTS (REPORT Parameter) Example 1

The following event types are specified for reporting in the REPORT parameter:

- *MEMBER* category events (*Added, Delete, Update, Status, Linked, Zapped, Rename*).

- *Backup* and *Restore* events.

A date range is specified using the FROM and TO subparameters.

```
EVENTS=(GROUP=SYSTEM,
    DEPARTMENT=SYSDDEPT,
    INCLOBJ=SYS1.PARMLIB,
    REPORT=(SELECT=(MEMBER,BACKUP,RESTORE),
            FROM=(2005/01/01),TO=(2005/10/06)))
```

HFSCAPTURE

The HFSCAPTURE command identifies HFS change events and stores them in the ChangeMan SSM site master database.

The INCLOBJ and EXCLOBJ parameters support explicit or pattern HFS file names, where the only pattern supported is a trailing double asterisk. Multiple file names or patterns can be given in a comma delimited list.

The general format of the HFSCAPTURE command is:

```
HFSCAPTURE = ( (ADMIN = ( _ ) | DEPARTMENT = ( _ ) ),
               EXCLOBJ = ( _,... ) ,
```

```
                              GROUP = ( _ ) ,
                              INCLOBJ = ( _,... ) )
```

The minimum abbreviation is HFSCA.

The HFSCAPTURE command parameters are:

Parameter	Description
ADMIN	For TSO ID security, specifies the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job. ADMIN and DEPARTMENT are mutually exclusive.
DEPARTMENT	For SAF security, specifies the name of the Department which contains the Group. ADMIN and DEPARTMENT are mutually exclusive.
EXCLOBJ	Specifies explicit file names/directories or patterns for objects that are to be excluded from the capture process. Multiple file names/directories or patterns can be specified, separated by commas. The only pattern supported is a trailing double asterisk; see "Using Pattern Names With HFS Parameters" on page 207 for more information.
GROUP	Specifies the group name to be investigated for any change events. If no INCLOBJ or EXCLOBJ parameters are specified, all of the objects in the group will be involved in the capture process.
INCLOBJ	Specifies explicit file names/directories or patterns for objects that are to be included in the capture process. The default (no INCLOBJ parameter) indicates selection of all the objects in the group. Multiple file names/directories or patterns can be specified, separated by commas. The only pattern supported is a trailing double asterisk; see "Using Pattern Names With HFS Parameters" on page 207 for more information.

HFSDEFINE

The HFSDEFINE command defines HFS files to the tracking component.

The FILE, INCLUDE, and EXCLUDE parameters support explicit or pattern HFS file names, where the only pattern supported is a trailing double asterisk. Multiple file names or patterns can be given in a comma delimited list.

The general format of the HFSDEFINE command is:

```
HFSDEFINE  = ( (ADMIN = ( _ ) | DEPARTMENT = ( _ ) ),
               EXCLUDE = ( _,... ) ,
               FILE = ( '/path/file',... ) ,
               GROUP = ( _ ) ,
               INCLUDE = ( _,... ) ,
               SIMULATE
```

The minimum abbreviation is HFSDEF.

The HFSDEFINE command parameters are:

Parameter	Description
ADMIN	For TSO ID security, specifies the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job. ADMIN and DEPARTMENT are mutually exclusive.
DEPARTMENT	For SAF security, specifies the name of the Department which contains the Group. ADMIN and DEPARTMENT are mutually exclusive.
EXCLUDE	Specifies explicit file names/directories or patterns for objects that are to be excluded from tracking. Multiple file names/directories or patterns can be specified, separated by commas. The only pattern supported is a trailing double asterisk; see "Using Pattern Names With HFS Parameters" on page 207 for more information.
FILE	Designates one or more explicit file names/directories or patterns for tracking. Multiple file names/directories or patterns can be specified, separated by commas. The only pattern supported is a trailing double asterisk; see "Using Pattern Names With HFS Parameters" on page 207 for more information.
GROUP	Specifies the group name in which the objects are to be defined for tracking. GROUP is an eight character name that has already been defined by the Group Administrator through the online or batch facilities of ChangeMan SSM. The combination of ADMIN/DEPARTMENT and GROUP uniquely identifies the group.
INCLUDE	Specifies explicit file names/directories or patterns for objects that are to be included in tracking. Multiple file names/directories or patterns can be specified, separated by commas. The only pattern supported is a trailing double asterisk; see "Using Pattern Names With HFS Parameters" on page 207 for more information.
SIMULATE	Enables the simulation of definitions to a group without affecting the master files. A batch job run in SIMULATE mode bypasses all master file updates. **NOTE** A Change Tracking Administrator can specify SIMULATE mode on the ISPF panels which enable batch definition of data sets or HFS files to Change Tracking.

The following example demonstrates how to use the HFSDEFINE command.

HFSDEFINE Example

In this example, the HFSDEFINE command specifies that in the directories under

```
/u/test/Base_Chg_Del
```

all files/directiories that start with 0, but not 05 or 06, will be selected for tracking.

```
HFSDEFINE=(DEPARTMENT=SOFTWAREDEVELOP,
           GROUP=NEWGROUP,
           FILE=('/u/test/Base_Chg_Del**'),
           INCLUDE=('/u/test/Base_Chg_Del_0**'),
           EXCLUDE=('/u/test/Base_Chg_Del_05**',
                    '/u/test/Base_Chg_Del_06**'))
```

HFSDELETE

The HFSDELETE command deletes files that are defined to the tracking component. This command is only allowed for authorized administrators.

The general format of the HFSDELETE command is:

```
HFSDELETE  = ( (ADMIN = ( _ ) | DEPARTMENT = ( _ ) ),
               GROUP = ( _ ) ,
               OBJECT = ( '/path/file' ) )
```

The minimum abbreviation is HFSDEL.

The HFSDELETE command parameters are:

Parameter	Description
ADMIN	For TSO ID security, specifies the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job. ADMIN and DEPARTMENT are mutually exclusive.
DEPARTMENT	For SAF security, specifies the name of the Department which contains the Group. ADMIN and DEPARTMENT are mutually exclusive.
GROUP	Specifies the group name in which the objects have been defined.
OBJECT	Specifies an explicit file name/directory or to be deleted from tracking.

HFSEVENTS

The HFSEVENTS command reports the HFS change events captured in real time (RTCT), or in batch (BICT). Flexible selection and reporting criteria are provided to generate a high-level (group) or a detailed change event report.

The general format of the HFSEVENTS command is:

```
HFSEVENTS  = ( (ADMIN = ( _ ) | DEPARTMENT = ( _ ) ),
                 EXCLOBJ = ( _,... ) ,
                 GROUP = ( _ ) ,
                 INCLOBJ = ( _,... ) ,
                 REPORT = ( FOR = ( YESTERDAY | n_number_of_days ) ,
                            FROM = ( yyyy/mm/dd_hh:mm ) ,
                            HOURS = ( n_number_of_hours ) ,
                            LATEST ,
                            SELECT = ( HFS | (STATUS,DS_UPD,SCRTCH) )
                            TO = ( yyyy/mm/dd_hh:mm ) ) )
```

The minimum abbreviation is HFSEV.

The HFSEVENTS command parameters are:

Parameter	Description
ADMIN	For TSO ID security, specifies the TSO User ID of the administrator who created the Group.
	The default is the TSO User ID of the current job.
	ADMIN and DEPARTMENT are mutually exclusive.
DEPARTMENT	For SAF security, specifies the name of the Department which contains the Group.
	ADMIN and DEPARTMENT are mutually exclusive.
EXCLOBJ	Restricts the selection of objects.
	The default (no parameter) indicates that no objects in the group are excluded.
	Multiple path names or patterns can be specified, separated by commas.
	The only pattern supported is a trailing double asterisk; see "Using Pattern Names With HFS Parameters" on page 207 for more information.
GROUP	Specifies the group name to be investigated for any change events.
	If no INCLOBJ or EXCLOBJ parameters are specified, all of the objects in the group will be involved in the process.
INCLOBJ	Selects tracked objects from the group.
	The default (no parameter) indicates selection of all the objects in the group.
	Multiple path names or patterns can be specified, separated by commas.
	The only pattern supported is a trailing double asterisk; see "Using Pattern Names With HFS Parameters" on page 207 for more information.
REPORT	Produces a report, based on specified parameters.
	Refer to "HFSEVENTS (REPORT Parameter)" on page 231 for information on using this parameter.

HFSEVENTS (REPORT Parameter)

The REPORT parameter produces a customized report based on change events and event types that you specify.

```
REPORT = ( FOR = ( YESTERDAY | n_number_of_days ) ,
           FROM = ( yyyy/mm/dd_hh:mm ) ,
           HOURS = ( n_number_of_hours ) ,
           LATEST ,
           SELECT = ( HFS | (STATUS,DS_UPD,SCRTCH) )
           TO = ( yyyy/mm/dd_hh:mm ) )
```

The REPORT parameters are:

Parameter	Description
FOR	Indicates the past number of days for which events are to be selected. Specify one of the following options: ■ **YESTERDAY** – indicates yesterday's events. ■ *N* – indicates the past *N* days and is a number from 1-99. For example, to select today's events, enter FOR=1. The minimum abbreviation is FOR.
FROM	Indicates the start date and time of events to be selected. The format is YYYY/MM/DD_HH:MM. The default for HH:MM is 00:00. The FROM parameter must be specified if the TO parameter is specified. The minimum abbreviation is FR.
HOURS	Indicates the past number of hours for which events are to be selected. Specify a number from 1-99. The minimum abbreviation is HOURS.
LATEST	Reports the latest event that exists for an object. Provides a short report in which no more than one event per object is reported. The minimum abbreviation LATEST.

Parameter	Description
SELECT	Indicates the event types to be selected: ■ HFS ■ STATUS, DS_UPD, SCRTCH Specify either HFS, or, one or more of event types STATUS, DS_UPD, SCRTCH. (HFS is mutually exclusive with event types STATUS, DS_UPD, and SCRTCH.) The minimum abbreviation is SEL.
TO	Indicates the end date and time of events to be selected. The format is YYYY/MM/DD_HH:MM. If the TO parameter is specified, the FROM parameter must also be specified. If the FROM parameter is specified, the TO parameter defaults to to the following values unless specified otherwise: ■ YYYY/MM/DD - the default is the current date ■ HH:MM - the default is 23:59 The minimum abbreviation is TO.

HISTORY

The HISTORY command is used to extract events for tracked objects and write them to either a flat file (specified by the DD or DSN parameter), or to the SYSPRINT DD (by coding the HISTORY command with no parameters). The attributes of the HISTORY output data set are DSORG=PS, VB, LRECL=1100.

The COLUMNHEAD and DBLOAD parameters are used with the DD or DSN parameters and are mutually exclusive.

■ The COLUMNHEAD parameter is used to specify that column headings will be written as the first record of the flat file.

■ The DB2LOAD parameter allows HFS file names that are greater than 44 characters to be formatted without truncation.

NOTE The DB2LOAD job in the Install library is designed to work with the history report format that is created with this parameter.

The general format of the HISTORY command is:

```
HISTORY = ( (DD = _ | DSN = _) ,
            (COLUMNHEAD | DB2LOAD) )
            (DEPARTMENT = ( _ ) , GROUP | HFSGROUP = ( _ | _* | * ) ,
            (FROM = yyyy/mm/dd , TO = yyyy/mm/dd) | YESTERDAY)
```

The minimum abbreviation is HISTORY.

The HISTORY command parameters are:

Parameter	Description
DD	Specifies the DD name of the data set to which events will be written. DD and DSN are mutually exclusive.
DSN	Specifies the data set name to which events will be written. DSN and DD are mutually exclusive.
COLUMNHEAD	Used with the DD or DSN parameters. Causes a record with column headings to be written as the first record of the flat file. COLUMNHEAD and DB2LOAD are mutually exclusive.
DB2LOAD	Used with the DD or DSN parameters. Allows HFS file names that are greater than 44 characters to be formatted without truncation. COLUMNHEAD and DB2LOAD are mutually exclusive.
DEPARTMENT	Filters report content to select only records pertaining to the specified department.
GROUP or HFSGROUP	Filters report content to select only records pertaining to the specified group or groups within the specified department. You can specify: ■ The full group name. For example: GROUP1 ■ A name followed by a wildcard (the *). For example: GR* This form of the value selects all groups whose names begin with the letters GR. ■ Only a wildcard (the *). For example: * This form of the value selects all groups within the specified department. If GROUP or HFSGROUP is specified, DEPARTMENT must also be specified.
FROM	The desired from date, specified in the format *yyyy/mm/dd*. Records are selected from time 00:00:00 on the specified date. FROM defaults to the earliest possible date. FROM and TO are mutually exclusive with YESTERDAY.
TO	The desired to date, specified in the format *yyyy/mm/dd*. Records are inclusive of the date specified up to 11:59:59. TO defaults to today at 23:59:59. FROM and TO are mutually exclusive with YESTERDAY.
YESTERDAY	Report content is restricted to all records timestamped yesterday from 00:00:00 to 23:59:59.

The following examples demonstrate how to use the HISTORY command.

HISTORY Example 1

In this example, where the HISTORY command is coded with no parameters, events are written to the SYSPRINT DD. Column headings display at the top of each page.

```
HISTORY
```

HISTORY Example 2

In this example, events are written to the data set allocated with the HISTFILE DD. Because the COLUMNHEAD parameter is coded, the first record of the file will contain column headings.

```
HISTORY=(DD=HISTFILE,COLUMNHEAD)
```

HISTORY Example 3

The HISTORY command is used in the $$DB2LOD member in the SKELS library. The $$DB2LOD member extracts events to a flat file and then loads the flat file to a DB2 table. You use the HISTORY command to specify the DD name or data set name of the flat file to which events are written.

In this example, events are written to the data set allocated with the HISTFILE DD. Because there is no COLUMNHEAD parameter, a column header record will not be written.

```
HISTORY=(DD=HISTFILE)
```

MODE

The MODE command specifies the type of operation for the capture function.

You should run the CAPTURE function (for selected groups), or HPSGLOBE (for all groups), at least once a day, with the default (MODE=SECURE). Other periodic runs can specify MODE=QUICK.

The general format of the MODE command is:

```
MODE = ( HYPER | QUICK | SECURE )
```

The MODE command parameters are:

Parameter	Description
HYPER	Provides a faster process than the QUICK mode. When a load library is involved, load module zaps are detected without hashing the entire module.
QUICK	Specifies that only relocated members in the PDS (source or load) be fingerprinted.
SECURE	Specifies that all data sets defined to the tracking component, as well as all members of PDS (source or load) be fingerprinted.

The following examples demonstrate how to use the MODE command.

MODE Example 1

MODE=SECURE indicates that all members in the PDS will be fingerprinted to detect all changes (such as in- place updates to source members). This should be run at least once a day.

```
MODE=SECURE
CAPTURE=(DEPARTMENT=SYSDDEPT,GROUP=AUDIT)
```

MODE Example 2

MODE=QUICK indicates that only relocated members be fingerprinted.

If non-standard updates are prohibited in a shop, the MODE=QUICK can be used to achieve the same result as MODE=SECURE, using less resources. In this example the entire group is captured to detect any updates.

```
MODE=QUICK
CAPTURE=(DEPARTMENT=SYSDDEPT,GROUP=PRODJCL)
```

NOECHO

The NOECHO command suppresses the echo of the HPSIN ChangeMan SSM commands. This command can be specified anywhere. The command display in the output will be suppressed from the point NOECHO is encountered.

NOECHO, along with the commenting facility, allows output documentation for user departments.

The general format of NOECHO is:

```
NOECHO
```

There are no parameters.

NOECHO Example

The first five comment cards serve as internal documentation (report description). NOECHO suppresses the display of subsequent commands.

```
*----------------------------------------------------------------
* User department: Change Control
* Report title:   Capture and report the change events for the
*                                    frozen software package.
* Groups:         CHGCNTL
*----------------------------------------------------------------
 NOECHO
 CAPTURE=(DEPARTMENT=SYSDDEPT,GROUP=CHGCNTL)
```

RECOVER

The RECOVER command applies to delta-tracked objects only.

This command restores or recalls prior versions of members to the original data set or to a user-specified compatible library.

Members stored in compressed format are automatically expanded during this process.

```
RECOVER = ( DEPARTMENT = ( _ ) ,
            ( DATETIME = yyyy/mm/dd_hh:mm:ss | VERSION = _ ) ,
              FOR = ( TODAY | YESTERDAY | n_days_ago ) ,
```

```
DD = ( _ ) ,
DSN = ( _ ) ,
GROUP = ( _ ) ,
MEMBER = ( _ ) ,
INCLMEM = ( _ ) ,
EXCLMEM = ( _ ) ,
NEWNAME = ( _ ) ,
OBJECT = ( _ ) ,
VOLSER = ( _ ) )
```

The minimum abbreviation is REC.

The RECOVER command parameters are:

Parameter	Description
DEPARTMENT	Specifies the name of the Department which contains the Group, or (for TSO ID security) the TSO User ID of the administrator who created the Group. The default is the TSO User ID of the current job.
DATETIME	The DATETIME and VERSION parameters are mutually exclusive; one of them is required. Indicates the desired copy of the member that is to be recovered. The member that is closest to the specified date and time stamp is selected for recovery from all the backup versions. The date can be specified without the time. If the time is not specified, midnight (23:59:59) is assumed.
FOR	Specifies the day to recover to. Choose one of the following options: ■ TODAY – the PDS is recovered to the most current backup. ■ YESTERDAY – the PDS is recovered to its status as of yesterday at midnight. ■ N days ago – specify a number from 001-999. The PDS is recovered to its status N days ago, at midnight.
DD	Specifies the target data set to which the member will be restored. This is required only if the target data set is different from the source. The attributes of the target data set must be compatible with those of the source data set. DD and DSN are mutually exclusive.
DSN	Specifies the target data set to which the member will be restored. This is required only if the target data set is different from the source. The attributes of the target data set must be compatible with those of the source data set. DSN and DD are mutually exclusive.
GROUP	Specifies the group where the delta-tracked object has been defined.

Parameter	Description
MEMBER	Specifies the member that needs to be recovered. The specified member can be restored or recalled.
	If the target data set (see parameters DD or DSN) is the same as the source data set, or not specified, the RESTORE function would be in effect.
	If the target data set is a pre-existing compatible data set referred to by the DD or DSN parameters, the RECALL function applies.
INCLMEM	Lists one or more explicit member names or member patterns that are to be included in the RECOVER operation.
EXCLMEM	Lists one or more explicit member names or member patterns that are to be excluded from the RECOVER operation.
NEWNAME (or NEWMEM)	Optional. Assigns a new name to the recovered member.
	This parameter is recommended when restoring a member to its original data set, or if multiple backup versions of the same member are required.
	NOTE NEWNAME and NEWMEM can be used interchangeably. They function identically.
OBJECT	Specifies the delta-tracked data set.
VERSION	The DATETIME and VERSION parameters are mutually exclusive; one of them is required.
	Specifies the version number of the member to be recovered. The version number must be in the range of 0 to -n (for example, -2), where n+1 is the actual number of backup versions of the member that exist.
VOLSER	Specifies the volume where the delta-tracked data set resides.
	VOLSER is required only if the data set is not cataloged.

The following examples demonstrate how to use the RECOVER command.

RECOVER Example 1

This RECOVER command indicates that the *PARMLIB* member *LNKLST00* is to be restored to the original data set. The latest backup as of 2009/09/05 will be restored under a new name (*LNKLSTXX*), leaving the current active member (*LNKLST00*) untouched.

```
RECOVER=(GROUP=SYSTEM,
         DEPARTMENT=SYSDDEPT,
         OBJECT=SYS1.PARMLIB,
         MEMBER=LNKLST00,
         NEWNAME=LNKLSTXX,
         DATETIME=2009/09/05)
```

RECOVER Example 2

The sequence of the following RECOVER commands is set up to restore two versions. The versions of `2009/09/05` and `2009/09/04` are requested.

```
RECOVER=(GROUP=SYSTEM,
         DEPARTMENT=SYSDDEPT,
```

```
               OBJECT=SYS1.PARMLIB,
               MEMBER=LNKLST00,
               NEWNAME=LNKLST04,
               DATETIME=2009/09/04)
     RECOVER=(GROUP=SYSTEM,
               DEPARTMENT=SYSDDEPT,
               OBJECT=SYS1.PARMLIB,
               MEMBER=LNKLST00,
               NEWNAME=LNKLST05,
               DATETIME=2009/09/05)
```

RECOVER Example 3

This is similar to RECOVER Example 1. The target file name, however, is different from the source file, and the NEWNAME is not specified.

```
     RECOVER=(GROUP=SYSTEM,
               DEPARTMENT=SYSDDEPT,
               OBJECT=SYS1.PARMLIB,
               MEMBER=LNKLST00,
               DSN=SER12.SYS1.PARMLIB,
               DATETIME=2009/09/05)
```

RECOVER Example 4

This RECOVER command restores a production load module as of `2009/09/02` at `5:00` PM. The module is restored to a temporary library pointed by a DD (DD1) in the JCL.

This example assumes that the production system has been functional at that point, and that there has been an undesired change over the weekend that has caused a malfunction. It is also assumed that *HPSGLOBE* has been run at least once a day to back up the changed members.

```
     RECOVER=(GROUP=PROD,
               DEPARTMENT=SYSDDEPT,
               OBJECT=SYSP.PAYROLL.LINKLIB,
               MEMBER=PAYPROG,
               DD=DD1,
               DATETIME=2009/09/02_05:00)
```

RECOVER Example 5

This RECOVER command restores an entire PDS at a specified date and time.

```
     RECOVER=(GROUP=PROD,
               DEPARTMENT=SYSDDEPT,
               OBJECT=SYSP.PAYROLL.LINKLIB,
               MEMBER=*,
               DD=DD1,
               DATETIME=2009/09/02_05:00)
```

TRACE

The TRACE command specifies if type T messages are to be reported. This information is useful when a detailed report of ChangeMan SSM operations is required.

The general format of the TRACE command is:

```
TRACE = ( OFF | ON )
```

The TRACE command parameters are:

Parameter	Description
ON	Print type T messages.
OFF	Default. Suppress the printing of the type T messages.

TRACE Example

TRACE=OFF suppresses the type T (Trace) messages, and provide a more readable report.

```
TRACE=OFF
CAPTURE=(DEPARTMENT=SYSDDEPT,GROUP=AUDIT)
```

VSAMOPEN

When defining VSAM clusters to the change tracking component, the cluster is first opened to verify access authority.

The default is VSAMOPEN=Y. The open SVC may be bypassed by the specification of this command.

The general format of the VSAMOPEN command is:

```
VSAMOPEN = ( Y | N )
```

The VSAMOPEN command parameters are:

Parameter	Description
YES	Perform the OPEN SVC before the DEFINEVS command.
NO	Skip the OPEN SVC.

VSAMOPEN Example

In the following example, the OPEN SVC is bypassed before the clusters are defined for tracking.

```
VSAMOPEN=NO
DEFINEVS=(DEPARTMENT=SYSDDEPT,
          GROUP=VSAMPROD,
          CLUSTER=VSAM.CLUSTER/)
```

Chapter 7
Managing Archives

This chapter describes the archiving facilities of ChangeMan SSM. These facilities include:

Creating an Archive Database

You create an Archive database by customizing and running part of the $INIT job supplied in the INSTALL library on the ChangeMan SSM distribution media. The Archive database is a VSAM KSDS that can be used to archive two kinds of records that are stored in the Site and Delta Master databases:

- Event records (a collection of events that belong to the tracked object. For example, add, update, delete a member in a PDS or PDSE).

- Delta Master backup records.

Here's a listing of the $INIT job. The parts of the job that pertain to the Archive database are highlighted.

```
//jobname  JOB
//*
//*--------------------------------------------------------------------
//* NOTE:    The HPSRTO started task will be using the databases.
//*          To run the job, make sure the task has been stopped.
//*          Otherwise, the DELETE will fail.
//*
//* DEFINE:  This job defines the three ChangeMan SSM databases
//*          required for the Change Tracking Component:
//*              o  Site Master database
//*              o  Object Master database
//*              o  Delta Master database
//*
//*          Optionally, a fourth database may be defined if event
//*          history and member backups are to be archived before
//*          being deleted.
//*              o  Archive Master database
//*
//*--------------------------------------------------------------------
//DEFINE  EXEC PGM=IDCAMS,REGION=2048K
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
   DELETE somnode.CMNSSM.SITE.MASTER
   DELETE somnode.CMNSSM.OBJECT.MASTER
   DELETE somnode.CMNSSM.DELTA.MASTER
   DELETE somnode.CMNSSM.ARCHIVE.MASTER                        <<<<<
   SET MAXCC = 0
   /*-------------*/
   /* SITE MASTER */
   /*-------------*/
   DEFINE CLUSTER (NAME(somnode.CMNSSM.SITE.MASTER) -
                   SHAREOPTIONS(4 3) VOLUMES(volser) -
                   LOG(NONE) -
                   KEYS(55 0) FREESPACE(10 10) -
                   RECORDSIZE(100 4089)) -
           DATA    (NAME(somnode.CMNSSM.SITE.MASTER.DATA) -
                   CYL(5 5) -
                   CISZ(4096)) -
           INDEX   (NAME(somnode.CMNSSM.SITE.MASTER.INDEX) -
                   CYL(1 1) -
                   CISZ(2048))
```

```
                /*--------------*/
                /* OBJECT MASTER */
                /*--------------*/
                DEFINE CLUSTER (NAME(somnode.CMNSSM.OBJECT.MASTER) -
                            SHAREOPTIONS(4 3) VOLUMES(volser) -
                            LOG(NONE) -
                            KEYS(75 0) FREESPACE(10 10) -
                            RECORDSIZE(200 4089)) -
                    DATA    (NAME(somnode.CMNSSM.OBJECT.MASTER.DATA) -
                            CYL(5 5) -
                            CISZ(4096)) -
                    INDEX   (NAME(somnode.CMNSSM.OBJECT.MASTER.INDEX) -
                            CYL(1 1) -
                            CISZ(2048))
                /*--------------*/
                /* DELTA  MASTER */
                /*--------------*/
                DEFINE CLUSTER (NAME(somnode.CMNSSM.DELTA.MASTER) -
                            SHAREOPTIONS(4 3) VOLUMES(volser) -
                            LOG(NONE) -
                            KEYS(12 0) FREESPACE(10 10) -
                            RECORDSIZE(12288 22524)) -
                    DATA    (NAME(somnode.CMNSSM.DELTA.MASTER.DATA) -
                            CYL(100 50)) -
                    INDEX   (NAME(somnode.CMNSSM.DELTA.MASTER.INDEX) -
                            CYL(1 1) -
                            CISZ(1024))
                /* (optional) */
                /*--------------*/
                /* ARCHIVE MASTER */
                /*--------------*/
                DEFINE CLUSTER (NAME(somnode.CMNSSM.ARCHIVE.MASTER) -
                            SHAREOPTIONS(2 3) VOLUMES(volser) -
                            KEYS(64 0) FREESPACE(10 10) -
                            RECORDSIZE(12340 22576)) -
                    DATA    (NAME(somnode.CMNSSM.ARCHIVE.MASTER.DATA) -
                            CYL(100 50)) -
                    INDEX   (NAME(somnode.CMNSSM.ARCHIVE.MASTER.INDEX) -
                            CYL(1 1) -
                            CISZ(1024))
//*
```

Archiving Backups and Events to the Archive Master Database

You maintain the contents of the Site and Delta Master databases by periodically running the $MAINT job that is supplied in the INSTALL library:

■ Customize $MAINT to archive either Events or Backups by specifying an execution parameter of either EVENTS or BACKUPS. (BACKUPS is the default.)

■ Specify the ARCHIVE execution parameter when you run $MAINT. In this case, the records that are removed from the Site and Delta Master databases during the

$MAINT run are written to the Archive Master database that is associated with the HPSARCHV DD statement that you specify.

> **NOTE** If the ARCHIVE execution parameter is not specified when $MAINT is run, the selected Backup or Event records are removed from the Site and Delta Master databases and are not archived.

■ Include the desired aging criteria for the records to be removed as EXEC statement parameters or as HPSIN DD statement control parameters.

> **NOTE** Refer to the ChangeMan SSM Installation Guide for a description of the $MAINT job and its parameters.

Reporting the Contents of the Archive Master Database

You can generate a report of Archive Master database contents by customizing and running the ARCLIST job in the SAMPLES library. The JCL for this job follows:

```
//jobname  JOB
//*
//*---------------------------------------------------------------
//*  Generates a list of archived objects.
//*
//*  Parameters
//*    SHORT - Generates a list of archive times and object names.
//*    LONG - lists the events for each archived object.
//*    BACKUPS - only lists backup events.
//*    DSN - Lists objects that match this DSN (or pattern).
//*    MEMBER - Lists events for this member (or pattern).
//*    FILENAME - Lists objects that match this filename.
//*---------------------------------------------------------------
//JOBLIB   DD  DSN=somnode.CMNSSM.LOAD,DISP=SHR
//         DD  DSN=somnode.SERCOMC.LOAD,DISP=SHR
//STEP1    EXEC PGM=HPSARCH
//SERLIC   DD  DISP=SHR,DSN=somnode.CMNSSM.LICENSE.DATA
//SYSPRINT DD  SYSOUT=*
//HPSARCHV DD  DISP=SHR,DSN=somnode.CMNSSM.ARCHIVE.MASTER
//HPSIN    DD  *
 LIST=SHORT
*LIST=(LONG,
*      BACKUPS,
*      MEM=member,
*      FILENAME='filename')
*      DSN=dsn)
/*
```

You can specify parameters for this job on the LIST control statement of the HPSIN DD statement. You can specify LIST control statements in the following formats:

LIST=*parm*   Specify a single parameter following the = sign. Do not enclose the parameter in parentheses.

LIST=(*parm, parm*, ...)   Separate multiple parameters with a comma and enclose the parameter string in parentheses.

The parameters are as follows:

Parameter	Description
BACKUPS	Lists only the Backup events for each archived object.
DSN	Lists only the objects that match the specified DSN. You can specify a fully qualified DSN name or a pattern.
FILENAME	List all objects that match the specified HFS filename.
LONG	Lists all Events for each archived object.
MEMBER	Lists all Events for the specified member. You can specify a fully qualified member name or a pattern.
SHORT	Lists the object names and archive time for each object.

Recovering an Object from the Archive Master Database

You can recover information about an object that has been archived in the Archive Master database by customizing and running the ARCRECV job that is supplied in the SAMPLES library.

The JCL for this job follows:

```
//jobname  JOB
//*
//*--------------------------------------------------------------
//*  Recovers an archived member
//*    Backup member information can be found in the LIST=LONG report.
//*    Member backups must be recovered to a PDS, and HFS backups must
//*    be recovered to an HFS file.
//*  Parameters
//*    ARCHIVEDATETIME - The archive timestamp.
//*    BACKUPDATETIME - The backup timestamp.
//*    HFSOBJECT - The HFS filename to recover.
//*    MEMBER - The member to recover.
//*    NEWNAME - Optional new member name for recovered members.
//*    OBJECT - The data set to recover from.
//*    DD - The partitioned data set DD to recover to.
//*    DSN - The partitioned data set name to recover to.
//*    FILENAME - The HFS file to recover to.
//*    REPLACE - To replace an existing member in the target PDS.
//*    VOLSER - Volume serial for an object defined by volume.
//*--------------------------------------------------------------
//JOBLIB   DD  DSN=somnode.CMNSSM.LOAD,DISP=SHR
//         DD  DSN=somnode.SERCOMC.LOAD,DISP=SHR
```

```
//STEP1    EXEC PGM=HPSARCH
//SERLIC   DD  DISP=SHR,DSN=somnode.CMNSSM.LICENSE.DATA
//SYSPRINT DD  SYSOUT=*
//HPSARCHV DD  DISP=SHR,DSN=somnode.CMNSSM.ARCHIVE.MASTER
//HPSIN    DD  *
 RECOVER=(OBJECT=dsn,
          VOLSER=volser,
          ARCHIVE=yyyy/mm/dd_hh:mm,
          MEMBER=member,
          REPLACE,
          NEWNAME=newname,
          BACKUP=yyyy/mm/dd_hh:mm:ss,
          DSN=dsn)
*         DD=ddname)
*
 RECOVER=(HFSOBJECT='backup filename',
          ARCHIVE=yyyy/mm/dd_hh:mm,
          BACKUP=yyyy/mm/dd_hh:mm:ss,
          FILENAME='target filename')
/*
```

You specify parameters on the RECOVER control statement of the HPSIN DD statement to specify the criteria for the object that you need to recover. The format for specifying the RECOVER control statement is:

RECOVER=(*parm, parm*, ...)   Multiple parms are separated with each other with a comma. The entire parameter list is enclosed in parentheses.

Sample RECOVER statements are provided in the job for recovering a member of a PDS or PDSE and for recovering an HFS file. Comment out the control statements that do not apply when you run the job.

The parameters of the RECOVER control statement are as follows:

Parameter	Description
ARCHIVEDATETIME	The date and time that the target object was archived (the time that the $MAINT job was run) in yyyy/mm/dd_hh:mm format.
BACKUPDATETIME	The date and time that the target object was backed up (that is, the event time that triggered the backup) in yyyy/mm/dd_hh:mm:ss format.
DD	The DDname of the PDS or PDSE to recover to.
DSN	The name of the PDS or PDSE to recover to. (DSN and DD are mutually exclusive parameters.)
FILENAME	The name of the HFS file to recover to.
HFSOBJECT	The name of the HFS file to recover.
MEMBER	The name of the PDS(E) member to recover.
NEWNAME	Optional new name for the recovered member.
OBJECT	The DSN of the PDS or PDSE that has the member that you want to recover (non-HFS).

Parameter	Description
REPLACE	Replace an existing member in the PDS or PDSE with the member you are recovering.
VOLSER	The volume serial number for an object that is defined by volume. This parameter is required for uncataloged objects.

You must allocate the data set or HFS file to which you want to recover the target object in a separate operation.

Chapter 8
Administrator Processes

This chapter describes situations that an administrator might encounter and provides scenarios to resolve them.

> **NOTE** For information on maintenance procedures required for maintaining the Change Tracking databases (such as HPSMAINT processing) refer to the *ChangeMan SSM Installation Guide*.

Reassigning a Group Administator

This procedure allows you to reassign track groups to another administrator who is not currently defined to the system.

The process includes the following steps:

1   Backup the site and object master files.

2   Edit the backup files.

3   Reload the site and object master files from the edited backup files.

The JCL members used in this procedure ($REASGN1 and $REASGN2) are included in the INSTALL library on the distribution media.

Backup the Site and Object Master Files

The JCL in the $REASGN1 member of the INSTALL library creates sequential backups of the Site and Object VSAM master files.

Before running this job:

■   ChangeMan SSM must be shut down so that no activity occurs on these master files during the process.

■   You must replace the *somnode*, *sprim*, *ssec*, *oprim*, and *osec* variables with actual values.

Following is the skeleton JCL:

```
//jobname  JOB (accounting),'programmer',MSGCLASS=x,
//         MSGLEVEL=(1,1),NOTIFY=tsoid
//*
//* De-allocate Backup Files
//*
//SCRTCH  EXEC PGM=IEFBR14
//DD1      DD  DISP=(MOD,DELETE),DSN=somnode.BACKUP.SITEMSTR,
//             UNIT=SYSDA,SPACE=(TRK,1)
//DD2      DD  DISP=(MOD,DELETE),DSN=somnode.BACKUP.OBJMSTR,
//             UNIT=SYSDA,SPACE=(TRK,1)
//*
//* Back Up Master Files
//*
//BACKUP  EXEC PGM=IDCAMS,REGION=2M
//INDD1    DD  DISP=SHR,DSN=somnode.SITE.MASTER
//INDD2    DD  DISP=SHR,DSN=somnode.OBJECT.MASTER
//OUTDD1   DD  DSN=somnode.BACKUP.SITEMSTR,
//             DISP=(,CATLG,DELETE),
//             UNIT=SYSDA,SPACE=(CYL,(sprim,ssec),RLSE),
//             DCB=(RECFM=VB,DSORG=PS,LRECL=4093,BLKSIZE=20469)
//OUTDD2   DD  DSN=somnode.BACKUP.OBJMSTR,
//             DISP=(,CATLG,DELETE),
//             UNIT=SYSDA,SPACE=(CYL,(oprim,osec),RLSE),
//             DCB=(RECFM=VB,DSORG=PS,LRECL=4093,BLKSIZE=20469)
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
   REPRO INFILE(INDD1) OUTFILE (OUTDD1)
   REPRO INFILE(INDD2) OUTFILE (OUTDD2)
//
```

Edit the Backup Files

Using ISPF Option 2, edit the backup files as follows:

somnode.BACKUP.SITEMSTR

1   On the command line, type

>   preserve on

and press Enter.

2   On the command line, type

>   c 'prevadm ' 'NEWADMN ' 2 53 all

where *prevadm* is the TSO user ID of the previous administrator and *NEWADMN* is the TSO user ID of the new administrator.

> **NOTE** Both administrator IDs must be padded with spaces to be 8 characters long. The second ID (*NEWADMN*) must be UPPER CASE.

Press Enter.

3   Press PF3 to save the file.

somnode.BACKUP.OBJMSTR

1   On the command line, type

>   preserve on

and press Enter.

2   On the command line, type

>   c 'prevadm ' 'NEWADMN ' 2 67 all

where *prevadm* is the TSO user ID of the previous administrator and   *NEWADMN* is the TSO user ID of the new administrator.

> **NOTE** Both administrator IDs must be padded with spaces to be 8 characters long. The second ID (*NEWADMN*) must be UPPER CASE.

Press Enter.

3   Press PF3 to save the file.

Reload the Site and Object Master Files

The JCL in the $REASGN2 member of the INSTALL library reloads the Site and Object VSAM master files from the edited sequential backup files.

Before running this job:

■   ChangeMan SSM must be shut down so that no activity occurs on these master files during the process.

- You must replace the *somnode*, *sprim*, *ssec*, *oprim*, and *osec* variables with actual values.

- Space allocation for the Site and Object master files should be at least as large as the current allocation for these files.

- Uncomment the two DD statements in the RESTORE step that refer to the SORTED files.

> **NOTE** This job can also be used to do a straight reload of the master files from backup. In this case, you may comment out the SCRTCH, SORT1, and SORT2 steps, and uncomment the two DD statements in the RESTORE step that refer to the BACKUP files.

Following is the skeleton JCL:

```
//jobname  JOB (accounting),'programmer',MSGCLASS=x,
//         MSGLEVEL=(1,1),NOTIFY=tsoid
//*
//* De-allocate Sorted Files
//*
//SCRTCH  EXEC PGM=IEFBR14
//DD1      DD  DISP=(MOD,DELETE),DSN=somnode.SORTED.SITEMSTR,
//             UNIT=SYSDA,SPACE=(TRK,1)
//DD2      DD  DISP=(MOD,DELETE),DSN=somnode.SORTED.OBJMSTR,
//             UNIT=SYSDA,SPACE=(TRK,1)
//*
//* Sort Master File Backups
//*
//SORT1   EXEC PGM=SORT,REGION=2M
//SORTIN   DD  DISP=SHR,DSN=somnode.BACKUP.SITEMSTR
//SORTOUT  DD  DSN=somnode.SORTED.SITEMSTR,
//             DISP=(,CATLG,DELETE),
//             UNIT=SYSDA,SPACE=(CYL,(sprim,ssec),RLSE),
//             DCB=(RECFM=VB,LRECL=4093,BLKSIZE=20469)
//SORTWK01 DD  UNIT=SYSDA,SPACE=(CYL,(10,10))
//SORTWK02 DD  UNIT=SYSDA,SPACE=(CYL,(10,10))
//SORTWK03 DD  UNIT=SYSDA,SPACE=(CYL,(10,10))
//SYSPRINT DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSIN    DD  *
 SORT FIELDS=(5,53,CH,A)
//*
//SORT2   EXEC PGM=SORT,REGION=2M
//SORTIN   DD  DISP=SHR,DSN=somnode.BACKUP.OBJMSTR
//SORTOUT  DD  DSN=somnode.SORTED.OBJMSTR,
//             DISP=(,CATLG,DELETE),
//             UNIT=SYSDA,SPACE=(CYL,(oprim,osec),RLSE),
//             DCB=(RECFM=VB,LRECL=4093,BLKSIZE=20469)
//SORTWK01 DD  UNIT=SYSDA,SPACE=(CYL,(10,10))
//SORTWK02 DD  UNIT=SYSDA,SPACE=(CYL,(10,10))
//SORTWK03 DD  UNIT=SYSDA,SPACE=(CYL,(10,10))
//SYSPRINT DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSIN    DD  *
 SORT FIELDS=(5,67,CH,A)
//*
//* Delete and Redefine
//*
//DEFINE  EXEC PGM=IDCAMS,REGION=1M,COND=(0,LT)
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
   DELETE somnode.SITE.MASTER
```

```
            DELETE somnode.OBJECT.MASTER

            DEFINE CLUSTER (NAME(somnode.SITE.MASTER) -
                           SHAREOPTIONS(4 3) VOLUMES(SYSDA) -
                           CISZ(4096) -
                           RECORDSIZE(100 4089) CYL(sprim ssec) -
                           KEYS(53 0) FREESPACE(10 10)) -
                    DATA   (NAME(somnode.SITE.MASTER.DATA)) -
                    INDEX  (NAME(somnode.SITE.MASTER.INDEX))

            DEFINE CLUSTER (NAME(somnode.OBJECT.MASTER) -
                           SHAREOPTIONS(4 3) VOLUMES(SYSDA) -
                           CISZ(4096) -
                           RECORDSIZE(100 4089) CYL(oprim osec) -
                           KEYS(67 0) FREESPACE(10 10)) -
                    DATA   (NAME(somnode.OBJECT.MASTER.DATA)) -
                    INDEX  (NAME(somnode.OBJECT.MASTER.INDEX))

        //*
        //* Reload Master Files
        //*
        //RESTORE EXEC PGM=IDCAMS,REGION=2M,COND=(0,LT)
        //*INDD1    DD  DISP=SHR,DSN=somnode.BACKUP.SITEMSTR
        //*INDD2    DD  DISP=SHR,DSN=somnode.BACKUP.OBJMSTR
        //*INDD1    DD  DISP=SHR,DSN=somnode.SORTED.SITEMSTR
        //*INDD2    DD  DISP=SHR,DSN=somnode.SORTED.OBJMSTR
        //OUTDD1   DD  DISP=OLD,DSN=somnode.SITE.MASTER
        //OUTDD2   DD  DISP=OLD,DSN=somnode.OBJECT.MASTER
        //SYSPRINT DD  SYSOUT=*
        //SYSIN    DD  *
           REPRO INFILE(INDD1) OUTFILE (OUTDD1)
           REPRO INFILE(INDD2) OUTFILE (OUTDD2)
        //
```

Renaming the Databases

There are three databases used in the Change Tracking component of ChangeMan SSM. The names recommended in the Installation Guide are:

- somnode.SITE.MASTER

- somnode.OBJECT.MASTER

- somnode.DELTA.MASTER

If you have already set up your Change Tracking databases, and want to change the names, use the <Xref>Rename Procedure.

Rename Procedure

The jobs referred to in this procedure can be found in the ChangeMan SSM INSTALL library.

Some of the steps in this procedure are required only for the Site Master and Object Master databases. There are no internal references to the name of the Delta Master; therefore, an IDCAMS ALTER (in Step 5) is sufficient for renaming this data base.

1   If the HPSRTO is active, you must shut it down first before proceeding.

---

2   Run the REN02BKP job to back up the Site Master and Object Master databases.

3   Run the REN03MOD job to modify the recorded names of the Site Master and Object Master databases.

4   Run the REN04RES job to restore the Site Master and Object Master databases.

5   Run the REN05ALT job to alter the Delta Master cluster name.

6   Edit your HPSPARMS member and specify the new names for the Site Master and Object Master databases.

NOTE The name of the default HPSPARMS member can be found in the banner page of any ChangeMan SSM batch report. (To produce a sample report, run the SHOW job in the SAMPLES library).

7   Save your changes to the HPSPARMS member and restart the task (SSMSTAR).

Glossary

Alternate Group Administrator	A person assigned by an existing Group Administrator to perform the primary tasks of that Group Administrator in his/her absence.
BICT (Batch Interval Change Tracking)	A batch program (HPSGLOBE) that performs the change-capture process for all tracked Objects at specified intervals. It should be scheduled to run minimally, once every 24 hours. This is an alternative to RTCT (Real Time Change Tracking).
Change Basket (keyed, positional, or text)	A single physical sequential data set that contains the changes between two keyed, positional, or text flat files. This file contains the changed data records. Add, update, and delete information is present, but is not currently used for synchronization by ChangeMan SSM.

Definitions for file types:

Keyed file: A physical sequential or direct access file that has a field in each record that can be used as a key. This key must be unique for each record in the file.

Positional file: A physical sequential or direct access file containing records that are indexed by their physical position. For example, the first record is considered record 1, and the second is record 2.

Text file: A physical sequential or direct access file with records that are in no particular order, and do not have a specific key. |
Change Basket (non-VSAM)	A single physical sequential data set that contains the changes to an environment over time, or differences between two environments. For example: Test/Prod, SYSRES/ALTRES, and LPAR/LPAR. This file holds the data and information required to synchronize two environments, or propagate change form one system to another, locally or remotely.
Change Basket (VSAM)	A single physical sequential data set that contains the changes/differences between two VSAM clusters. This file contains the data records and required information to synchronize two VSAM KSDS data sets, locally or remotely.
Delta Master	A ChangeMan SSM database that contains the initial base version, plus subsequent changed versions, of a PDS/PDSE member (for data sets defined to ChangeMan SSM with Delta Tracking). Backup members are stored in compressed format.
Department Administrator	A person assigned by a Site Master Administrator to manage the Object Master database.

DSORG (Supported Types)	**DA** indicates a direct access data set.
	PO indicates a partitioned data set (PDS and PDS/E).
	PO type Format-3 data sets provide support for DFSMS Binder, NPO Format-3 load modules, and stored IBM JAVA files.
	PS indicates a physical sequential data set.
	VS indicates a VSAM data set.
	NOTE Data sets with no DSORG specified are not supported.
Extract/Export	Extract is the process that ChangeMan SSM uses to identify changes/differences, utilizing fingerprints and/or active data sets.
	Export is the process that packages the changes/differences into a Change Basket data set.
Event	A change event when ChangeMan SSM detects a variance in content or status of a tracked data set or data set member. There are 23 types of events distinguished by the software.
Fingerprint Dataset	A physical sequential data set containing all the data set and member tokens to identify the contents of that environment at the time the Fingerprint data set was generated. A Fingerprint data set can represent a single PDS member, or the contents of several DASD volumes.
Fingerprint Dataset (keyed, positional, or text	A physical sequential file that contains all the fingerprint tokens of all the records in a physical sequential file. This file represents a PS or DA file.
	Definitions for file types:
	Keyed file: A physical sequential or direct access file that has a field in each record that can be used as a key. This key must be unique for each record in the file.
	Positional file: A physical sequential or direct access file containing records that are indexed by their physical position. For example, the first record is considered record 1, and the second is record 2.
	Text file: A physical sequential or direct access file with records that are in no particular order, and do not have a specific key.
Fingerprint Dataset (VSAM)	A physical sequential data set containing tokens for every record in a VSAM KSDS cluster. This file represents the contents of a VSAM cluster at the time the Fingerprint data set was generated.
Fingerprint Token	A unique identity attribute for the content of a data set or data set member. The attribute is an eight-byte, hexadecimal value.

Fingerprint Token (keyed, positional, or text	A unique identity attribute for records of a keyed, positional, or text file. The attribute is a six-byte, hexadecimal value.
	Definitions for file types:
	Keyed file: A physical sequential or direct access file that has a field in each record that can be used as a key. This key must be unique for each record in the file.
	Positional file: A physical sequential or direct access file containing records that are indexed by their physical position. For example, the first record is considered record 1, and the second is record 2.
	Text file: A physical sequential or direct access file with records that are in no particular order, and do not have a specific key.
Fingerprint Token (VSAM)	A unique identity attribute for records of VSAM clusters. The attribute is a six-byte, hexadecimal value.
Group Administrator	A person assigned by a Department Administrator to manage one or more Object Groups.
HFS Change Basket	A single physical sequential data set that contains the changes/differences between two HFS files. This file contains the data records and required information to synchronize two HFS files, locally or remotely.
HFS Fingerprint Dataset	A physical sequential data set containing tokens for every record in an HFS file. This file represents the contents of an HFS file at the time the Fingerprint data set was generated.
HFS Fingerprint Token	A unique identity attribute for records of HFS files. The attribute is a six-byte, hexadecimal value.
HFS Reverse Change Basket	A single physical sequential data set created during an HFS Import operation. It contains the information and data to undo the effects of updates, as a result of an HFS Import operation. This file has an identical structure to an HFS Change Basket.
Import	Import is the process that ChangeMan SSM utilizes to apply the changes contained in a Change Basket data set, to target environments. During Import processing there are several parameters that can be specified to customize the apply process, as well as a SIMULATE feature, and the creation of a Reverse Change Basket.
MLS (Member Level Security)	This facility allows for the protection of PDS/PDSE members being updated. The software provides the capability for MLS Administrators to identify who is allowed to update specific members/member patterns for specified data sets, by specifying either TSO User IDs or a RACF profile name.
	If an attempt is made to update a protected member, ChangeMan SSM will either save the changes to an internally-generated member name or cancel the updates, depending on what option you selected for the RTORENAME parameter.
MRT (Member Reference Tracking)	This facility allows you to detect and report references to members of PDSs. Read and update access is tracked on existing members that you define to the MRT system, and where standard I/O routines are used.
	You can also define members to be excluded from MRT. This allows you to filter out references to high-activity members at the beginning of MRT processing, which greatly enhances performance.

Non-user	A person unknown, or not defined by a Group Administrator to any Object Group, but allowed access to the Synchronization and Detection functions of ChangeMan SSM.
Notifications	A ChangeMan SSM facility that provides change notifications to specified users about changes to tracked data sets and PDS members. There are both TSO User ID and E-mail notification facilities that can be used separately or together.
Object	A data set defined to the Change Tracking component of the tracking software. An object of the tracking function.
Object (Delta Tracked)	A PDS or PDS/E data set defined to the Change Tracking component, where Delta Tracking was specified during the initial define of the object. This specification creates an initial backup of all members into the Delta Master database. Subsequently, only changed members, and additions are backed up in compressed format. **NOTE** Seqential data sets cannot be delta-tracked; if they are defined as DELTA=Y, the object is defaulted to DELTA=N.
Object Group	A group of conceptually related data sets (Objects) that are associated for tracking, change detection, and reporting. There are no restrictions on mixing data set types in a group.
Object Master	A ChangeMan SSM database connected to the Site Master database, which contains definitions of all the Object Groups, their associated Group Administrators, and users defined to the Change Tracking environment.
RTO (Real Time Option)	RTO was the name used for Real Time Change Tracking (RTCT) for ChangeMan SSM Version 8.1 and earlier. See RTCT.
RTCT (Real Time Change Tracking)	The task of capturing data set or data set member information that allows the software to detect and identify change in real time.
Recall	A ChangeMan SSM facility to allow the recall of a backup version of selected (Delta Tracked) PDS or PDS/E members to a compatible data set. Expansion is performed automatically.
Recover	A ChangeMan SSM facility to allow the recovery of a Delta Tracked PDS or PDS/E data set, as it existed in some previous point in time, to a compatible data set. Expansion is performed automatically.
Redundancy Detection	A ChangeMan SSM facility that identifies duplicate data sets and PDS/PDSE members by content. A comprehensive reporting facility allows for the identification of duplicates to facilitate the deletion of those having duplicate content. This allows for recovery of DASD space and enhanced integrity (only one copy). This facility also assists in library cleanup and consolidation.
Restore	A ChangeMan SSM facility to allow the restore of a backup version of selected (Delta Tracked) PDS or PDS/E members to the original data set. Expansion is performed automatically.
Reverse Change basket	A single physical sequential data set, created during an Import operation, which contains the information and data to undo (entirely or partially) the effects of updates as a result of an Import operation. This file has an identical structure to a Change Basket.

Reverse Change Basket (VSAM)	A single physical sequential data set created during a VSAM Import operation. It contains the information and data to undo the effects of updates, as a result of a VSAM Import operation. This file has an identical structure to a VSAM Change Basket.
Site Master	The main ChangeMan SSM VSAM database, which contains information for all tracked data sets and their detected events.
Site Master Administrator	A person assigned (during installation) to manage the Site Master and define departments.
SMS	System Managed Storage. Enhanced data management software for MVS mainframes from IBM. Provides functions such as automatically allocating data, which prevents most out-of-space errors when disk volumes become full.
Snapshot	A ChangeMan SSM facility that interrogates the VTOC and VVDS to identify data sets existing on one or several volumes, and capture information about these data sets and their attributes. This information is stored in a SNAPSHOT data set, which can be used to compare to another SNAPSHOT data set generated at a different location. This comparison can verify that all data sets are available, and check for differences in any data set attributes or space allocations.
	The SNAPSHOT function is especially useful as a pre-step to performing DR testing, to verify that all the production data sets are available. In addition, it allows pre-screening to eliminate potential x37 type abends, where a data set was expanded at the source site, but not at the target, when applying maintenance.
Tracking	The function of monitoring a data set or data set member for events in real time (RTCT), or over a period of time (BICT).
User	A person defined to the Change Tracking component as a User in one or more groups by a Group Administrator, and allowed controlled access to its functions.

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