zSecure Audit for ACF2

Getting Started

GI13-2325-07

Note

Before using this information and the product it supports, read the information in "Notices" on page 153.

July 2021

This edition applies to version 2, release 5, modification 0 of IBM® Security zSecure Audit (product number 5655-N17) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

About this publication

IBM Security zSecure Audit for ACF2 Version 2.5.0 provides system auditing and monitoring utilities for ACF2. It collects and analyzes data from ACF2 systems and SMF event records. This data can be used to monitor user access privileges, implement scoping to limit user privileges, and report on user behavior. zSecure Audit for ACF2 improves upon existing tools to facilitate robust security auditing for mainframe systems.

The purpose of this document is to help you quickly become familiar with IBM Security zSecure Audit for ACF2. This document is not a full reference manual and does not cover all features. This guide concentrates on the interactive features using ISPF panels and highlights the major functions of the product. After working through this guide, you should be able to perform typical tasks.

Except for a few introductory pages, this document is intended as a hands-on guide while you work with the product. It introduces IBM Security zSecure Audit for ACF2 and explains how to use it to analyze Logon IDs, Rules, and Global System Options, and to run reports.

The target audience for this book includes security administrators and mainframe systems programmers. Readers of this book should have working knowledge of ACF2 systems administration and be comfortable using the Interactive System Productivity Facility (ISPF).

zSecure documentation

The IBM Security zSecure Suite and IBM Security zSecure Manager for RACF z/VM libraries consist of unlicensed and licensed publications. This section lists both libraries and instructions to access them.

Unlicensed zSecure publications are available at IBM Documentation for IBM Security zSecure Suite (z/OS) or IBM Security zSecure Manager for RACF z/VM. For instructions to obtain the zSecure 2.5.0 licensed publications, see Obtain licensed documentation.

Obtain licensed documentation

The unlicensed zSecure 2.5.0 documentation is publicly available at IBM Documentation for IBM Security zSecure Suite. The licensed documentation is available to zSecure customers only. This document describes how to request access to the licensed documentation.

The zSecure 2.5.0 licensed documentation is available at IBM Security zSecure Suite Library.

To access the zSecure 2.5.0 licensed documentation, you must sign in to the IBM Security zSecure Suite Library with your IBM ID and password. If you do not see the licensed documentation, your IBM ID is probably not yet registered. Send a mail to zDoc@nl.ibm.com to register your IBM ID. Provide your organization's client name and number, as well as your own name and IBM ID. If you do not yet have an IBM ID, you can Create an IBM account. You will receive confirmation of registration by mail.

IBM Security zSecure Suite library

The IBM Security zSecure Suite library consists of unlicensed and licensed publications.

Unlicensed zSecure publications are available at IBM Documentation for IBM Security zSecure Suite (z/OS). Licensed publications are available to zSecure customers only. To obtain the licensed publications, see "Obtain licensed documentation" on page vii. Licensed publications have a form number that starts with L; for example, LC27-6533.

The IBM Security zSecure Suite library consists of the following publications:

- *About This Release* includes release-specific information as well as some more general information that is not zSecure-specific. The release-specific information includes the following:
  - *What's new*: Lists the new features and enhancements in zSecure 2.5.0.

- *Release notes*: For each product release, the release notes provide important installation information, incompatibility warnings, limitations, and known problems for the IBM Security zSecure products.
- *Documentation*: Lists and briefly describes the zSecure Suite and zSecure Manager for RACF z/VM libraries and includes instructions for obtaining the licensed publications.
- *Related documentation*: Lists titles and links for information related to zSecure.
- *Support for problem solving*: Solutions to problems can often be found in IBM knowledge bases or a product fix might be available. If you register with IBM Software Support, you can subscribe to IBM's weekly email notification service. IBM Support provides assistance with product defects, answers frequently asked questions, and helps to resolve problems.

- *zSecure CARLa-Driven Components Installation and Deployment Guide*, SC27-5638

  Provides information about installing and configuring the following IBM Security zSecure components:

  - IBM Security zSecure Admin
  - IBM Security zSecure Audit for RACF, CA-ACF2, and CA-Top Secret
  - IBM Security zSecure Alert for RACF and CA-ACF2
  - IBM Security zSecure Visual
  - IBM Security zSecure Adapters for SIEM for RACF, CA-ACF2, and CA-Top Secret

- *zSecure Admin and Audit for RACF Getting Started* , GI13-2324

  Provides a hands-on guide introducing IBM Security zSecure Admin and IBM Security zSecure Audit product features and user instructions for performing standard tasks and procedures. This manual is intended to help new users develop both a working knowledge of the basic IBM Security zSecure Admin and Audit for RACF system functionality and the ability to explore the other product features that are available.

- *zSecure Admin and Audit for RACF User Reference Manual*, LC27-5639 (licensed)

  Describes the product features for IBM Security zSecure Admin and IBM Security zSecure Audit. Includes user instructions to run the admin and audit features from ISPF panels. This manual also provides troubleshooting resources and instructions for installing the zSecure Collect for z/OS® component. This publication is available to licensed users only.

- *IBM Security zSecure Admin and Audit for RACF Line Commands and Primary Commands Summary*, SC27-6581

  Lists the line commands and primary (ISPF) commands with very brief explanations.

- *zSecure Audit for ACF2 Getting Started*, GI13-2325

  Describes the zSecure Audit for CA-ACF2 product features and provides user instructions for performing standard tasks and procedures such as analyzing Logon IDs, Rules, Global System Options, and running reports. The manual also includes a list of common terms for those not familiar with ACF2 terminology.

- *zSecure Audit for ACF2 User Reference Manual*, LC27-5640 (licensed)

  Explains how to use zSecure Audit for CA-ACF2 for mainframe security and monitoring. For new users, the guide provides an overview and conceptual information about using CA-ACF2 and accessing functionality from the ISPF panels. For advanced users, the manual provides detailed reference information, troubleshooting tips, information about using zSecure Collect for z/OS, and details about user interface setup. This publication is available to licensed users only.

- *zSecure Audit for Top Secret User Reference Manual*, LC27-5641 (licensed)

  Describes the zSecure Audit for CA-Top Secret product features and provides user instructions for performing standard tasks and procedures. This publication is available to licensed users only.

- *zSecure CARLa Command Reference*, LC27-6533 (licensed)

  Provides both general and advanced user reference information about the CARLa Auditing and Reporting Language (CARLa). CARLa is a programming language that is used to create security administrative and audit reports with zSecure. The *zSecure CARLa Command Reference* also provides detailed information about the NEWLIST types and fields for selecting data and creating zSecure reports. This publication is available to licensed users only.

- *zSecure Alert User Reference Manual*, SC27-5642

  Explains how to configure, use, and troubleshoot IBM Security zSecure Alert, a real-time monitor for z/OS systems protected with the Security Server (RACF) or CA-ACF2.
- *zSecure Command Verifier User Guide*, SC27-5648

  Explains how to install and use IBM Security zSecure Command Verifier to protect RACF mainframe security by enforcing RACF policies as RACF commands are entered.
- *zSecure CICS Toolkit User Guide*, SC27-5649

  Explains how to install and use IBM Security zSecure CICS® Toolkit to provide RACF administration capabilities from the CICS environment.
- *zSecure Messages Guide*, SC27-5643

  Provides a message reference for all IBM Security zSecure components. This guide describes the message types associated with each product or feature, and lists all IBM Security zSecure product messages and errors along with their severity levels sorted by message type. This guide also provides an explanation and any additional support information for each message.
- *zSecure Visual Client Manual*, SC27-5647

  Explains how to set up and use the IBM Security zSecure Visual Client to perform RACF administrative tasks from the Windows-based GUI.

Program directories are provided with the product tapes. You can also download the latest copies from Program Directories.

- *Program Directory: IBM Security zSecure CARLa-Driven Components*, GI13-2277

  This program directory is intended for the systems programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of IBM Security zSecure CARLa-Driven Components: Admin, Audit, Visual, Alert, and the IBM Security zSecure Adapters for SIEM.
- *Program Directory: IBM Security zSecure CICS Toolkit*, GI13-2282

  This program directory is intended for the systems programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of IBM Security zSecure CICS Toolkit.
- *Program Directory: IBM Security zSecure Command Verifier*, GI13-2284

  This program directory is intended for the systems programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of IBM Security zSecure Command Verifier.
- *Program Directory: IBM Security zSecure Admin RACF-Offline*, GI13-2278

  This program directory is intended for the systems programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of the IBM Security zSecure Admin RACF-Offline component of IBM Security zSecure Admin.
- Program Directories for the zSecure Administration, Auditing, and Compliance solutions:
  - 5655-N23: *Program Directory for IBM Security zSecure Administration*, GI13-2292
  - 5655-N24: *Program Directory for IBM Security zSecure Compliance and Auditing*, GI13-2294
  - 5655-N25: *Program Directory for IBM Security zSecure Compliance and Administration*, GI13-2296

IBM Security zSecure Manager for RACF z/VM library

The IBM Security zSecure Manager for RACF z/VM library consists of unlicensed and licensed publications.

Unlicensed publications are available at IBM Documentation for IBM Security zSecure Manager for RACF z/VM. Licensed publications are available to zSecure customers only. To obtain the licensed publications, see Obtain a licensed publication. Licensed publications have a form number that starts with L; for example, LCD7-5373.

The IBM Security zSecure Manager for RACF z/VM library consists of the following publications:

- *IBM Security zSecure Manager for RACF z/VM Release Information*

  For each product release, the Release Information topics provide information about new features and enhancements, incompatibility warnings, and documentation update information. You can obtain the most current version of the release information from the zSecure for z/VM documentation website at IBM Documentation for IBM Security zSecure Manager for RACF z/VM.
- *IBM Security zSecure Manager for RACF z/VM: Installation and Deployment Guide, SC27-4363*

  Provides information about installing, configuring, and deploying the product.
- *IBM Security zSecure Manager for RACF z/VM User Reference Manual, LC27-4364*

  Describes how to use the product interface and the RACF administration and audit functions. The manual provides reference information for the CARLa command language and the SELECT/LIST fields. It also provides troubleshooting resources and instructions for using the zSecure Collect component. This publication is available to licensed users only.
- *IBM Security zSecure CARLa Command Reference*, LC27-6533

  Provides both general and advanced user reference information about the CARLa Auditing and Reporting Language (CARLa). CARLa is a programming language that is used to create security administrative and audit reports with zSecure. The *zSecure CARLa Command Reference* also provides detailed information about the NEWLIST types and fields for selecting data and creating zSecure reports. This publication is available to licensed users only.
- *IBM Security zSecure Documentation CD*, LCD7-5373

  Supplies the IBM Security zSecure Manager for RACF z/VM documentation, which contains the licensed and unlicensed product documentation.
- *Program Directory for IBM Security zSecure Manager for RACF z/VM, GI11-7865*

  To use the information in this publication effectively, you must have some prerequisite knowledge that you can obtain from the program directory. The *Program Directory for IBM Security zSecure Manager for RACF z/VM* is intended for the systems programmer responsible for installing, configuring, and deploying the product. It contains information about the materials and procedures associated with installing the software. The Program Directory is provided with the product tape. You can also download the latest versions from IBM Documentation for IBM Security zSecure Manager for RACF z/VM.

Related documentation

This section includes titles and links for information related to zSecure.

See:	For:
IBM Security zSecure Suite	All zSecure unlicensed documentation. For information about what is specific for a release, system requirements, incompatibilities and so on, select the version of your choice and *About This Release*; see "What's new" and "Release notes". To obtain the zSecure licensed documentation, see Obtain licensed documentation.

See:	For:
IBM Documentation for z/OS	Information about z/OS. Table 1 on page xi lists some of the most useful publications for use with zSecure.
IBM Z® Multi-Factor Authentication documentation	Information about IBM Z Multi-Factor Authentication (MFA) documentation.
QRadar® DSM Configuration Guide	For more information about QRadar, see the IBM QRadar Security Intelligence Platform on IBM Documentation.
IBM CICS Transaction Server for z/OS documentation	Information about CICS Transaction Server for z/OS.
IBM MQ	Information about IBM MQ.
IBM Z NetView®	Information about IBM Z NetView.
CA-ACF2 documentation	Information about ACF2 and the types of events that can be reported using zSecure Audit for ACF2.

Table 1. Some of the most useful z/OS publications for use with zSecure

Manual Title	Order Number
z/OS Communications Server: IP Configuration Guide	SC27-3650
z/OS Communications Server: IP Configuration Reference	SC27-3651
z/OS Cryptographic Services ICSF Administrator's Guide	SC14-7506
z/OS Cryptographic Services ICSF System Programmer's Guide	SC14-7507
z/OS Integrated Security Services Enterprise Identity Mapping (EIM) Guide and Reference	SA23-2297
z/OS ISPF Dialog Developer's Guide and Reference	SC19-3619
z/OS MVS Initialization and Tuning Reference	SA23-1380
z/OS MVS Programming: Assembler Services Reference, Volume 1 (ABE-HSP)	SA23-1369
z/OS MVS Programming: Assembler Services Reference, Volume 2 (IAR-XCT)	SA23-1370
z/OS MVS™ Programming: Authorized Assembler Services Reference, Volume 1 (ALE-DYN)	SA23-1372
z/OS MVS System Codes	SA-0665
z/OS MVS Programming: Callable Services for High Level Languages	SA23-1377
z/OS MVS System Commands	SA38-0666
z/OS MVS System Management Facilities (SMF)	SA38-0667
z/OS UNIX System Services Messages and Codes	SA23-2284
z/OS UNIX System Services Planning	GA32-0884

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

Technical training

For technical training information, see the IBM Training and Skills website at IBM Training.

For a list of formal customer education for IBM Security zSecure, see the zSecure Course Offerings. This PDF file is part of the zSecure - Learning information, which also includes CARLa self studies and sample applications.

Support information

IBM Support provides assistance with code-related problems and routine, short duration installation or usage questions. You can directly access the IBM Software Support site at www.ibm.com/mysupport.

Statement of Good Security Practices

IT system security involves protecting systems and information through prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, misappropriated, or misused or can result in damage to or misuse of your systems, including for use in attacks on others. No IT system or product should be considered completely secure and no single product, service, or security measure can be completely effective in preventing improper use or access. IBM systems, products, and services are designed to be part of a comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective. IBM DOES NOT WARRANT THAT ANY SYSTEMS, PRODUCTS, OR SERVICES ARE IMMUNE FROM, OR WILL MAKE YOUR ENTERPRISE IMMUNE FROM, THE MALICIOUS OR ILLEGAL CONDUCT OF ANY PARTY.

Chapter 1. Overview

zSecure Audit for ACF2 provides ACF2 and z/OS monitoring, Systems Management Facility (SMF) reporting, z/OS integrity checking, and library change detection.

In zSecure Audit for ACF2, the primary processing programs are large modules that can be used in batch or interactive mode. Interactive mode is the most common, although batch mode is useful for automated periodic checks or for producing daily reports. The user interface for the interactive mode is implemented in ISPF by using the panel, skeleton, and message libraries supplied with zSecure. ISPF is the main program that is running during an interactive session. The interactive panels call the zSecure application program CKRCARLA load module as needed. Figure 1 on page 1 illustrates the general flow of data. The user works through ISPF panels, which generate commands that are sent to zSecure Audit for ACF2. The results are displayed through ISPF panels.

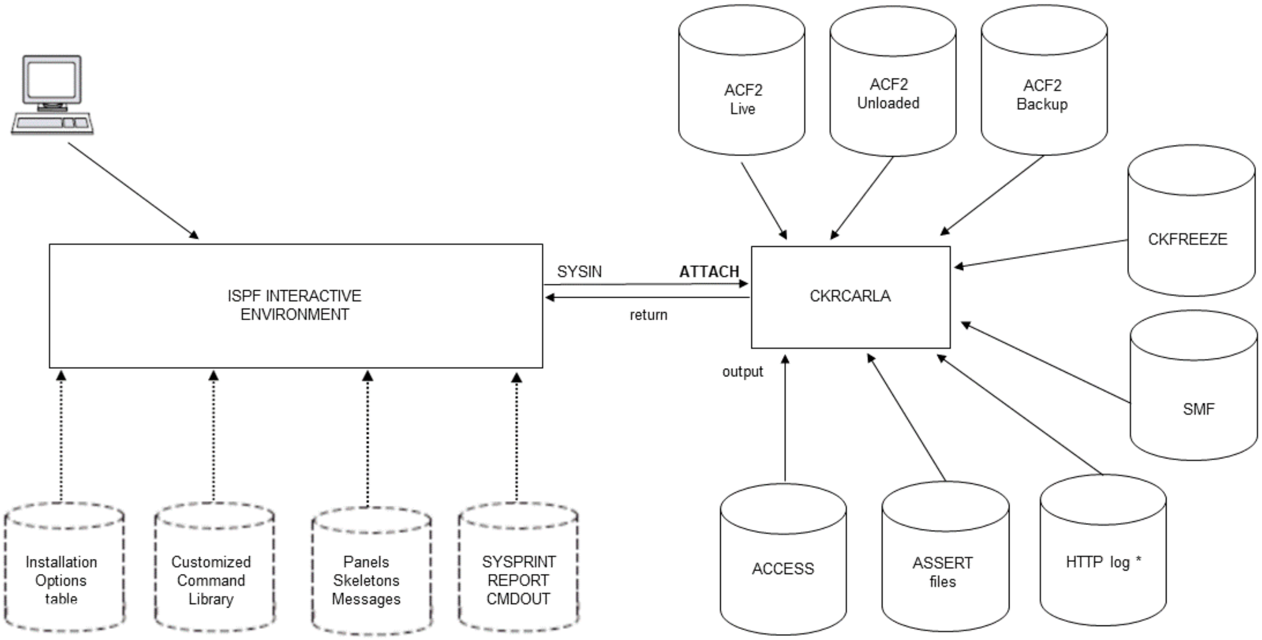


Figure 1. Conceptual data flow

This general design, with separate interactive and non-interactive components, has a number of practical advantages:

- It separates interactive interfaces from the application program. This separation gives you more flexibility in designing and using the interfaces and programs, especially when customizing ISPF.
- Any functions that can be run interactively can also be run in batch mode.
- An installation can create customized reports by using the CARLa command language and run these reports from the ISPF panels.
- zSecure Audit for ACF2 can be used remotely, in cases where a TSO connection is impossible or impractical; for example, in NJE networks.

zSecure Audit for ACF2 is command-driven by using the CARLa Auditing and Reporting Language (CARLa). The commands are explained in the *IBM Security zSecure CARLa Command Reference*.

A typical user, using ISPF, does not need to be concerned with CARLa. The commands are generated automatically and sent to the application program. Except for the few comments here, this guide does not describe the CARLa command language, but concentrates on using the product interactively through ISPF.

The command language is generally used to generate customized reports and to use the product in batch mode. Because the standard reports are comprehensive, you might not ever need customized reports, but you can create them if necessary. Batch use is attractive as part of a security monitoring function. For example, you can use a scheduled batch job to automatically run monitoring checks and reports.

A comprehensive set of sample reports is available in a data set called the CARLa library. This library has a low-level qualifier of SCKRCARL and is often referred to with the default ddname CKRCARLA.

Data sources

zSecure Audit for ACF2 uses several different types of data. Figure 2 on page 2 provides a quick overview of the data and sources of the data to help understand the product.

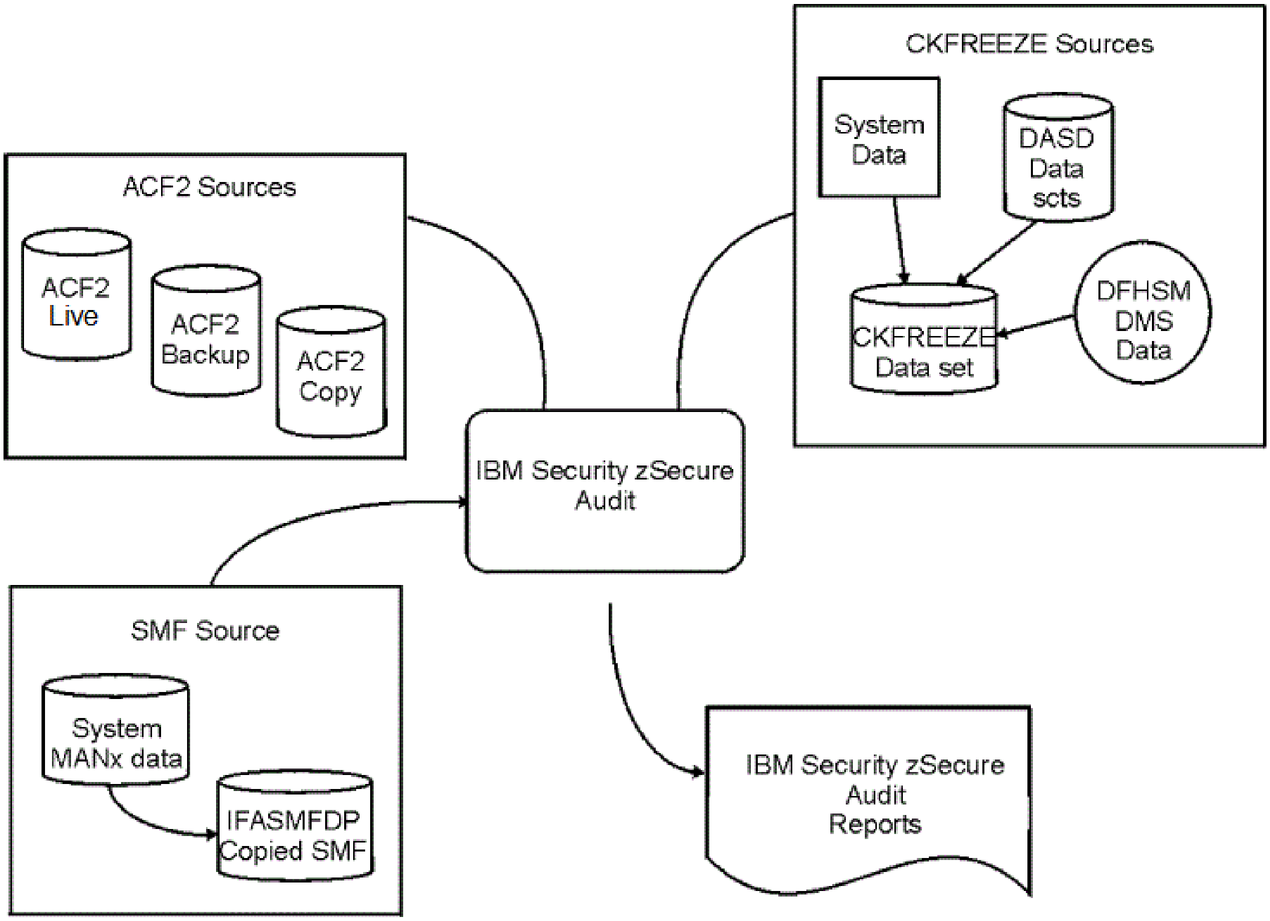


Figure 2. zSecure Audit for ACF2 Input Sources

zSecure Audit for ACF2 requires ACF2 data that can originate from different sources that include:

- Live ACF2 database
- Backup of the live ACF2 database
- Unloaded ACF2 data copied from a backup
- ACF2 alternate cluster
- Old backups, on tape for example

The live ACF2 database is suitable for specific searches that do not require processing of large volume of data, which can cause performance issues.

zSecure produces unloaded ACF2 data by reading the backup ACF2 file and creating a copy in a proprietary format suitable for high-speed searches.

The System Management Facility (SMF) data can come from the live SMF data sets, SMF log streams, or from sequential SMF data sets produced with the IFASMFDP or IFASMFDL programs. These IBM programs unload SMF records as follows: the IFASMFDP program from the live SMF data sets and the

IFASMFDL program from the SMF log streams. Sequential SMF data sets can be on disk or tape, although many installations might not permit TSO users to mount tapes for interactive use. zSecure Audit for ACF2 cannot process pseudo-SMF files created by the Report Writer or the IRRADU00 SMF unload program.

zSecure Audit for ACF2 uses Direct Access Storage Device (DASD) data provided by the zSecure Collect program. This program runs as a batch job and reads all online Volume Table Of Contents (VTOCs), VSAM Volume data sets (VVDS), catalogs, selected Partitioned data set (PDS) directories, and calculates digital signatures at the member and data set level when requested. It writes all this information to a CKFREEZE data set.

The product also uses z/OS control block data. This data is gathered by zSecure Collect at the same time it gathers DASD data. It uses Authorized Program Facility (APF)-authorized functions to retrieve data from other address spaces and from read-protected common storage. Additionally, with batch collection, you can analyze a remote system where the data was collected.

Remote data

This functionality, known as multi-system support, enables reporting and managing multiple systems from a single session. Using remote data for creating reports is useful for ad hoc reporting about profiles or settings. However, this access method is less suited for queries that require processing of the entire security database or the entire CKFREEZE data set. It takes longer to access large amounts of remote data than to access the same data locally.

To use the multi-system support functionality, your environment must have an active zSecure Server, which runs in a separate server address space. This server performs the necessary functions for communicating with remote systems to route commands and access ACF2 databases, SMF input files, CKFREEZE data sets, and other defined data sets. For more detailed information, see the *IBM Security zSecure Audit for ACF2: User Reference Manual*.

ACF2 terminology used in this guide

LID
The 1-8 character ID of a user or task. A pointer to the ACF2 1024-byte Logon ID record in the Logon ID database.

LOGON ID
Used interchangeably to indicate the LID or the 1024-byte Logon ID record.

LOGON ID RECORD
The 1024-byte Logon ID record stored in the ACF2 Logon ID database.

GSO
See Global System Options.

GLOBAL SYSTEM OPTIONS (GSO)
ACF2 system options that apply to base ACF2 (MVS, OS/390, z/OS). Numerous GSO records control areas such as passwords, overall operating mode, job submission, and bypass conditions.

MASK or MASKING
ACF2 uses two masking characters: the dash (-) and the asterisk (*). The dash generally means multiple characters or multiple levels in data set names. The asterisk specifies a single character or position. Masking indicates wildcard characters for matching logon IDs, uid (ACF2 USER field user ID) strings, or data set names.

NEXTKEY
The NEXTKEY parameter is used in the environment section of resource and data set rules. It acts as a pointer to additional rule lines for determining access. NEXTKEYs modularize a rule set for ease in administration and are required when a rule set is too large to compile. NEXTKEYed rule sets do not function as stand-alone rules. They are dependent on the parent rule set (point of origination). During ACF2 rule validation, NEXTKEYed rule sets might or might not be used in the process. This is dependent on the data set or resource requested, and whether a match is found in the parent rule set before reaching the NEXTKEY pointer to a NEXTKEYed or child rule.

PARENT

The term *parent* is used to indicate the base rule set versus a NEXTKEYed rule set. The parent or base rule set is the branching point or starting point of NEXTKEYs.

CHILD

The term *child* is used to indicate NEXTKEYed rule sets versus the parent rule set. Child rules originate or belong to parent rules. See NEXTKEY.

STOPPER LINES

Stopper lines are used to stop ACF2 rule processing in order to prevent any rule line match further down in the rule logic. Rule lines with a dash for the data set name and a mask character in the uid indicate any data set name if taken out of context and any user if taken out of context. A stopper line such as `- uid(*)` prevents access; notice the absence of permissions. To protect data sets that require limited access, insert stopper lines immediately after the rule line that grants access. These stopper lines prevent anyone from gaining the *public* access found at the end of a rule set such as

```
- UID(*) READ(A)
```

ACF2 processing stops when a match is found for data set Name (DSN) and uid entries.

PREVENT LINES

See STOPPER lines.

RULE

Used interchangeably with rule line and rule set.

RULE LINE

Used to indicate a specific line within a rule set.

RULE SET

Used to indicate all rule lines within a $KEY; includes all rule lines in the set.

RULE KEY

The $KEY value; that is, $KEY`(SYS1)`. *SYS1* is the rule key in this example.

HIGH LEVEL QUALIFIER (HLQ)

The first qualifier, which is node or level, in a data set name. The entire HLQ is always the $KEY value or rule key for a data set rule. Can be one to eight characters.

SCOPING

Limits security administrative capabilities and data access capabilities for powerful privileged Logon IDs.

ACF2 scoping

ACF2 scoping provides control over the security administrative Logon ID privileges: `SECURITY`, `ACCOUNT`, and `AUDIT`. See Table 2 on page 5.

- The `SECURITY` privilege grants list and update access to Logon IDs and Rules. This privilege allows for storing rules in the database, changing rule sets, changing Logon ID records, and changing Infostorage records. The `SECURITY` privilege grants access to anything on your system. However, there are a few controls over these powerful privileges: scoping, RULEVLD, and RSRCVLD.
- The `ACCOUNT` privilege grants creation and update access to Logon IDs. This privilege allows for creation, change, and deletion of Logon ID records.
- The `AUDIT` privilege enables an ID to look at but not touch ACF2 database records.

Scoping is used to limit administrative capabilities of these powerful Logon ID privileges against the Logon ID, Rules, Infostorage databases, and data access. Scoping is site-defined through ACF2 Infostorage SCOPE records and the related SCPLIST field in the Logon ID record. Typically, the security administrative staff maintains these controls.

While scoped security privileged logon IDs have limited administrative and data access capabilities, unscoped security privileged IDs have total access. Unscoped IDs can administer all logon IDs, data set rules, and general resource rules. Additionally, unscoped IDs have access to all data sets and general resources in the system regardless of ACF2 rule limitations unless RULEVLD and RSRCVLD are present in the Logon ID record. For more information about RULEVLD and RSRCVLD, see Figure 16 on page 17.

Table 2. ACF2 Privileges

How Privileges influence Logon ID Capabilities											
Privilege	Security Administration Capabilities Allowed with Privileges						Type of Access ALLOWED with Privilege: even though Rule does NOT Permit				
	Create and Delete LIDs	List LIDs	Update LIDs	Data Studio Rules	Rsc Rules	GSO	Data READ any	Data WRITE any	Data ALLOC any	Use Any Resource	Audit Trail Log
Security		√	√	√	√	√	√	√	√	√	√
Account	√	√	√								
Audit		√	List	List	List	List					

Sample scope records

Scoping is defined in Infostorage Scope records. The Scope record must be connected to a Logon ID for the scoping to function through the SCPLIST field in the Logon ID record.

The scope definition is located in the Infostorage database. Establishing the definition requires knowledge of how the ACF2 Infostorage database is structured. You can think of Infostorage as a filing cabinet with many drawers:

- Each drawer is labeled with a Class value that represents the drawer contents.
- Each drawer might contain multiple folders, each with a unique three-character type code.

Table 3. Type codes

Field name	Description
`DSN( )`	Data set name: partial or full or High Level Qualifier
`LID( )`	LOGON ID records
`UID( )`	User ID Strings
`INF( )`	Infostorage records

Table 4. Class values

Class values	Description
`C`	Control records `gso = type` code
`D`	Db2 records
`E`	Entry records
`F`	Field records
`I`	Identity records
`M`	Mandatory Access Control
`P`	Profile records
`R`	Resource Rule records `fac, pgr, tgr, cmd, pan … = type` codes
`S`	Scope records `scp = type` code

Table 4. Class values (continued)

Class values	Description
T	Shift records
V	ACF2/VAX records
X	Cross-reference records

Scope records can contain four fields with values. Fields can contain a list of specific or masked entries.

Using zSecure Audit for ACF2, you can perform the following tasks:

- Limit a security administrator's capability to only that administrator's functional area by specifying specific `LIDs`, `UIDs`, data sets, and Infostorage records, that is, Resource Rules, because they are located in Infostorage.
- Issue ACF2 commands to list or insert Scope records by using the Class value and Type code.
- Connect the Logon ID to the Scope record by providing a value for `SCPLIST` in the Logon ID record.

Figure 3 on page 6 shows the scope record for a security administrator, `JSMITH`. `JSMITH` is a scoped security administrator with the following privileges:

- Insert, change, and delete any Logon ID that has a uid string of `**`PAY.
- Administer data set rules with data set names `ppay***` and `tpay-`
- Administer Infostorage records with a Class of R, type code of `CKC`, starting with PAY`-`.

Figure 3 on page 6 and Figure 4 on page 6 show the resource rules.

```
set lid
LID
list jsmith
  JSMITH     CHPAYMGR      JSMITH  SMITH, JOHN
             DEPT(PAY) JOBF(MGR) LOC(CH)
PRIVILEGES   ACCOUNT JOB SCPLIST(PAYROLL) SECURITY TSO
```

Figure 3. User privileges

```
set scope(scp)
SCP
list payroll
     PAYROL DSN(PPAY***, TPAY-)
     LID(********) UID(**PAY) INF(RCKCPAY-)
```

Figure 4. Scope definition for PAYROLL

Scoping by default

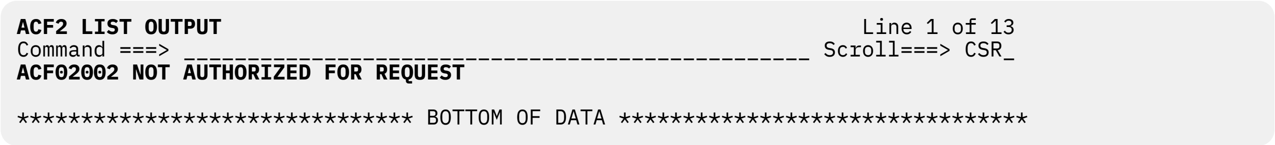
LIST command

Scoped administrators can display only the ACF2 records within their scope using native ACF2 commands and the zSecure Audit for ACF2 LIST command. See Table 4 on page 5. The ACF2 records that can be selected or displayed must in some way be in the scope of the user. Access can be allowed based on the following criteria:

- The user has a privilege that allows decompilation of all access rules and resource rules through the DECOMP setting in the GSO RULEOPTS record.
- The user has a privilege that allows listing all Infostorage records other than resource rules through the INFOLIST setting in the GSO OPTS record.
- The record is in scope according to the user's SCPLIST record. For Logon ID records, the additional limitations posed by the default ACSALTCK exit routine shipped with ACF2 are also taken into account.

- The $KEY of an access rule set matches the PREFIX in Logon ID record of the user.
- Access to your own Logon ID record is allowed.

  If a user attempts access outside of the scope of the Logon ID, the LIST Output panel displays an error message as shown in Figure 5 on page 7.



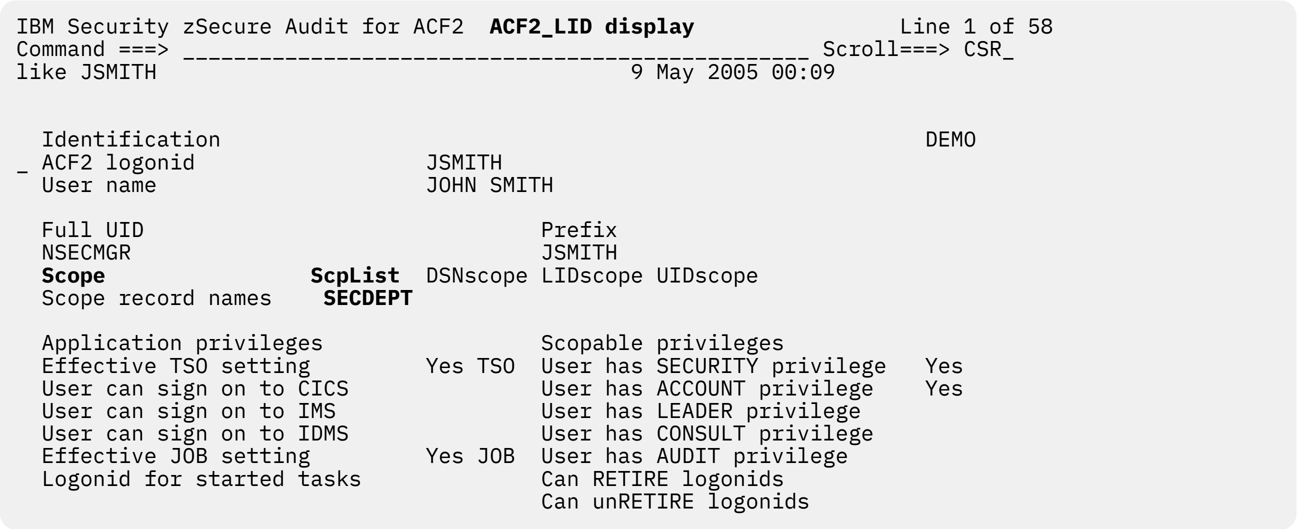
```
ACF2 LIST OUTPUT                                                  Line 1 of 13
Command ===> _________________________________________________ Scroll===> CSR_
ACF02002 NOT AUTHORIZED FOR REQUEST

******************************* BOTTOM OF DATA ********************************
```

Figure 5. LIST Output panel - error message for access attempt outside of scope

SELECT command

Scoping applies to zSecure Audit for ACF2 commands. However, if your Logon ID has READ access to resource type XFC CKR.READALL, then scoping is overridden and you can view anything through zSecure Audit for ACF2 commands.



```
IBM Security zSecure Audit for ACF2  ACF2_LID display                Line 1 of 58
Command ===> _________________________________________________ Scroll===> CSR_
like JSMITH                                     9 May 2005 00:09


  Identification                                                       DEMO
_ ACF2 logonid                  JSMITH
  User name                     JOHN SMITH

  Full UID                               Prefix
  NSECMGR                                JSMITH
  Scope                ScpList  DSNscope LIDscope UIDscope
  Scope record names    SECDEPT

  Application privileges                 Scopable privileges
  Effective TSO setting         Yes TSO  User has SECURITY privilege   Yes
  User can sign on to CICS               User has ACCOUNT privilege    Yes
  User can sign on to IMS                User has LEADER privilege
  User can sign on to IDMS               User has CONSULT privilege
  Effective JOB setting         Yes JOB  User has AUDIT privilege
  Logonid for started tasks              Can RETIRE logonids
                                         Can unRETIRE logonids
```

Figure 6. SELECT Logon ID (LID) display

Screen navigation

Make sure that you are logged on to TSO with a large enough region size. zSecure Audit for ACF2 uses virtual storage to reduce the I/O and to improve the response time. A good region size value to start with analyzing security is 256 MB. For analyzing compliance or large amounts of SMF, you will need more; start with 512 MB. For just displaying access rules in unrestricted mode, you need much less; 64 MB or even 32 MB might be enough, depending on the size of your security database and the amount of extra information included in the query.

- To open the Main menu, complete the steps in "Opening the Main menu" on page 9.

  From the Main menu, you can use a few display functions to ensure that everything is working correctly. IBM Security zSecure Audit for ACF2 is using your unloaded copy of the ACF2 database for input. Using the unloaded copy causes no noticeable effects on production operations.

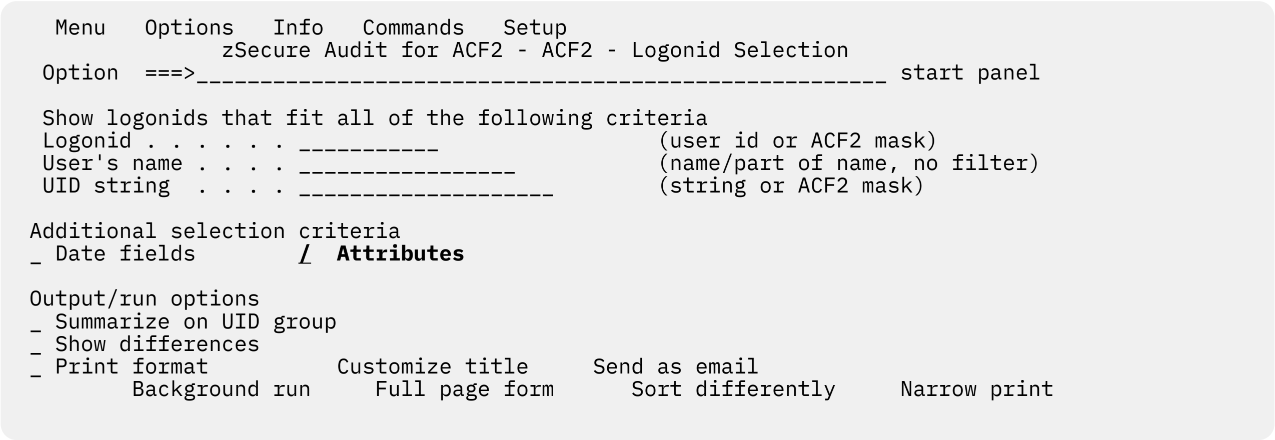
  In the following chapters, you are guided through the functions for viewing ACF2 Logon IDs, rules, and control options. Before exploring the details, review a few basic navigation steps in the following procedure.

  The first time you enter the Main menu, only the major selection options are shown. When you select one of these options by typing the two character abbreviation (for example, **AA**) the selection options are expanded to provide more detailed options. Alternatively, the next selection submenu is displayed.

- To try out the options, complete the steps in "Trying out the options" on page 9.

  zSecure Audit for ACF2 displays everything in the unloaded ACF2 database relevant to the function of the panel, such as Logon IDs or Rules. With a large ACF2 database, you might not want to do this too many times. One or two selection or exclusion parameters greatly reduces the amount of data displayed.

  zSecure Audit for ACF2 displays any Logon ID matching the criteria entered in the Logon ID Selection panel. If nothing is entered for a field, that field is ignored during the search. Several fields accept the **/** character. The **/** signifies that the option is selected, and is used for selecting Logon IDs or rules that match the specified parameter. Some other fields also accept an **S** indicator to activate the selection option. A blank means that the option is ignored during Logon ID selection. In the example shown in Figure 7 on page 8, the Attributes selection criterion is selected and the other fields are not selected (that is, blank).



```
   Menu   Options   Info   Commands   Setup
              zSecure Audit for ACF2 - ACF2 - Logonid Selection
  Option  ===>______________________________________________________ start panel

  Show logonids that fit all of the following criteria
  Logonid . . . . . . ___________                (user id or ACF2 mask)
  User's name . . . . _________________          (name/part of name, no filter)
  UID string  . . . . ____________________       (string or ACF2 mask)

 Additional selection criteria
 _ Date fields       /  Attributes

 Output/run options
 _ Summarize on UID group
 _ Show differences
 _ Print format         Customize title     Send as email
        Background run     Full page form      Sort differently     Narrow print
```

Figure 7. Logon ID selection panel

- To view the Rules information, complete the steps in "Viewing the Rules information" on page 9.
- To use the Audit information, complete the steps in "Viewing Audit information" on page 9.

  The letters **S** (SELECT) and **L** (LIST) apply when you want to view detailed information about a Logon ID or Rule Set. You can also use the **/** character to request additional choices for specific filters or logic before a database search.

  When in doubt about what is the appropriate entry for a field, type **/** and press Enter. A window displays the appropriate characters for data entry. Some screens provide for logic selection using **AND** and **OR** keywords and **Y** (yes) and **N** (no) when selecting certain Logon ID attributes, such as privileges. These are shown in later examples.

  Standard ISPF screen navigation applies:

  PF1
  Help

  PF3
  End or return

  PF7, PF8
  Scrolling backward (PF7) and forward (PF8)

  PF10, PF11
  Scrolling to the right (PF10) and left (PF11)

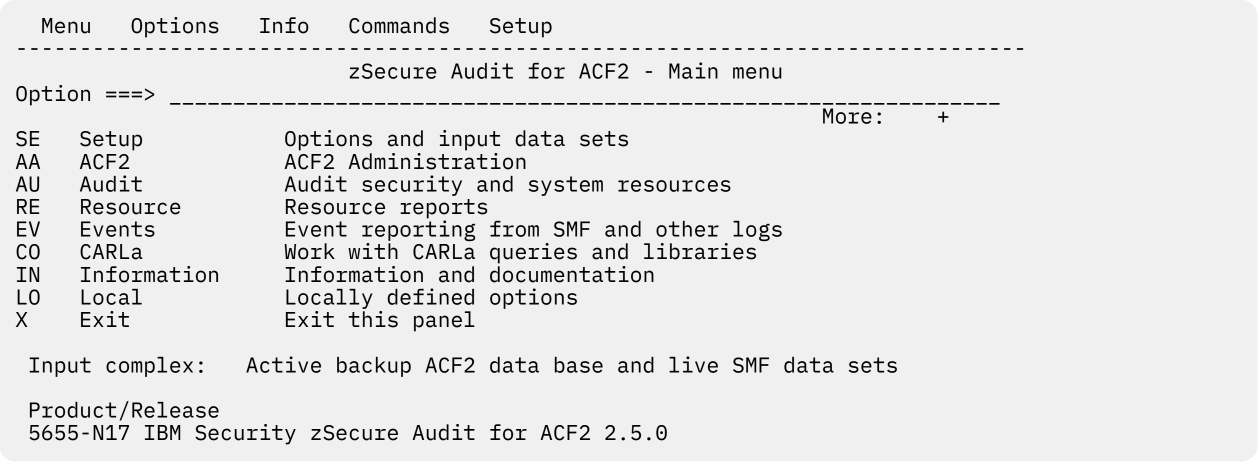
  Tip: All normal ISPF functions and techniques exist in IBM Security zSecure Audit for ACF2. It is assumed that you are already familiar with ISPF, so normal usage is not described here. If your 3270 session has a 24-line screen, enter the ISPF command **PFSHOW OFF** in the command line to turn off the PF key display so that zSecure Audit for ACF2 information can be displayed in all 24 lines.

Opening the Main menu

Procedure

1. Navigate to ISPF Option **6**.
2. Enter the command **CKR**.

   The Main menu opens as shown in Figure 8 on page 9.



```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                          zSecure Audit for ACF2 - Main menu
Option ===> _________________________________________________________________
                                                               More:    +
SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
AU   Audit           Audit security and system resources
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

 Input complex:   Active backup ACF2 data base and live SMF data sets

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```

Figure 8. IBM Security zSecure Audit for ACF2

Trying out the options

Procedure

1. In the **Option** field, type AA and then press Enter to select ACF2 Administration.
2. Type L and then press Enter to open the Logonid Selection panel.
3. Press Enter without entering any parameters in the panel.

Viewing the Rules information

Procedure

1. Press **PF3** until you return to the Main menu.
2. In the **Option** field, type R for Rules.
3. Press Enter to open the Rules Selection panel.

   You can request searches against specific rules or multiple rules by using filters such as data set name or uid string. This panel provides various fields that you can further investigate, such as **Specify more selection criteria**. To request this function, type / in the selection field for this function. For more information, see Chapter 3, “Rule analysis,” on page 25.

Viewing Audit information

Procedure

1. Press **PF3** until you return to the Main menu.
2. In the **Option** field, type AU for Audit.
3. Press Enter to open the Audit Selection panel.

Masking characters

ACF2 masking characters are also recognized by zSecure Audit for ACF2. In some screens, you can filter data by using the masking characters asterisk (*) and dash (-). Remember that the asterisk represents one character and the dash represents zero or more characters at the end of a uid string and Logon ID mask. A dash within a data set name can represent multiple characters or multiple data set name levels, depending on the placement of the masking character.

Date fields

Several selection fields are for date specification. You can use various values and operators. However, all year values must be specified in four digits. Figure 9 on page 10 shows examples of valid date specification values.

```
= 04JUL2004 (July 4, 2004)
< 04JUL2004 (any day before July 4, 2004)
= NEVER          (a date was never set)
= TODAY
= TODAY-3        (three days before today)
< TODAY-30    (more than thirty days ago)
> 01MAR2005    (any day after March 1, 2005)
```

Figure 9. Example date specification values and operators

A date of DUMPDATE is the date your ACF2 database was copied or unloaded. An operator must be entered in the small, two-character input field and the date value in the larger field in these lines.

Summary of navigation characters

Table 5 on page 10 lists the valid navigation characters and their corresponding descriptions.

Table 5. zSecure Audit for ACF2 navigation characters

Navigation Character	Description
/	Option selection
S	Select for explanation of settings, view audit concerns
L	List to view the ACF2 record as stored on database
AND	Boolean logic – search for combination of attributes
OR	Boolean logic – search for any selected attributes
Y	Boolean logic – search for attribute
N	Boolean logic – do not search for attribute

Chapter 2. Logon ID tasks

Auditing the Logon ID database aids the enforcement of powerful privilege control, password standards, and proper user grouping by using the uid string.

Use the Logon ID function to complete the following tasks:

- View a Logon ID as stored in the ACF2 database.
- View a Logon ID with explanations of field settings and audit concerns.
- Search for Logon IDs with matching uid strings and display all user IDs that are grouped similarly.
- Find a Logon ID with a specific user name value.
- Display all Logon IDs that have a similar naming convention.
- Display all Logon IDs with powerful privileges.

  You can search for any privilege combination by using Boolean logic with AND and OR criteria.

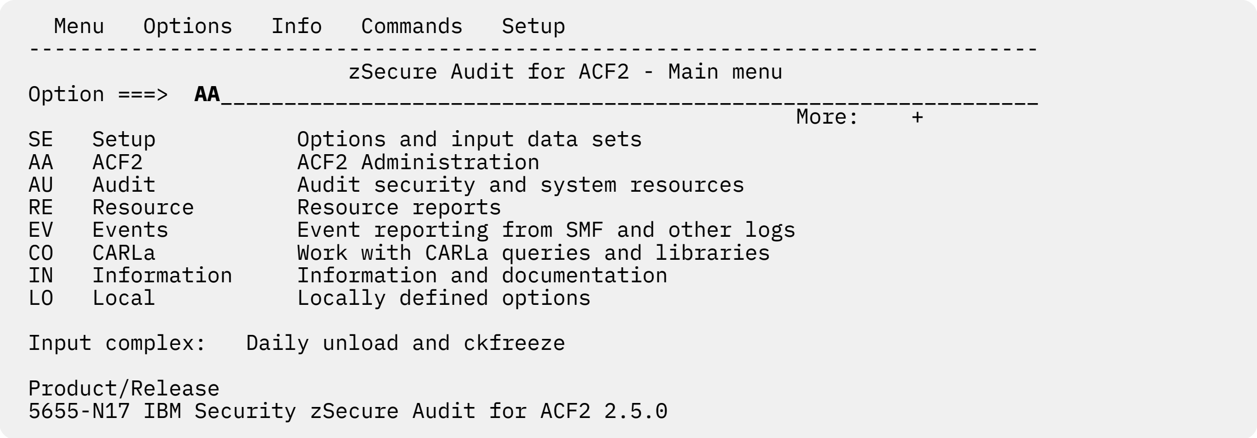
You can view and assess Logon ID records through the **ACF2 Administration** option in the Main menu.

To access the Logon ID functions, complete the steps described in "Accessing the Logon ID functions" on page 11

Accessing the Logon ID functions

Procedure

1. Return to the Main menu by pressing PF3.
2. Type option **AA** to work with the ACF2 administration functions as shown in Figure 10 on page 11.



```
  Menu   Options   Info   Commands   Setup
--------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Main menu
Option ===>  AA_________________________________________________________________
                                                            More:    +
SE   Setup            Options and input data sets
AA   ACF2             ACF2 Administration
AU   Audit            Audit security and system resources
RE   Resource         Resource reports
EV   Events           Event reporting from SMF and other logs
CO   CARLa            Work with CARLa queries and libraries
IN   Information      Information and documentation
LO   Local            Locally defined options

Input complex:   Daily unload and ckfreeze

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```
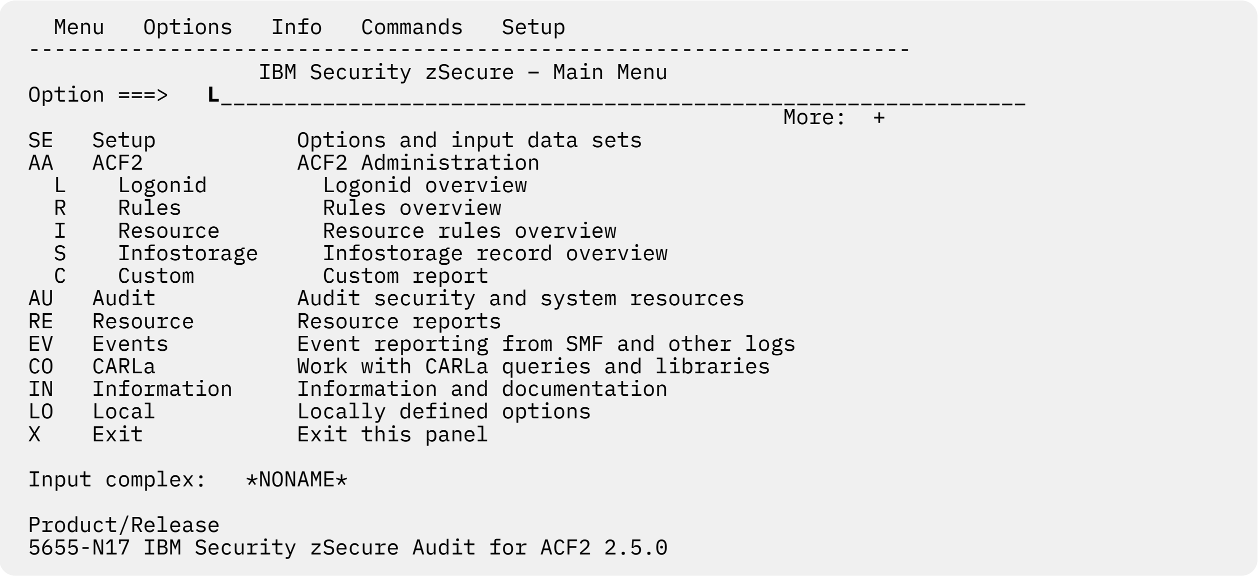

Figure 10. Main menu

3. Press Enter to display the ACF2 Administration options in the Main menu.
4. Type option **L** and press Enter to view the Logon ID overview as shown in Figure 11 on page 12.



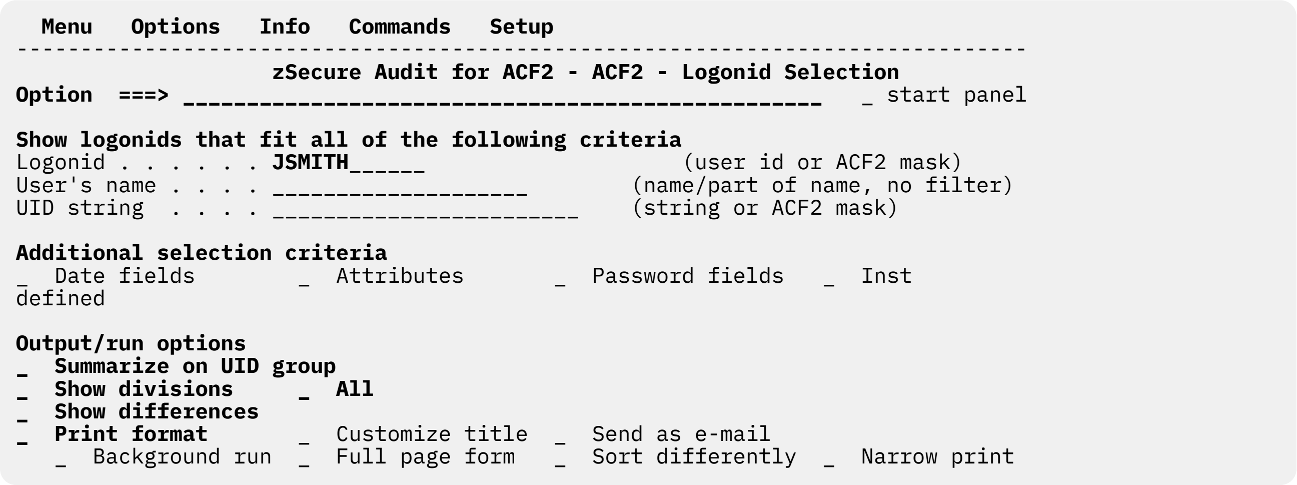
```
  Menu    Options    Info    Commands    Setup
---------------------------------------------------------------------
                  IBM Security zSecure - Main Menu
Option ===>   L______________________________________________________
                                                            More:   +
SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
  L    Logonid         Logonid overview
  R    Rules           Rules overview
  I    Resource        Resource rules overview
  S    Infostorage     Infostorage record overview
  C    Custom          Custom report
AU   Audit           Audit security and system resources
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

Input complex:   *NONAME*

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 11. Select Logon ID overview

Displaying your Logon ID

The Logon ID Selection panel as shown in Figure 12 on page 12 provides a simple query when you enter a Logon ID, name, or a uid string. Specific selection criteria become available through the **Additional selection criteria** heading.

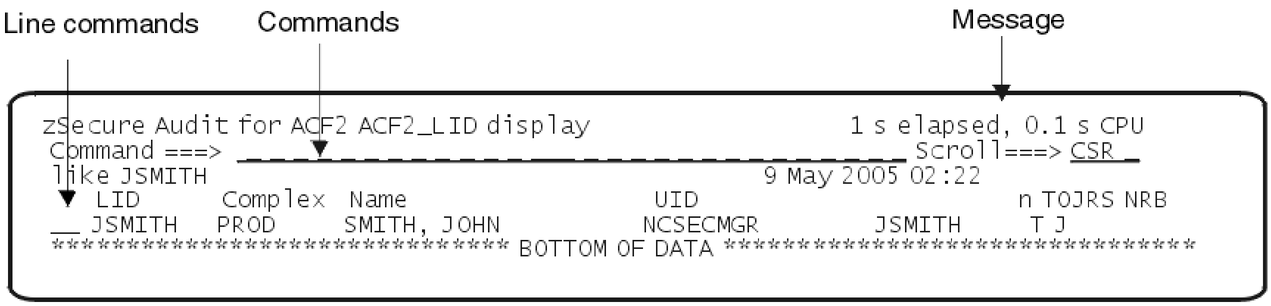
To display your Logon ID, type your Logon ID or any other Logon ID in the **Logon ID** field as shown in Figure 12 on page 12.



```
  Menu    Options    Info    Commands    Setup
-------------------------------------------------------------------------------
                    zSecure Audit for ACF2 - ACF2 - Logonid Selection
Option  ===> __________________________________________________   _ start panel

Show logonids that fit all of the following criteria
Logonid . . . . . . JSMITH______                      (user id or ACF2 mask)
User's name . . . . ____________________          (name/part of name, no filter)
UID string  . . . . ________________________      (string or ACF2 mask)

Additional selection criteria
_  Date fields          _  Attributes        _  Password fields    _  Inst
defined

Output/run options
_  Summarize on UID group
_  Show divisions       _  All
_  Show differences
_  Print format         _  Customize title  _  Send as e-mail
   _  Background run    _  Full page form   _  Sort differently   _  Narrow print
```

Figure 12. Type your Logon ID

The product searches the unloaded ACF2 database and displays the Logon ID information across a single line. The performance information is listed in a message on the upper right line of the display. See Figure 13 on page 13. The information shown is the elapsed and processor time used for the query.



```
zSecure Audit for ACF2 ACF2_LID display                 1 s elapsed, 0.1 s CPU
Command ===> _________________________________________ Scroll===> CSR_
like JSMITH                                        9 May 2005 02:22
  LID      Complex  Name                   UID                    n TOJRS NRB
__ JSMITH   PROD     SMITH, JOHN           NCSECMGR      JSMITH     T J
******************************** BOTTOM OF DATA **********************************
```

Figure 13. Overview display

Figure 13 on page 13 is an overview display in which each Logon ID is displayed on a single line. Press PF7 to scroll up, PF8 to scroll down, PF10 to scroll left, and PF11 to scroll right to view more information. You can also enter a line command on this screen. Using a line command is reviewed in the next example.

Tip: Many of the zSecure Audit for ACF2 data displays are wider than 80 characters. Use PF10 and PF11 to scroll left and right.

Table 6 on page 13 provides descriptions of the Logon ID fields available in the Logon ID panels. To view all the fields, scroll by pressing PF11.

Table 6. Logon ID field descriptions

Field	Description
LID	Logon ID
Complex	Name for the ACF2 security database that contains this Logon ID.
Name	The NAME field of this Logon ID.
UID	The user identification string associated with this Logon ID.
N	The Logon ID cannot enter the system, due to CANCEL/SUSPEND/ACTIVE/EXPIRE settings or due to an excessive number of invalid password attempts.
TOJRS	This Logon ID has the attributes TSO, Other (that is, CICS, IMS, or IDMS), JOB, RESTRICT, or STC.
NRB	This Logon ID has the attributes NON-CNCL, READALL, or TAPE-BLP.
MJ	This Logon ID has the attributes MUSASS or JOBFROM.
MP	This Logon ID has the attributes MAINT or PPGM.
ScpList	The name of the Scope record associated with this Logon ID.
SALCARU	This Logon ID has the attributes SECURITY, ACCOUNT, LEADER,CONSULT, AUDIT, RETRPRIV, or UNRTPRIV, respectively.
RD	This Logon ID has the attributes RSRCVLD or RULEVLD.
Prefix	The High Level Index determining data ownership for the Logon ID.
TJ	The Logon ID has the TSO or JOB attribute.
LastAccDa	The data of last system access by this Logon ID.
aTime	The time of last system access by this Logon ID.
AccSrce	The source of last system access by this Logon ID.
#Vio	The total number of security violations committed by this user.
#I	The number of invalid password attempts made since the last logon.

Continue to scroll to the right (PF11) to view more:

Table 7. More Logon ID field descriptions

Field	Description
#V	The number of invalid password attempts made on PswdDate.
#P	Specifies the number of password phrase violations that occurred on the day that the last invalid password phrase was entered (PWP-DAT).
#K	Number of Kerberos key violations.
PswdDate	Day of the last invalid password attempt.
PwPDate	Date when the user made the last invalid password phrase attempt.
PswdSrc	Source of the last invalid password attempt.
PW change	Day the password was last changed.
XMUXF	A set of flag fields that indicate the following: **X** An administrator reset this user's password. **M** The password is case-sensitive (PSWD-MIX). **U** The password is uppercased (PSWD-UPP). **X** The password is extractable, for example, it is half-way encrypted (PSWD-XTR). **F** The user is allowed to authenticate using only a password or password phrase when trying to enter the system at a moment when the Multi-Factor Authentication server cannot be reached.
MnD	Effective minimum number of days that must pass before the password can be changed.
MxD	Effective maximum number of days that must pass before the password can be changed.
Mnd	Minimum number of days that must have passed before the password can be changed.
Mxd	Maximum number of days that can pass before the password must be changed.
nP-	Minimum password age not enforced flag.
nP+	Maximum password age not enforced flag.
Source	The source from which this logon ID can enter the system.
Shift	The name of this user's SHIFT record.
Zon	The time zone associated with this logon ID.
RCSPn	The logon ID has been Retired, Canceled, Suspended, suspended for an excessive number of password violations, or will not have its jobs canceled due to an excessive number of security violations, respectively.
Active	This logon ID cannot enter the system before this date is reached.
Expire	This logon ID cannot enter the system after this date is reached.

Field	Description
PGM	This logon ID can enter the system only when executing the program specified here.
SbA	Jobs specifying this logon ID can be submitted through APF-authorized programs only.
Pri	Audit priority for this logon ID.
Group	Default group.
Homenode	Node where this logon ID is kept in a logon ID database.
SyncNode	The name of the node where the synchronized logon ID for a user resides.
Phone	The telephone number for this user.

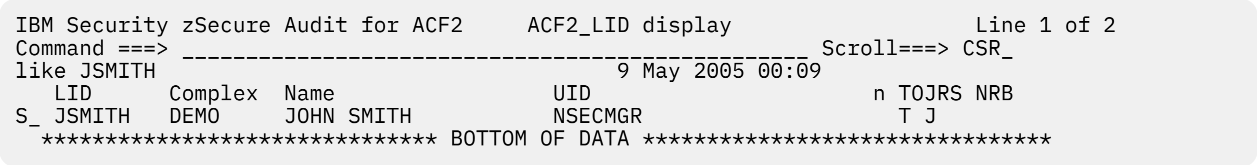
Table 7. More Logon ID field descriptions (continued)

Displaying Logon IDs using SELECT

Procedure

For easier viewing and interpreting of Logon ID records, perform the following steps:

1. Position the cursor beside the Logon ID.
2. Type the letter **S** as shown in Figure 14 on page 15.

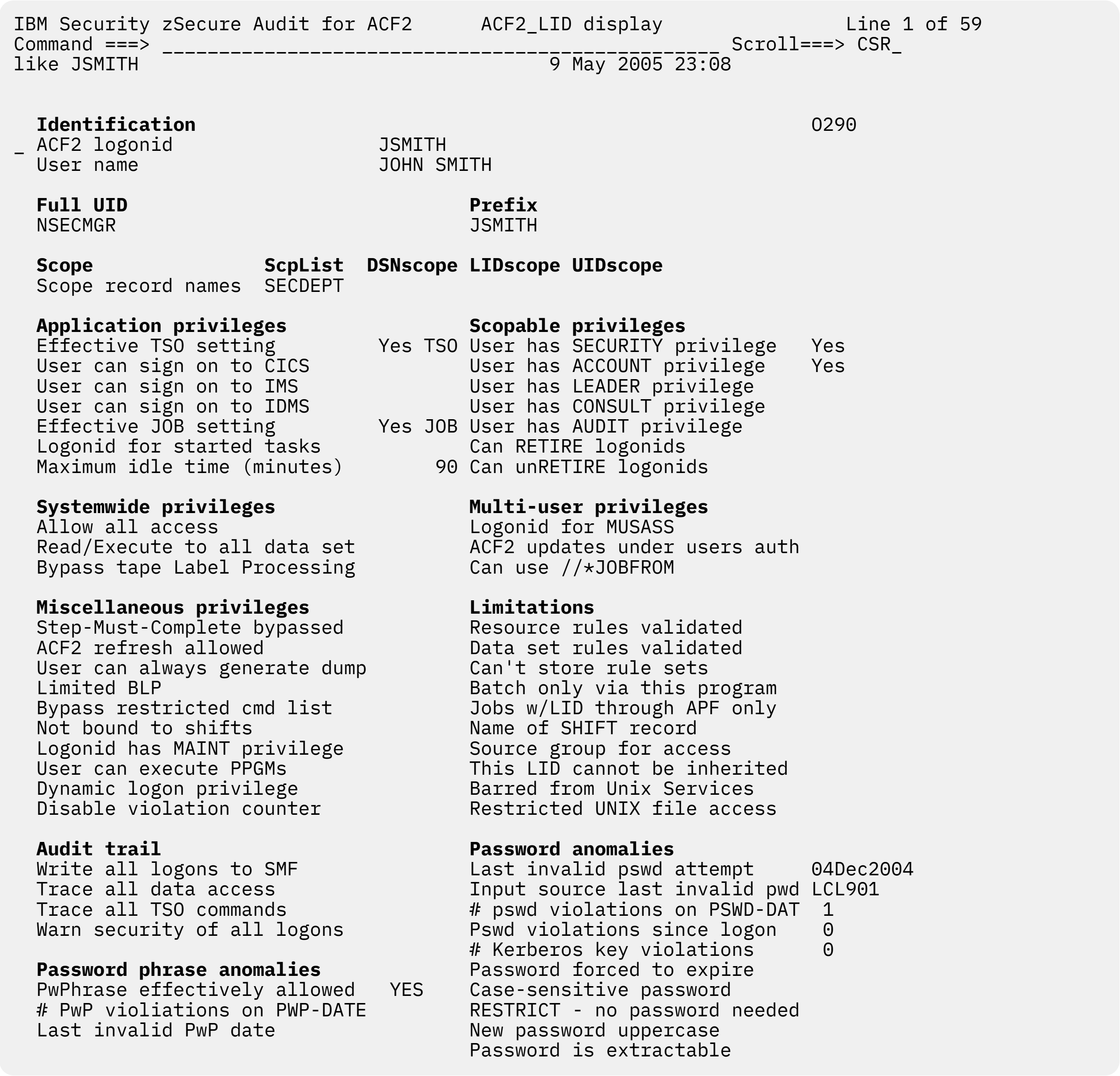


```
IBM Security zSecure Audit for ACF2     ACF2_LID display                   Line 1 of 2
Command ===> _________________________________________________ Scroll===> CSR_
like JSMITH                                    9 May 2005 00:09
   LID      Complex  Name                 UID                      n TOJRS NRB
S_ JSMITH   DEMO     JOHN SMITH           NSECMGR                    T J
  ******************************* BOTTOM OF DATA ********************************
```

Figure 14. SELECT for more detail

3. Press Enter to open the detailed view.

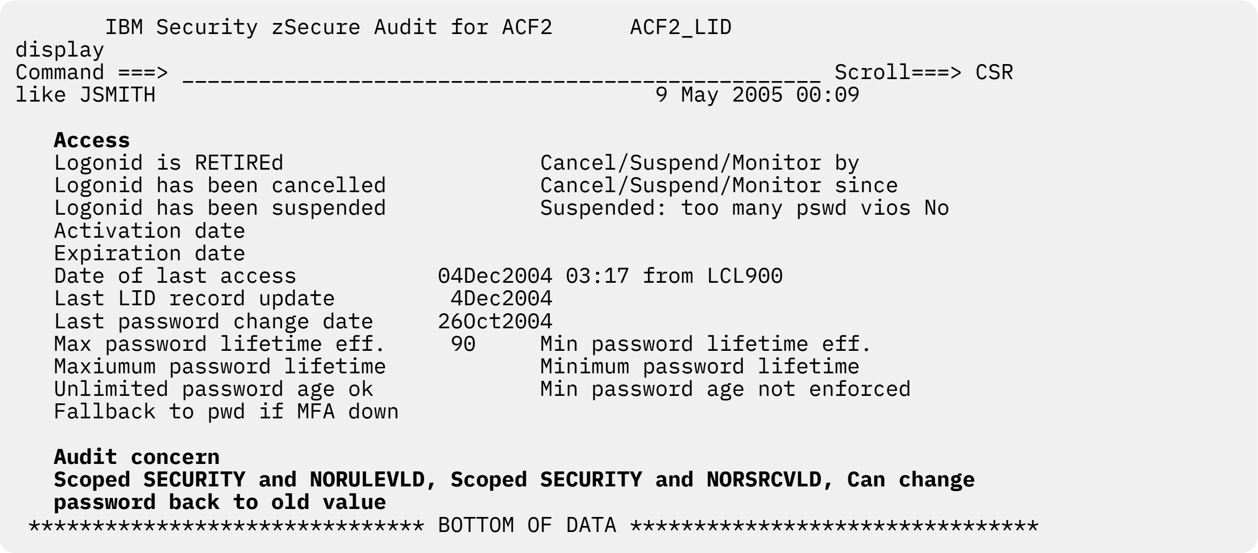
   Figure 15 on page 16 shows the first part of the detailed view. Press PF8 to scroll down to the remainder of the panel, shown in Figure 16 on page 17. The detail display shows Logon ID fields, settings, and any audit concerns.



```
IBM Security zSecure Audit for ACF2      ACF2_LID display                Line 1 of 59
Command ===> _________________________________________________ Scroll===> CSR_
like JSMITH                                    9 May 2005 23:08


  Identification                                                      0290
_ ACF2 logonid                  JSMITH
  User name                     JOHN SMITH

  Full UID                              Prefix
  NSECMGR                               JSMITH

  Scope               ScpList  DSNscope LIDscope UIDscope
  Scope record names  SECDEPT

  Application privileges                Scopable privileges
  Effective TSO setting         Yes TSO User has SECURITY privilege   Yes
  User can sign on to CICS              User has ACCOUNT privilege    Yes
  User can sign on to IMS               User has LEADER privilege
  User can sign on to IDMS              User has CONSULT privilege
  Effective JOB setting         Yes JOB User has AUDIT privilege
  Logonid for started tasks             Can RETIRE logonids
  Maximum idle time (minutes)        90 Can unRETIRE logonids

  Systemwide privileges                 Multi-user privileges
  Allow all access                      Logonid for MUSASS
  Read/Execute to all data set          ACF2 updates under users auth
  Bypass tape Label Processing          Can use //*JOBFROM

  Miscellaneous privileges              Limitations
  Step-Must-Complete bypassed           Resource rules validated
  ACF2 refresh allowed                  Data set rules validated
  User can always generate dump         Can't store rule sets
  Limited BLP                           Batch only via this program
  Bypass restricted cmd list            Jobs w/LID through APF only
  Not bound to shifts                   Name of SHIFT record
  Logonid has MAINT privilege           Source group for access
  User can execute PPGMs                This LID cannot be inherited
  Dynamic logon privilege               Barred from Unix Services
  Disable violation counter             Restricted UNIX file access

  Audit trail                           Password anomalies
  Write all logons to SMF               Last invalid pswd attempt     04Dec2004
  Trace all data access                 Input source last invalid pwd LCL901
  Trace all TSO commands                # pswd violations on PSWD-DAT  1
  Warn security of all logons           Pswd violations since logon    0
                                        # Kerberos key violations      0
  Password phrase anomalies             Password forced to expire
  PwPhrase effectively allowed   YES    Case-sensitive password
  # PwP violiations on PWP-DATE         RESTRICT - no password needed
  Last invalid PwP date                 New password uppercase
                                        Password is extractable
```

Figure 15. Detail display of SELECT Logon ID

To view the rest of the Logon ID details, press PF8 to scroll to the end of the record.



```
       IBM Security zSecure Audit for ACF2      ACF2_LID
display
Command ===> __________________________________________________ Scroll===> CSR
like JSMITH                                     9 May 2005 00:09

   Access
   Logonid is RETIREd                    Cancel/Suspend/Monitor by
   Logonid has been cancelled            Cancel/Suspend/Monitor since
   Logonid has been suspended            Suspended: too many pswd vios No
   Activation date
   Expiration date
   Date of last access          04Dec2004 03:17 from LCL900
   Last LID record update        4Dec2004
   Last password change date    26Oct2004
   Max password lifetime eff.    90      Min password lifetime eff.
   Maxiumum password lifetime            Minimum password lifetime
   Unlimited password age ok             Min password age not enforced
   Fallback to pwd if MFA down

   Audit concern
   Scoped SECURITY and NORULEVLD, Scoped SECURITY and NORSRCVLD, Can change
   password back to old value
 ******************************* BOTTOM OF DATA ********************************
```

Figure 16. End of selected Logon ID display

Results

In Figure 16 on page 17, the **Audit concern** section identifies issues with the RULEVLD and RSRCVLD settings. RULEVLD and RSRCVLD are recommended for SECURITY privileged logon IDs because these attributes limit data set and resource access according to rule validation. Without RULEVLD and RSRCVLD attributes, the SECURITY privileged Logon ID can access anything. Additionally, any access outside of the rule is allowed and is logged to SMF for review.

Interpreting Logon ID settings

Figure 15 on page 16 and Figure 16 on page 17 show expanded Logon ID fields available through the SELECT command. Compare Figure 15 on page 16 to the display in Figure 19 on page 18. This panel shows the Logon ID settings in native ACF2 format, presented by using the LIST command. zSecure Audit for ACF2 interprets and explains the cryptic fields and settings in the Logon ID record.

The **Scopable privileges** section in Figure 15 on page 16 indicates whether a user has a privilege assigned, specifying a YES or NO. The Logon ID has the SECURITY and ACCOUNT privileges assigned, showing the value present. SECURITY privilege permits the user to store rules on the database, change rule sets, change Logon ID records, and change Infostorage records. ACCOUNT privilege permits the user to create, change, and delete Logon ID records. To determine whether a Logon ID has restricted database administration capabilities, look at the **Scope** section in Figure 15 on page 16. A value is displayed under the **ScpList** column. The scope list value of SECDEPT is defined in the ACF2 Infostorage database.

An ACF2 scope list record can limit the privileged user to administer certain Logon IDs, rules, and Infostorage records. To understand the limitation of the scope list record, referenced in the SCPLIST Logon ID record field of Figure 15 on page 16, list the Infostorage record using native ACF2 commands:

```
SET SCOPE(SCP)
LIST SECDEPT
```

Figure 17. Native ACF2 command example

The first command points to Infostorage SCOPE records. The second command lists the SCOPE record.

The **Password anomalies** section in Figure 15 on page 16 explains the password section of the Logon ID.

Displaying logonids using LIST

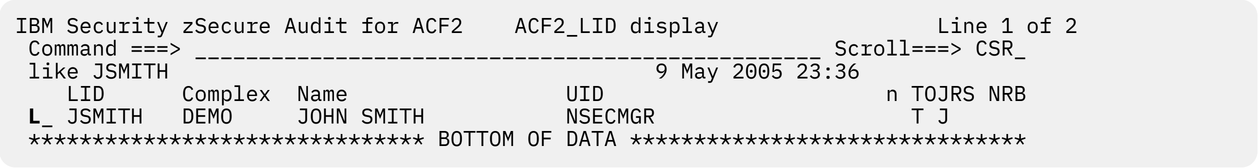
About this task

The LIST command displays the Logon ID details in native ACF2 format.

To use the native ACF2 LIST command, complete these steps:

Procedure

1. Press PF3 to return to the Logon ID screen.
2. Type an **L** in the selection field for a Logon ID (LID) as shown in Figure 18 on page 18.

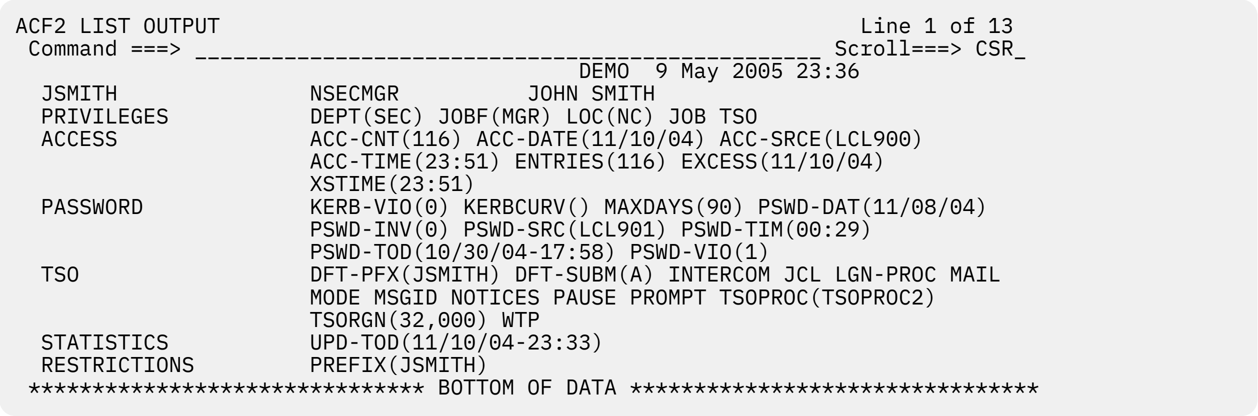


```
IBM Security zSecure Audit for ACF2    ACF2_LID display                 Line 1 of 2
 Command ===> _________________________________________________ Scroll===> CSR_
 like JSMITH                                      9 May 2005 23:36
    LID      Complex  Name                 UID                        n TOJRS NRB
 L_ JSMITH   DEMO     JOHN SMITH           NSECMGR                      T J
 ******************************* BOTTOM OF DATA *******************************
```

Figure 18. LIST for more detail

3. Press Enter to view the Logon ID information.

   In this example, Figure 19 on page 18 displays the Logon ID in its natural state, as if you entered a native ACF2 command.



```
ACF2 LIST OUTPUT                                                  Line 1 of 13
 Command ===> _________________________________________________ Scroll===> CSR_
                                            DEMO  9 May 2005 23:36
  JSMITH               NSECMGR          JOHN SMITH
  PRIVILEGES           DEPT(SEC) JOBF(MGR) LOC(NC) JOB TSO
  ACCESS               ACC-CNT(116) ACC-DATE(11/10/04) ACC-SRCE(LCL900)
                       ACC-TIME(23:51) ENTRIES(116) EXCESS(11/10/04)
                       XSTIME(23:51)
  PASSWORD             KERB-VIO(0) KERBCURV() MAXDAYS(90) PSWD-DAT(11/08/04)
                       PSWD-INV(0) PSWD-SRC(LCL901) PSWD-TIM(00:29)
                       PSWD-TOD(10/30/04-17:58) PSWD-VIO(1)
  TSO                  DFT-PFX(JSMITH) DFT-SUBM(A) INTERCOM JCL LGN-PROC MAIL
                       MODE MSGID NOTICES PAUSE PROMPT TSOPROC(TSOPROC2)
                       TSORGN(32,000) WTP
  STATISTICS           UPD-TOD(11/10/04-23:33)
  RESTRICTIONS         PREFIX(JSMITH)
 ******************************* BOTTOM OF DATA ********************************
```

Figure 19. Display of a Logon ID via LIST results

4. Press PF3 to return to the Logon ID Selection panel.

Results

In contrast to the LIST command output, the SELECT command output takes the guesswork out of interpreting Logon ID fields: compare the native display of Figure 19 on page 18 with Figure 15 on page 16 and Figure 16 on page 17.

The appropriate ACF2 authority is required to use the LIST and SELECT commands in zSecure Audit for ACF2. The AUDIT, ACCOUNT, or SECURITY ACF2 Logon ID privilege is required to view any Logon ID. ACF2 SCOPE records also affect this function. Standard ACF2 Logon ID authorization applies when using zSecure Audit for ACF2 functions.

Displaying Logon IDs using a mask

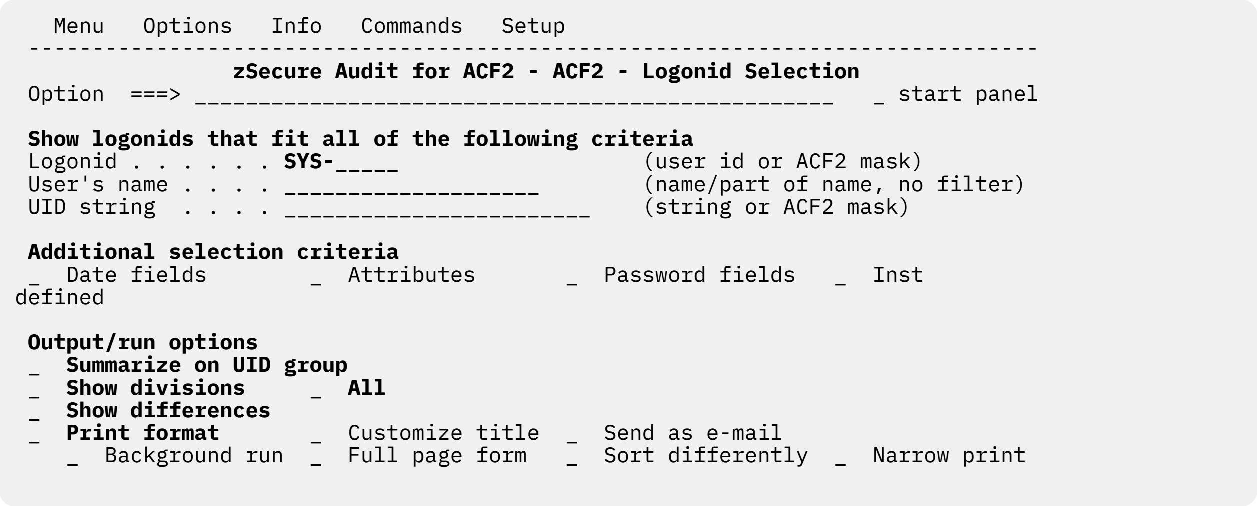
About this task

From the Logonid Selection panel, you can display only logonids matching a logonid mask, such as SYS-. Use a logonid mask that applies to your environment. You can use the ACF2 masking characters dash (-) and asterisk(*).

Procedure

1. In the **Logonid** field, type a mask that is appropriate, as shown in Figure 20 on page 19.

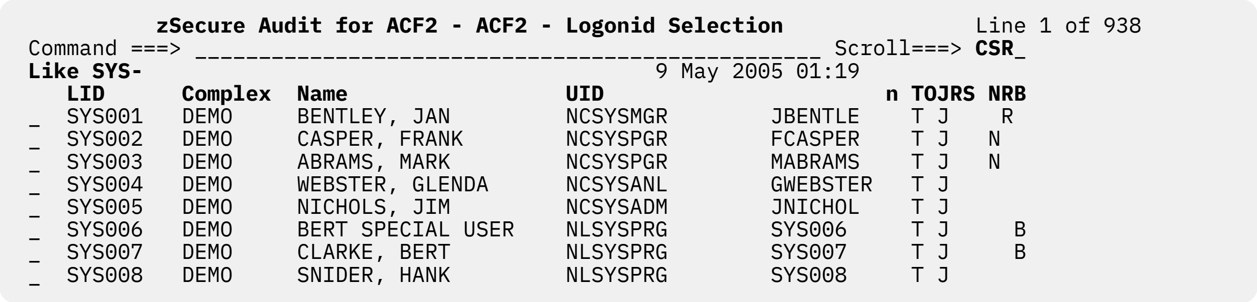
   This example uses SYS-.



```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                zSecure Audit for ACF2 - ACF2 - Logonid Selection
Option  ===> __________________________________________________  _ start panel

Show logonids that fit all of the following criteria
Logonid . . . . . . SYS-_____                  (user id or ACF2 mask)
User's name . . . . ____________________       (name/part of name, no filter)
UID string  . . . . ________________________   (string or ACF2 mask)

Additional selection criteria
_  Date fields          _  Attributes        _  Password fields    _  Inst
defined

Output/run options
_  Summarize on UID group
_  Show divisions       _  All
_  Show differences
_  Print format         _  Customize title   _  Send as e-mail
   _  Background run    _  Full page form    _  Sort differently   _  Narrow print
```

Figure 20. Select Logon IDs using a mask

2. Figure 21 on page 19 displays all logonids that begin with SYS, if your organization uses this naming convention.



```
          zSecure Audit for ACF2 - ACF2 - Logonid Selection            Line 1 of 938
Command ===> _________________________________________________ Scroll===> CSR_
Like SYS-                                          9 May 2005 01:19
   LID      Complex  Name                 UID                        n TOJRS NRB
_  SYS001   DEMO     BENTLEY, JAN         NCSYSMGR        JBENTLE    T J     R
_  SYS002   DEMO     CASPER, FRANK        NCSYSPGR        FCASPER    T J    N
_  SYS003   DEMO     ABRAMS, MARK         NCSYSPGR        MABRAMS    T J    N
_  SYS004   DEMO     WEBSTER, GLENDA      NCSYSANL        GWEBSTER   T J
_  SYS005   DEMO     NICHOLS, JIM         NCSYSADM        JNICHOL    T J
_  SYS006   DEMO     BERT SPECIAL USER    NLSYSPRG        SYS006     T J      B
_  SYS007   DEMO     CLARKE, BERT         NLSYSPRG        SYS007     T J      B
_  SYS008   DEMO     SNIDER, HANK         NLSYSPRG        SYS008     T J
```

Figure 21. Display of logon IDs that match mask SYS-

   From the ACF2_LID display panel, type the L or S command in the selection field for a logonid to view more detailed information. You can scroll the panel by using the standard ISPF function keys PF10, PF11, PF7, and PF8 from this screen.

3. Press PF3 and return to the Logonid Selection panel.

Displaying logon IDs with matching UID string

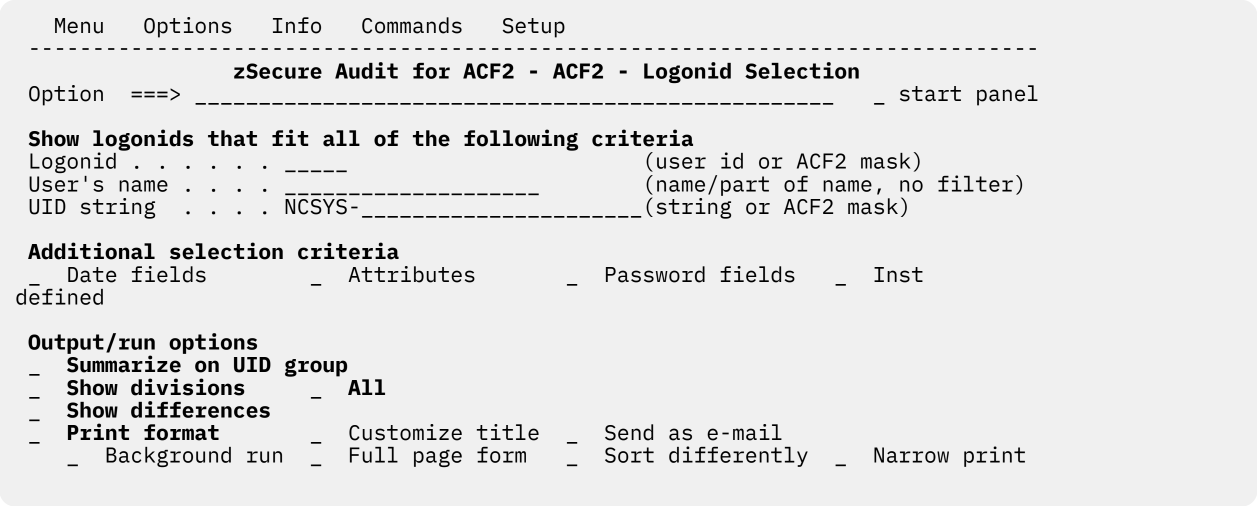
About this task

From the Logonid Selection panel, you can specify uid string values to search for logonids with a matching uid string. This example requests to view all logonids that are in a location known as NC (a uid string field of LOC) and a department known as SYS (a uid string field of DEPT).

Procedure

1. In the Logonid Selection panel, type a masked entry that is appropriate to your environment in the **UID string** field.

   The example in Figure 22 on page 20 uses NCSYS-.

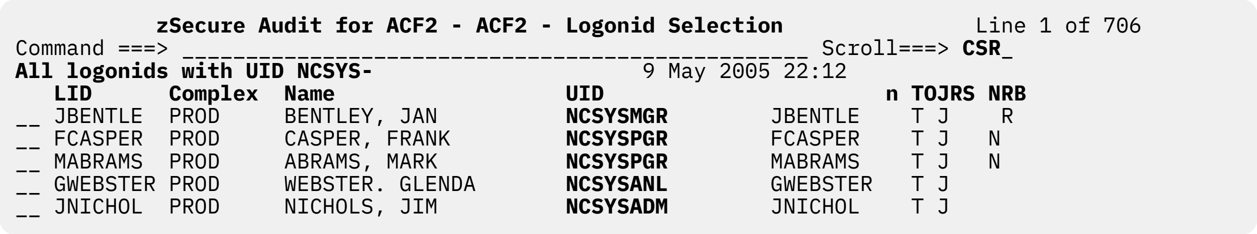


```
   Menu   Options   Info   Commands   Setup
 --------------------------------------------------------------------------------
                 zSecure Audit for ACF2 - ACF2 - Logonid Selection
 Option  ===> __________________________________________________   _ start panel

 Show logonids that fit all of the following criteria
 Logonid . . . . . . _____                        (user id or ACF2 mask)
 User's name . . . . ____________________         (name/part of name, no filter)
 UID string  . . . . NCSYS-______________________(string or ACF2 mask)

 Additional selection criteria
 _  Date fields         _  Attributes        _  Password fields    _  Inst
defined

 Output/run options
 _  Summarize on UID group
 _  Show divisions      _  All
 _  Show differences
 _  Print format        _  Customize title   _  Send as e-mail
    _  Background run   _  Full page form    _  Sort differently   _  Narrow print
```

Figure 22. List logon IDs with matching uid string

2. Press Enter to view the results.

   This example, Figure 23 on page 20, shows all logonids that match the NCSYS- uid string. From this panel, you can scroll across using PF11, or you can specify SELECT and LIST to view a Logonid record.



```
           zSecure Audit for ACF2 - ACF2 - Logonid Selection             Line 1 of 706
Command ===> _________________________________________________ Scroll===> CSR_
All logonids with UID NCSYS-                     9 May 2005 22:12
   LID      Complex  Name                  UID                         n TOJRS NRB
__ JBENTLE  PROD     BENTLEY, JAN          NCSYSMGR        JBENTLE     T J     R
__ FCASPER  PROD     CASPER, FRANK         NCSYSPGR        FCASPER     T J    N
__ MABRAMS  PROD     ABRAMS, MARK          NCSYSPGR        MABRAMS     T J    N
__ GWEBSTER PROD     WEBSTER. GLENDA       NCSYSANL        GWEBSTER    T J
__ JNICHOL  PROD     NICHOLS, JIM          NCSYSADM        JNICHOL     T J
```

Figure 23. Display of logon IDs with matching uid string

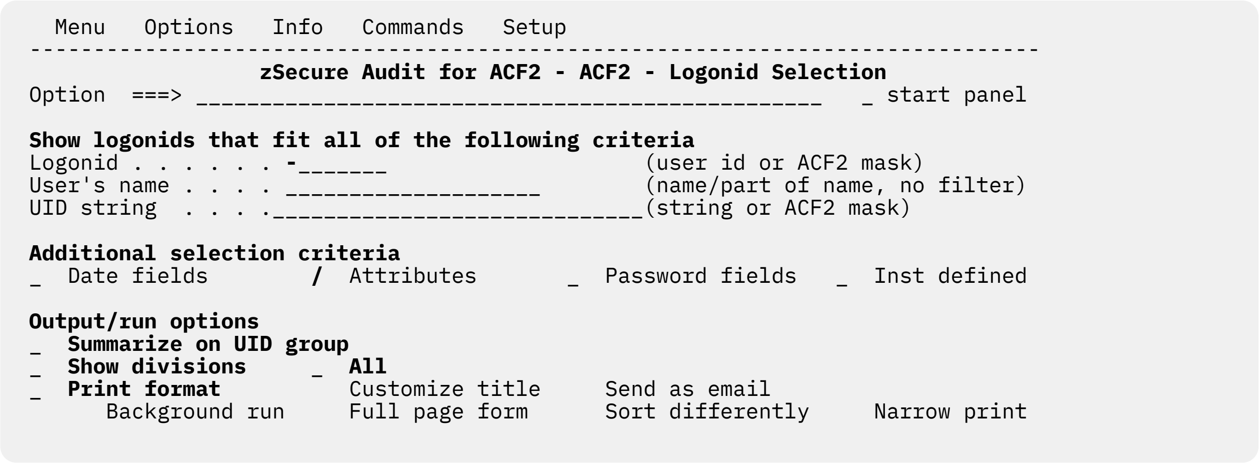
3. Press PF3 to return to the Logonid Selection panel.

Listing logon IDs with special privileges

Procedure

From the Logonid Selection panel, use the following procedure to list all logonids with privileges such as SECURITY and ACCOUNT:

1. Optional: Type a dash (-) in the **Logonid** field.
2. Type a / in the **Attributes** field, as shown in Figure 24 on page 21.



```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                  zSecure Audit for ACF2 - ACF2 - Logonid Selection
Option  ===> _________________________________________________   _ start panel

Show logonids that fit all of the following criteria
Logonid . . . . . . -_______                      (user id or ACF2 mask)
User's name . . . . ____________________         (name/part of name, no filter)
UID string  . . . ._____________________________(string or ACF2 mask)

Additional selection criteria
_  Date fields       /  Attributes       _  Password fields    _  Inst defined

Output/run options
_  Summarize on UID group
_  Show divisions     _  All
_  Print format         Customize title     Send as email
      Background run    Full page form      Sort differently     Narrow print
```

Figure 24. Logon ID overview criteria screen

3. Press Enter to view the advanced selection criteria in the Logonid Selection panel shown in Figure 25 on page 22.
4. Use the advanced selection criteria to set filters to select privileges using Boolean logic. To make selections, type a /, Y, or N in the selection field for a privilege field.

   The / and Y characters are interchangeable.
5. You can use further filters by changing the OR fields to AND.

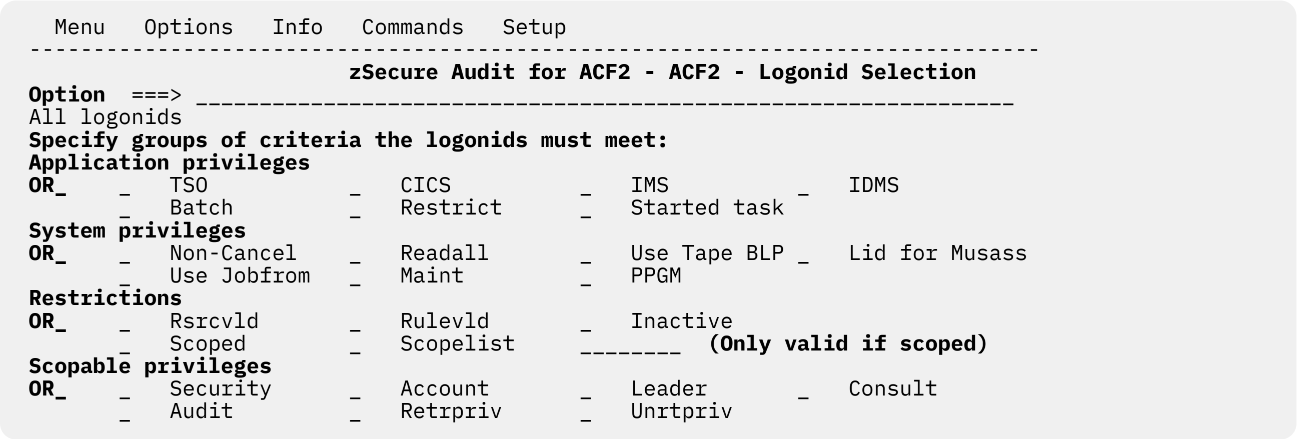
   Consider carefully the search you are targeting. For example:

   - If you want to view all logonids with the SECURITY privilege present, type a / or Y beside the **Security** field. Then press Enter.
   - If you want to find all logonids with **Security** or **Account**, select both privileges by using a / or Y selection character. Then press Enter.
   - If you want to find all logon IDs with SECURITY and ACCOUNT privileges, type AND over the OR overtypeable field, and type a / or Y beside the **Security** and **Account** fields. Then press Enter.
   - If you want to find all logon IDs with only SECURITY and ACCOUNT privileges, complete the panel as follows then press Enter:
     - Type AND over the OR overtypeable field.
     - Type a / or Y beside the **Security** and **Account** fields.
     - Type **N** beside **Audit**, **Consult**, and **Leader**.

Results

There are differences in the example selections shown. The AND and OR selections (shown in Figure 25 on page 22) provide the capability to include or exclude groups of privileges. A request to display all logonids with SECURITY and ACCOUNT privileges would show logonids with both these privileges using AND.

A request to find logonids with SECURITY or ACCOUNT displays logonids that have either attribute, using OR. To change the selection from the default OR to AND, type over the field.

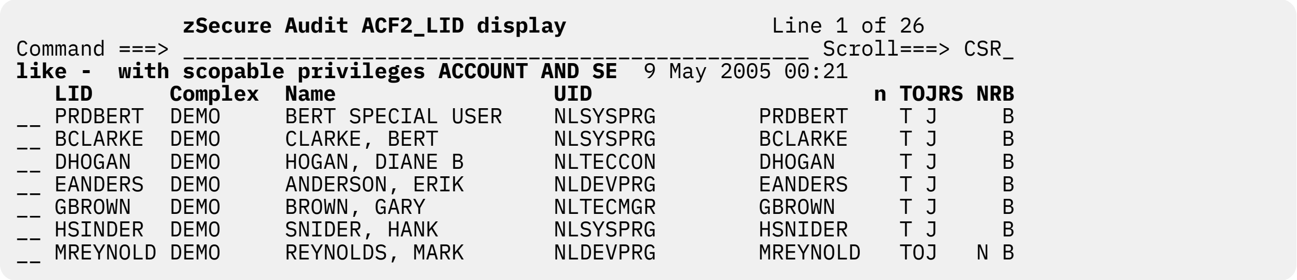


```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - ACF2 - Logonid Selection
Option  ===> ________________________________________________________________
All logonids
Specify groups of criteria the logonids must meet:
Application privileges
OR_    _   TSO           _   CICS          _   IMS          _   IDMS
       _   Batch         _   Restrict      _   Started task
System privileges
OR_    _   Non-Cancel    _   Readall       _   Use Tape BLP _   Lid for Musass
       _   Use Jobfrom   _   Maint         _   PPGM
Restrictions
OR_    _   Rsrcvld       _   Rulevld       _   Inactive
       _   Scoped        _   Scopelist     ________  (Only valid if scoped)
Scopable privileges
OR_    _   Security      _   Account       _   Leader       _   Consult
       _   Audit         _   Retrpriv      _   Unrtpriv
```

Figure 25. Overtypeable fields

There are many possible combinations of OR, AND, and Y and N. For example, if you want to find all logon IDs with SECURITY and ACCOUNT and not NON-CNCL, complete the following steps: "Example: Find all logon IDs with SECURITY and ACCOUNT and not NON-CNCL:" on page 22

If your environment has logonids with both the SECURITY and ACCOUNT privileges present, the results from the example selections entered in Figure 27 on page 23 look similar to Figure 26 on page 22. You might want to experiment with this selection logic to display various privilege assignments.



```
             zSecure Audit ACF2_LID display                Line 1 of 26
Command ===> _________________________________________________ Scroll===> CSR_
like -  with scopable privileges ACCOUNT AND SE  9 May 2005 00:21
   LID      Complex  Name                 UID                      n TOJRS NRB
__ PRDBERT  DEMO     BERT SPECIAL USER    NLSYSPRG        PRDBERT    T J     B
__ BCLARKE  DEMO     CLARKE, BERT         NLSYSPRG        BCLARKE    T J     B
__ DHOGAN   DEMO     HOGAN, DIANE B       NLTECCON        DHOGAN     T J     B
__ EANDERS  DEMO     ANDERSON, ERIK       NLDEVPRG        EANDERS    T J     B
__ GBROWN   DEMO     BROWN, GARY          NLTECMGR        GBROWN     T J     B
__ HSINDER  DEMO     SNIDER, HANK         NLSYSPRG        HSNIDER    T J     B
__ MREYNOLD DEMO     REYNOLDS, MARK       NLDEVPRG        MREYNOLD   TOJ   N B
```

Figure 26. ACF2_LID display - Scopable privileges report

From the ACF2_LID display panel, you can use the LIST or SELECT command for a Logonid to view more detailed information.

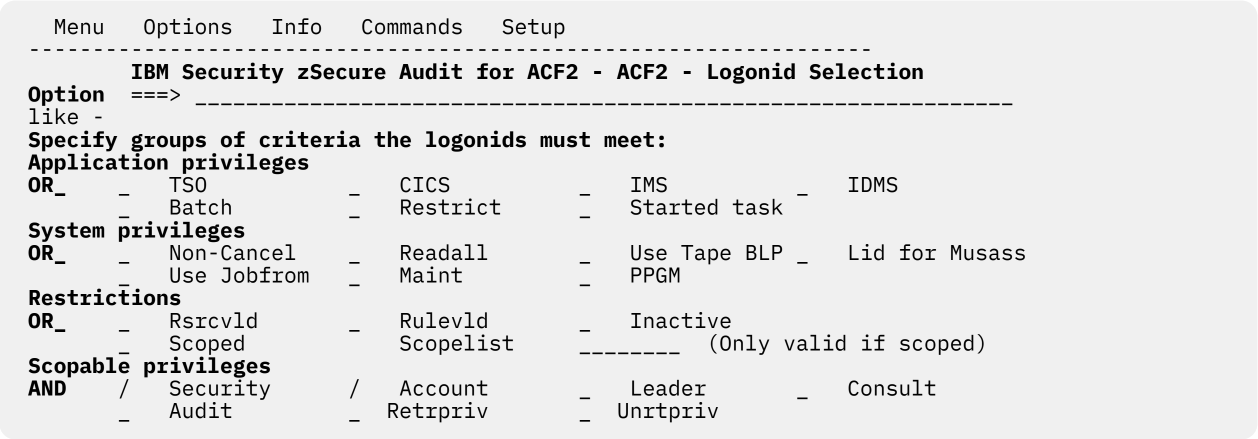
Example: Find all logon IDs with SECURITY and ACCOUNT and not NON-CNCL:

Procedure

Follow these steps to find all logon IDs with SECURITY and ACCOUNT and not NON-CNCL:

1. Type **AND** in the **Scopable Privileges** selection as shown in Figure 27 on page 23.
2. Type **Y** for **YES** in the selection field for the **Account** and **Security** selections as shown in Figure 27 on page 23.

   A blank beside the field indicates that the field is not considered in the search. However, a request for SECURITY and ACCOUNT displays all logon IDs with these privileges and can display logon IDs with other privileges. If the requirement is to display logon IDs with only SECURITY and ACCOUNT and no other privileges, the **N** is required for all other fields.



```
  Menu   Options   Info   Commands   Setup
------------------------------------------------------------------
        IBM Security zSecure Audit for ACF2 - ACF2 - Logonid Selection
Option  ===> ________________________________________________________________
like -
Specify groups of criteria the logonids must meet:
Application privileges
OR_    _   TSO           _   CICS          _   IMS          _   IDMS
       _   Batch         _   Restrict      _   Started task _
System privileges
OR_    _   Non-Cancel    _   Readall       _   Use Tape BLP _   Lid for Musass
       _   Use Jobfrom   _   Maint         _   PPGM
Restrictions
OR_    _   Rsrcvld       _   Rulevld       _   Inactive
       _   Scoped            Scopelist     ________  (Only valid if scoped)
Scopable privileges
AND    /   Security      /   Account       _   Leader       _   Consult
       _   Audit         _  Retrpriv       _  Unrtpriv
```

Figure 27. Using Boolean logic to tailor a search

3. Press Enter to view the results.

Displaying all logon IDs with the same user name

About this task

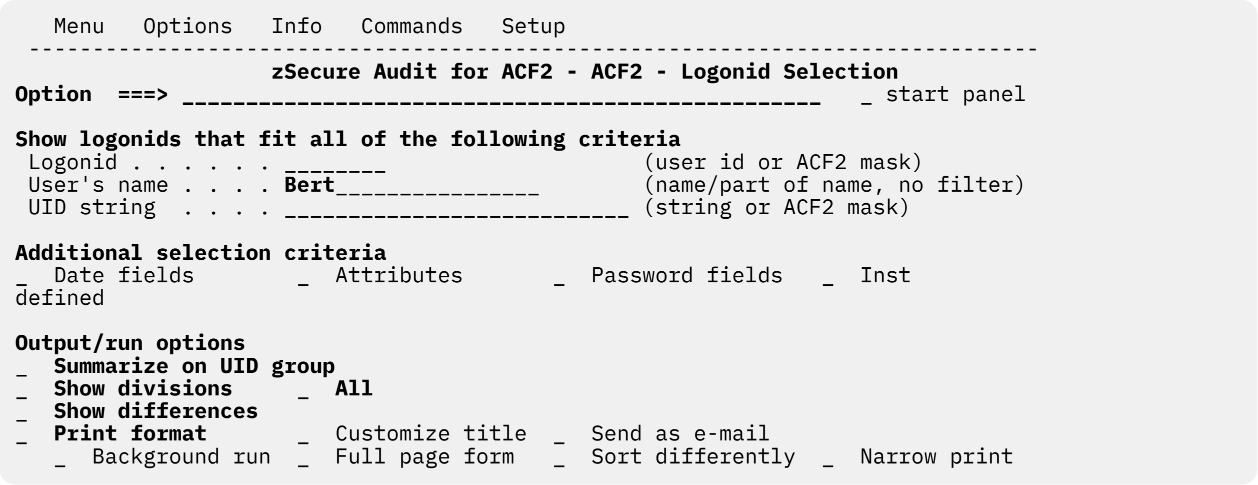
Use a value that is appropriate for your environment.

Procedure

Complete the following steps:

1. Press PF3 to return to the Logonid Selection panel. The dash (-) in the **Logonid** field is optional.
2. Type the user name in the **User's name** field.

   Use a value that is appropriate for your environment; for example, `John Smith`, `Mary`, or `Joe`. The example shown in Figure 28 on page 23 uses `Bert`.

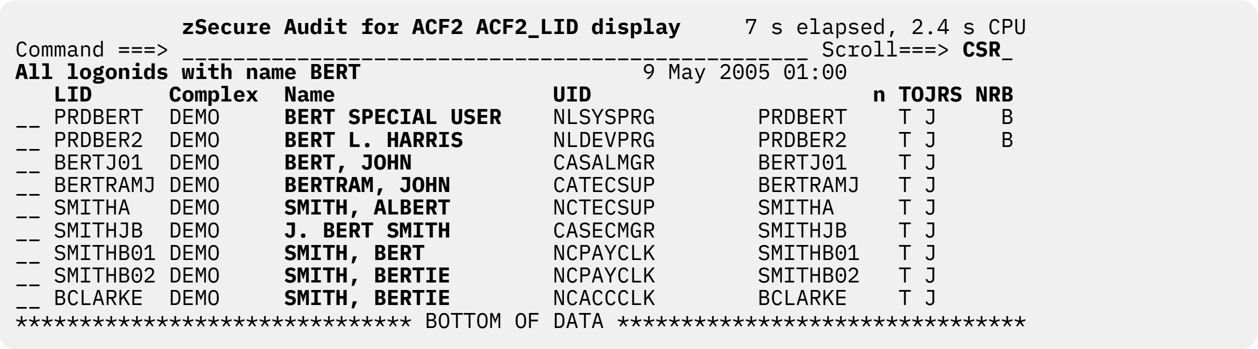


```
   Menu   Options   Info   Commands   Setup
 ------------------------------------------------------------------------------
                    zSecure Audit for ACF2 - ACF2 - Logonid Selection
Option  ===> __________________________________________________   _ start panel

Show logonids that fit all of the following criteria
 Logonid . . . . . . ________                          (user id or ACF2 mask)
 User's name . . . . Bert________________              (name/part of name, no filter)
 UID string  . . . . ___________________________ (string or ACF2 mask)

Additional selection criteria
_  Date fields        _  Attributes       _  Password fields   _  Inst
defined

Output/run options
_  Summarize on UID group
_  Show divisions     _  All
_  Show differences
_  Print format       _  Customize title  _  Send as e-mail
   _  Background run  _  Full page form   _  Sort differently  _  Narrow print
```

Figure 28. Search for all users with Bert in the Name field

3. Press Enter to open the Logonid Selection panel shown in Figure 29 on page 24.

   This example displays all logonids on the unloaded ACF2 database with BERT in the **Name** field. The Name search matches any part of a name where BERT is found. You can SELECT or LIST any logonid from this panel.



```
             zSecure Audit for ACF2 ACF2_LID display     7 s elapsed, 2.4 s CPU
Command ===> _________________________________________________ Scroll===> CSR_
All logonids with name BERT                      9 May 2005 01:00
   LID      Complex  Name                 UID                      n TOJRS NRB
__ PRDBERT  DEMO     BERT SPECIAL USER    NLSYSPRG        PRDBERT    T J     B
__ PRDBER2  DEMO     BERT L. HARRIS       NLDEVPRG        PRDBER2    T J     B
__ BERTJ01  DEMO     BERT, JOHN           CASALMGR        BERTJ01    T J
__ BERTRAMJ DEMO     BERTRAM, JOHN        CATECSUP        BERTRAMJ   T J
__ SMITHA   DEMO     SMITH, ALBERT        NCTECSUP        SMITHA     T J
__ SMITHJB  DEMO     J. BERT SMITH        CASECMGR        SMITHJB    T J
__ SMITHB01 DEMO     SMITH, BERT          NCPAYCLK        SMITHB01   T J
__ SMITHB02 DEMO     SMITH, BERTIE        NCPAYCLK        SMITHB02   T J
__ BCLARKE  DEMO     SMITH, BERTIE        NCACCCLK        BCLARKE    T J
******************************* BOTTOM OF DATA ********************************
```

Figure 29. Display of matching logonids with same Name

Chapter 3. Rule analysis

zSecure Audit for ACF2 rule analysis functionality provides information for determining how well rules are maintained and how well the environment is protected.

There are two types of rules in ACF2: data set rules and resource rules. For information, see "Data set rules" on page 25 and "Resource rules" on page 25.

Data set rules

Data set rules control access to system, user, and application data sets. Data set names are composed of multiple qualifiers separated by a period. Each qualifier has a maximum length of eight characters that count toward the maximum data set name length of 44 characters. A typical data set name might be `SYS1.PARMLIB` or `DEMO.MASTER.PAYROLL`. Each qualifier describes the content or nature of the data.

Resources are protected through ACF2 resource rules. An ACF2 resource is anything other than a data set. Resources include objects such as transaction codes, commands, programs, accounts, screens, PDS members, and UNIX files.

Use the Rules function to perform the following tasks:

- View a rule.
- Select a rule to view by sections: data set name, who has access, permissions for each group or individual.
- View the specific environmental restrictions for each rule line.
- View the structure of a rule set by NEXTKEYs.
- View who can change the rule set.
- View who last changed a rule set.
- View control statements for each rule set.
- Find all data set access defined for an individual or group.
- Display access for a specific data set name.

Resource rules

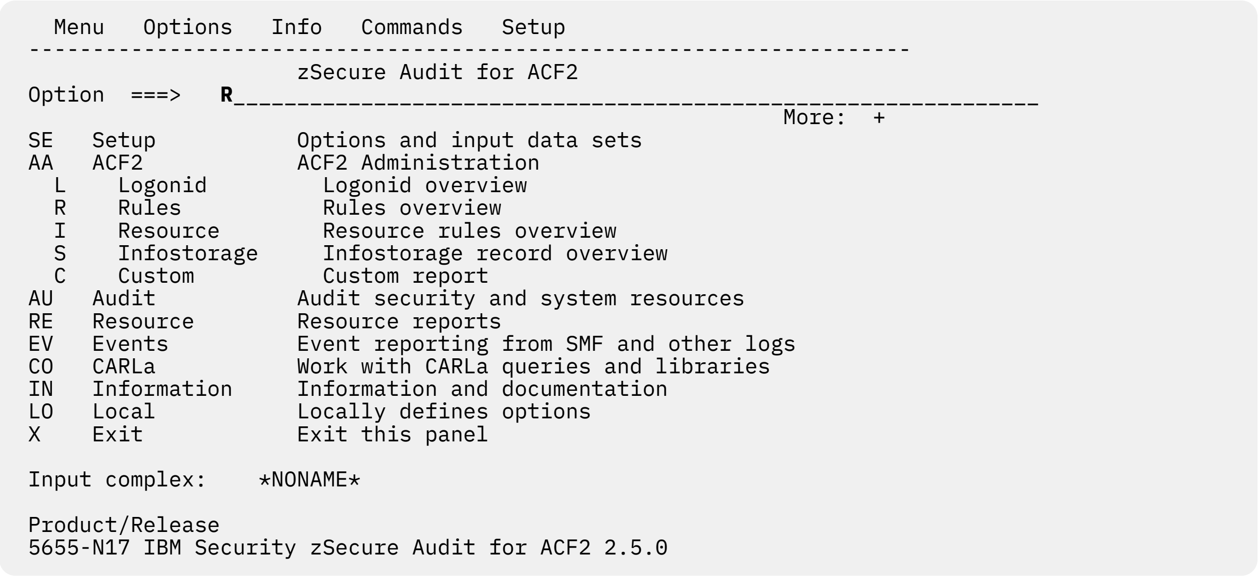
- View all resource types.
- View all resource classes.
- View a specific resource rule.
- View all rules that match a mask.
- Find all resource rule access defined for an individual or group.

Viewing data set rules

Procedure

To view data set rules, complete the following steps:

1. Press PF3 to return to the Main menu.
2. Select the **ACF2 Administration** option.
3. Type R to display the Rules functions as shown in Figure 30 on page 26.



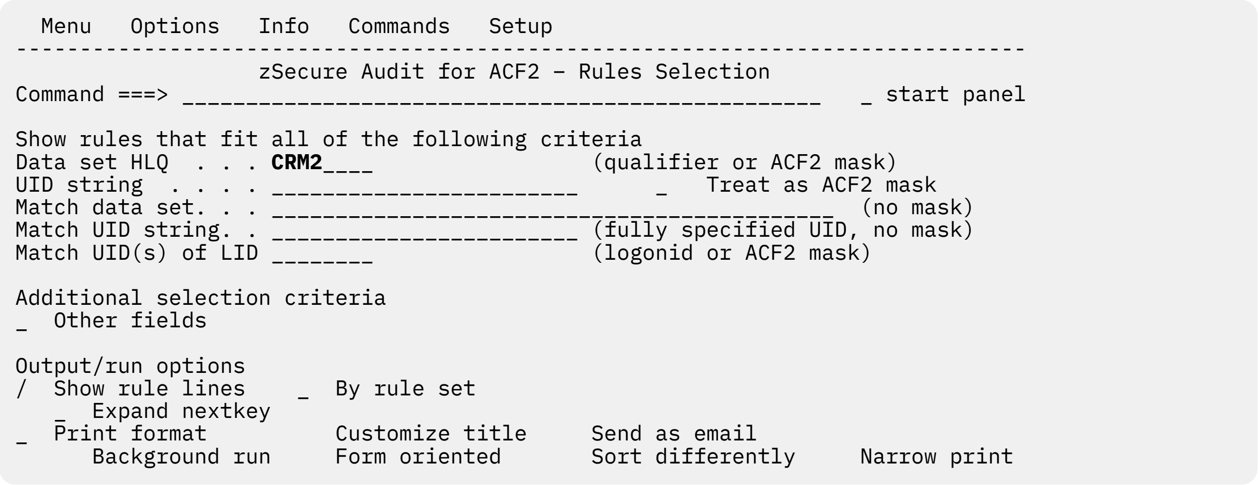
```
  Menu   Options   Info   Commands   Setup
---------------------------------------------------------------------
                     zSecure Audit for ACF2
Option  ===>   R________________________________________________________________
                                                           More:  +
SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
  L    Logonid         Logonid overview
  R    Rules           Rules overview
  I    Resource        Resource rules overview
  S    Infostorage     Infostorage record overview
  C    Custom          Custom report
AU   Audit           Audit security and system resources
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defines options
X    Exit            Exit this panel

Input complex:    *NONAME*

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 30. Select rules overview

4. Press Enter to open the Rules Selection panel.
5. Type a high-level qualifier in the **data set HLQ** field that is appropriate for your environment; for example, SYS1.

   The example shown in Figure 31 on page 26 uses CRM2.

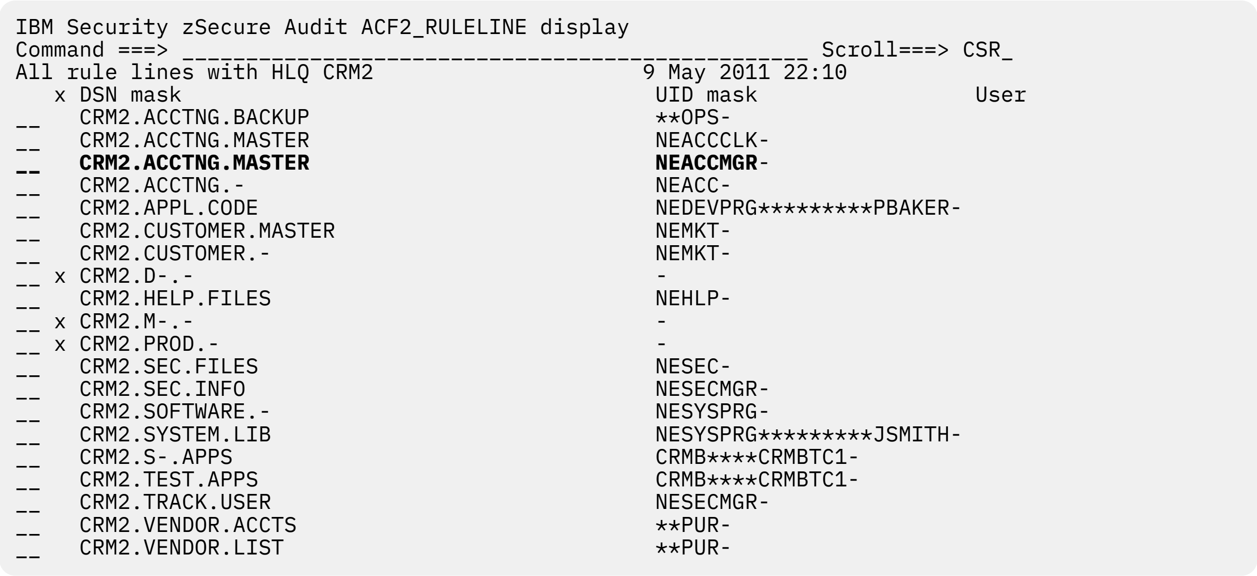
   In the Output/run options section, notice that the **Show rule lines** option, which is the default setting, is selected. This setting requests display of all rule lines for a rule set key (that is, the high-level qualifier).



```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                   zSecure Audit for ACF2 - Rules Selection
Command ===> __________________________________________________   _ start panel

Show rules that fit all of the following criteria
Data set HLQ  . . . CRM2____                 (qualifier or ACF2 mask)
UID string  . . . . ________________________      _   Treat as ACF2 mask
Match data set. . . ____________________________________________  (no mask)
Match UID string. . ________________________ (fully specified UID, no mask)
Match UID(s) of LID ________                 (logonid or ACF2 mask)

Additional selection criteria
_  Other fields

Output/run options
/  Show rule lines    _  By rule set
   _  Expand nextkey
_  Print format          Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 31. Rules Selection panel

6. Press Enter to open the ACF2_RULELINE display panel shown in Figure 32 on page 27.



```
IBM Security zSecure Audit ACF2_RULELINE display
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2                     9 May 2011 22:10
   x DSN mask                                     UID mask                 User
__   CRM2.ACCTNG.BACKUP                           **OPS-
__   CRM2.ACCTNG.MASTER                           NEACCCLK-
__   CRM2.ACCTNG.MASTER                           NEACCMGR-
__   CRM2.ACCTNG.-                                NEACC-
__   CRM2.APPL.CODE                               NEDEVPRG*********PBAKER-
__   CRM2.CUSTOMER.MASTER                         NEMKT-
__   CRM2.CUSTOMER.-                              NEMKT-
__ x CRM2.D-.-                                    -
__   CRM2.HELP.FILES                              NEHLP-
__ x CRM2.M-.-                                    -
__ x CRM2.PROD.-                                  -
__   CRM2.SEC.FILES                               NESEC-
__   CRM2.SEC.INFO                                NESECMGR-
__   CRM2.SOFTWARE.-                              NESYSPRG-
__   CRM2.SYSTEM.LIB                              NESYSPRG*********JSMITH-
__   CRM2.S-.APPS                                 CRMB****CRMBTC1-
__   CRM2.TEST.APPS                               CRMB****CRMBTC1-
__   CRM2.TRACK.USER                              NESECMGR-
__   CRM2.VENDOR.ACCTS                            **PUR-
__   CRM2.VENDOR.LIST                             **PUR-
```

Figure 32. Default display when requesting a high-level qualifier or rule key

In Figure 32 on page 27, the rule set, CRM2, contains all data set rule entries for the high-level qualifier CRM2. Your display will look similar. This example shows multiple rule line entries for data sets that begin with CRM2. The entries are presented in collating sequence.

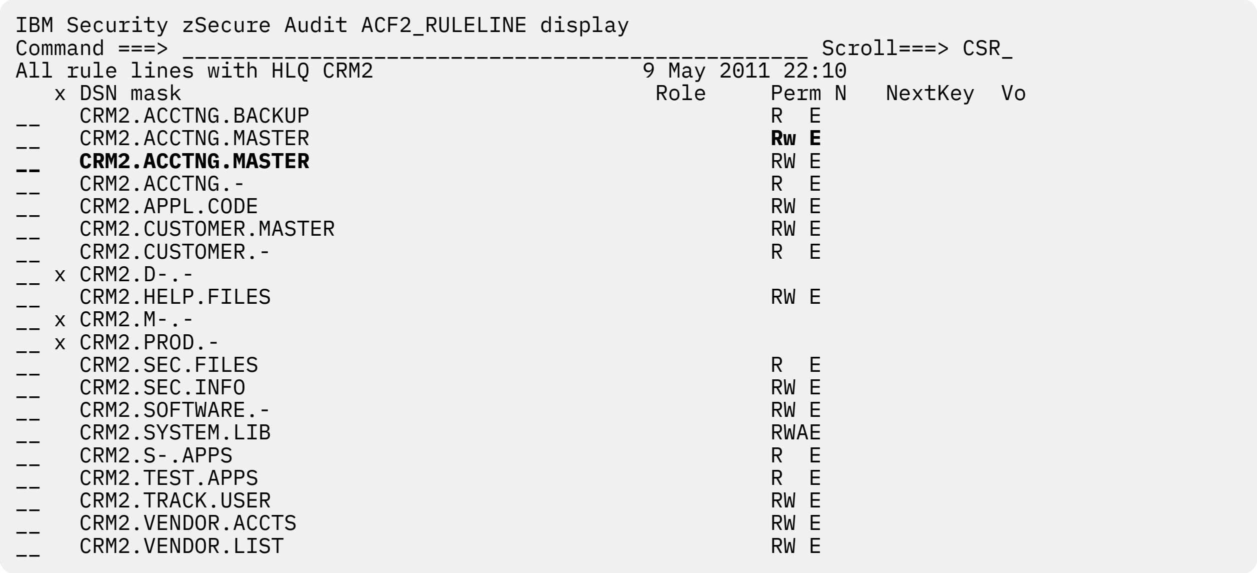
The following columns across the panel indicate rule line fields:

DSN mask column
Lists the data set name entries such as `CRM2.ACCTNG.MASTER`.

UID mask column
Indicates the groups of users or individuals that are associated with the data set name entry such as `NEACCMGR-`.

User column
Indicates whether this entry applies only to this user ID.

7. Press PF11 to shift right and view the permissions (for example, `RW  E`) granted to the users in the UID mask column for the data set listed in the DSN mask column.



```
IBM Security zSecure Audit ACF2_RULELINE display
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2                     9 May 2011 22:10
   x DSN mask                                     Role     Perm N   NextKey  Vo
__   CRM2.ACCTNG.BACKUP                                    R  E
__   CRM2.ACCTNG.MASTER                                    Rw E
__   CRM2.ACCTNG.MASTER                                    RW E
__   CRM2.ACCTNG.-                                         R  E
__   CRM2.APPL.CODE                                        RW E
__   CRM2.CUSTOMER.MASTER                                  RW E
__   CRM2.CUSTOMER.-                                       R  E
__ x CRM2.D-.-
__   CRM2.HELP.FILES                                       RW E
__ x CRM2.M-.-
__ x CRM2.PROD.-
__   CRM2.SEC.FILES                                        R  E
__   CRM2.SEC.INFO                                         RW E
__   CRM2.SOFTWARE.-                                       RW E
__   CRM2.SYSTEM.LIB                                       RWAE
__   CRM2.S-.APPS                                          R  E
__   CRM2.TEST.APPS                                        R  E
__   CRM2.TRACK.USER                                       RW E
__   CRM2.VENDOR.ACCTS                                     RW E
__   CRM2.VENDOR.LIST                                      RW E
```

Figure 33. Display of permission parameter values

The rule set in Figure 32 on page 27 shows that any user with a matching uid string of **OPS can read and run the data set CRM2.ACCTNG.BACKUP. In this example, the uid (**OPS) indicates users in all locations within the operations (OPS) department that can read the specified data set. All locations are listed because *location* is masked.

Table 8 on page 28 lists the permission codes and corresponding descriptions.

Table 8. Permission codes and descriptions

Permission Code	**Description**
R	Read
W	Write
A	Allocate - create, delete, rename, catalog, uncatalog
E	Execute - applies only to executable code, a program, and not data files

Lowercase letters under the **Perm** column on the panel indicate that access is allowed, but logged. For example, `Rw E` means that read is allowed, write is allowed and logged, and execute is allowed.

Viewing by rule set

Before you begin

1. To view additional rule line fields, press PF11 to shift right. Scroll down to view additional rule lines by pressing PF8.
2. Press PF3 to return to the previous screen, that is, the Rules Selection screen.
3. To control rule displays, use the options in the lower part of the screen under **Additional selection criteria** and **Output/run options**. Continue to use the same high-level qualifier in the **Data set HLQ** field.

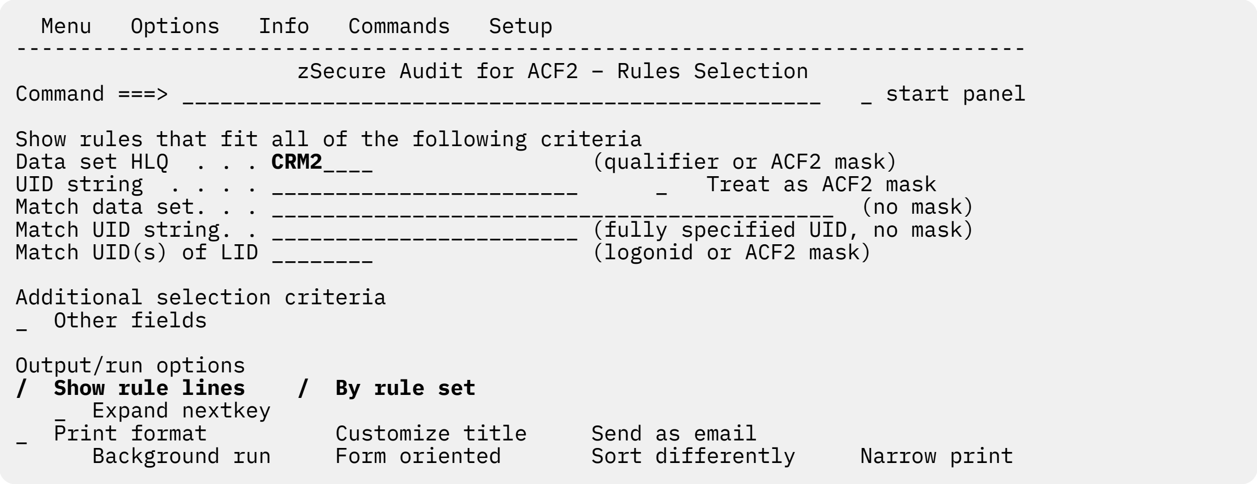
The example in Figure 34 on page 29 is a request to view the rule CRM2 by rule set. This request specifies that rule sets be shown as opposed to rule lines. If **Show rule lines** is also selected, rule sets are shown with the ability to view individual rule lines within each rule set. This means that if CRM2 contains NEXTKEYs, they are displayed in the next panel (Figure 35 on page 29). The rule lines of the NEXTKEY rule sets can be viewed from Figure 35 on page 29.

Procedure

To view a rule by rule set, complete the following steps:

1. In the Rules Selection panel, type a rule or high-level qualifier.

   The example shown in Figure 34 on page 29 uses CRM2.
2. Type a / in the selection field for **By rule set**, shown in Figure 34 on page 29



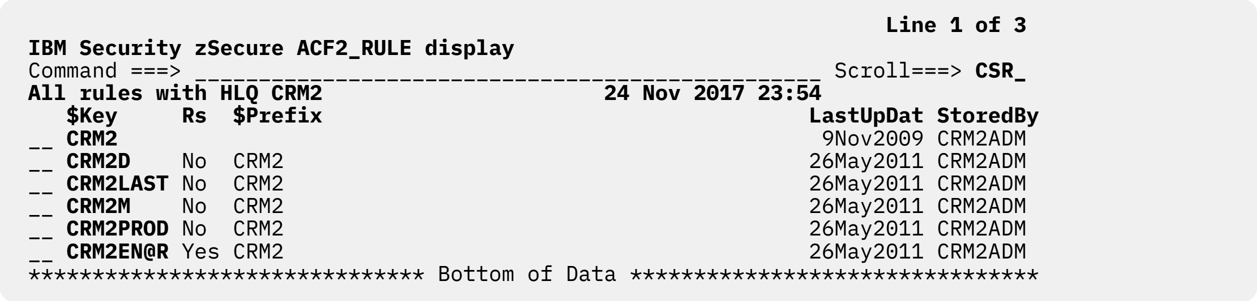
```
  Menu   Options   Info   Commands   Setup
--------------------------------------------------------------------------------
                      zSecure Audit for ACF2 - Rules Selection
Command ===> __________________________________________________   _ start panel

Show rules that fit all of the following criteria
Data set HLQ  . . . CRM2____                (qualifier or ACF2 mask)
UID string  . . . . ________________________      _   Treat as ACF2 mask
Match data set. . . ____________________________________________  (no mask)
Match UID string. . ________________________ (fully specified UID, no mask)
Match UID(s) of LID ________                 (logonid or ACF2 mask)

Additional selection criteria
_  Other fields

Output/run options
/  Show rule lines    /  By rule set
   _  Expand nextkey
_  Print format          Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 34. The Output/run options

3. Press Enter to open the ACF2_RULE display panel shown in Figure 35 on page 29.

   Your screen should look similar to Figure 35 on page 29. There might be multiple entries under the **$Key** column in collating sequence. The example shows CRM2 as the first entry and other rule sets with a similar $Key value. These are NEXTKEYed (pointed to) rule sets from CRM2. NEXTKEYed rule sets are considered *children* of a parent rule set, such as CRM2. This display lists rule sets in sort order. The example demonstrates NEXTKEYs. NEXTKEYs are discussed in more detail later in this chapter.

   The request was for rule lines by rule set. The CRM2 rule set contains NEXTKEYs, thus the display in Figure 35 on page 29. A request for any rule set matching a mask can also be entered in Figure 35 on page 29. For example, SYS- would show all rule sets matching SYS and any other trailing characters such as SYS1, SYS2, SYST, or SYSP.

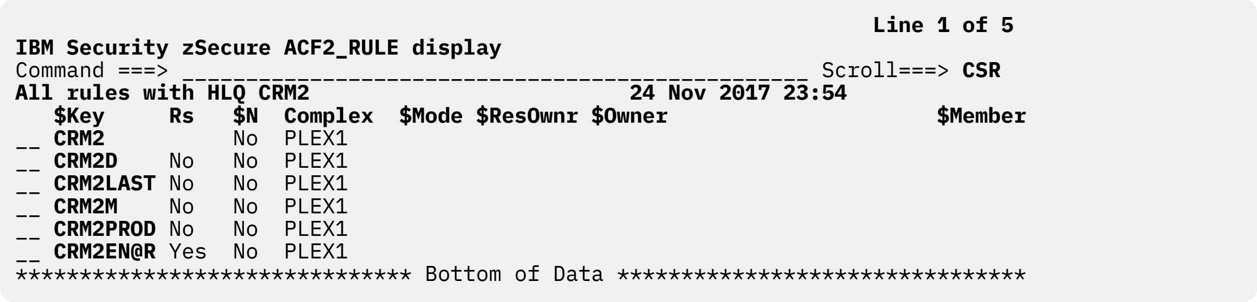


```
                                                                   Line 1 of 3
IBM Security zSecure ACF2_RULE display
Command ===> _________________________________________________ Scroll===> CSR_
All rules with HLQ CRM2                      24 Nov 2017 23:54
   $Key     Rs  $Prefix                                         LastUpDat StoredBy
__ CRM2                                                          9Nov2009 CRM2ADM
__ CRM2D    No  CRM2                                            26May2011 CRM2ADM
__ CRM2LAST No  CRM2                                            26May2011 CRM2ADM
__ CRM2M    No  CRM2                                            26May2011 CRM2ADM
__ CRM2PROD No  CRM2                                            26May2011 CRM2ADM
__ CRM2EN@R Yes CRM2                                            26May2011 CRM2ADM
******************************* Bottom of Data ********************************
```

Figure 35. Display of HLQ by rule set

   The high-level qualifier under the **$Key** column is to the left with the corresponding statistics (that is, **LastUpDat**, **StoredBy**), and control statements such as **Rs** and **$Prefix** to the right.

4. To view the control statements present for each rule set, press PF11 to shift right.



```
                                                                   Line 1 of 5
IBM Security zSecure ACF2_RULE display
Command ===> _________________________________________________ Scroll===> CSR
All rules with HLQ CRM2                        24 Nov 2017 23:54
   $Key     Rs   $N  Complex  $Mode $ResOwnr $Owner                    $Member
__ CRM2          No  PLEX1
__ CRM2D    No   No  PLEX1
__ CRM2LAST No   No  PLEX1
__ CRM2M    No   No  PLEX1
__ CRM2PROD No   No  PLEX1
__ CRM2EN@R Yes  No  PLEX1
******************************* Bottom of Data ********************************
```

Figure 36. Additional control statements

Table 9 on page 30 lists the rule set fields and descriptions, including the fields that are visible on the right when you press PF11.

Table 9. Rule set field descriptions

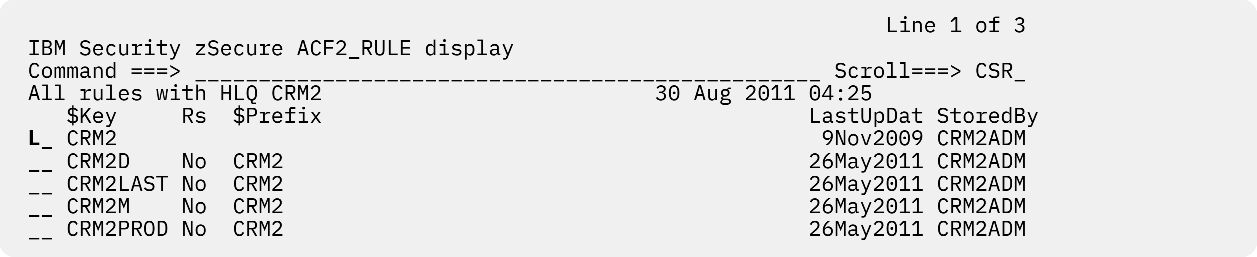
Field	**Description**
$Key	$KEY of the rule set
Rs	Indicates that this rule has ROLESET specified.
$Prefix	$PREFIX of the rule set.
LastUpDat	Day this rule record was last stored.
StoredBy	Logon ID that last stored this record.
$N	The rule set has $NOSORT specified.
Complex	Name for the ACF2 security database that contains this record.
$Mode	The $MODE specified for this rule record.
$ResOwnr	The SMS default RESOWNER for the data sets protected by the rule set.
$Owner	$OWNER field of the rule record.
$Member	The overriding name of the PDS member into which this rule set should be DECOMPiled.
$NR	If set, this flag indicates that this rule set should never be compiled by the long rule compiler. (ACF2 has two resource rule compilers, due to support for long resource rules, which are those over 4 KB in length.) This flag effectively prevents you from using any features in this rule set that require the long rule compiler. The GSO OPTS setting COMPDYN has no influence on this behavior.
$Userdata	$USERDATA of the rule record.

Displaying data set rules using LIST

Procedure

1. Type the selection character **L** beside the first **$Key** entry as shown in Figure 37 on page 30.

   This is the *parent* rule set in our example.



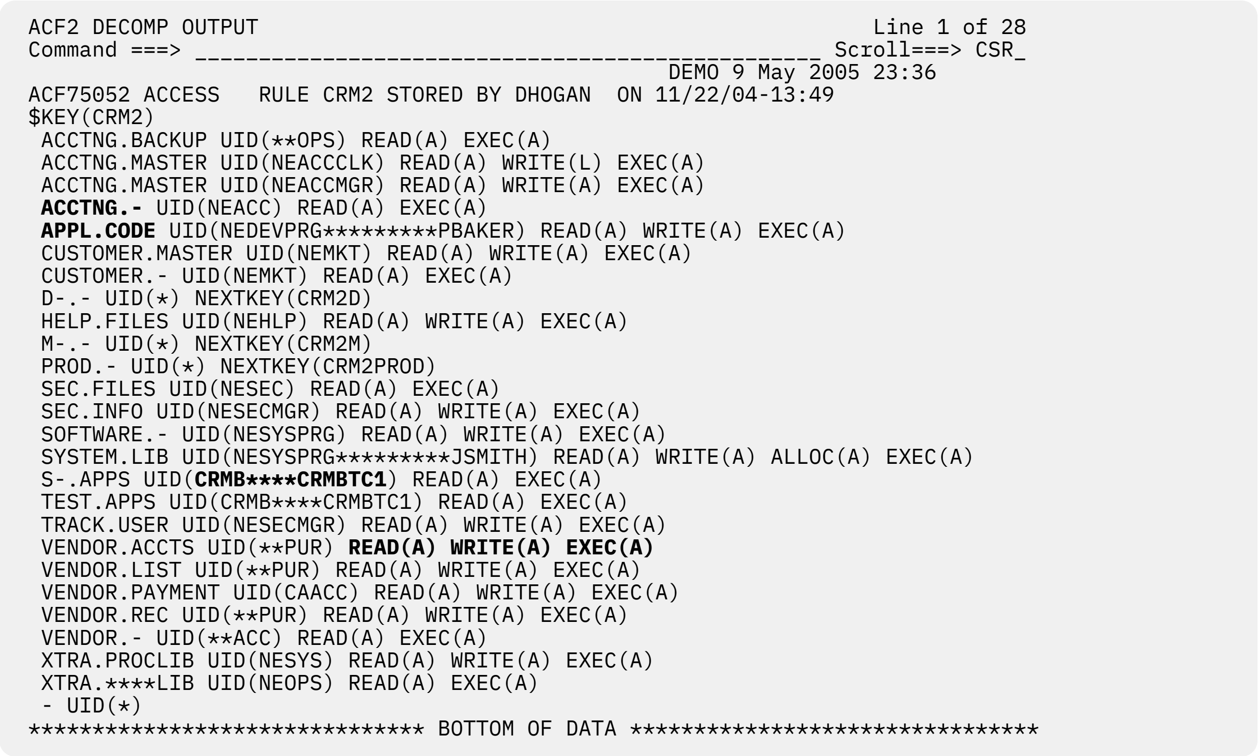
```
                                                                   Line 1 of 3
IBM Security zSecure ACF2_RULE display
Command ===> _________________________________________________ Scroll===> CSR_
All rules with HLQ CRM2                          30 Aug 2011 04:25
   $Key      Rs  $Prefix                                     LastUpDat StoredBy
L_ CRM2                                                       9Nov2009 CRM2ADM
__ CRM2D     No  CRM2                                        26May2011 CRM2ADM
__ CRM2LAST  No  CRM2                                        26May2011 CRM2ADM
__ CRM2M     No  CRM2                                        26May2011 CRM2ADM
__ CRM2PROD  No  CRM2                                        26May2011 CRM2ADM
```

Figure 37. Rule overview – List the rule

2. Press Enter to open the panel shown in Figure 38 on page 31.

   The appropriate ACF2 authority is required to use the LIST command in zSecure Audit for ACF2. The AUDIT or SECURITY Logon ID privilege is required to list any rule. ACF2 SCOPE records also affect this function. Standard ACF2 Logon ID authorization and scoping apply to LIST functions.

   The LIST function results are similar to the native ACF2 decompiled/list command. The panel shown in Figure 38 on page 31 assumes that you understand how to view and analyze a rule in its native form.



```
ACF2 DECOMP OUTPUT                                                Line 1 of 28
Command ===> _________________________________________________ Scroll===> CSR_
                                                  DEMO 9 May 2005 23:36
ACF75052 ACCESS   RULE CRM2 STORED BY DHOGAN  ON 11/22/04-13:49
$KEY(CRM2)
 ACCTNG.BACKUP UID(**OPS) READ(A) EXEC(A)
 ACCTNG.MASTER UID(NEACCCLK) READ(A) WRITE(L) EXEC(A)
 ACCTNG.MASTER UID(NEACCMGR) READ(A) WRITE(A) EXEC(A)
 ACCTNG.- UID(NEACC) READ(A) EXEC(A)
 APPL.CODE UID(NEDEVPRG*********PBAKER) READ(A) WRITE(A) EXEC(A)
 CUSTOMER.MASTER UID(NEMKT) READ(A) WRITE(A) EXEC(A)
 CUSTOMER.- UID(NEMKT) READ(A) EXEC(A)
 D-.- UID(*) NEXTKEY(CRM2D)
 HELP.FILES UID(NEHLP) READ(A) WRITE(A) EXEC(A)
 M-.- UID(*) NEXTKEY(CRM2M)
 PROD.- UID(*) NEXTKEY(CRM2PROD)
 SEC.FILES UID(NESEC) READ(A) EXEC(A)
 SEC.INFO UID(NESECMGR) READ(A) WRITE(A) EXEC(A)
 SOFTWARE.- UID(NESYSPRG) READ(A) WRITE(A) EXEC(A)
 SYSTEM.LIB UID(NESYSPRG*********JSMITH) READ(A) WRITE(A) ALLOC(A) EXEC(A)
 S-.APPS UID(CRMB****CRMBTC1) READ(A) EXEC(A)
 TEST.APPS UID(CRMB****CRMBTC1) READ(A) EXEC(A)
 TRACK.USER UID(NESECMGR) READ(A) WRITE(A) EXEC(A)
 VENDOR.ACCTS UID(**PUR) READ(A) WRITE(A) EXEC(A)
 VENDOR.LIST UID(**PUR) READ(A) WRITE(A) EXEC(A)
 VENDOR.PAYMENT UID(CAACC) READ(A) WRITE(A) EXEC(A)
 VENDOR.REC UID(**PUR) READ(A) WRITE(A) EXEC(A)
 VENDOR.- UID(**ACC) READ(A) EXEC(A)
 XTRA.PROCLIB UID(NESYS) READ(A) WRITE(A) EXEC(A)
 XTRA.****LIB UID(NEOPS) READ(A) EXEC(A)
 - UID(*)
******************************* BOTTOM OF DATA ********************************
```

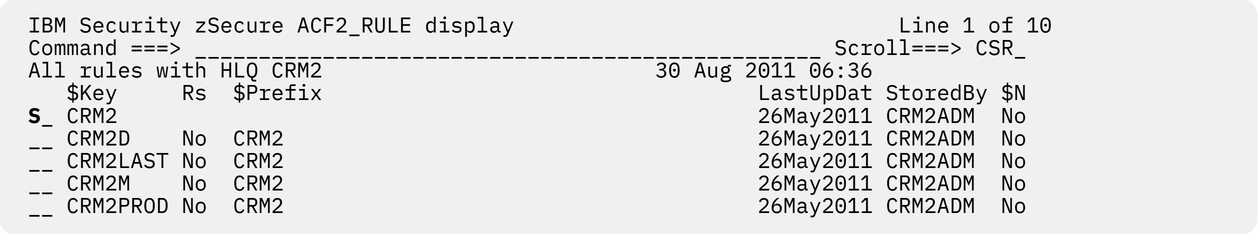
Figure 38. ACF2 decompiled output of a rule using LIST command

Displaying data set rules using SELECT

Procedure

To display data set rules using the Selection function, complete the following steps:

1. Press PF3 to return to the rule display screen.
2. Type the selection character **S** beside a **$Key** entry as shown in Figure 39 on page 31

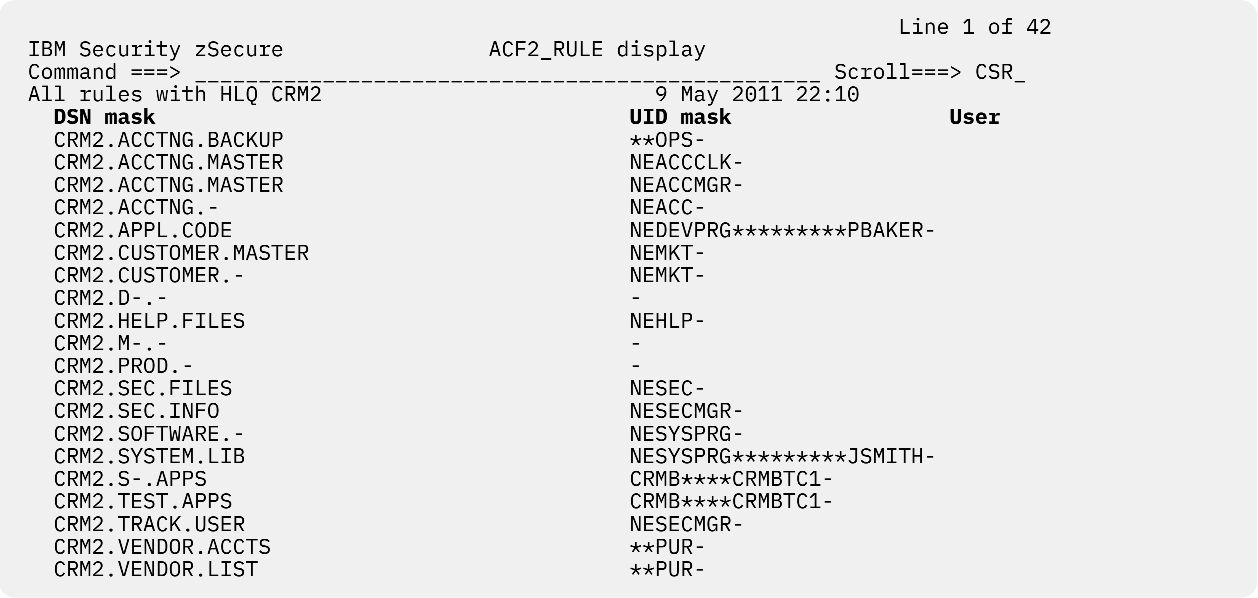


```
IBM Security zSecure ACF2_RULE display                              Line 1 of 10
Command ===> _________________________________________________ Scroll===> CSR_
All rules with HLQ CRM2                          30 Aug 2011 06:36
   $Key      Rs  $Prefix                                  LastUpDat StoredBy $N
S_ CRM2                                                   26May2011 CRM2ADM  No
__ CRM2D     No  CRM2                                     26May2011 CRM2ADM  No
__ CRM2LAST No   CRM2                                     26May2011 CRM2ADM  No
__ CRM2M     No  CRM2                                     26May2011 CRM2ADM  No
__ CRM2PROD No   CRM2                                     26May2011 CRM2ADM  No
```

Figure 39. The Select character

3. Press Enter.

   You see a panel similar to Figure 40 on page 32. This is the same rule displayed in Figure 38 on page 31 and Figure 32 on page 27.



```
                                                                    Line 1 of 42
IBM Security zSecure                ACF2_RULE display
Command ===> _________________________________________________ Scroll===> CSR_
All rules with HLQ CRM2                          9 May 2011 22:10
  DSN mask                                     UID mask                 User
  CRM2.ACCTNG.BACKUP                           **OPS-
  CRM2.ACCTNG.MASTER                           NEACCCLK-
  CRM2.ACCTNG.MASTER                           NEACCMGR-
  CRM2.ACCTNG.-                                NEACC-
  CRM2.APPL.CODE                               NEDEVPRG*********PBAKER-
  CRM2.CUSTOMER.MASTER                         NEMKT-
  CRM2.CUSTOMER.-                              NEMKT-
  CRM2.D-.-                                    -
  CRM2.HELP.FILES                              NEHLP-
  CRM2.M-.-                                    -
  CRM2.PROD.-                                  -
  CRM2.SEC.FILES                               NESEC-
  CRM2.SEC.INFO                                NESECMGR-
  CRM2.SOFTWARE.-                              NESYSPRG-
  CRM2.SYSTEM.LIB                              NESYSPRG*********JSMITH-
  CRM2.S-.APPS                                 CRMB****CRMBTC1-
  CRM2.TEST.APPS                               CRMB****CRMBTC1-
  CRM2.TRACK.USER                              NESECMGR-
  CRM2.VENDOR.ACCTS                            **PUR-
  CRM2.VENDOR.LIST                             **PUR-
```

Figure 40. Rule display using Select

In the ACF2_RULE display panel shown in Figure 40 on page 32, you can view information about the selected rule. The data set name or mask is to the left with the corresponding uid string, which indicates who can access these data sets. Entries in the **User** column indicate that the entry applies only to the user ID that is shown.

4. Press PF11 to scroll to see the environment parameters.

   All environment parameters that apply to each rule line show across a single line as you scroll across the display. Environmental parameters can reference ACF2 Infostorage records. When you continue scrolling, you see additional environmental parameters as appropriate for each rule line entry.

   In the example in Figure 41 on page 33, the **Ro** column indicates, for each entry, whether the entry applies only to users who have access granted by the specified ROLE.

   The **Perm** column indicates the permissions that apply to each line entry. The permissions are read, write, allocate, and execute, which are shown with the following letters:

R	**Read**
W	**Write**
A	**Allocate**
E	**Execute**

   Any lowercase letters indicate that the permission is allowed but logged.

   Figure 41 on page 33 also has three rule lines that reference a NEXTKEY, and one other environmental parameter for Volume, Source, Shift, and Library. This is typical. Many rule lines might not need additional environmental parameters. See Table 10 on page 33 for a description of the environmental parameters.

```
                                                                    Line 1 of 42
IBM Security zSecure ACF2_RULE display
Command ===> _________________________________________________ Scroll===> CSR_
All rules with HLQ CRM2                                  9 May 2011 22:10
  User     Role     Perm N   NextKey  Volume Source   Shift    Library
                    R  E
                    Rw E
                    RW E
                    R  E
                    RW E
                    RW E
                         C
                         C   CRM2D    NORMAL
                    RW E
                         C   CRM2M
                         C   CRM2PROD
```

Figure 41. Display of additional environmental parameters

The display in Figure 40 on page 32 shows NEXTKEYs for the parent rule set CRM2 and shows a SHIFT reference for a data set mask CRM2.CUSTOMER.-. Figure 41 on page 33 shows the panel scrolled to the left with the PF10 key so that you can see the data set name.

Shift records are additional controls on when a data set can be accessed. The shift reference in Figure 41 on page 33 shows a record name of NORMAL. This record is defined in Infostorage database of ACF2. Usually, NORMAL refers to normal working hours; for example, 8:00 AM until 5:00 PM.

To view a shift record using native ACF2 commands, issue the following two commands as shown in Figure 42 on page 33. The first command points to the Infostorage SHIFT records. The second command lists the record.

```
SET SHIFT(SFT)
LIST NORMAL
```

Figure 42. Native ACF2 commands to List the SHIFT record

5. To view more environmental parameters, press PF11.

```
IBM Security zSecure ACF2_RULE display                              Line 1 of 42
Command ===> _________________________________________________ Scroll===> CSR_
All rules with HLQ CRM2                                  9 May 2011 22:10
    Program  DDname   Until     Active    Data

                      12/31/2011
```

Figure 43. Remaining environmental parameters

ACF2 rules provide date activation and expiration against data set access. Notice the date in Figure 43 on page 33 under the **Until** column. Access is allowed for a data set until this date is reached. You can press PF10 to scroll left and view the data set name.

Table 10 on page 33 lists the environmental parameter fields and description, including the fields that are visible on the right when you press PF11.

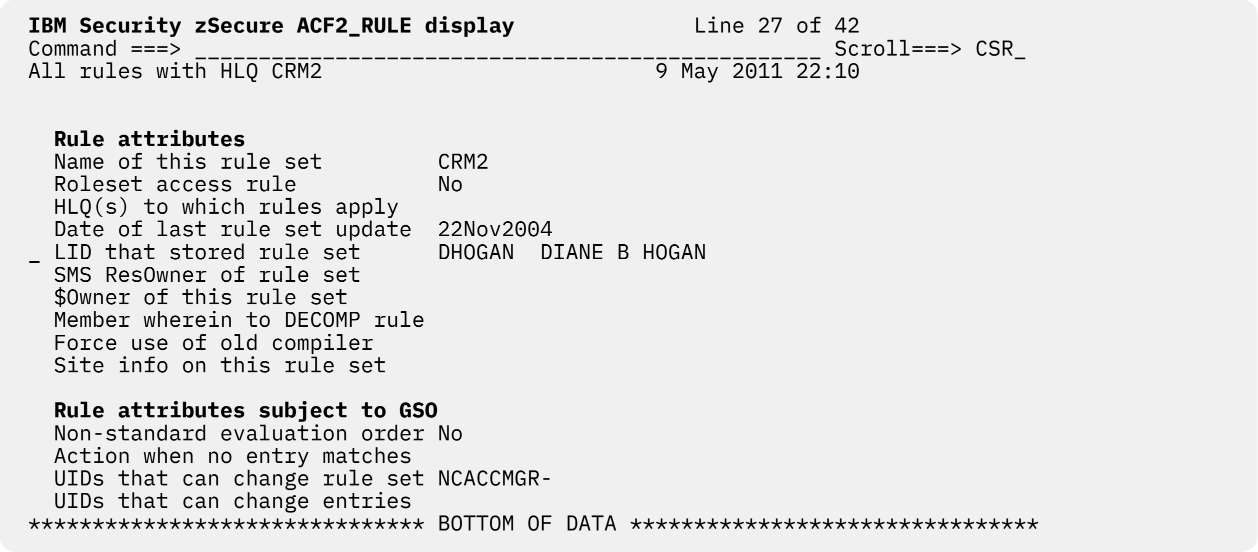
Table 10. Environmental parameter descriptions

Field	Description
DSN mask	Data sets specified in the rule set, under the high-level qualifier.
UID mask	UID strings specified in rule entries.
User	Indicates whether this entry applies only to this user ID. This field does not support masking, except that a value of "-" (dash) indicates that this entry applies to all users.

Table 10. Environmental parameter descriptions (continued)

Field	Description
Role	Indicates whether this entry applies only to users who have access granted by this ROLE. This field does not support masking, except that a value of "-" (dash) indicates that this entry applies to all users.
Perm	Type of access for each data set entry. Read, Write, Allocate, Execute. Uppercase indicates that access is allowed; lowercase indicates that access is logged.
Nextkey	$KEY of rule set to be used for further validation processing.
Volume	Applies only to data sets residing on a volume that matches this mask.
Source	Applies if access attempt is made from a source that matches this mask.
Shift	Applies if access attempt is made at a time allowed by this SHIFT record.
Library	Applies if access attempts are made through a program residing in a library that matches this mask.
Program	Applies if an access attempt is made through a program that matches this mask.
DDdname	Applies if an access attempt is made for a data set allocated under this volume.
Until	The last day this entry applies.
Active	The first day this entry applies.
Data	Additional information about this entry, for documentation purposes.

6. Press PF8 to view any remaining rule lines and additional rule set explanations. You can also use the standard ISPF keys to scroll forward, backward, and sideways.



```
IBM Security zSecure ACF2_RULE display             Line 27 of 42
Command ===> ___________________________________________________ Scroll===> CSR_
All rules with HLQ CRM2                           9 May 2011 22:10


  Rule attributes
  Name of this rule set         CRM2
  Roleset access rule           No
  HLQ(s) to which rules apply
  Date of last rule set update  22Nov2004
_ LID that stored rule set      DHOGAN  DIANE B HOGAN
  SMS ResOwner of rule set
  $Owner of this rule set
  Member wherein to DECOMP rule
  Force use of old compiler
  Site info on this rule set

  Rule attributes subject to GSO
  Non-standard evaluation order No
  Action when no entry matches
  UIDs that can change rule set NCACCMGR-
  UIDs that can change entries
******************************* BOTTOM OF DATA ********************************
```

Figure 44. Rule overview display

Notice the entries in Figure 44 on page 34, such as **Rule attributes subject to GSO**. You can find valuable information pertinent to rule processing and administration under this heading. See Table 11 on page 34.

Table 11. Rule processing and administration attributes

Entry	Description
Name of this rule set	$KEY of the rule set.

Table 11. Rule processing and administration attributes (continued)

Entry	Description
Roleset access rule	The rule has ROLESET specified.
HLQ(s) to which rules apply	The $PREFIX of the rule set.
Date of the last rule set update	Day the rule record was last stored.
LID that stored rule set	The LID and NAME of the user that last stored the rule.
SMS ResOwner of rule set	$RESOWNER field in the rule set. SMS uses this.
$Owner of this rule set	$OWNER field in the rule set. Documentation only.
Member in which to DECOMP rule	The overriding name of the PDS member into which this rule set should be decompiled.
Force use of old compiler	If set, this flag field indicates that this rule set is not to be compiled by the long rule compiler under any circumstances. ACF2 has two resource rule compilers to provide support for long resource rules that are over 4kb long. This flag effectively prevents you from using any features in this rule set that require the long rule compiler. The GSO OPTS setting COMPDYN has no influence on this behavior.
Site info on this rule set	`$userdata` field if one is present in the rule set.
Non-standard evaluation order	The rule has `$nosort` specified.
Action when no entry matches	If your GSO OPTS record is set to RULE mode, $mode statements will be recognized in rules, if one is present. This could introduce an exposure.
UIDs that can change rule set	UIDs matching the %change statement if one is present in the rule set.
UIDs that can change entries	UIDs matching the `%rchange` statement if one is present in the rule set.

Audit concerns

Figure 44 on page 34 and Table 11 on page 34 display useful information for rule review. Auditing rule administration includes assessment of factors as follows:

- Access to data sets
  - UID strings: the groups or individuals granted access
  - Type of access: read, write, allocate, execute
- Rule administration
  - Who can change the rule set?
  - When did the last rule update occur?
  - Does ACF2 control rule line sorting?

Suggestions for rule reviews

- Review $NOSORT settings.

  Bypassing ACF2 sorting capability is not recommended. The ACF2 GSO RULEOPTS default sort value is NO$NOSORT (no – do not disable ACF2 sorting). Using the default setting is recommended. Use of $NOSORT in rules can indicate that the GSO RULEOPTS sorting default is disabled. See Table 11 on page 34.

- Review the GSO RULEOPTS CENTRAL/NOCENTRAL and CHANGE/NOCHANGE settings.

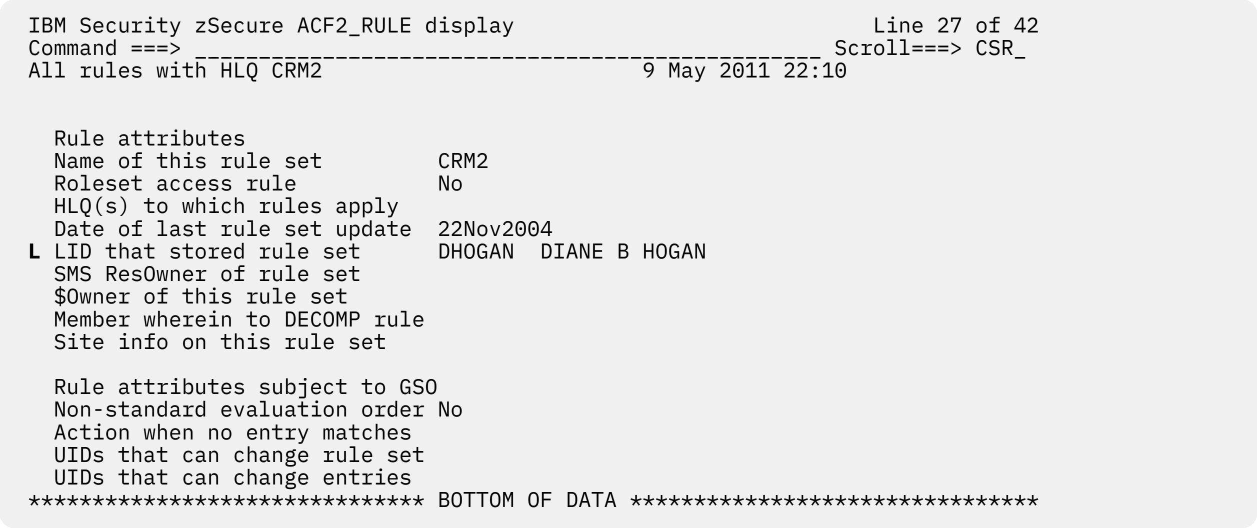
  Does the organization desire centralized or decentralized rule administration and should % statements be recognized during rule validation? The presence of % statements in rules can indicate that decentralized rule administration is recognized.
- Determine the MODE of ACF2 designated in the GSO OPTS record, MODE parameter.

  ABORT mode is preferred. The presence of $MODE statements in rules can indicate that the GSO OPTS MODE setting is RULE versus ABORT.

Displaying who last stored a rule

Procedure

1. While still in the rule display panels, type an **L** in the selection field for **LID that stored rule set** field as shown in Figure 45 on page 36.

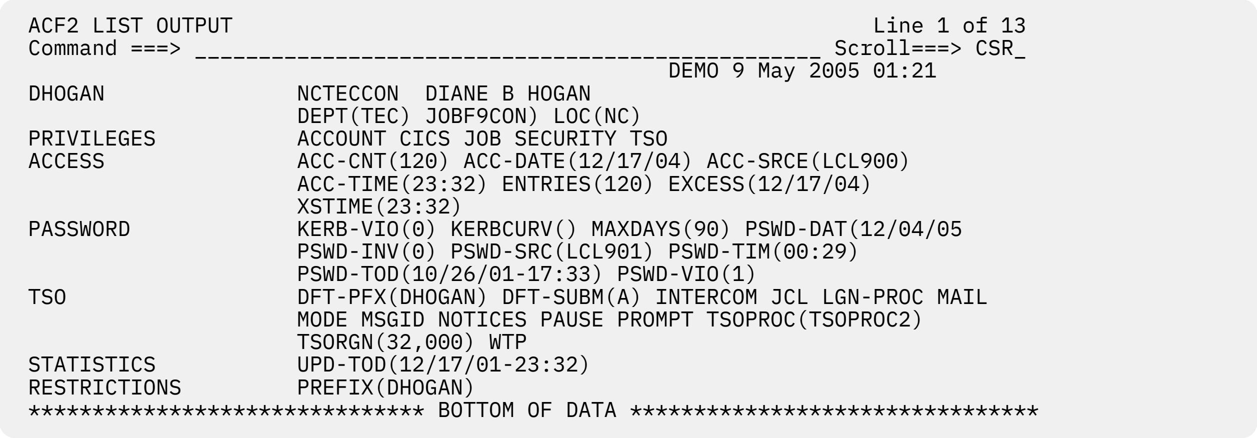


```
IBM Security zSecure ACF2_RULE display                             Line 27 of 42
Command ===> _________________________________________________ Scroll===> CSR_
All rules with HLQ CRM2                                 9 May 2011 22:10


  Rule attributes
  Name of this rule set         CRM2
  Roleset access rule           No
  HLQ(s) to which rules apply
  Date of last rule set update  22Nov2004
L LID that stored rule set      DHOGAN  DIANE B HOGAN
  SMS ResOwner of rule set
  $Owner of this rule set
  Member wherein to DECOMP rule
  Site info on this rule set

  Rule attributes subject to GSO
  Non-standard evaluation order No
  Action when no entry matches
  UIDs that can change rule set
  UIDs that can change entries
******************************* BOTTOM OF DATA ********************************
```

Figure 45. List logon ID that stored rule set

2. Press Enter.

   The ACF2 LIST OUTPUT panel opens to display the ACF2 logon ID record of the user that last changed the rule set, as shown in Figure 46 on page 36.



```
ACF2 LIST OUTPUT                                                   Line 1 of 13
Command ===> _________________________________________________ Scroll===> CSR_
                                                  DEMO 9 May 2005 01:21
DHOGAN              NCTECCON  DIANE B HOGAN
                    DEPT(TEC) JOBF9CON) LOC(NC)
PRIVILEGES          ACCOUNT CICS JOB SECURITY TSO
ACCESS              ACC-CNT(120) ACC-DATE(12/17/04) ACC-SRCE(LCL900)
                    ACC-TIME(23:32) ENTRIES(120) EXCESS(12/17/04)
                    XSTIME(23:32)
PASSWORD            KERB-VIO(0) KERBCURV() MAXDAYS(90) PSWD-DAT(12/04/05
                    PSWD-INV(0) PSWD-SRC(LCL901) PSWD-TIM(00:29)
                    PSWD-TOD(10/26/01-17:33) PSWD-VIO(1)
TSO                 DFT-PFX(DHOGAN) DFT-SUBM(A) INTERCOM JCL LGN-PROC MAIL
                    MODE MSGID NOTICES PAUSE PROMPT TSOPROC(TSOPROC2)
                    TSORGN(32,000) WTP
STATISTICS          UPD-TOD(12/17/01-23:32)
RESTRICTIONS        PREFIX(DHOGAN)
******************************* BOTTOM OF DATA ********************************
```

Figure 46. ACF2 LIST OUTPUT panel

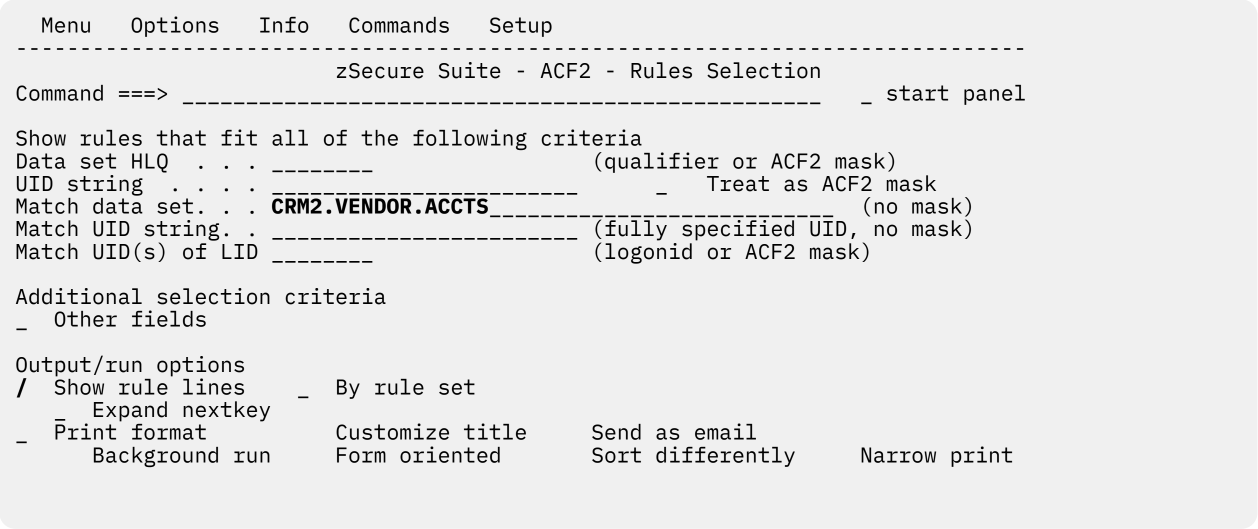
Figure 46 on page 36 is a quick way to view the entire logon ID record of the person that last changed the rule. In Figure 45 on page 36, the logon ID and name are displayed. Use the LIST function **L** to examine uid string values and assigned privileges.

Listing rule lines for a specific data set

Procedure

1. Press PF3 to return to the Rule Selection panel (Figure 47 on page 37).
2. Type a data set name in the **Match data set** field.

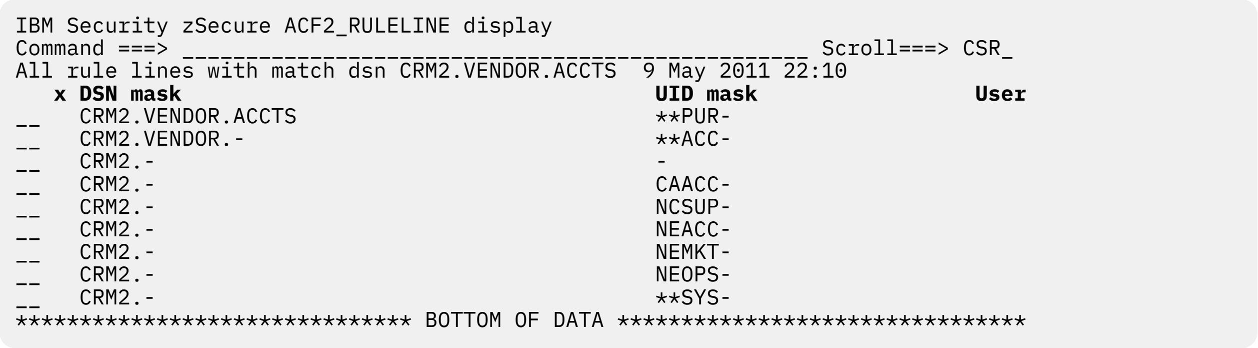
   Use a data set name that applies to your environment. Figure 47 on page 37 uses `CRM2.VENDOR.ACCTS`.
3. Type a / character beside **Show rule lines**.
4. Press Enter.
5. Remove the **/** beside **By rule set**.



```
  Menu   Options   Info   Commands   Setup
--------------------------------------------------------------------------------
                         zSecure Suite - ACF2 - Rules Selection
Command ===> __________________________________________________   _ start panel

Show rules that fit all of the following criteria
Data set HLQ  . . . ________                 (qualifier or ACF2 mask)
UID string  . . . . ________________________      _   Treat as ACF2 mask
Match data set. . . CRM2.VENDOR.ACCTS___________________________  (no mask)
Match UID string. . ________________________ (fully specified UID, no mask)
Match UID(s) of LID ________                 (logonid or ACF2 mask)

Additional selection criteria
_  Other fields

Output/run options
/  Show rule lines    _  By rule set
   _  Expand nextkey
_  Print format          Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 47. Request specific data set name

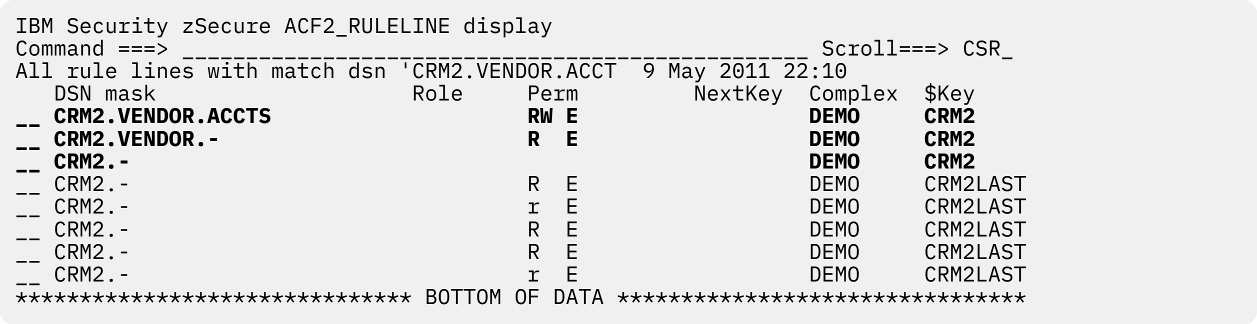
To understand the next display in Figure 48 on page 37, notice the headings **DSN mask** and **UID mask**.



```
IBM Security zSecure ACF2_RULELINE display
Command ===> ________________________________________________ Scroll===> CSR_
All rule lines with match dsn CRM2.VENDOR.ACCTS  9 May 2011 22:10
   x DSN mask                                     UID mask                 User
__   CRM2.VENDOR.ACCTS                            **PUR-
__   CRM2.VENDOR.-                                **ACC-
__   CRM2.-                                       -
__   CRM2.-                                       CAACC-
__   CRM2.-                                       NCSUP-
__   CRM2.-                                       NEACC-
__   CRM2.-                                       NEMKT-
__   CRM2.-                                       NEOPS-
__   CRM2.-                                       **SYS-
******************************* BOTTOM OF DATA ********************************
```

Figure 48. Rule line entries that match data set name

6. Press PF11 to view the **$Key** column heading (Figure 49 on page 38).



```
IBM Security zSecure ACF2_RULELINE display
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with match dsn 'CRM2.VENDOR.ACCT  9 May 2011 22:10
   DSN mask                    Role     Perm         NextKey  Complex  $Key
__ CRM2.VENDOR.ACCTS                    RW E                  DEMO     CRM2
__ CRM2.VENDOR.-                        R  E                  DEMO     CRM2
__ CRM2.-                                                     DEMO     CRM2
__ CRM2.-                               R  E                  DEMO     CRM2LAST
__ CRM2.-                               r  E                  DEMO     CRM2LAST
__ CRM2.-                               R  E                  DEMO     CRM2LAST
__ CRM2.-                               R  E                  DEMO     CRM2LAST
__ CRM2.-                               r  E                  DEMO     CRM2LAST
******************************* BOTTOM OF DATA ********************************
```

Figure 49. Viewing additional column headings

7. Analyze the $Key column before continuing.

   Rule line permissions can be taken out of context if the $Key column is not reviewed.

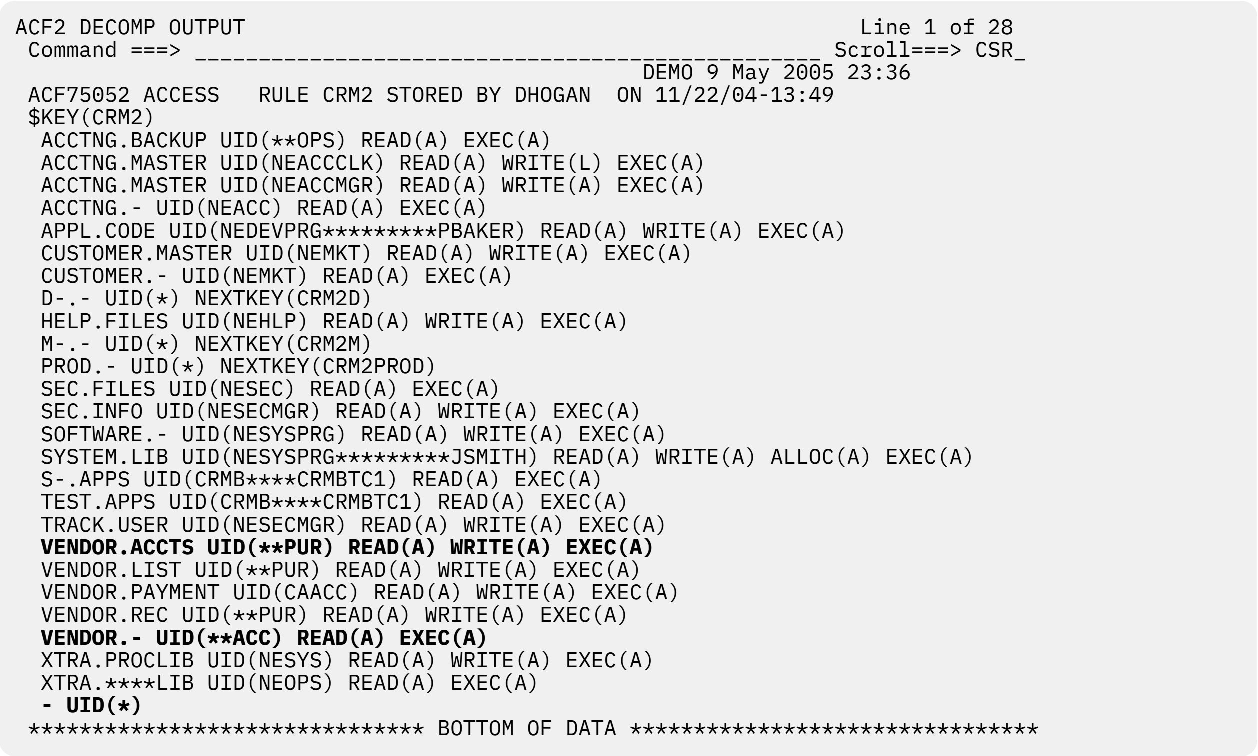
   The $Key column shows two values: CRM2 and CRM2LAST. Notice the rule line entries associated with each **$Key** value. CRM2 is the parent rule set. CRM2LAST is a NEXTKEYed rule set. To understand how CRM2LAST is used, see Figure 59 on page 44 and Figure 61 on page 45.

   Access for the data set CRM2.VENDOR.ACCTS is determined by the first three rule lines in Figure 48 on page 37. In this example, the following access settings are in place:

   - Users in the group **PUR (which means any location, department PUR) can Read, Write, and Execute against the CRM2.VENDOR.ACCTS data set.
   - Users in the group **ACC (which means any location, ACC department) can Read and Execute CRM2.VENDOR.- data sets, that is, all data sets that have the first two qualifiers.
   - All users (uid of -) do not have any access to any data set that begins with CRM2.

   Each rule line becomes less specific. After the requested access matches a rule line, ACF2 rule processing stops. Therefore, it is important not to misinterpret individual rule lines in Figure 48 on page 37 and Figure 49 on page 38. These rule lines are associated with the parent rule set CRM2. CRM2 is the only rule set that controls access to our sample data set name.

   Figure 50 on page 39 shows the entire parent rule set CRM2. Note the location of each rule line that matches CRM2.VENDOR.ACCTS data set name. The order goes from most specific to least specific. Understand that these three rule lines are the only ones that affect access to the CRM2.VENDOR.ACCTS data set. The NEXTKEYed rule sets in Figure 49 on page 38 do not affect access.



```
ACF2 DECOMP OUTPUT                                                Line 1 of 28
 Command ===> _________________________________________________ Scroll===> CSR_
                                                  DEMO 9 May 2005 23:36
 ACF75052 ACCESS   RULE CRM2 STORED BY DHOGAN  ON 11/22/04-13:49
 $KEY(CRM2)
  ACCTNG.BACKUP UID(**OPS) READ(A) EXEC(A)
  ACCTNG.MASTER UID(NEACCCLK) READ(A) WRITE(L) EXEC(A)
  ACCTNG.MASTER UID(NEACCMGR) READ(A) WRITE(A) EXEC(A)
  ACCTNG.- UID(NEACC) READ(A) EXEC(A)
  APPL.CODE UID(NEDEVPRG*********PBAKER) READ(A) WRITE(A) EXEC(A)
  CUSTOMER.MASTER UID(NEMKT) READ(A) WRITE(A) EXEC(A)
  CUSTOMER.- UID(NEMKT) READ(A) EXEC(A)
  D-.- UID(*) NEXTKEY(CRM2D)
  HELP.FILES UID(NEHLP) READ(A) WRITE(A) EXEC(A)
  M-.- UID(*) NEXTKEY(CRM2M)
  PROD.- UID(*) NEXTKEY(CRM2PROD)
  SEC.FILES UID(NESEC) READ(A) EXEC(A)
  SEC.INFO UID(NESECMGR) READ(A) WRITE(A) EXEC(A)
  SOFTWARE.- UID(NESYSPRG) READ(A) WRITE(A) EXEC(A)
  SYSTEM.LIB UID(NESYSPRG*********JSMITH) READ(A) WRITE(A) ALLOC(A) EXEC(A)
  S-.APPS UID(CRMB****CRMBTC1) READ(A) EXEC(A)
  TEST.APPS UID(CRMB****CRMBTC1) READ(A) EXEC(A)
  TRACK.USER UID(NESECMGR) READ(A) WRITE(A) EXEC(A)
  VENDOR.ACCTS UID(**PUR) READ(A) WRITE(A) EXEC(A)
  VENDOR.LIST UID(**PUR) READ(A) WRITE(A) EXEC(A)
  VENDOR.PAYMENT UID(CAACC) READ(A) WRITE(A) EXEC(A)
  VENDOR.REC UID(**PUR) READ(A) WRITE(A) EXEC(A)
  VENDOR.- UID(**ACC) READ(A) EXEC(A)
  XTRA.PROCLIB UID(NESYS) READ(A) WRITE(A) EXEC(A)
  XTRA.****LIB UID(NEOPS) READ(A) EXEC(A)
  - UID(*)
 ******************************* BOTTOM OF DATA ********************************
```

Figure 50. Display of entire CRM2 data set rule

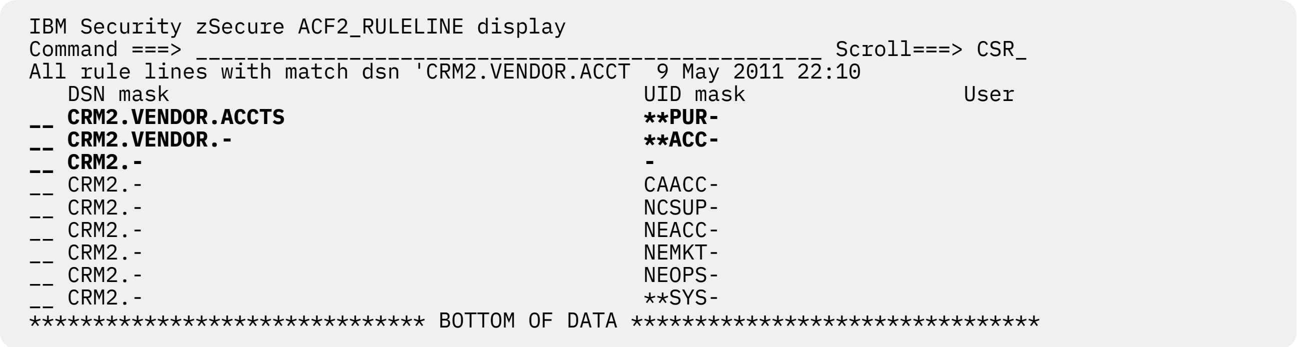
8. To shift the information left, press PF10.

Analyzing data set access

Your screen should be similar to Figure 51 on page 39, with the column headings **DSN mask**, **UID mask**, and **User**. Nine entries in the CRM2 rule set match the data set name `CRM2.VENDOR.ACCTS`. The data set rule lines in Figure 51 on page 39 are in sort order from most specific to most generic.

Understanding that only the first three entries are important due to the **$Key** column (shown in Figure 49 on page 38 and Figure 52 on page 40), the last six entries are ignored when determining access.

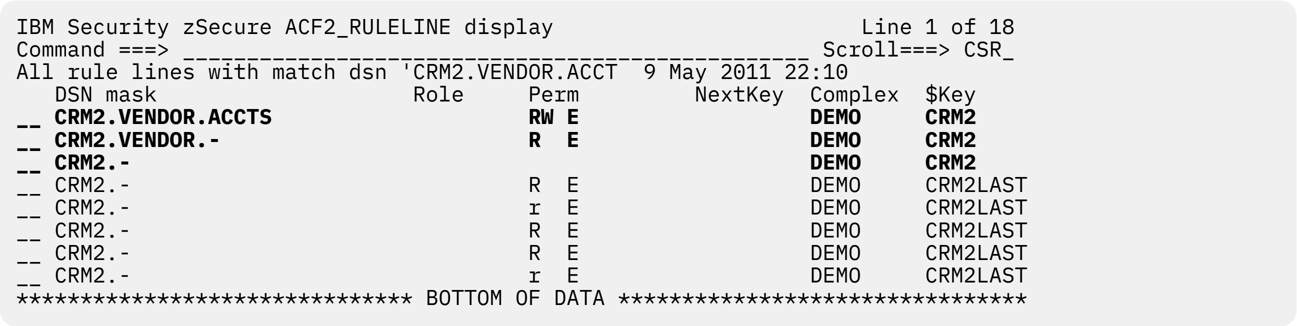
In this example, only two groups, PURchasing and ACCounting, can access the `CRM2.VENDOR.ACCTS` data set.



```
IBM Security zSecure ACF2_RULELINE display
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with match dsn 'CRM2.VENDOR.ACCT  9 May 2011 22:10
   DSN mask                                     UID mask                 User
__ CRM2.VENDOR.ACCTS                            **PUR-
__ CRM2.VENDOR.-                                **ACC-
__ CRM2.-                                       -
__ CRM2.-                                       CAACC-
__ CRM2.-                                       NCSUP-
__ CRM2.-                                       NEACC-
__ CRM2.-                                       NEMKT-
__ CRM2.-                                       NEOPS-
__ CRM2.-                                       **SYS-
******************************* BOTTOM OF DATA ********************************
```

Figure 51. Analyzing data set access

Follow the data set line to the UID mask column. Press PF11 to scroll and view the permissions (**Perm**) column.



```
IBM Security zSecure ACF2_RULELINE display                        Line 1 of 18
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with match dsn 'CRM2.VENDOR.ACCT  9 May 2011 22:10
   DSN mask                     Role      Perm         NextKey  Complex  $Key
__ CRM2.VENDOR.ACCTS                      RW E                  DEMO     CRM2
__ CRM2.VENDOR.-                          R  E                  DEMO     CRM2
__ CRM2.-                                                       DEMO     CRM2
__ CRM2.-                                 R  E                  DEMO     CRM2LAST
__ CRM2.-                                 r  E                  DEMO     CRM2LAST
__ CRM2.-                                 R  E                  DEMO     CRM2LAST
__ CRM2.-                                 R  E                  DEMO     CRM2LAST
__ CRM2.-                                 r  E                  DEMO     CRM2LAST
******************************* BOTTOM OF DATA ********************************
```

Figure 52. Analyzing data set access - permissions

The **Perm** column indicates that the group `**PUR-` is allowed to read, write, and execute against the data set. The group `**ACC` is allowed to read and execute against the data set through the masked entry `CRM2.VENDOR.-`. The last entry indicates that everyone, UID (-), is prevented access to any other CRM2 data set, which is referred to as a stopper or prevent rule line entry.

- Everyone in group **PUR is allowed to read, write, and execute
  - ** indicates any location - LOC(**) in the sample UID string
  - PUR indicates the department - DEPT(PUR) in the sample UID string
- Everyone in group **ACC is allowed to read and execute
  - ** indicates any location – LOC(**) in the sample UID string
  - ACC indicates the department – DEPT(ACC) in the sample UID string
- No other access is allowed due to the `UID(-)` rule line. No other users have access to the CRM2.VENDOR.ACCTS data set.

Figure 61 on page 45 helps explain this example. Understanding rule structure is critical in access analysis. During ACF2 rule processing, the VENDOR data set access is determined in the parent rule set CRM2. See the V entry in Figure 61 on page 45.

Listing data set rule lines specific to a uid string

About this task

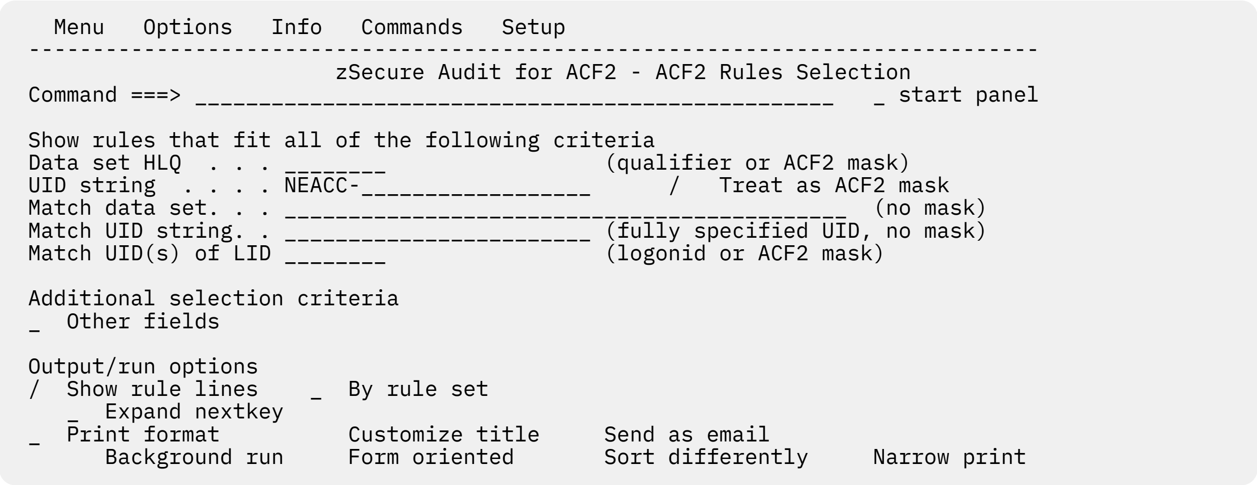
To find all data set access for a group or individual, you must specify a uid string.

Procedure

1. Press PF3 to return to the Rule Selection panel (Figure 53 on page 41).
2. Type a uid string appropriate to your environment in the **UID String** field.

   Our example uses `NEACC-`. This is interpreted as location NE and all users in the accounting department (ACC), which is specific to our uid string. Make sure to include the dash (-) character at the end of the uid string.
3. Type a forward slash (/) character to treat the uid string as an ACF2 mask.

   Important: Without the **Treat as ACF2 mask** indicator, the search treats the uid entry as a literal.
4. Type a forward slash (/) character to indicate display rule line.
5. Press Enter.



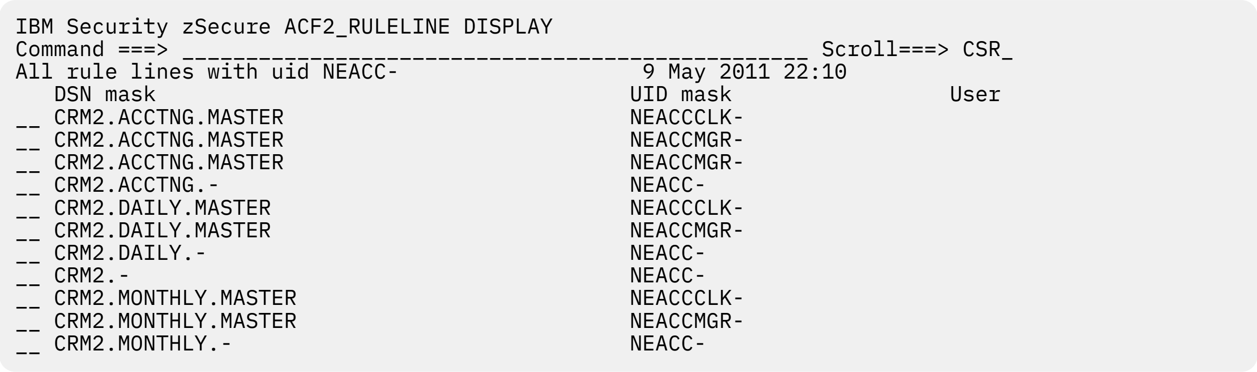
```
  Menu   Options   Info   Commands   Setup
--------------------------------------------------------------------------------
                        zSecure Audit for ACF2 - ACF2 Rules Selection
Command ===> __________________________________________________   _ start panel

Show rules that fit all of the following criteria
Data set HLQ  . . . ________                 (qualifier or ACF2 mask)
UID string  . . . . NEACC-__________________      /   Treat as ACF2 mask
Match data set. . . ____________________________________________  (no mask)
Match UID string. . ________________________ (fully specified UID, no mask)
Match UID(s) of LID ________                 (logonid or ACF2 mask)

Additional selection criteria
_  Other fields

Output/run options
/  Show rule lines    _  By rule set
   _  Expand nextkey
_  Print format         Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 53. Rule selection criteria, search by uid string

When selecting rules lines by uid string without selecting the **Treat as ACF2 mask** option, only those entries that match the specified uid string exactly are selected. Masking characters are treated as literals in this case. For example, our uid string example of `NEACC-` targets all users in the ACC department that are in location NE (the Netherlands). The dash (-) designates inclusion of uid entries in a rule line with NEACC and any other trailing characters. The forward slash (/) directs zSecure Audit for ACF2 to treat the dash as a mask versus a literal. There are no uid strings entries in our database with a dash. If the dash was treated as a literal, no matches would be found.

If the **Treat as ACF2 mask** option is selected, all entries that are at most as specific as the specified mask are selected. Embedded blanks are not supported if the **Treat as ACF2 mask** option is selected.

Figure 54 on page 41 and Figure 55 on page 42 show the results of the search requested in Figure 53 on page 41. All users with a uid string of NEACC can access data sets listed under the **DSN mask** column.

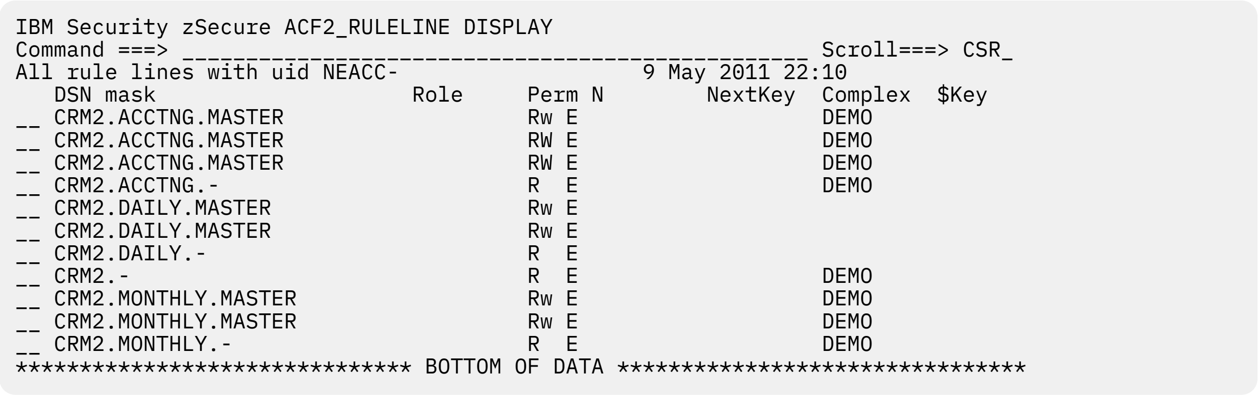


```
IBM Security zSecure ACF2_RULELINE DISPLAY
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with uid NEACC-                   9 May 2011 22:10
   DSN mask                                     UID mask                 User
__ CRM2.ACCTNG.MASTER                           NEACCCLK-
__ CRM2.ACCTNG.MASTER                           NEACCMGR-
__ CRM2.ACCTNG.MASTER                           NEACCMGR-
__ CRM2.ACCTNG.-                                NEACC-
__ CRM2.DAILY.MASTER                            NEACCCLK-
__ CRM2.DAILY.MASTER                            NEACCMGR-
__ CRM2.DAILY.-                                 NEACC-
__ CRM2.-                                       NEACC-
__ CRM2.MONTHLY.MASTER                          NEACCCLK-
__ CRM2.MONTHLY.MASTER                          NEACCMGR-
__ CRM2.MONTHLY.-                               NEACC-
```

Figure 54. Results of search for uid string matches in data set rules

6. Press PF11 to shift right and view the type of access in the **Perm** column.

   The lowercase letters indicate allow and log. In this case, the `w` lowercase letter indicates that write access is allowed and logged to SMF for review.



```
IBM Security zSecure ACF2_RULELINE DISPLAY
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with uid NEACC-                   9 May 2011 22:10
   DSN mask                    Role     Perm N        NextKey  Complex  $Key
__ CRM2.ACCTNG.MASTER                   Rw E                   DEMO
__ CRM2.ACCTNG.MASTER                   RW E                   DEMO
__ CRM2.ACCTNG.MASTER                   RW E                   DEMO
__ CRM2.ACCTNG.-                        R  E                   DEMO
__ CRM2.DAILY.MASTER                    Rw E
__ CRM2.DAILY.MASTER                    Rw E
__ CRM2.DAILY.-                         R  E
__ CRM2.-                               R  E                   DEMO
__ CRM2.MONTHLY.MASTER                  Rw E                   DEMO
__ CRM2.MONTHLY.MASTER                  Rw E                   DEMO
__ CRM2.MONTHLY.-                       R  E                   DEMO
******************************* BOTTOM OF DATA ********************************
```

Figure 55. Results of search for uid string matches - additional fields

To understand access to the data sets in Figure 55 on page 42, the **$Key** column must be analyzed. NEXTKEY processing effects how the data set access is granted.

Figure 54 on page 41 and Figure 55 on page 42 show that users with a matching uid mask of NEACC- have read and execute access to any CRM2.- data set. This is not accurate for our sample rule. See Figure 61 on page 45 to understand the structure of the CRM2 rule set. In our sample rule, NEACC- users do not have read access to any CRM2.- data set.

Important: Do not analyze rules out of context.

This entry resides in the NEXTKEY rule set CRM2LAST (Figure 53 on page 41). This access is used only if no matches are found in rule lines processed before CRM2LAST.

Displaying NEXTKEYs in data set rules

About this task

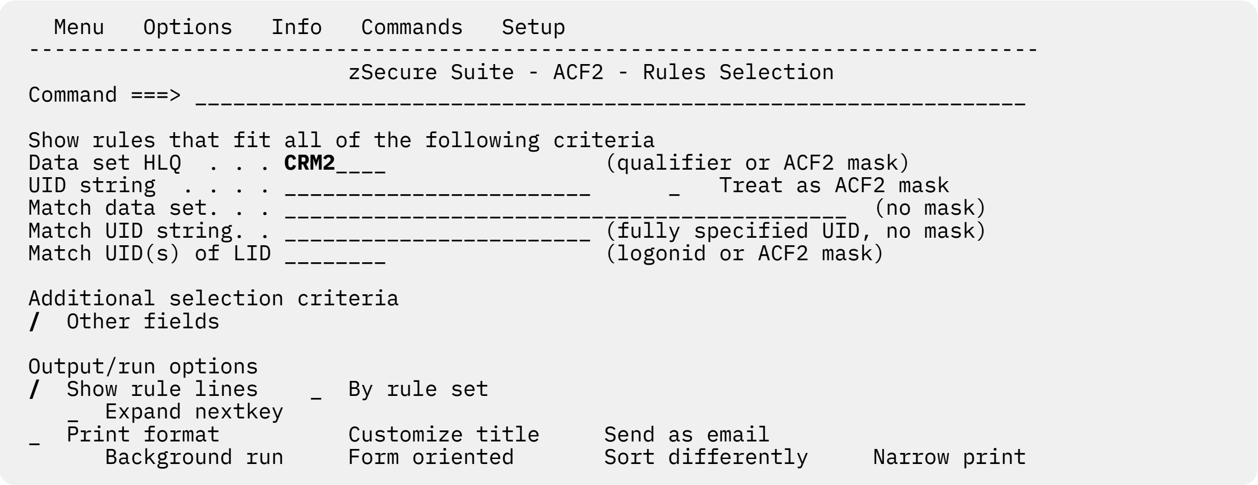
NEXTKEYs can be displayed through various panel selections, such as:

- Native ACF2 List display as in Figure 50 on page 39.
- Use of the Other fields option as in Figure 56 on page 43.
- Use of the **Expand nextkey** option as in Figure 63 on page 47.

Procedure

To view NEXTKEYs chained to a parent rule set, complete the following steps:

1. Press PF3 to return to the Rules Selection panel.
2. Type a high-level qualifier appropriate for your environment. The example shown in Figure 56 on page 43 uses CRM2.
3. Type a forward slash (/) character beside **Other fields**.
4. Type a forward slash (/) character beside **Show rule lines**.
5. Press Enter.



```
  Menu   Options   Info   Commands   Setup
--------------------------------------------------------------------------------
                         zSecure Suite - ACF2 - Rules Selection
Command ===> _________________________________________________________________

Show rules that fit all of the following criteria
Data set HLQ  . . . CRM2____                 (qualifier or ACF2 mask)
UID string  . . . . ________________________      _   Treat as ACF2 mask
Match data set. . . ____________________________________________  (no mask)
Match UID string. . ________________________ (fully specified UID, no mask)
Match UID(s) of LID ________                 (logonid or ACF2 mask)

Additional selection criteria
/  Other fields

Output/run options
/  Show rule lines    _  By rule set
   _  Expand nextkey
_  Print format          Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 56. Requesting NEXTKEYs for high-level qualifier

Specifying additional selection criteria

About this task

The **Specify additional selection criteria** section in the Rules Selection panel enables specific rule search criteria. There are a number of approaches to view NEXTKEYs; using additional selection criteria is one approach.

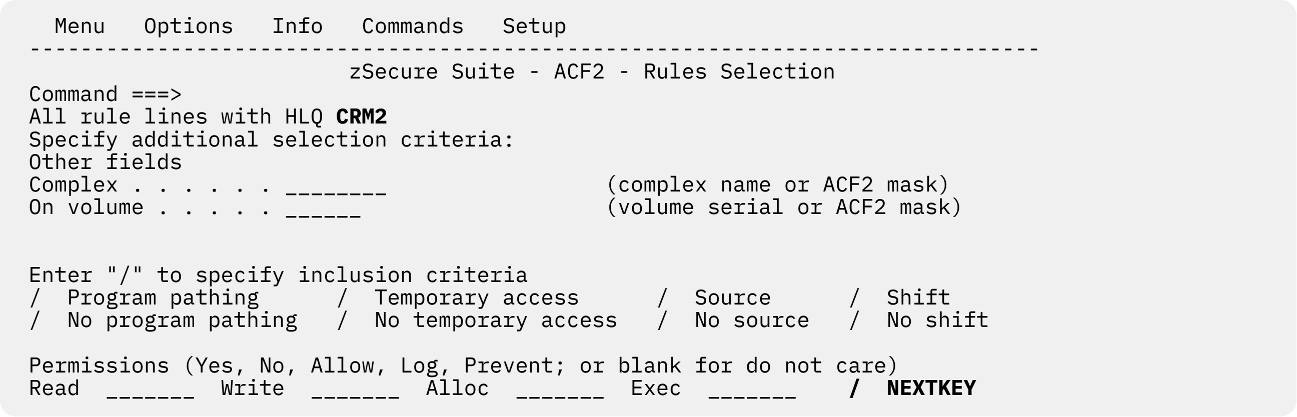
Other types of inclusion criteria such as rule permissions can be requested. You can think of these as filtering mechanisms when analyzing specific rule issues.

In the Rules Selection panel shown in Figure 57 on page 43, select the NEXTKEY criteria:

Procedure

1. Move down to the bottom of the panel.
2. Move over to the **NEXTKEY** field.
3. Type a forward slash (/) character in the selection field for **NEXTKEY**.
4. Press Enter.

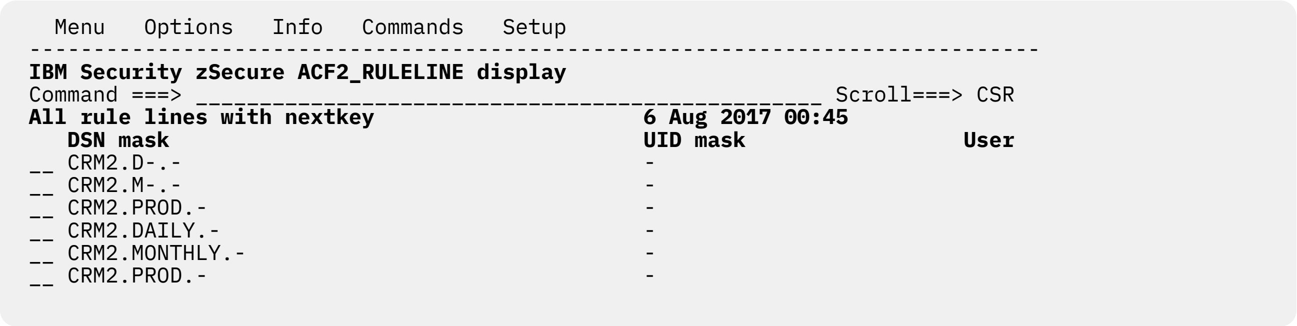
Results



```
  Menu   Options   Info   Commands   Setup
--------------------------------------------------------------------------------
                         zSecure Suite - ACF2 - Rules Selection
Command ===>
All rule lines with HLQ CRM2
Specify additional selection criteria:
Other fields
Complex . . . . . . ________                 (complex name or ACF2 mask)
On volume . . . . . ______                   (volume serial or ACF2 mask)


Enter "/" to specify inclusion criteria
/  Program pathing      /  Temporary access      /  Source      /  Shift
/  No program pathing   /  No temporary access   /  No source   /  No shift

Permissions (Yes, No, Allow, Log, Prevent; or blank for do not care)
Read  _______  Write  _______  Alloc  _______  Exec  _______    /  NEXTKEY
```

Figure 57. Request NEXTKEYs for a rule key

Figure 58 on page 44 is the display result for all NEXTKEYs chained from the parent rule set of CRM2.



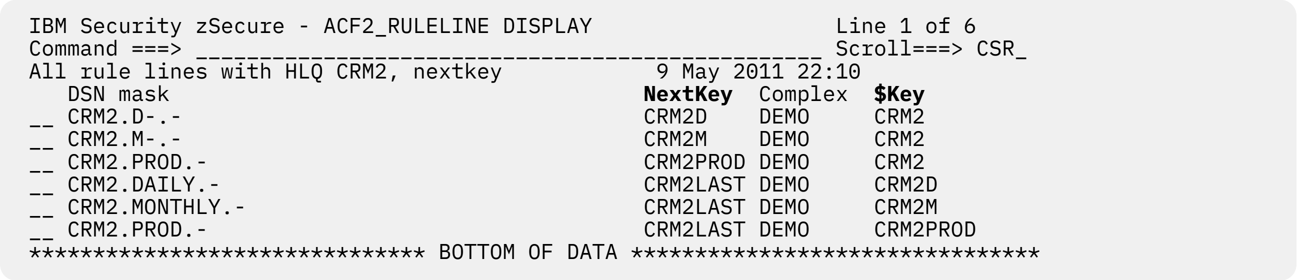
```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
IBM Security zSecure ACF2_RULELINE display
Command ===> _________________________________________________ Scroll===> CSR
All rule lines with nextkey                     6 Aug 2017 00:45
   DSN mask                                     UID mask                 User
__ CRM2.D-.-                                    -
__ CRM2.M-.-                                    -
__ CRM2.PROD.-                                  -
__ CRM2.DAILY.-                                 -
__ CRM2.MONTHLY.-                               -
__ CRM2.PROD.-                                  -
```

Figure 58. Initial display for NEXTKEYs chained to parent rule set

To view the **NEXTKEY** column, press PF11 to shift the screen to the right.

The **NextKey** column is displayed as shown in Figure 59 on page 44. This column indicates origination of the pointer from the rule set value in $Key column.

There are four NEXTKEYed rule sets within the rule *CRM2* as indicated in the **NextKey** column: CRM2D, CRM2M, CRM2PROD, and CRM2LAST. Access for data sets with the high-level qualifier of CRM2 is contained in the parent CRM2 and the NEXTKEYed (children) rule sets. A graphical view of the CRM2 structure is depicted in Figure 61 on page 45. Comparing the graphical structure with Figure 59 on page 44 can help you to understand the display.



```
IBM Security zSecure - ACF2_RULELINE DISPLAY                   Line 1 of 6
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2, nextkey            9 May 2011 22:10
   DSN mask                                     NextKey  Complex  $Key
__ CRM2.D-.-                                    CRM2D    DEMO     CRM2
__ CRM2.M-.-                                    CRM2M    DEMO     CRM2
__ CRM2.PROD.-                                  CRM2PROD DEMO     CRM2
__ CRM2.DAILY.-                                 CRM2LAST DEMO     CRM2D
__ CRM2.MONTHLY.-                               CRM2LAST DEMO     CRM2M
__ CRM2.PROD.-                                  CRM2LAST DEMO     CRM2PROD
******************************* BOTTOM OF DATA ********************************
```

Figure 59. NEXTKEYs for requested high-level qualifier

The entries in the **DSN mask** column shown in Figure 59 on page 44 are rule lines in the parent rule set CRM2. These rule lines contain NextKey parameters that direct ACF2 to a separate rule set for further rule validation processing.

In this example, the data set name mask CRM2.D-.- points ACF2 to the rule set CRM2D. A request for any data set name that matches the CRM2.D-.-, such as CRM2.DAILY.BACKUP causes ACF2 to search the child rule set, CRM2D, for a data set name match. The child rule set, CRM2D, contains data set access rule lines for CRM2.D-.- data set names. Access for any data set matching the mask of CRM2.D-.- is in the child rule set CRM2D.

The **$Key** column contains the rule set key from which the NextKey column reference originates. For example, the CRM2D NEXTKEY originates in the parent rule set CRM2. The CRM2LAST NEXTKEY originates from the CRM2D, CRM2M, and the CRM2PROD rule sets.

The **DSN mask** column entry contains the rule line that points to the NEXTKEY rule set shown in the **$Key** column. For example, the rule line CRM2.D-.- points to a NEXTKEY labeled CRM2D:

```
CRM2.D-.- UID(*) NEXTKEY(CRM2D)
```

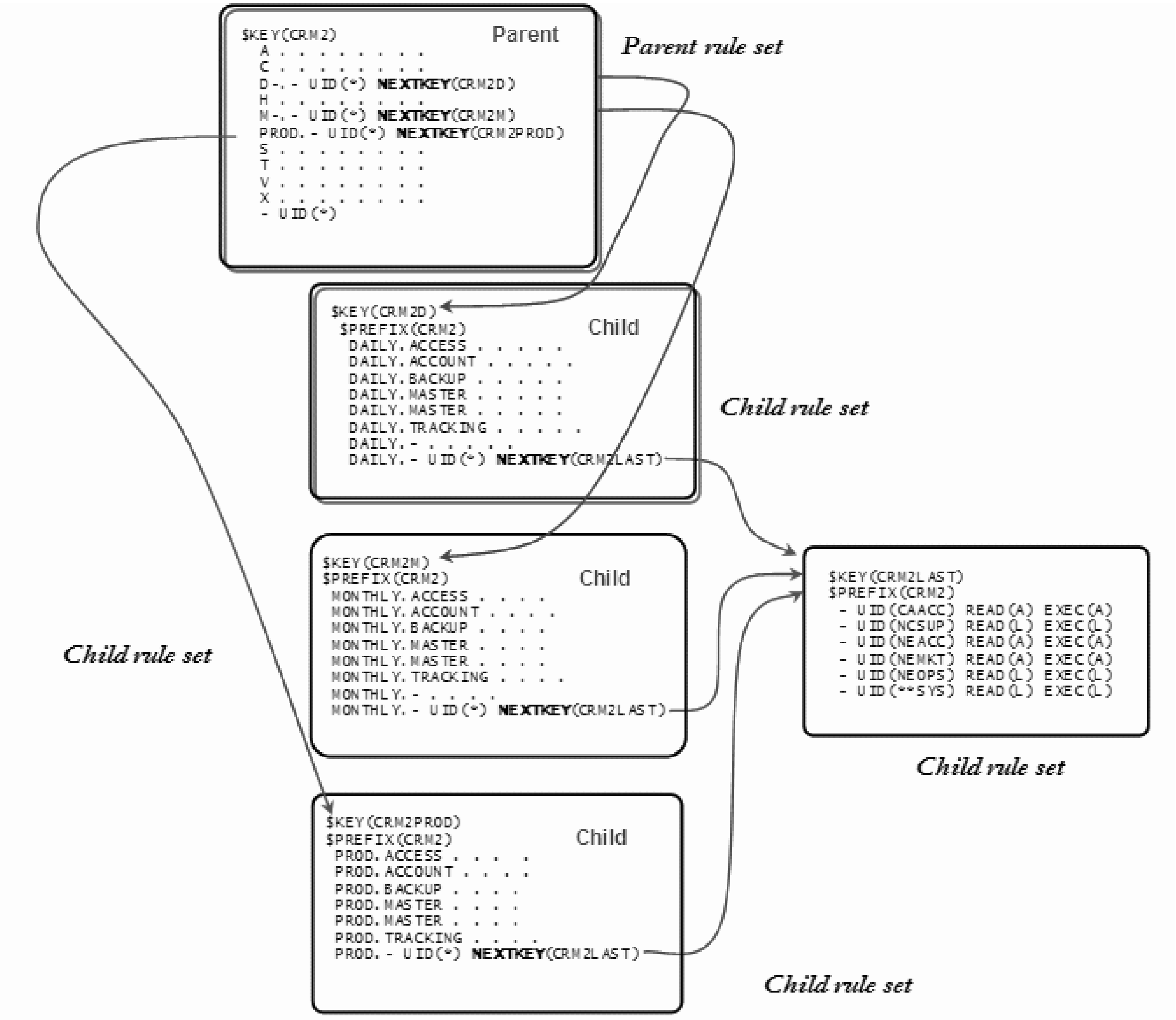
Figure 60. Example rule line

Review the diagrams in Figure 61 on page 45 for a visual reference of the data set names, NEXTKEY, and $KEY relationships.

Data set rule structure and NEXTKEYs

In Figure 61 on page 45, the parent rule set CRM2 has three NEXTKEY statements that point to child rule sets CRM2D, CRM2M, and CRM2PROD.

Child rule sets CRM2, CRM2M, and CRM2PROD point to child rule set CRM2LAST. This is a common rule chaining structure. Use the example in Figure 61 on page 45 to understand the NEXTKEY display in Figure 59 on page 44.



```
$KEY(CRM2)
  A . . . . . . . .
  C . . . . . . . .
  D-.- UID(*) NEXTKEY(CRM2D)
  H . . . . . . . .
  M-.- UID(*) NEXTKEY(CRM2M)
  PROD.- UID(*) NEXTKEY(CRM2PROD)
  S . . . . . . . .
  T . . . . . . . .
  V . . . . . . . .
  X . . . . . . . .
  - UID(*)
```

```
$KEY(CRM2D)
 $PREFIX(CRM2)
  DAILY.ACCESS . . . . .
  DAILY.ACCOUNT . . . . .
  DAILY.BACKUP . . . . .
  DAILY.MASTER . . . . .
  DAILY.MASTER . . . . .
  DAILY.TRACKING . . . . .
  DAILY.- . . . . .
  DAILY.- UID(*) NEXTKEY(CRM2LAST)
```

```
$KEY(CRM2M)
$PREFIX(CRM2)
 MONTHLY.ACCESS . . . .
 MONTHLY.ACCOUNT . . . .
 MONTHLY.BACKUP . . . .
 MONTHLY.MASTER . . . .
 MONTHLY.MASTER . . . .
 MONTHLY.TRACKING . . . .
 MONTHLY.- . . . .
 MONTHLY.- UID(*) NEXTKEY(CRM2LAST)
```

```
$KEY(CRM2LAST)
$PREFIX(CRM2)
 - UID(CAACC) READ(A) EXEC(A)
 - UID(NCSUP) READ(L) EXEC(L)
 - UID(NEACC) READ(A) EXEC(A)
 - UID(NEMKT) READ(A) EXEC(A)
 - UID(NEOPS) READ(L) EXEC(L)
 - UID(**SYS) READ(L) EXEC(L)
```

```
$KEY(CRM2PROD)
$PREFIX(CRM2)
 PROD.ACCESS . . . .
 PROD.ACCOUNT . . . .
 PROD.BACKUP . . . .
 PROD.MASTER . . . .
 PROD.MASTER . . . .
 PROD.TRACKING . . . .
 PROD.- UID(*) NEXTKEY(CRM2LAST)
```

Figure 61. Data set rule structure and NEXTKEYs

Displaying rules lines in expanded NEXTKEY format

About this task

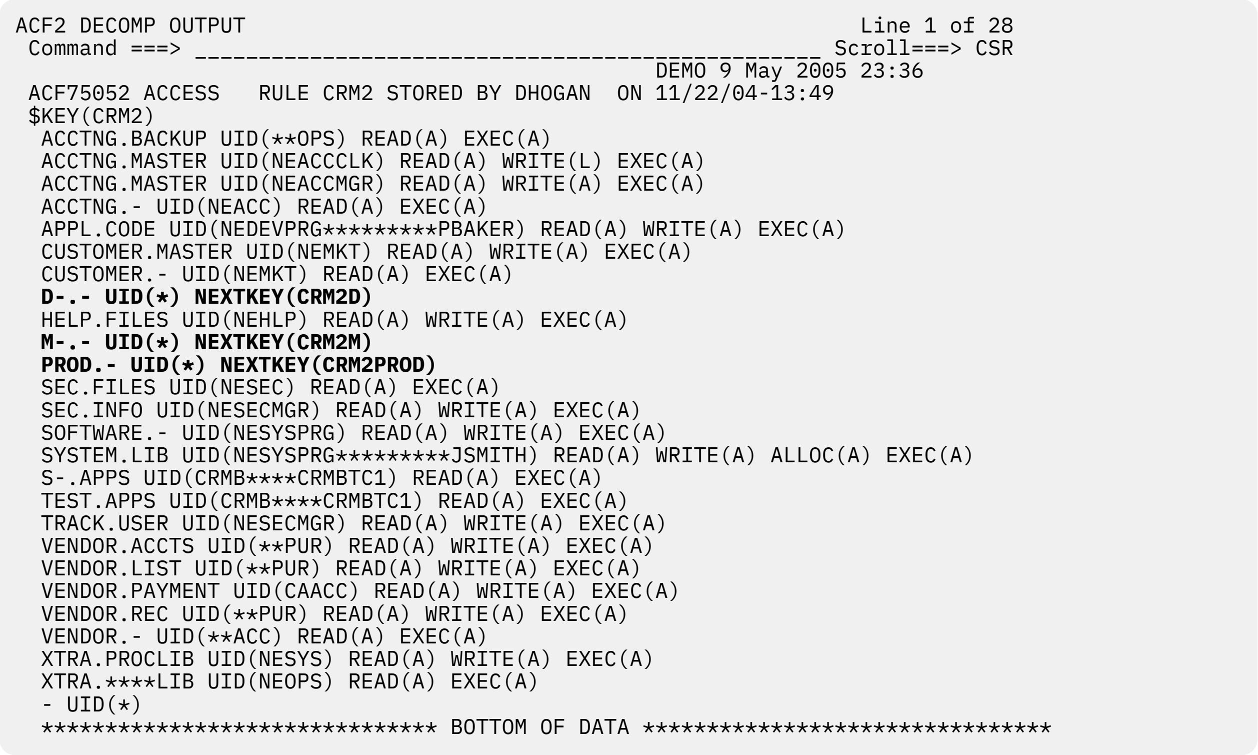
An easier approach to displaying NEXTKEYs is provided by the **Expand nextkey** option in the Rules Selection panel. See the previous rule example in "Data set rule structure and NEXTKEYs" on page 45 for the rule set CRM2. The following procedure shows an alternate approach to viewing NEXTKEYs for our rule set example.

Procedure

1. To use the expanded NEXTKEYs function, complete the steps in "Using the expanded NEXTKEYs function" on page 46.

2. To review the expanded NEXTKEY rule lines for each *X* line, complete the steps in “Reviewing the expanded NEXTKEY rule lines for each x line” on page 50.

   Figure 62 on page 46 shows the native ACF2 List display of the parent rule CRM2. The NEXTKEY statements are difficult to locate and you must list the child rules separately to view their rule lines. The expanded NEXTKEY function places structural information about one screen, making it much easier to view rule structure.



```
ACF2 DECOMP OUTPUT                                                Line 1 of 28
 Command ===> _________________________________________________ Scroll===> CSR
                                                  DEMO 9 May 2005 23:36
 ACF75052 ACCESS   RULE CRM2 STORED BY DHOGAN  ON 11/22/04-13:49
 $KEY(CRM2)
  ACCTNG.BACKUP UID(**OPS) READ(A) EXEC(A)
  ACCTNG.MASTER UID(NEACCCLK) READ(A) WRITE(L) EXEC(A)
  ACCTNG.MASTER UID(NEACCMGR) READ(A) WRITE(A) EXEC(A)
  ACCTNG.- UID(NEACC) READ(A) EXEC(A)
  APPL.CODE UID(NEDEVPRG*********PBAKER) READ(A) WRITE(A) EXEC(A)
  CUSTOMER.MASTER UID(NEMKT) READ(A) WRITE(A) EXEC(A)
  CUSTOMER.- UID(NEMKT) READ(A) EXEC(A)
  D-.- UID(*) NEXTKEY(CRM2D)
  HELP.FILES UID(NEHLP) READ(A) WRITE(A) EXEC(A)
  M-.- UID(*) NEXTKEY(CRM2M)
  PROD.- UID(*) NEXTKEY(CRM2PROD)
  SEC.FILES UID(NESEC) READ(A) EXEC(A)
  SEC.INFO UID(NESECMGR) READ(A) WRITE(A) EXEC(A)
  SOFTWARE.- UID(NESYSPRG) READ(A) WRITE(A) EXEC(A)
  SYSTEM.LIB UID(NESYSPRG*********JSMITH) READ(A) WRITE(A) ALLOC(A) EXEC(A)
  S-.APPS UID(CRMB****CRMBTC1) READ(A) EXEC(A)
  TEST.APPS UID(CRMB****CRMBTC1) READ(A) EXEC(A)
  TRACK.USER UID(NESECMGR) READ(A) WRITE(A) EXEC(A)
  VENDOR.ACCTS UID(**PUR) READ(A) WRITE(A) EXEC(A)
  VENDOR.LIST UID(**PUR) READ(A) WRITE(A) EXEC(A)
  VENDOR.PAYMENT UID(CAACC) READ(A) WRITE(A) EXEC(A)
  VENDOR.REC UID(**PUR) READ(A) WRITE(A) EXEC(A)
  VENDOR.- UID(**ACC) READ(A) EXEC(A)
  XTRA.PROCLIB UID(NESYS) READ(A) WRITE(A) EXEC(A)
  XTRA.****LIB UID(NEOPS) READ(A) EXEC(A)
  - UID(*)
  ******************************* BOTTOM OF DATA ********************************
```

Figure 62. ACF2 Rule List display

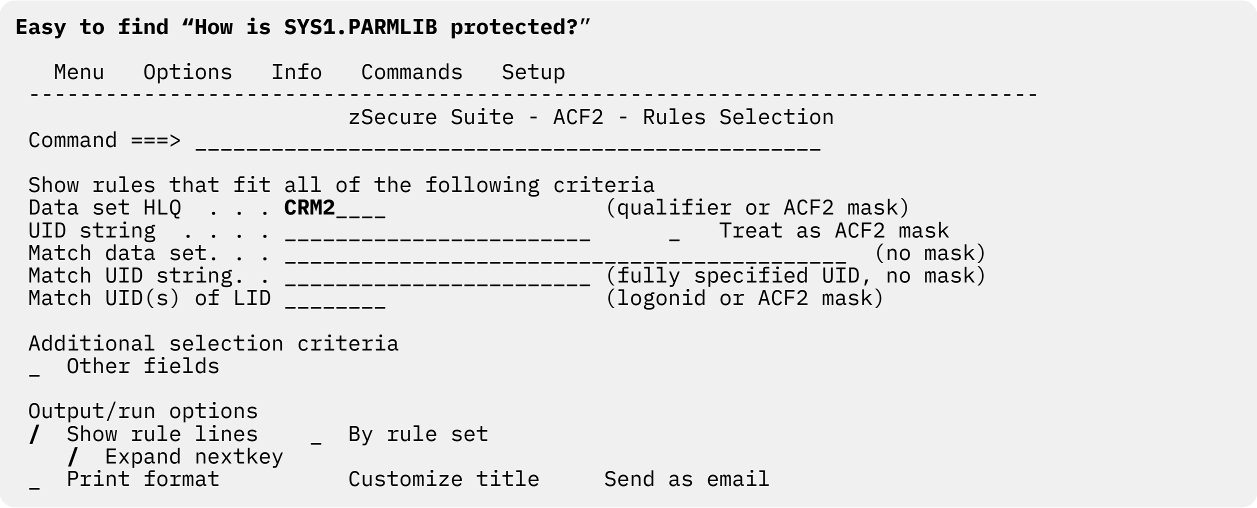
Using the expanded NEXTKEYs function

About this task

The **Expand nextkey** option in the Rules Selection panel provides an easy approach to displaying NEXTKEYs.

Procedure

1. In the Rules Selection panel, type the high-level qualifier in the **data set HLQ** field. This example uses CRM2.
2. Select the **Show rule lines** option by using the forward slash (/) character.
3. Select the **Expand nextkey** option by using the forward slash (/) character.

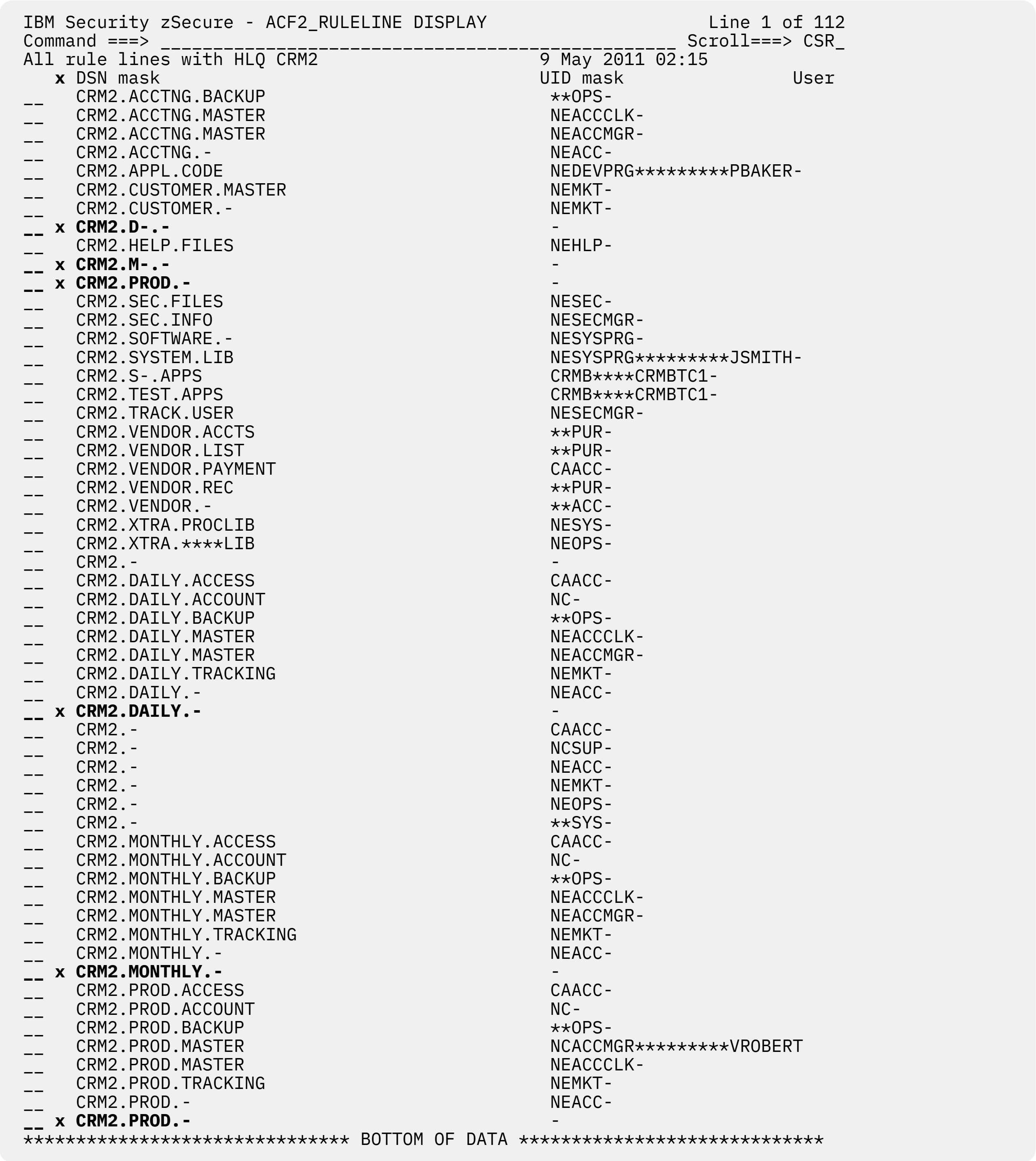


Easy to find “How is SYS1.PARMLIB protected?”

```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                         zSecure Suite - ACF2 - Rules Selection
Command ===> _________________________________________________

Show rules that fit all of the following criteria
Data set HLQ  . . . CRM2____                 (qualifier or ACF2 mask)
UID string  . . . . ________________________      _   Treat as ACF2 mask
Match data set. . . ____________________________________________  (no mask)
Match UID string. . ________________________ (fully specified UID, no mask)
Match UID(s) of LID ________                 (logonid or ACF2 mask)

Additional selection criteria
_  Other fields

Output/run options
/  Show rule lines     _  By rule set
   /  Expand nextkey
_  Print format          Customize title     Send as email
```

Figure 63. Expanded NEXTKEY function

4. Press Enter to view the results as shown in Figure 64 on page 48.

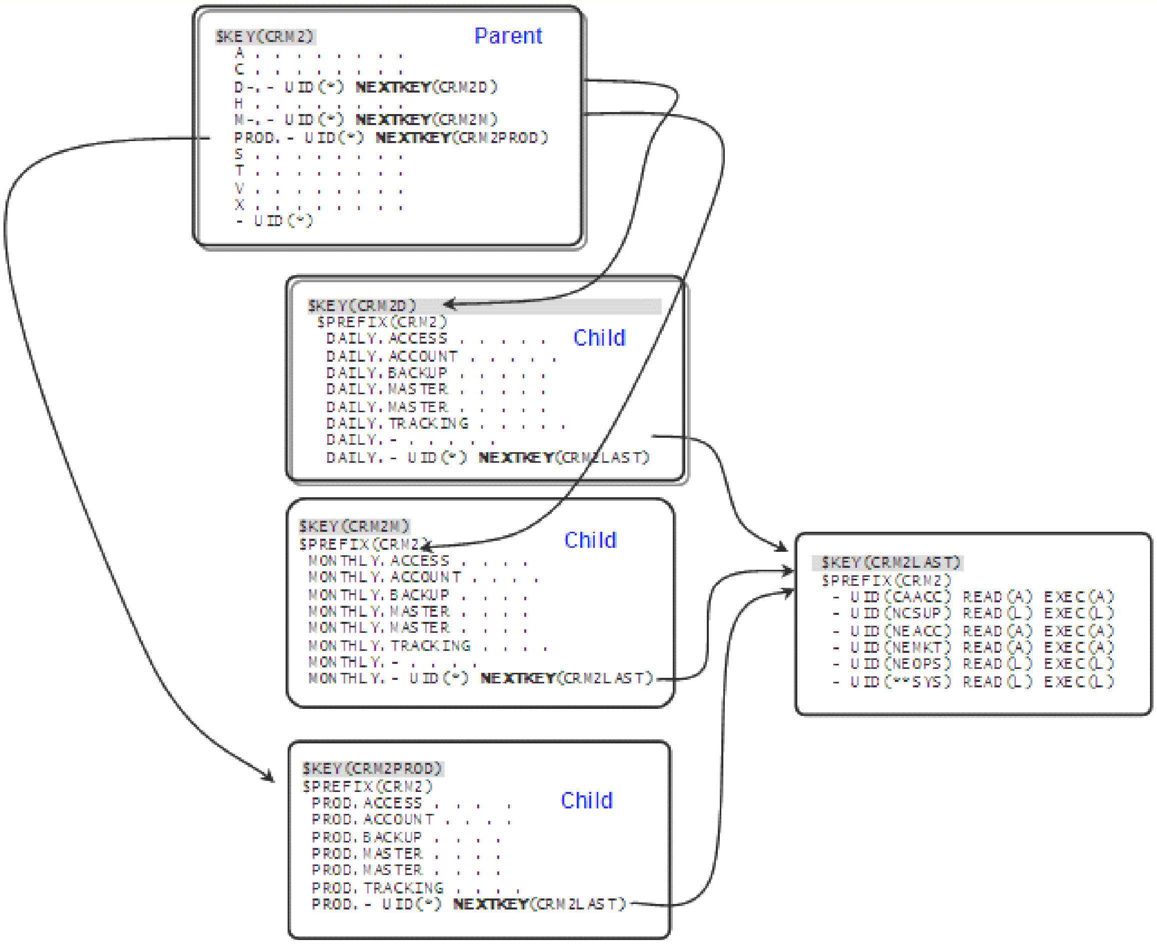


```
IBM Security zSecure - ACF2_RULELINE DISPLAY                     Line 1 of 112
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2                     9 May 2011 02:15
   x DSN mask                                    UID mask                User
__   CRM2.ACCTNG.BACKUP                           **OPS-
__   CRM2.ACCTNG.MASTER                           NEACCCLK-
__   CRM2.ACCTNG.MASTER                           NEACCMGR-
__   CRM2.ACCTNG.-                                NEACC-
__   CRM2.APPL.CODE                               NEDEVPRG*********PBAKER-
__   CRM2.CUSTOMER.MASTER                         NEMKT-
__   CRM2.CUSTOMER.-                              NEMKT-
__ x CRM2.D-.-                                    -
__   CRM2.HELP.FILES                              NEHLP-
__ x CRM2.M-.-                                    -
__ x CRM2.PROD.-                                  -
__   CRM2.SEC.FILES                               NESEC-
__   CRM2.SEC.INFO                                NESECMGR-
__   CRM2.SOFTWARE.-                              NESYSPRG-
__   CRM2.SYSTEM.LIB                              NESYSPRG*********JSMITH-
__   CRM2.S-.APPS                                 CRMB****CRMBTC1-
__   CRM2.TEST.APPS                               CRMB****CRMBTC1-
__   CRM2.TRACK.USER                              NESECMGR-
__   CRM2.VENDOR.ACCTS                            **PUR-
__   CRM2.VENDOR.LIST                             **PUR-
__   CRM2.VENDOR.PAYMENT                          CAACC-
__   CRM2.VENDOR.REC                              **PUR-
__   CRM2.VENDOR.-                                **ACC-
__   CRM2.XTRA.PROCLIB                            NESYS-
__   CRM2.XTRA.****LIB                            NEOPS-
__   CRM2.-                                       -
__   CRM2.DAILY.ACCESS                            CAACC-
__   CRM2.DAILY.ACCOUNT                           NC-
__   CRM2.DAILY.BACKUP                            **OPS-
__   CRM2.DAILY.MASTER                            NEACCCLK-
__   CRM2.DAILY.MASTER                            NEACCMGR-
__   CRM2.DAILY.TRACKING                          NEMKT-
__   CRM2.DAILY.-                                 NEACC-
__ x CRM2.DAILY.-                                 -
__   CRM2.-                                       CAACC-
__   CRM2.-                                       NCSUP-
__   CRM2.-                                       NEACC-
__   CRM2.-                                       NEMKT-
__   CRM2.-                                       NEOPS-
__   CRM2.-                                       **SYS-
__   CRM2.MONTHLY.ACCESS                          CAACC-
__   CRM2.MONTHLY.ACCOUNT                         NC-
__   CRM2.MONTHLY.BACKUP                          **OPS-
__   CRM2.MONTHLY.MASTER                          NEACCCLK-
__   CRM2.MONTHLY.MASTER                          NEACCMGR-
__   CRM2.MONTHLY.TRACKING                        NEMKT-
__   CRM2.MONTHLY.-                               NEACC-
__ x CRM2.MONTHLY.-                               -
__   CRM2.PROD.ACCESS                             CAACC-
__   CRM2.PROD.ACCOUNT                            NC-
__   CRM2.PROD.BACKUP                             **OPS-
__   CRM2.PROD.MASTER                             NCACCMGR*********VROBERT
__   CRM2.PROD.MASTER                             NEACCCLK-
__   CRM2.PROD.TRACKING                           NEMKT-
__   CRM2.PROD.-                                  NEACC-
__ x CRM2.PROD.-                                  -
******************************* BOTTOM OF DATA ******************************
```

Figure 64. Rule display that shows status of expanded NEXTKEY function for each rule

Figure 64 on page 48 shows another view of the entire parent rule set CRM2. This display has an additional column **x** for NEXTKEYed rule lines. The column indicates whether the rule line has an expanded NEXTKEY that you can view in more detail. Each line with an **x** directs ACF2 rule processing to another rule set, the child rule, for further rule validation processing.

To understand the NEXTKEY concept, recall the previous example of the CRM2 rule. The parent CRM2 contains three NEXTKEY statements, pointing to three child rule sets, CRM2D, CRM2M, and CRM2PROD (Figure 65 on page 49). These child rule sets contain a NEXTKEY statement that points to CRM2LAST, the catchall for all other CRM2 data sets. Figure 65 on page 49 illustrates this example.



```
$KEY(CRM2)
  A . . . . . . . .
  C . . . . . . . .
  D-.- UID(*) NEXTKEY(CRM2D)
  H . . . . . . . .
  M-.- UID(*) NEXTKEY(CRM2M)
  PROD.- UID(*) NEXTKEY(CRM2PROD)
  S . . . . . . . .
  T . . . . . . . .
  V . . . . . . . .
  X . . . . . . . .
  - UID(*)
```

```
$KEY(CRM2D)
 $PREFIX(CRM2)
  DAILY.ACCESS . . . . .
  DAILY.ACCOUNT . . . . .
  DAILY.BACKUP . . . . .
  DAILY.MASTER . . . . .
  DAILY.MASTER . . . . .
  DAILY.TRACKING . . . . .
  DAILY.- . . . . .
  DAILY.- UID(*) NEXTKEY(CRM2LAST)
```

```
$KEY(CRM2M)
$PREFIX(CRM2)
 MONTHLY.ACCESS . . . .
 MONTHLY.ACCOUNT . . . .
 MONTHLY.BACKUP . . . .
 MONTHLY.MASTER . . . .
 MONTHLY.MASTER . . . .
 MONTHLY.TRACKING . . . .
 MONTHLY.- . . . .
 MONTHLY.- UID(*) NEXTKEY(CRM2LAST)
```

```
$KEY(CRM2PROD)
$PREFIX(CRM2)
 PROD.ACCESS . . . .
 PROD.ACCOUNT . . . .
 PROD.BACKUP . . . .
 PROD.MASTER . . . .
 PROD.MASTER . . . .
 PROD.TRACKING . . . .
 PROD.- UID(*) NEXTKEY(CRM2LAST)
```

```
$KEY(CRM2LAST)
$PREFIX(CRM2)
 - UID(CAACC) READ(A) EXEC(A)
 - UID(NCSUP) READ(L) EXEC(L)
 - UID(NEACC) READ(A) EXEC(A)
 - UID(NEMKT) READ(A) EXEC(A)
 - UID(NEOPS) READ(L) EXEC(L)
 - UID(**SYS) READ(L) EXEC(L)
```

Figure 65. Rule structure

Figure 66 on page 49 is an abbreviated display of only the NEXTKEYed rule lines for ease in understanding the **x** column. Only the **x** columns are shown in Figure 66 on page 49. This example is for demonstration purposes only.

The NEXTKEY entries in Figure 66 on page 49 match the entries in Figure 64 on page 48 and Figure 65 on page 49. These figures are different views of the same rule.

```
IBM Security zSecure - ACF2_RULELINE DISPLAY                      Line 15 of 112
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2                         9 May 2011 02:33
   x DSN mask                                         NextKey  Complex  $Key
S_ x CRM2.D-.-                                        CRM2D    DEMO     CRM2
. . .
. . .
__ x CRM2.M-.-                                        CRM2M    DEMO     CRM2
__ x CRM2.PROD.-                                      CRM2PROD DEMO     CRM2
. . .
. . .
__ x CRM2.DAILY.-                                     CRM2LAST DEMO     CRM2D
. . .
. . .
__ x CRM2.MONTHLY.-                                   CRM2LAST DEMO     CRM2M
. . .
. . .
__ x CRM2.PROD.-                                      CRM2LAST DEMO     CRM2PROD
. . .
. . .
```

Figure 66. Expanded NextKey function

Reviewing the expanded NEXTKEY rule lines for each *x* line

Before you begin

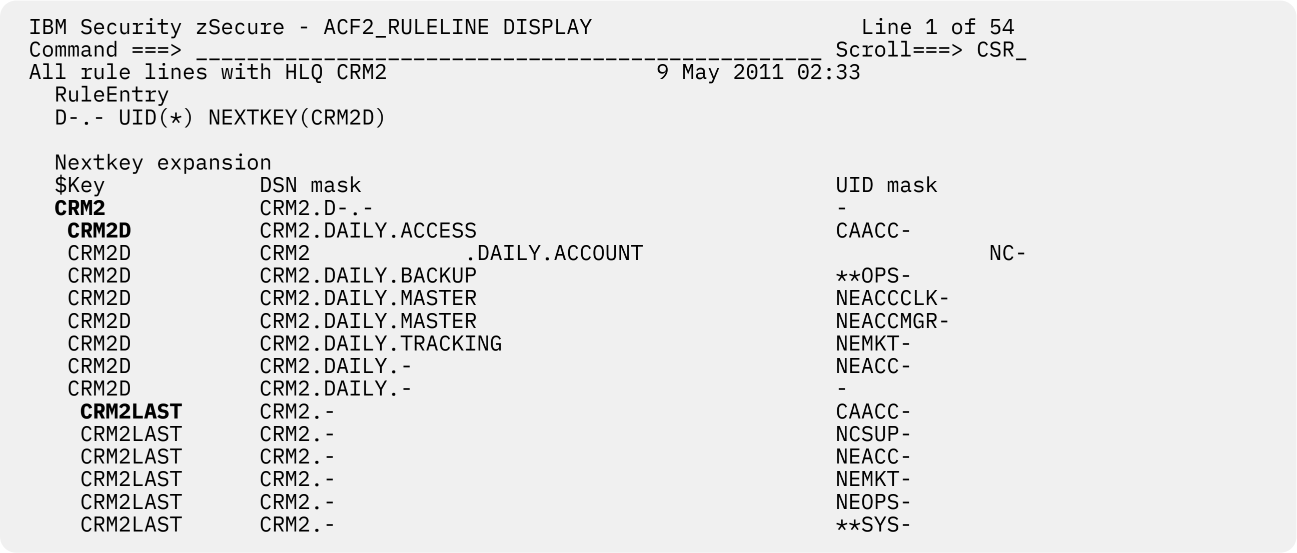
Complete the procedure described in “Using the expanded NEXTKEYs function” on page 46.

Procedure

1. Type the selection character S beside the line you want.
2. Press Enter to open the display panel shown in Figure 67 on page 50

   In this example, CRM2 points to CRM2D, which points to CRM2LAST.

Results



```
IBM Security zSecure - ACF2_RULELINE DISPLAY                     Line 1 of 54
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2                     9 May 2011 02:33
  RuleEntry
  D-.- UID(*) NEXTKEY(CRM2D)

  Nextkey expansion
  $Key           DSN mask                                      UID mask
  CRM2           CRM2.D-.-                                     -
   CRM2D         CRM2.DAILY.ACCESS                             CAACC-
   CRM2D         CRM2            .DAILY.ACCOUNT                            NC-
   CRM2D         CRM2.DAILY.BACKUP                             **OPS-
   CRM2D         CRM2.DAILY.MASTER                             NEACCCLK-
   CRM2D         CRM2.DAILY.MASTER                             NEACCMGR-
   CRM2D         CRM2.DAILY.TRACKING                           NEMKT-
   CRM2D         CRM2.DAILY.-                                  NEACC-
   CRM2D         CRM2.DAILY.-                                  -
    CRM2LAST     CRM2.-                                        CAACC-
    CRM2LAST     CRM2.-                                        NCSUP-
    CRM2LAST     CRM2.-                                        NEACC-
    CRM2LAST     CRM2.-                                        NEMKT-
    CRM2LAST     CRM2.-                                        NEOPS-
    CRM2LAST     CRM2.-                                        **SYS-
```

Figure 67. Expanded NEXTKEY function

The **Expand nextkey** option represents a visual of the rule set structure by expanding each NEXTKEY statement. The NEXTKEYs are indented, showing the relationship from parent rule to child rule and also the applicable data set name or data set name mask.

Figure 67 on page 50 shows an example of an expanded NEXTKEY showing the **$Key** column with CRM2 as the parent rule and the indented entries underneath. This example has the following characteristics:

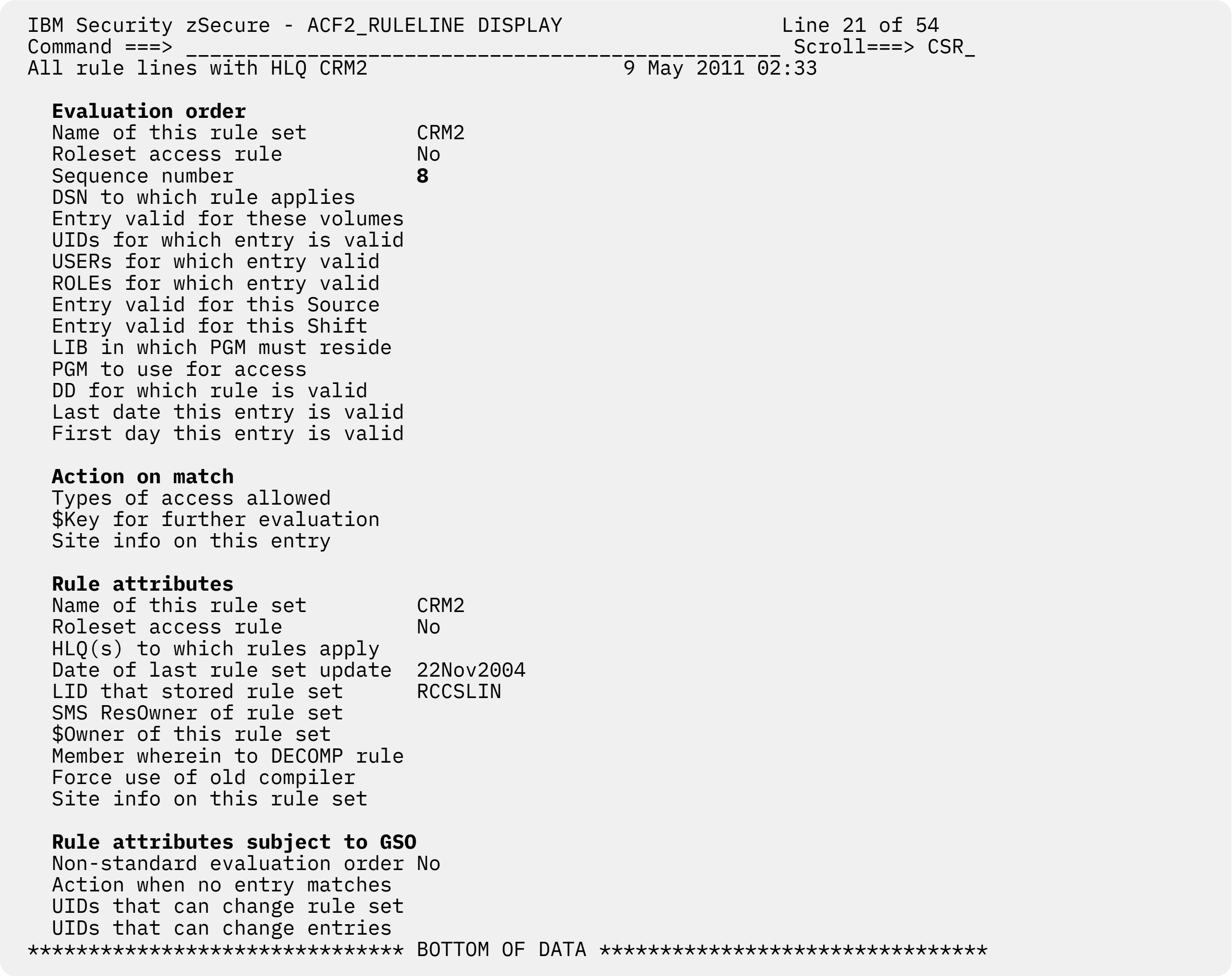
- The parent rule CRM2 has the `NEXTKEY(CRM2D)` for the data set name mask of `CRM2.D-.-`. Rule validation for these data sets is determined by the child rule CRM2D.
- The CRM2D indented entries are the actual CRM2D child rule set for all the data sets that match the mask. Data set access for these data sets are controlled in the child rule, CRM2D.
- CRM2D has the `NEXTKEY(CRM2LAST)` for all other CRM2.DAILY.- data set access. Rule validation for any of these data sets is determined by the child rule CRM2LAST.

The expanded NEXTKEY function also provides the following additional information:

- Evaluation order
- Action on match
- Rule attributes
- Rule attributes subject to GSO

In Figure 68 on page 51, the **Sequence number** field indicates that the rule line displayed is number 8 within the parent rule.

```
D-.- UID(*) NEXTKEY(CRM2D)
```



```
IBM Security zSecure - ACF2_RULELINE DISPLAY                  Line 21 of 54
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2                     9 May 2011 02:33

  Evaluation order
  Name of this rule set         CRM2
  Roleset access rule           No
  Sequence number               8
  DSN to which rule applies
  Entry valid for these volumes
  UIDs for which entry is valid
  USERs for which entry valid
  ROLEs for which entry valid
  Entry valid for this Source
  Entry valid for this Shift
  LIB in which PGM must reside
  PGM to use for access
  DD for which rule is valid
  Last date this entry is valid
  First day this entry is valid

  Action on match
  Types of access allowed
  $Key for further evaluation
  Site info on this entry

  Rule attributes
  Name of this rule set         CRM2
  Roleset access rule           No
  HLQ(s) to which rules apply
  Date of last rule set update  22Nov2004
  LID that stored rule set      RCCSLIN
  SMS ResOwner of rule set
  $Owner of this rule set
  Member wherein to DECOMP rule
  Force use of old compiler
  Site info on this rule set

  Rule attributes subject to GSO
  Non-standard evaluation order No
  Action when no entry matches
  UIDs that can change rule set
  UIDs that can change entries
******************************* BOTTOM OF DATA ********************************
```

Figure 68. Additional rule information

The expanded NEXTKEY provides a great visual for understanding rule structures. Without this capability, NEXTKEY branching is difficult to follow.

Viewing individual data set rule lines

About this task

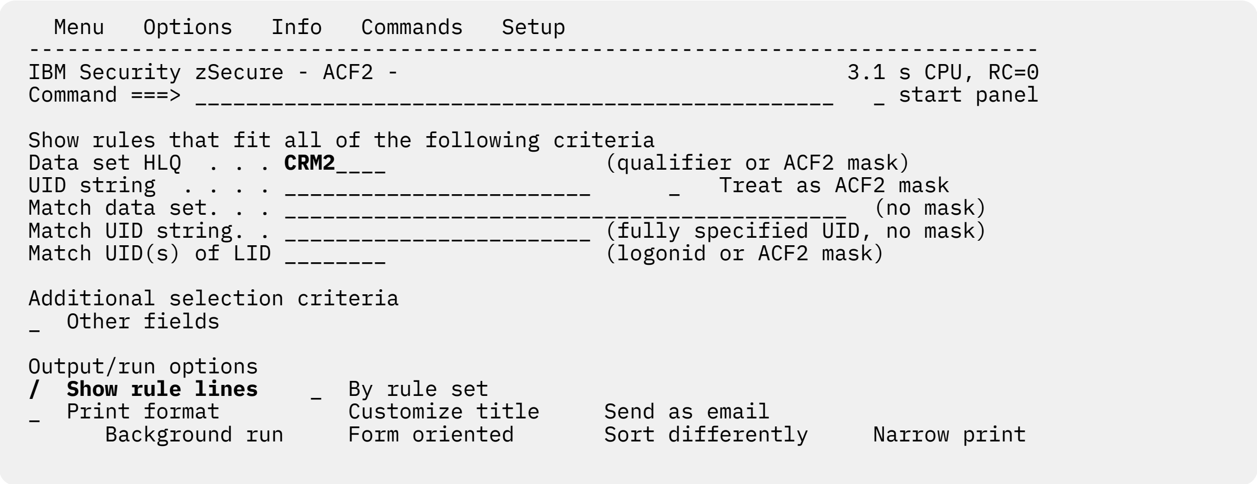
You can view individual rule lines by specifying the high-level qualifier.

Procedure

To view individual rule lines, complete the following steps:

1. Press PF3 to return to the Rules Selection panel.
2. Type a high-level qualifier in the **Data set HLQ** field.

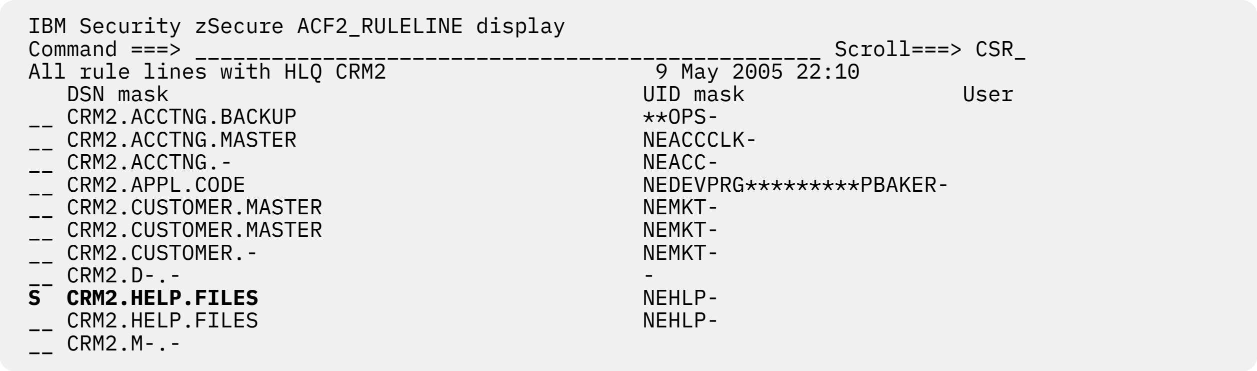
   The last high-level qualifier requested remains present in this field. The example in Figure 69 on page 52 uses the qualifier CRM2
3. Leave the forward slash (/) character in the **Show rule lines** field as shown in Figure 69 on page 52.



```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
IBM Security zSecure - ACF2 -                                   3.1 s CPU, RC=0
Command ===> __________________________________________________   _ start panel

Show rules that fit all of the following criteria
Data set HLQ  . . . CRM2____                 (qualifier or ACF2 mask)
UID string  . . . . ________________________      _   Treat as ACF2 mask
Match data set. . . ____________________________________________  (no mask)
Match UID string. . ________________________ (fully specified UID, no mask)
Match UID(s) of LID ________                 (logonid or ACF2 mask)

Additional selection criteria
_  Other fields

Output/run options
/  Show rule lines    _  By rule set
_  Print format          Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 69. Preparation for viewing individual rule line

4. Press Enter to open the Rule display panel shown in Figure 70 on page 52.

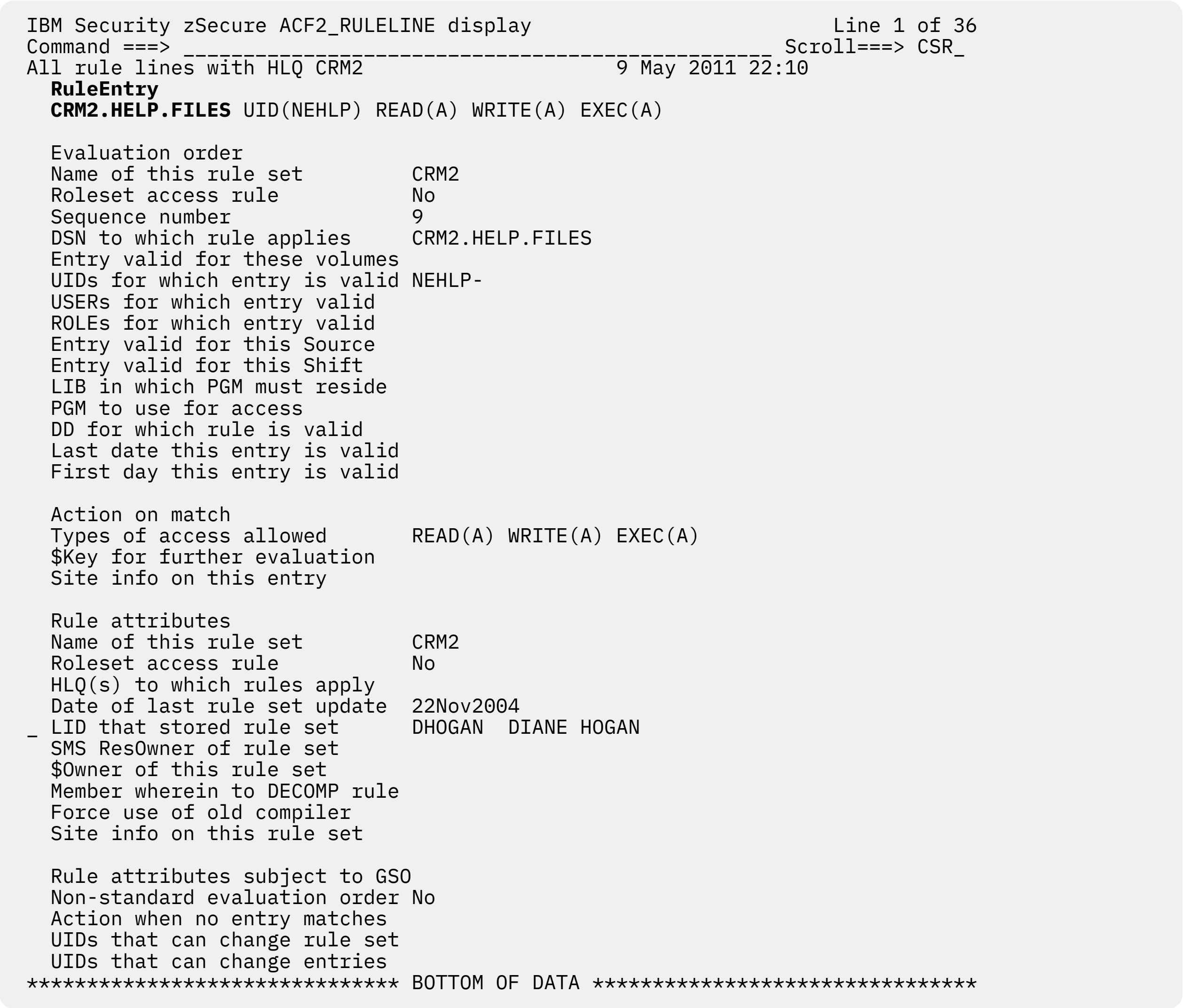


```
IBM Security zSecure ACF2_RULELINE display
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2                     9 May 2005 22:10
   DSN mask                                     UID mask                 User
__ CRM2.ACCTNG.BACKUP                           **OPS-
__ CRM2.ACCTNG.MASTER                           NEACCCLK-
__ CRM2.ACCTNG.-                                NEACC-
__ CRM2.APPL.CODE                               NEDEVPRG*********PBAKER-
__ CRM2.CUSTOMER.MASTER                         NEMKT-
__ CRM2.CUSTOMER.MASTER                         NEMKT-
__ CRM2.CUSTOMER.-                              NEMKT-
__ CRM2.D-.-                                    -
S  CRM2.HELP.FILES                              NEHLP-
__ CRM2.HELP.FILES                              NEHLP-
__ CRM2.M-.-
```

Figure 70. Viewing rule lines for selected high-level qualifier

In the Rule display panel (Figure 70 on page 52), you can select a specific rule line to view more information or press PF11 to scroll sideways. Selecting a specific rule line displays additional information that is not available when scrolling sideways.

In Figure 71 on page 53, you can view detailed information for the selected rule line `CRM2.HELP.FILES`.



```
IBM Security zSecure ACF2_RULELINE display                         Line 1 of 36
Command ===> _________________________________________________ Scroll===> CSR_
All rule lines with HLQ CRM2                     9 May 2011 22:10
  RuleEntry
  CRM2.HELP.FILES UID(NEHLP) READ(A) WRITE(A) EXEC(A)

  Evaluation order
  Name of this rule set         CRM2
  Roleset access rule           No
  Sequence number               9
  DSN to which rule applies     CRM2.HELP.FILES
  Entry valid for these volumes
  UIDs for which entry is valid NEHLP-
  USERs for which entry valid
  ROLEs for which entry valid
  Entry valid for this Source
  Entry valid for this Shift
  LIB in which PGM must reside
  PGM to use for access
  DD for which rule is valid
  Last date this entry is valid
  First day this entry is valid

  Action on match
  Types of access allowed       READ(A) WRITE(A) EXEC(A)
  $Key for further evaluation
  Site info on this entry

  Rule attributes
  Name of this rule set         CRM2
  Roleset access rule           No
  HLQ(s) to which rules apply
  Date of last rule set update  22Nov2004
_ LID that stored rule set      DHOGAN  DIANE HOGAN
  SMS ResOwner of rule set
  $Owner of this rule set
  Member wherein to DECOMP rule
  Force use of old compiler
  Site info on this rule set

  Rule attributes subject to GSO
  Non-standard evaluation order No
  Action when no entry matches
  UIDs that can change rule set
  UIDs that can change entries
******************************* BOTTOM OF DATA ********************************
```

Figure 71. Additional rule line details

The **RuleEntry** heading provides the following information:

- The data set name is specified.
- The uid string is listed.
- All users in the location NE and the department HLP can read, write, and execute against the CRM2.HELP.FILES data set.

Any other environmental parameters would be listed in this section alongside the corresponding item. This example does not have additional environmental parameters.

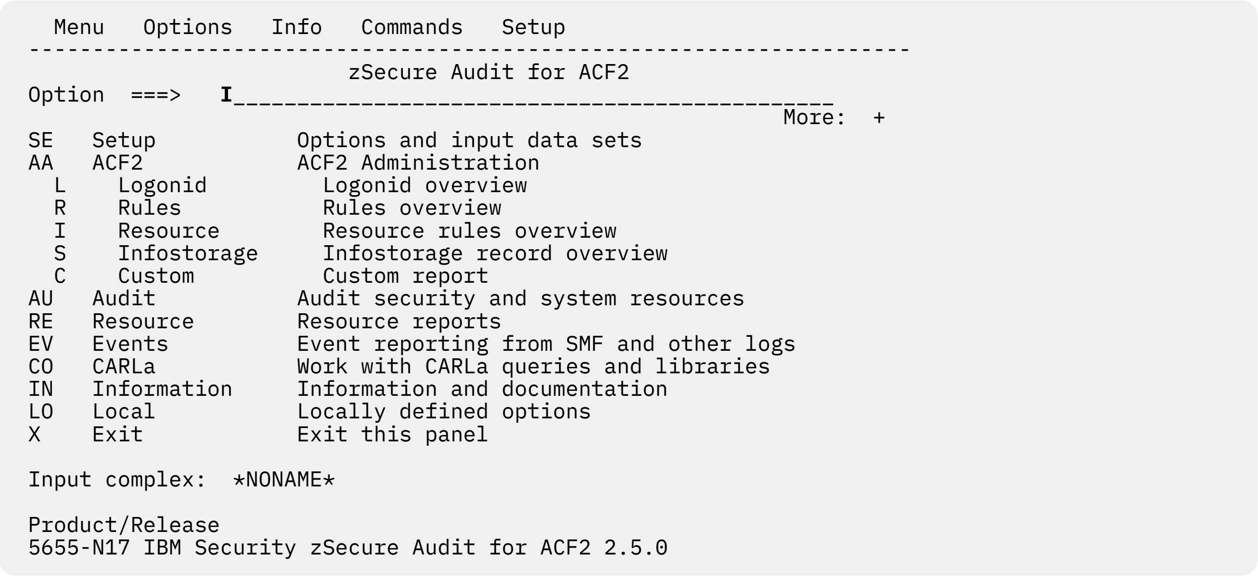
To view the remaining rule line details, press PF8 until you see Bottom of Data.

Viewing a resource rule

Procedure

To work with resource rules, complete the following steps:

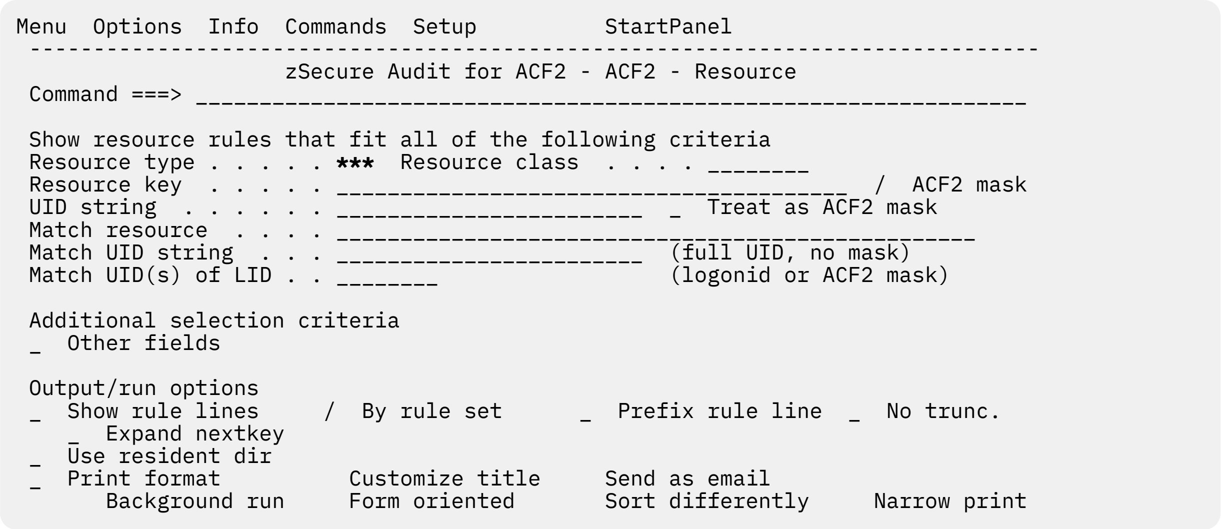
1. Press PF3 to return to the Main menu.
2. Type I, which is Resource rule overview, in the Option line as shown in Figure 72 on page 54.



```
  Menu   Options   Info   Commands   Setup
---------------------------------------------------------------------
                         zSecure Audit for ACF2
Option  ===>   I_______________________________________________
                                                           More:  +
SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
  L    Logonid         Logonid overview
  R    Rules           Rules overview
  I    Resource        Resource rules overview
  S    Infostorage     Infostorage record overview
  C    Custom          Custom report
AU   Audit           Audit security and system resources
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

Input complex:  *NONAME*

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 72. Select Resource rules overview

3. Press Enter to open the **Resource** panel.
4. To view all resource rule types, complete the following steps:
   a) In the **Resource** panel, type three asterisks (***) in the **Resource type** field to mask it as shown in Figure 73 on page 54.



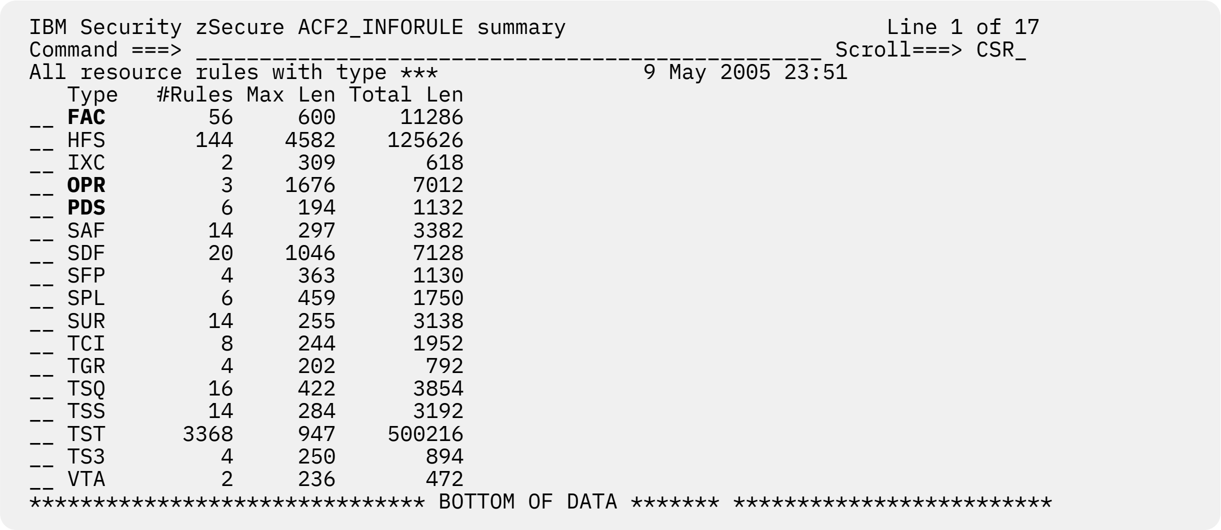
```
Menu  Options  Info  Commands  Setup          StartPanel
 -------------------------------------------------------------------------------
                    zSecure Audit for ACF2 - ACF2 - Resource
 Command ===> _________________________________________________________________

 Show resource rules that fit all of the following criteria
 Resource type . . . . . ***  Resource class  . . . . ________
 Resource key  . . . . . ________________________________________  /  ACF2 mask
 UID string  . . . . . . ________________________  _  Treat as ACF2 mask
 Match resource  . . . . ________________________________________________
 Match UID string  . . . ________________________  (full UID, no mask)
 Match UID(s) of LID . . ________                  (logonid or ACF2 mask)

 Additional selection criteria
 _  Other fields

 Output/run options
 _  Show rule lines     /  By rule set      _  Prefix rule line  _  No trunc.
    _  Expand nextkey
 _  Use resident dir
 _  Print format          Customize title     Send as email
       Background run     Form oriented       Sort differently     Narrow print
```

Figure 73. Mask the resource type field to view all resource types

   b) Press Enter.

      Resource rules contain a two-part key: the resource name and the resource type code. The type code is always three characters and is descriptive of the type or category of resource rule. For example, the OPR type code represents Operator Commands. Resource rules with this type code control the use of JES and MVS operator commands.

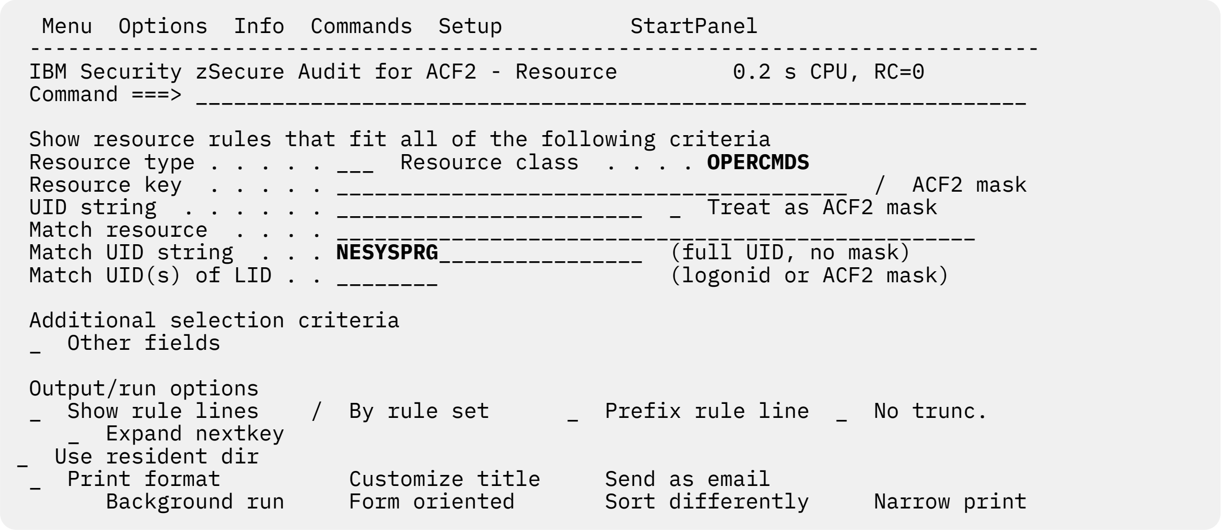
      Figure 74 on page 55 displays a list of all resource type codes for our sample ACF2 database. Masking the resource type field provides an excellent starting point for analysis of resource rules. Notice the column heading **#Rules**. The example shows that there are 56 resource rules with a type code of FAC (Facility rules). There are also three resource rules with a type code of OPR (Operator Command rules), and six resource rules with a type code of PDS (Partitioned data set rules).



```
IBM Security zSecure ACF2_INFORULE summary                         Line 1 of 17
Command ===> ________________________________________________ Scroll===> CSR_
All resource rules with type ***                 9 May 2005 23:51
   Type   #Rules Max Len Total Len
__ FAC        56     600     11286
__ HFS       144    4582    125626
__ IXC         2     309       618
__ OPR         3    1676      7012
__ PDS         6     194      1132
__ SAF        14     297      3382
__ SDF        20    1046      7128
__ SFP         4     363      1130
__ SPL         6     459      1750
__ SUR        14     255      3138
__ TCI         8     244      1952
__ TGR         4     202       792
__ TSQ        16     422      3854
__ TSS        14     284      3192
__ TST      3368     947    500216
__ TS3         4     250       894
__ VTA         2     236       472
******************************* BOTTOM OF DATA ******* *************************
```

Figure 74. List of resource rule type codes.

Resource rules can also be shown by providing the MVS eight-character resource class name, such as OPERCMDS and a uid string as shown in Figure 75 on page 55. This selection criteria finds the users who have access to the MVS eight-character resource class name - OPERCMDS uid(……….) within the uid NESYSPRG.



```
 Menu  Options  Info  Commands  Setup          StartPanel
--------------------------------------------------------------------------------
IBM Security zSecure Audit for ACF2 - Resource         0.2 s CPU, RC=0
Command ===> _________________________________________________________________

Show resource rules that fit all of the following criteria
Resource type . . . . . ___  Resource class  . . . . OPERCMDS
Resource key  . . . . . ________________________________________  /  ACF2 mask
UID string  . . . . . . ________________________  _  Treat as ACF2 mask
Match resource  . . . . __________________________________________________
Match UID string  . . . NESYSPRG________________  (full UID, no mask)
Match UID(s) of LID . . ________                  (logonid or ACF2 mask)

Additional selection criteria
_  Other fields

Output/run options
_  Show rule lines    /  By rule set      _  Prefix rule line  _  No trunc.
   _  Expand nextkey
_  Use resident dir
_  Print format          Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 75. Display of resource rule JES within the class OPERCMDS.*

Chapter 4. Infostorage records

Scope and cross-reference records are stored in the Infostorage database and are not resource rules. They are definitions of relationships.

Use the Infostorage functions to perform the following tasks:

- Review SCOPE records – SCOPE(SCP)
- Review cross-reference records – XREF(RGP), XREF(SGP), and XREF(ROL)
- Review SAFDEF records – SAFDEF(GSO)
- Review SAFELIST/PROTLIST (CIC)

Infostorage record types and attributes

The Infostorage database contains definitions and resource rules. As described in Chapter 1, "Overview," on page 1, the Infostorage database is like a filing cabinet with many drawers. Each drawer has the following attributes:

- Uniquely labeled, containing a special type of record such as resource rules, scope records, and cross-reference records.
- Identified with a Class value to represent the drawer contents. See Table 12 on page 57.
- Can contain multiple folders, each with a unique three-character type code to further identify the contents

Table 12 on page 57 lists the InfoStorage database class values and descriptions. You can think of each row, or class, of the table as representing a drawer in the database.

Table 12. InfoStorage database class values and descriptions

ClassValues	Description
C	Control records
D	Db2 records
E	Entry records
F	Field records
I	Identity records
M	Mandatory Access Control
P	Profile records
R	Resource Rule records
S	Scope records SCP
T	Shift records
V	ACF2/VAX records
X	Cross-reference records SGP, RGP, ROL

This table provides an overview of the records in the InfoStorage database. For zSecure Audit for ACF2, the records of interest are the Scope, Cross-reference, SAFDEF, and SAFELIST/PROTLIST records, which have the following characteristics:

- Scope records have a type code of SCP.

SCOPE records reside in the S drawer or class of the Infostorage database as shown in Table 12 on page 57.

- Cross-reference records have three types: RGP, SGP, and ROL.

  Cross-reference records reside in the X drawer or class of the Infostorage database as shown in Table 12 on page 57.

  - RGP records are resource groups.

    Resource groups represent resource rules that are grouped for ease in rule writing.
  - SGP records represent source groups.

    Source groups are used to control access to a resource such as an application, system entry, or a transaction. Access to a resource can be controlled through a Logon ID field or a rule.
  - ROL records represent role groups.

    Role groups are used to aggregate users and separately aggregate accesses to functions, and then relate user access to the performance of those functions.
- SAFDEF (GSO) records have a type code of GSO. SAFDEF records reside in the C drawer or class of the Infostorage database.
- SAFELIST/PROTLIST (CIC) records have a type code of CIC. SAFELIST/PROTLIST records reside in the C drawer or class of the Infostorage database.

Viewing scope records

About this task

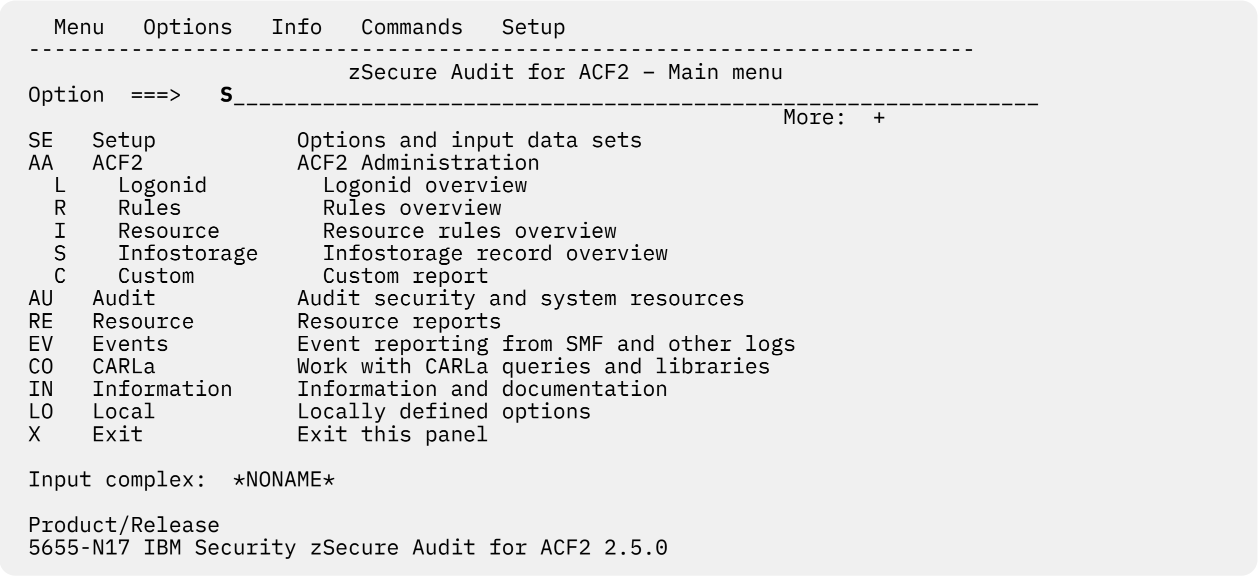
ACF2 Scoping provides control over the security administrative Logon ID privileges: `SECURITY`, `ACCOUNT`, and `AUDIT`.

Scoping is used to limit administrative capabilities of these powerful Logon ID privileges against the Logon ID, Rules, and Infostorage databases and data access. Scoping is site-defined through ACF2 Infostorage SCOPE records and the related SCPLIST field in the Logon ID record. Typically, the security administrative staff maintains these controls.

To view scope records, complete the following steps:

Procedure

1. Press PF3 to return to the Main menu.
2. From the Main menu, type S in the Option command line, as shown in Figure 76 on page 59.

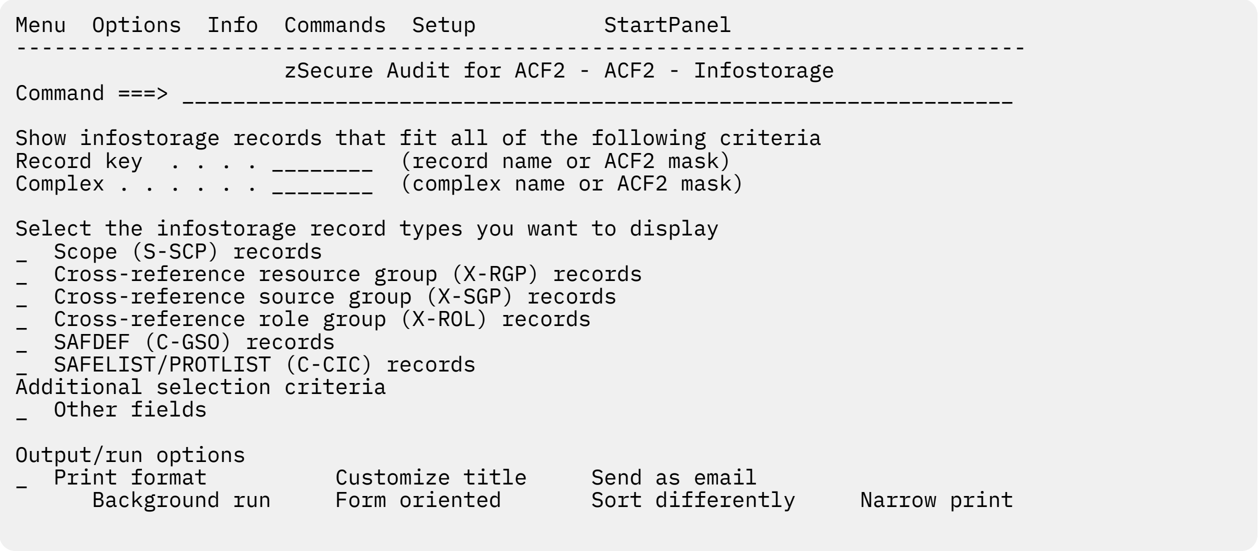


```
  Menu   Options   Info   Commands   Setup
 --------------------------------------------------------------------------
                         zSecure Audit for ACF2 – Main menu
 Option  ===>   S____________________________________________________________
                                                     More:  +
 SE   Setup           Options and input data sets
 AA   ACF2            ACF2 Administration
   L    Logonid         Logonid overview
   R    Rules           Rules overview
   I    Resource        Resource rules overview
   S    Infostorage     Infostorage record overview
   C    Custom          Custom report
 AU   Audit           Audit security and system resources
 RE   Resource        Resource reports
 EV   Events          Event reporting from SMF and other logs
 CO   CARLa           Work with CARLa queries and libraries
 IN   Information     Information and documentation
 LO   Local           Locally defined options
 X    Exit            Exit this panel

 Input complex:  *NONAME*

 Product/Release
 5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 76. Select Infostorage record overview

3. Press Enter to open the Infostorage panel shown in Figure 77 on page 59.

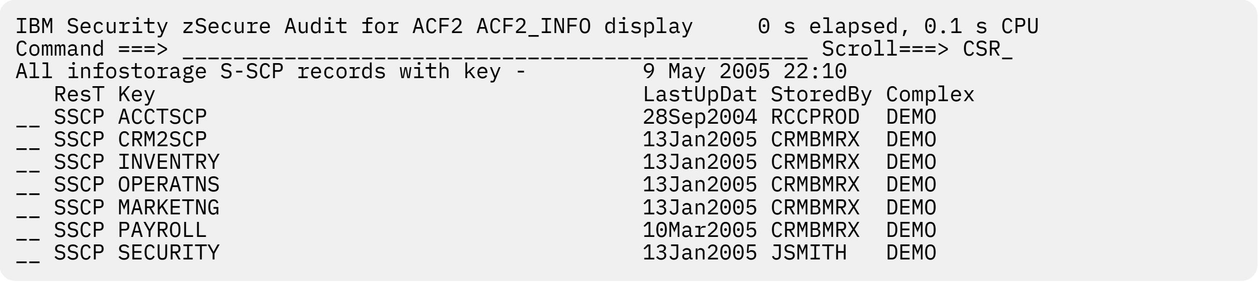
   On this panel, you specify selection criteria for Scope (S-SCP), Cross-reference resource group (X-RGP), Cross-reference source group (X-SGP), Cross-reference role (X-ROL) records, SAFDEF (C-GSO) records, and SAFELIST/PROTLIST (C-CIC) records.



```
Menu  Options  Info  Commands  Setup          StartPanel
-------------------------------------------------------------------------------
                     zSecure Audit for ACF2 - ACF2 - Infostorage
Command ===> _________________________________________________________________

Show infostorage records that fit all of the following criteria
Record key  . . . . ________  (record name or ACF2 mask)
Complex . . . . . . ________  (complex name or ACF2 mask)

Select the infostorage record types you want to display
_  Scope (S-SCP) records
_  Cross-reference resource group (X-RGP) records
_  Cross-reference source group (X-SGP) records
_  Cross-reference role group (X-ROL) records
_  SAFDEF (C-GSO) records
_  SAFELIST/PROTLIST (C-CIC) records
Additional selection criteria
_  Other fields

Output/run options
_  Print format          Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 77. Infostorage record selection criteria.

4. To view the scope records, enter S in the selection field for the Scope (S-SCP records) option. Then press Enter to display the panel shown in Figure 78 on page 59.



```
IBM Security zSecure Audit for ACF2 ACF2_INFO display     0 s elapsed, 0.1 s CPU
Command ===> _________________________________________________ Scroll===> CSR_
All infostorage S-SCP records with key -         9 May 2005 22:10
   ResT Key                                      LastUpDat StoredBy Complex
__ SSCP ACCTSCP                                  28Sep2004 RCCPROD  DEMO
__ SSCP CRM2SCP                                  13Jan2005 CRMBMRX  DEMO
__ SSCP INVENTRY                                 13Jan2005 CRMBMRX  DEMO
__ SSCP OPERATNS                                 13Jan2005 CRMBMRX  DEMO
__ SSCP MARKETNG                                 13Jan2005 CRMBMRX  DEMO
__ SSCP PAYROLL                                  10Mar2005 CRMBMRX  DEMO
__ SSCP SECURITY                                 13Jan2005 JSMITH   DEMO
```

Figure 78. Scope record key display

Figure 78 on page 59 shows a list of scope records. The **ResT** column shows the class value of S and a type code of SCP. The **Key** column displays the record name such as PAYROLL. You can define controls for security administration over Payroll resources within this scope record.

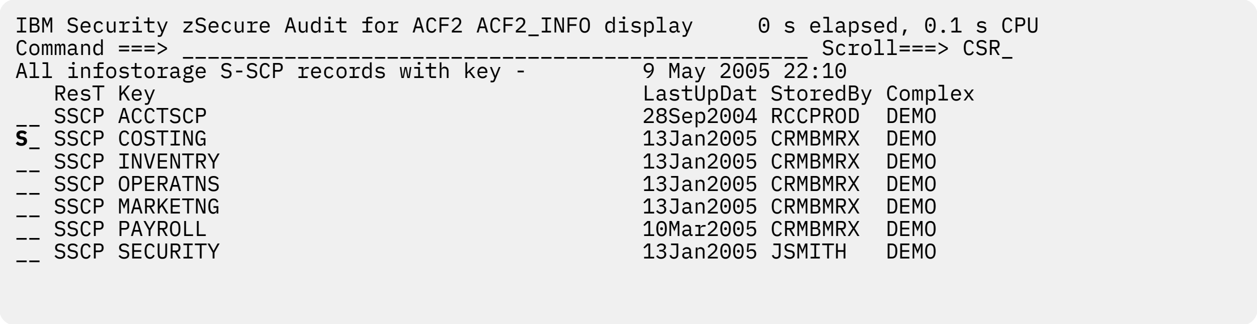
5. To view an individual Scope record, complete the following steps: "Viewing an individual Scope record" on page 60

Viewing an individual Scope record

Procedure

1. In the Scope record list panel, tab down in the **ResT** column and type **S** in the selection field for one of the records. Then press Enter.

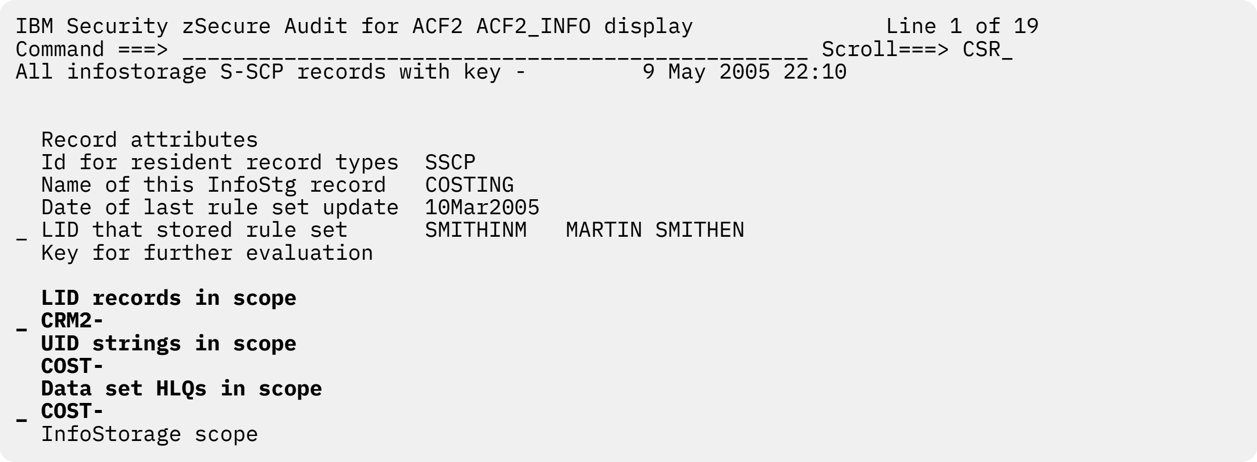
   In the example shown in Figure 79 on page 60, the SSCP COSTING record is selected.



```
IBM Security zSecure Audit for ACF2 ACF2_INFO display     0 s elapsed, 0.1 s CPU
Command ===> _________________________________________________ Scroll===> CSR_
All infostorage S-SCP records with key -         9 May 2005 22:10
   ResT Key                                      LastUpDat StoredBy Complex
__ SSCP ACCTSCP                                  28Sep2004 RCCPROD  DEMO
S_ SSCP COSTING                                  13Jan2005 CRMBMRX  DEMO
__ SSCP INVENTRY                                 13Jan2005 CRMBMRX  DEMO
__ SSCP OPERATNS                                 13Jan2005 CRMBMRX  DEMO
__ SSCP MARKETNG                                 13Jan2005 CRMBMRX  DEMO
__ SSCP PAYROLL                                  10Mar2005 CRMBMRX  DEMO
__ SSCP SECURITY                                 13Jan2005 JSMITH   DEMO
```

Figure 79. Selecting an individual scope record

2. Press Enter to open the display panel as shown in Figure 80 on page 60.



```
IBM Security zSecure Audit for ACF2 ACF2_INFO display               Line 1 of 19
Command ===> _________________________________________________ Scroll===> CSR_
All infostorage S-SCP records with key -         9 May 2005 22:10


  Record attributes
  Id for resident record types  SSCP
  Name of this InfoStg record   COSTING
  Date of last rule set update  10Mar2005
_ LID that stored rule set      SMITHINM   MARTIN SMITHEN
  Key for further evaluation

  LID records in scope
_ CRM2-
  UID strings in scope
  COST-
  Data set HLQs in scope
_ COST-
  InfoStorage scope
```

Figure 80. Detail display of a scope record.

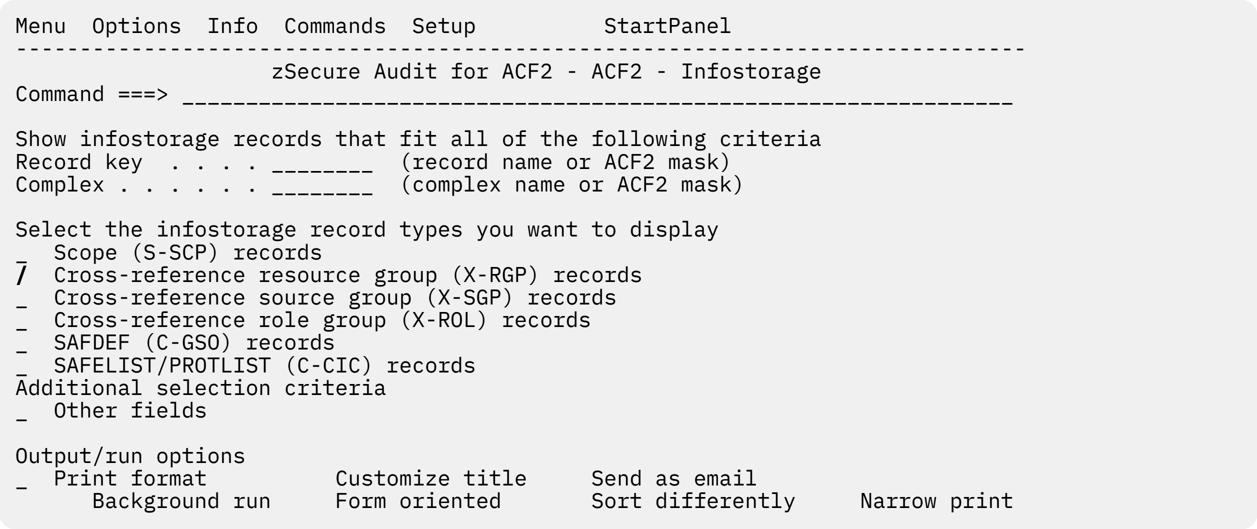
Figure 80 on page 60 shows the definition for scope record COSTING. This definition controls security administration for any of the following privileges:

- Logon ID with the naming convention of CRM2
- UID string that starts with COST
- Data sets with a high-level qualifier that starts with COST

Viewing cross-reference records

Procedure

1. Press PF3 to return to the Infostorage panel.
2. Tab down to the **Cross-reference resource group (X-RGP) records** option; type **/** in the selection field as shown in Figure 81 on page 61.

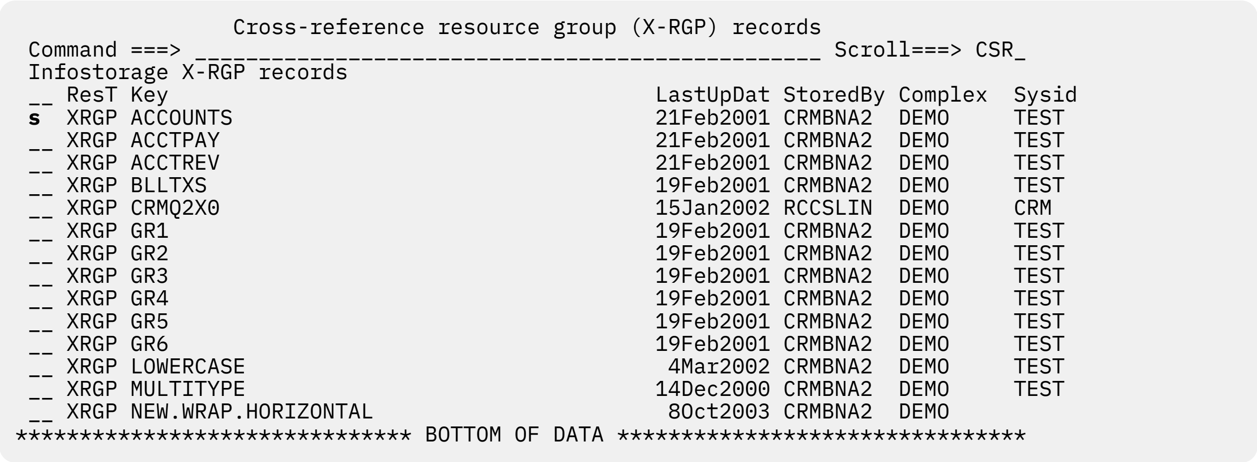


```
Menu  Options  Info  Commands  Setup          StartPanel
-------------------------------------------------------------------------------
                    zSecure Audit for ACF2 - ACF2 - Infostorage
Command ===> _________________________________________________________________

Show infostorage records that fit all of the following criteria
Record key  . . . . ________  (record name or ACF2 mask)
Complex . . . . . . ________  (complex name or ACF2 mask)

Select the infostorage record types you want to display
_  Scope (S-SCP) records
/  Cross-reference resource group (X-RGP) records
_  Cross-reference source group (X-SGP) records
_  Cross-reference role group (X-ROL) records
_  SAFDEF (C-GSO) records
_  SAFELIST/PROTLIST (C-CIC) records
Additional selection criteria
_  Other fields

Output/run options
_  Print format          Customize title     Send as email
      Background run     Form oriented       Sort differently     Narrow print
```

Figure 81. Infostorage record selection criteria – Cross-reference record selection.

3. Press Enter to display the list of cross-reference resource group records as shown in Figure 82 on page 61.

   This panel shows the list of cross-reference records for class X and type RGP resource groups.



```
                Cross-reference resource group (X-RGP) records
 Command ===> _________________________________________________ Scroll===> CSR_
 Infostorage X-RGP records
 __ ResT Key                                      LastUpDat StoredBy Complex  Sysid
 s  XRGP ACCOUNTS                                 21Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP ACCTPAY                                  21Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP ACCTREV                                  21Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP BLLTXS                                   19Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP CRMQ2X0                                  15Jan2002 RCCSLIN  DEMO     CRM
 __ XRGP GR1                                      19Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP GR2                                      19Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP GR3                                      19Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP GR4                                      19Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP GR5                                      19Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP GR6                                      19Feb2001 CRMBNA2  DEMO     TEST
 __ XRGP LOWERCASE                                 4Mar2002 CRMBNA2  DEMO     TEST
 __ XRGP MULTITYPE                                14Dec2000 CRMBNA2  DEMO     TEST
 __ XRGP NEW.WRAP.HORIZONTAL                       8Oct2003 CRMBNA2  DEMO
******************************* BOTTOM OF DATA ********************************
```

Figure 82. Infostorage record selection criteria

4. To view an individual cross-reference group record, complete the following steps: “Viewing an individual cross-reference group record” on page 61

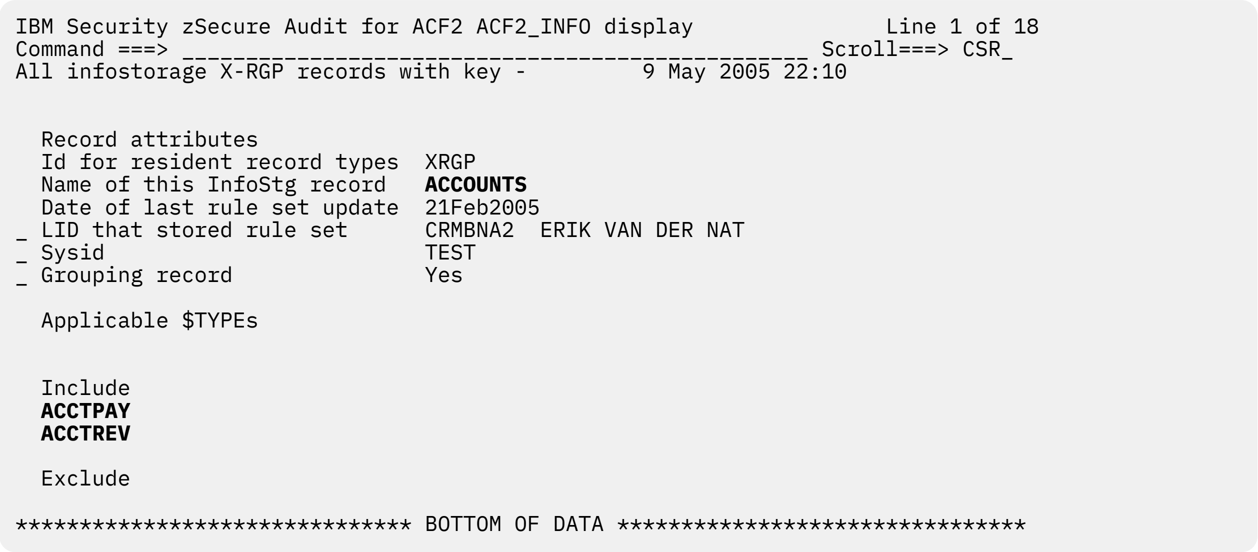
Viewing an individual cross-reference group record

Procedure

1. In the cross-reference group record list panel, tab down in the **ResT** column and type S in the selection field for one of the records.

In the example shown in Figure 82 on page 61, the XRGP ACCOUNTS record is selected.

2. Press Enter to open the display panel as shown in Figure 83 on page 62.



```
IBM Security zSecure Audit for ACF2 ACF2_INFO display               Line 1 of 18
Command ===> _________________________________________________ Scroll===> CSR_
All infostorage X-RGP records with key -         9 May 2005 22:10


  Record attributes
  Id for resident record types  XRGP
  Name of this InfoStg record   ACCOUNTS
  Date of last rule set update  21Feb2005
_ LID that stored rule set      CRMBNA2  ERIK VAN DER NAT
_ Sysid                         TEST
_ Grouping record               Yes

  Applicable $TYPEs


  Include
  ACCTPAY
  ACCTREV

  Exclude

******************************* BOTTOM OF DATA ********************************
```

Figure 83. Detail display of a cross-reference group record.

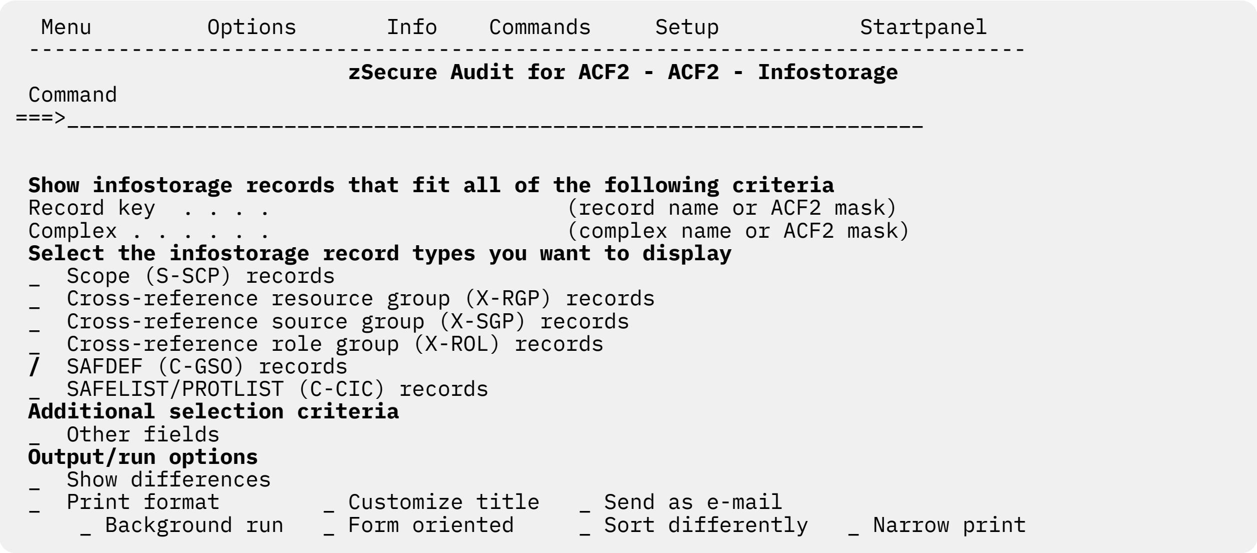
Figure 83 on page 62 shows the detail for the cross-reference record ACCOUNTS. Notice the entries under the **Record attributes** section. ACCOUNTS is a Grouping record, which means that it is a group of groups. The groups defined to ACCOUNTS are ACCTPAY and ACCTREV. These groups are listed under the **Include** section.

The groups ACCTPAY and ACCTREV are most likely resource rules for CICS transactions. Resource groups are used to reduce the number of resource rules. By grouping transactions under a group name and by grouping groups of groups under a cross-reference record, fewer rules are needed to control access to the CICS transactions.

Viewing SAFDEF records

Procedure

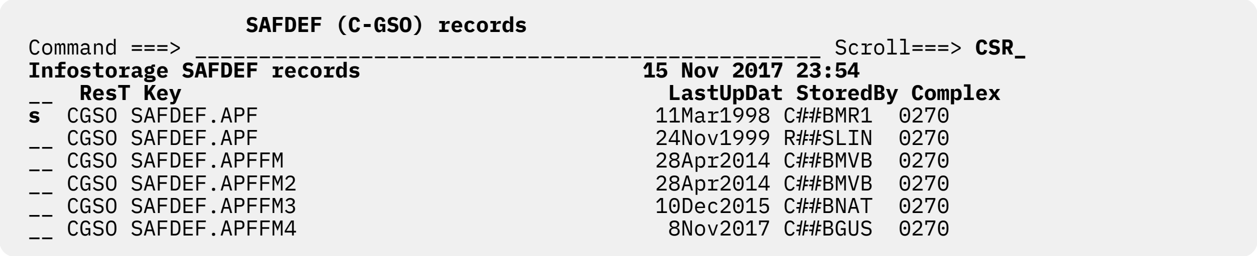
1. Press PF3 to return to the Infostorage panel.
2. Tab down to the **SAFDEF (C-GSO)** records option. Type / in the selection field as shown in Figure 84 on page 63.



```
 Menu         Options       Info    Commands     Setup          Startpanel
------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - ACF2 - Infostorage
Command
===>____________________________________________________________________


Show infostorage records that fit all of the following criteria
Record key  . . . .                     (record name or ACF2 mask)
Complex . . . . . .                     (complex name or ACF2 mask)
Select the infostorage record types you want to display
_  Scope (S-SCP) records
_  Cross-reference resource group (X-RGP) records
_  Cross-reference source group (X-SGP) records
_  Cross-reference role group (X-ROL) records
/  SAFDEF (C-GSO) records
_  SAFELIST/PROTLIST (C-CIC) records
Additional selection criteria
_  Other fields
Output/run options
_  Show differences
_  Print format        _ Customize title   _ Send as e-mail
    _ Background run   _ Form oriented     _ Sort differently   _ Narrow print
```

Figure 84. Infostorage record selection criteria – SAFDEF record selection

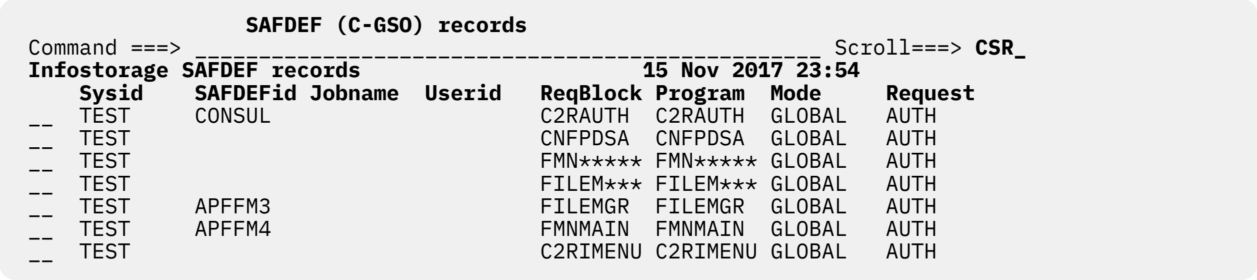
3. Press Enter to display the list of cross-reference resource group records as shown in Figure 85 on page 63. This panel shows the list of SAFDEF records for class C and type GSO resource groups.



```
                 SAFDEF (C-GSO) records
Command ===> _________________________________________________ Scroll===> CSR_
Infostorage SAFDEF records                     15 Nov 2017 23:54
__  ResT Key                                     LastUpDat StoredBy Complex
s  CGSO SAFDEF.APF                              11Mar1998 C##BMR1  0270
__ CGSO SAFDEF.APF                              24Nov1999 R##SLIN  0270
__ CGSO SAFDEF.APFFM                            28Apr2014 C##BMVB  0270
__ CGSO SAFDEF.APFFM2                           28Apr2014 C##BMVB  0270
__ CGSO SAFDEF.APFFM3                           10Dec2015 C##BNAT  0270
__ CGSO SAFDEF.APFFM4                            8Nov2017 C##BGUS  0270
```

Figure 85. Infostorage record selection criteria

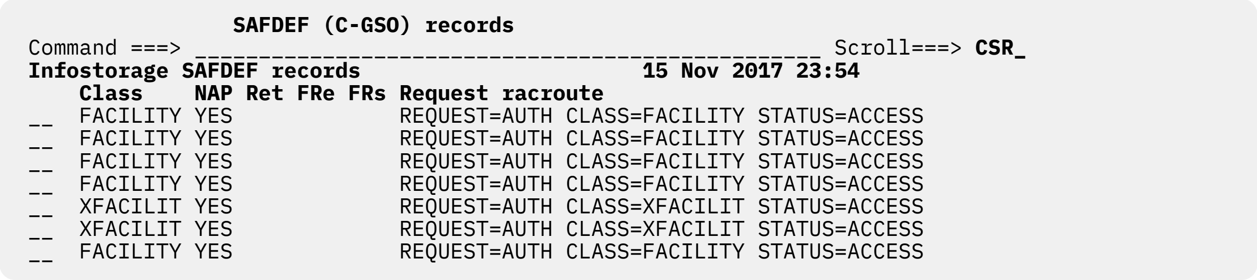
The display can be scrolled to the right to see additional columns:



```
                 SAFDEF (C-GSO) records
Command ===> _________________________________________________ Scroll===> CSR_
Infostorage SAFDEF records                     15 Nov 2017 23:54
    Sysid    SAFDEFid Jobname  Userid   ReqBlock Program  Mode     Request
__  TEST     CONSUL                     C2RAUTH  C2RAUTH  GLOBAL   AUTH
__  TEST                                CNFPDSA  CNFPDSA  GLOBAL   AUTH
__  TEST                                FMN***** FMN***** GLOBAL   AUTH
__  TEST                                FILEM*** FILEM*** GLOBAL   AUTH
__  TEST     APFFM3                     FILEMGR  FILEMGR  GLOBAL   AUTH
__  TEST     APFFM4                     FMNMAIN  FMNMAIN  GLOBAL   AUTH
__  TEST                                C2RIMENU C2RIMENU GLOBAL   AUTH
```

Figure 86. Infostorage record selection criteria (second screen)

The display can be scrolled to the right for a second time:



```
                SAFDEF (C-GSO) records
Command ===> _________________________________________________ Scroll===> CSR_
Infostorage SAFDEF records                     15 Nov 2017 23:54
    Class    NAP Ret FRe FRs Request racroute
__  FACILITY YES             REQUEST=AUTH CLASS=FACILITY STATUS=ACCESS
__  FACILITY YES             REQUEST=AUTH CLASS=FACILITY STATUS=ACCESS
__  FACILITY YES             REQUEST=AUTH CLASS=FACILITY STATUS=ACCESS
__  FACILITY YES             REQUEST=AUTH CLASS=FACILITY STATUS=ACCESS
__  XFACILIT YES             REQUEST=AUTH CLASS=XFACILIT STATUS=ACCESS
__  XFACILIT YES             REQUEST=AUTH CLASS=XFACILIT STATUS=ACCESS
__  FACILITY YES             REQUEST=AUTH CLASS=FACILITY STATUS=ACCESS
```

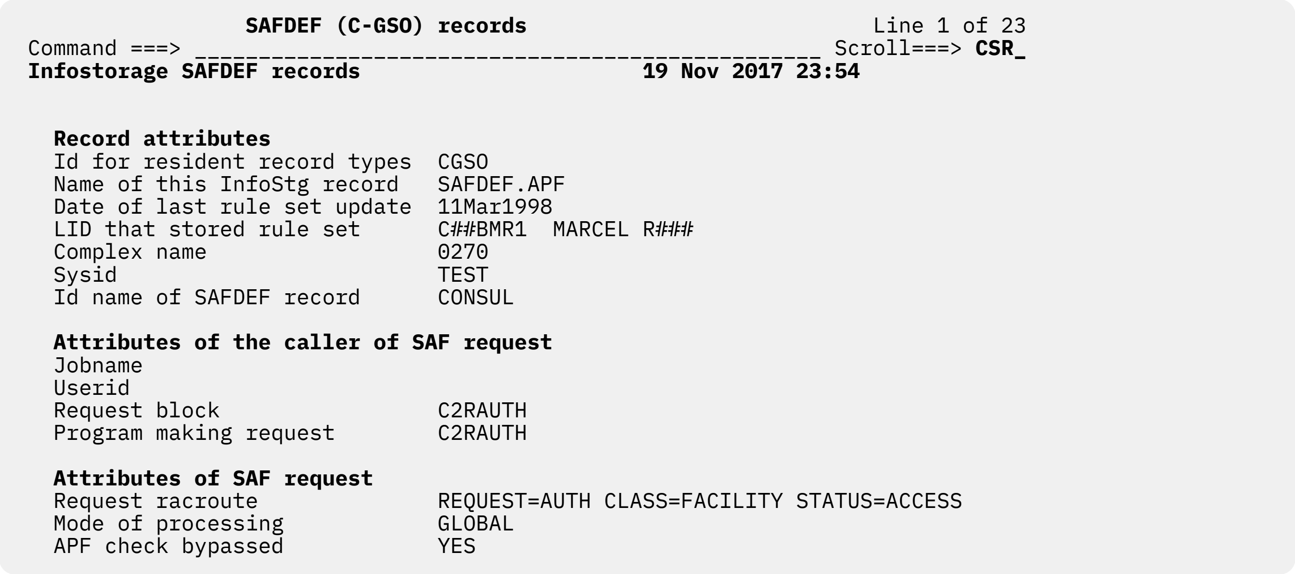
Figure 87. Infostorage record selection criteria (third screen)

4. To view an individual SAFDEF record, complete the steps that are listed in the "Viewing an individual SAFDEF record" on page 64 section.

Viewing an individual SAFDEF record

Procedure

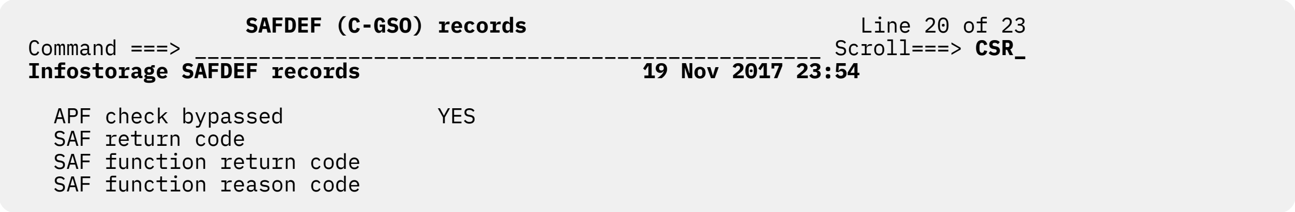
In the SAFDEF record list panel, tab down in the **ResT** column and type S in the selection field for one of the records. In the example shown in Figure 88 on page 64, the SAFDEF.APF record is selected.



```
                 SAFDEF (C-GSO) records                           Line 1 of 23
Command ===> _________________________________________________ Scroll===> CSR_
Infostorage SAFDEF records                      19 Nov 2017 23:54


  Record attributes
  Id for resident record types  CGSO
  Name of this InfoStg record   SAFDEF.APF
  Date of last rule set update  11Mar1998
  LID that stored rule set      C##BMR1  MARCEL R###
  Complex name                  0270
  Sysid                         TEST
  Id name of SAFDEF record      CONSUL

  Attributes of the caller of SAF request
  Jobname
  Userid
  Request block                 C2RAUTH
  Program making request        C2RAUTH

  Attributes of SAF request
  Request racroute              REQUEST=AUTH CLASS=FACILITY STATUS=ACCESS
  Mode of processing            GLOBAL
  APF check bypassed            YES
```

Figure 88. Detail display of a SAFDEF record

The display can be scrolled down to see additional rows:



```
                 SAFDEF (C-GSO) records                          Line 20 of 23
Command ===> _________________________________________________ Scroll===> CSR_
Infostorage SAFDEF records                      19 Nov 2017 23:54

  APF check bypassed            YES
  SAF return code
  SAF function return code
  SAF function reason code
```

Figure 89. Detail display of a SAFDEF record (second screen)

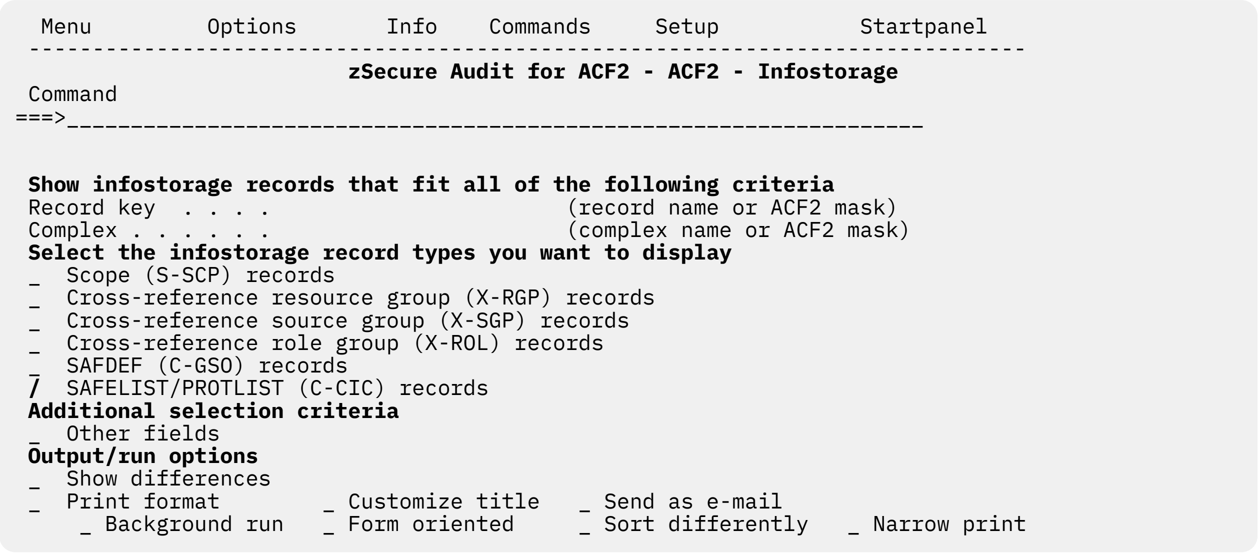
Figure 88 on page 64 shows the details of the SAFDEF record SAFDEF.APF. This record is applicable to the system with the TEST Sysid. The SAF request is made by the C2RAUTH request block in the C2RAUTH program. The following part of the panel specifies the SAF request. The **Request racroute** field defines the parameters of the request as REQUEST=AUTH CLASS=FACILITY STATUS=ACCESS, that is, the ACF2 authorization (REQUEST=AUTH) checking is to be performed for a resource of the FACILITY class. The request is made to determine the access level for a user (STATUS=ACCESS), and it is processed with the mode that is specified in the GSO OPTS records (Mode of processing=GLOBAL). The program that makes the request does not need to be APF-authorized (APF check bypassed=YES).

Viewing SAFELIST/PROTLIST records

Procedure

1. Press PF3 to return to the Infostorage panel.

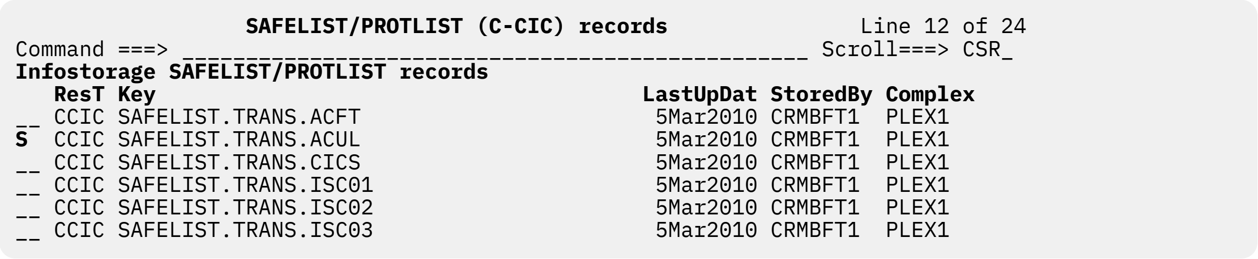
2. Tab down to the **SAFELIST/PROTLIST (C-CIC)** records option. Type **/** in the selection field as shown in Figure 90 on page 65.



```
 Menu         Options       Info    Commands     Setup          Startpanel
 ------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - ACF2 - Infostorage
 Command
===>__________________________________________________________________


 Show infostorage records that fit all of the following criteria
 Record key  . . . .                  (record name or ACF2 mask)
 Complex . . . . . .                  (complex name or ACF2 mask)
 Select the infostorage record types you want to display
 _  Scope (S-SCP) records
 _  Cross-reference resource group (X-RGP) records
 _  Cross-reference source group (X-SGP) records
 _  Cross-reference role group (X-ROL) records
 _  SAFDEF (C-GSO) records
 /  SAFELIST/PROTLIST (C-CIC) records
 Additional selection criteria
 _  Other fields
 Output/run options
 _  Show differences
 _  Print format          _ Customize title    _ Send as e-mail
     _ Background run     _ Form oriented      _ Sort differently    _ Narrow print
```

Figure 90. Infostorage record selection criteria – SAFELIST/PROTLIST record selection

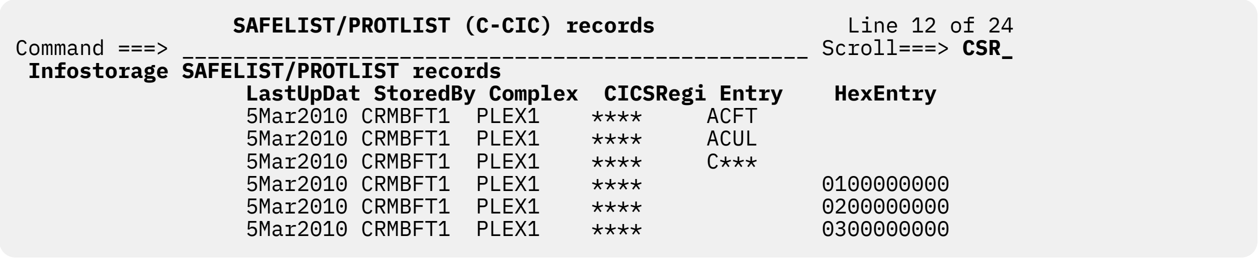
3. Press Enter to display the list of cross-reference resource group records as shown in Figure 91 on page 65. This panel shows the list of SAFELIST/PROTLIST records for class C and type CIC resource groups.



```
                  SAFELIST/PROTLIST (C-CIC) records              Line 12 of 24
Command ===> _________________________________________________ Scroll===> CSR_
Infostorage SAFELIST/PROTLIST records
   ResT Key                                         LastUpDat StoredBy Complex
__ CCIC SAFELIST.TRANS.ACFT                          5Mar2010 CRMBFT1  PLEX1
S  CCIC SAFELIST.TRANS.ACUL                          5Mar2010 CRMBFT1  PLEX1
__ CCIC SAFELIST.TRANS.CICS                          5Mar2010 CRMBFT1  PLEX1
__ CCIC SAFELIST.TRANS.ISC01                         5Mar2010 CRMBFT1  PLEX1
__ CCIC SAFELIST.TRANS.ISC02                         5Mar2010 CRMBFT1  PLEX1
__ CCIC SAFELIST.TRANS.ISC03                         5Mar2010 CRMBFT1  PLEX1
```

Figure 91. Infostorage record selection criteria

The display can be scrolled to the right to see additional columns:



```
                 SAFELIST/PROTLIST (C-CIC) records              Line 12 of 24
Command ===> _________________________________________________ Scroll===> CSR_
 Infostorage SAFELIST/PROTLIST records
                  LastUpDat StoredBy Complex  CICSRegi Entry    HexEntry
                  5Mar2010 CRMBFT1  PLEX1    ****     ACFT
                  5Mar2010 CRMBFT1  PLEX1    ****     ACUL
                  5Mar2010 CRMBFT1  PLEX1    ****     C***
                  5Mar2010 CRMBFT1  PLEX1    ****              0100000000
                  5Mar2010 CRMBFT1  PLEX1    ****              0200000000
                  5Mar2010 CRMBFT1  PLEX1    ****              0300000000
```

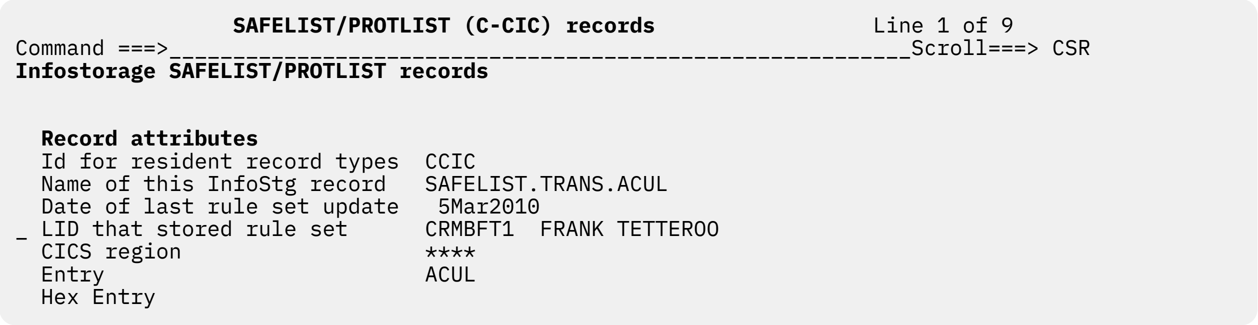
Figure 92. Infostorage record selection criteria (second screen)

4. To view an individual SAFELIST/PROTLIST record, complete the steps listed in the "Viewing an individual SAFELIST/PROTLIST record" on page 66 section.

Viewing an individual SAFELIST/PROTLIST record

Procedure

1. In the SAFELIST/PROTLIST record list panel, tab down in the **ResT** column and type **S** in the selection field for one of the records. In the example that is shown in Figure 91 on page 65, the SAFELIST.TRANS.ACUL record is selected.
2. Press Enter to open the display panel as shown in Figure 93 on page 66.



```
                 SAFELIST/PROTLIST (C-CIC) records                 Line 1 of 9
Command ===>__________________________________________________________Scroll===> CSR
Infostorage SAFELIST/PROTLIST records


  Record attributes
  Id for resident record types  CCIC
  Name of this InfoStg record   SAFELIST.TRANS.ACUL
  Date of last rule set update   5Mar2010
_ LID that stored rule set      CRMBFT1  FRANK TETTEROO
  CICS region                   ****
  Entry                         ACUL
  Hex Entry
```

Figure 93. Detail display of a SAFELIST/PROTLIST record

Figure 93 on page 66 shows the details of the SAFELIST record SAFELIST.TRANS.ACUL.

Chapter 5. SETUP functions for data management

Using SETUP functions, you can switch data sources while using the products. Other SETUP functions set global switches and parameters. The following section addresses several SETUP options that are most important to your evaluation.

Inputting data

About this task

So far, you used only your live ACF2 data to display various profiles. This procedure shows how to create the additional data sources:

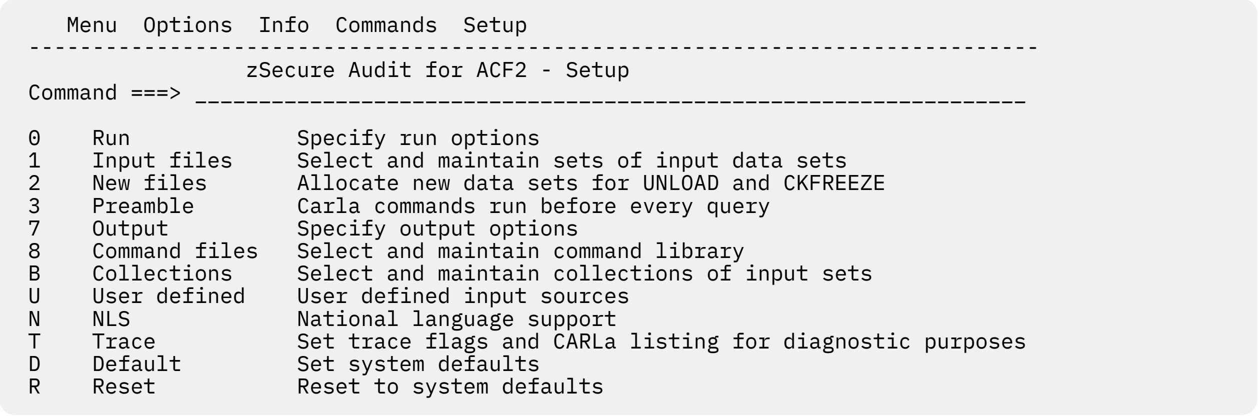
- An unloaded database.
- A CKFREEZE data set. This data set contains extracted information from all your DASD, and from various internal z/OS tables.

Procedure

To create the data sources, complete the following steps:

1. Return to the Main menu. Press PF3 if necessary.
2. In the Option command line, type SE to select the Setup option.

   The Setup menu shown in Figure 94 on page 67 is displayed.



```
   Menu  Options  Info  Commands  Setup
-------------------------------------------------------------------------------
                 zSecure Audit for ACF2 - Setup
Command ===> _________________________________________________________________

0    Run             Specify run options
1    Input files     Select and maintain sets of input data sets
2    New files       Allocate new data sets for UNLOAD and CKFREEZE
3    Preamble        Carla commands run before every query
7    Output          Specify output options
8    Command files   Select and maintain command library
B    Collections     Select and maintain collections of input sets
U    User defined    User defined input sources
N    NLS             National language support
T    Trace           Set trace flags and CARLa listing for diagnostic purposes
D    Default         Set system defaults
R    Reset           Reset to system defaults
```

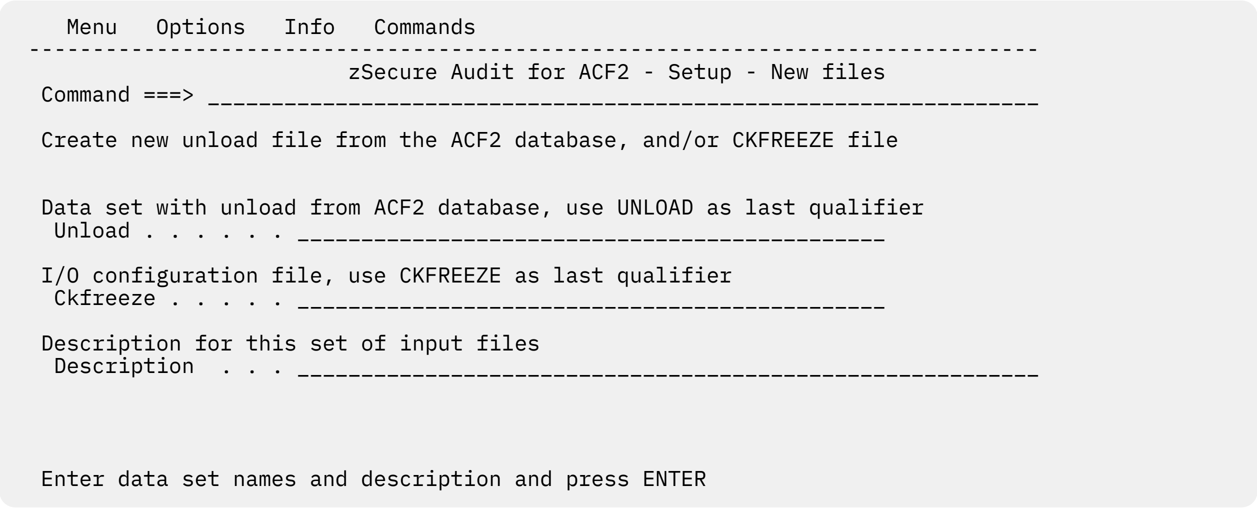
Figure 94. Setup menu

Inputting new files

Procedure

To input new files, complete the following steps:

1. From the initial Setup menu (Figure 94 on page 67), select **Option 2** to open the New files panel, as shown in Figure 95 on page 68.



```
   Menu   Options   Info   Commands
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Setup - New files
 Command ===> _________________________________________________________________

 Create new unload file from the ACF2 database, and/or CKFREEZE file


 Data set with unload from ACF2 database, use UNLOAD as last qualifier
  Unload . . . . . . ______________________________________________

 I/O configuration file, use CKFREEZE as last qualifier
  Ckfreeze . . . . . ______________________________________________

 Description for this set of input files
  Description  . . . __________________________________________________________




 Enter data set names and description and press ENTER
```

Figure 95. New files panel

2. Type a data set name in the **Unload** line.

   Use quotation marks if necessary; that is, if you do not want the data set names to have your user ID as the high-level qualifier. It does not matter whether these data sets currently exist. However, if they do exist, they must be cataloged.

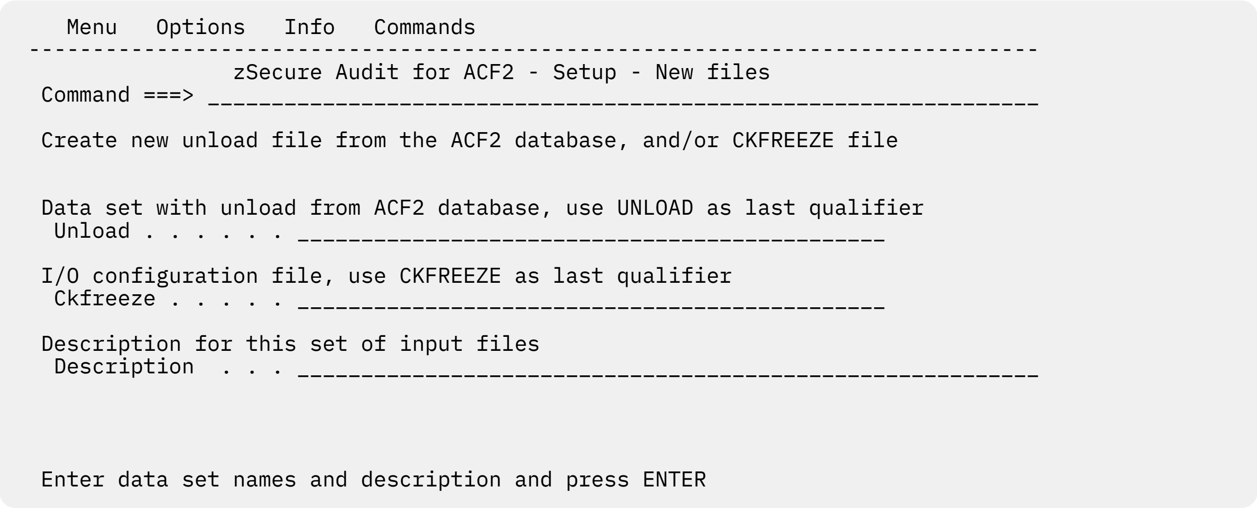
3. Type a short, unique description of the files in the third input line.

   For example, `UNLOAD and CKFREEZE data sets created on 8 Apr 2005`.

   Tip: It is a good practice to use the **input file Description** field to indicate what type of data sets are part of this set. Completing this field can prevent the need to later open the set in browse or edit mode to examine which data sets are included.

4. Press Enter.

   If any of the data names you specify do not exist, the New files panel shown in Figure 96 on page 68 is displayed to allocate and catalog the new data sets.



```
   Menu   Options   Info   Commands
-------------------------------------------------------------------------------
                zSecure Audit for ACF2 - Setup - New files
 Command ===> _________________________________________________________________

 Create new unload file from the ACF2 database, and/or CKFREEZE file


 Data set with unload from ACF2 database, use UNLOAD as last qualifier
  Unload . . . . . . ______________________________________________

 I/O configuration file, use CKFREEZE as last qualifier
  Ckfreeze . . . . . ______________________________________________

 Description for this set of input files
  Description  . . . __________________________________________________________




 Enter data set names and description and press ENTER
```

Figure 96. Typical allocation panel

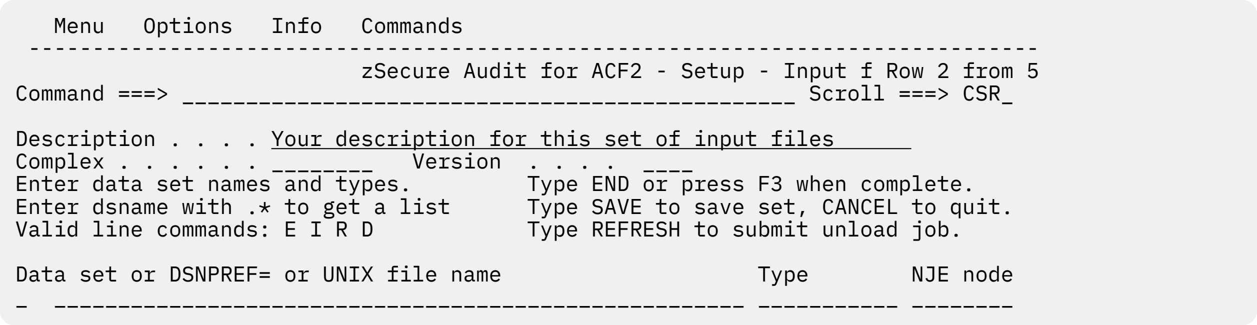
5. Type a data set name in the CKFREEZE line; use quotation marks if necessary.
6. Type the appropriate allocation parameters, but do not change the DCB attributes.
7. Press Enter.

   If both named data sets are new, you see the allocation panel a second time. Executing these panels allocates and catalogs your new data sets using dynamic allocation. The first time you create an unloaded ACF2 copy and a CKFREEZE data set, be sure to specify ample disk space. For ACF2, allow as much space as used by your live ACF2 database. For CKFREEZE files, allow at least 2 MB for each online DASD volume, plus space for catalog and HSM information, as well as 2MB per gigabyte HFS/ZFS space, and 1 MB per 5000 IMS or CICS transactions or programs. For more details on space requirements for CKFREEZE data sets, see *IBM Security zSecure Audit for ACF2: User Reference Manual*.

Do not alter the DCB parameters. Until you are familiar with the disk space required, specify a large secondary allocation quantity, such as 100 MB.

Tip: After creating your first unloaded ACF2 copy and CKFREEZE data sets, examine them with ISPF to determine how much disk space was used. This information makes future usage easier.

After the files are allocated, you see the panel shown in Figure 97 on page 69.



```
   Menu   Options   Info   Commands
 ------------------------------------------------------------------------------
                          zSecure Audit for ACF2 - Setup - Input f Row 2 from 5
Command ===> ________________________________________________ Scroll ===> CSR_

Description . . . . Your description for this set of input files______
Complex . . . . . . ________   Version  . . . .  ____
Enter data set names and types.         Type END or press F3 when complete.
Enter dsname with .* to get a list      Type SAVE to save set, CANCEL to quit.
Valid line commands: E I R D            Type REFRESH to submit unload job.

Data set or DSNPREF= or UNIX file name                    Type        NJE node
_  ______________________________________________________ ___________ ________
```

Figure 97. Input file panel to define data set definition

Refreshing and loading files

About this task

The data sets listed constitute one input set. An input set can contain multiple CKFREEZE data sets, multiple SMF files, and multiple HTTP log files. However, an input set can contain only one ACF2 unload, or multiple ACF2 data sets (the components of a single ACF2 database).

Procedure

To refresh and load files, complete the following steps:

1. In the **Input file** panel as shown in Figure 97 on page 69, type REFRESH in the command line. Then press Enter to display the **Job submission** panel.
2. In the **Job submission** panel, type a valid job card in the **Job statement information** section.
3. Use **Edit JCL Option (2)** to open the ISPF editor to customize the JOB statement and make any other necessary changes to the job.

   For example, you might need a `JOBLIB` or `STEPLIB` statement in order to access the product. If you copied zSecure Collect (`CKFCOLL`) to an authorized library in the LNKLST, you do not need a `JOBLIB` or `STEPLIB` for it. Assign a job class with a large or unlimited region size.
4. Submit the job.
5. Wait until the job runs.

   If there is a long queue of jobs that are waiting to run, you might want to exit from the product while the job completes. The job itself takes only a minute or two to run unless you have a large configuration. You can add a `NOTIFY=yourid` in the job card. If the job fails, the problem is usually that there is not enough storage. zSecure Collect can use regions in excess of 32 MB. If the zSecure Collect step fails and you provided the largest region size you can obtain, refer to Appendix B, “zSecure Collect memory requirements,” on page 151.

Selecting the input set

Procedure

1. To open the **Input file** panel, type **SE.1** in the Command line, which is Option 1 in the Setup menu.

   The **Input file** panel should look like the input set you created, with the description you entered for the input files. An example is shown in Figure 98 on page 70.

   ```
     Menu        Options        Info    Commands     Setup
   ------------------------------------------------------------------------------
                            zSecure Audit for ACF2 - Setup - Input  Row 1 from 4
   Command ===> ________________________________________________ Scroll ===> CSR_

   (Un)select (U/S/C/M) set of input files or work with a set (B, E, R, I, D or F)

      Description                                           Complex
   _  UNLOAD and CKFREEZE data sets created 8 Apr 2005              selected
   _  Active backup  ACF2 data base                         DEMO    selected
   _  Active primary ACF2 data base                         DEMO
   _  Active backup  ACF2 data base and live SMF data sets  DEMO    selected
   ******************************* Bottom of data ********************************
   ```

   Figure 98. Input set selection

   In Figure 98 on page 70, the input file sets marked as `selected` indicate that the product is now using these input sets for its input data. The other three input sets, such as active primary and backup ACF2 databases, are always present. You can switch to any input set defined in this display. For example, to switch between the unloaded files you created and the live ACF2 databases, go to this panel and select the appropriate input set.

   Entering **S** before any choice in this panel causes the product to select this set for input. You can change input selections many times during a session, although this is not typical usage.

2. You can use the following line commands:

   S – Select an input set for processing
   When you select an input set, the data sets it contains are selected for processing. After the data sets are located, the set is marked as selected. This option is also selected by specifying A (Add or Addition of a set). The selected set is an addition to sets already selected. You can change input selections many times during a session, although this change is not typical usage.

   C -Select a set as Compare base.
   Set a predefined set of input files as the Compare base set. Only one set can be selected as the Compare base set.

   U – Remove an input set from selection
   Remove, for example, the selection from **Active backup ACF2 data base** that is selected. The set is not selected any more and is not used in future queries.

Specifying collections of input sets

About this task

When collections are used, sets of input files that were previously selected through SETUP FILES are no longer used. Subsequent selection of a set of input files through SETUP FILES results in unselecting the collection.

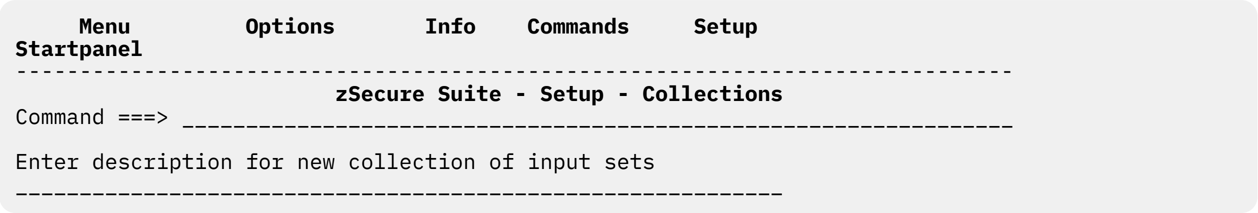
Procedure

1. On the main menu, type SE (Setup) in the Option line and press **Enter**.

   The Setup menu is displayed (Figure 94 on page 67).

2. On the Setup menu, type B in the Option line and press **Enter**.

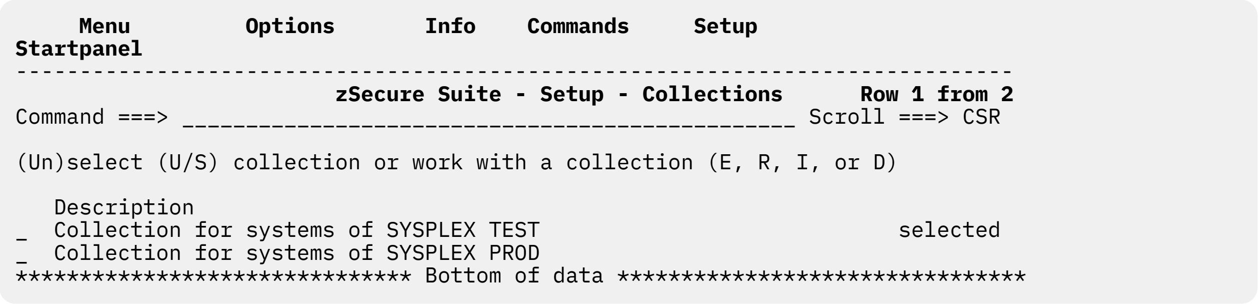
If no collections are defined, the Setup collections definition panel is displayed.



```
     Menu         Options       Info    Commands     Setup
Startpanel
------------------------------------------------------------------------------
                         zSecure Suite - Setup - Collections
Command ===> _________________________________________________________________

Enter description for new collection of input sets
____________________________________________________________
```

Figure 99. Setup collections definition panel

If one or more collections have been defined, the following panel is displayed:



```
     Menu         Options       Info    Commands     Setup
Startpanel
------------------------------------------------------------------------------
                         zSecure Suite - Setup - Collections      Row 1 from 2
Command ===> ________________________________________________ Scroll ===> CSR

(Un)select (U/S) collection or work with a collection (E, R, I, or D)

   Description
_  Collection for systems of SYSPLEX TEST                            selected
_  Collection for systems of SYSPLEX PROD
******************************* Bottom of data ********************************
```

Figure 100. Setup collections display

Use the collection display to select collections of sets of input files for processing and to add or delete collections. You can use the following line commands:

S
: Select a collection. The input sets that are contained in the collection are selected for processing. After the data sets are found in the system, the collection is marked as selected. Sets that are selected through SETUP FILES are cleared. Only one collection can be selected at the same time.

U
: Clear a collection. The collection is not selected any more. It is not used in future queries.

E
: Edit the collection content. On the resulting display, you can select or clear input sets for the collection.

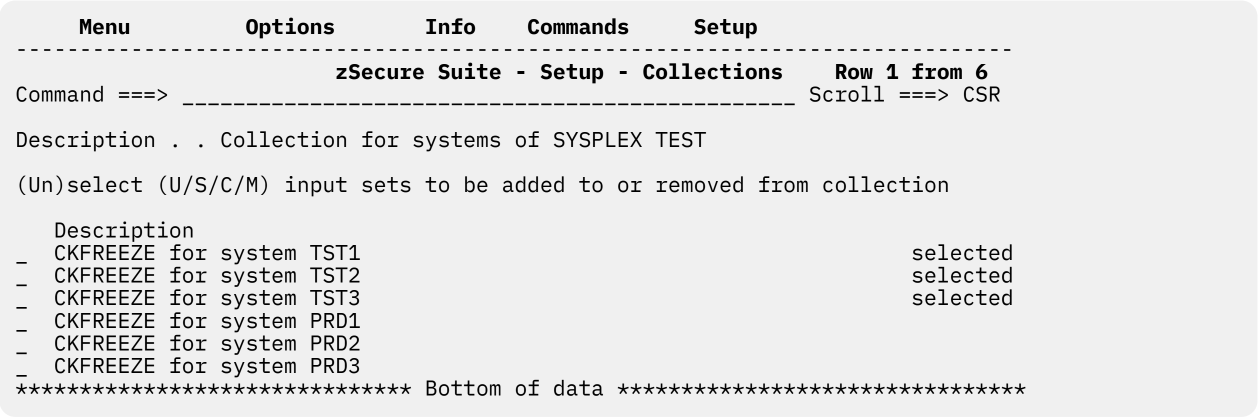
R
: Repeat a collection. The contents of the collection you choose are copied into a new collection.

I
: Insert a new collection.

D
: Delete a collection. The collection is removed from the administration of the dialog. The input sets in the collection are not deleted from the system.

3. To edit a collection, type the E action command in front of the collection and press **Enter**.

   The following panel is displayed:



```
     Menu         Options       Info    Commands     Setup
------------------------------------------------------------------------------
                         zSecure Suite - Setup - Collections    Row 1 from 6
Command ===> ________________________________________________ Scroll ===> CSR

Description . . Collection for systems of SYSPLEX TEST

(Un)select (U/S/C/M) input sets to be added to or removed from collection

   Description
_  CKFREEZE for system TST1                                           selected
_  CKFREEZE for system TST2                                           selected
_  CKFREEZE for system TST3                                           selected
_  CKFREEZE for system PRD1
_  CKFREEZE for system PRD2
_  CKFREEZE for system PRD3
******************************* Bottom of data ********************************
```

Figure 101. Setup collections sets display

Use the sets display to add sets of input files to a collection for processing. Sets can be added, edited, and deleted with SETUP FILES. You can use the following line commands:

B
: Browse the contents of a set of input files. By browsing the set, you can check the definitions for the set. When you exit the detail panels, the set is not selected.

C
: Set a set of input files as Compare base.

S
: Select a set of input files to be added to the collection. By selecting the set, the data sets it contains are selected for processing. After the data sets are found in the system, the set is marked as selected. This option is also selected by specifying A. A selected set is added to other sets that are already selected.

U
: Clear a set of input files to remove then from the collection. The set is not selected any more and is not used in future queries

Chapter 6. Security control analysis

This topic describes how to view audit concerns generated by zSecure Audit for ACF2. It provides information for determining how well the Global System Options are implemented and flags abuse of powerful Logon ID privileges. It also provides various password control reports, and presents a broad view of access by trusted users.

Use the Audit functions to review:

- GSO records
- CLASMAP records
- ACF2 field Definition Entries (ACFFDR @CFDR macros)
- Logon IDs with powerful privileges
- Password aging
- Password intervals
- Logon IDs without passwords
- Logon IDs with expired passwords
- Logon IDs that have never been used
- Logon ID last logon
- Access available to trusted users
- Sensitive data set controls
- UNIX System Services support

Audit concerns

To select the Audit function, complete the steps in "Selecting the Audit function" on page 73.

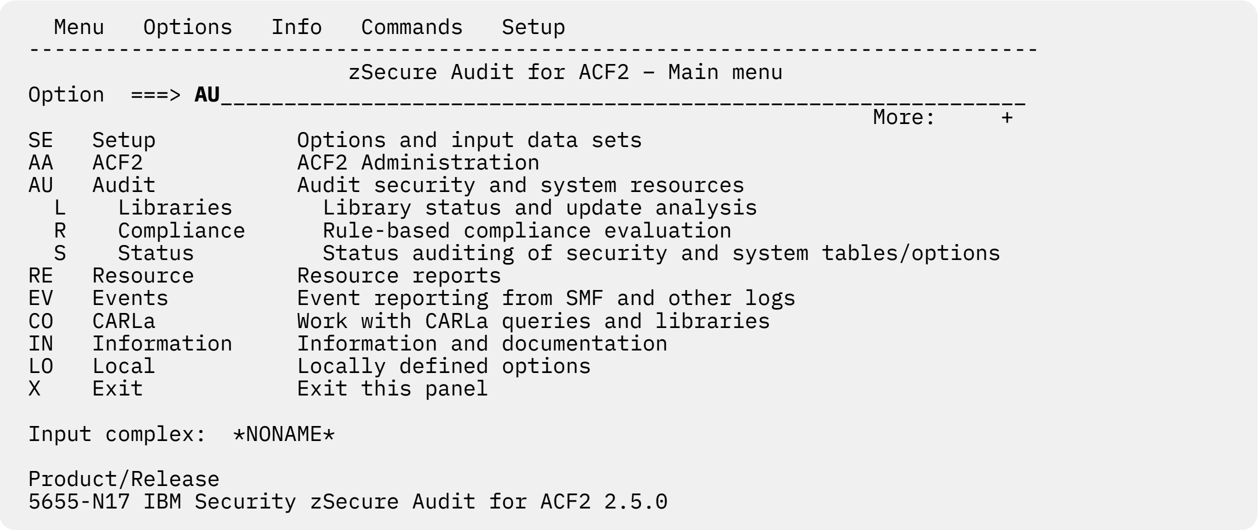
To view audit concerns detected by zSecure Audit for ACF2, complete the steps in "Viewing audit concerns detected by zSecure Audit for ACF2" on page 74.

To review the audit concerns overview by priority, complete the steps in "Reviewing audit concerns overview by priority" on page 75.

Selecting the Audit function

Procedure

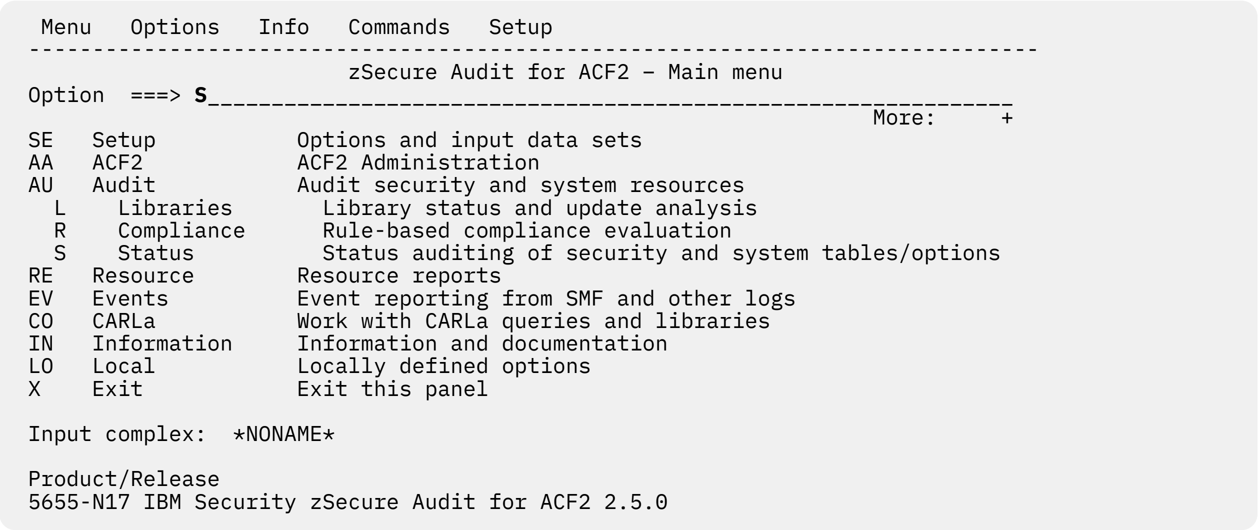
1. Press PF3 to return to the Main menu as shown in Figure 102 on page 74.
2. Type AU in the command line to work with the Audit security and system resources.
3. Press Enter.



```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Main menu
Option  ===> AU_______________________________________________________________
                                                                  More:     +
SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
AU   Audit           Audit security and system resources
  L    Libraries       Library status and update analysis
  R    Compliance      Rule-based compliance evaluation
  S    Status          Status auditing of security and system tables/options
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

Input complex:  *NONAME*

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 102. Main menu - select AU option

4. To select status, type S in the command line as shown in Figure 103 on page 74.



```
 Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Main menu
Option  ===> S_______________________________________________________________
                                                                  More:     +
SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
AU   Audit           Audit security and system resources
  L    Libraries       Library status and update analysis
  R    Compliance      Rule-based compliance evaluation
  S    Status          Status auditing of security and system tables/options
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

Input complex:  *NONAME*

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

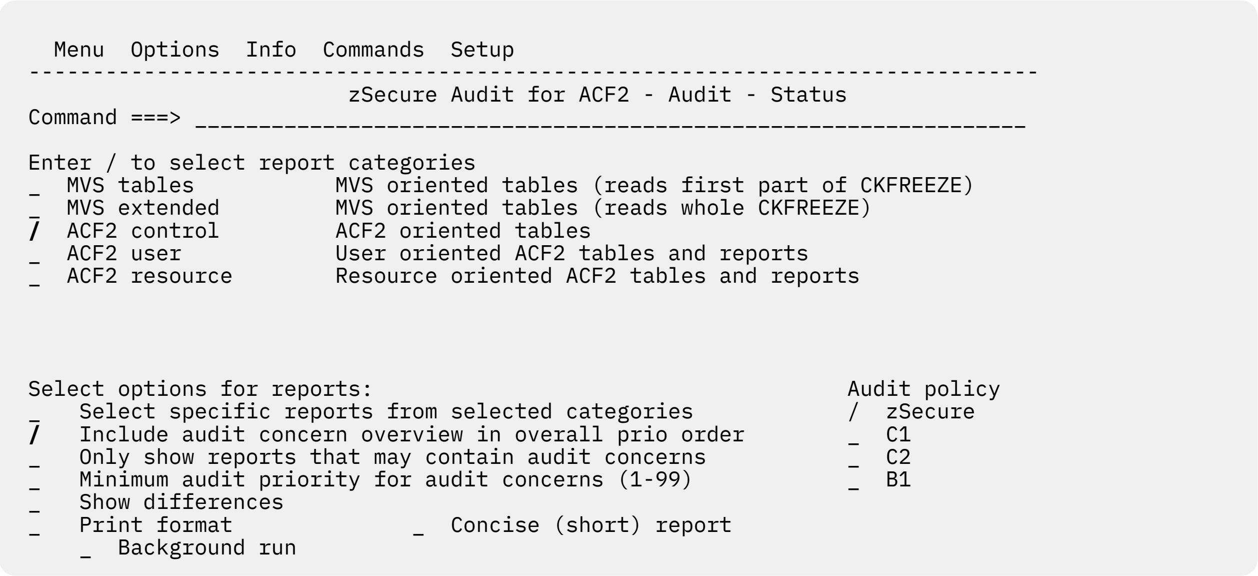
Figure 103. Select S for audit status

5. Press Enter to open the Status Audit panel.

Viewing audit concerns detected by zSecure Audit for ACF2

Procedure

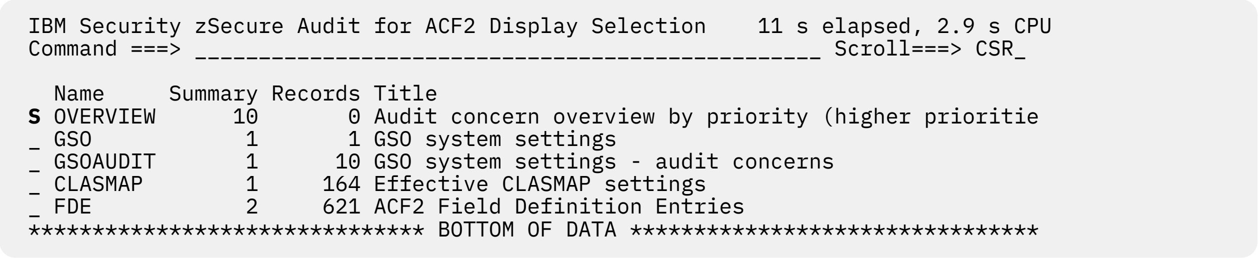
1. In the **Audit** panel, tab to the **ACF2 control** heading.
2. Type the / character beside the **ACF2 control** field as shown in Figure 104 on page 75.
3. Move to the bottom of the screen.
4. Type the / character beside the **Include audit concern overview, higher priorities only** field as shown in Figure 104 on page 75. Press Enter.



```
  Menu  Options  Info  Commands  Setup
--------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Audit - Status
Command ===> _________________________________________________________________

Enter / to select report categories
_  MVS tables          MVS oriented tables (reads first part of CKFREEZE)
_  MVS extended        MVS oriented tables (reads whole CKFREEZE)
/  ACF2 control        ACF2 oriented tables
_  ACF2 user           User oriented ACF2 tables and reports
_  ACF2 resource       Resource oriented ACF2 tables and reports



Select options for reports:                                      Audit policy
_   Select specific reports from selected categories             /  zSecure
/   Include audit concern overview in overall prio order         _  C1
_   Only show reports that may contain audit concerns            _  C2
_   Minimum audit priority for audit concerns (1-99)             _  B1
_   Show differences
_   Print format              _  Concise (short) report
    _  Background run
```

Figure 104. Select ACF2 control

The resulting screen shown in Figure 105 on page 75 presents selections for review: OVERVIEW, GSO, GSOAUDIT, CLASMAP, and FDE. The following examples focus on OVERVIEW and GSO audit displays.



```
IBM Security zSecure Audit for ACF2 Display Selection    11 s elapsed, 2.9 s CPU
Command ===> _________________________________________________ Scroll===> CSR_

  Name     Summary Records Title
S OVERVIEW      10       0 Audit concern overview by priority (higher prioritie
_ GSO            1       1 GSO system settings
_ GSOAUDIT       1      10 GSO system settings - audit concerns
_ CLASMAP        1     164 Effective CLASMAP settings
_ FDE            2     621 ACF2 Field Definition Entries
******************************* BOTTOM OF DATA ********************************
```

Figure 105. Select Overview to display audit concerns

Reviewing audit concerns overview by priority

Procedure

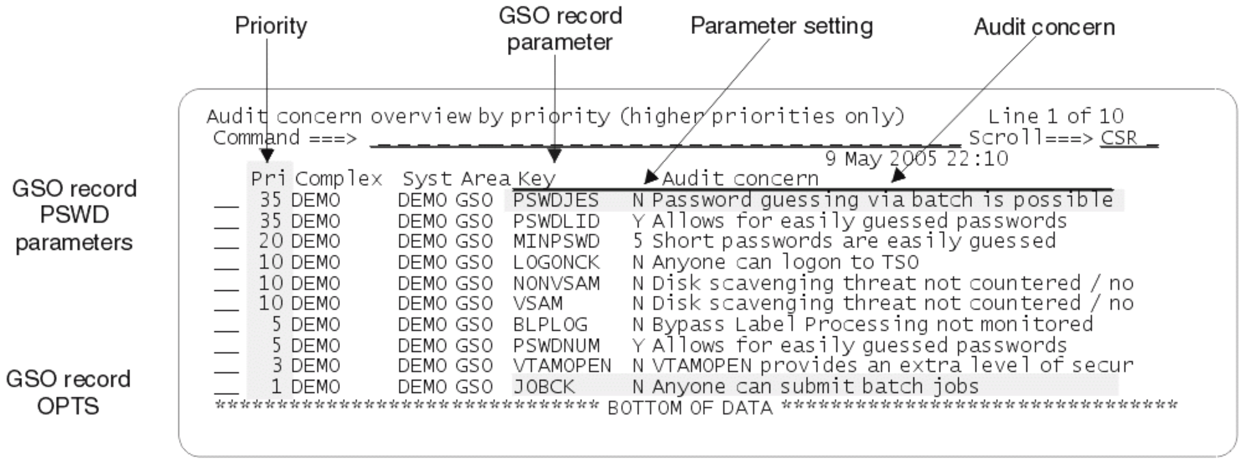
1. In the **ACF2 Display Selection** panel, tab to the **Overview** record.
2. To select the record, type S in the selection field.
3. Press Enter to open the **Audit concern overview** panel.

   For information about using this panel, continue with the next section.

Audit concern overview by priority

IBM Security zSecure Audit for ACF2 lists the audit concerns by priority and provides a description of the findings. The Audit concern overview display as shown in Figure 106 on page 76 identifies the most important audit concerns across all systems, sorted by numerical audit priority. Each line describes a single audit concern with the audit priority, complex, system, area, that is, GSO records, key and current value, that is, parameter and setting, and a description of the audit concern.

The numerical audit priorities shown in Figure 106 on page 76 indicate the severity of the audit concerns identified.



```
 Audit concern overview by priority (higher priorities only)      Line 1 of 10
 Command ===> ________________________________________________ Scroll===> CSR
                                                   9 May 2005 22:10
     Pri Complex  Syst Area Key         Audit concern
 ___  35 DEMO     DEMO GSO  PSWDJES   N Password guessing via batch is possible
 ___  35 DEMO     DEMO GSO  PSWDLID   Y Allows for easily guessed passwords
 ___  20 DEMO     DEMO GSO  MINPSWD   5 Short passwords are easily guessed
 ___  10 DEMO     DEMO GSO  LOGONCK   N Anyone can logon to TSO
 ___  10 DEMO     DEMO GSO  NONVSAM   N Disk scavenging threat not countered / no
 ___  10 DEMO     DEMO GSO  VSAM      N Disk scavenging threat not countered / no
 ___   5 DEMO     DEMO GSO  BLPLOG    N Bypass Label Processing not monitored
 ___   5 DEMO     DEMO GSO  PSWDNUM   Y Allows for easily guessed passwords
 ___   3 DEMO     DEMO GSO  VTAMOPEN  N VTAMOPEN provides an extra level of secur
 ___   1 DEMO     DEMO GSO  JOBCK     N Anyone can submit batch jobs
 ******************************** BOTTOM OF DATA ***********************************
```

Figure 106. Audit concern overview panel

In Figure 106 on page 76, the Overview audit concerns indicate multiple problems about GSO record settings. Table 13 on page 76 lists the audit priority values and the associated meaning.

Table 13. Audit Priority values

Value	**Meaning**
0-10	*informational*
10-20	*desired*
20-40	*review required*
40 and up	*serious exposure*

An understanding of the individual GSO records can be helpful in evaluating the audit concerns listed in the overview panel. There are multiple GSO records, such as OPTS, PSWD, RULEOPTS, and BACKUP. The actual GSO record name, PSWD, for example, does not display in the Audit concern overview panel. However, you can obtain the GSO record name for any necessary follow-up by using native ACF2 commands (see Figure 107 on page 77), or from the GSO System Settings panel (Figure 111 on page 78, Figure 112 on page 79, and Figure 113 on page 80).

The following information explains the sample audit concerns in Figure 106 on page 76:

- The GSO PSWD record contains multiple parameters, some of which are listed in the **Key** column of Audit concern overview panel. The GSO System Settings panel as shown in Figure 111 on page 78 provides another view of the GSO parameters and settings listed in the **Key** column. Some parameters hold a value, that is, a number, and others act as ON and OFF switches.

  The PSWD record parameter PSWDJES is set as *N* for *no* or *off*. In native ACF2 commands, this setting displays as NOPSWDJES as shown in Figure 107 on page 77. This value is the default value for the PSWD parameter.

  The audit concern shown in the Overview panel notes that password guessing through batch processing is possible due to the default setting of the parameter PSWDJES. This default setting is not recommended because password guessing through batch processing goes undetected. To prevent password hacking through batch jobs, change the value of PSWDJES to *Y* for *yes* or *on*. In native ACF2 commands, this setting displays as PSWDJES.

  For details on changing GSO record values, see the information about the native command GO PSWD provided in Figure 108 on page 77 and Figure 109 on page 77 and the GSO System settings information shown in Figure 115 on page 82.

- Recommended GSO PSWD settings are: `MINPSWD(6), PSWDJES, PSWDHST, PSWDLID, PSWDNUM, PSWDREQ, PSWDRSV, PSWDFRC, PASSLMT(3), MAXTRY(3), PSWDALPH, PSWDNMIC, PSWDMIN(1), PSWDPAIR(2), PSWDSIM(3), PSWDNAGE, PSWXHIST, PSWXHST#(9).` These settings are set to *YES* or *ON* or assigned a value (values are noted with a number inside a parentheses such as MINPSWD). A *NO* or *N* displayed with the parameter indicates that the setting is off or set to *NO*, that is, PSWDJES.

- The GSO OPTS JOBCHK/NOJOBCHK parameter is set to *NOJOBCHK*, the default setting. The recommended value is *Y*, for *yes*. This value prevents anyone with TSO access from submitting a batch job unless the JOB privilege is present in the Logon ID. Changing the parameter to *Y* displays JOBCHK.

The GSO System Settings panel (as shown in Figure 111 on page 78, Figure 112 on page 79, and Figure 113 on page 80) provides a comprehensive and easy to understand display of the GSO record settings. In contrast, viewing GSO records using ACF2 native commands as shown in the following examples is tedious and requires a knowledge of commands and syntax. In the example shown in Figure 107 on page 77, you need to issue the set control (gso) command to point to the Infostorage GSO records, before you can issue the list pswd command.

```
set control(gso)
 CONTROL
list pswd
  PROD / PSWD LAST CHANGED BY JSMITH ON 11/26/00-14:31
MAXTRY(2) MINPSWD(5) PASSLMT(4) PSWDALT PSWDFRC PSWDHST
NOPSWDJES NOPSWDLID NOPSWDNCH NOPSWDNUM PSWDREQ NOPSWDRSV NOPSWDXTR WRNDAYS(1)
```

Figure 107. ACF2 native command to list all GSO PSWD record parameter settings

In response to the audit concerns detected through zSecure Audit, changes to ACF2 GSO record values require the use of ACF2 native commands. For example, you must issue the SET CONTROL (GSO) command to point to the Infostorage GSO records before you issue the CHANGE PSWD command with the correct syntax, as shown in Figure 108 on page 77.

```
SET CONTROL(GSO)
CHANGE PSWD PSWDHST PSWDJES
```

Figure 108. ACF2 native command to change GSO PSWD record parameter settings

Finally, you must issue the ACF2 REFRESH command shown in Figure 109 on page 77 to make the GSO changes effective immediately.

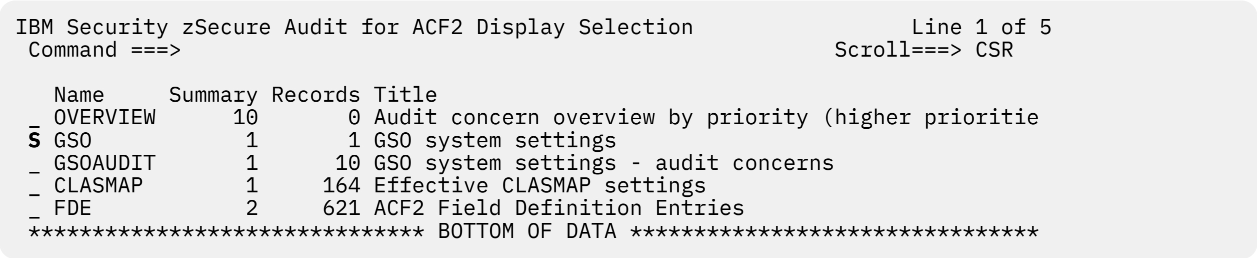
```
F ACF2, REFRESH(PSWD)
```

Figure 109. Native command to make GSO PSWD changes effective immediately

Viewing GSO system settings

Procedure

1. Press PF3 to the open the ACF2 Display Selection panel as shown in Figure 110 on page 78.
2. In the ACF2 Display Selection panel, tab to the **GSO** record.
3. To select the record, type S in the selection field as shown in Figure 110 on page 78.



```
IBM Security zSecure Audit for ACF2 Display Selection                 Line 1 of 5
 Command ===>                                                   Scroll===> CSR

   Name     Summary Records Title
 _ OVERVIEW      10       0 Audit concern overview by priority (higher prioritie
 S GSO            1       1 GSO system settings
 _ GSOAUDIT       1      10 GSO system settings - audit concerns
 _ CLASMAP        1     164 Effective CLASMAP settings
 _ FDE            2     621 ACF2 Field Definition Entries
 ******************************* BOTTOM OF DATA ********************************
```

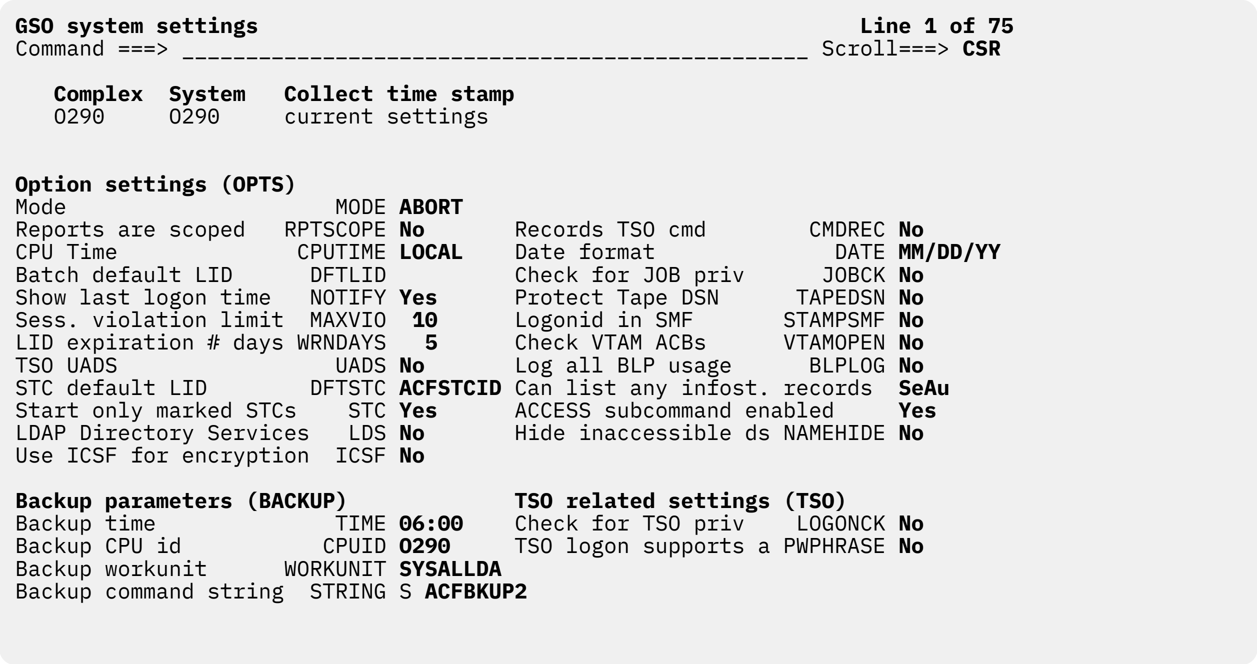
Figure 110. Select GSO system settings

4. Press Enter to open the GSO system settings panel as shown in Figure 111 on page 78.

   This panel shows the GSO system settings in an easy-to-read format with settings categorized by type such as Option settings (OPTS) and Backup parameters (BACKUP).

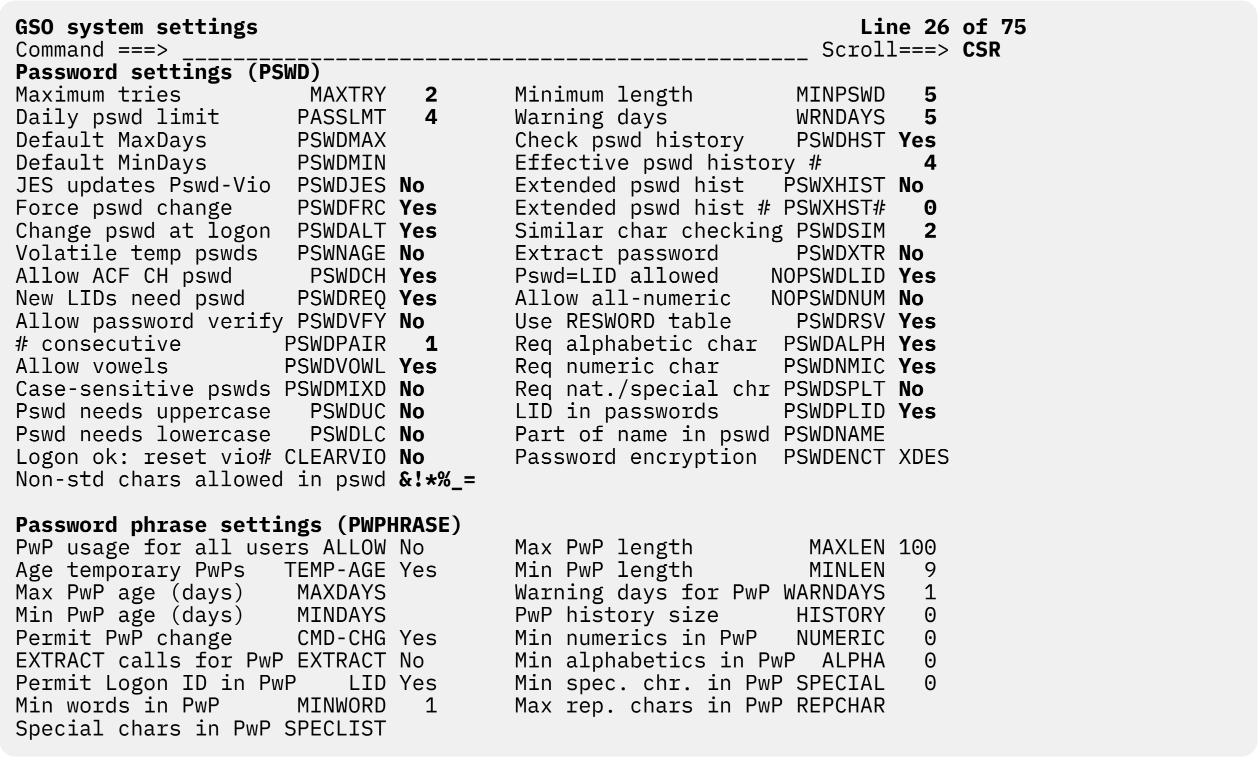
   The display mighty span several screens as shown in Figure 111 on page 78, Figure 112 on page 79, and Figure 113 on page 80. Press PF7 or PF8 to scroll up or down.

   For additional information about these settings, see "Global System Options" on page 80.



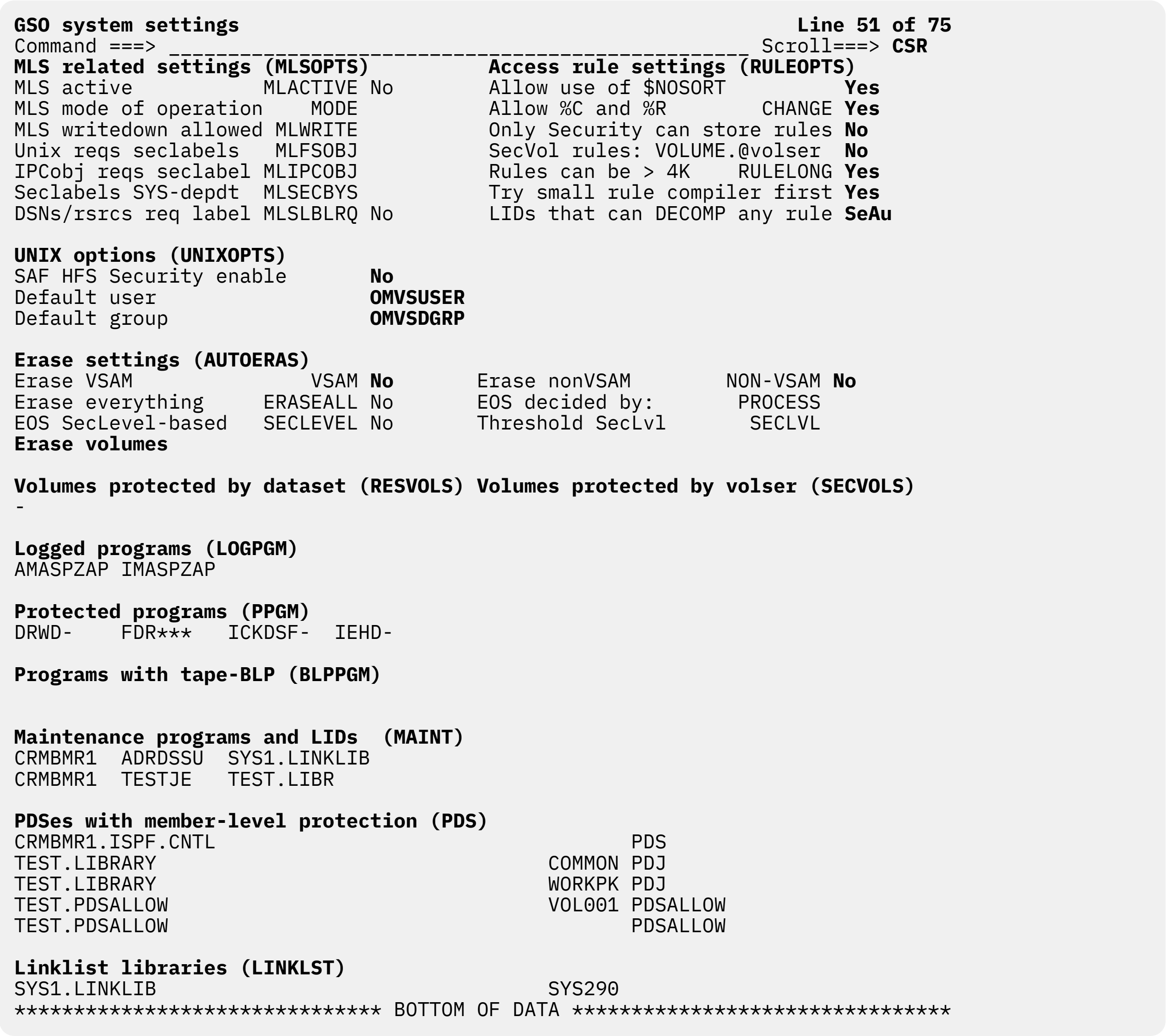
```
GSO system settings                                                Line 1 of 75
Command ===> _________________________________________________ Scroll===> CSR

   Complex  System   Collect time stamp
   0290     0290     current settings


Option settings (OPTS)
Mode                     MODE ABORT
Reports are scoped   RPTSCOPE No       Records TSO cmd        CMDREC No
CPU Time              CPUTIME LOCAL    Date format              DATE MM/DD/YY
Batch default LID      DFTLID          Check for JOB priv      JOBCK No
Show last logon time   NOTIFY Yes      Protect Tape DSN      TAPEDSN No
Sess. violation limit  MAXVIO  10      Logonid in SMF       STAMPSMF No
LID expiration # days WRNDAYS   5      Check VTAM ACBs      VTAMOPEN No
TSO UADS                 UADS No       Log all BLP usage      BLPLOG No
STC default LID        DFTSTC ACFSTCID Can list any infost. records  SeAu
Start only marked STCs    STC Yes      ACCESS subcommand enabled     Yes
LDAP Directory Services   LDS No       Hide inaccessible ds NAMEHIDE No
Use ICSF for encryption  ICSF No

Backup parameters (BACKUP)             TSO related settings (TSO)
Backup time              TIME 06:00    Check for TSO priv    LOGONCK No
Backup CPU id           CPUID 0290     TSO logon supports a PWPHRASE No
Backup workunit      WORKUNIT SYSALLDA
Backup command string  STRING S ACFBKUP2
```

Figure 111. GSO system settings (Screen 1)



```
GSO system settings                                               Line 26 of 75
Command ===> _________________________________________________ Scroll===> CSR
Password settings (PSWD)
Maximum tries          MAXTRY   2      Minimum length        MINPSWD   5
Daily pswd limit      PASSLMT   4      Warning days          WRNDAYS   5
Default MaxDays       PSWDMAX          Check pswd history    PSWDHST Yes
Default MinDays       PSWDMIN          Effective pswd history #       4
JES updates Pswd-Vio  PSWDJES No       Extended pswd hist   PSWXHIST No
Force pswd change     PSWDFRC Yes      Extended pswd hist # PSWXHST#   0
Change pswd at logon  PSWDALT Yes      Similar char checking PSWDSIM   2
Volatile temp pswds   PSWNAGE No       Extract password      PSWDXTR No
Allow ACF CH pswd      PSWDCH Yes      Pswd=LID allowed    NOPSWDLID Yes
New LIDs need pswd    PSWDREQ Yes      Allow all-numeric   NOPSWDNUM No
Allow password verify PSWDVFY No       Use RESWORD table     PSWDRSV Yes
# consecutive        PSWDPAIR   1      Req alphabetic char  PSWDALPH Yes
Allow vowels         PSWDVOWL Yes      Req numeric char     PSWDNMIC Yes
Case-sensitive pswds PSWDMIXD No       Req nat./special chr PSWDSPLT No
Pswd needs uppercase   PSWDUC No       LID in passwords     PSWDPLID Yes
Pswd needs lowercase   PSWDLC No       Part of name in pswd PSWDNAME
Logon ok: reset vio# CLEARVIO No       Password encryption  PSWDENCT XDES
Non-std chars allowed in pswd &!*%_=

Password phrase settings (PWPHRASE)
PwP usage for all users ALLOW No       Max PwP length         MAXLEN 100
Age temporary PwPs   TEMP-AGE Yes      Min PwP length         MINLEN   9
Max PwP age (days)    MAXDAYS          Warning days for PwP WARNDAYS   1
Min PwP age (days)    MINDAYS          PwP history size      HISTORY   0
Permit PwP change     CMD-CHG Yes      Min numerics in PwP   NUMERIC   0
EXTRACT calls for PwP EXTRACT No       Min alphabetics in PwP  ALPHA   0
Permit Logon ID in PwP    LID Yes      Min spec. chr. in PwP SPECIAL   0
Min words in PwP      MINWORD   1      Max rep. chars in PwP REPCHAR
Special chars in PwP SPECLIST
```

Figure 112. GSO system settings (Screen 2)



```
GSO system settings                                                 Line 51 of 75
Command ===> _________________________________________________ Scroll===> CSR
MLS related settings (MLSOPTS)         Access rule settings (RULEOPTS)
MLS active           MLACTIVE No        Allow use of $NOSORT          Yes
MLS mode of operation    MODE           Allow %C and %R        CHANGE Yes
MLS writedown allowed MLWRITE           Only Security can store rules No
Unix reqs seclabels   MLFSOBJ           SecVol rules: VOLUME.@volser  No
IPCobj reqs seclabel MLIPCOBJ           Rules can be > 4K    RULELONG Yes
Seclabels SYS-depdt  MLSECBYS           Try small rule compiler first Yes
DSNs/rsrcs req label MLSLBLRQ No        LIDs that can DECOMP any rule SeAu

UNIX options (UNIXOPTS)
SAF HFS Security enable       No
Default user                  OMVSUSER
Default group                 OMVSDGRP

Erase settings (AUTOERAS)
Erase VSAM               VSAM No       Erase nonVSAM        NON-VSAM No
Erase everything     ERASEALL No       EOS decided by:       PROCESS
EOS SecLevel-based   SECLEVEL No       Threshold SecLvl       SECLVL
Erase volumes

Volumes protected by dataset (RESVOLS) Volumes protected by volser (SECVOLS)
-

Logged programs (LOGPGM)
AMASPZAP IMASPZAP

Protected programs (PPGM)
DRWD-    FDR***   ICKDSF-  IEHD-

Programs with tape-BLP (BLPPGM)


Maintenance programs and LIDs  (MAINT)
CRMBMR1  ADRDSSU  SYS1.LINKLIB
CRMBMR1  TESTJE   TEST.LIBR

PDSes with member-level protection (PDS)
CRMBMR1.ISPF.CNTL                                    PDS
TEST.LIBRARY                                  COMMON PDJ
TEST.LIBRARY                                  WORKPK PDJ
TEST.PDSALLOW                                 VOL001 PDSALLOW
TEST.PDSALLOW                                        PDSALLOW

Linklist libraries (LINKLST)
SYS1.LINKLIB                                  SYS290
******************************* BOTTOM OF DATA ********************************
```

Figure 113. GSO system settings (Screen 3)

Global System Options

Figure 111 on page 78 displays GSO records, interpreted by IBM Security zSecure Audit for ACF2. In contrast, the native ACF2 command to view GSO records does not provide this interpretation. The **Option settings** heading shown in Figure 111 on page 78 is an explanation of the GSO OPTS record parameters. The OPTS record is a key GSO record providing control of settings such as system mode, date format, default logonids, last logon notify, started task checking, and authority to submit batch jobs.

Important OPTS parameters to review are:

MODE
If this parameter is set to any mode other than ABORT, it must be investigated.

Default logonids
Determine batch and started task logonids and investigate how and why they are used.

Started task checking (STC)
STC indicates that ACF2 is to validate data set access by started tasks. This option should be set to *ON*.

The following table provides the recommended password settings. You can also set a password phrase. For more information about using password phrases, see *IBM Security zSecure Audit for ACF2: User Reference Manual*.

Table 14. Recommended password settings

Password Controls	PSWD Record Parameter Settings
Password Controls Minimum length of 6	MINPSWD(6)
Password history checking enabled	PSWDHST
Prevent Logonid used as password	PSWDLID
Prevent all numeric password	PSWDNUM
Password required for all user logonids	PSWDREQ
New password forced when password reset	PSWDFRC
Password violation detected via batch jobs	PSWDJES
Restrict password selections	PSWDRSV
Threshold of password attempts in one session	PASSLMT(3)
Threshold of password attempts in one day	MAXTRY(3)
Require at least one alphabetic character in the password	PSWDALPH
Require at least one numeric character in the password	PSWDNMIC
Force users to wait at least one day between password changes	PSWDMIN(1)
Allow a maximum of two pairs of identical characters in the password	PSWDPAIR(2)
Temporary passwords are not added to the password history	PSWDNAGE
Allow a password history of more than 4 entries	PSWXHIST
Keep a password history of 13 (4+9) entries	PSWXHST#(9)

The GSO BACKUP record enables automatic backup of the ACF2 databases (VSAM clusters). A setting of *TIME(00:00)* indicates the automatic backup has been disabled. Confirm that the ACF2 database is backed up daily by ACF2 or another mechanism. *TIME(00:01)* directs ACF2 to back up the database at one minute after midnight. A command in the STRING field directs ACF2 to start a procedure after the automatic backup is complete. STRING(S ACFBKUP) is a START command for a procedure called ACFBKUP, supplied by your organization, that is, a member in SYS1.PROCLIB. This procedure copies the primary backup files to an alternate VSAM cluster for recovery purposes.

To change settings in the GSO PSWD record, issue the following ACF2 commands:

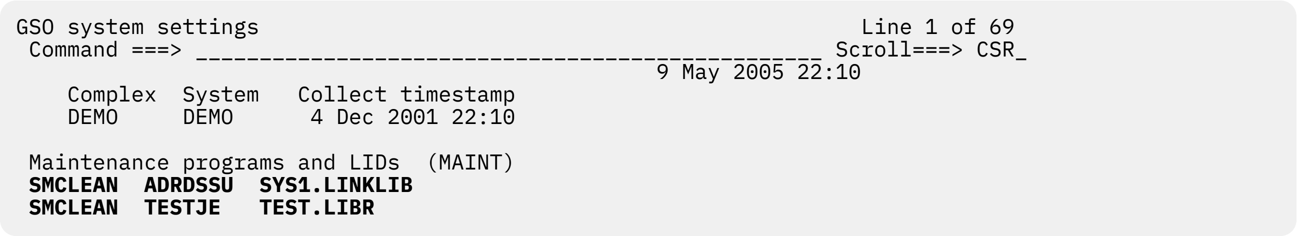
```
SET CONTROL(GSO)
CHANGE PSWD PSWDHST PSWDJES PSWDLID
```

Figure 114. Global System Options – gso records

The first command points to the GSO Infostorage records. The second command changes the PSWD settings.

GSO Maintenance record

The MAINT record as shown in Figure 115 on page 82 must be carefully monitored. MAINT records are established for a maintenance condition such as batch production processing. Data set rule validation processing is bypassed when a maintenance condition is met.



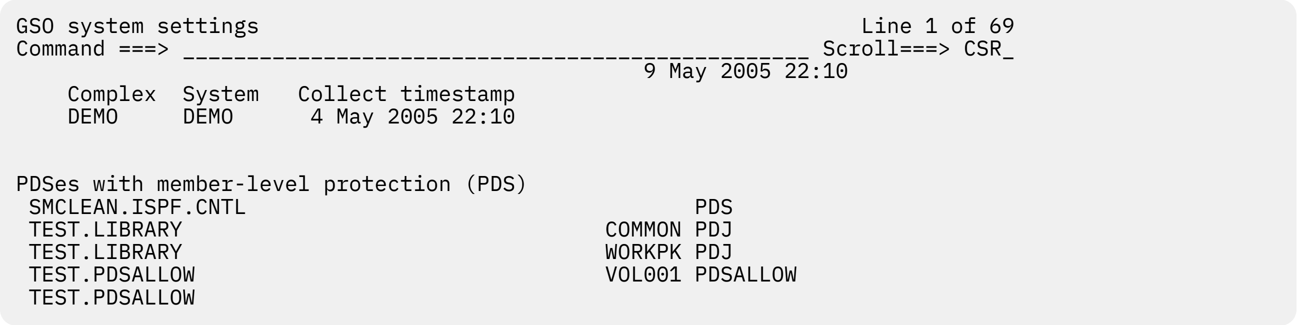
```
GSO system settings                                                  Line 1 of 69
 Command ===> _________________________________________________ Scroll===> CSR_
                                                        9 May 2005 22:10
    Complex  System   Collect timestamp
    DEMO     DEMO      4 Dec 2001 22:10

 Maintenance programs and LIDs  (MAINT)
 SMCLEAN  ADRDSSU  SYS1.LINKLIB
 SMCLEAN  TESTJE   TEST.LIBR
```

Figure 115. MAINT records

In the **Maintenance programs and LIDs** section of the panel shown in Figure 115 on page 82, the Logon ID, which is the first column in the list, SMCLEAN in this example, can run the program in the middle column. The middle column is ADRDSSU, from the specified load library, which is the last column, SYS1.LINKLIB in this example, uninhibited by ACF2 data set rule processing. This means that the *Logon ID* can access any data set in any fashion through the specified program execution. The access is limited or controlled through the program execution. MAINT should be used for production purposes.

GSO PDS record

This specific designation is established by way of the GSO PDS record as shown in Figure 116 on page 82. Any PDS with this protection is registered in the PDS record with the corresponding resource type.



```
GSO system settings                                                  Line 1 of 69
Command ===> _________________________________________________ Scroll===> CSR_
                                                       9 May 2005 22:10
    Complex  System   Collect timestamp
    DEMO     DEMO      4 May 2005 22:10


PDSes with member-level protection (PDS)
 SMCLEAN.ISPF.CNTL                                      PDS
 TEST.LIBRARY                                    COMMON PDJ
 TEST.LIBRARY                                    WORKPK PDJ
 TEST.PDSALLOW                                   VOL001 PDSALLOW
 TEST.PDSALLOW
```

Figure 116. Member-level protection through PDS record

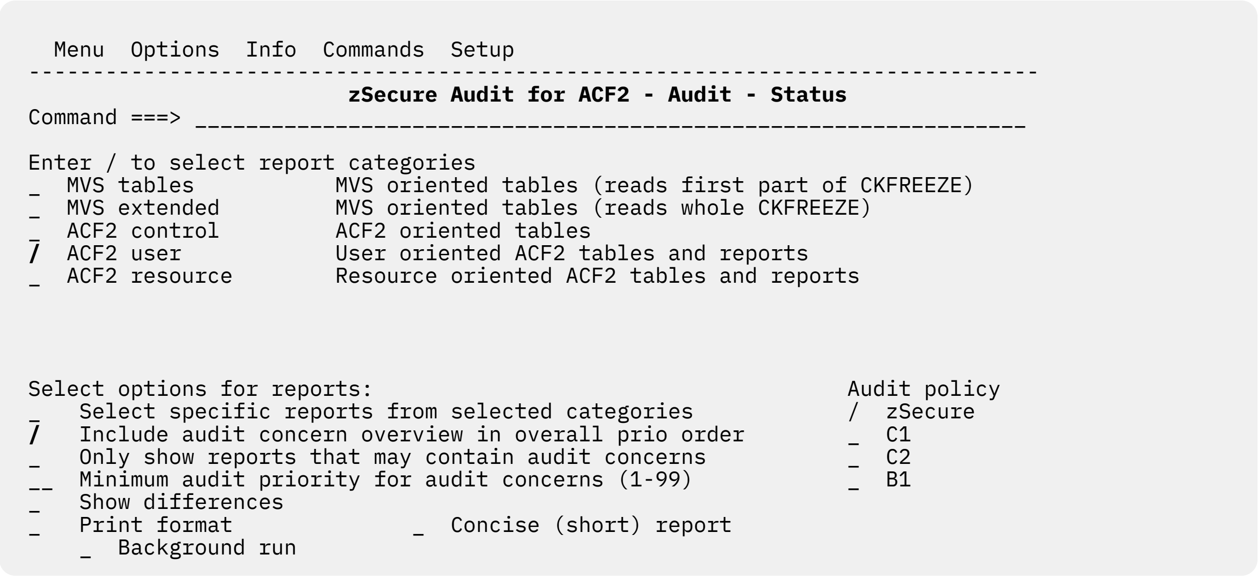
Auditing user concerns

About this task

Review the user audit concerns in detail.

Procedure

1. Press PF3 to return to the Audit selection panel as shown in Figure 117 on page 83.
2. In the selection panel, tab to the **ACF2 user** option.
3. Type / in the **ACF2 user** selection field as shown in Figure 117 on page 83.
4. Move to the bottom of the screen.
5. Type / in the **Include audit concern overview in overall prio order** selection field.

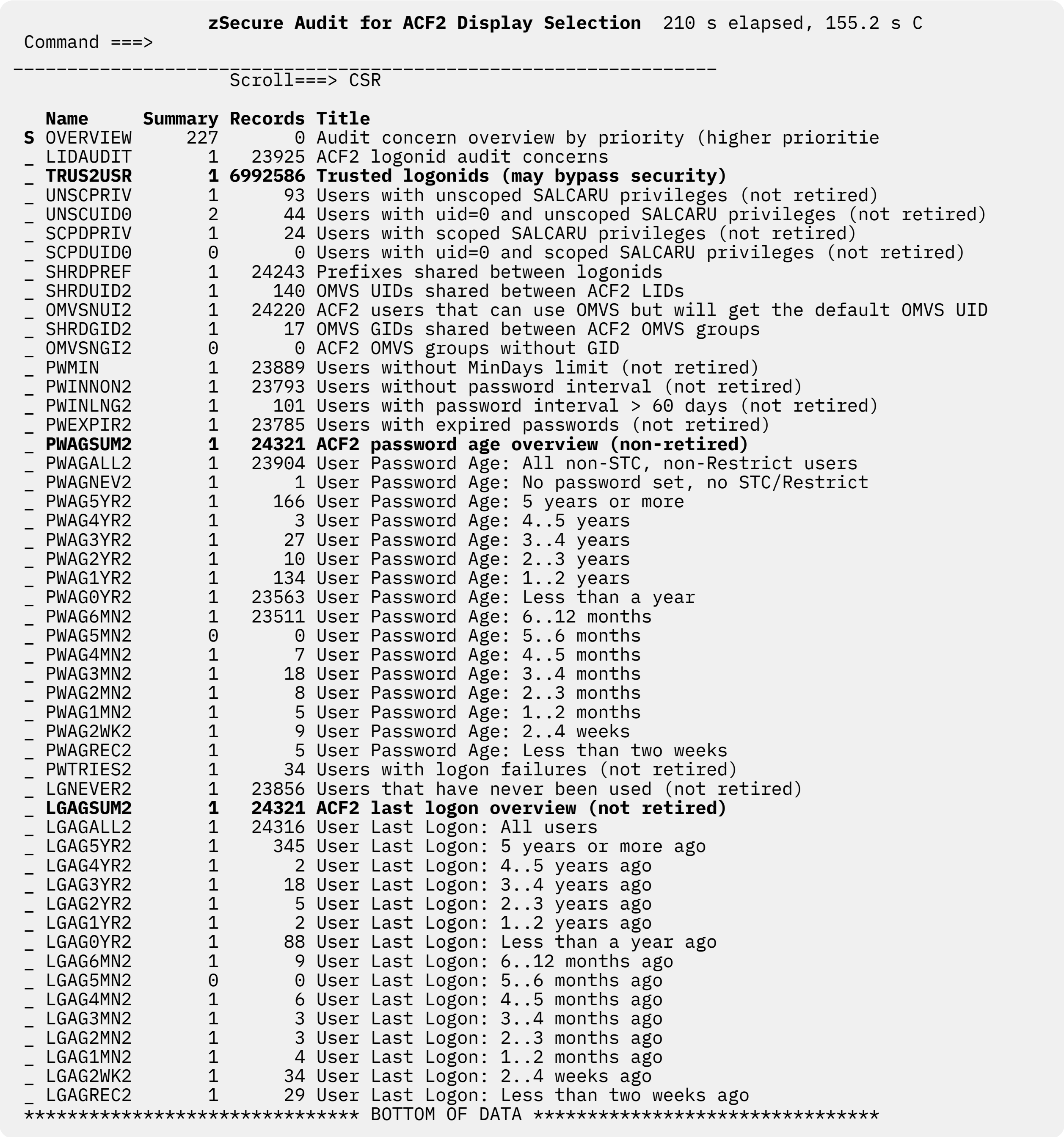


```
  Menu  Options  Info  Commands  Setup
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Audit - Status
Command ===> _________________________________________________________________

Enter / to select report categories
_  MVS tables          MVS oriented tables (reads first part of CKFREEZE)
_  MVS extended        MVS oriented tables (reads whole CKFREEZE)
_  ACF2 control        ACF2 oriented tables
/  ACF2 user           User oriented ACF2 tables and reports
_  ACF2 resource       Resource oriented ACF2 tables and reports



Select options for reports:                                     Audit policy
_   Select specific reports from selected categories            /  zSecure
/   Include audit concern overview in overall prio order        _  C1
_   Only show reports that may contain audit concerns           _  C2
__  Minimum audit priority for audit concerns (1-99)            _  B1
_   Show differences
_   Print format              _  Concise (short) report
    _  Background run
```

Figure 117. ACF2 user audit selection

6. Press Enter to open the **Display Selection** panel as shown in Figure 118 on page 84.

   Many reports and tables provide analysis of Logonid audit concerns. Figure 118 on page 84 lists the available reports for determining exposures and monitoring user activity. Items such as password aging, last logon statistics, excessive data set and resource access allowed via rules, and excessive access due to Logonid privileges are detected through this display.



```
                 zSecure Audit for ACF2 Display Selection  210 s elapsed, 155.2 s C
 Command ===>
-----------------------------------------------------------------
                    Scroll===> CSR

   Name     Summary Records Title
 S OVERVIEW     227       0 Audit concern overview by priority (higher prioritie
 _ LIDAUDIT       1   23925 ACF2 logonid audit concerns
 _ TRUS2USR       1 6992586 Trusted logonids (may bypass security)
 _ UNSCPRIV       1      93 Users with unscoped SALCARU privileges (not retired)
 _ UNSCUID0       2      44 Users with uid=0 and unscoped SALCARU privileges (not retired)
 _ SCPDPRIV       1      24 Users with scoped SALCARU privileges (not retired)
 _ SCPDUID0       0       0 Users with uid=0 and scoped SALCARU privileges (not retired)
 _ SHRDPREF       1   24243 Prefixes shared between logonids
 _ SHRDUID2       1     140 OMVS UIDs shared between ACF2 LIDs
 _ OMVSNUI2       1   24220 ACF2 users that can use OMVS but will get the default OMVS UID
 _ SHRDGID2       1      17 OMVS GIDs shared between ACF2 OMVS groups
 _ OMVSNGI2       0       0 ACF2 OMVS groups without GID
 _ PWMIN          1   23889 Users without MinDays limit (not retired)
 _ PWINNON2       1   23793 Users without password interval (not retired)
 _ PWINLNG2       1     101 Users with password interval > 60 days (not retired)
 _ PWEXPIR2       1   23785 Users with expired passwords (not retired)
 _ PWAGSUM2       1   24321 ACF2 password age overview (non-retired)
 _ PWAGALL2       1   23904 User Password Age: All non-STC, non-Restrict users
 _ PWAGNEV2       1       1 User Password Age: No password set, no STC/Restrict
 _ PWAG5YR2       1     166 User Password Age: 5 years or more
 _ PWAG4YR2       1       3 User Password Age: 4..5 years
 _ PWAG3YR2       1      27 User Password Age: 3..4 years
 _ PWAG2YR2       1      10 User Password Age: 2..3 years
 _ PWAG1YR2       1     134 User Password Age: 1..2 years
 _ PWAG0YR2       1   23563 User Password Age: Less than a year
 _ PWAG6MN2       1   23511 User Password Age: 6..12 months
 _ PWAG5MN2       0       0 User Password Age: 5..6 months
 _ PWAG4MN2       1       7 User Password Age: 4..5 months
 _ PWAG3MN2       1      18 User Password Age: 3..4 months
 _ PWAG2MN2       1       8 User Password Age: 2..3 months
 _ PWAG1MN2       1       5 User Password Age: 1..2 months
 _ PWAG2WK2       1       9 User Password Age: 2..4 weeks
 _ PWAGREC2       1       5 User Password Age: Less than two weeks
 _ PWTRIES2       1      34 Users with logon failures (not retired)
 _ LGNEVER2       1   23856 Users that have never been used (not retired)
 _ LGAGSUM2       1   24321 ACF2 last logon overview (not retired)
 _ LGAGALL2       1   24316 User Last Logon: All users
 _ LGAG5YR2       1     345 User Last Logon: 5 years or more ago
 _ LGAG4YR2       1       2 User Last Logon: 4..5 years ago
 _ LGAG3YR2       1      18 User Last Logon: 3..4 years ago
 _ LGAG2YR2       1       5 User Last Logon: 2..3 years ago
 _ LGAG1YR2       1       2 User Last Logon: 1..2 years ago
 _ LGAG0YR2       1      88 User Last Logon: Less than a year ago
 _ LGAG6MN2       1       9 User Last Logon: 6..12 months ago
 _ LGAG5MN2       0       0 User Last Logon: 5..6 months ago
 _ LGAG4MN2       1       6 User Last Logon: 4..5 months ago
 _ LGAG3MN2       1       3 User Last Logon: 3..4 months ago
 _ LGAG2MN2       1       3 User Last Logon: 2..3 months ago
 _ LGAG1MN2       1       4 User Last Logon: 1..2 months ago
 _ LGAG2WK2       1      34 User Last Logon: 2..4 weeks ago
 _ LGAGREC2       1      29 User Last Logon: Less than two weeks ago
 ******************************* BOTTOM OF DATA ********************************
```

Figure 118. User display selection

In Figure 118 on page 84, the following line provides information about trusted logon IDs.

```
 _ TRUS2USR       1   18457 Trusted logonids (may bypass security)
```

The following line provides an example of password concerns.

```
 _ PWAGSUM2       2     939 ACF2 password age overview (non-retired)
```

This line provides an example of last logon activity.

```
 _ LGAGSUM2       2     939 ACF2 last logon overview (not retired)
```

To review the Overview report selection, complete the following steps: “Reviewing the Overview report selection” on page 85.

Reviewing the Overview report selection

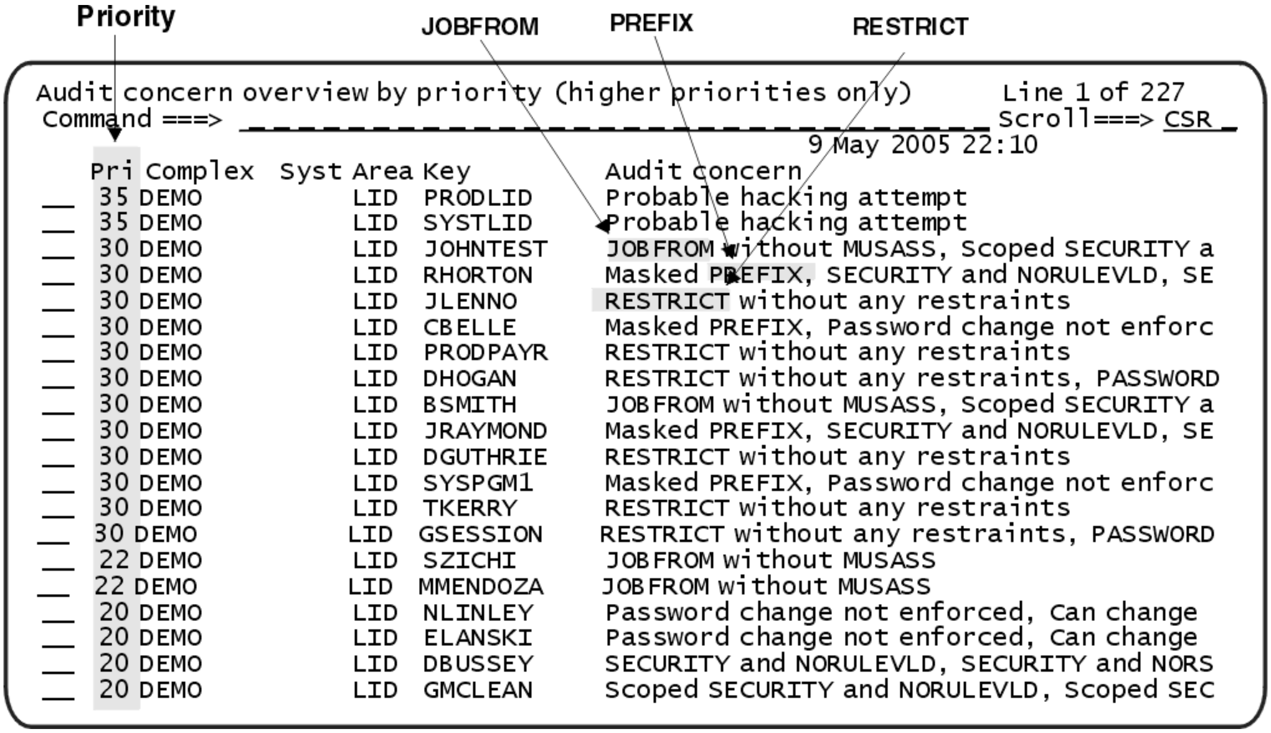
Procedure

1. In the Display Selection panel, type S in the selection field for the OVERVIEW summary record as shown in Figure 118 on page 84.
2. Press Enter to open the Overview display panel.

   For information about this panel, continue with the following section: "User audit concerns by priority" on page 85.

User audit concerns by priority

The Audit concern overview by priority panel shown in Figure 119 on page 85 is a simple summary of the most important audit concerns. These concerns are identified across all systems examined and are sorted by numerical audit priority.



```
 Audit concern overview by priority (higher priorities only)      Line 1 of 227
 Command ===> _________________________________________________  Scroll===> CSR _
                                                  9 May 2005 22:10
    Pri Complex  Syst Area Key           Audit concern
 __  35 DEMO          LID  PRODLID       Probable hacking attempt
 __  35 DEMO          LID  SYSTLID       Probable hacking attempt
 __  30 DEMO          LID  JOHNTEST      JOBFROM without MUSASS, Scoped SECURITY a
 __  30 DEMO          LID  RHORTON       Masked PREFIX, SECURITY and NORULEVLD, SE
 __  30 DEMO          LID  JLENNO        RESTRICT without any restraints
 __  30 DEMO          LID  CBELLE        Masked PREFIX, Password change not enforc
 __  30 DEMO          LID  PRODPAYR      RESTRICT without any restraints
 __  30 DEMO          LID  DHOGAN        RESTRICT without any restraints, PASSWORD
 __  30 DEMO          LID  BSMITH        JOBFROM without MUSASS, Scoped SECURITY a
 __  30 DEMO          LID  JRAYMOND      Masked PREFIX, SECURITY and NORULEVLD, SE
 __  30 DEMO          LID  DGUTHRIE      RESTRICT without any restraints
 __  30 DEMO          LID  SYSPGM1       Masked PREFIX, Password change not enforc
 __  30 DEMO          LID  TKERRY        RESTRICT without any restraints
 __  30 DEMO          LID  GSESSION      RESTRICT without any restraints, PASSWORD
 __  22 DEMO          LID  SZICHI        JOBFROM without MUSASS
 __  22 DEMO          LID  MMENDOZA      JOBFROM without MUSASS
 __  20 DEMO          LID  NLINLEY       Password change not enforced, Can change
 __  20 DEMO          LID  ELANSKI       Password change not enforced, Can change
 __  20 DEMO          LID  DBUSSEY       SECURITY and NORULEVLD, SECURITY and NORS
 __  20 DEMO          LID  GMCLEAN       Scoped SECURITY and NORULEVLD, Scoped SEC
```

Figure 119. User audit concerns by priority

Each line in the *Audit concern overview by priority* panel describes a single concern identified. The line contains the audit priority, complex and system name, problem area, key, that is, Logon ID, and the audit concern. Table 15 on page 85 lists the audit priority values and the associated meaning.

Table 15. Audit Priority values

Value	Meaning
0 - 10	*informational*
10 - 20	*desired*
20 - 40	*review required*
40 and up	*serious exposure*

In Figure 119 on page 85, the **JOBFROM** attribute allows the Logon ID *JOHNTEST* to submit a batch job by using any Logon ID in the ACF2 database without specifying a password. The JOBFROM attribute assumes trusted communication and must be carefully controlled. The attribute is meant for address spaces that support multiple users such as CICS and ROSCOE. It is not intended for individual user IDs and is dangerous if assigned to users versus address spaces.

Use of the **PREFIX** field in the Logon ID record indicates data set ownership. Logon IDs with a PREFIX value, that is, *SYS1*, matching the high-level qualifier of a requested data set prompt ACF2 to ignore data set rule validation. PREFIX values are set to match the *Logon* ID or set to null. The presence of RULEVLD in the Logon ID forces ACF2 to perform rule validation even if the requesting Logon ID owns the data set.

The **RESTRICT** attribute is intended for production batch processing. RESTRICT eliminates the need for password assignment. Compensating controls such as SOURCE and PROGRAM restrict the use of the exposed *Logon* ID. Ensure that all logon IDs with the RESTRICT attribute have at least one other compensating control: SUBAUTH (submitting program is APF-authorized), SOURCE, for example, STCINRDR, and PROGRAM, for example, your scheduler program name. Reference the ACF2 report ACFRPTJL for the appropriate parameter values associated with production jobs.

Auditing password concerns

About this task

IBM Security zSecure Audit for ACF2 provides various informational reports about password controls. As shown in the Audit concern overview by priority panel in Figure 119 on page 85, there are over 20 password reports to view. Password controls analyze concerns such as logon IDs without an assigned password, passwords that never expire, and passwords that were not changed over certain time frames.

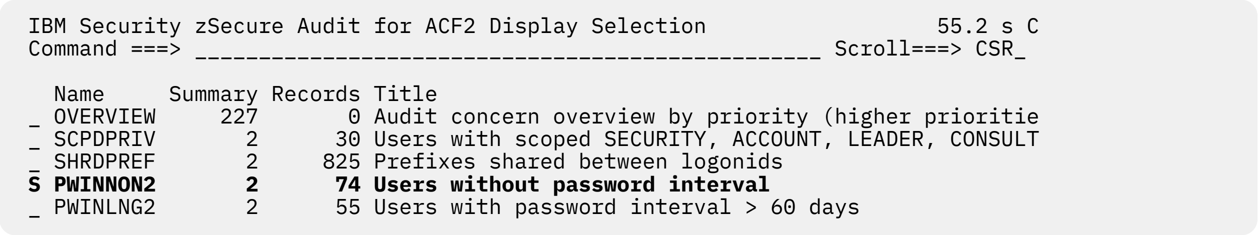
The following examples show how to access information about the *Logon IDs without a password interval* report. *Logon IDs without a password* do not have a MAXDAYS value assigned. MAXDAYS is a Logon ID field that controls the maximum usage of a password, forcing the password to expire when the interval is reached. When no MAXDAYS is assigned, the password does not expire automatically.

Logon IDs whose passwords do not expire can become targets for hacking. This information can aid anyone who attempts to guess passwords and gain unauthorized entry to your system. A recommended setting for MAXDAYS, maximum password usage, is 30 days.

To review logon IDs without a password interval information, see the PWINNON2 report. To view this report, complete the following steps:

Procedure

1. Press PF3 to return to the ACF2 Display Selection panel.
2. Move to the **PWINNON2** heading.
3. Type S in the selection field for **PWINNON2** as shown in Figure 120 on page 86.



```
IBM Security zSecure Audit for ACF2 Display Selection                  55.2 s C
Command ===> _________________________________________________ Scroll===> CSR_

  Name     Summary Records Title
_ OVERVIEW     227       0 Audit concern overview by priority (higher prioritie
_ SCPDPRIV       2      30 Users with scoped SECURITY, ACCOUNT, LEADER, CONSULT
_ SHRDPREF       2     825 Prefixes shared between logonids
S PWINNON2       2      74 Users without password interval
_ PWINLNG2       2      55 Users with password interval > 60 days
```

Figure 120. Select a password audit report

4. Press Enter to open the Users without a password interval summary panel as shown in Figure 121 on page 87.

   This summary display indicates the number of inactive and active logon IDs without a password interval. This example of Figure 121 on page 87 reveals that out of 74 users without a password interval, 57 logon IDs are active and 17 are inactive.

```
Users without password interval                                    Line 1 of 2
Command ===> __________________________________________________ Scroll===> CSR_
                                                 9 May 2005 02:24
   Complex  Timestamp         Users
   DEMO      4May005  02:24     74
   Inactivated  Users
S_ No              57
__ Yes             17
******************************* BOTTOM OF DATA ********************************
```

Figure 121. Password interval summary

Listing logon IDs without a password interval

Procedure

1. In the summary panel, move to the **No** entry in the **Inactivated Users** section as shown in Figure 121 on page 87.

   This entry represents the *active* logon IDs, that is, the logon IDs that are not *deactivated*.
2. Type S in the selection field for the **No** entry.
3. Press Enter to view the list of active logon IDs without a password interval as shown in Figure 122 on page 87.

```
Users without password interval                                   Line 1 of 57
Command ===> __________________________________________________ Scroll===> CSR_
                                                 9 May 2005 02:24

   LID      Name                 UID                      MxD PW change Inv Vio
__ ASMITH   SMITH, ALBERT        NCADM   ASMITH               28Mar2005   0   0
S_ BSMITH1  SMITH, BERT          NCTST   BSMITH1              28Mar2005   0   0
__ BSMITH2  SMITH, BERTIE        NCTST   BSMITH2              28Mar2005   0   0
__ JBERT    BERT, JOHN           NCTEC   JBERT                28Mar2005   0   0
__ JBERTRAM BERTRAM, JOHN        NLANL   JBERTRAM             28Mar2005   0   0
```

Figure 122. Users without password interval

   Figure 122 on page 87 lists the active logon IDs without a MAXDAYS value. In this example, the **MxD** column is blank for each *Logon* ID listed. Blanks indicate no password interval, which means that a password is vulnerable to hacking.

   The report provides the following information:

   - Logon ID
   - Name
   - UID string
   - Password interval (MxD)
   - Date that the password was last changed (PW change)

   Logon IDs without a password interval are vulnerable to attack. Determine whether any user logon IDs, as opposed to production batch or started task logon IDs, have powerful privileges assigned. Also determine whether any user logon IDs might have access to sensitive data by way of the uid string values. These logon IDs are even more vulnerable to attack.
4. To view more detailed information about the Logon ID, complete the following steps: “Viewing information about the Logon ID” on page 87

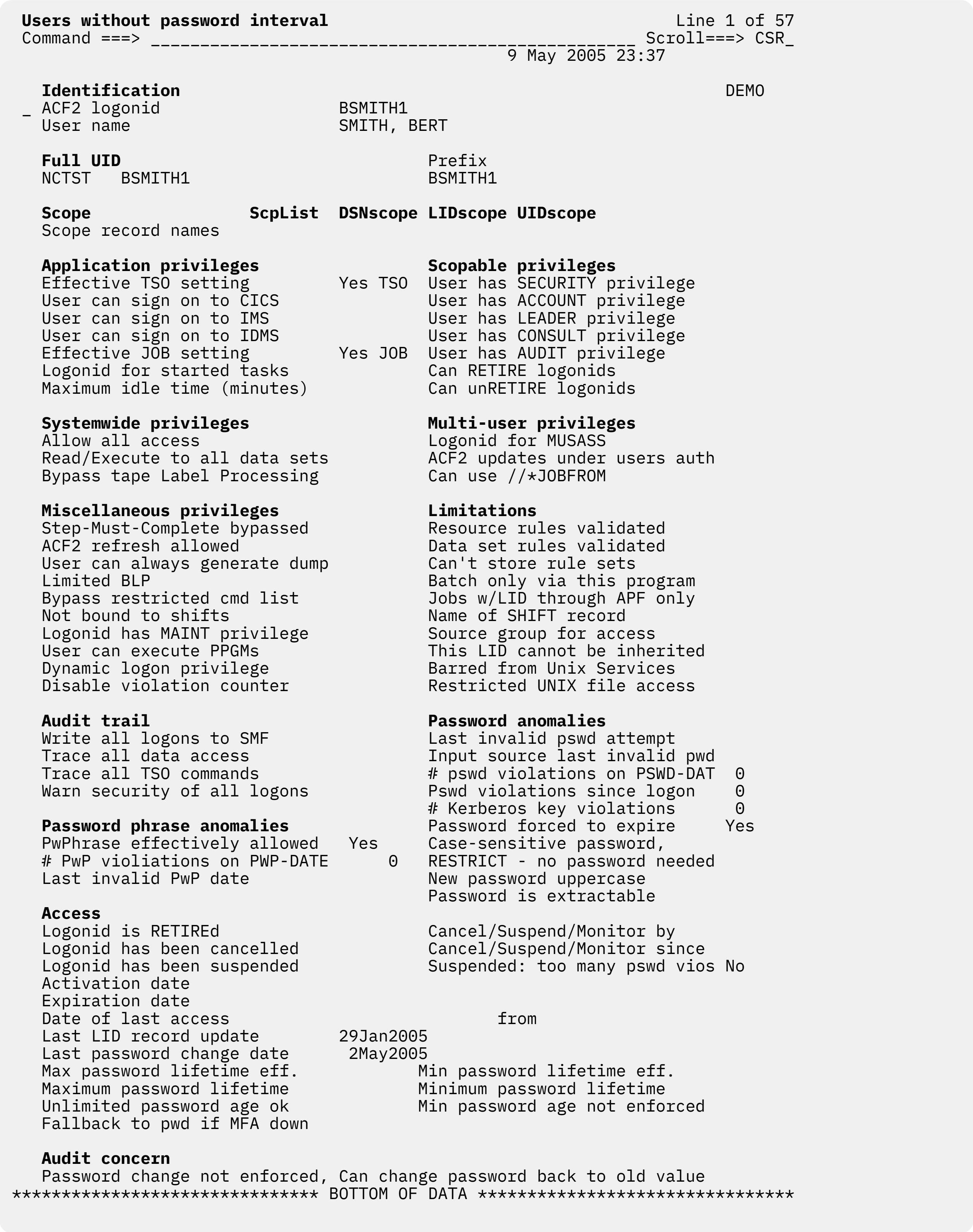
Viewing information about the Logon ID

Procedure

1. In the **Users without password interval** panel as shown in Figure 122 on page 87, move down to the **LID** list column and select a Logon ID to view.

2. Type S in the selection field for the Logon ID.

   In the example shown in Figure 122 on page 87 `BSMITH1, Bert Smith` is selected.
3. Press Enter to open the detail panel as shown in Figure 123 on page 88.



```
 Users without password interval                                  Line 1 of 57
 Command ===> _________________________________________________ Scroll===> CSR_
                                                 9 May 2005 23:37

   Identification                                                       DEMO
 _ ACF2 logonid                  BSMITH1
   User name                     SMITH, BERT

   Full UID                               Prefix
   NCTST   BSMITH1                        BSMITH1

   Scope                 ScpList  DSNscope LIDscope UIDscope
   Scope record names

   Application privileges                 Scopable privileges
   Effective TSO setting         Yes TSO  User has SECURITY privilege
   User can sign on to CICS               User has ACCOUNT privilege
   User can sign on to IMS                User has LEADER privilege
   User can sign on to IDMS               User has CONSULT privilege
   Effective JOB setting         Yes JOB  User has AUDIT privilege
   Logonid for started tasks              Can RETIRE logonids
   Maximum idle time (minutes)            Can unRETIRE logonids

   Systemwide privileges                  Multi-user privileges
   Allow all access                       Logonid for MUSASS
   Read/Execute to all data sets          ACF2 updates under users auth
   Bypass tape Label Processing           Can use //*JOBFROM

   Miscellaneous privileges               Limitations
   Step-Must-Complete bypassed            Resource rules validated
   ACF2 refresh allowed                   Data set rules validated
   User can always generate dump          Can't store rule sets
   Limited BLP                            Batch only via this program
   Bypass restricted cmd list             Jobs w/LID through APF only
   Not bound to shifts                    Name of SHIFT record
   Logonid has MAINT privilege            Source group for access
   User can execute PPGMs                 This LID cannot be inherited
   Dynamic logon privilege                Barred from Unix Services
   Disable violation counter              Restricted UNIX file access

   Audit trail                            Password anomalies
   Write all logons to SMF                Last invalid pswd attempt
   Trace all data access                  Input source last invalid pwd
   Trace all TSO commands                 # pswd violations on PSWD-DAT  0
   Warn security of all logons            Pswd violations since logon    0
                                          # Kerberos key violations      0
   Password phrase anomalies              Password forced to expire     Yes
   PwPhrase effectively allowed   Yes     Case-sensitive password,
   # PwP violiations on PWP-DATE      0   RESTRICT - no password needed
   Last invalid PwP date                  New password uppercase
                                          Password is extractable
   Access
   Logonid is RETIREd                     Cancel/Suspend/Monitor by
   Logonid has been cancelled             Cancel/Suspend/Monitor since
   Logonid has been suspended             Suspended: too many pswd vios No
   Activation date
   Expiration date
   Date of last access                           from
   Last LID record update        29Jan2005
   Last password change date      2May2005
   Max password lifetime eff.            Min password lifetime eff.
   Maximum password lifetime             Minimum password lifetime
   Unlimited password age ok             Min password age not enforced
   Fallback to pwd if MFA down

   Audit concern
   Password change not enforced, Can change password back to old value
******************************* BOTTOM OF DATA ********************************
```

Figure 123. Detail Logon ID display of user without password interval

Both Figure 122 on page 87 and Figure 123 on page 88 show detailed information displays of a Logon ID. When additional information is necessary from Figure 122 on page 87, it is easy to select the Logon ID in question. You can also view all the fields in the Logon ID record as shown in Figure 123 on page 88. In addition, IBM Security zSecure Audit for ACF2 provides audit concerns for any Logon ID settings such as MAXDAYS and MINDAYS. In Figure 123 on page 88 , the following line shows that no value was assigned to these fields for *BSMITH1*.

```
 # days before pswd expires             # days wait before pswd CH
```

The maximum and minimum usage of a password is not enforced for this sample user. The result is that a password that might never be altered by the user.

Creating audit reports for resource concerns

About this task

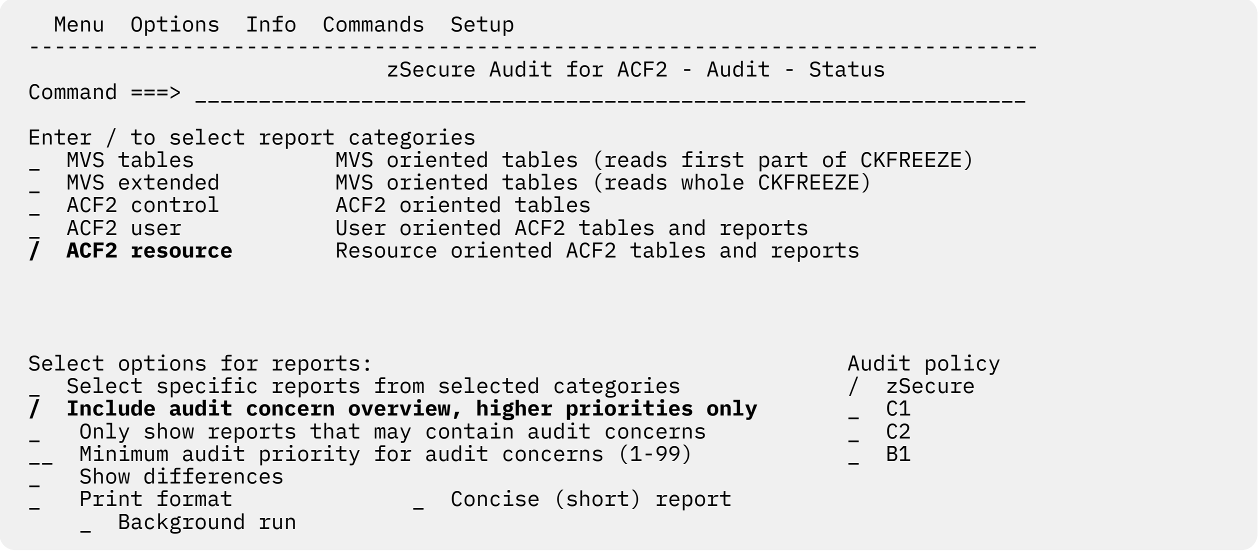
The following reports are available within this category:

- Sensitive Data reports
- Authorized Programs report
- Started Task Protection report
- Globally Writable Files report
- Sensitive Data Trustees report
- Sensitive Data by Rule reports

Procedure

To view audit concerns related to resources and data sets, complete the following steps:

1. Press PF3 until you return to the Audit Status panel as shown in Figure 124 on page 89.
2. Move to the **ACF2 resource** option.
3. Type / in the selection field for **ACF2 resource** as shown in Figure 124 on page 89.
4. Move to the bottom of the screen.
5. Type **/** in the selection field for **Include audit concern overview, higher priorities only** as shown in Figure 124 on page 89.

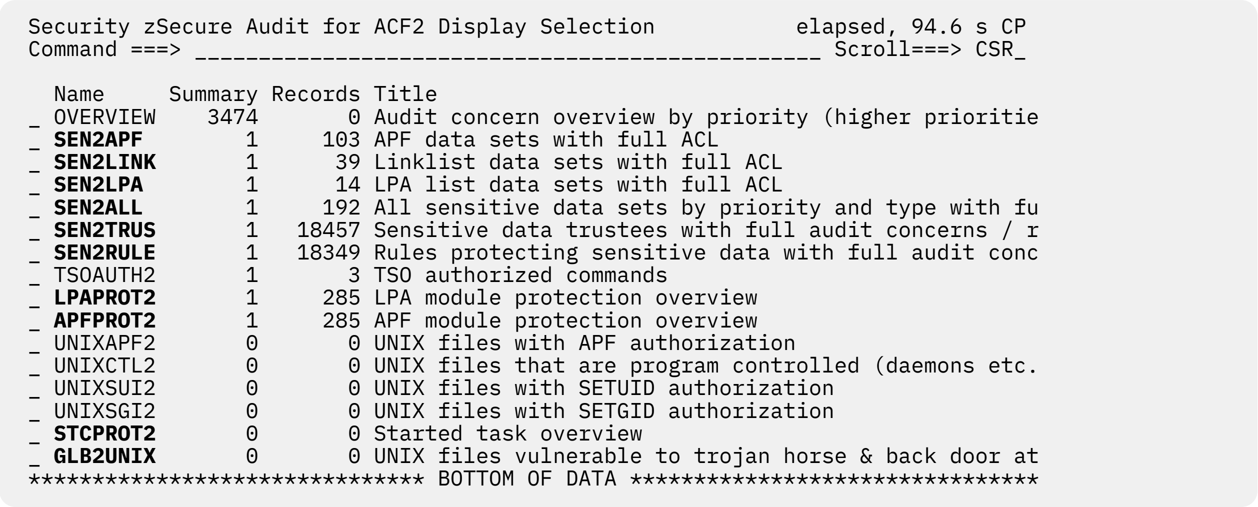


```
  Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
                            zSecure Audit for ACF2 - Audit - Status
Command ===> _________________________________________________________________

Enter / to select report categories
_  MVS tables          MVS oriented tables (reads first part of CKFREEZE)
_  MVS extended        MVS oriented tables (reads whole CKFREEZE)
_  ACF2 control        ACF2 oriented tables
_  ACF2 user           User oriented ACF2 tables and reports
/  ACF2 resource       Resource oriented ACF2 tables and reports



Select options for reports:                                   Audit policy
_  Select specific reports from selected categories           /  zSecure
/  Include audit concern overview, higher priorities only     _  C1
_   Only show reports that may contain audit concerns         _  C2
__  Minimum audit priority for audit concerns (1-99)          _  B1
_   Show differences
_   Print format              _  Concise (short) report
      _  Background run
```

Figure 124. Select ACF2 resource

6. Press Enter to open the reports panel as shown in Figure 125 on page 90.

This panel shows the reports available to audit resources.



```
Security zSecure Audit for ACF2 Display Selection           elapsed, 94.6 s CP
Command ===> _________________________________________________ Scroll===> CSR_

  Name     Summary Records Title
_ OVERVIEW    3474       0 Audit concern overview by priority (higher prioritie
_ SEN2APF        1     103 APF data sets with full ACL
_ SEN2LINK       1      39 Linklist data sets with full ACL
_ SEN2LPA        1      14 LPA list data sets with full ACL
_ SEN2ALL        1     192 All sensitive data sets by priority and type with fu
_ SEN2TRUS       1   18457 Sensitive data trustees with full audit concerns / r
_ SEN2RULE       1   18349 Rules protecting sensitive data with full audit conc
_ TSOAUTH2       1       3 TSO authorized commands
_ LPAPROT2       1     285 LPA module protection overview
_ APFPROT2       1     285 APF module protection overview
_ UNIXAPF2       0       0 UNIX files with APF authorization
_ UNIXCTL2       0       0 UNIX files that are program controlled (daemons etc.
_ UNIXSUI2       0       0 UNIX files with SETUID authorization
_ UNIXSGI2       0       0 UNIX files with SETGID authorization
_ STCPROT2       0       0 Started task overview
_ GLB2UNIX       0       0 UNIX files vulnerable to trojan horse & back door at
****************************** BOTTOM OF DATA *******************************
```

Figure 125. Reports available to audit resources

In the example shown in Figure 125 on page 90, you can see the following reports:

- Sensitivity reports (report record names begin with SEN2*)
- Authorized program reports (LPAPROT2 and APFPROT2)
- STC Overview report (STCPROT2)
- Globally Writable report (GLB2UNIX)

The following sections provide more information about selecting and viewing audit concerns in reports.

Sensitive Data report

These users are labeled as trusted because access is granted through rules. Data sets might be selected from these panels to view rule lines that grant access.

Authorized Programs report

Started Task Protection report

This report shows the procedure name, Logon ID associated with the started task, and the associated ACF2 Logon ID privilege. The last modification date and the Logon ID that performed the update are also noted.

Globally Writable Files report

Sensitive Data Trustees report

These reports provide a broad view of access granted to data sets such as APF libraries and the ACF2 databases.

To view this report, complete the following steps: “Displaying the sensitive data trustees report” on page 91.

To see more detail, complete the following steps: “Viewing more detail” on page 91.

To select an entry, complete the following steps: “Selecting an entry” on page 92.

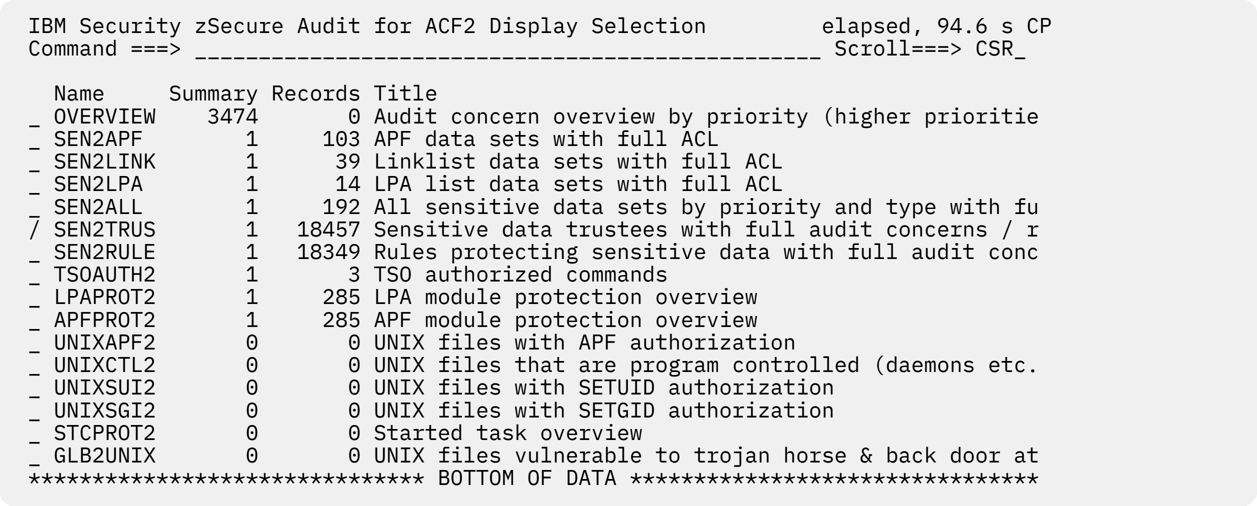
To view similar information for rules, complete the following steps: “Viewing similar information for rules” on page 93.

Displaying the sensitive data trustees report

Procedure

To view information in a sensitive data trustees report, follow these steps.

1. Move down to select **SEN2TRUS**.
2. In the selection field, type /. Then, press Enter to open the report display as shown in Figure 126 on page 91.



```
IBM Security zSecure Audit for ACF2 Display Selection         elapsed, 94.6 s CP
Command ===> _________________________________________________ Scroll===> CSR_

  Name     Summary Records Title
_ OVERVIEW    3474       0 Audit concern overview by priority (higher prioritie
_ SEN2APF        1     103 APF data sets with full ACL
_ SEN2LINK       1      39 Linklist data sets with full ACL
_ SEN2LPA        1      14 LPA list data sets with full ACL
_ SEN2ALL        1     192 All sensitive data sets by priority and type with fu
/ SEN2TRUS       1   18457 Sensitive data trustees with full audit concerns / r
_ SEN2RULE       1   18349 Rules protecting sensitive data with full audit conc
_ TSOAUTH2       1       3 TSO authorized commands
_ LPAPROT2       1     285 LPA module protection overview
_ APFPROT2       1     285 APF module protection overview
_ UNIXAPF2       0       0 UNIX files with APF authorization
_ UNIXCTL2       0       0 UNIX files that are program controlled (daemons etc.
_ UNIXSUI2       0       0 UNIX files with SETUID authorization
_ UNIXSGI2       0       0 UNIX files with SETGID authorization
_ STCPROT2       0       0 Started task overview
_ GLB2UNIX       0       0 UNIX files vulnerable to trojan horse & back door at
****************************** BOTTOM OF DATA ********************************
```

Figure 126. Sensitive data trustees

Resources are grouped to demonstrate a broad view such as access to APF libraries and ACF2 database files. The reports show the number of resources within a group, the number of trustees with access, and the number of audit concerns. Detail displays show the data set name, Logon ID, the audit concern, and the rule line that grants access. Figure 127 on page 92 lists each sensitivity group, the class, that is, data set, number of resources within the group, and the number of audit concerns identified (trust relations).

Viewing more detail

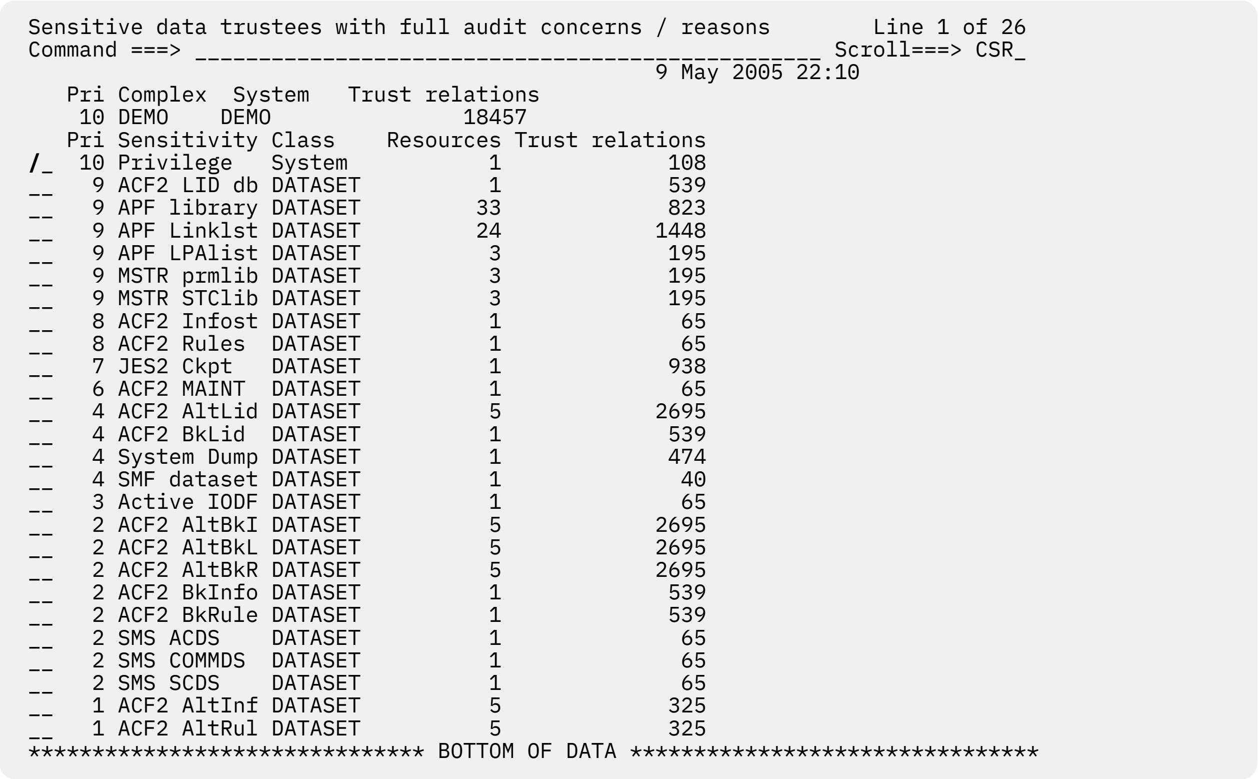
Before you begin

Complete the steps in "Displaying the sensitive data trustees report" on page 91

Procedure

Follow these steps to view more information in the sensitive data trustees report:

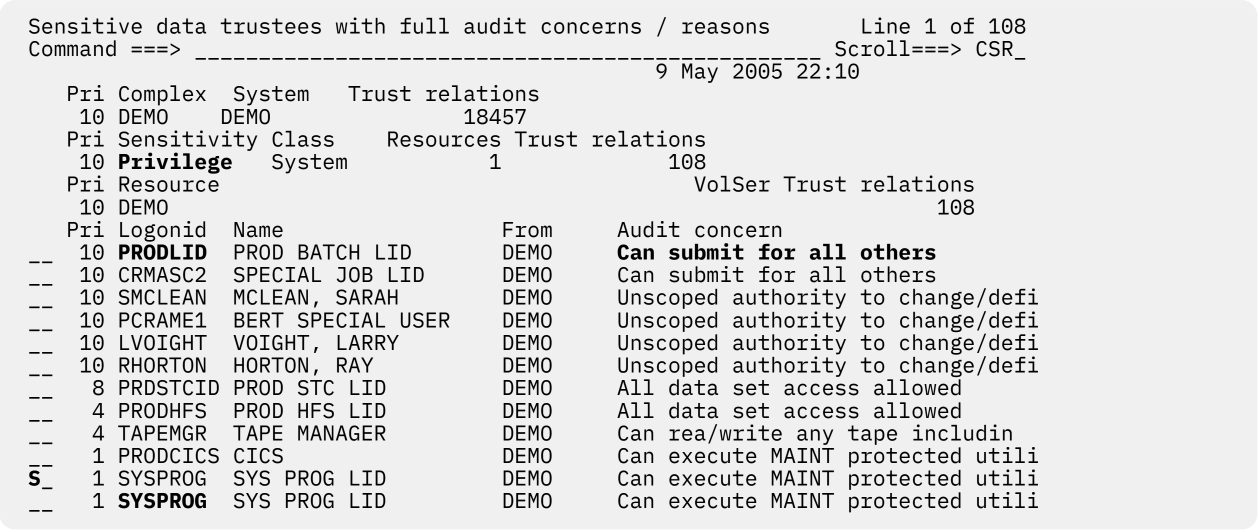
1. Move to an entry such as **Privilege**.
2. Type / in the selection field for **Privilege** as shown in Figure 127 on page 92. Then, press Enter.



```
Sensitive data trustees with full audit concerns / reasons        Line 1 of 26
Command ===> _________________________________________________ Scroll===> CSR_
                                                 9 May 2005 22:10
   Pri Complex  System   Trust relations
    10 DEMO    DEMO            18457
   Pri Sensitivity Class    Resources Trust relations
/_  10 Privilege   System          1             108
__   9 ACF2 LID db DATASET         1             539
__   9 APF library DATASET        33             823
__   9 APF Linklst DATASET        24            1448
__   9 APF LPAlist DATASET         3             195
__   9 MSTR prmlib DATASET         3             195
__   9 MSTR STClib DATASET         3             195
__   8 ACF2 Infost DATASET         1              65
__   8 ACF2 Rules  DATASET         1              65
__   7 JES2 Ckpt   DATASET         1             938
__   6 ACF2 MAINT  DATASET         1              65
__   4 ACF2 AltLid DATASET         5            2695
__   4 ACF2 BkLid  DATASET         1             539
__   4 System Dump DATASET         1             474
__   4 SMF dataset DATASET         1              40
__   3 Active IODF DATASET         1              65
__   2 ACF2 AltBkI DATASET         5            2695
__   2 ACF2 AltBkL DATASET         5            2695
__   2 ACF2 AltBkR DATASET         5            2695
__   2 ACF2 BkInfo DATASET         1             539
__   2 ACF2 BkRule DATASET         1             539
__   2 SMS ACDS    DATASET         1              65
__   2 SMS COMMDS  DATASET         1              65
__   2 SMS SCDS    DATASET         1              65
__   1 ACF2 AltInf DATASET         5             325
__   1 ACF2 AltRul DATASET         5             325
******************************* BOTTOM OF DATA *********************************
```

Figure 127. Select a sensitivity group such as Privilege

Figure 128 on page 92 shows the display of logon IDs within the sensitivity group of Privilege. These IDs have access due to a special privilege assigned to the Logon ID. The audit concern describes the threat.



```
Sensitive data trustees with full audit concerns / reasons       Line 1 of 108
Command ===> _________________________________________________ Scroll===> CSR_
                                                 9 May 2005 22:10
   Pri Complex  System   Trust relations
    10 DEMO    DEMO            18457
   Pri Sensitivity Class    Resources Trust relations
    10 Privilege   System          1             108
   Pri Resource                                     VolSer Trust relations
    10 DEMO                                                            108
   Pri Logonid  Name                 From     Audit concern
__  10 PRODLID  PROD BATCH LID       DEMO     Can submit for all others
__  10 CRMASC2  SPECIAL JOB LID      DEMO     Can submit for all others
__  10 SMCLEAN  MCLEAN, SARAH        DEMO     Unscoped authority to change/defi
__  10 PCRAME1  BERT SPECIAL USER    DEMO     Unscoped authority to change/defi
__  10 LVOIGHT  VOIGHT, LARRY        DEMO     Unscoped authority to change/defi
__  10 RHORTON  HORTON, RAY          DEMO     Unscoped authority to change/defi
__   8 PRDSTCID PROD STC LID         DEMO     All data set access allowed
__   4 PRODHFS  PROD HFS LID         DEMO     All data set access allowed
__   4 TAPEMGR  TAPE MANAGER         DEMO     Can rea/write any tape includin
__   1 PRODCICS CICS                 DEMO     Can execute MAINT protected utili
S_   1 SYSPROG  SYS PROG LID         DEMO     Can execute MAINT protected utili
__   1 SYSPROG  SYS PROG LID         DEMO     Can execute MAINT protected utili
```

Figure 128. Sensitive data trustees with full audit concerns

Further information can be gathered by selecting an entry and viewing the user name and assigned privilege such as SECURITY, JOBFROM, or READALL.

Selecting an entry

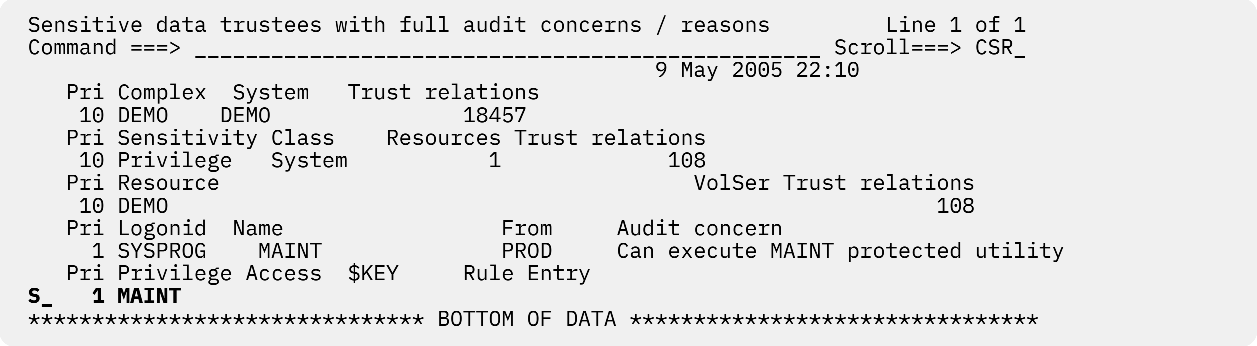
Procedure

1. In the Sensitive data trustees with full audit concerns panel, move to a Logon ID entry.

The example shown in Figure 128 on page 92 uses the *SYSPROG* Logon ID.

2. Type S in the selection field for the Logon ID entry as shown in Figure 128 on page 92.
3. Press Enter to view the record.

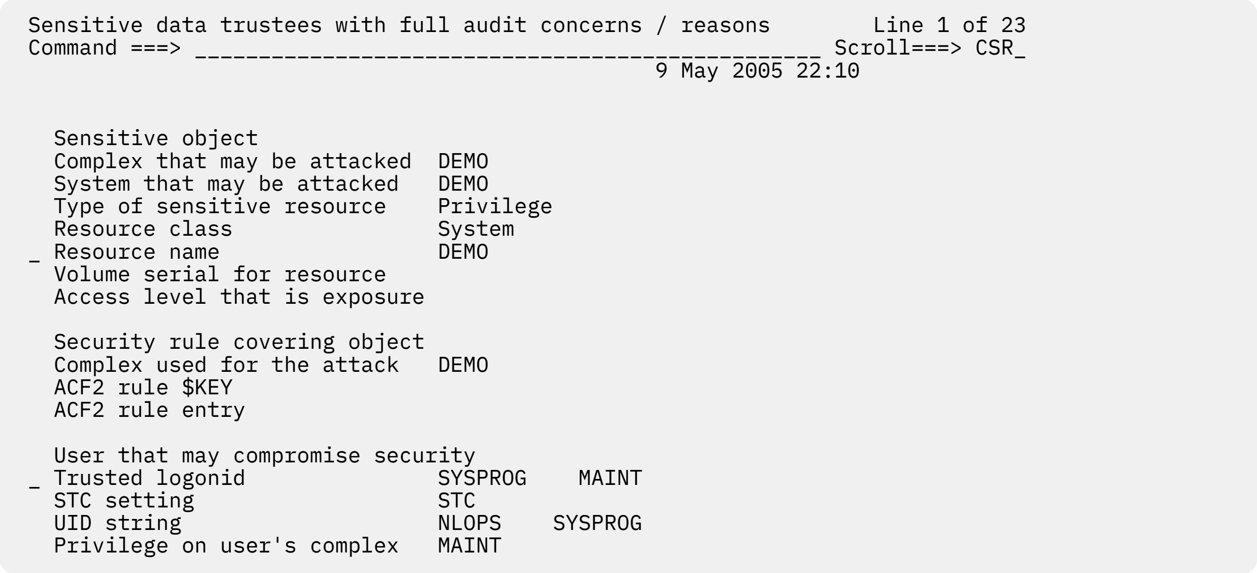
   Figure 129 on page 93 shows the Logon ID *SYSPROG* with the MAINT privilege.
4. To view more detail, type S in the selection field for the **MAINT** privilege entry as shown in Figure 129 on page 93.



```
Sensitive data trustees with full audit concerns / reasons         Line 1 of 1
Command ===> _________________________________________________ Scroll===> CSR_
                                                 9 May 2005 22:10
   Pri Complex  System   Trust relations
    10 DEMO    DEMO               18457
   Pri Sensitivity Class    Resources Trust relations
    10 Privilege   System           1             108
   Pri Resource                                     VolSer Trust relations
    10 DEMO                                                            108
   Pri Logonid  Name                 From     Audit concern
     1 SYSPROG    MAINT              PROD     Can execute MAINT protected utility
   Pri Privilege Access  $KEY     Rule Entry
S_   1 MAINT
******************************* BOTTOM OF DATA ********************************
```

Figure 129. Select a Logon ID to view the assigned privilege

5. Press Enter to open the detailed view for the *MAINT* privilege entry as shown in Figure 130 on page 93.



```
Sensitive data trustees with full audit concerns / reasons        Line 1 of 23
Command ===> _________________________________________________ Scroll===> CSR_
                                                 9 May 2005 22:10


  Sensitive object
  Complex that may be attacked  DEMO
  System that may be attacked   DEMO
  Type of sensitive resource    Privilege
  Resource class                System
_ Resource name                 DEMO
  Volume serial for resource
  Access level that is exposure

  Security rule covering object
  Complex used for the attack   DEMO
  ACF2 rule $KEY
  ACF2 rule entry

  User that may compromise security
_ Trusted logonid               SYSPROG    MAINT
  STC setting                   STC
  UID string                    NLOPS    SYSPROG
  Privilege on user's complex   MAINT
```

Figure 130. Shows the detail Logon ID attributes for the SYSPROG Logon ID

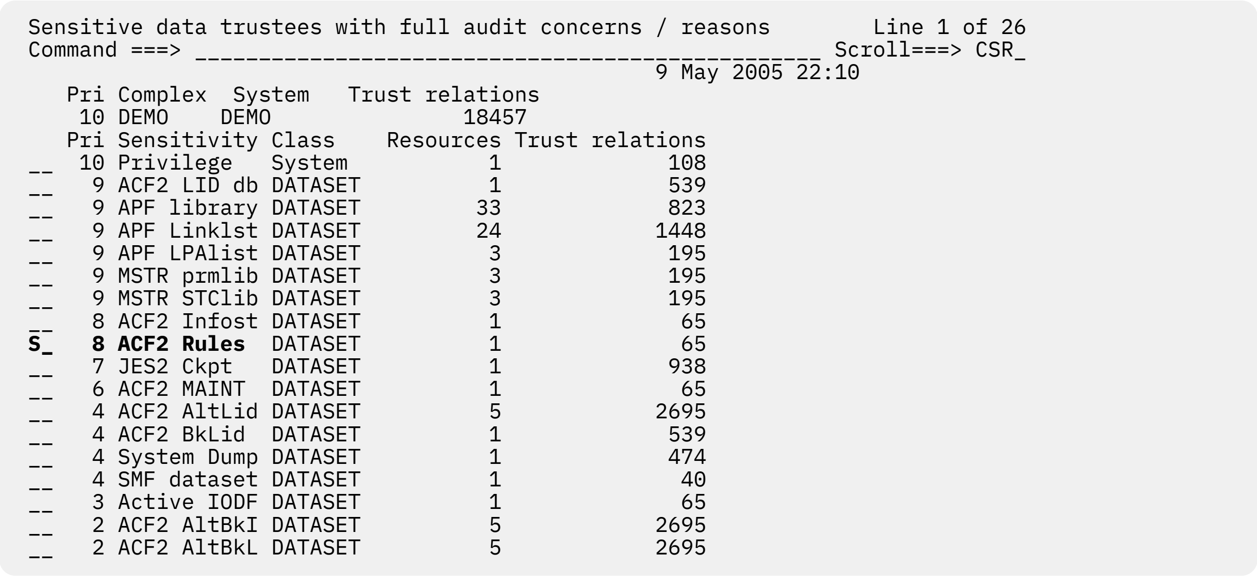
Viewing similar information for rules

Before you begin

Access the **Sensitive data trustees with full audit concerns / reasons** panel using the procedure in "Displaying the sensitive data trustees report" on page 91.

Procedure

1. Move to the **ACF2 Rules** field as shown in Figure 131 on page 94.



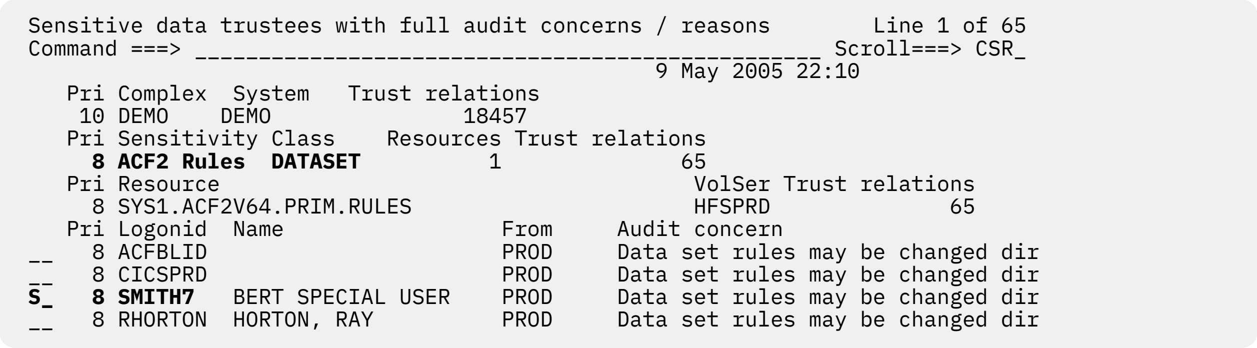
```
Sensitive data trustees with full audit concerns / reasons        Line 1 of 26
Command ===> _________________________________________________ Scroll===> CSR_
                                                 9 May 2005 22:10
   Pri Complex  System   Trust relations
    10 DEMO    DEMO             18457
   Pri Sensitivity Class    Resources Trust relations
__  10 Privilege   System           1             108
__   9 ACF2 LID db DATASET          1             539
__   9 APF library DATASET         33             823
__   9 APF Linklst DATASET         24            1448
__   9 APF LPAlist DATASET          3             195
__   9 MSTR prmlib DATASET          3             195
__   9 MSTR STClib DATASET          3             195
__   8 ACF2 Infost DATASET          1              65
S_   8 ACF2 Rules  DATASET          1              65
__   7 JES2 Ckpt   DATASET          1             938
__   6 ACF2 MAINT  DATASET          1              65
__   4 ACF2 AltLid DATASET          5            2695
__   4 ACF2 BkLid  DATASET          1             539
__   4 System Dump DATASET          1             474
__   4 SMF dataset DATASET          1              40
__   3 Active IODF DATASET          1              65
__   2 ACF2 AltBkI DATASET          5            2695
__   2 ACF2 AltBkL DATASET          5            2695
```

Figure 131. Detail Logon ID attributes for sensitive privileges

2. Press Enter to view the **ACF2 Rules** records as shown in Figure 132 on page 94.

   Figure 132 on page 94 shows logon IDs that have special access to sensitive data sets. Select one to see the detail display.

   In this example, the Logon ID **SMITH7** is selected.



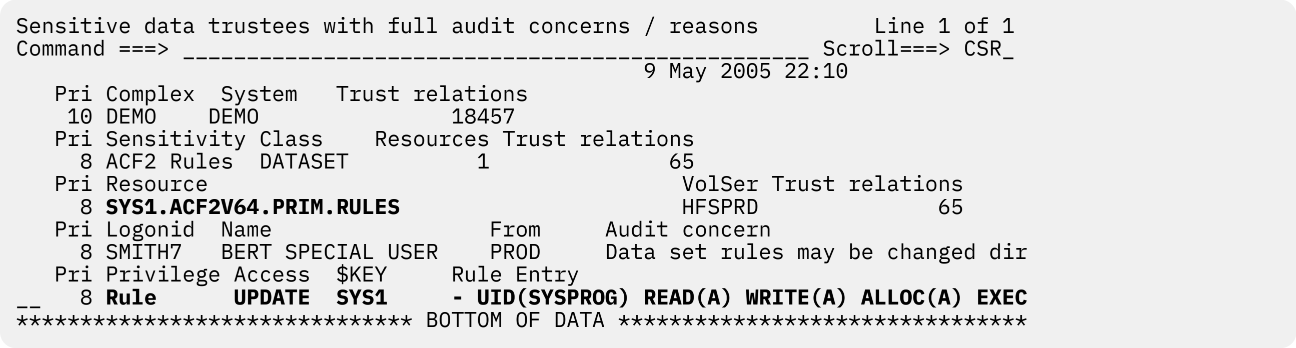
```
Sensitive data trustees with full audit concerns / reasons        Line 1 of 65
Command ===> _________________________________________________ Scroll===> CSR_
                                                 9 May 2005 22:10
   Pri Complex  System   Trust relations
    10 DEMO    DEMO             18457
   Pri Sensitivity Class    Resources Trust relations
     8 ACF2 Rules  DATASET          1              65
   Pri Resource                                     VolSer Trust relations
     8 SYS1.ACF2V64.PRIM.RULES                      HFSPRD              65
   Pri Logonid  Name                    From     Audit concern
__   8 ACFBLID                          PROD     Data set rules may be changed dir
__   8 CICSPRD                          PROD     Data set rules may be changed dir
S_   8 SMITH7   BERT SPECIAL USER       PROD     Data set rules may be changed dir
__   8 RHORTON  HORTON, RAY             PROD     Data set rules may be changed dir
```

Figure 132. Show reasons that logon IDs have special access to sensitive data sets

3. Press Enter to view the assigned privileges for the Logon ID, **SMITH7** in this example.

Example

Figure 133 on page 94 shows the reason why access is granted. In this example, the rule grants access to all **SYS1.ACF2V64.PRIM.RULES**.



```
Sensitive data trustees with full audit concerns / reasons        Line 1 of 1
Command ===> _________________________________________________ Scroll===> CSR_
                                                 9 May 2005 22:10
   Pri Complex  System   Trust relations
    10 DEMO    DEMO             18457
   Pri Sensitivity Class    Resources Trust relations
     8 ACF2 Rules  DATASET          1              65
   Pri Resource                                     VolSer Trust relations
     8 SYS1.ACF2V64.PRIM.RULES                      HFSPRD              65
   Pri Logonid  Name                    From     Audit concern
     8 SMITH7   BERT SPECIAL USER       PROD     Data set rules may be changed dir
   Pri Privilege Access  $KEY     Rule Entry
__   8 Rule      UPDATE  SYS1     - UID(SYSPROG) READ(A) WRITE(A) ALLOC(A) EXEC
******************************* BOTTOM OF DATA ********************************
```

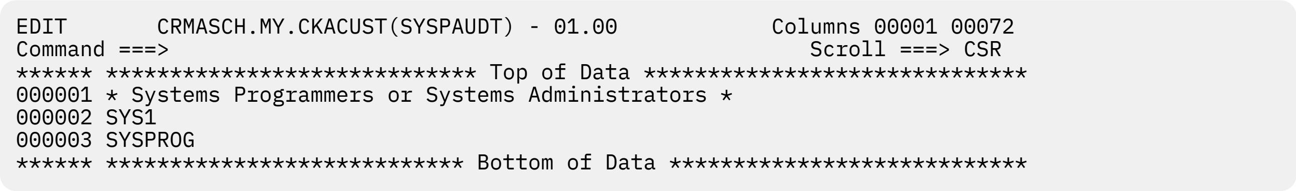
Figure 133. View assigned privileges for logon IDs with access to sensitive data sets

Chapter 7. Rule-based compliance evaluation

Use these guidelines to understand how the zSecure Audit Compliance Testing Framework and rule-based compliance evaluation are implemented.

AU.R is the user interface of the zSecure Audit Compliance Testing Framework. The framework was introduced to help automate the compliance checking of newer external standards as well as site standards, and to save time for other security tasks. Standards can be customized.

To use rule-based compliance evaluation, you must ensure that the CKACUST data set was created with the proper white list members that define which users or groups are compliant for the job role that the white list member describes. A sample white list member is shown here:



```
EDIT       CRMASCH.MY.CKACUST(SYSPAUDT) - 01.00            Columns 00001 00072
Command ===>                                                  Scroll ===> CSR
****** ***************************** Top of Data ******************************
000001 * Systems Programmers or Systems Administrators *
000002 SYS1
000003 SYSPROG
****** **************************** Bottom of Data ****************************
```

Figure 134. Sample white list member for the Systems Programmers or Systems Administrators job role

CKACUST data set can also contain various customization members. For example, the CLASSIFY member contains a list of `SIMULATE SENSITIVE` statements that are used to define the data sets that are sensitive to the PCI-DSS standard.

By default, the CKACUST data set is used that is specified in the zSecure configuration that is used to start the product. You can also specify an extra CKACUST data set in CO.1, which overrides the default CKACUST data set. Note that data set concatenation is used, so only members with actual overrides need to be created. If no CKACUST data set is present in the zSecure configuration, you can use SCKRSAMP member CKAZCUST to create an "empty" set of members. To prevent error messages, a complete set of members is required. See the *Installation and Deployment Guide* for information on creating the CKACUST data set.

CARLa DEFTYPES are used to look up IDs that are stored in the CKACUST members that specify the compliant user IDs or groups for that white list member.

Standards are, in effect, sets of predefined compliance rules. The standards as defined to zSecure Audit for automated checking are usually part of a wider standard. The wider standard also includes organizational rules for which compliance checking cannot be automated.

Standards are defined with the CARLa statement STANDARD. If you want to add site rules, you need advanced knowledge of the CARLa command language. The built-in standard checks are provided in separate members in the SCKRCARL library for each individual rule set (=external standard rule definition). These members have these naming conventions:

- CKAG* members are RACF STIG rules.
- C2AG* members are ACF2 STIG rules.
- C2AItt* members with tests that can be included in ACF2 rules, where tt is the two-character abbreviation for a newlist type.
- CKTG* members are Top Secret STIG rules.
- C2RG* members are ESM independent STIG rules.
- C2RItt* members with tests that can be included in ESM independent rules, where tt is the two-character abbreviation for a newlist type.
- CKAO* members are GSD331 rules.
- CKAP* members are RACF PCI-DSS rules.
- C2AP* members are ACF2 PCI-DSS rules.

- C2RZ* members are ESM independent ZSECURE_EXTRA rules.
- CKAZ* members are RACF ZSECURE_EXTRA rules.
- C2AZ* members are ACF2 ZSECURE_EXTRA rules.
- CKTZ* members are Top Secret ZSECURE_EXTRA rules.

AU.R - Compliance menu options

Use this task to generate auditing compliance reports on STIG, PCI-DSS and other standards.

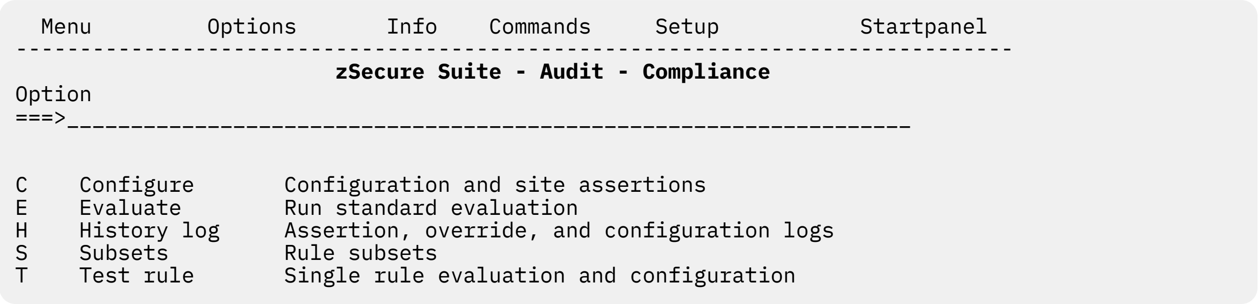
About this task

You can use the **AU.R** options to report on multiple standards at the same time. If you are analyzing large systems, the amount of concurrent analysis might be limited by the amount of memory available to your TSO userid (REGION session parameter).

Procedure

1. On the Main menu, type AU.R (Audit - Rule-based compliance evaluation) in the **Option** line and press **Enter**.

   The Audit Compliance menu is displayed:



```
  Menu         Options       Info    Commands     Setup          Startpanel
------------------------------------------------------------------------------
                         zSecure Suite - Audit - Compliance
Option
===>_________________________________________________________________


C    Configure        Configuration and site assertions
E    Evaluate         Run standard evaluation
H    History log      Assertion, override, and configuration logs
S    Subsets          Rule subsets
T    Test rule        Single rule evaluation and configuration
```

   Figure 135. Audit Compliance menu

2. Then type the one-character option on the **Option** line to select one of the following menu items:

   Configure
   Type C to configure your CKACUST members, define your sensitive resources, and to assert compliance rules that do not require system data. See "AU.R.C - Configure" on page 96.

   Evaluate
   Type E to run one or more standard evaluations and to assert or override compliance results. See "AU.R.E - Evaluate" on page 104.

   Or select one of the more advanced items:

   History log
   Type H to search in the assertion, override, or sensitive resource log files.

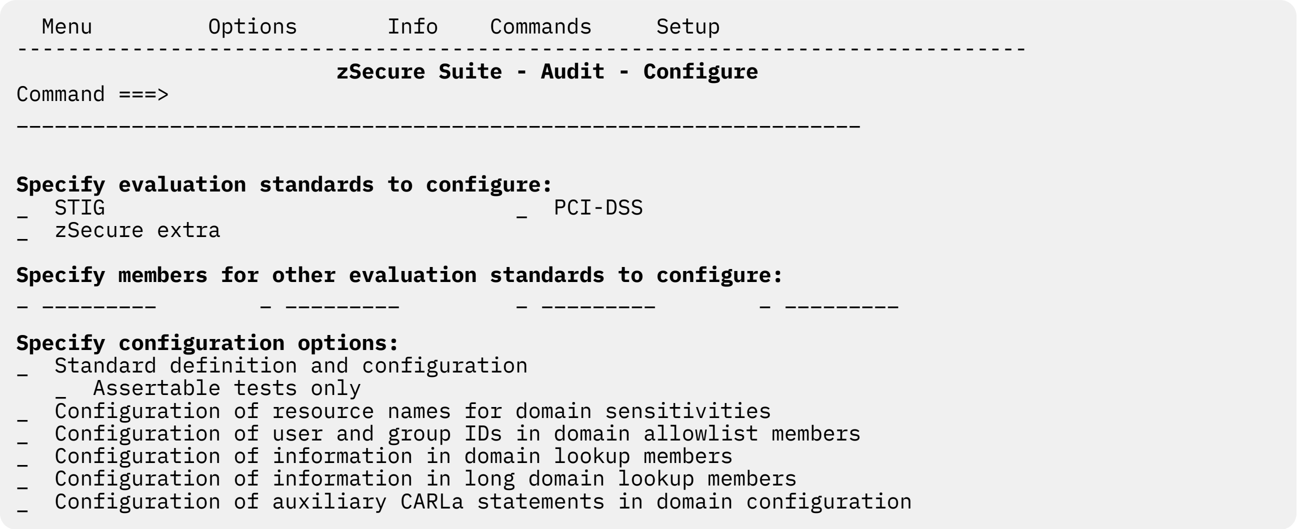
   Subsets
   Type **S** to configure and evaluate specific rules, STIG categories, or sets of rules.

   Test rule
   Type T to configure, evaluate, browse, view, or edit a specific rule member.

AU.R.C - Configure

You can use option AU.R.C to define the installation-specific configuration items and to perform assertions that do not rely on system data. For example, STIG rule AAMV0014, which requires the existence of a formal migration plan for removing or upgrading the OS software.

On the main AU.R menu, type C on the option line and press **Enter**. The Figure 136 on page 97 menu is displayed:



```
  Menu         Options       Info    Commands     Setup
-------------------------------------------------------------------------------
                         zSecure Suite - Audit - Configure
Command ===>
------------------------------------------------------------------


Specify evaluation standards to configure:
_  STIG                                _  PCI-DSS
_  zSecure extra

Specify members for other evaluation standards to configure:
_ _________        _ _________         _ _________        _ _________

Specify configuration options:
_  Standard definition and configuration
   _  Assertable tests only
_  Configuration of resource names for domain sensitivities
_  Configuration of user and group IDs in domain allowlist members
_  Configuration of information in domain lookup members
_  Configuration of information in long domain lookup members
_  Configuration of auxiliary CARLa statements in domain configuration
```

Figure 136. Audit Compliance Configuration menu

Perform the following steps:

1. Select the evaluation standard or standards that you want to configure. You can use the **Specify members for other evaluation standards to configure** input fields to select and add members that contain other evaluation standards. The selections and member fields are shared with AU.R.E and are retained across sessions.
2. Select what you want to configure:

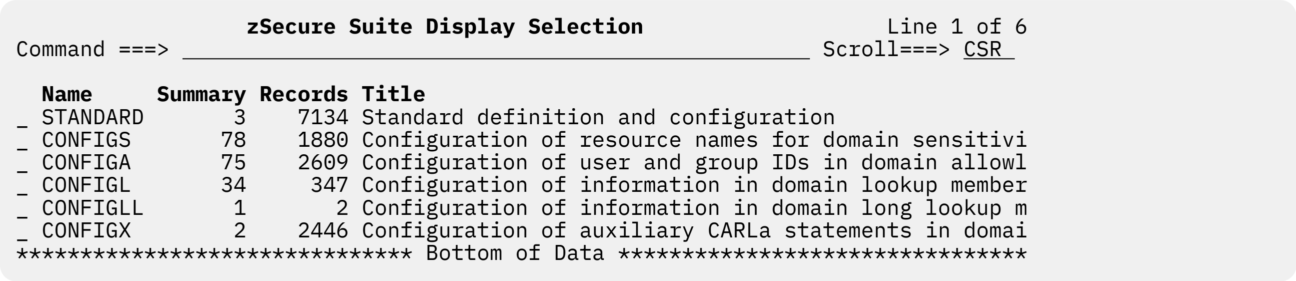
Standard definition and configuration	Shows all the tests for the selected standards. By selecting **Assertable tests only**, you can limit the tests to only those tests, which cannot automatically determine the outcome from the collected data. This option generates the STANDARD report. You can use the display format to zoom in across the following levels: • **Standard**: number of rule sets, tests, and assertable tests per standard • **Rule set level**: number of tests and assertable tests per rule set • **Rule level**: number of tests and assertable tests per rule • **Test level**: tests and if the test is assertable • **Detail level**: test criteria and the member(s) that contains the test The Test and Detail levels also allow asserting the test.
Configuration of resource names for domain sensitivities	Shows all configurable sensitivities. This option generates the CONFIGS report.
Configuration of user and group IDs in domain allowlist members	Shows all configurable sensitivities. This option generates the CONFIGA report.
Configuration of information in domain lookup members	Shows all configurable CKACUST configuration members. This option generates the CONFIGL report.

Configuration of information in domain long lookup members	Shows all configurable CKACUSV long configuration members. This option generates the CONFIGLL report.
Configuration of auxiliary CARLa statements in domain configuration	Shows all other CKACUST configuration members that are not allowlist members. This option generates the CONFIGX report.

If you do not select a specific configuration type, all configuration types are used.

To perform assertions, or configure sensitive resources, you must allocate an ASSERTION data set with the SAVE option in SE.1. To work with CKACUST members, you must setup a CKACUST data set in CO.1 or SE.8. To work with CKACUSV members, you must setup a CKACUSV data set in SE.8.

For example, when you select STIG in **Specify evaluation standards** but none of the other configuration options, the following reports are generated:



```
                  zSecure Suite Display Selection                   Line 1 of 6
Command ===> ________________________________________________ Scroll===> CSR_

  Name     Summary Records Title
_ STANDARD       3    7134 Standard definition and configuration
_ CONFIGS       78    1880 Configuration of resource names for domain sensitivi
_ CONFIGA       75    2609 Configuration of user and group IDs in domain allowl
_ CONFIGL       34     347 Configuration of information in domain lookup member
_ CONFIGLL       1       2 Configuration of information in domain long lookup m
_ CONFIGX        2    2446 Configuration of auxiliary CARLa statements in domai
****************************** Bottom of Data ********************************
```

Figure 137. zSecure Audit for ACF2 Display Selection panel

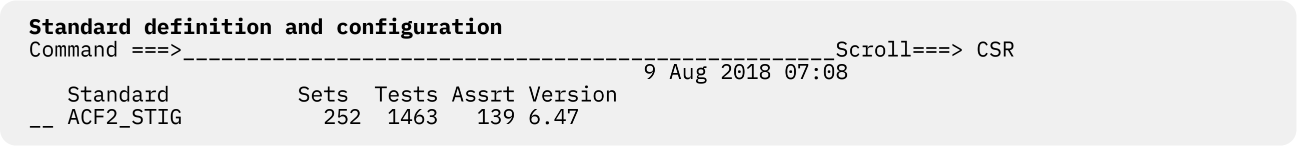
You can select to view the following reports:

- The STANDARD report shows all compliance rule sets, rules, and tests. At the test level, you can maintain assertions for the entire domain.
- The CONFIGS section shows all configurable sensitivities. You can use this report to configure your data sets or resources that need to be tagged with a sensitivity but that cannot be automatically tagged by zSecure.
- The CONFIGA report shows all CKACUST allowlist members that must be populated with the appropriate user or group IDs.
- The CONFIGL report shows all CKACUST configuration members for various compliance rules.
- The CONFIGLL report shows all CKACUSV long configuration members for various compliance rules.
- The CONFIGX report shows all CKACUST members that contain site specific CARLa code and are included by compliance rules.

STANDARD: Standard definition and configuration

This standard report provides information about what checks will be performed during the compliance evaluation. Further selecting the **Assertable tests only** option in Figure 136 on page 97 displays a list of all compliance tests that require manual assertion. Assertions that are done in this report assert the test for all systems. This standard-level assertion is primarily intended for procedural asserts where no system specific data is needed.

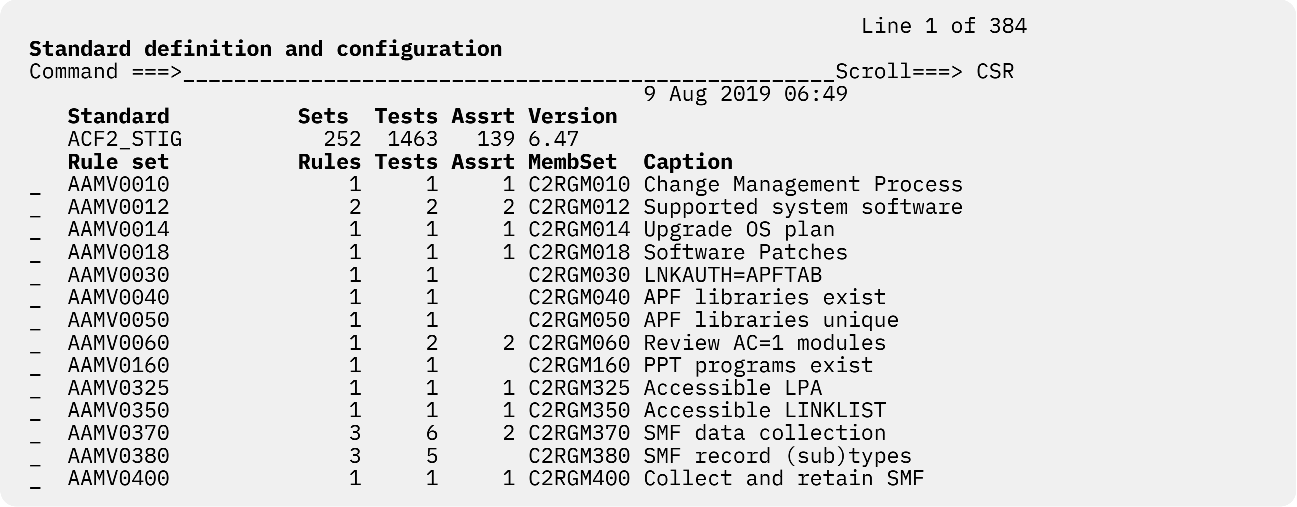
When you select STANDARD on the Figure 137 on page 98, the following panel is displayed:



```
Standard definition and configuration
Command ===>___________________________________________________Scroll===> CSR
                                                9 Aug 2018 07:08
   Standard          Sets  Tests Assrt Version
__ ACF2_STIG          252  1463   139 6.47
```

Figure 138. zSecure Audit for ACF2 Configure Standard selection panel

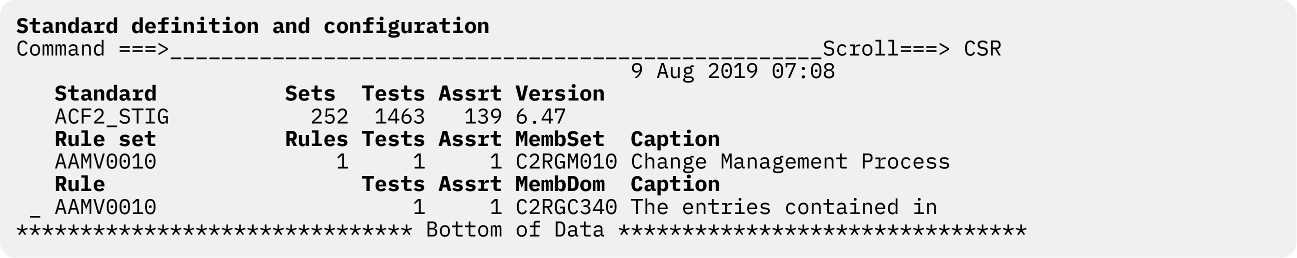
This panel shows the selected standard evaluations, the number of compliance rule sets, tests, tests that can be asserted, and the version of the standard evaluation. When you select the standard, the following panel is displayed:



```
                                                                 Line 1 of 384
Standard definition and configuration
Command ===>___________________________________________________Scroll===> CSR
                                                9 Aug 2019 06:49
   Standard          Sets  Tests Assrt Version
   ACF2_STIG          252  1463   139 6.47
   Rule set          Rules Tests Assrt MembSet  Caption
_  AAMV0010              1     1     1 C2RGM010 Change Management Process
_  AAMV0012              2     2     2 C2RGM012 Supported system software
_  AAMV0014              1     1     1 C2RGM014 Upgrade OS plan
_  AAMV0018              1     1     1 C2RGM018 Software Patches
_  AAMV0030              1     1       C2RGM030 LNKAUTH=APFTAB
_  AAMV0040              1     1       C2RGM040 APF libraries exist
_  AAMV0050              1     1       C2RGM050 APF libraries unique
_  AAMV0060              1     2     2 C2RGM060 Review AC=1 modules
_  AAMV0160              1     1       C2RGM160 PPT programs exist
_  AAMV0325              1     1     1 C2RGM325 Accessible LPA
_  AAMV0350              1     1     1 C2RGM350 Accessible LINKLIST
_  AAMV0370              3     6     2 C2RGM370 SMF data collection
_  AAMV0380              3     5       C2RGM380 SMF record (sub)types
_  AAMV0400              1     1     1 C2RGM400 Collect and retain SMF
```

Figure 139. zSecure Audit for ACF2 Configure Rule Set Selection panel

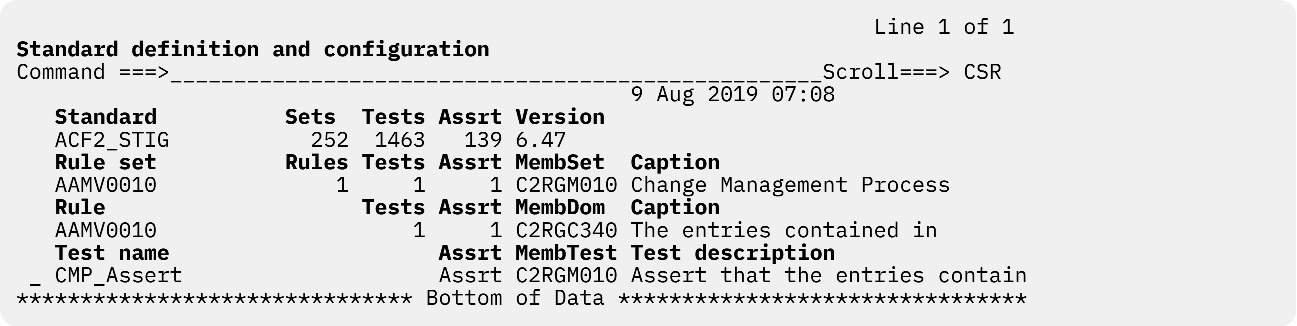
This panel shows the individual rule sets that are part of the selected standard and show the number of rules, tests, and tests that can be asserted per rule set. In addition this panel shows the CARLa member that contains the rule set and the rule set caption. When you select a rule set, the following panel is displayed:



```
Standard definition and configuration
Command ===>___________________________________________________Scroll===> CSR
                                                9 Aug 2019 07:08
   Standard          Sets  Tests Assrt Version
   ACF2_STIG          252  1463   139 6.47
   Rule set          Rules Tests Assrt MembSet  Caption
   AAMV0010              1     1     1 C2RGM010 Change Management Process
   Rule                    Tests Assrt MembDom  Caption
 _ AAMV0010                    1     1 C2RGC340 The entries contained in
******************************* Bottom of Data ********************************
```

Figure 140. zSecure Audit for ACF2 Configure Rule selection panel

This panel shows the individual rules that are part of the selected rule set, the number of tests, and the tests that can be asserted. In addition, for each rule, this panel also shows the CARLa member that contains the rule and the rule caption. When you select a rule, the following panel is displayed:



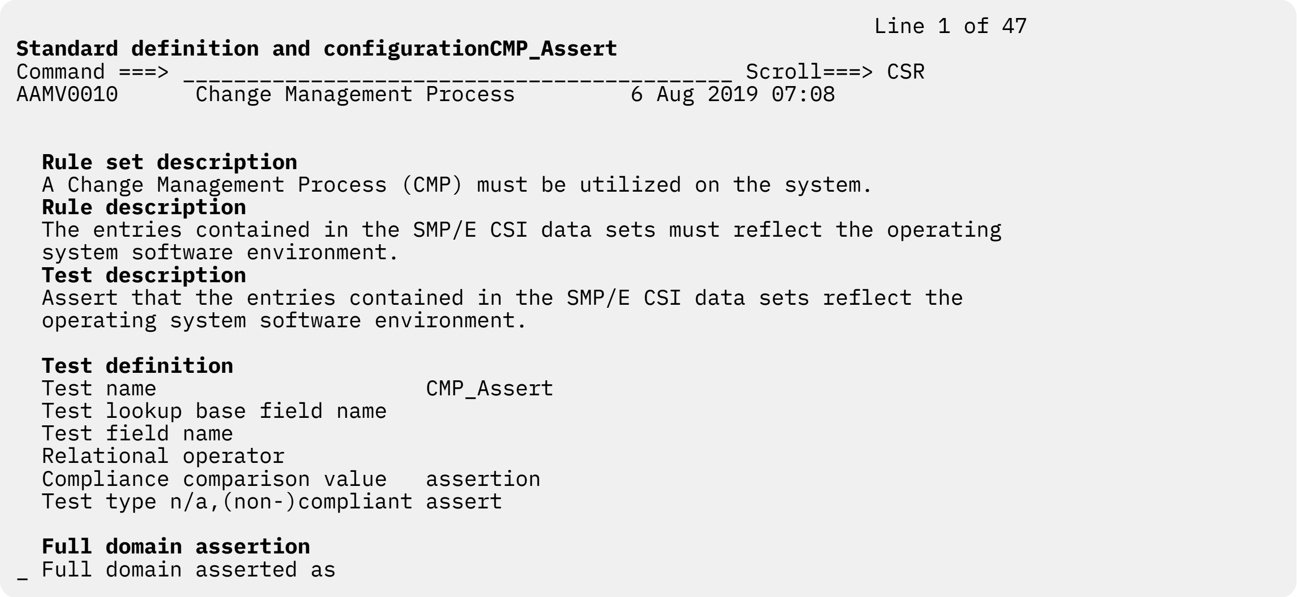
```
                                                                    Line 1 of 1
Standard definition and configuration
Command ===>___________________________________________________Scroll===> CSR
                                                     9 Aug 2019 07:08
   Standard          Sets  Tests Assrt Version
   ACF2_STIG          252  1463   139 6.47
   Rule set          Rules Tests Assrt MembSet  Caption
   AAMV0010              1     1     1 C2RGM010 Change Management Process
   Rule                    Tests Assrt MembDom  Caption
   AAMV0010                    1     1 C2RGC340 The entries contained in
   Test name                         Assrt MembTest Test description
 _ CMP_Assert                        Assrt C2RGM010 Assert that the entries contain
******************************* Bottom of Data ********************************
```

Figure 141. zSecure Audit for ACF2 Configure Test Selection panel

This panel displays the individual tests that are part of the selected rule. It also shows if the test is can be asserted, the CARLa member that contains this rule, and the rule caption.

If you select the test, Figure 142 on page 100 is displayed.

If the test can be asserted, you can assert the test for the entire domain by entering an A (Assert) in front of the test and pressing **Enter**. Then, Figure 144 on page 101 is displayed.

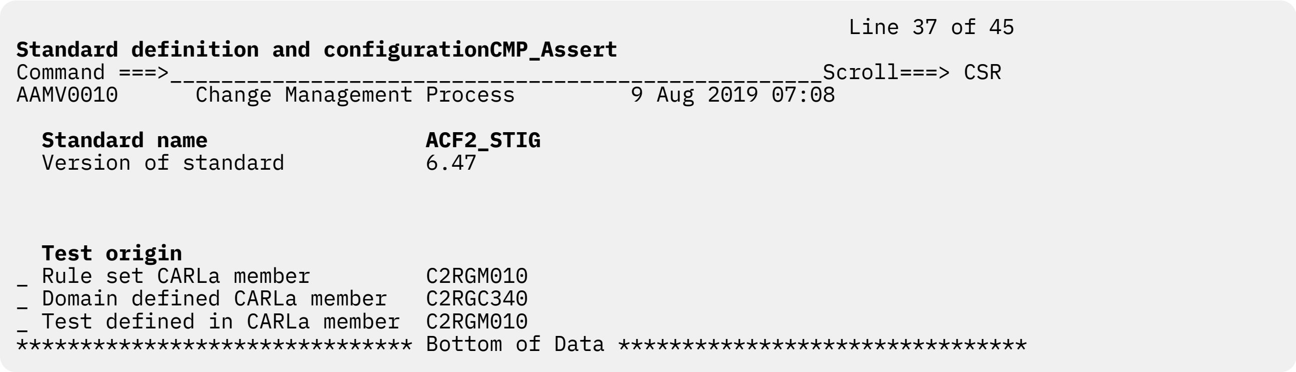


```
                                                                    Line 1 of 47
Standard definition and configurationCMP_Assert
Command ===> ___________________________________________ Scroll===> CSR
AAMV0010      Change Management Process         6 Aug 2019 07:08


  Rule set description
  A Change Management Process (CMP) must be utilized on the system.
  Rule description
  The entries contained in the SMP/E CSI data sets must reflect the operating
  system software environment.
  Test description
  Assert that the entries contained in the SMP/E CSI data sets reflect the
  operating system software environment.

  Test definition
  Test name                     CMP_Assert
  Test lookup base field name
  Test field name
  Relational operator
  Compliance comparison value   assertion
  Test type n/a,(non-)compliant assert

  Full domain assertion
_ Full domain asserted as
```

Figure 142. zSecure Audit for ACF2 Configure Test Details panel

This panel shows all test details. If the test can be asserted, you can enter an A (Assert) in front of the **Full domain asserted as** field and press **Enter**. You are then presented the Figure 144 on page 101.

If you scroll to the bottom of the details page, you can see that the **Rule sert CARLa member**, **Domain defined CARLa member** and **Test defined in CARLa member** fields can be further selected.

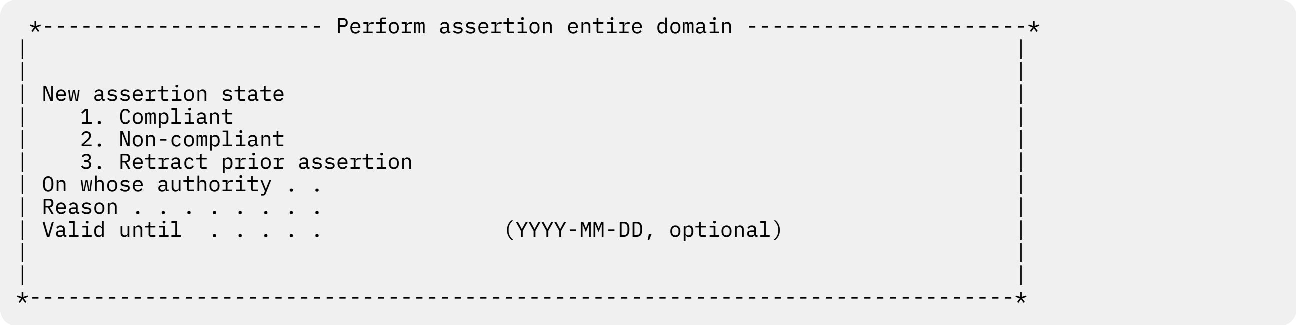


```
                                                                 Line 37 of 45
Standard definition and configurationCMP_Assert
Command ===>___________________________________________________Scroll===> CSR
AAMV0010      Change Management Process         9 Aug 2019 07:08

  Standard name                 ACF2_STIG
  Version of standard           6.47



  Test origin
_ Rule set CARLa member         C2RGM010
_ Domain defined CARLa member   C2RGC340
_ Test defined in CARLa member  C2RGM010
******************************* Bottom of Data ********************************
```

Figure 143. zSecure Audit for ACF2 Configure Test Details panel (bottom)

Enter B to browse or V to view the CARLa member.

The following panel is presented for an entire domain assertion:



```
 *---------------------- Perform assertion entire domain ----------------------*
|                                                                             |
|                                                                             |
| New assertion state                                                         |
|    1. Compliant                                                             |
|    2. Non-compliant                                                         |
|    3. Retract prior assertion                                               |
| On whose authority . .                                                      |
| Reason . . . . . . . .                                                      |
| Valid until  . . . . .              (YYYY-MM-DD, optional)                  |
|                                                                             |
|                                                                             |
*-----------------------------------------------------------------------------*
```

Figure 144. zSecure Suite Configure entire domain assertion panel

This panel allows you to assert a test for the entire domain, for example, for all complexes and all systems.

Option **1. Compliant** asserts the test as compliant, option **2. Non-compliant** asserts the test as non-compliant, and option **3. Retract prior assertion** retracts any prior assertions and resets the test results to unknown.

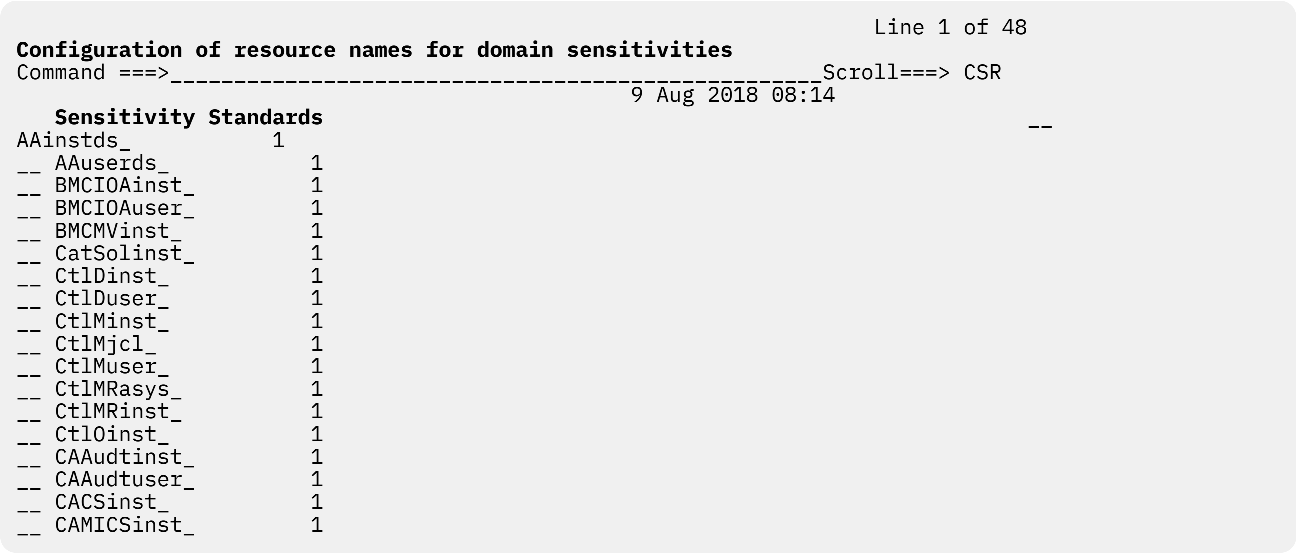
The **On whose authority** and **Reason** fields are free format input fields.

The optional **Valid until** field, requires a date in the given input format, and, when an assertion expiration date is provided, renders this record invalid after the provided date.

CONFIGS: Configuration of resource names for domain sensitivities

The CONFIGS report helps to define resources for the various configurable sensitivities that are used by the compliance rules and that zSecure cannot automatically determine.

When you select CONFIGS on the Figure 137 on page 98, the following panel is displayed:



```
                                                                   Line 1 of 48
Configuration of resource names for domain sensitivities
Command ===>___________________________________________________Scroll===> CSR
                                                9 Aug 2018 08:14
   Sensitivity Standards                                                       __
AAinstds_           1
__ AAuserds_           1
__ BMCIOAinst_         1
__ BMCIOAuser_         1
__ BMCMVinst_          1
__ CatSolinst_         1
__ CtlDinst_           1
__ CtlDuser_           1
__ CtlMinst_           1
__ CtlMjcl_            1
__ CtlMuser_           1
__ CtlMRasys_          1
__ CtlMRinst_          1
__ CtlOinst_           1
__ CAAudtinst_         1
__ CAAudtuser_         1
__ CACSinst_           1
__ CAMICSinst_         1
```

Figure 145. zSecure Suite Configure Sensitivity selection panel

This panel allows you to perform the following actions on each of the reported configurable sensitivities:

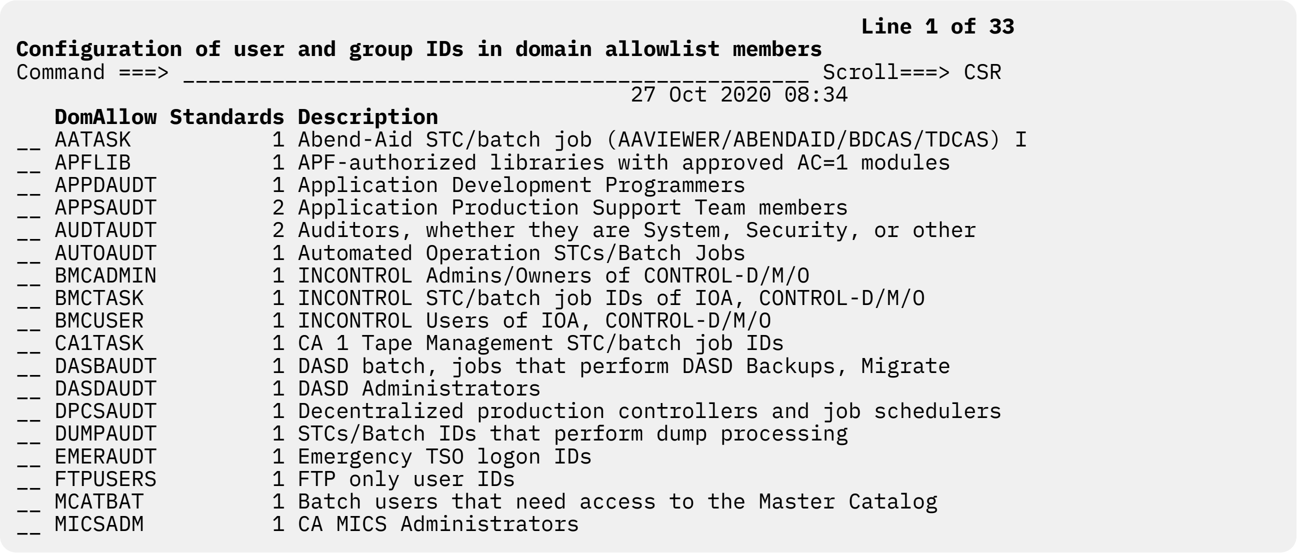
- B: Browse configuration assertion
- E: Edit configuration assertion
- S: Show additional information
- V: View configuration assertion

The B , E, and V options show the currently defined (or an empty list) resources for this configurable sensitivity. The S option lists the standards and the rule sets that use this configurable sensitivity.

CONFIGA: Configuration of user and group IDs in domain allowlist members

The CONFIGA report helps to define mostly user and group IDs for the various compliance rules that are allowlisted for specific tests. These allowlists group, for example, roles such as the system programmers, storage administrators, and started tasks, and are used by the tests to exclude user and group IDs that are expected to need access to the tested resources.

When you select report CONFIGA on the Figure 137 on page 98, the following panel is displayed:



```
                                                                  Line 1 of 33
Configuration of user and group IDs in domain allowlist members
Command ===> ________________________________________________ Scroll===> CSR
                                                27 Oct 2020 08:34
   DomAllow Standards Description
__ AATASK           1 Abend-Aid STC/batch job (AAVIEWER/ABENDAID/BDCAS/TDCAS) I
__ APFLIB           1 APF-authorized libraries with approved AC=1 modules
__ APPDAUDT         1 Application Development Programmers
__ APPSAUDT         2 Application Production Support Team members
__ AUDTAUDT         2 Auditors, whether they are System, Security, or other
__ AUTOAUDT         1 Automated Operation STCs/Batch Jobs
__ BMCADMIN         1 INCONTROL Admins/Owners of CONTROL-D/M/O
__ BMCTASK          1 INCONTROL STC/batch job IDs of IOA, CONTROL-D/M/O
__ BMCUSER          1 INCONTROL Users of IOA, CONTROL-D/M/O
__ CA1TASK          1 CA 1 Tape Management STC/batch job IDs
__ DASBAUDT         1 DASD batch, jobs that perform DASD Backups, Migrate
__ DASDAUDT         1 DASD Administrators
__ DPCSAUDT         1 Decentralized production controllers and job schedulers
__ DUMPAUDT         1 STCs/Batch IDs that perform dump processing
__ EMERAUDT         1 Emergency TSO logon IDs
__ FTPUSERS         1 FTP only user IDs
__ MCATBAT          1 Batch users that need access to the Master Catalog
__ MICSADM          1 CA MICS Administrators
```

Figure 146. zSecure Suite Configure Allowlists Selection panel

This panel allows you to perform the following actions on each of the allowlist members:

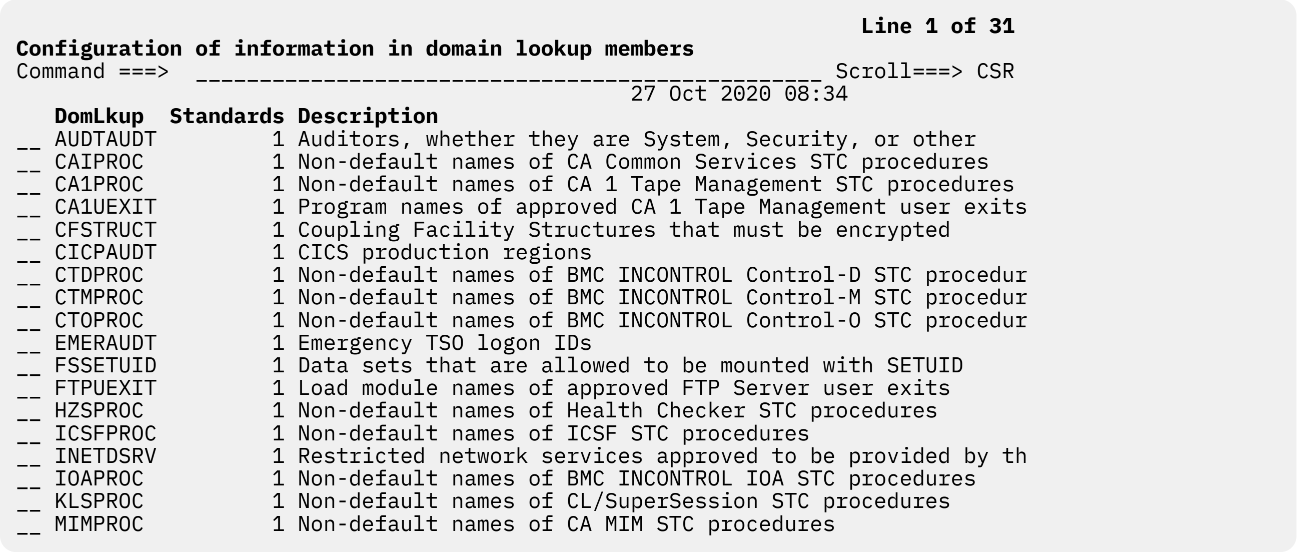
- B: Browse allowlist member
- E: Edit allowlist member
- S: Show additional information
- V: View allowlist member

The B , E, and V options show the allowlist member from the site or when defined, from the user CKACUST library. The S option lists the standards and rule sets that use this allowlist member.

CONFIGL: Configuration of information in domain lookup member

The CONFIGL report helps you to define configuration members for the various compliance rules. These list, for example, if an expected name is used for a task, or if an ID is connected to a certain group. This report differs from CONFIGA in that it is not about testing a particular access level of members.

When you select CONFIGL on Figure 137 on page 98, the following panel is displayed:



```
                                                                  Line 1 of 31
Configuration of information in domain lookup members
Command ===>  _________________________________________________ Scroll===> CSR
                                                27 Oct 2020 08:34
   DomLkup  Standards Description
__ AUDTAUDT         1 Auditors, whether they are System, Security, or other
__ CAIPROC          1 Non-default names of CA Common Services STC procedures
__ CA1PROC          1 Non-default names of CA 1 Tape Management STC procedures
__ CA1UEXIT         1 Program names of approved CA 1 Tape Management user exits
__ CFSTRUCT         1 Coupling Facility Structures that must be encrypted
__ CICPAUDT         1 CICS production regions
__ CTDPROC          1 Non-default names of BMC INCONTROL Control-D STC procedur
__ CTMPROC          1 Non-default names of BMC INCONTROL Control-M STC procedur
__ CTOPROC          1 Non-default names of BMC INCONTROL Control-O STC procedur
__ EMERAUDT         1 Emergency TSO logon IDs
__ FSSETUID         1 Data sets that are allowed to be mounted with SETUID
__ FTPUEXIT         1 Load module names of approved FTP Server user exits
__ HZSPROC          1 Non-default names of Health Checker STC procedures
__ ICSFPROC         1 Non-default names of ICSF STC procedures
__ INETDSRV         1 Restricted network services approved to be provided by th
__ IOAPROC          1 Non-default names of BMC INCONTROL IOA STC procedures
__ KLSPROC          1 Non-default names of CL/SuperSession STC procedures
__ MIMPROC          1 Non-default names of CA MIM STC procedures
```

Figure 147. Configure configuration members selection panel

This panel allows you to perform the following actions on each of the configuration members:

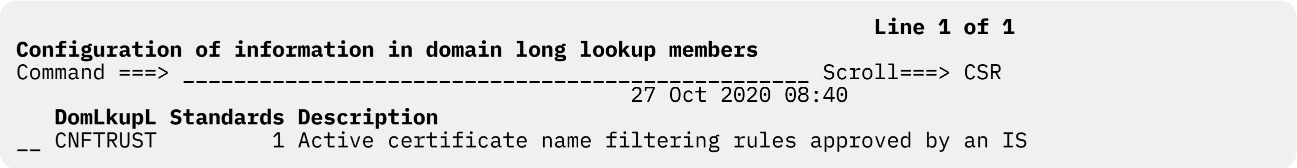
- B: Browse configuration member
- E: Edit configuration member
- S: Show additional information
- V: View configuration member

The B , E, and V options show the configuration member from the site or when defined, from the user CKACUST and CKARCARLA library. The S option lists the standards and rule sets that use this configuration member.

CONFIGLL: Configuration of information in domain lookup member

The CONFIGLL report helps you to define long configuration members for the various compliance rules. These list, for example, a list of digital certificate issuers. This report differs from CONFIGL in that these members are stored in a library that can contain records with more than 80 characters.

When you select CONFIGLL on Figure 137 on page 98, the following panel is displayed:



```
                                                                   Line 1 of 1
Configuration of information in domain long lookup members
Command ===> _________________________________________________ Scroll===> CSR
                                                27 Oct 2020 08:40
   DomLkupL Standards Description
__ CNFTRUST         1 Active certificate name filtering rules approved by an IS
```

Figure 148. Configure long configuration members selection panel

This panel allows you to perform the following actions on each of the configuration members:

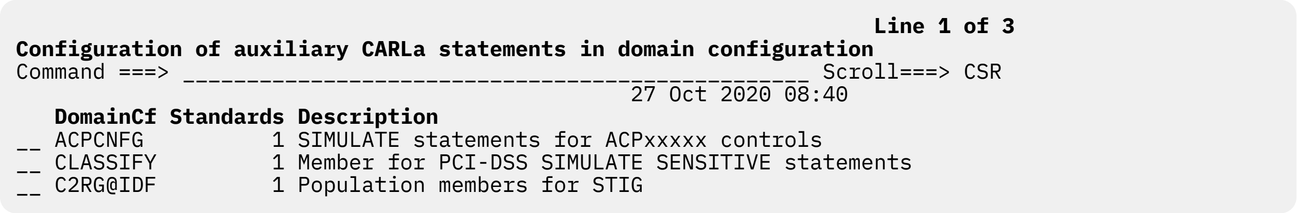
- B: Browse configuration member
- E: Edit configuration member
- S: Show additional information
- V: View configuration member

The B , E, and V options show the configuration member from the site or when defined, from the user CKACUSV library. The S option lists the standards and rule sets that use this long configuration member.

CONFIGX: Configuration of auxiliary CARLa statements in domain configuration

The CONFIGX report helps to configure extra CARLa members for various compliance rules, that is, for tests that require additional CARLa definitions. These members are included in the compliance members and can contain DEFSENS and SIMULATE statements needed to configure the compliance tests.

When you select CONFIGX on the Figure 137 on page 98, the following panel is displayed:



```
                                                                   Line 1 of 3
Configuration of auxiliary CARLa statements in domain configuration
Command ===> _________________________________________________ Scroll===> CSR
                                                27 Oct 2020 08:40
   DomainCf Standards Description
__ ACPCNFG          1 SIMULATE statements for ACPxxxxx controls
__ CLASSIFY         1 Member for PCI-DSS SIMULATE SENSITIVE statements
__ C2RG@IDF         1 Population members for STIG
```

Figure 149. Configure auxiliary CARLa statements in domain configuration

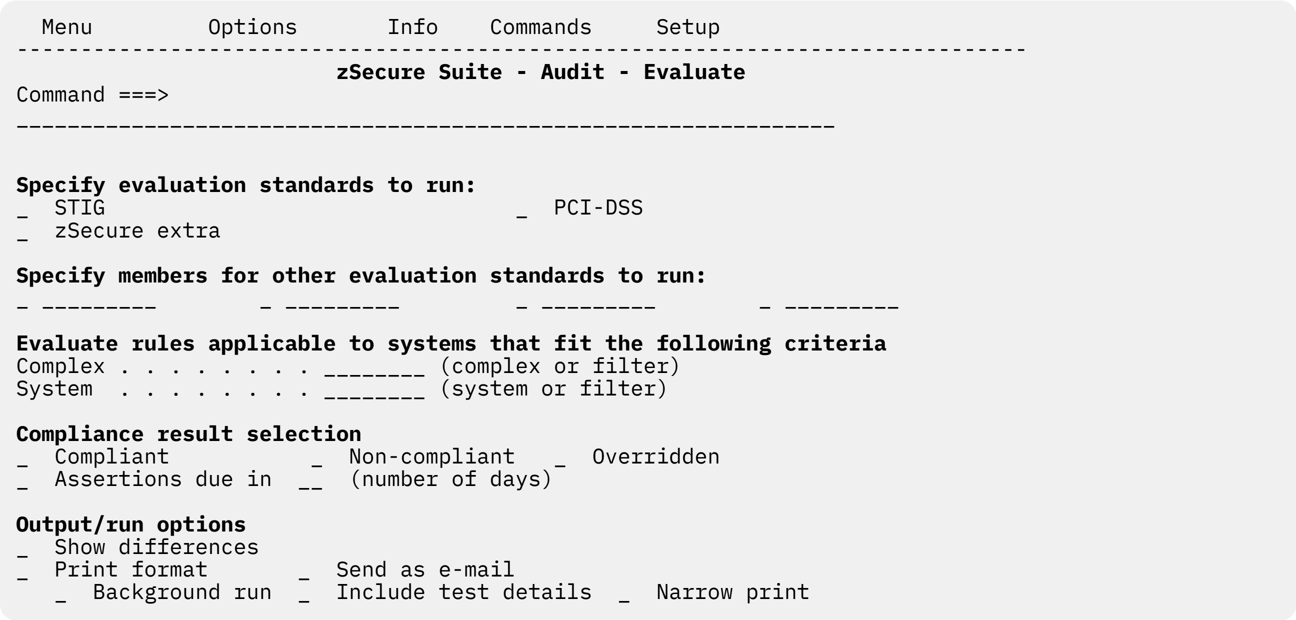
This panel allows you to perform the following actions on each of the extra CARLa members:

- B: Browse CARLa domain config member
- E: Edit CARLa domain config member
- S: Show additional information
- V: View CARLa domain config member

The B , E, and V options show CARLa domain config member from the site or when defined, from the user CKACUST library. The S option lists the standards and the rule sets that use this CARLa domain configuration member.

AU.R.E - Evaluate

On the main AU.R menu, type E on the Option line and press **Enter**. The Figure 150 on page 105 is displayed:



```
  Menu         Options       Info    Commands     Setup
-------------------------------------------------------------------------------
                         zSecure Suite - Audit - Evaluate
Command ===>
----------------------------------------------------------------


Specify evaluation standards to run:
_  STIG                                _  PCI-DSS
_  zSecure extra

Specify members for other evaluation standards to run:
_ _________        _ _________         _ _________        _ _________

Evaluate rules applicable to systems that fit the following criteria
Complex . . . . . . . . ________ (complex or filter)
System  . . . . . . . . ________ (system or filter)

Compliance result selection
_  Compliant           _  Non-compliant    _  Overridden
_  Assertions due in  __  (number of days)

Output/run options
_  Show differences
_  Print format       _  Send as e-mail
   _  Background run  _  Include test details  _  Narrow print
```

Figure 150. Audit Compliance Evaluation menu

Perform the following steps:

1. Select the standard or standards that you want to verify against:

STIG	Security Technical Implementation Guide published by the US Defense Information Systems Agency (DISA-STIG)
PCI-DSS	Payment Card Industry Data Security Standard
zSecure extra	The main purpose of zSecure extra is to implement controls that are similar to STIG controls but are about a different software product. Examples of the purpose of using **zSecure extra** controls is evaluating tape management or coupling facility structures configuration and settings.
Specify members for other evaluation standards to run	There are four pairs of fields. The first field of each pair selects the standard member in the second field. The standard member must contain CARLa that contains (or includes a member that contains) a STANDARD statement. The selections and member fields are shared with AU.R.C and are retained across sessions.

2. Optionally, you can limit your report by selecting a **Complex** or **System** name or filter to be used.
3. Select one or more compliance result options:

   - **Compliant** includes all compliant test results.
   - **Non-compliant** includes all non-compliant test results.
   - **Overrides** includes all compliant or non-compliant test that are set to produce a fixed result.
   - **Assertions** includes all tests that require an assertion, that is, no assertion record was found, or the assertion has expired or has been retracted. You can include the tests with assertions that will expire within *nn* number of days, by filling in this number in the **Assertions due in __ days** field.

   If you do not select a compliance result option, all options are used.

4. To receive a printed report or email, select **Print format**; otherwise, the report is shown in display format. To receive email, also select **Send as e-mail**; the report is sent in either MIME/HTML or plain text, or as an attachment. To limit the width of the page to 79 chars (regardless of the actual print file record length), also select **Narrow print**.

With **Print format** selected, two reports are produced: the compliance rule set summary and the compliance statistics for the tested objects. If you also select **Include test details**, an additional report is produced: each individual rule set on a separate page.

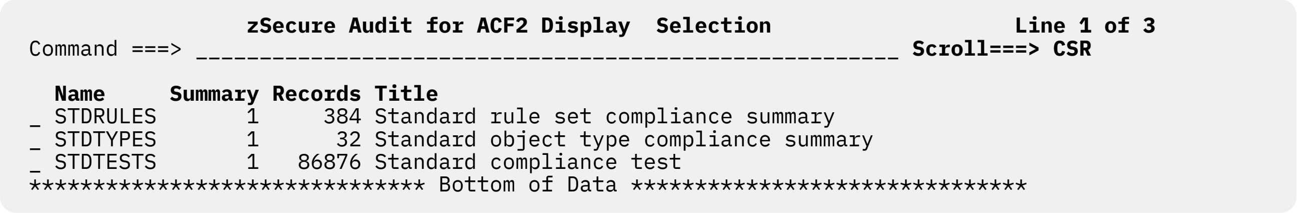
Without **Print format** selected, you can choose between three three standard reports; see Figure 151 on page 106.

You can use the display format to zoom in across the following levels:

- Security complex level: shows the standards tested for each security database and systems related to that database.
- Rule set level: shows the number of non-compliant objects per rule set.
- Object level.
- Individual test result overview level: allows asserting or overriding of the test.
- Detail level: shows the test results and configuration members. This level also allows asserting or overriding of the test.

5. Press **Enter** to generate the requested reports.

As an example, if you select STIG and no other options, the following (sample) panel is displayed:



```
                 zSecure Audit for ACF2 Display  Selection                  Line 1 of 3
Command ===> _______________________________________________________ Scroll===> CSR

  Name     Summary Records Title
_ STDRULES       1     384 Standard rule set compliance summary
_ STDTYPES       1      32 Standard object type compliance summary
_ STDTESTS       1   86876 Standard compliance test
******************************* Bottom of Data *******************************
```

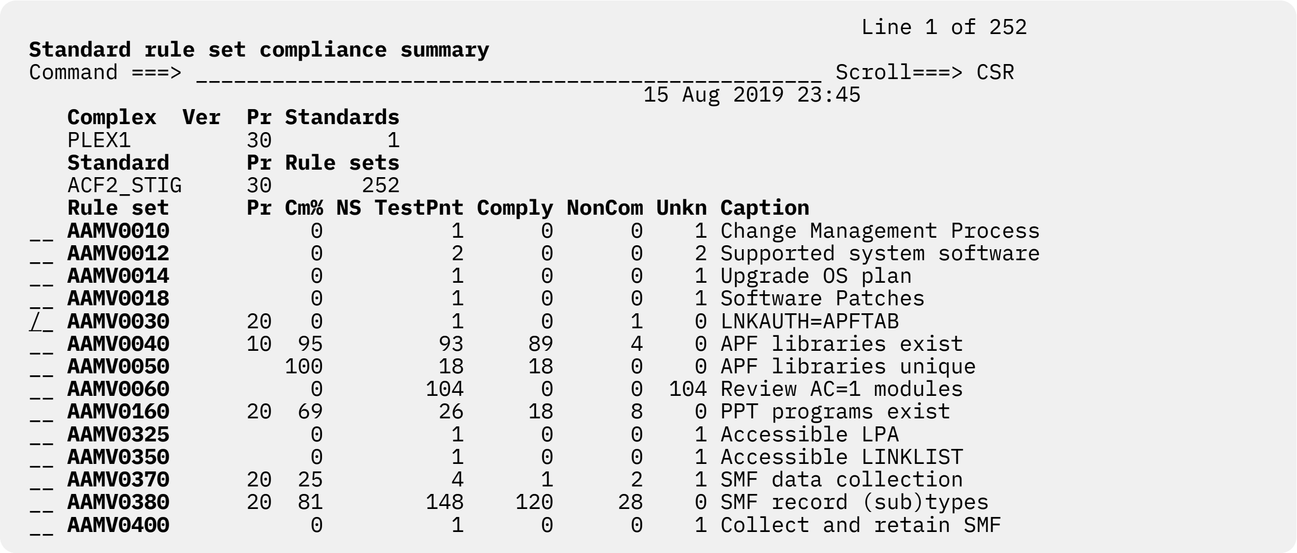
Figure 151. AU.R.E - Evaluate Display Selection panel

You can select to view the following reports:

- The "STDRULES: Standard rule set compliance summary" on page 106 report shows the compliance rule set summary. This management summary can help to determine rule set compliance status or improvement.
- The "STDTYPES: Standard object type compliance summary" on page 108 report shows the compliance statistics for tested objects. This management summary can help to determine object types compliance status or improvement.
- The "STDTESTS: Standard compliance test results" on page 109 report shows the object test results sorted by rule set name. Non-compliant test results are sorted above compliant test results. These detailed compliance test results can help to determine what actions to take for which resources in order to improve the compliance status.

STDRULES: Standard rule set compliance summary

When you select STDRULES on the Figure 151 on page 106, the STDRULES: Standard rule set compliance summary panel is displayed. It does not contain the actual test result details; instead, it shows compliance results at a higher level. The STDRULES summary includes all supported rule sets, including those for which no objects are found that must be tested. If there are no objects found that must be tested, the rule set is reported to be compliant. There is one line for each rule set that zSecure Audit supports for the pertinent standard.



```
                                                                 Line 1 of 252
Standard rule set compliance summary
Command ===> _________________________________________________ Scroll===> CSR
                                                15 Aug 2019 23:45
   Complex  Ver  Pr Standards
   PLEX1         30         1
   Standard      Pr Rule sets
   ACF2_STIG     30       252
   Rule set      Pr Cm% NS TestPnt Comply NonCom Unkn Caption
__ AAMV0010           0          1      0      0    1 Change Management Process
__ AAMV0012           0          2      0      0    2 Supported system software
__ AAMV0014           0          1      0      0    1 Upgrade OS plan
__ AAMV0018           0          1      0      0    1 Software Patches
/_ AAMV0030      20   0          1      0      1    0 LNKAUTH=APFTAB
__ AAMV0040      10  95         93     89      4    0 APF libraries exist
__ AAMV0050         100         18     18      0    0 APF libraries unique
__ AAMV0060           0        104      0      0  104 Review AC=1 modules
__ AAMV0160      20  69         26     18      8    0 PPT programs exist
__ AAMV0325           0          1      0      0    1 Accessible LPA
__ AAMV0350           0          1      0      0    1 Accessible LINKLIST
__ AAMV0370      20  25          4      1      2    1 SMF data collection
__ AAMV0380      20  81        148    120     28    0 SMF record (sub)types
__ AAMV0400           0          1      0      0    1 Collect and retain SMF
```

Figure 152. STDRULES: Standard rule set compliance summary panel

For each rule set, this summary includes the following columns:

Rule set
The rule set number from the documented standard.

Pr
Noncompliant priority: 10 is low, 20 is medium, 30 is high. For each rule set that is reported as compliant, this columns is blank.

Cm%
Compliance percentage. You can monitor this column to determine your progress on becoming compliant for the pertinent rule set.

NS
NS is a concatenated column. The N stands for a rule set that contains a test that is evaluated as Not Applicable. An S is shown when a rule set is suppressed.

TestPnt
Number of tested objects within this rule set.

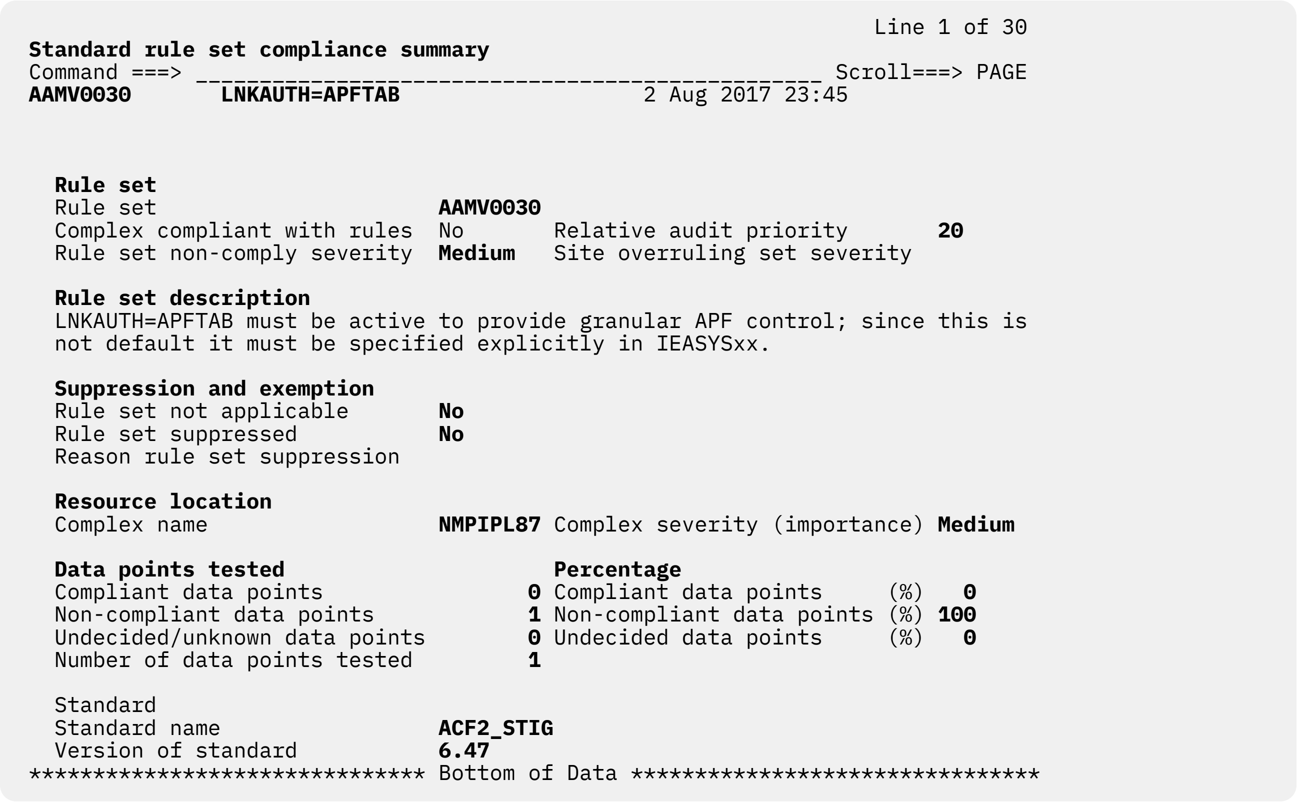
Comply
Number of compliant objects.

NonCom
Number of noncompliant objects.

Unkn
Number of tests with an undecided/unknown outcome.

Caption
Short description of what this rule set tests.

You can use the S or / line command to access the rule set details. This panel includes the full rule set description as well as the standard name and version against which you evaluated your system.



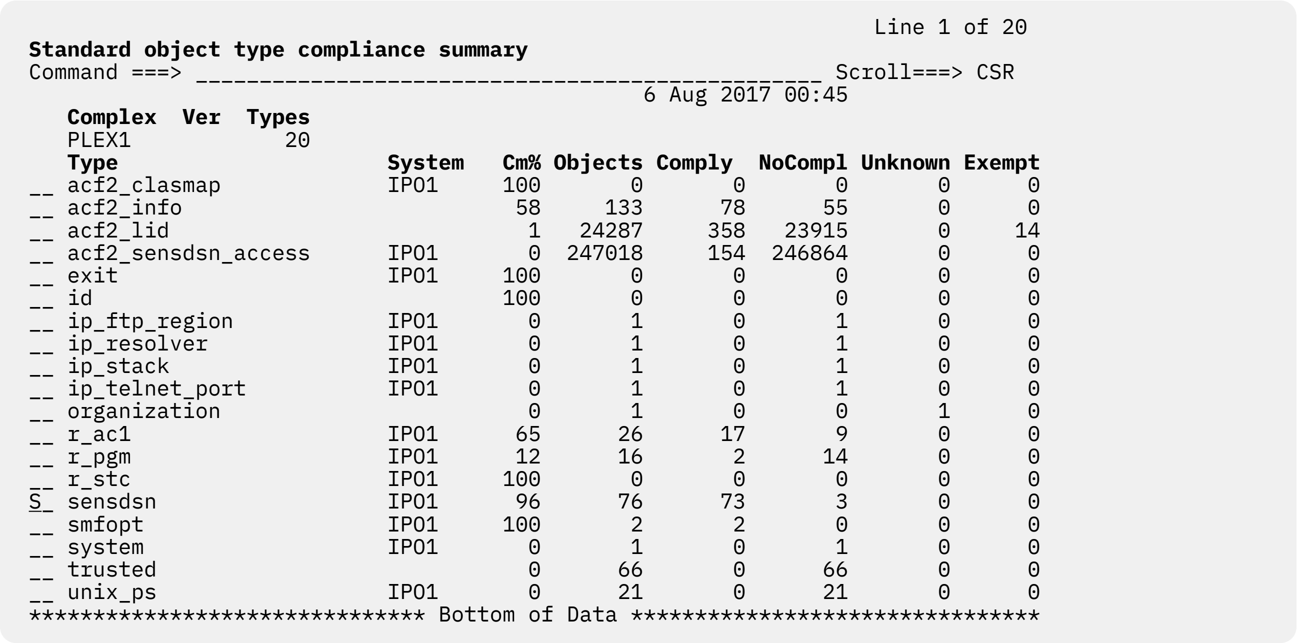
```
                                                                  Line 1 of 30
Standard rule set compliance summary
Command ===> _________________________________________________ Scroll===> PAGE
AAMV0030       LNKAUTH=APFTAB                   2 Aug 2017 23:45



  Rule set
  Rule set                      AAMV0030
  Complex compliant with rules  No       Relative audit priority       20
  Rule set non-comply severity  Medium   Site overruling set severity

  Rule set description
  LNKAUTH=APFTAB must be active to provide granular APF control; since this is
  not default it must be specified explicitly in IEASYSxx.

  Suppression and exemption
  Rule set not applicable       No
  Rule set suppressed           No
  Reason rule set suppression

  Resource location
  Complex name                  NMPIPL87 Complex severity (importance) Medium

  Data points tested                     Percentage
  Compliant data points                0 Compliant data points     (%)   0
  Non-compliant data points            1 Non-compliant data points (%) 100
  Undecided/unknown data points        0 Undecided data points     (%)   0
  Number of data points tested         1

  Standard
  Standard name                 ACF2_STIG
  Version of standard           6.47
******************************* Bottom of Data ********************************
```

Figure 153. STDRULES: rule set details

A severity is assigned to each rule set or rule; see the **Rule set non-comply severity** field. You can overrule this severity with a SITE_SEVERITY statement that assigns a different severity value as it applies to your organization. Possible values are high, medium, and low.

STDTYPES: Standard object type compliance summary

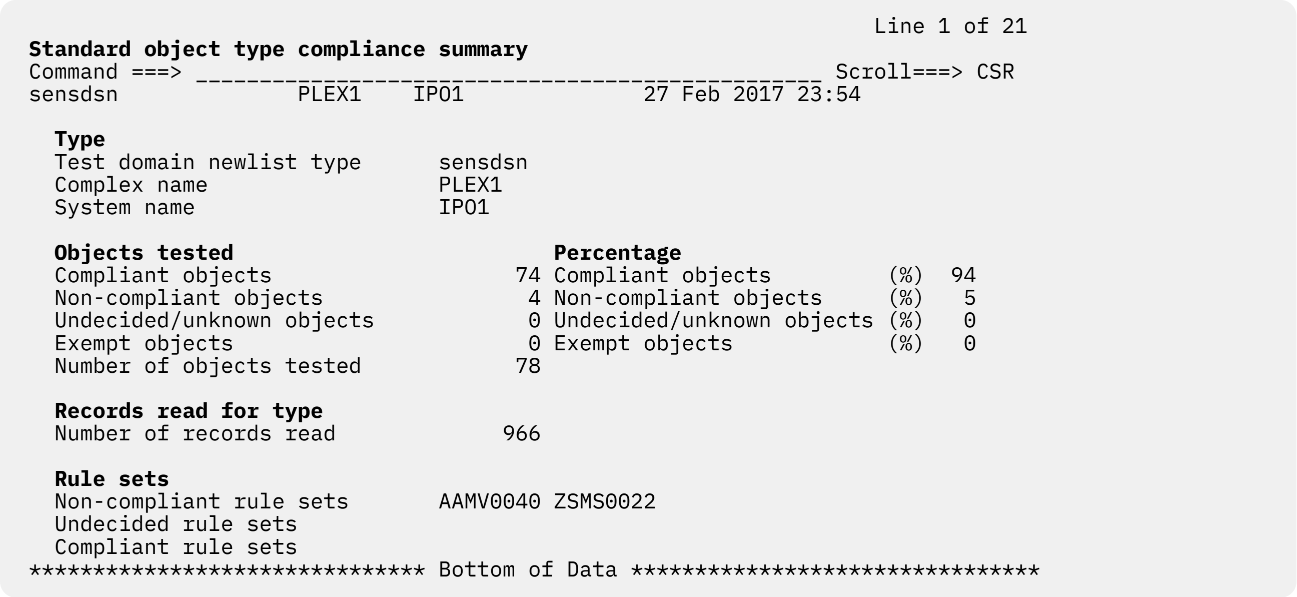
When you select STDTYPES on the Figure 151 on page 106, the STDTYPES: Standard object type compliance summary is displayed. It shows statistics about the newlist types that are used for the STIG compliance evaluation. For an explanation of the columns, see the STDRULES: Standard rule set compliance summary panel. In addition, the **Exempt** column shows the number of exempted objects that are found for which an exception is coded.



```
                                                                  Line 1 of 20
Standard object type compliance summary
Command ===> _________________________________________________ Scroll===> CSR
                                                6 Aug 2017 00:45
   Complex  Ver  Types
   PLEX1            20
   Type                     System   Cm% Objects Comply  NoCompl Unknown Exempt
__ acf2_clasmap             IP01     100       0       0       0       0      0
__ acf2_info                          58     133      78      55       0      0
__ acf2_lid                            1   24287     358   23915       0     14
__ acf2_sensdsn_access      IP01       0  247018     154  246864       0      0
__ exit                     IP01     100       0       0       0       0      0
__ id                                100       0       0       0       0      0
__ ip_ftp_region            IP01       0       1       0       1       0      0
__ ip_resolver              IP01       0       1       0       1       0      0
__ ip_stack                 IP01       0       1       0       1       0      0
__ ip_telnet_port           IP01       0       1       0       1       0      0
__ organization                        0       1       0       0       1      0
__ r_ac1                    IP01      65      26      17       9       0      0
__ r_pgm                    IP01      12      16       2      14       0      0
__ r_stc                    IP01     100       0       0       0       0      0
S_ sensdsn                  IP01      96      76      73       3       0      0
__ smfopt                   IP01     100       2       2       0       0      0
__ system                   IP01       0       1       0       1       0      0
__ trusted                             0      66       0      66       0      0
__ unix_ps                  IP01       0      21       0      21       0      0
******************************* Bottom of Data ********************************
```

Figure 154. STDTYPES: Standard object type compliance summary

You can use the S or / line command to see the STIG compliance evaluation for a specific newlist type. The following panel shows in which rule sets the pertinent newlist type is used and whether this rule set is compliant, noncompliant, undecided/unknown, or exempt.



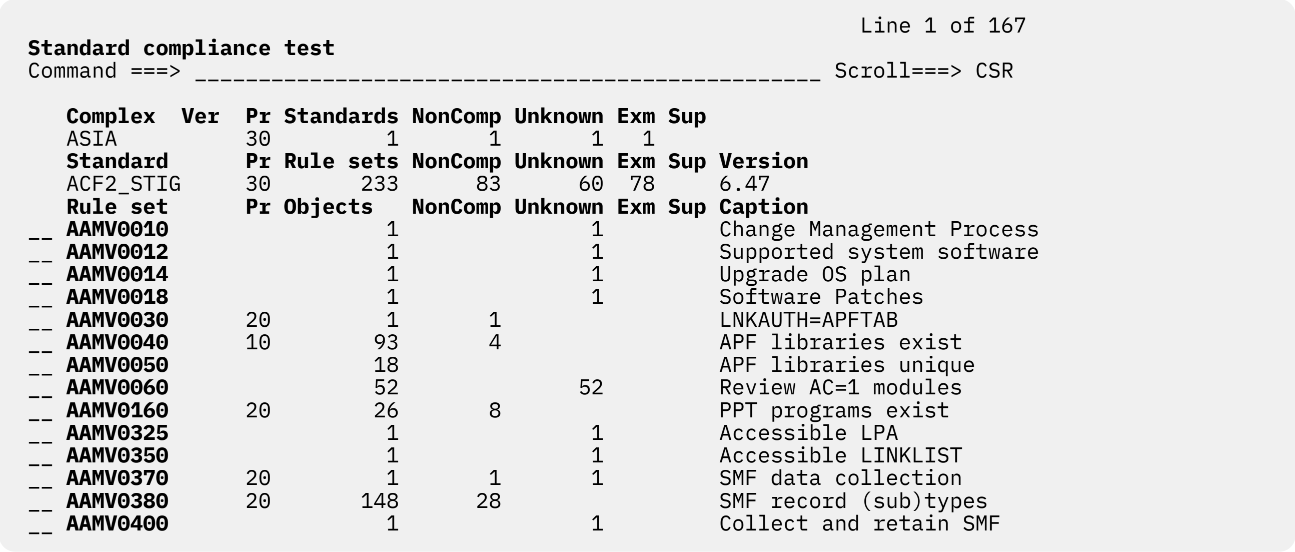
```
                                                                  Line 1 of 21
Standard object type compliance summary
Command ===> _________________________________________________ Scroll===> CSR
sensdsn              PLEX1    IP01              27 Feb 2017 23:54

  Type
  Test domain newlist type      sensdsn
  Complex name                  PLEX1
  System name                   IP01

  Objects tested                         Percentage
  Compliant objects                   74 Compliant objects         (%)  94
  Non-compliant objects                4 Non-compliant objects     (%)   5
  Undecided/unknown objects            0 Undecided/unknown objects (%)   0
  Exempt objects                       0 Exempt objects            (%)   0
  Number of objects tested            78

  Records read for type
  Number of records read             966

  Rule sets
  Non-compliant rule sets       AAMV0040 ZSMS0022
  Undecided rule sets
  Compliant rule sets
******************************* Bottom of Data ********************************
```

Figure 155. STDTYPES: STIG compliance evaluation for newlist

STDTESTS: Standard compliance test results

When you select STDTESTS on the Figure 151 on page 106, the STDTESTS - Standard compliance test panel is displayed. Although the STDRULES summary includes all supported rules sets, the STDTESTS summary contains only the rule sets that have test results. Rules sets without test results are ignored and not included in the STDTESTS report.

The screen and print output is sensitive to the screen width and line length. Narrow output shows rule-set captions, while wider output shows rule-set descriptions (see the **Narrow print** option in the AU.R panel in Figure 135 on page 96). The following panel shows an example of output for the rule set level on a screen with width 80. For an explanation of the columns, see the STDRULES: Standard rule set compliance summary panel.



```
                                                                 Line 1 of 167
Standard compliance test
Command ===> _________________________________________________ Scroll===> CSR

   Complex  Ver  Pr Standards NonComp Unknown Exm Sup
   ASIA          30         1       1       1   1
   Standard      Pr Rule sets NonComp Unknown Exm Sup Version
   ACF2_STIG     30       233      83      60  78     6.47
   Rule set      Pr Objects   NonComp Unknown Exm Sup Caption
__ AAMV0010                 1               1         Change Management Process
__ AAMV0012                 1               1         Supported system software
__ AAMV0014                 1               1         Upgrade OS plan
__ AAMV0018                 1               1         Software Patches
__ AAMV0030      20         1       1                 LNKAUTH=APFTAB
__ AAMV0040      10        93       4                 APF libraries exist
__ AAMV0050                18                         APF libraries unique
__ AAMV0060                52              52         Review AC=1 modules
__ AAMV0160      20        26       8                 PPT programs exist
__ AAMV0325                 1               1         Accessible LPA
__ AAMV0350                 1               1         Accessible LINKLIST
__ AAMV0370      20         1       1       1         SMF data collection
__ AAMV0380      20       148      28                 SMF record (sub)types
__ AAMV0400                 1               1         Collect and retain SMF
```

Figure 156. STDTESTS - Standard compliance test panel

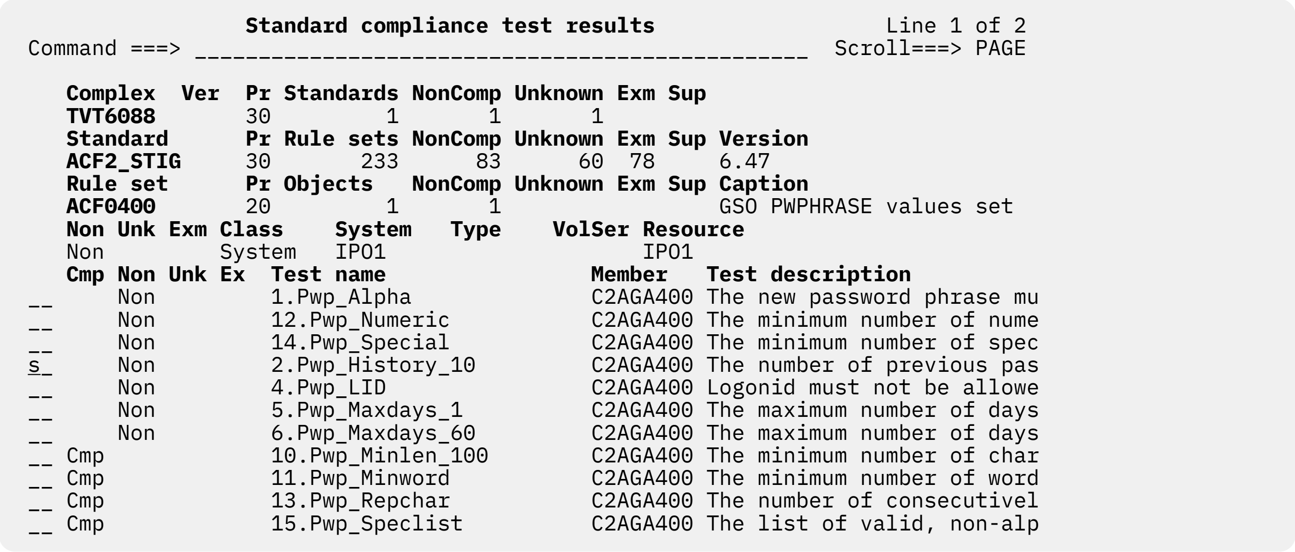
Compliance by complex shows the number of standards and the results that are processed in this compliance evaluation run. This example shows that, for complex ACF2AD2R, compliance is checked against ACF2_STIG and that it is not fully compliant.

If only one standard is evaluated, the second summary level result is shown. If the complex is evaluated against more than one standard, a separate summary report is generated for each standard against which the system is evaluated.

The summary by standard shows the highest noncompliance priority, the total number of reported rule sets, and the number of noncompliant, unknown/undecided, and exempted rules within that standard.

The summary by rule set shows the number of affected objects by test or tests within a rule set, and the specific results for the pertinent rule set.

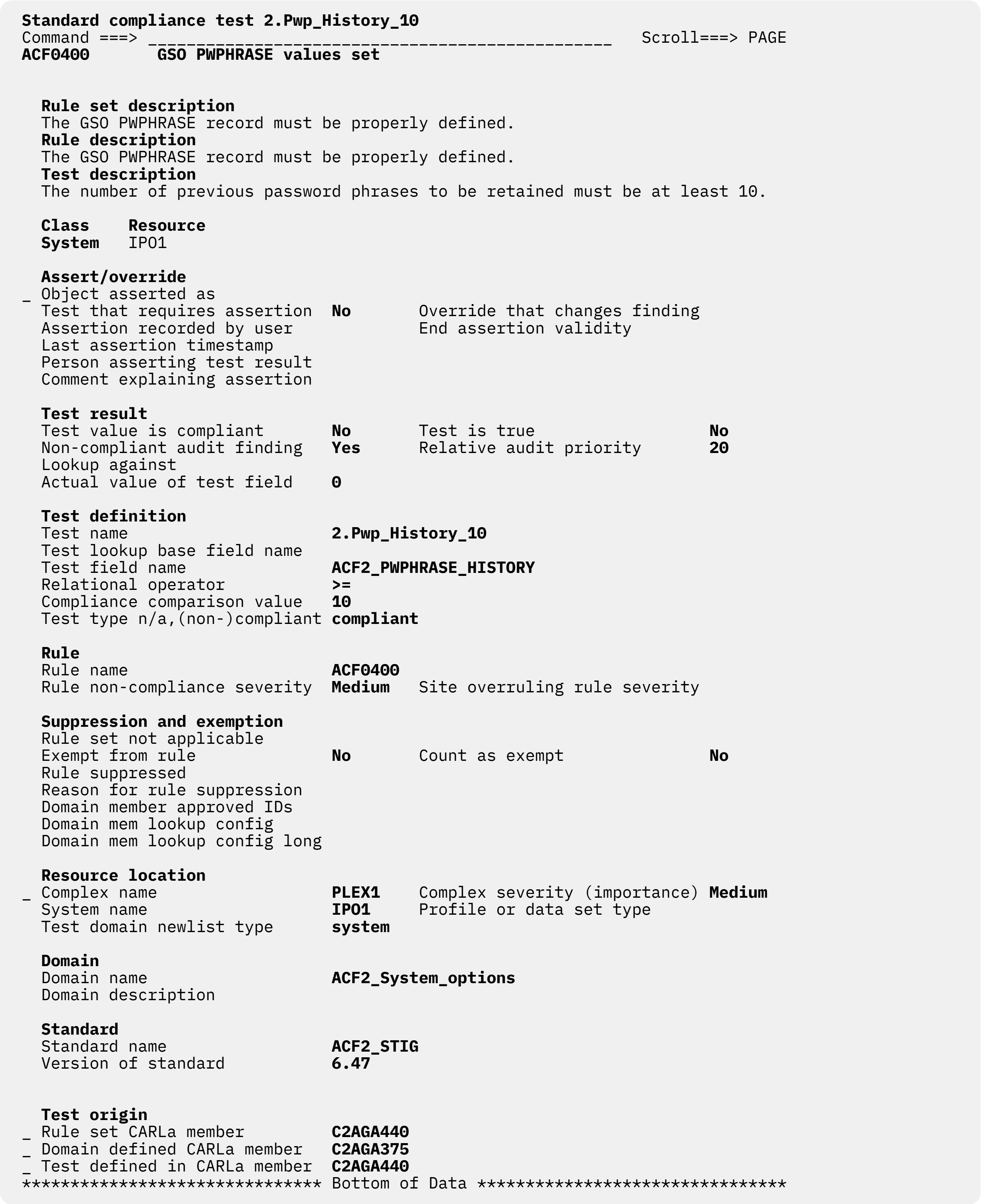
You can use the S or / line command to zoom in to the details of the report.



```
                 Standard compliance test results                  Line 1 of 2
Command ===> ________________________________________________  Scroll===> PAGE

   Complex  Ver  Pr Standards NonComp Unknown Exm Sup
   TVT6088       30         1       1       1
   Standard      Pr Rule sets NonComp Unknown Exm Sup Version
   ACF2_STIG     30       233      83      60  78     6.47
   Rule set      Pr Objects   NonComp Unknown Exm Sup Caption
   ACF0400       20         1       1                 GSO PWPHRASE values set
   Non Unk Exm Class    System   Type    VolSer Resource
   Non         System   IPO1                    IPO1
   Cmp Non Unk Ex  Test name                Member   Test description
__      Non         1.Pwp_Alpha              C2AGA400 The new password phrase mu
__      Non         12.Pwp_Numeric           C2AGA400 The minimum number of nume
__      Non         14.Pwp_Special           C2AGA400 The minimum number of spec
s_      Non         2.Pwp_History_10         C2AGA400 The number of previous pas
__      Non         4.Pwp_LID                C2AGA400 Logonid must not be allowe
__      Non         5.Pwp_Maxdays_1          C2AGA400 The maximum number of days
__      Non         6.Pwp_Maxdays_60         C2AGA400 The maximum number of days
__ Cmp              10.Pwp_Minlen_100        C2AGA400 The minimum number of char
__ Cmp              11.Pwp_Minword           C2AGA400 The minimum number of word
__ Cmp              13.Pwp_Repchar           C2AGA400 The number of consecutivel
__ Cmp              15.Pwp_Speclist          C2AGA400 The list of valid, non-alp
```

Figure 157. STDTESTS - Standard compliance test results panel

The example in Figure 157 on page 110 shows that this system is not compliant to one of the two tests for rule set ACF0440. You can use the S or / line command to read the full details for this test.



```
Standard compliance test 2.Pwp_History_10
Command ===> ________________________________________________   Scroll===> PAGE
ACF0400       GSO PWPHRASE values set


  Rule set description
  The GSO PWPHRASE record must be properly defined.
  Rule description
  The GSO PWPHRASE record must be properly defined.
  Test description
  The number of previous password phrases to be retained must be at least 10.

  Class    Resource
  System   IPO1

  Assert/override
_ Object asserted as
  Test that requires assertion  No       Override that changes finding
  Assertion recorded by user             End assertion validity
  Last assertion timestamp
  Person asserting test result
  Comment explaining assertion

  Test result
  Test value is compliant       No       Test is true                 No
  Non-compliant audit finding   Yes      Relative audit priority      20
  Lookup against
  Actual value of test field    0

  Test definition
  Test name                     2.Pwp_History_10
  Test lookup base field name
  Test field name               ACF2_PWPHRASE_HISTORY
  Relational operator           >=
  Compliance comparison value   10
  Test type n/a,(non-)compliant compliant

  Rule
  Rule name                     ACF0400
  Rule non-compliance severity  Medium   Site overruling rule severity

  Suppression and exemption
  Rule set not applicable
  Exempt from rule              No       Count as exempt              No
  Rule suppressed
  Reason for rule suppression
  Domain member approved IDs
  Domain mem lookup config
  Domain mem lookup config long

  Resource location
_ Complex name                  PLEX1    Complex severity (importance) Medium
  System name                   IPO1     Profile or data set type
  Test domain newlist type      system

  Domain
  Domain name                   ACF2_System_options
  Domain description

  Standard
  Standard name                 ACF2_STIG
  Version of standard           6.47


  Test origin
_ Rule set CARLa member         C2AGA440
_ Domain defined CARLa member   C2AGA375
_ Test defined in CARLa member  C2AGA440
******************************* Bottom of Data ********************************
```

Figure 158. STDTESTS - Standard compliance test results for test 2.Pwp_History_10 for ACF0400

In this example, the **Test description** shows that the password interval must be less or equal to 60 days. **Test results** shows that the actual value found is 90. The **Test definition** shows the details of the pertinent test. It shows that the test must be reported to be noncompliant if the password interval is not shorter or equal to (**<=**) 60. For tests that are assertable, you can use the A (Assert) line command to assert compliance, non-compliance, or retract all earlier asserts. For tests that are not assertable, you can use the O (Override) line command to override the results to compliant or non-compliant or retract all earlier overrides and again report the calculated result.

Assert/Override shows that this rule in not assertable, and that no assert or override exists. In the selection field in front of the **Object asserted as** field, you can use the A (Assert) command for assertable tests to assert compliance, non-compliance, or retract all earlier asserts. In the selection field in front of the **Object asserted as** field, you can use the A (Assert) command for assertable tests to assert compliance, non-compliance, or retract all earlier asserts. Alternatively, use the O (Override) command to override the results to compliant or non-compliant, or retract all earlier overrides and again report the calculated result.

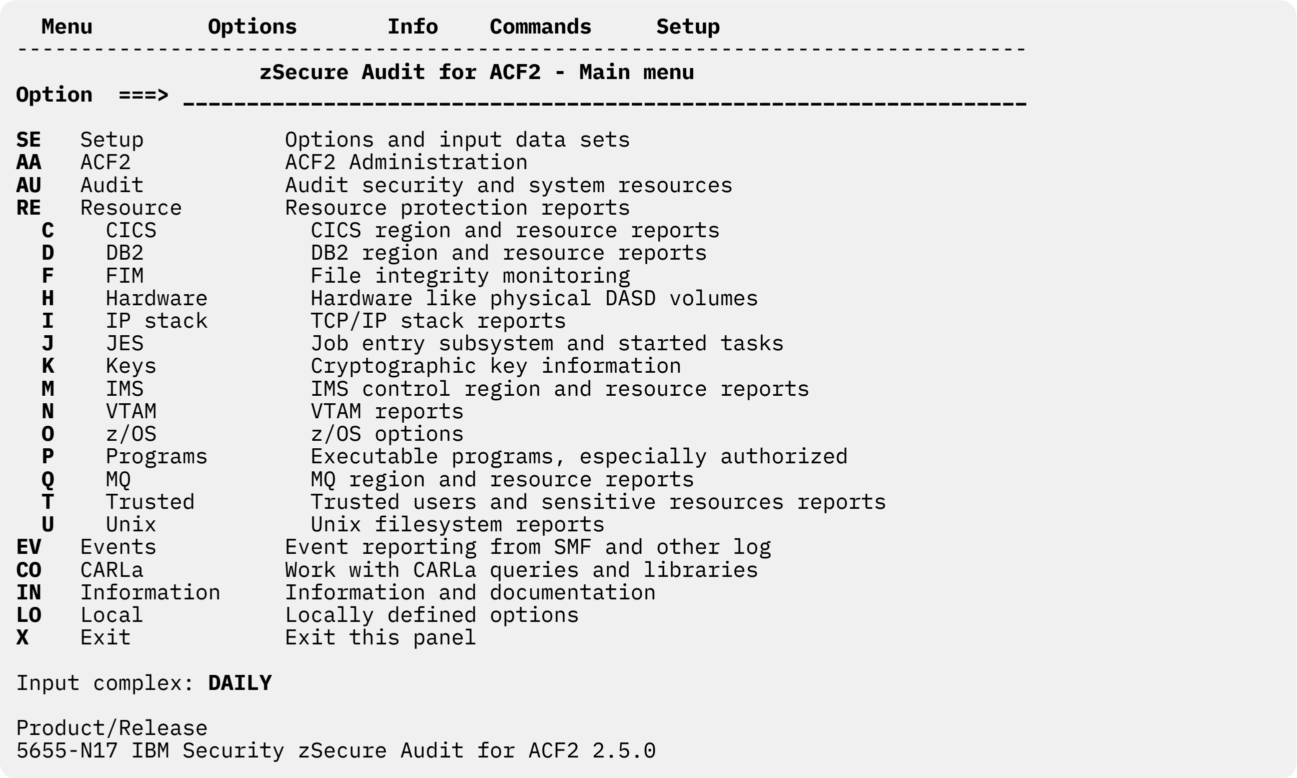
Suppression and exemption shows that this rule is not exempt. It is possible to code an exempt definition in the CARLa code for this rule so that the test shows that this rule is exempted from the pertinent rule.

If a rule is part of a rule set, the pertinent rule description generally differs from the rule set description.

Test origin shows in which CARLa member(s) the CARLa code for this rule set is stored. You can review this rule by entering a B (Browse) or V (View) in front of the line.

Chapter 8. Resource-based reports for ACF2 resources

The Resource reports option (**RE**) is available from the Main menu:



```
  Menu         Options       Info     Commands     Setup
-------------------------------------------------------------------------------
                   zSecure Audit for ACF2 - Main menu
Option  ===> __________________________________________________________________

SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
AU   Audit           Audit security and system resources
RE   Resource        Resource protection reports
  C    CICS            CICS region and resource reports
  D    DB2             DB2 region and resource reports
  F    FIM             File integrity monitoring
  H    Hardware        Hardware like physical DASD volumes
  I    IP stack        TCP/IP stack reports
  J    JES             Job entry subsystem and started tasks
  K    Keys            Cryptographic key information
  M    IMS             IMS control region and resource reports
  N    VTAM            VTAM reports
  O    z/OS            z/OS options
  P    Programs        Executable programs, especially authorized
  Q    MQ              MQ region and resource reports
  T    Trusted         Trusted users and sensitive resources reports
  U    Unix            Unix filesystem reports
EV   Events          Event reporting from SMF and other log
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

Input complex: DAILY

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 159. zSecure Audit for ACF2 Main menu

It provides access to display and reporting options for the following types of ACF2 resource reports:

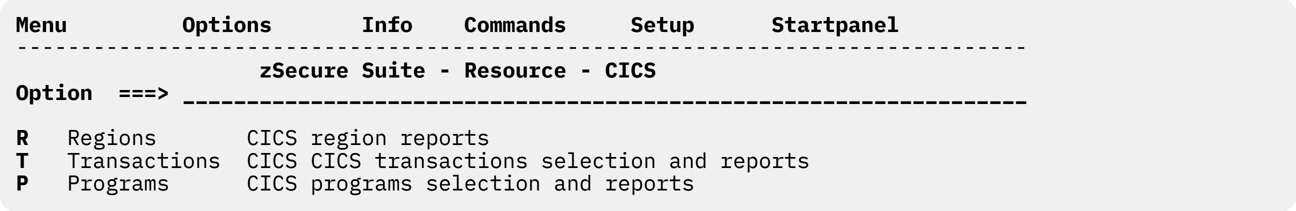
- “CICS region and resource reports” on page 114
- “Db2 region and resource reports” on page 114
- “File integrity monitoring” on page 117
- “Hardware displays” on page 119
- “IP stack reports” on page 119
- “Job entry subsystem and started tasks” on page 120
- “Cryptographic key information” on page 121
- “IMS region and resource reports” on page 122
- “VTAM application reports” on page 123
- “z/OS settings” on page 123
- “Executable programs reports” on page 124
- “MQ region and resource reports” on page 125
- “Trust relations reports” on page 128
- “UNIX file system reports” on page 128

CICS region and resource reports

Use the **RE.C** option on the Main menu to select and display CICS region, transaction, and program data.

The data used for this CICS report is obtained from a CKFREEZE data set that is created by running zSecure Collect APF-authorized.

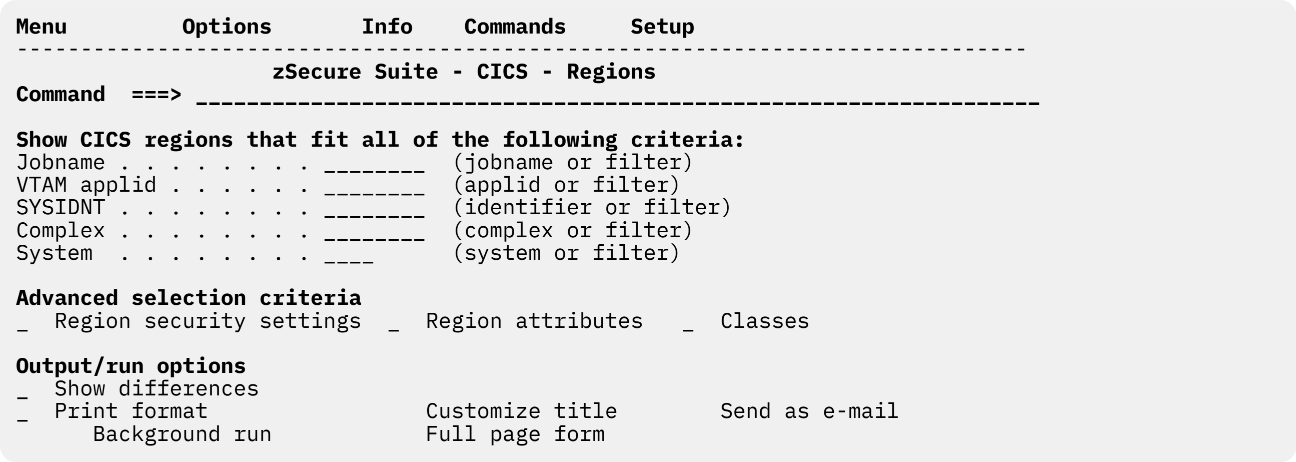
When you select **RE.C** , the panel that is shown in Figure 160 on page 114 is displayed.



```
Menu         Options       Info     Commands     Setup      Startpanel
--------------------------------------------------------------------------------
                   zSecure Suite - Resource - CICS
Option  ===> ___________________________________________________________________

R   Regions       CICS region reports
T   Transactions  CICS CICS transactions selection and reports
P   Programs      CICS programs selection and reports
```

Figure 160. CICS Resource panel

In the CICS Resource panel in Figure 160 on page 114, select the option of your choice. The corresponding selection panel is displayed. For example, the CICS Regions selection panel in Figure 161 on page 114.



```
Menu         Options       Info     Commands     Setup
--------------------------------------------------------------------------------
                    zSecure Suite - CICS - Regions
Command  ===> ___________________________________________________________________

Show CICS regions that fit all of the following criteria:
Jobname . . . . . . . ________  (jobname or filter)
VTAM applid . . . . . ________  (applid or filter)
SYSIDNT . . . . . . . ________  (identifier or filter)
Complex . . . . . . . ________  (complex or filter)
System  . . . . . . . ____      (system or filter)

Advanced selection criteria
_  Region security settings  _  Region attributes    _  Classes

Output/run options
_  Show differences
_  Print format              Customize title       Send as e-mail
      Background run         Full page form
```

Figure 161. CICS Regions selection panel

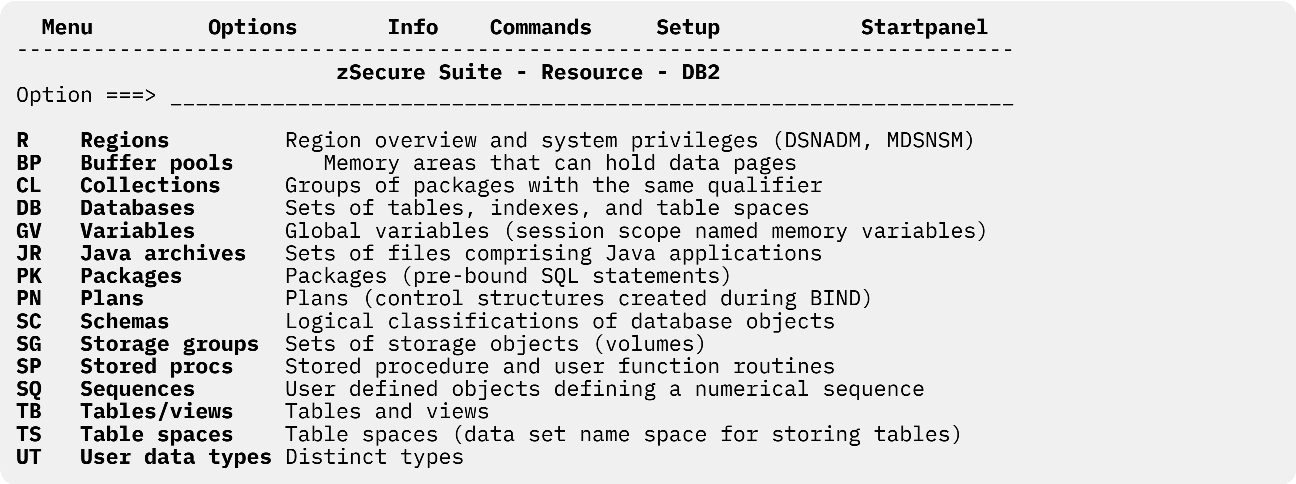
Use this panel to enter selection criteria in one or more fields to limit the CICS region configuration data. When you specify selection criteria, the output includes only those records that match all the selection criteria. Filters can be used in some of the selection fields. To find out whether a field supports filters, use the field-sensitive help function (PF1).

Use this selection panel to enter your selection criteria in one or more fields to limit the data. When you specify selection criteria, the output includes only those records that match all the selection criteria. Filters can be used in some of the selection fields. To find out whether a field supports filters, use the online, field-sensitive help function (PF1). You can also select output and run options. Additionally, you can select no options and report data is processed as soon as you press Enter. The overview panel that is displayed shows a summary of the records that match your selection criteria.

For detailed information, see the online help and the *IBM Security zSecure Audit for ACF2: User Reference Manual*.

Db2 region and resource reports

The Db2® Resource menu shown in Figure 162 on page 115 is displayed.

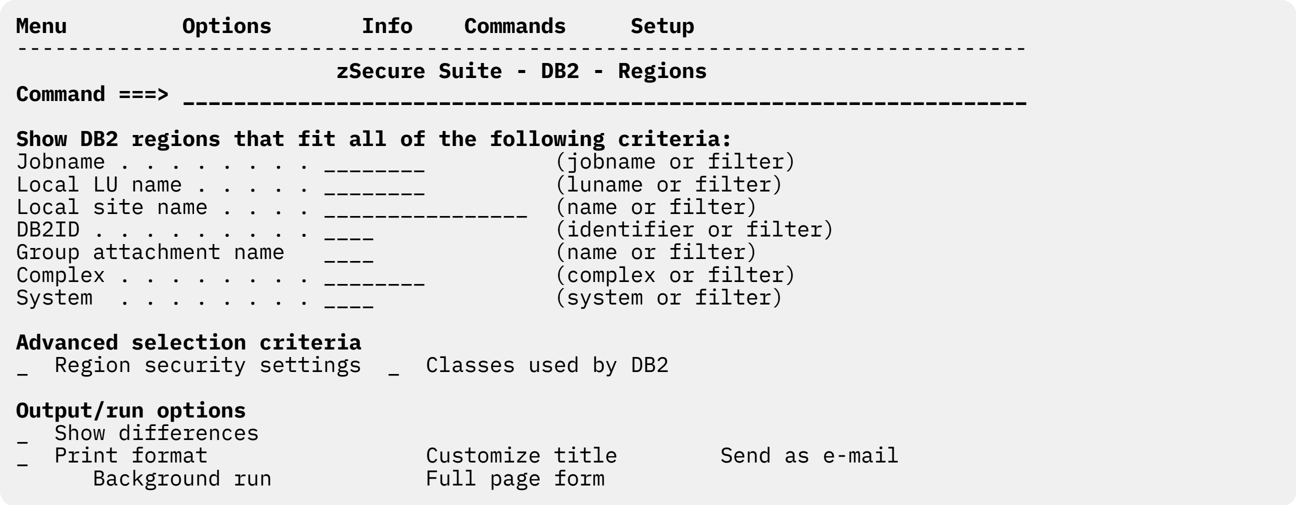


```
  Menu         Options       Info    Commands     Setup          Startpanel
------------------------------------------------------------------------------
                         zSecure Suite - Resource - DB2
Option ===> __________________________________________________________________

R    Regions         Region overview and system privileges (DSNADM, MDSNSM)
BP   Buffer pools       Memory areas that can hold data pages
CL   Collections     Groups of packages with the same qualifier
DB   Databases       Sets of tables, indexes, and table spaces
GV   Variables       Global variables (session scope named memory variables)
JR   Java archives   Sets of files comprising Java applications
PK   Packages        Packages (pre-bound SQL statements)
PN   Plans           Plans (control structures created during BIND)
SC   Schemas         Logical classifications of database objects
SG   Storage groups  Sets of storage objects (volumes)
SP   Stored procs    Stored procedure and user function routines
SQ   Sequences       User defined objects defining a numerical sequence
TB   Tables/views    Tables and views
TS   Table spaces    Table spaces (data set name space for storing tables)
UT   User data types Distinct types
```

Figure 162. Db2 Resource menu

Db2 region reports

On Figure 162 on page 115, select the **R** menu option to display the Db2 Regions selection panel in Figure 163 on page 115.



```
Menu         Options       Info    Commands     Setup
-------------------------------------------------------------------------------
                         zSecure Suite - DB2 - Regions
Command ===> _________________________________________________________________

Show DB2 regions that fit all of the following criteria:
Jobname . . . . . . . . ________          (jobname or filter)
Local LU name . . . . . ________          (luname or filter)
Local site name . . . . ________________  (name or filter)
DB2ID . . . . . . . . . ____              (identifier or filter)
Group attachment name   ____              (name or filter)
Complex . . . . . . . . ________          (complex or filter)
System  . . . . . . . . ____              (system or filter)

Advanced selection criteria
_  Region security settings  _  Classes used by DB2

Output/run options
_  Show differences
_  Print format              Customize title        Send as e-mail
      Background run         Full page form
```

Figure 163. Db2 Regions selection panel

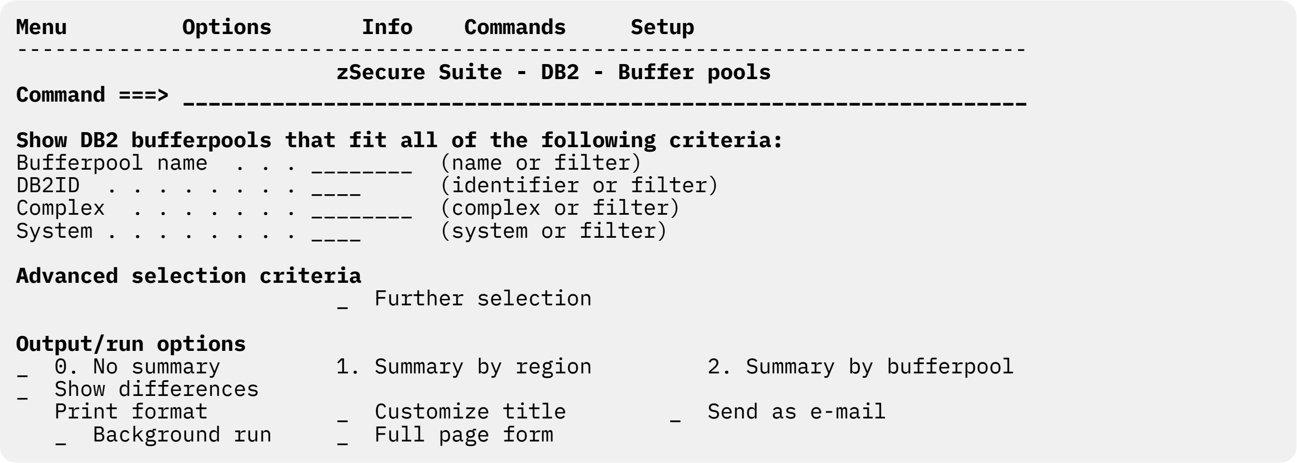
Use this selection panel to enter your selection criteria in one or more fields to limit the data. When you specify selection criteria, the output includes only those records that match all the selection criteria. Filters can be used in some of the selection fields. To find out whether a field supports filters, use the online, field-sensitive help function (PF1).

You can also select output and run options in the Db2 regions selection panel. Additionally, you can select no options and report data is processed as soon as you press Enter. The overview panel that is displayed shows a summary of the records that match your selection criteria.

For detailed information, see the and the online help and the *zSecure Audit for ACF2 User Reference Manual*.

Db2 resource reports

In the Db2 Resource panel in Figure 162 on page 115, select the menu option of your choice. The corresponding selection panel is then displayed. For example, for Db2 Bufferpools:



```
Menu         Options       Info    Commands     Setup
--------------------------------------------------------------------------------
                         zSecure Suite - DB2 - Buffer pools
Command ===> __________________________________________________________________

Show DB2 bufferpools that fit all of the following criteria:
Bufferpool name  . . . ________  (name or filter)
DB2ID  . . . . . . . . ____      (identifier or filter)
Complex  . . . . . . . ________  (complex or filter)
System . . . . . . . . ____      (system or filter)

Advanced selection criteria
                         _  Further selection

Output/run options
_  0. No summary         1. Summary by region         2. Summary by bufferpool
_  Show differences
   Print format          _  Customize title        _  Send as e-mail
   _  Background run     _  Full page form
```

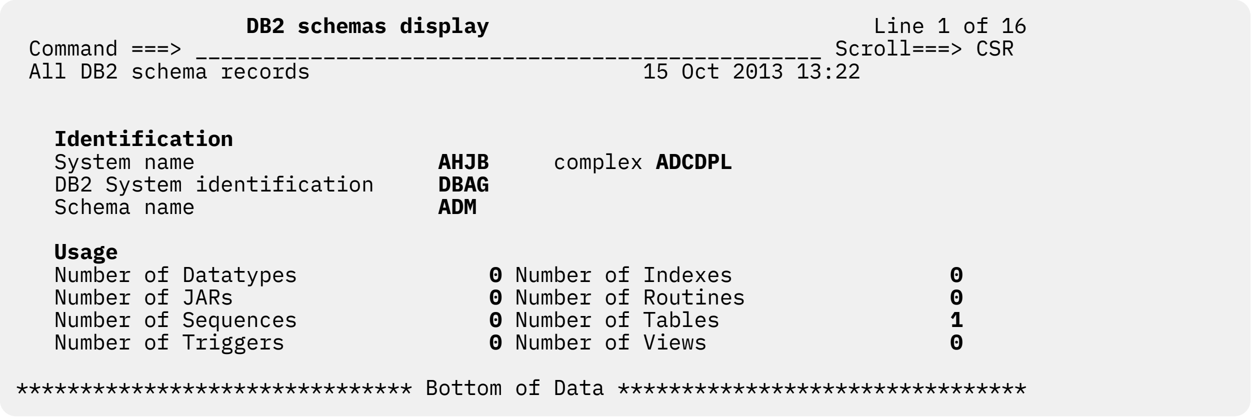
Figure 164. Db2 bufferpools selection panel

Use this panel to enter your selection criteria in one or more fields to limit the data. To see detailed field information, press **F1** on any field. This field-sensitive help function also describes which fields on the selection panels support filters. You can also find descriptions of the field names in "SELECT/LIST Fields" in *zSecure CARLa Command Reference*.

When you specify selection criteria, the output includes only those records that match all the selection criteria. Some selection panels include some advanced selection criteria:

Further selection

When you select Further selection, a further selection panel is displayed. For example, for Db2 Schemas:

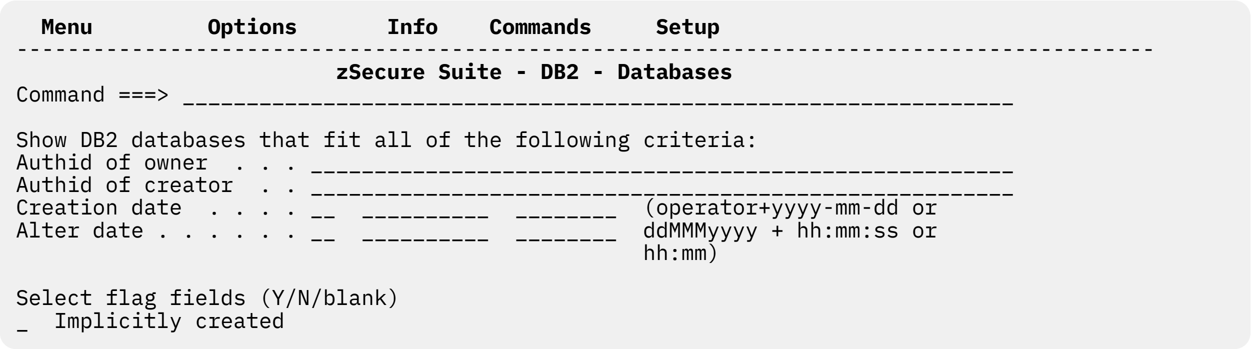


```
                 DB2 schemas display                             Line 1 of 16
 Command ===> ___________________________________________________ Scroll===> CSR
 All DB2 schema records                          15 Oct 2013 13:22


   Identification
   System name                     AHJB     complex ADCDPL
   DB2 System identification       DBAG
   Schema name                     ADM

   Usage
   Number of Datatypes                 0 Number of Indexes                  0
   Number of JARs                      0 Number of Routines                 0
   Number of Sequences                 0 Number of Tables                   1
   Number of Triggers                  0 Number of Views                    0

******************************* Bottom of Data ********************************
```

Figure 165. Db2 schema detail display report

Other settings

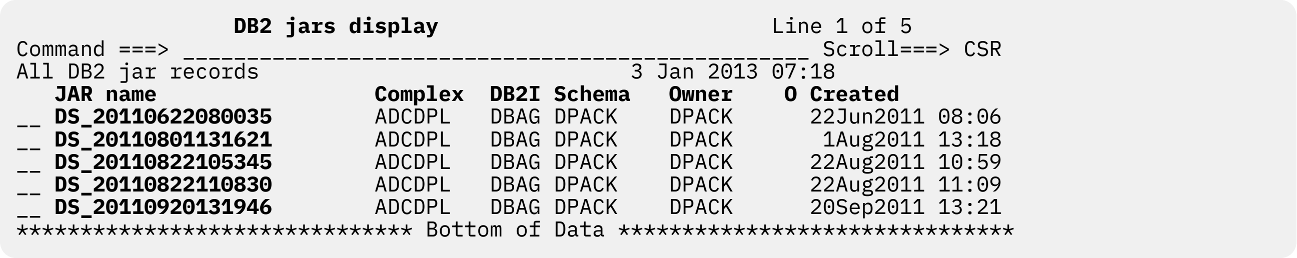
When you select Other settings, a next selection panel is displayed. For example, for Db2 Databases:



```
  Menu         Options       Info    Commands     Setup
------------------------------------------------------------------------------------------
                        zSecure Suite - DB2 - Databases
Command ===> _________________________________________________________________

Show DB2 databases that fit all of the following criteria:
Authid of owner  . . . _______________________________________________________
Authid of creator  . . _______________________________________________________
Creation date  . . . . __  __________  ________  (operator+yyyy-mm-dd or
Alter date . . . . . . __  __________  ________  ddMMMyyyy + hh:mm:ss or
                                                 hh:mm)

Select flag fields (Y/N/blank)
_  Implicitly created
```

Figure 166. Db2 databases security settings selection panel

You can select output and run options or select no options. Report data is processed as soon as you press **Enter**. The overview panel that is then displayed shows a summary of the records that match your selection criteria. For example, for Db2 Java™ archive records (JARs):



```
                 DB2 jars display                          Line 1 of 5
Command ===> _________________________________________________ Scroll===> CSR
All DB2 jar records                               3 Jan 2013 07:18
   JAR name                 Complex  DB2I Schema   Owner    O Created
__ DS_20110622080035        ADCDPL   DBAG DPACK    DPACK      22Jun2011 08:06
__ DS_20110801131621        ADCDPL   DBAG DPACK    DPACK       1Aug2011 13:18
__ DS_20110822105345        ADCDPL   DBAG DPACK    DPACK      22Aug2011 10:59
__ DS_20110822110830        ADCDPL   DBAG DPACK    DPACK      22Aug2011 11:09
__ DS_20110920131946        ADCDPL   DBAG DPACK    DPACK      20Sep2011 13:21
******************************* Bottom of Data *******************************
```

Figure 167. Db2 JARs overview display report

This data can only be listed if a CKFREEZE file is created during an APF-authorized run of zSecure Collect (the CKFCOLL program). For information about creating such a CKFREEZE file, see "zSecure Collect for z/OS" in zSecure Audit for ACF2 User Reference Manual.

On this overview display panel, you can use action commands. For example:

R

Shows region information.

S

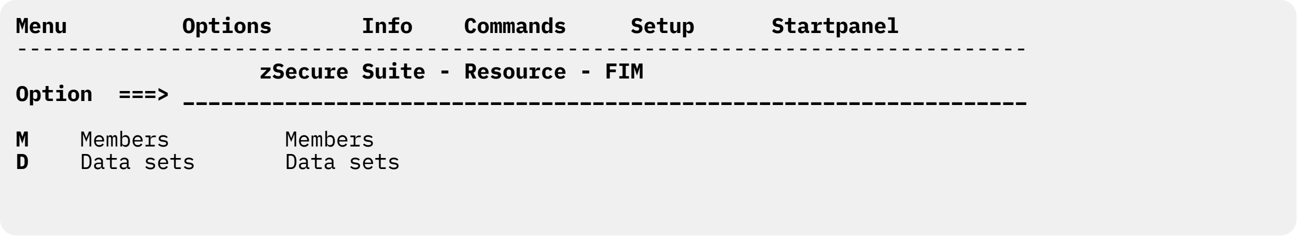
Shows additional information

For detailed information on resource reports and complete lists of available action command for each report type, see the online help (F1) and "Resource reports for z/OS" in zSecure Audit for ACF2 User Reference Manual.

File integrity monitoring

Use the **RE.F** option on the Main menu to select and display file integrity monitoring data.

The following panel is then displayed:



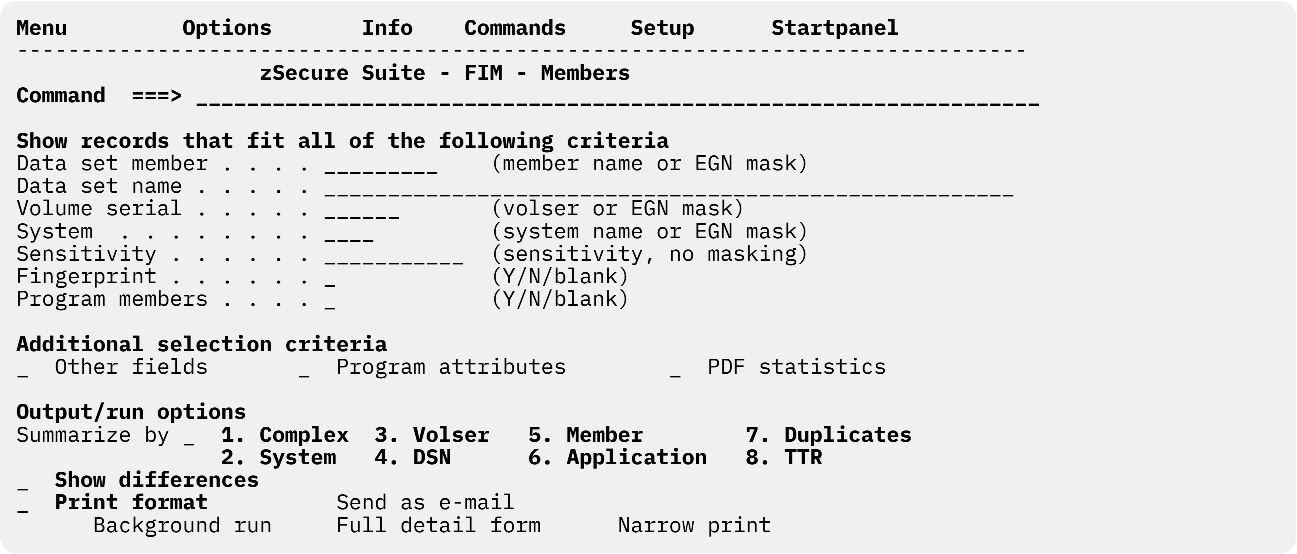
```
Menu         Options       Info    Commands     Setup      Startpanel
--------------------------------------------------------------------------------
                   zSecure Suite - Resource - FIM
Option  ===> __________________________________________________________________

M    Members         Members
D    Data sets       Data sets
```

Figure 168. File identity monitoring menu

For more detailed information than documented in these sections, see the online help and *zSecure Admin and Audit for RACF User Reference Manual*.

Members (RE.F.M)

In the File identity monitoring menu, select the **M** menu option. The initial data set Members selection panel is then displayed.



```
Menu         Options       Info    Commands     Setup      Startpanel
-------------------------------------------------------------------------------
                   zSecure Suite - FIM - Members
Command  ===> __________________________________________________________________

Show records that fit all of the following criteria
Data set member . . . . _________    (member name or EGN mask)
Data set name . . . . . ______________________________________________________
Volume serial . . . . . ______       (volser or EGN mask)
System  . . . . . . . . ____         (system name or EGN mask)
Sensitivity . . . . . . ___________  (sensitivity, no masking)
Fingerprint . . . . . . _            (Y/N/blank)
Program members . . . . _            (Y/N/blank)

Additional selection criteria
_  Other fields       _  Program attributes        _  PDF statistics

Output/run options
Summarize by _  1. Complex  3. Volser   5. Member        7. Duplicates
                2. System   4. DSN      6. Application   8. TTR
_  Show differences
_  Print format          Send as e-mail
      Background run     Full detail form      Narrow print
```

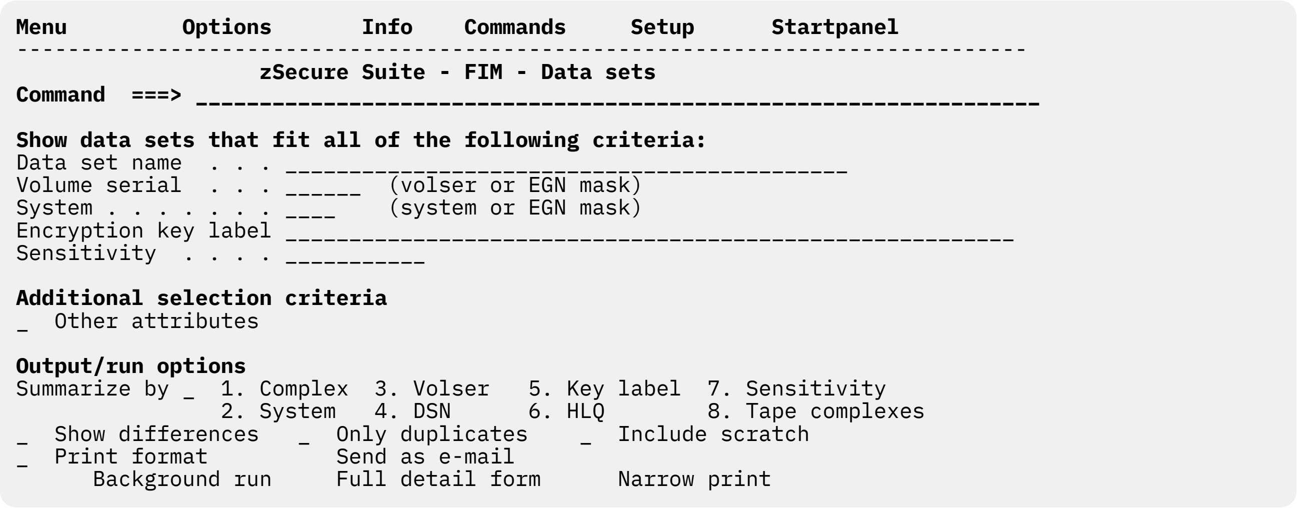
Figure 169. Members selection panel

Use this panel to enter selection criteria in one or more fields to limit the data set member data returned. When you specify a selection criteria, the output includes only those records that match all the selection criteria. You can use filters in some of the selection fields. To find out whether a field supports filters, use the field-sensitive help function (PF1).

You can also select output and run options in the Members selection panel, or select no options, and report data is processed as soon as you press Enter. The overview panel that is displayed shows a summary of the members that match your selection criteria. Note that program and non-program members are always grouped separately.

Data sets (RE.F.D)

In the File identity monitoring menu, select the **D** menu option. The Data sets selection panel is then displayed.



```
Menu         Options       Info    Commands     Setup      Startpanel
-------------------------------------------------------------------------------
                   zSecure Suite - FIM - Data sets
Command  ===> __________________________________________________________________

Show data sets that fit all of the following criteria:
Data set name  . . . ____________________________________________
Volume serial  . . . ______  (volser or EGN mask)
System . . . . . . . ____    (system or EGN mask)
Encryption key label _________________________________________________________
Sensitivity  . . . . ___________

Additional selection criteria
_  Other attributes

Output/run options
Summarize by _  1. Complex  3. Volser   5. Key label  7. Sensitivity
                2. System   4. DSN      6. HLQ        8. Tape complexes
_  Show differences   _  Only duplicates    _  Include scratch
_  Print format          Send as e-mail
      Background run     Full detail form      Narrow print
```

Figure 170. Data sets selection panel

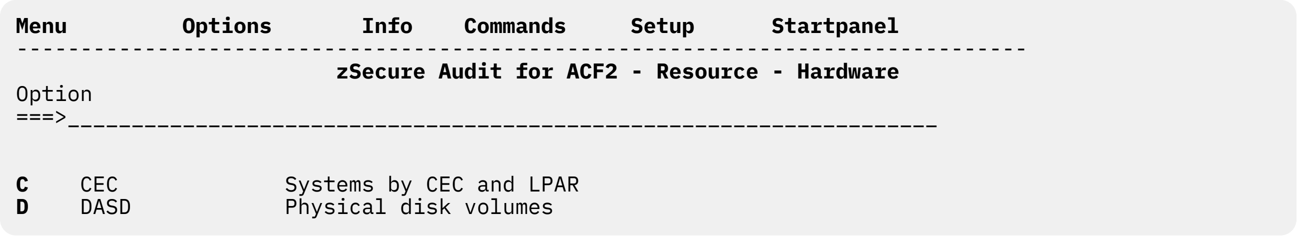
Use this panel to enter selection criteria in one or more fields to limit the data set names that are returned. When you specify a selection criteria, the output includes only those records that match all the selection criteria. You can use filters in some of the selection fields. To find out whether a field supports filters, use the field-sensitive help function (PF1).

You can also select **Output/run options** in the Data sets selection panel panel, or select no options, and report data is processed as soon as you press **Enter**. The overview panel that is displayed shows a list of the data set names that match your selection criteria.

Hardware displays

Use the **RE.H** option on the Main menu to select and display the Hardware displays resource panel.

When you select **RE.H** , the panel that is shown in Figure 171 on page 119 is displayed.



```
Menu         Options       Info    Commands     Setup      Startpanel
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Resource - Hardware
Option
===>____________________________________________________________________


C    CEC             Systems by CEC and LPAR
D    DASD            Physical disk volumes
```

Figure 171. Hardware displays resource panel

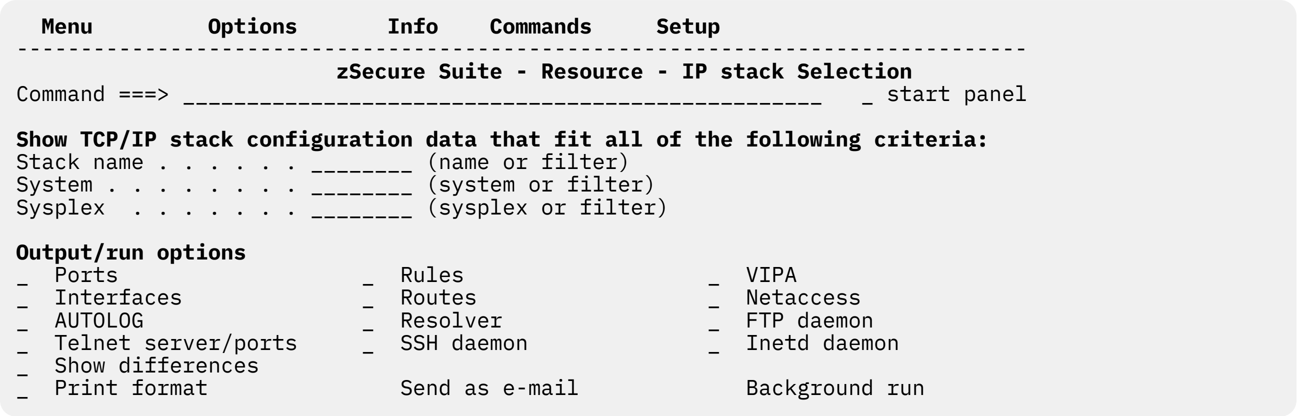
The **C** option groups the systems first by virtual machine, then by LPAR or z/VM image, and lastly by the CPU serial number of the Central Electronics Complex (CEC). In contrast to **RE.O.S**, this display only shows the configuration parameters of the system. The purpose of the display is to show where the lack of physical separation can impose additional risks thorough cross-virtual-machine authorities or cross-LPAR authorities.

Select the **D** option to display the DASD Volume Protection and Sharing panel that shows the DASD volumes encountered in the CKFREEZE file and the ACF2 database. This display is the same as the **DASDVOL** display in **AU.S** category MVS Extended. For a print option of the report, go to **AU.S**.

IP stack reports

This data is obtained from a CKFREEZE data set created by running zSecure Collect APF-authorized with the **TCPIP=YES** parameter. You can also report on SMF events related to IP configuration data by using the EV.I menu option.

When you select **RE.I** from the Main menu, the panel shown in Figure 172 on page 120 is displayed.



```
  Menu         Options       Info    Commands     Setup
-------------------------------------------------------------------------------
                         zSecure Suite - Resource - IP stack Selection
Command ===> __________________________________________________   _ start panel

Show TCP/IP stack configuration data that fit all of the following criteria:
Stack name . . . . . . ________ (name or filter)
System . . . . . . . . ________ (system or filter)
Sysplex  . . . . . . . ________ (sysplex or filter)

Output/run options
_  Ports                      _  Rules                      _  VIPA
_  Interfaces                 _  Routes                     _  Netaccess
_  AUTOLOG                    _  Resolver                   _  FTP daemon
_  Telnet server/ports        _  SSH daemon                 _  Inetd daemon
_  Show differences
_  Print format                  Send as e-mail                Background run
```

Figure 172. IP stack Selection panel

From the IP stack Selection panel, you can limit the TCP/IP stack configuration data by entering selection criteria into one or more fields. When you specify selection criteria, only records that match all criteria are included in the output. Filters can be used in some of the selection fields. For a description of the selection fields and to determine whether a field supports filters, use the field-sensitive help function (F1).

You can also specify Output and run options on the Selection panel. You can use the run options to specify additional selection criteria for specific types of IP configuration data. Use the output run options to specify report and print options. When you select any of these options, the corresponding panels are displayed when you press Enter on the IP stack Selection panel.

For a description of **Show differences** options, see the *IBM Security zSecure Audit for ACF2: User Reference Manual*

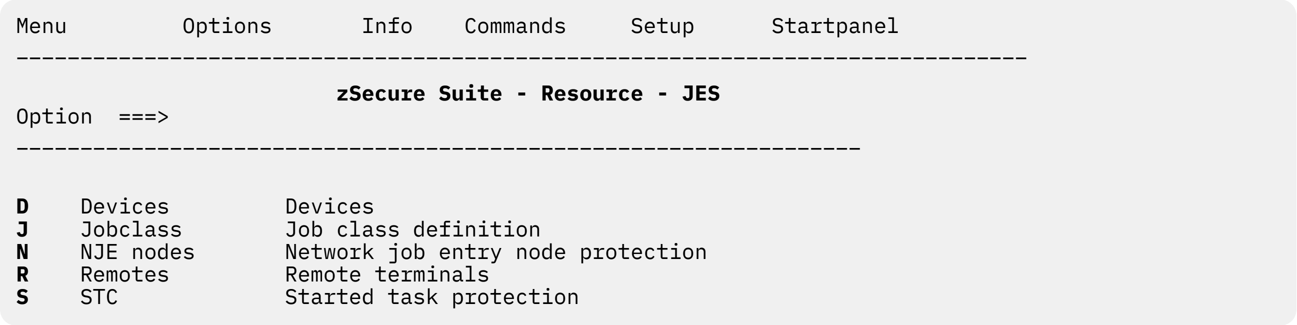
If you do not select any Output or run options, the data is processed as soon as you press Enter on the IP Stack Selection panel. An overview panel is immediately displayed with a summary of the IP configuration records that match the selection criteria that you specified.

See the *IBM Security zSecure Audit for ACF2: User Reference Manual* for more detailed information about these reports.

Job entry subsystem and started tasks

Use the **RE.J** option on the Main menu to select and display Job entry subsystem and started tasks resource reports.

When you select **RE.J** , the panel that is shown in Figure 173 on page 120 is displayed.



```
Menu         Options       Info    Commands     Setup      Startpanel
-------------------------------------------------------------------------------
                         zSecure Suite - Resource - JES
Option  ===>
------------------------------------------------------------------


D    Devices          Devices
J    Jobclass         Job class definition
N    NJE nodes        Network job entry node protection
R    Remotes          Remote terminals
S    STC              Started task protection
```

Figure 173. JES Resource panel

Enter **D** to open the JES Devices selection panel. This panel allows selection on most JES Device attributes.

Enter **J** to open the JES2 Job Class parameters panel. This panel shows the JES2 Job Class Attribute Table with audit concerns derived from this table and combined with relevant ACF2 levels and settings. This display matches the **JOBCLASS** display in **AU.S** category MVS tables.

Enter **N** to open the NJE_NODE summary panel. This panel shows the overview fields that you selected. (This is predefined CARLa script CKADQJN.)

Enter **R** to open the JES remote terminals selection panel. This panel allows selection on JES remote terminal attributes.

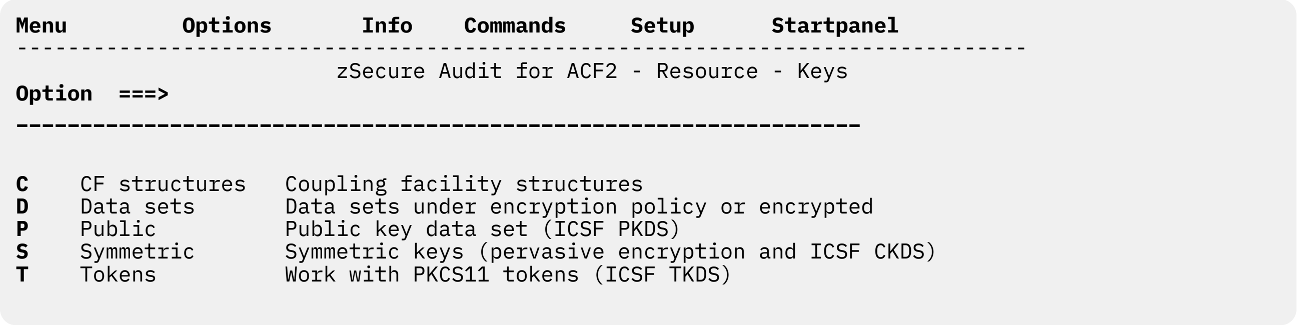
Enter **S** to open the Started task overview panel. This panel shows the authority and the protection of started tasks. This display matches the **STCPROT2** report in **AU.S** category ACF2 resource.

For a print format version of the RE.J.J and RE.J.S reports, go to **AU.S**.

Cryptographic key information

Use the **RE.K** option on the Main menu to select and display Cryptographic key information.

When you select **RE.K**, the panel that is shown in Figure 174 on page 121 is displayed.



```
Menu         Options       Info     Commands     Setup      Startpanel
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Resource - Keys
Option  ===>
------------------------------------------------------------------


C    CF structures    Coupling facility structures
D    Data sets        Data sets under encryption policy or encrypted
P    Public           Public key data set (ICSF PKDS)
S    Symmetric        Symmetric keys (pervasive encryption and ICSF CKDS)
T    Tokens           Work with PKCS11 tokens (ICSF TKDS)
```

Figure 174. Cryptographic key resource panel

Coupling facility structure encryption (RE.K.C)
The **RE.K.C** panel shows the coupling facility structures that are defined in the active policy as defined in the CFRM (Coupling Facility Resource Manager) data set. It also shows the current status of those structures in the coupling facility, including the encryption requirement and the creation date of the encryption key. Coupling facility structures are encrypted when, at the time that the structure is allocated, the active policy states that encryption is required. When the encryption requirement is changed in the administrative policy, the updated policy must be started, and the structure must be reallocated. The detail information that the **RE.K.C** reports show includes information about pending encryption status changes, and pending changes of the encryption key.

Data sets under encryption policy or encrypted (RE.K.D)
The **RE.K.D** display shows what data sets are encrypted, and which of those can actually be decrypted on which system. The data set will only be actually encrypted once it is (re)written and if the data set is actually eligible for encryption.

Public key data set (ICSF PKDS)
The **RE.K.P** display shows the public key definitions in ICSF.

It is summarized by RSA Master Key Verification Pattern, since multiple key data sets might shared the same MKVP to ease key synchronization. The next summary level is the physical key data set. The third summary level is an individual system. The record overview level shows the public key label with a large number of properties (scroll to the right), including key type, archival status, the main key algorithm and key length, and dates (creation, last change, last reference, start, end).

Symmetric keys (pervasive encryption and ICSF CKDS)
The **RE.K.S** display shows the symmetric key definitions in ICSF as well as references to symmetric key labels, defined or not, from various sources, as seen from a specific system.

It is summarized by AES Master Key Verification Pattern, since multiple key data sets might shared the same MKVP to ease key synchronization. The next summary level is the physical key data set. The third summary level is an individual system. The record overview level shows the symmetric key label with a large number of properties (scroll to the right), including key type, archival status, from SMS data classes (**SMS**), and actual data sets (**Datasets**), the main key algorithm and key length, and dates (creation, last change, last reference, start, end).

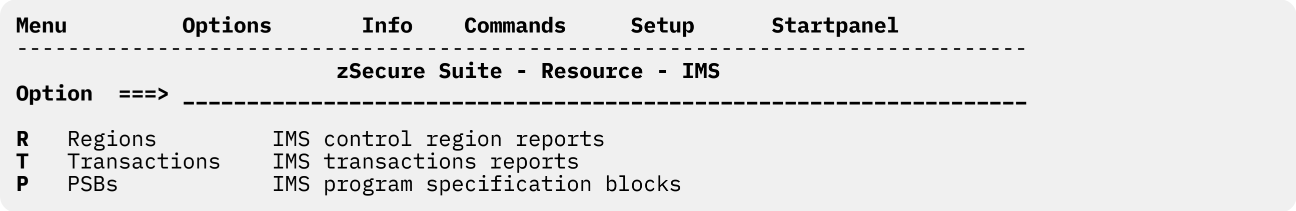
Work with PKCS11 tokens (ICSF TKDS)

This menu option can be used to work with tokens. If you leave this panel empty and press ENTER, all token records will be displayed.

IMS region and resource reports

Use the **RE.M** option on the Main menu to select and display IMS region, transaction, and program data. The report data is obtained from a CKFREEZE data set created by running zSecure Collect APF-authorized.

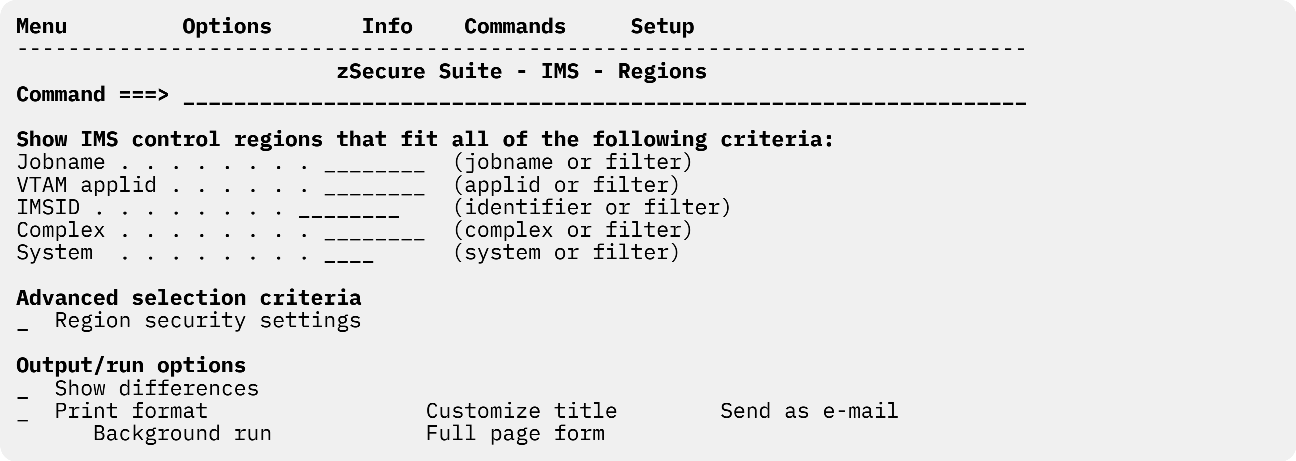
When you select **RE.M**, the IMS Resource panel that is shown in Figure 175 on page 122 is displayed.



```
Menu          Options       Info     Commands     Setup      Startpanel
-------------------------------------------------------------------------------
                         zSecure Suite - Resource - IMS
Option  ===> _________________________________________________________________

R   Regions         IMS control region reports
T   Transactions    IMS transactions reports
P   PSBs            IMS program specification blocks
```

Figure 175. IMS Resource panel

In the IMS Resource panel in Figure 175 on page 122, select the option of your choice. The corresponding selection panel is displayed. For example, the IMS Regions selection panel in Figure 176 on page 122.



```
Menu          Options       Info     Commands     Setup
-------------------------------------------------------------------------------
                         zSecure Suite - IMS - Regions
Command ===> _________________________________________________________________

Show IMS control regions that fit all of the following criteria:
Jobname . . . . . . . . ________  (jobname or filter)
VTAM applid . . . . . . ________  (applid or filter)
IMSID . . . . . . . . ________    (identifier or filter)
Complex . . . . . . . . ________  (complex or filter)
System  . . . . . . . . ____      (system or filter)

Advanced selection criteria
_  Region security settings

Output/run options
_  Show differences
_  Print format              Customize title        Send as e-mail
      Background run            Full page form
```

Figure 176. IMS Regions selection panel

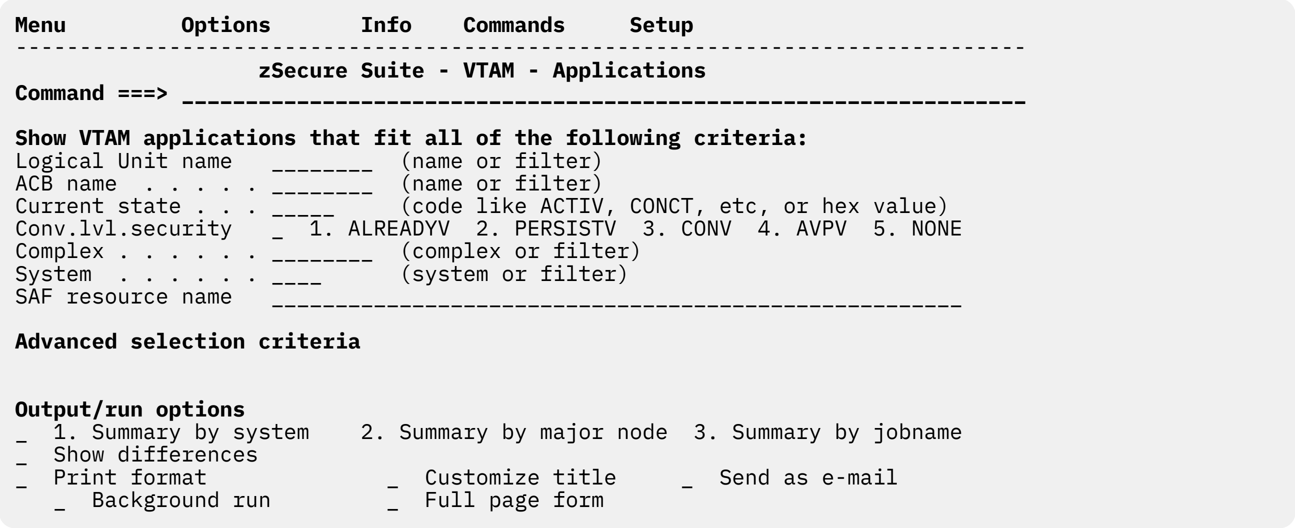
Use this selection panel to enter your selection criteria in one or more fields to limit the data. When you specify selection criteria, the output includes only those records that match all the selection criteria. Filters can be used in some of the selection fields. To find out whether a field supports filters, use the online, field-sensitive help function (PF1).

You can also select output and run options in the IMS Resource panel. Additionally, you can select no options and report data is processed as soon as you press Enter. The overview panel that is displayed shows a summary of the records that match your selection criteria.

For detailed information, see the online help and *zSecure Audit for ACF2 User Reference Manual*.

VTAM application reports

Use the **RE VTAM reports** option to select and display VTAM settings. On the Main menu, select **RE.N.A** to display the Figure 177 on page 123 panel.



```
Menu        Options      Info    Commands     Setup
-------------------------------------------------------------------------------
                   zSecure Suite - VTAM - Applications
Command ===> __________________________________________________________________

Show VTAM applications that fit all of the following criteria:
Logical Unit name   ________  (name or filter)
ACB name  . . . . . ________  (name or filter)
Current state . . . _____     (code like ACTIV, CONCT, etc, or hex value)
Conv.lvl.security   _  1. ALREADYV  2. PERSISTV  3. CONV  4. AVPV  5. NONE
Complex . . . . . . ________  (complex or filter)
System  . . . . . . ____      (system or filter)
SAF resource name   ______________________________________________________

Advanced selection criteria


Output/run options
_  1. Summary by system    2. Summary by major node  3. Summary by jobname
_  Show differences
_  Print format              _  Customize title     _  Send as e-mail
   _  Background run         _  Full page form
```

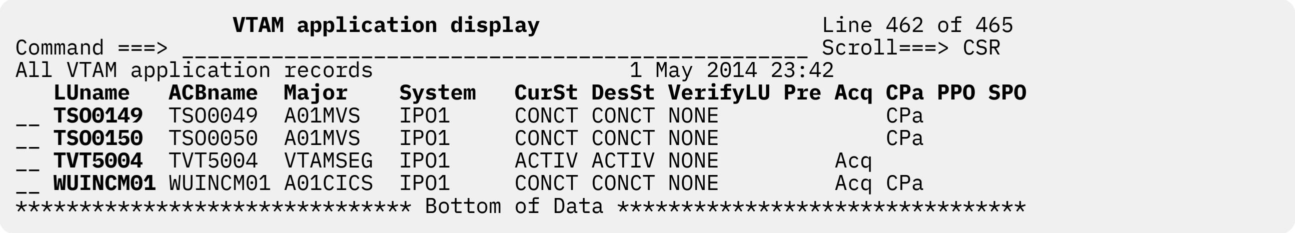
Figure 177. VTAM Applications selection panel

Use this panel to enter your selection criteria in one or more fields to limit the data. To see detailed field information, press **F1** on any field. This field-sensitive help function also describes which fields on the selection panels support filters. You can also find descriptions of the field names in "SELECT/LIST Fields" in *IBM Security zSecureCARLa Command Reference*.

You can select output and run options or select no options. Report data is processed as soon as you press **Enter**. The overview panel that is displayed shows a summary of the VTAM application records that match your selection criteria.

For detailed information, see the online help and the zSecure Audit for ACF2 User Reference Manual.

A sample overview display panel for the VTAM application display report is shown in Figure 178 on page 123.



```
                 VTAM application display                      Line 462 of 465
Command ===> _________________________________________________ Scroll===> CSR
All VTAM application records                    1 May 2014 23:42
   LUname   ACBname  Major    System   CurSt DesSt VerifyLU Pre Acq CPa PPO SPO
__ TSO0149  TSO0049  A01MVS   IPO1     CONCT CONCT NONE             CPa
__ TSO0150  TSO0050  A01MVS   IPO1     CONCT CONCT NONE             CPa
__ TVT5004  TVT5004  VTAMSEG  IPO1     ACTIV ACTIV NONE         Acq
__ WUINCM01 WUINCM01 A01CICS  IPO1     CONCT CONCT NONE         Acq CPa
******************************* Bottom of Data ********************************
```

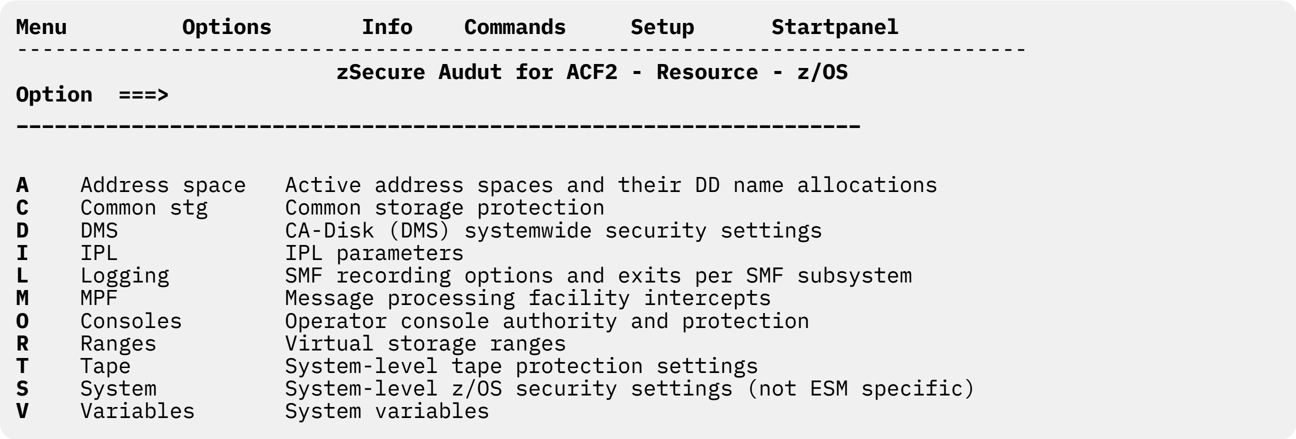
Figure 178. VTAM application detail display

The data for this report is available only if a CKFREEZE file is created during an APF-authorized run of zSecure Collect (the CKFCOLL program). For details about creating a CKFREEZE file, see see "zSecure Collect for z/OS" in zSecure Audit for ACF2 User Reference Manual.

z/OS settings

Use the **RE.O** option on the Main menu to select and display the z/OS settings.

When you select **RE.O** , the panel that is shown in Figure 179 on page 124 is displayed.



```
Menu         Options       Info    Commands     Setup      Startpanel
-------------------------------------------------------------------------------
                         zSecure Audut for ACF2 - Resource - z/OS
Option  ===>
------------------------------------------------------------------


A    Address space   Active address spaces and their DD name allocations
C    Common stg      Common storage protection
D    DMS             CA-Disk (DMS) systemwide security settings
I    IPL             IPL parameters
L    Logging         SMF recording options and exits per SMF subsystem
M    MPF             Message processing facility intercepts
O    Consoles        Operator console authority and protection
R    Ranges          Virtual storage ranges
T    Tape            System-level tape protection settings
S    System          System-level z/OS security settings (not ESM specific)
V    Variables       System variables
```

Figure 179. z/OS settings resource panel

Type **A** in the Option prompt to see the Active address spaces and their DD name allocations. (This is predefined CARLa script CKADQES.)

The **C** option opens the Globally Writable Common Storage panel that shows the common storage map for areas worth auditing. It is the same as the **WRITABLE** report in **AU.S** category MVS tables.

The **D** options shows the DMS and DMSAUDIT audit reports. It is the same as the DMS and DMSAUDIT reports in **AU.S**.

When you select the **I** option, the Effective system IPL parameter report opens. It matches the **IPLPARM** display in **AU.S** category MVS tables.

The **L** option opens the SMF subsystem-dependent settings panel that shows the shows SMF subsystem settings. This report corresponds to the **SMFSUBOP** report in **AU.S** category MVS tables.

Use the **M** option to see the Message Processing Facility message intercepts report. It is the same as the **MPFMSG** report in **AU.S** category MVS tables and displays the message identifiers that receive special handling by MPF category.

To see the operator consoles, select the **O** option. This report is the same as the **CONSOLE** report in **AU.S** category MVS tables.

The **R** option opens the Virtual storage map and corresponds to the VSM report in **AU.S** category MVS tables.

Use the **T** option to display the Tape protection settings. It is the same as the **TAPE** report in **AU.S** category MVS tables.

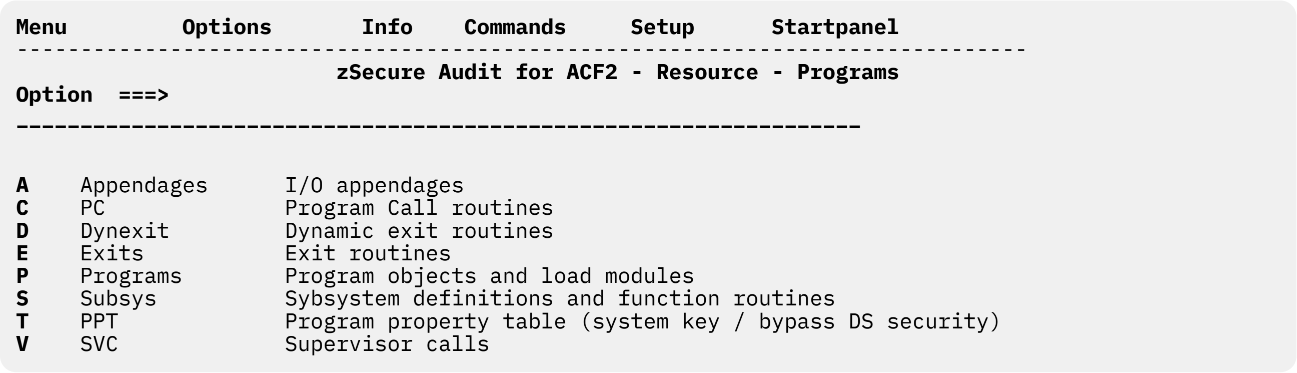
The **S** option displays the non-security system settings. It is the same as the **SYSTEM** and the **SYSTEMAU** reports in **AU.S** category MVS tables.

The **V** option is only available in the **RE.O** menu and opens the SYSTEM_VARIABLE summary report that displays MVS system variables. The first display level is a summary on the variable name and shows on how many systems the variable occurs. Zoom in to see the individual values per system. (This is predefined CARLa script CKADQMV.)

For print format version of the reports, go to **AU.S**.

Executable programs reports

When you select **RE.P**, the panel that is shown in Figure 180 on page 125 is displayed.



```
Menu         Options       Info     Commands     Setup      Startpanel
--------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Resource - Programs
Option  ===>
------------------------------------------------------------------

A    Appendages      I/O appendages
C    PC              Program Call routines
D    Dynexit         Dynamic exit routines
E    Exits           Exit routines
P    Programs        Program objects and load modules
S    Subsys          Sybsystem definitions and function routines
T    PPT             Program property table (system key / bypass DS security)
V    SVC             Supervisor calls
```

Figure 180. Executable programs resource panel

Most displays are the same as under **AU.S**.

The **A** option shows the Authorized I/O appendages as they were defined in the in-storage table. This display is the same as the **IOAPPD** display in **AU.S** category MVS tables.

The **C** option opens the Program Call Audit Display that shows the Program Call definitions and the routines called. It is based on the definitions in the PC/AUTH address space. Its corresponding display in **AU.S** category MVS tables is **PC**.

To see the Dynamic exit definitions, enter the **D** option. It is the same as the **DYNEXITS** display in **AU.S** category MVS extended (which is part of option EXITS). The **E** option opens the Exit and table overview report that displays TSO, RACF, ACF2, JES2, WTO, MPF, CA-1, DMS, HSM, and SMF exits and tables, as well as the dynamic exit definitions. Its corresponding display in **AU.S** is **EXITS**.

The **P** option opens the Module protection overview that shows the protection of load modules that have the potential to circumvent the External Security Manager (ESM). In **RE.P**, the **P** option also shows APF AC=0 modules, while **AU.S** category ACF2 resource only shows AC=1.

The **S** option opens the Subsystem Communication Vector Tables shows the subsystems as they are represented in storage, one SSCT per subsystem. It's corresponding display in **AU.S** category MVS tables is **SUBSYS**.

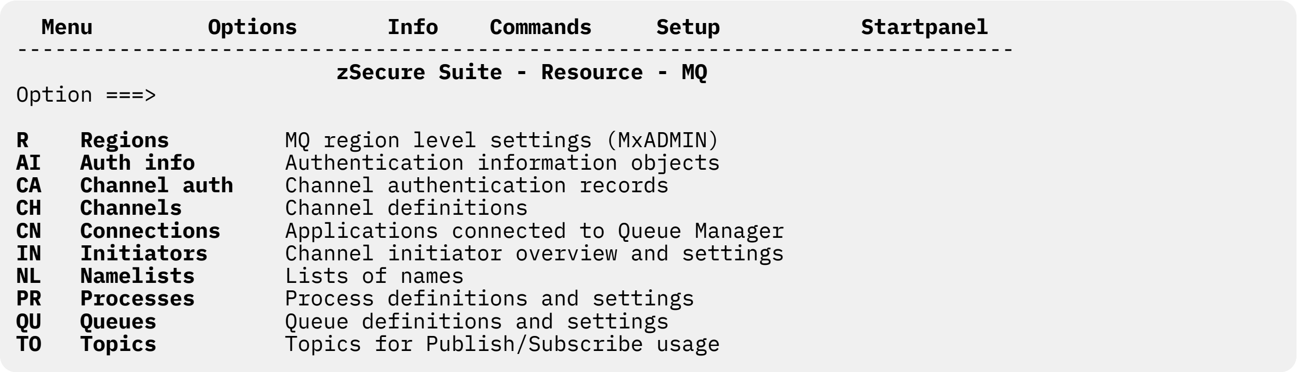
The **T** option opens the Program Property Table that displays the effective Program Property Table entries. It is the same as the **PPT** display in **AU.S** category MVS tables.

The **V** option opens the Supervisor Call Audit Display that shows the Supervisor Call Table, along with its expected contents and possibly two previous versions from the update table. It also includes Extended Service Router (ESR) data. It is the same as the **SVC** display in **AU.S** category MVS tables.

For a print version of the reports, go to **AU.S**.

MQ region and resource reports

The MQ Resource menu shown in Figure 181 on page 126 is then displayed.

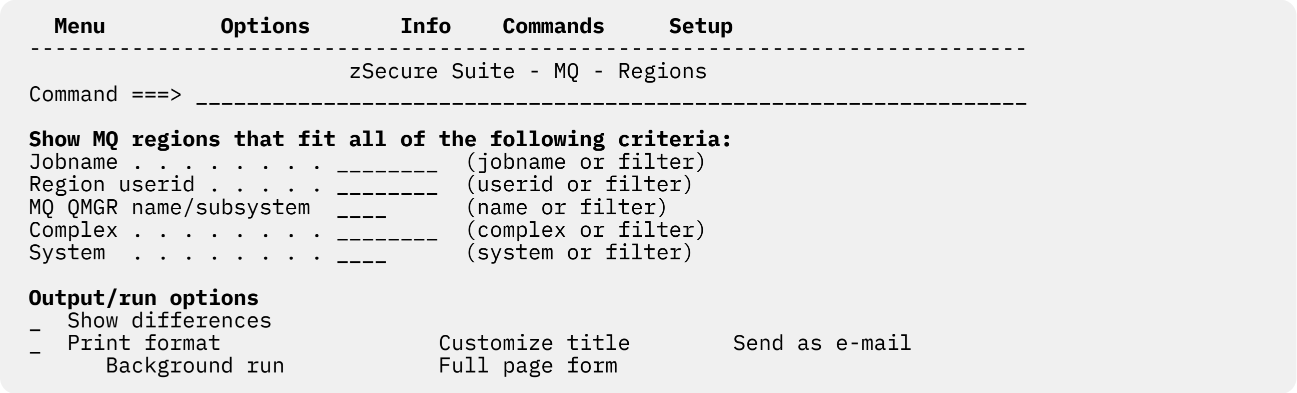


```
  Menu         Options       Info    Commands     Setup          Startpanel
 ------------------------------------------------------------------------------
                         zSecure Suite - Resource - MQ
 Option ===>

 R    Regions          MQ region level settings (MxADMIN)
 AI   Auth info        Authentication information objects
 CA   Channel auth     Channel authentication records
 CH   Channels         Channel definitions
 CN   Connections      Applications connected to Queue Manager
 IN   Initiators       Channel initiator overview and settings
 NL   Namelists        Lists of names
 PR   Processes        Process definitions and settings
 QU   Queues           Queue definitions and settings
 TO   Topics           Topics for Publish/Subscribe usage
```

Figure 181. MQ Resource menu

MQ region reports

In the MQ Resource panel in Figure 181 on page 126, select the **R** menu option to display the MQ Regions selection panel in Figure 182 on page 126.



```
  Menu         Options       Info    Commands     Setup
 ------------------------------------------------------------------------------
                         zSecure Suite - MQ - Regions
 Command ===> _________________________________________________________________

 Show MQ regions that fit all of the following criteria:
 Jobname . . . . . . . . ________  (jobname or filter)
 Region userid . . . . . ________  (userid or filter)
 MQ QMGR name/subsystem  ____      (name or filter)
 Complex . . . . . . . . ________  (complex or filter)
 System  . . . . . . . . ____      (system or filter)

 Output/run options
 _  Show differences
 _  Print format             Customize title        Send as e-mail
       Background run           Full page form
```

Figure 182. MQ Regions selection panel

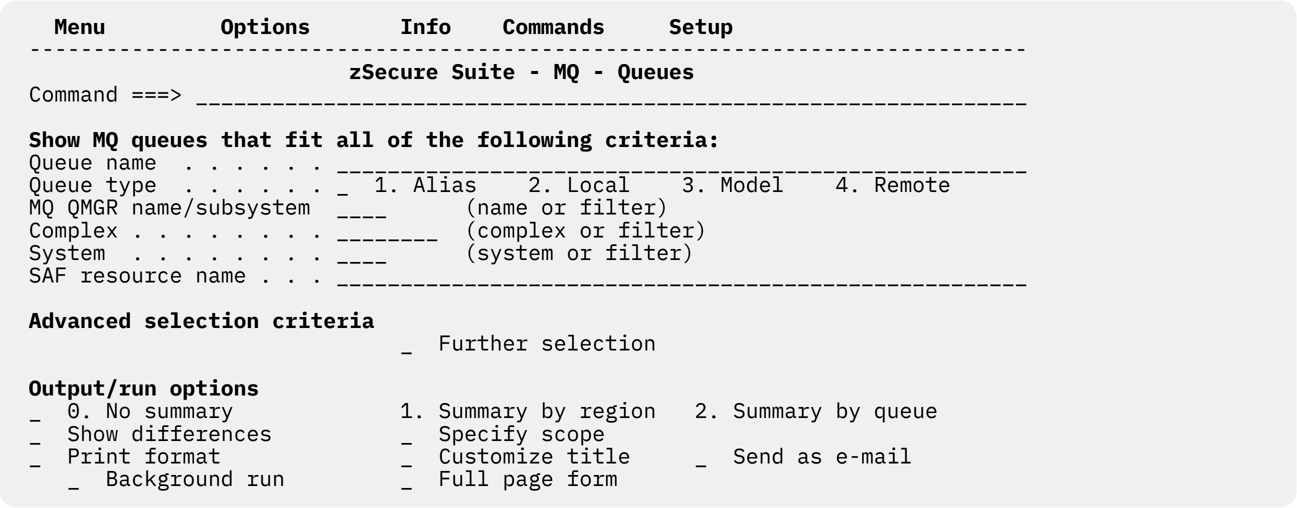
Use this panel to enter selection criteria in one or more fields to limit the MQ region configuration data. When you specify selection criteria, the output includes only those records that match all the selection criteria. You can use filters in some of the selection fields. To find out whether a field supports filters, use the field-sensitive help function (F1).

You can also select output and run options in the MQ Regions selection panel, or select no options, and report data is processed as soon as you press Enter. The overview panel that is displayed shows a summary of the MQ region records that match your selection criteria.

For detailed information, see the online help and the zSecure Audit for ACF2 User Reference Manual.

MQ resource reports

In the MQ Resource panel in Figure 181 on page 126, select the menu option of your choice. The corresponding selection panel is then displayed. For example, for MQ Queues:

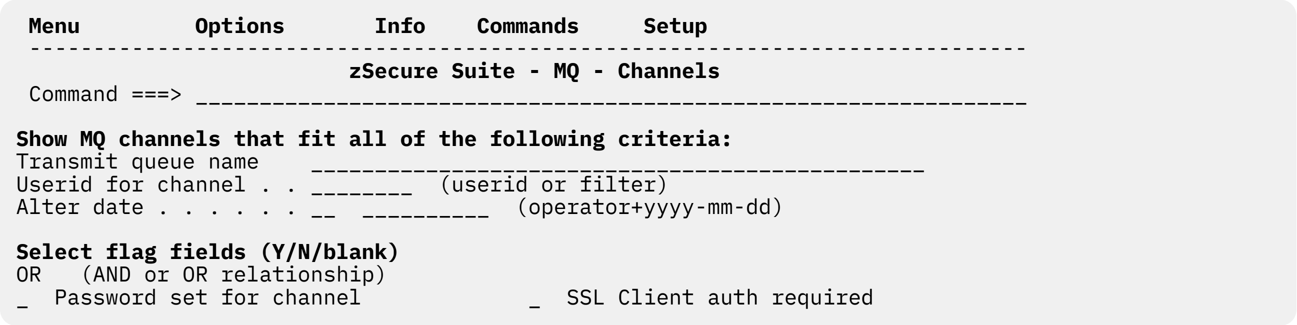


```
  Menu         Options       Info    Commands     Setup
------------------------------------------------------------------------------
                         zSecure Suite - MQ - Queues
Command ===> _________________________________________________________________

Show MQ queues that fit all of the following criteria:
Queue name  . . . . . . ______________________________________________________
Queue type  . . . . . . _  1. Alias    2. Local    3. Model    4. Remote
MQ QMGR name/subsystem  ____      (name or filter)
Complex . . . . . . . . ________  (complex or filter)
System  . . . . . . . . ____      (system or filter)
SAF resource name . . . ______________________________________________________

Advanced selection criteria
                             _  Further selection

Output/run options
_  0. No summary             1. Summary by region   2. Summary by queue
_  Show differences          _  Specify scope
_  Print format              _  Customize title     _  Send as e-mail
   _  Background run         _  Full page form
```

Figure 183. MQ Queues selection panel

Use this panel to enter your selection criteria in one or more fields to limit the data. To see detailed field information, press **F1** on any field. This field-sensitive help function also describes which fields on the selection panels support filters. You can also find descriptions of the field names in "SELECT/LIST Fields" in *IBM Security zSecureCARLa Command Reference*.

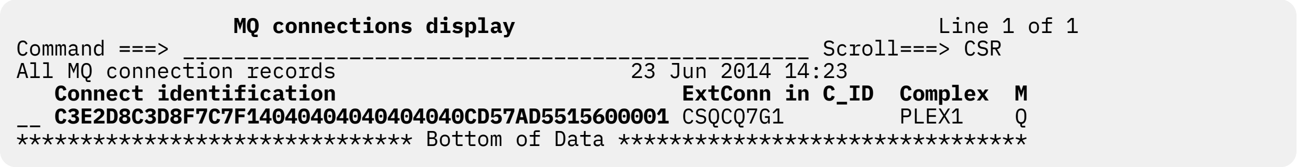
When you specify selection criteria, the output includes only those records that match all the selection criteria. Some selection panels include advanced selection criteria. When you select Further selection, a further selection panel is displayed. For example, for MQ Channel:



```
 Menu         Options       Info    Commands     Setup
 -----------------------------------------------------------------------------
                          zSecure Suite - MQ - Channels
 Command ===> _________________________________________________________________

Show MQ channels that fit all of the following criteria:
Transmit queue name    ________________________________________________
Userid for channel . . ________  (userid or filter)
Alter date . . . . . . __  __________  (operator+yyyy-mm-dd)

Select flag fields (Y/N/blank)
OR   (AND or OR relationship)
_  Password set for channel             _  SSL Client auth required
```

Figure 184. MQ Channels Further selection panel

You can select output and run options or select no options. Report data is processed as soon as you press **Enter**. The overview panel that is then displayed shows a summary of the records that match your selection criteria. For example, for MQ Connections:



```
                 MQ connections display                           Line 1 of 1
Command ===> ________________________________________________ Scroll===> CSR
All MQ connection records                  23 Jun 2014 14:23
   Connect identification                      ExtConn in C_ID  Complex  M
__ C3E2D8C3D8F7C7F14040404040404040CD57AD5515600001 CSQCQ7G1        PLEX1    Q
******************************* Bottom of Data ********************************
```

Figure 185. MQ connections display

This data can only be listed if a CKFREEZE file is created during an APF-authorized run of zSecure Collect (the CKFCOLL program). For information about creating such a CKFREEZE file, see "zSecure Collect for z/OS" in zSecure Audit for ACF2 User Reference Manual.

On this overview display panel, you can use action commands. For example:

R
: Shows region information.

S

Shows additional information

For detailed information on resource reports and complete lists of available action command for each report type, see the online help (F1) and "Resource reports for z/OS" in zSecure Audit for ACF2 User Reference Manual.

Trust relations reports

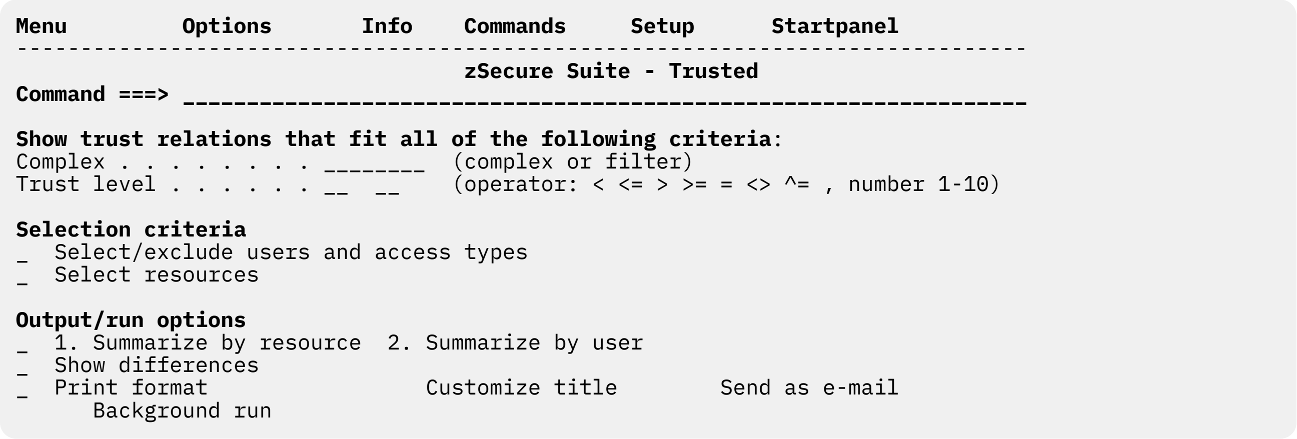
Select the **RE.T** option to specify selection criteria for trust relations and to limit record output.

Use the **RE.T** option on the Main menu to select and display trust relations.

When you select **RE.T**, the Trusted panel shown in Figure 186 on page 128 is displayed.

Use the panel to enter selection criteria for trust relations and to limit record output. You can enter selection criteria in one or more fields. The output includes only those records that match all of the selection criteria. If the selection panel is left blank, all records are selected. Filters can be used in some selection fields. To find out if a field supports filters, use the field-sensitive help function (PF1).

You can also select output and run options in the trusted relations selection panel, or select no options and report data is processed as soon as you press Enter. The overview panel that is displayed shows a summary of the trust relations records that match your selection criteria.



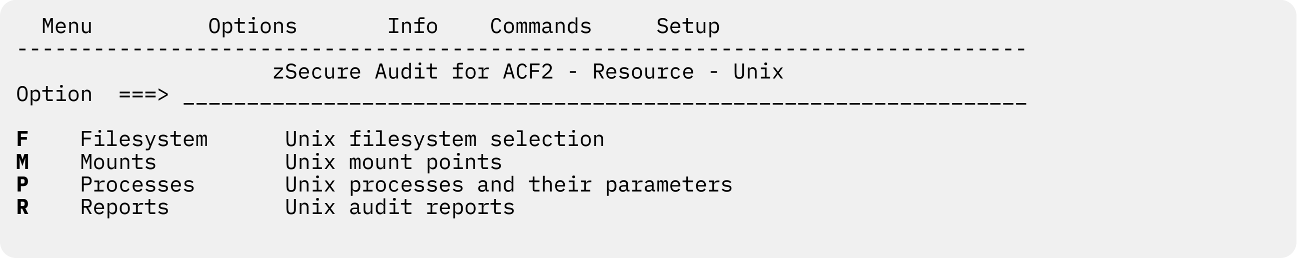
```
Menu         Options       Info    Commands     Setup      Startpanel
-------------------------------------------------------------------------------
                                   zSecure Suite - Trusted
Command ===> _________________________________________________________________

Show trust relations that fit all of the following criteria:
Complex . . . . . . . . ________  (complex or filter)
Trust level . . . . . . __  __    (operator: < <= > >= = <> ^= , number 1-10)

Selection criteria
_  Select/exclude users and access types
_  Select resources

Output/run options
_  1. Summarize by resource  2. Summarize by user
_  Show differences
_  Print format                Customize title        Send as e-mail
      Background run
```

Figure 186. Trusted panel

For detailed information, see the *zSecure Audit for ACF2 User Reference Manual* and the online help.

UNIX file system reports

When you select option **RE.U**, the Resource - UNIX panel shown in Figure 187 on page 128 opens.



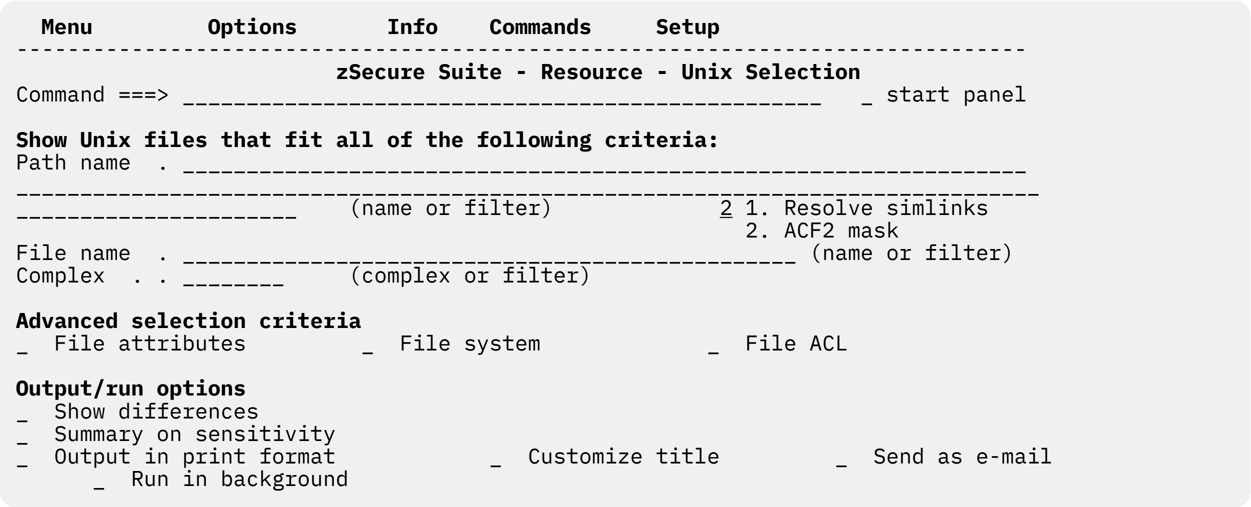
```
  Menu         Options       Info    Commands     Setup
-------------------------------------------------------------------------------
                    zSecure Audit for ACF2 - Resource - Unix
Option  ===> _________________________________________________________________

F    Filesystem      Unix filesystem selection
M    Mounts          Unix mount points
P    Processes       Unix processes and their parameters
R    Reports         Unix audit reports
```

Figure 187. Resource UNIX menu

filesystem - UNIX file system reports

Use this option to select and display UNIX file system records. A full CKFREEZE data set read is required, and the CKFREEZE data set must be made with the UNIX=Y parameter. If the zSecure Collect run was APF-authorized, additional information is displayed.

When you select option RE.U.F, the Resource - UNIX Selection panel shown in Figure 188 on page 129 opens.



```
  Menu        Options       Info    Commands     Setup
-------------------------------------------------------------------------------
                         zSecure Suite - Resource - Unix Selection
Command ===> __________________________________________________   _ start panel

Show Unix files that fit all of the following criteria:
Path name  . _________________________________________________________________
______________________________________________________________________________
______________________     (name or filter)            2 1. Resolve simlinks
                                                         2. ACF2 mask
File name  . ________________________________________________ (name or filter)
Complex  . . ________      (complex or filter)

Advanced selection criteria
_  File attributes         _  File system            _  File ACL

Output/run options
_  Show differences
_  Summary on sensitivity
_  Output in print format            _  Customize title         _  Send as e-mail
      _  Run in background
```

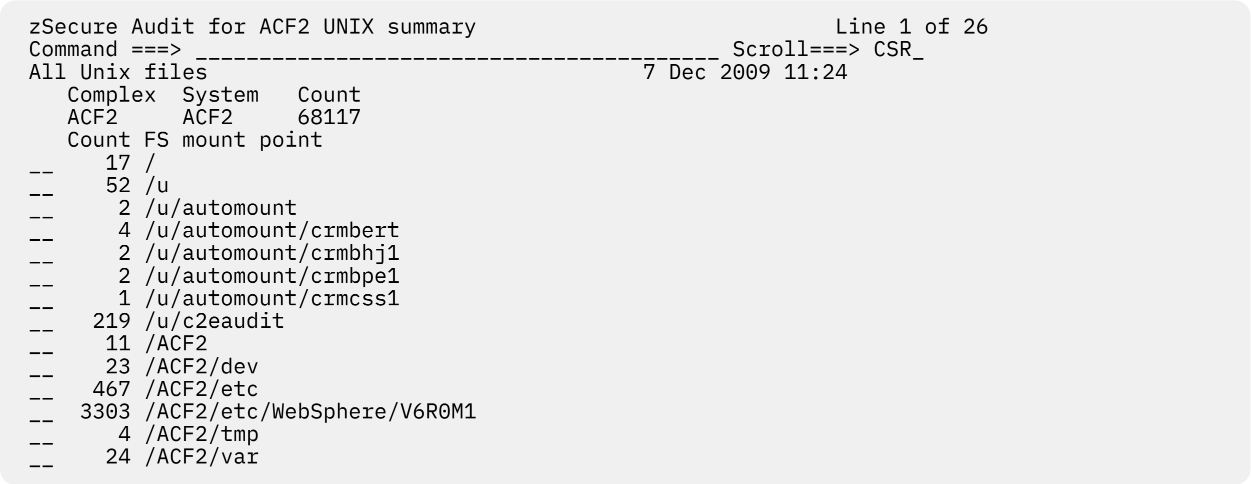
Figure 188. Resource UNIX selection panel

If the selection panel is left blank, all UNIX records are selected. You can limit the UNIX records selected by completing one or more fields to be used as selection criteria. Only records that match all criteria are selected. Filters can be used in some of the selection fields. You can select one of the Advanced selection criteria to specify filters to select and display UNIX file system records. When you select a criteria, a panel opens where you can specify the attributes in which you are interested.

Use the Output/Run options to customize settings to run the report and generate output. The settings you specify are saved in your ISPF profile and become the default settings for all UNIX panels that provide the option.

For detailed information, see the *IBM Security zSecure Audit for ACF2: User Reference Manual* and the online help.

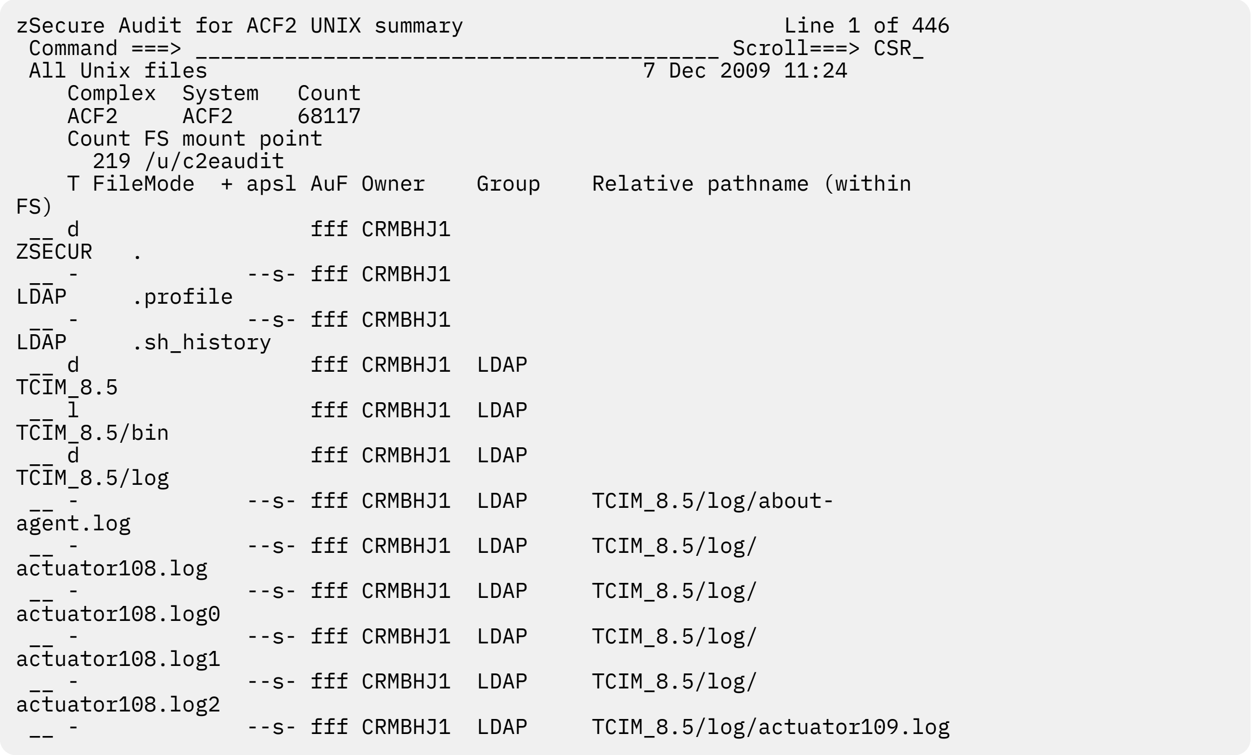
After processing the CKFREEZE file by using the specified selection criteria, the UNIX summary panel opens to display the results as shown in Figure 189 on page 129.



```
zSecure Audit for ACF2 UNIX summary                             Line 1 of 26
Command ===> _________________________________________ Scroll===> CSR_
All Unix files                                  7 Dec 2009 11:24
   Complex  System   Count
   ACF2     ACF2     68117
   Count FS mount point
__    17 /
__    52 /u
__     2 /u/automount
__     4 /u/automount/crmbert
__     2 /u/automount/crmbhj1
__     2 /u/automount/crmbpe1
__     1 /u/automount/crmcss1
__   219 /u/c2eaudit
__    11 /ACF2
__    23 /ACF2/dev
__   467 /ACF2/etc
__  3303 /ACF2/etc/WebSphere/V6R0M1
__     4 /ACF2/tmp
__    24 /ACF2/var
```

Figure 189. UNIX summary display

Selecting any of the mount points listed in the UNIX summary panel (Figure 189 on page 129) displays the list of UNIX files for that mount point as shown in Figure 190 on page 130.



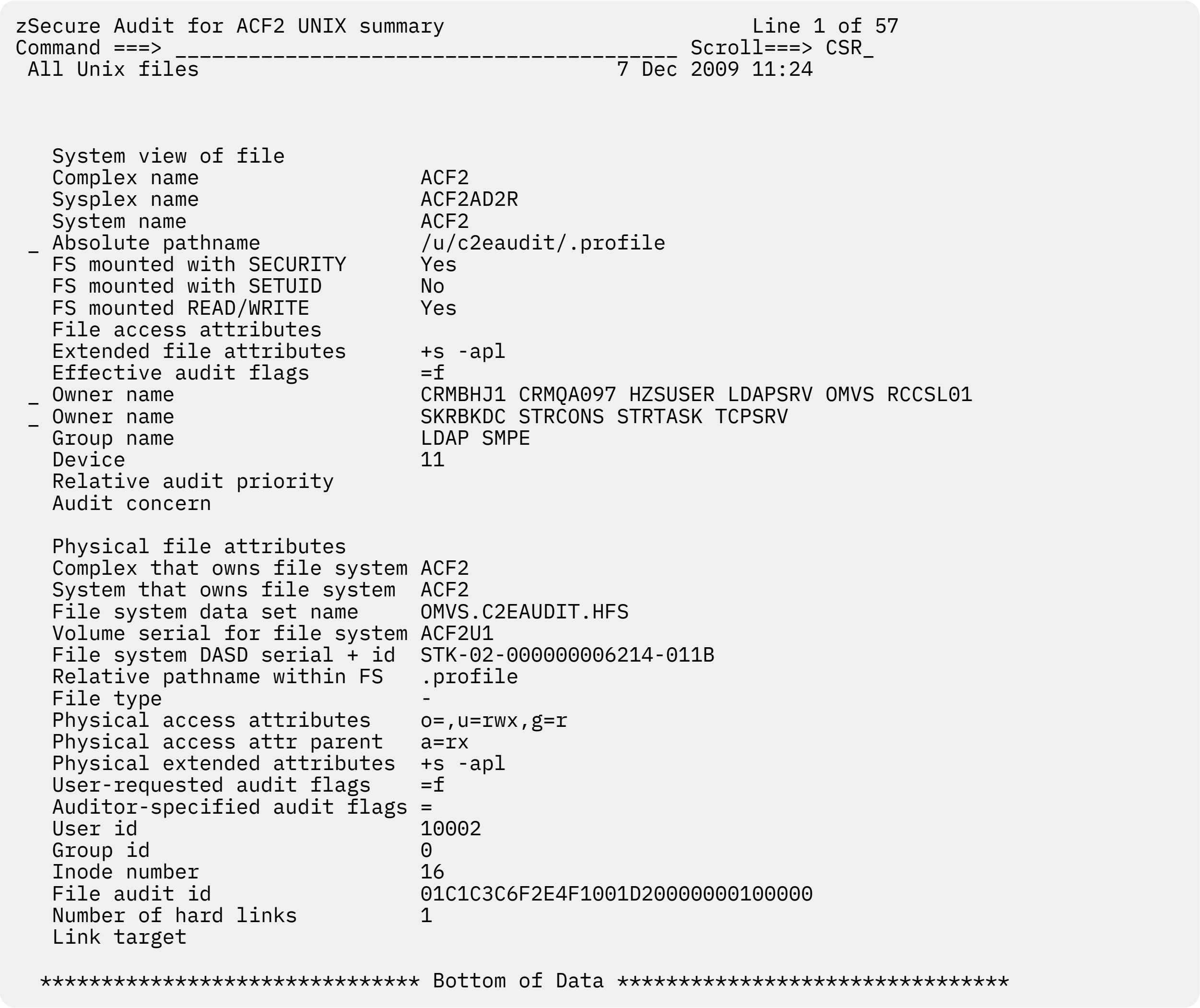
```
zSecure Audit for ACF2 UNIX summary                         Line 1 of 446
 Command ===> _________________________________________ Scroll===> CSR_
 All Unix files                                  7 Dec 2009 11:24
    Complex  System   Count
    ACF2     ACF2     68117
    Count FS mount point
      219 /u/c2eaudit
    T FileMode  + apsl AuF Owner    Group    Relative pathname (within
FS)
 __ d                  fff CRMBHJ1
ZSECUR   .
 __ -              --s- fff CRMBHJ1
LDAP     .profile
 __ -              --s- fff CRMBHJ1
LDAP     .sh_history
 __ d                  fff CRMBHJ1  LDAP
TCIM_8.5
 __ l                  fff CRMBHJ1  LDAP
TCIM_8.5/bin
 __ d                  fff CRMBHJ1  LDAP
TCIM_8.5/log
 __ -              --s- fff CRMBHJ1  LDAP     TCIM_8.5/log/about-
agent.log
 __ -              --s- fff CRMBHJ1  LDAP     TCIM_8.5/log/
actuator108.log
 __ -              --s- fff CRMBHJ1  LDAP     TCIM_8.5/log/
actuator108.log0
 __ -              --s- fff CRMBHJ1  LDAP     TCIM_8.5/log/
actuator108.log1
 __ -              --s- fff CRMBHJ1  LDAP     TCIM_8.5/log/
actuator108.log2
 __ -              --s- fff CRMBHJ1  LDAP     TCIM_8.5/log/actuator109.log
```

Figure 190. UNIX summary panel - UNIX file list for selected mount point

You can perform the following actions from this panel:

- To browse the regular files, type **B** in the selection field for a file or directory entry.
- To call the UNIX System Services ISPF Shell for a file or directory, type **I** in the selection field for that file or directory.
- To start the z/OS UNIX Directory List Utility for a directory, type **U** in the selection field for the directory.

When you select to view a file from the UNIX file list display panel (Figure 190 on page 130), the UNIX file detail display panel shown in Figure 191 on page 131 opens. To view the contents of a file in this panel, type **S** in front of the **Absolute pathname** field.



```
zSecure Audit for ACF2 UNIX summary                         Line 1 of 57
Command ===> _________________________________________ Scroll===> CSR_
 All Unix files                                  7 Dec 2009 11:24



   System view of file
   Complex name                 ACF2
   Sysplex name                 ACF2AD2R
   System name                  ACF2
 _ Absolute pathname            /u/c2eaudit/.profile
   FS mounted with SECURITY     Yes
   FS mounted with SETUID       No
   FS mounted READ/WRITE        Yes
   File access attributes
   Extended file attributes     +s -apl
   Effective audit flags        =f
 _ Owner name                   CRMBHJ1 CRMQA097 HZSUSER LDAPSRV OMVS RCCSL01
 _ Owner name                   SKRBKDC STRCONS STRTASK TCPSRV
   Group name                   LDAP SMPE
   Device                       11
   Relative audit priority
   Audit concern

   Physical file attributes
   Complex that owns file system ACF2
   System that owns file system  ACF2
   File system data set name     OMVS.C2EAUDIT.HFS
   Volume serial for file system ACF2U1
   File system DASD serial + id  STK-02-000000006214-011B
   Relative pathname within FS   .profile
   File type                     -
   Physical access attributes    o=,u=rwx,g=r
   Physical access attr parent   a=rx
   Physical extended attributes  +s -apl
   User-requested audit flags    =f
   Auditor-specified audit flags =
   User id                       10002
   Group id                      0
   Inode number                  16
   File audit id                 01C1C3C6F2E4F1001D20000000100000
   Number of hard links          1
   Link target

  ******************************* Bottom of Data ********************************
```

Figure 191. UNIX detail display

For more detailed information about these reports, see *IBM Security zSecure Audit for ACF2: User Reference Manual* and the online help.

Mounts - Unix mount points reports

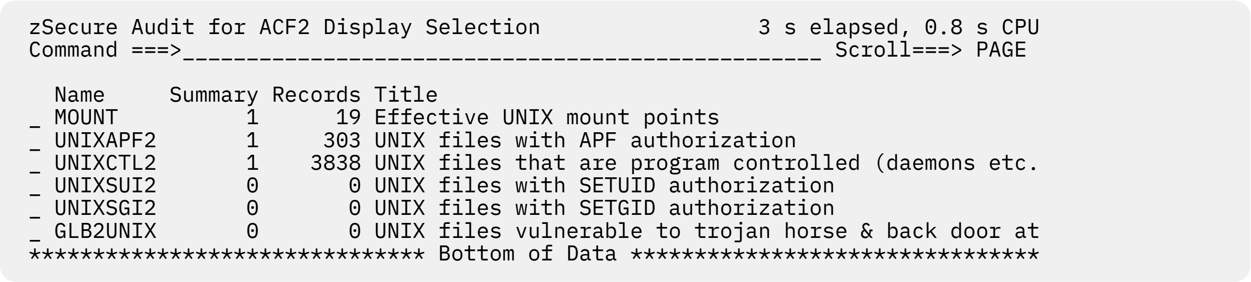
When you select option **M**, the Effective UNIX mount points panel opens. This display shows the effective mount points with their characteristics. This report matches the **MOUNT** report in **AU.S** category MVS extended.

Processes - Unix processes and their parameters

When you select option **P**, the UNIX_PS summary panel opens. It displays the name of the job, the ID of the Unix process, and the full path name of the main UNIX program. The **P** option shows the processes that are active at snapshot time.

Reports - running the predefined UNIX audit reports

Use the Reports option to generate any of the predefined UNIX audit reports available in zSecure. When you select this option, a panel opens with a list of reports for selection. See Figure 192 on page 132. For details about a specific report, position the cursor on the report selection field, then press F1 to view the online help.



```
zSecure Audit for ACF2 Display Selection                 3 s elapsed, 0.8 s CPU
Command ===>__________________________________________________ Scroll===> PAGE

  Name     Summary Records Title
_ MOUNT          1      19 Effective UNIX mount points
_ UNIXAPF2       1     303 UNIX files with APF authorization
_ UNIXCTL2       1    3838 UNIX files that are program controlled (daemons etc.
_ UNIXSUI2       0       0 UNIX files with SETUID authorization
_ UNIXSGI2       0       0 UNIX files with SETGID authorization
_ GLB2UNIX       0       0 UNIX files vulnerable to trojan horse & back door at
******************************* Bottom of Data *********************************
```

Figure 192. UNIX Reports listing

Chapter 9. Event reporting

Events are logged to SMF and extracted for reporting purposes. This information can be helpful when troubleshooting problems and investigating what happened during a particular time frame.

Use the Events functions to complete the following tasks:

- Trace user, job, terminal, and resource activity.
- Trace specific SMF events, including ACF2, Db2, CICS, Omegamon, and IP event types.
- Report on logon failures by source or Logon ID.
- Report on data set access violations by data set.
- Report on data set access violations by Logon ID.
- Report on resource access violations by rule.
- Report on resource access violations by Logon ID.
- Report on maintenance to the ACF2 databases.

SMF data sources for input sets

The SMF displays can work with the live SMF data sets, SMF log streams, or with sequential SMF data that is produced by the IBM IFASMFDP or IFASMFDL programs. While you are getting familiar and experimenting with IBM Security zSecure Audit for ACF2, work with sequential SMF data rather than the live SMF files. Using static, sequential data provides more consistent results when you try something with slightly different parameters.

You need to consider the SMF data you use with zSecure Audit. The amount of SMF data collected by z/OS varies greatly among different installations. In some cases, you can place a week of data in a reasonable DASD allocation, 30 Megabytes, for example, while in other cases, that allocation might hold only an hour of SMF data collection. For simple experimentation with the product, a set of SMF data in the 10-30 megabyte range would be reasonable. If you must apply filtering to reduce the size of the data set, make sure that the following record types are not filtered out.

Table 16. SMF Record types that should not be filtered out of the SMF data

Record type	Description
14	INPUT or RDBACK data set Activity
16	OUTPUT, UPDATE, INOUT, or OUTIN data set Activity
17	Scratch data set Status
18	Rename data set Status
30	Common Address Space Work
42	DFSMS Statistics and Configuration
60	VSAM Volume data set Updated
61	ICF Define Activity
62	VSAM Component or Cluster Opened
63	VSAM Catalog Entry Defined
64	VSAM Component or Cluster Status
65	ICF Delete Activity

Table 16. SMF Record types that should not be filtered out of the SMF data (continued)

Record type	Description
66	ICF Alter Activity
67	VSAM Catalog Entry Delete
68	VSAM Catalog Entry Renamed
69	VSAM Data Space, Defined, Extended, or Deleted
82	CSF Integrated Cryptographic
83	Audit security event records from IBM Security Key Lifecycle Manager and WebSphere Application server.
90	System Status
92	UNIX Hierarchical file system
102	Db2 Performance and Audit
109	Firewall
110	CICS performance monitoring
118	TCP/IP Telnet and FTP
119	TCP UDP and IP
120	WebSphere Application Server
230	ACF2 Processing

When you opt to process SMF data, the data sets need to be defined to IBM Security zSecure Audit for ACF2. You can use live or log stream SMF data or obtain recent SMF data and copy it to a sequential data set. In both cases, you must change your input file settings.

You can also run zSecure Audit for ACF2 SMF analysis on a full SMF file with all record types present. The product supports about 100 different SMF record types.

To use a data set with SMF data, complete the steps in "Specifying a data set with SMF data" on page 134.

Specifying a data set with SMF data

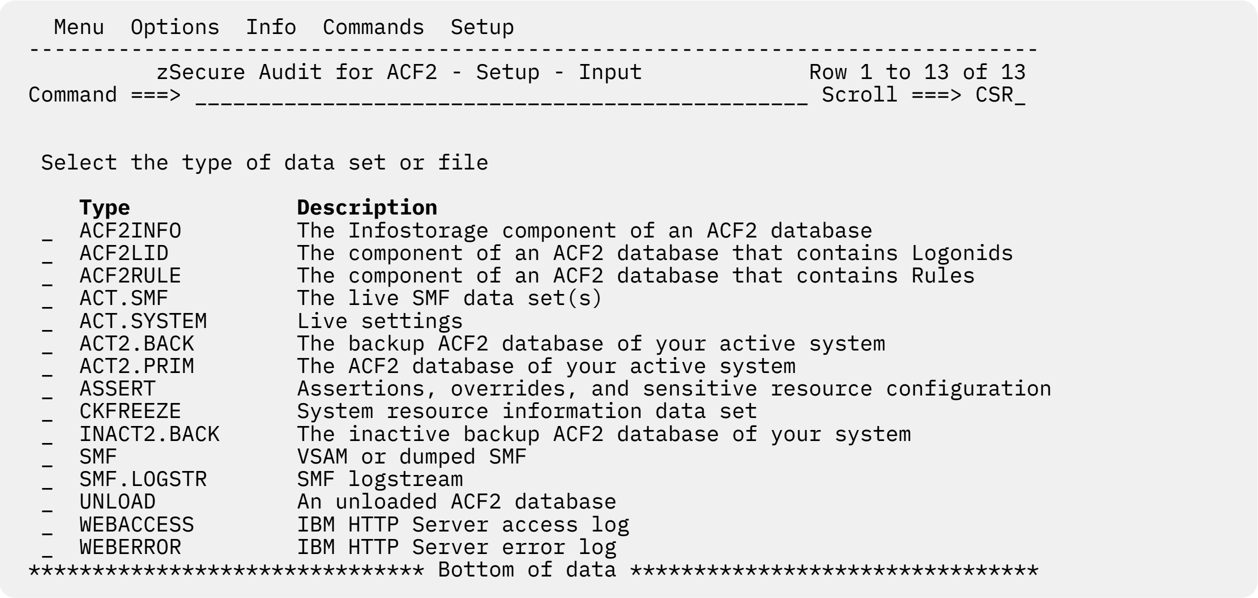
Procedure

1. Select option **SE** from the Main menu.
2. Select **1** to open the Setup Input panel.

   For information in this panel, see "Selecting the input set" on page 70.
3. Move the cursor to the input field in a line.
4. Type the letter `I` and press Enter to insert a new input set.

   The Setup Input panel opens but without data.
5. Type a title such as `Filtered SMF data set` in the **title** field below the Command line.
6. Move the cursor to the first **Data set or Unix file name** field. Type the name of the data set that contains SMF data. Then, press Enter.

   If the data set name ends with **.SMF**, the file type (SMF) is automatically filled in. If it does not end with **.SMF**, a panel such as Figure 193 on page 135 opens so you can assign a type to the file you are defining.



```
  Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
          zSecure Audit for ACF2 - Setup - Input             Row 1 to 13 of 13
Command ===> ________________________________________________ Scroll ===> CSR_


 Select the type of data set or file

    Type             Description
_   ACF2INFO         The Infostorage component of an ACF2 database
_   ACF2LID          The component of an ACF2 database that contains Logonids
_   ACF2RULE         The component of an ACF2 database that contains Rules
_   ACT.SMF          The live SMF data set(s)
_   ACT.SYSTEM       Live settings
_   ACT2.BACK        The backup ACF2 database of your active system
_   ACT2.PRIM        The ACF2 database of your active system
_   ASSERT           Assertions, overrides, and sensitive resource configuration
_   CKFREEZE         System resource information data set
_   INACT2.BACK      The inactive backup ACF2 database of your system
_   SMF              VSAM or dumped SMF
_   SMF.LOGSTR       SMF logstream
_   UNLOAD           An unloaded ACF2 database
_   WEBACCESS        IBM HTTP Server access log
_   WEBERROR         IBM HTTP Server error log
******************************* Bottom of data ********************************
```

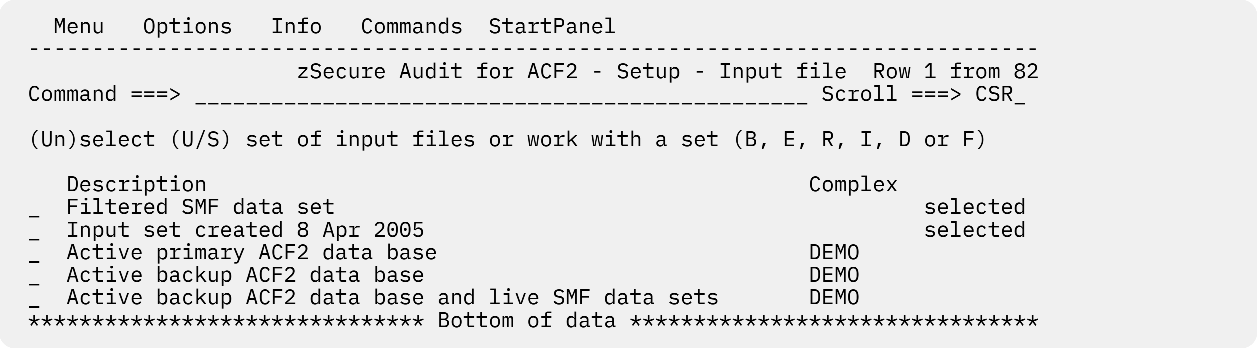
Figure 193. Assign file type

7. Press PF3.

   This returns to the Input selection menu with the new *input set* you defined selected.

   Tip: You can select multiple inputs sets at the same time. Reflect on the possibility to define a set for each file or couple of files. For example, a live SMF set and a most recent unload of the ACF2 database and CKFREEZE data set and select both sets as input.

   Your input file settings look similar to those settings in Figure 194 on page 135.



```
  Menu   Options   Info   Commands  StartPanel
------------------------------------------------------------------------------
                     zSecure Audit for ACF2 - Setup - Input file  Row 1 from 82
Command ===> ________________________________________________ Scroll ===> CSR_

(Un)select (U/S) set of input files or work with a set (B, E, R, I, D or F)

   Description                                              Complex
_  Filtered SMF data set                                             selected
_  Input set created 8 Apr 2005                                      selected
_  Active primary ACF2 data base                            DEMO
_  Active backup ACF2 data base                             DEMO
_  Active backup ACF2 data base and live SMF data sets      DEMO
******************************* Bottom of data ********************************
```

Figure 194. Input file settings

   To use live SMF data you do not need to specify a data set. Type / in the Type field and press Enter. The panel from Figure 193 on page 135 opens so you can select option **ACT.SMF**.

   This form is the most basic form of SMF input. In a more complex situation, you might combine live SMF plus the most recent n generations (if you use GDGs) of archived SMF data by listing multiple lines within the set.

8. Select option SMF. Press Enter.

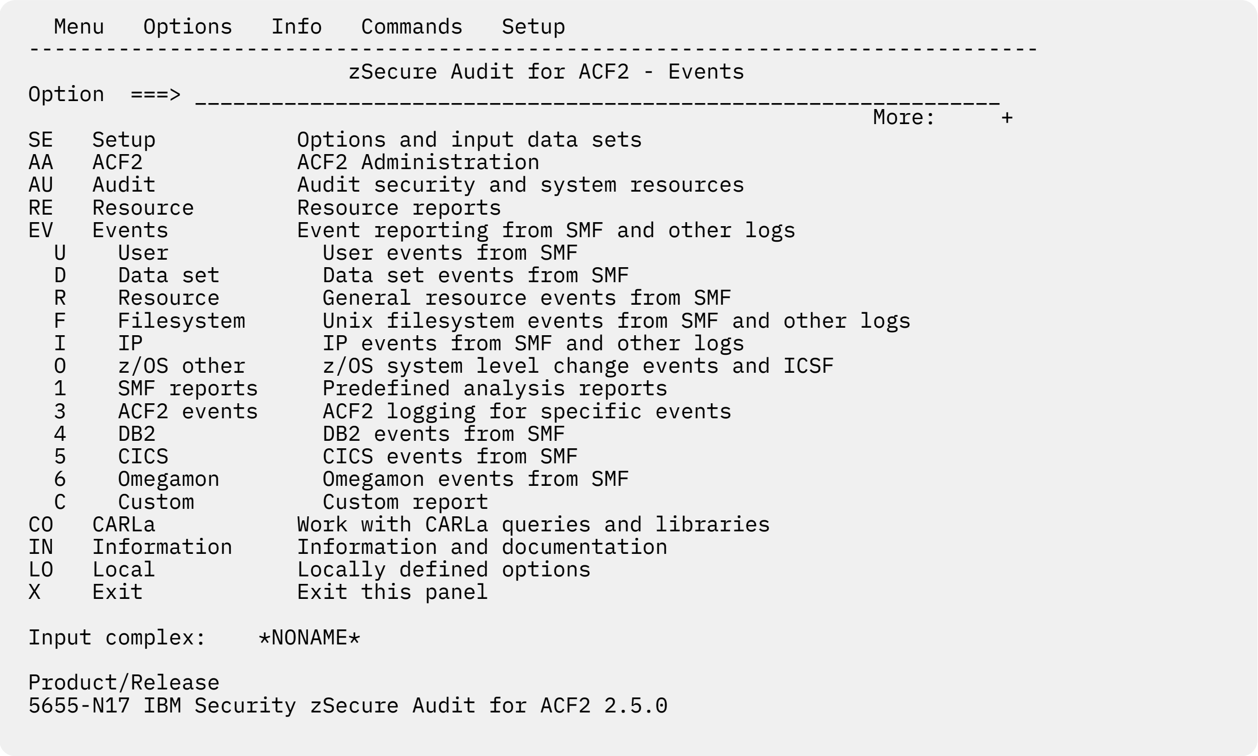
   This generates a line that references the live SMF data.

Reviewing violation events

Procedure

1. To return to the Main menu, press Enter.

2. In the command line, type EV and press **Enter** to select the Events options.



```
   Menu   Options   Info   Commands   Setup
 -------------------------------------------------------------------------------
                          zSecure Audit for ACF2 - Events
 Option  ===> _______________________________________________________________
                                                                  More:     +
 SE   Setup           Options and input data sets
 AA   ACF2            ACF2 Administration
 AU   Audit           Audit security and system resources
 RE   Resource        Resource reports
 EV   Events          Event reporting from SMF and other logs
   U    User            User events from SMF
   D    Data set        Data set events from SMF
   R    Resource        General resource events from SMF
   F    Filesystem      Unix filesystem events from SMF and other logs
   I    IP              IP events from SMF and other logs
   O    z/OS other      z/OS system level change events and ICSF
   1    SMF reports     Predefined analysis reports
   3    ACF2 events     ACF2 logging for specific events
   4    DB2             DB2 events from SMF
   5    CICS            CICS events from SMF
   6    Omegamon        Omegamon events from SMF
   C    Custom          Custom report
 CO   CARLa           Work with CARLa queries and libraries
 IN   Information     Information and documentation
 LO   Local           Locally defined options
 X    Exit            Exit this panel

 Input complex:    *NONAME*

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 5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```
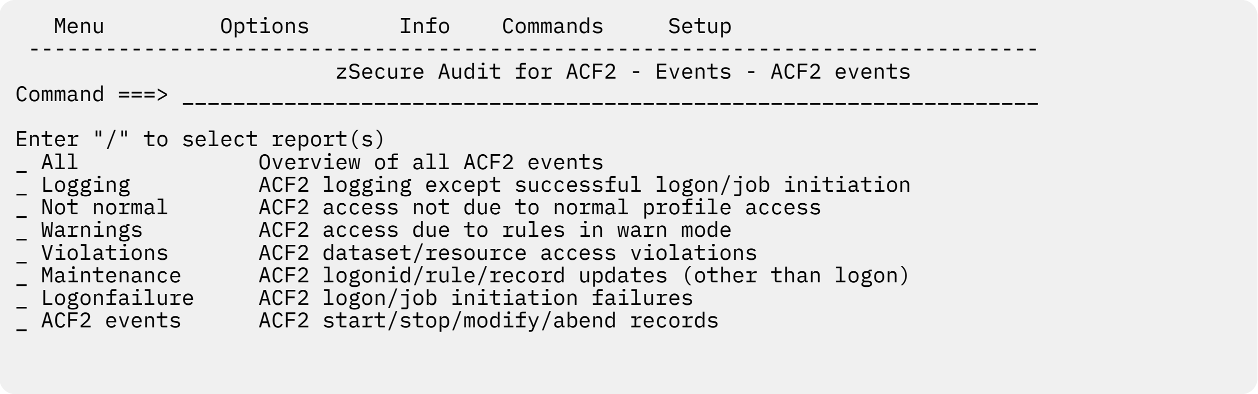

Figure 195. Main menu - select Events option

3. Type 3 in the **Option** field and press **Enter** to open the ACF2 Events panel.

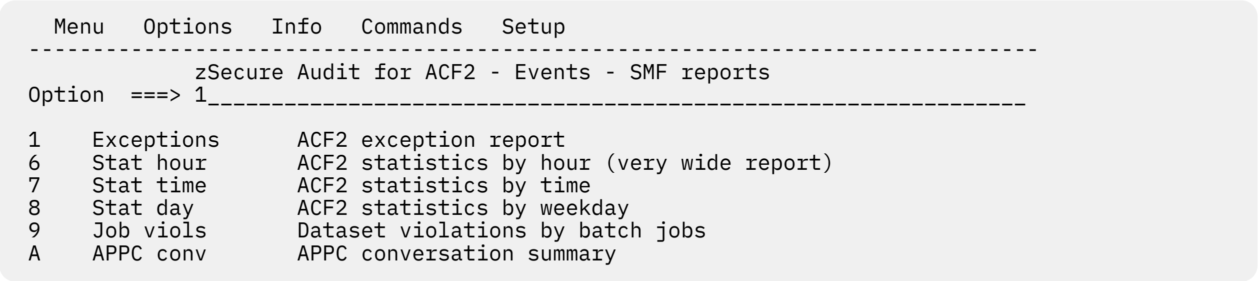


```
   Menu         Options       Info    Commands     Setup
 -------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Events - ACF2 events
Command ===> ___________________________________________________________________

Enter "/" to select report(s)
_ All               Overview of all ACF2 events
_ Logging           ACF2 logging except successful logon/job initiation
_ Not normal        ACF2 access not due to normal profile access
_ Warnings          ACF2 access due to rules in warn mode
_ Violations        ACF2 dataset/resource access violations
_ Maintenance       ACF2 logonid/rule/record updates (other than logon)
_ Logonfailure      ACF2 logon/job initiation failures
_ ACF2 events       ACF2 start/stop/modify/abend records
```

Figure 196. ACF2 Events panel

4. To select the SMF reports option, in the Events panel (Figure 195 on page 136), type 1 in the **Option** field and press **Enter**.

   The SMF reports panel is displayed.



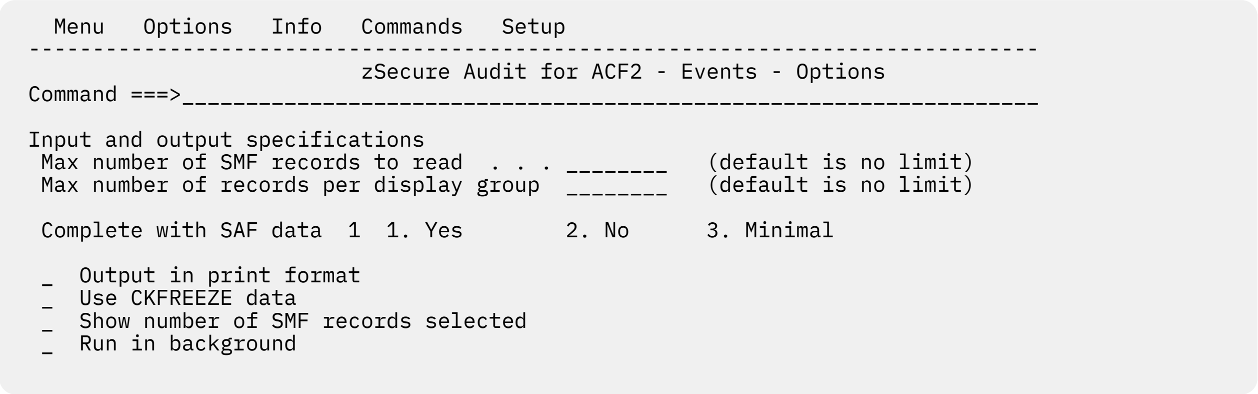
```
   Menu   Options   Info   Commands   Setup
 -------------------------------------------------------------------------------
             zSecure Audit for ACF2 - Events - SMF reports
 Option  ===> 1________________________________________________________________

 1    Exceptions      ACF2 exception report
 6    Stat hour       ACF2 statistics by hour (very wide report)
 7    Stat time       ACF2 statistics by time
 8    Stat day        ACF2 statistics by weekday
 9    Job viols       Dataset violations by batch jobs
 A    APPC conv       APPC conversation summary
```

Figure 197. SMF reports - select Exceptions report

Statistical reporting can be viewed by the hour, time, and day. Data set violations by batch job and APPC reports are additional reporting options.

In this example, no action is necessary in the Options panel shown in Figure 198 on page 137. With this panel, you can set SMF processing options before processing the report. With these options, you can limit input and output specifications such as the number of SMF records to be read and processed.

5. To view the ACF2 exception report, type 1 in the **Option** field and press **Enter** to open the Options panel.

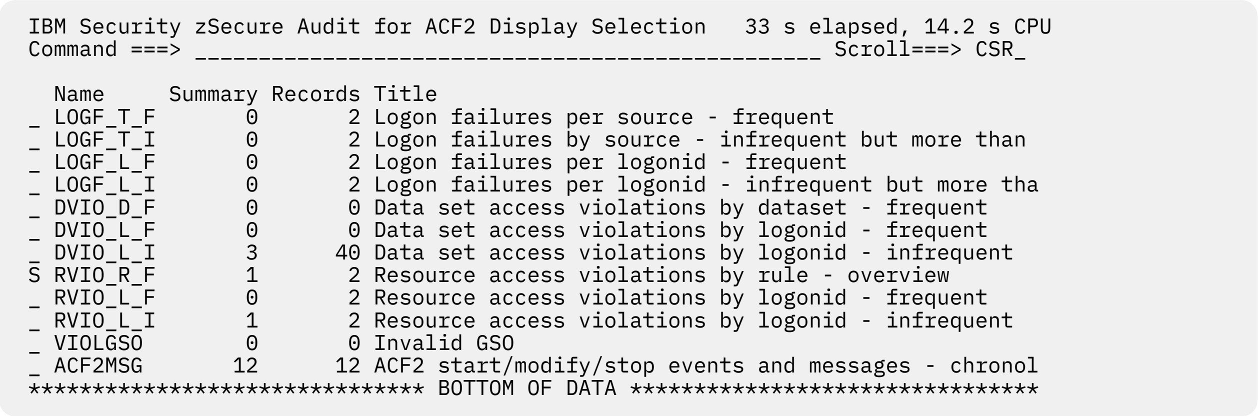


```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                          zSecure Audit for ACF2 - Events - Options
Command ===>___________________________________________________________________

Input and output specifications
 Max number of SMF records to read  . . . ________   (default is no limit)
 Max number of records per display group  ________   (default is no limit)

 Complete with SAF data  1  1. Yes        2. No      3. Minimal

 _  Output in print format
 _  Use CKFREEZE data
 _  Show number of SMF records selected
 _  Run in background
```

Figure 198. SMF processing options - press ENTER and continue to next screen

6. In the Options panel, press Enter to open the Display Selection panel as shown in Figure 199 on page 137.

The Display Selection panel presents the events grouped by logon failures, data set access violations, and resource violations. The **Rows** column indicates event data logged to SMF. Rows with zero indicate that no data was generated for this period.



```
IBM Security zSecure Audit for ACF2 Display Selection   33 s elapsed, 14.2 s CPU
Command ===> _________________________________________________ Scroll===> CSR_

  Name     Summary Records Title
_ LOGF_T_F       0       2 Logon failures per source - frequent
_ LOGF_T_I       0       2 Logon failures by source - infrequent but more than
_ LOGF_L_F       0       2 Logon failures per logonid - frequent
_ LOGF_L_I       0       2 Logon failures per logonid - infrequent but more tha
_ DVIO_D_F       0       0 Data set access violations by dataset - frequent
_ DVIO_L_F       0       0 Data set access violations by logonid - frequent
_ DVIO_L_I       3      40 Data set access violations by logonid - infrequent
S RVIO_R_F       1       2 Resource access violations by rule - overview
_ RVIO_L_F       0       2 Resource access violations by logonid - frequent
_ RVIO_L_I       1       2 Resource access violations by logonid - infrequent
_ VIOLGSO        0       0 Invalid GSO
_ ACF2MSG       12      12 ACF2 start/modify/stop events and messages - chronol
******************************* BOTTOM OF DATA ********************************
```

Figure 199. Overview of ACF2 events display

Figure 199 on page 137 shows three columns, **Name**, **Records**, and **Title**. The Name column uses abbreviations to indicate logon failures, data set violations, and resource violations. Interpret the Name column by using the following Table 17 on page 137.

Table 17. Exception Event codes and definitions

Exception event code	Definition
LOGF_x_x	Logon Failure, T=terminals or source, L=logon IDs, F=frequent, I=infrequent
DVIO_x_x	Data set violation, L=Logonid, F=frequent, I=infrequent
RVIO_x_x	Resource violation, L=Logonid, F=frequent, I=infrequent

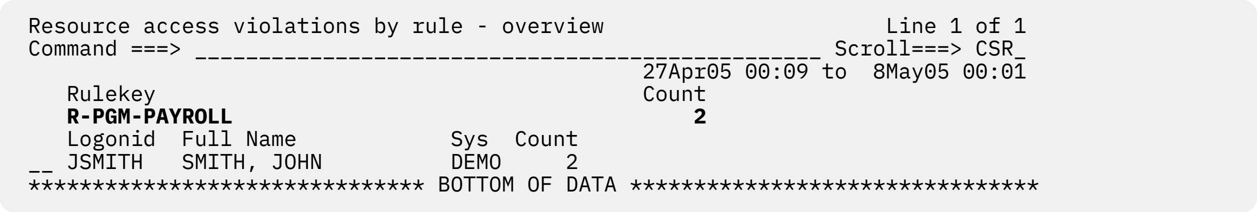
To view the resource access violations shown in the Display Selection panel, complete the following steps: "Viewing resource access violations in the Display Selection panel" on page 138.

Viewing resource access violations in the Display Selection panel

Procedure

1. In the Display Selection panel, move to an entry that has a number under the **Records** field.
2. In the selection field for the entry, type S.

   In the example shown in Figure 199 on page 137, the `Resource access violations by rule - overview` entry is selected. This entry has one event to report as indicated in the **Rows** column.
3. Press Enter to open the overview panel for the exception record as shown in Figure 200 on page 138.



```
Resource access violations by rule - overview                      Line 1 of 1
Command ===> _________________________________________________ Scroll===> CSR_
                                                27Apr05 00:09 to  8May05 00:01
   Rulekey                                      Count
   R-PGM-PAYROLL                                    2
   Logonid  Full Name            Sys  Count
__ JSMITH   SMITH, JOHN          DEMO     2
******************************* BOTTOM OF DATA ********************************
```

Figure 200. Display of resource access violations by rule - overview

In Figure 200 on page 138, note the **Rule key** and **Count** columns. There are two violations for PAYROLL protected by the ACF2 resource rule $KEY(PAYROLL) TYPE(PGM).

The **Rulekey** column in Figure 200 on page 138 indicates the *lookup rule set* that was used during ACF2 resource rule processing when the access violation occurred. Interpret the column in the following manner:

- R = Resource rule class code
- **FAC**, **SAF**, **SFP**, **SUR**, **TGR**, and **PGM** represent ACF2 three character type codes for resource rules.

  In the example shown in Figure 200 on page 138, the resource rule is a **PGM type - PROGRAM** rule.
- **PAYROLL** is the **$$KEY** value in this resource rule example.

To view the resource rules, use IBM Security zSecure Audit for ACF2 function `AA.I`. Additional information about TCP/IP configuration and statistics and the UNIX file system resources is available from the Resource menu option (RE). See Chapter 8, "Resource-based reports for ACF2 resources," on page 113.

To view the data set rules, use IBM Security zSecure Audit for ACF2 function **AA.R**.

Viewing ACF2 database maintenance activity

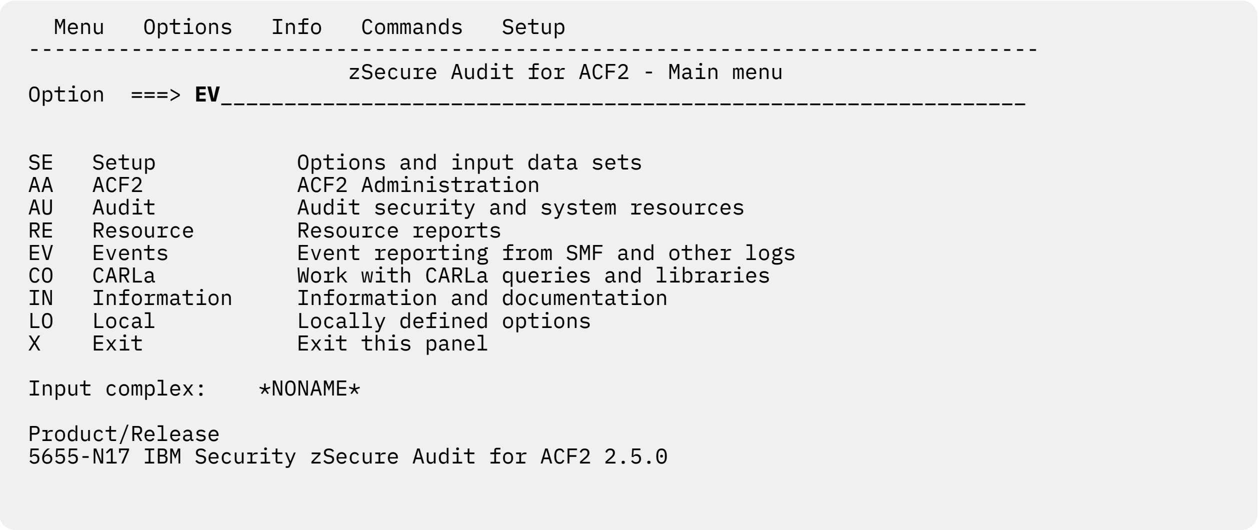
About this task

This report shows inserts, replacements, and deletions for the following fields: Rule, Logon ID, and InfoStorage. Use this report to track changes, troubleshoot events, and to perform reviews of security administration activities.

Procedure

To view ACF2 database maintenance activity, complete the following steps:

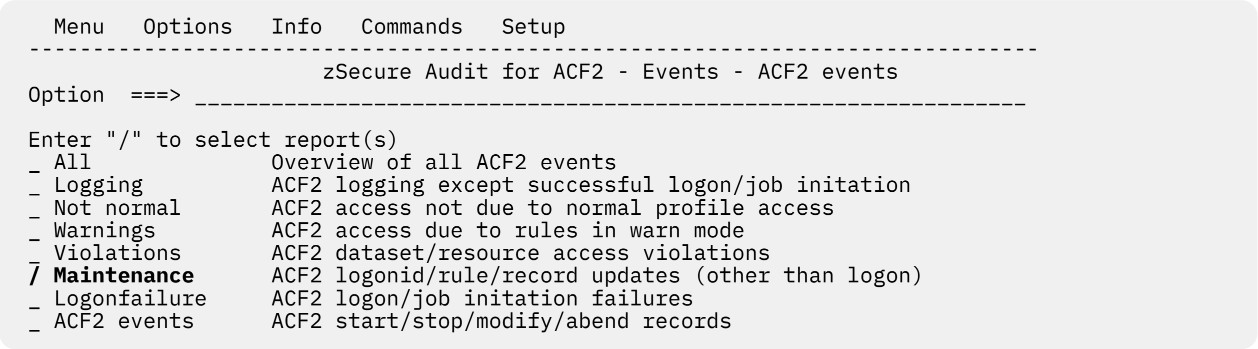
1. To return to the Main menu, press Enter.
2. In the command line, type EV to select the ACF2 events option as shown in Figure 201 on page 139. Then, press Enter to open the ACF2 events panel as shown in Figure 202 on page 139.



```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Main menu
Option  ===> EV______________________________________________________________


SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
AU   Audit           Audit security and system resources
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

Input complex:    *NONAME*

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 201. Select ACF2 events

3. Press Enter to open the ACF2 events panel as shown in Figure 202 on page 139.
4. In the ACF2 events panel, type **/** in the selection field for the **Maintenance** field as shown in Figure 202 on page 139. Then, press Enter.



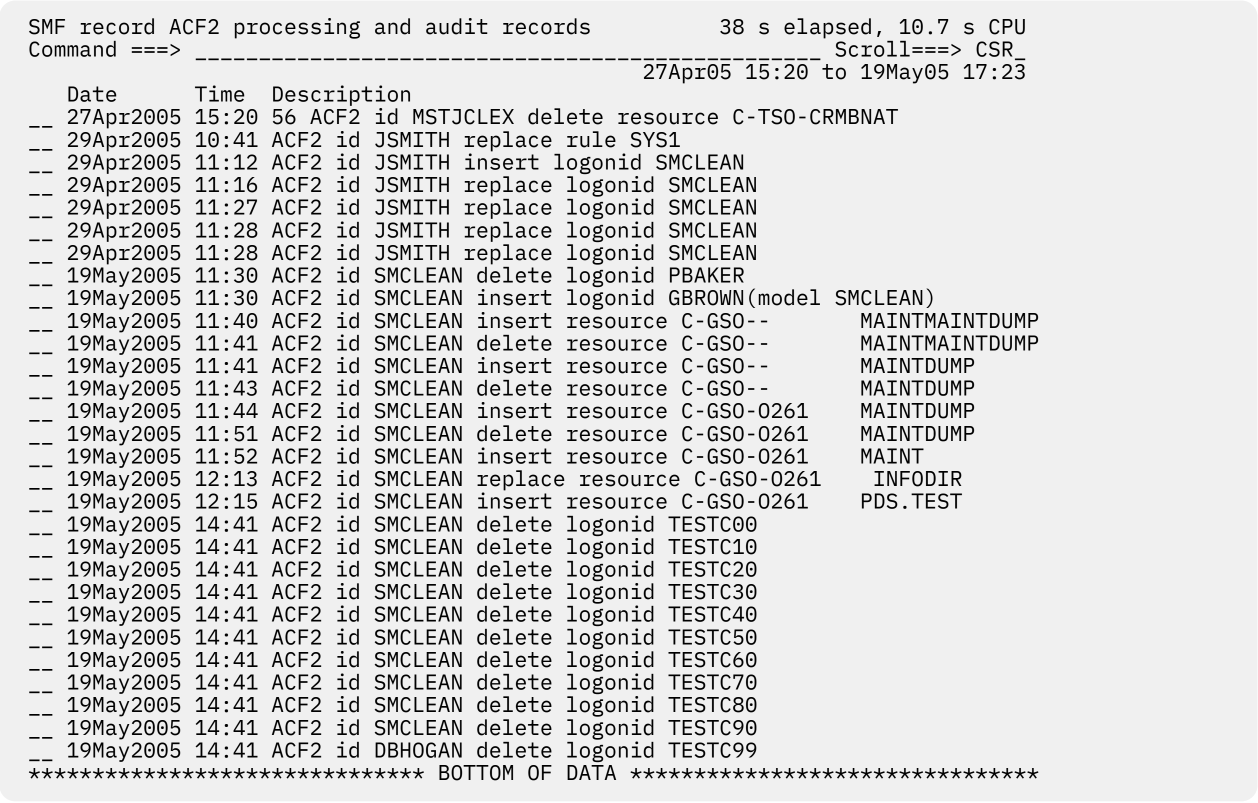
```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                       zSecure Audit for ACF2 - Events - ACF2 events
Option  ===> _________________________________________________________________

Enter "/" to select report(s)
_ All                Overview of all ACF2 events
_ Logging            ACF2 logging except successful logon/job initation
_ Not normal         ACF2 access not due to normal profile access
_ Warnings           ACF2 access due to rules in warn mode
_ Violations         ACF2 dataset/resource access violations
/ Maintenance        ACF2 logonid/rule/record updates (other than logon)
_ Logonfailure       ACF2 logon/job initation failures
_ ACF2 events        ACF2 start/stop/modify/abend records
```

Figure 202. Select the Maintenance report

The next screens do not necessarily require any data entry for our example.

5. Press Enter on the next three screens that open until you reach the panel shown in Figure 203 on page 140.

   Figure 203 on page 140 shows the maintenance activity against the ACF2 databases. The reporting period is displayed at the top of the panel. Event information such as *Logon* ID inserts and deletions, and rule changes and the *Logon* ID of the security administrator is displayed in the **Description** column.



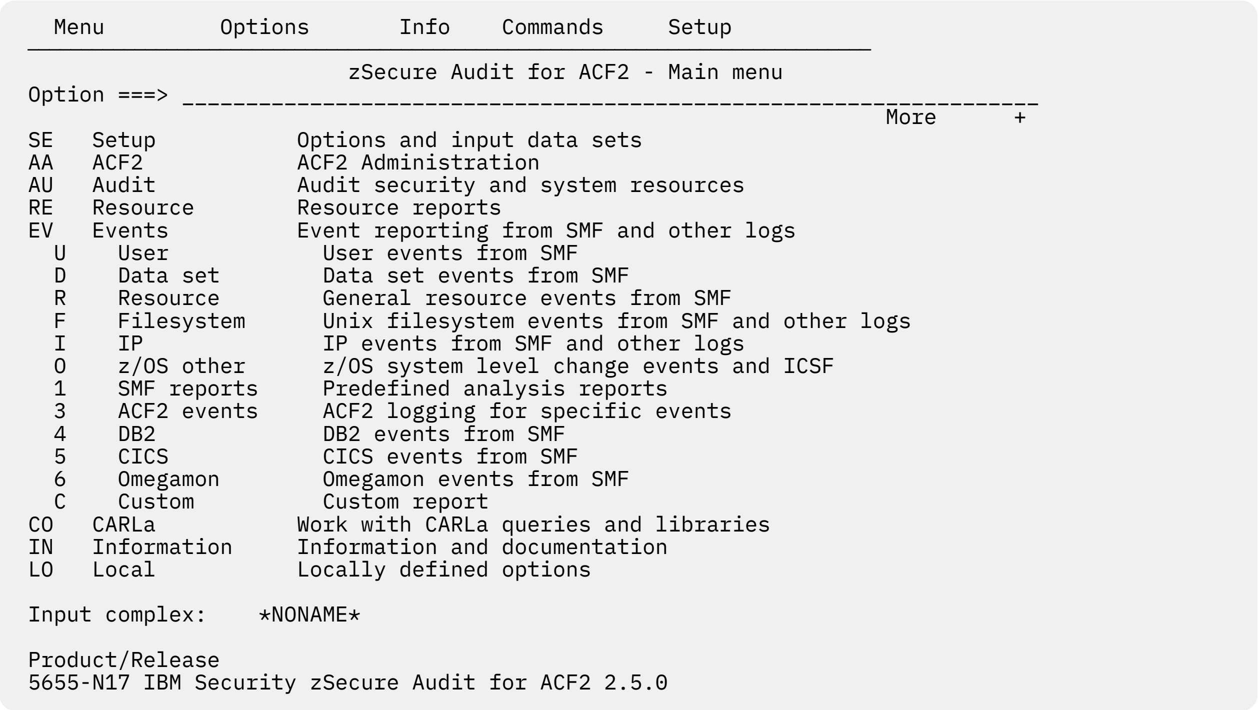
```
SMF record ACF2 processing and audit records          38 s elapsed, 10.7 s CPU
Command ===> _________________________________________________ Scroll===> CSR_
                                                27Apr05 15:20 to 19May05 17:23
   Date      Time  Description
__ 27Apr2005 15:20 56 ACF2 id MSTJCLEX delete resource C-TSO-CRMBNAT
__ 29Apr2005 10:41 ACF2 id JSMITH replace rule SYS1
__ 29Apr2005 11:12 ACF2 id JSMITH insert logonid SMCLEAN
__ 29Apr2005 11:16 ACF2 id JSMITH replace logonid SMCLEAN
__ 29Apr2005 11:27 ACF2 id JSMITH replace logonid SMCLEAN
__ 29Apr2005 11:28 ACF2 id JSMITH replace logonid SMCLEAN
__ 29Apr2005 11:28 ACF2 id JSMITH replace logonid SMCLEAN
__ 19May2005 11:30 ACF2 id SMCLEAN delete logonid PBAKER
__ 19May2005 11:30 ACF2 id SMCLEAN insert logonid GBROWN(model SMCLEAN)
__ 19May2005 11:40 ACF2 id SMCLEAN insert resource C-GSO--       MAINTMAINTDUMP
__ 19May2005 11:41 ACF2 id SMCLEAN delete resource C-GSO--       MAINTMAINTDUMP
__ 19May2005 11:41 ACF2 id SMCLEAN insert resource C-GSO--       MAINTDUMP
__ 19May2005 11:43 ACF2 id SMCLEAN delete resource C-GSO--       MAINTDUMP
__ 19May2005 11:44 ACF2 id SMCLEAN insert resource C-GSO-0261    MAINTDUMP
__ 19May2005 11:51 ACF2 id SMCLEAN delete resource C-GSO-0261    MAINTDUMP
__ 19May2005 11:52 ACF2 id SMCLEAN insert resource C-GSO-0261    MAINT
__ 19May2005 12:13 ACF2 id SMCLEAN replace resource C-GSO-0261    INFODIR
__ 19May2005 12:15 ACF2 id SMCLEAN insert resource C-GSO-0261    PDS.TEST
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC00
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC10
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC20
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC30
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC40
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC50
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC60
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC70
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC80
__ 19May2005 14:41 ACF2 id SMCLEAN delete logonid TESTC90
__ 19May2005 14:41 ACF2 id DBHOGAN delete logonid TESTC99
******************************* BOTTOM OF DATA ********************************
```

Figure 203. Maintenance activity against the ACF2 databases

Viewing user events

Procedure

1. Press PF3 to return to the Main menu.
2. In the Main menu, type U in the command line to select the User option as shown in Figure 204 on page 141.
3. Press Enter to open the User Selection panel shown in Figure 205 on page 141.



```
  Menu         Options       Info    Commands     Setup
 ------------------------------------------------------------------
                         zSecure Audit for ACF2 - Main menu
 Option ===> ___________________________________________________________________
                                                                   More      +
 SE   Setup           Options and input data sets
 AA   ACF2            ACF2 Administration
 AU   Audit           Audit security and system resources
 RE   Resource        Resource reports
 EV   Events          Event reporting from SMF and other logs
   U    User            User events from SMF
   D    Data set        Data set events from SMF
   R    Resource        General resource events from SMF
   F    Filesystem      Unix filesystem events from SMF and other logs
   I    IP              IP events from SMF and other logs
   O    z/OS other      z/OS system level change events and ICSF
   1    SMF reports     Predefined analysis reports
   3    ACF2 events     ACF2 logging for specific events
   4    DB2             DB2 events from SMF
   5    CICS            CICS events from SMF
   6    Omegamon        Omegamon events from SMF
   C    Custom          Custom report
 CO   CARLa           Work with CARLa queries and libraries
 IN   Information     Information and documentation
 LO   Local           Locally defined options

 Input complex:    *NONAME*

 Product/Release
 5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 204. Select User events

4. To select a Logon ID, for example, your own Logon ID, for viewing user events, complete the steps in "Selecting a logon ID for viewing user events" on page 141.

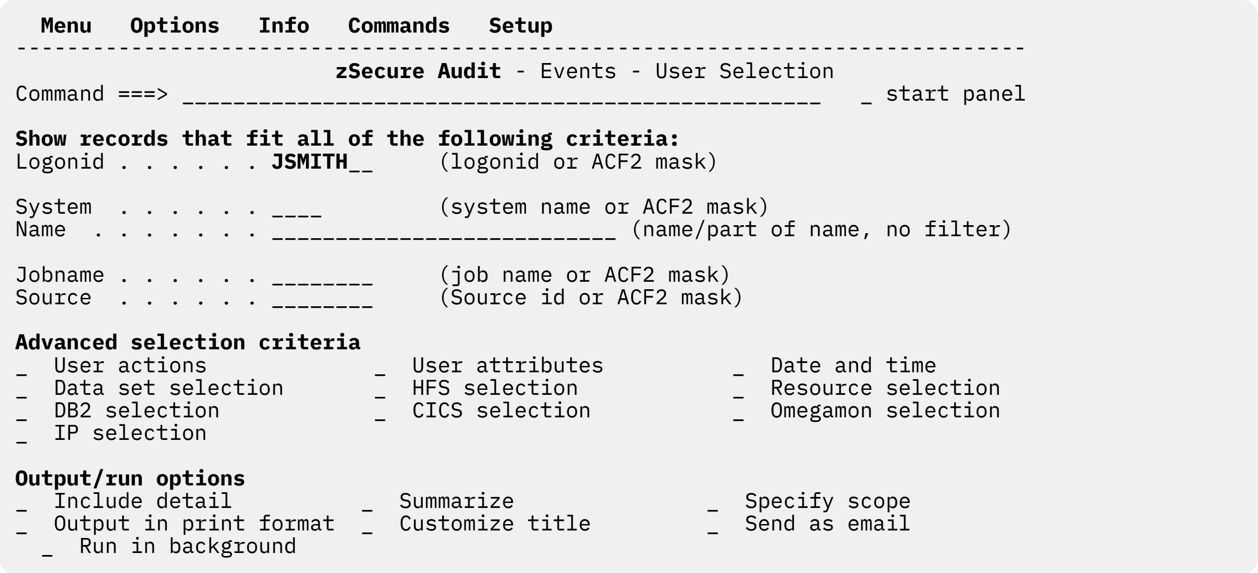
Selecting a logon ID for viewing user events

Procedure

To view user events for a specified logon ID, follow these steps:

1. Move to the Logon ID field.
2. Type your logon ID.

   The example shown in Figure 205 on page 141 uses JSMITH.

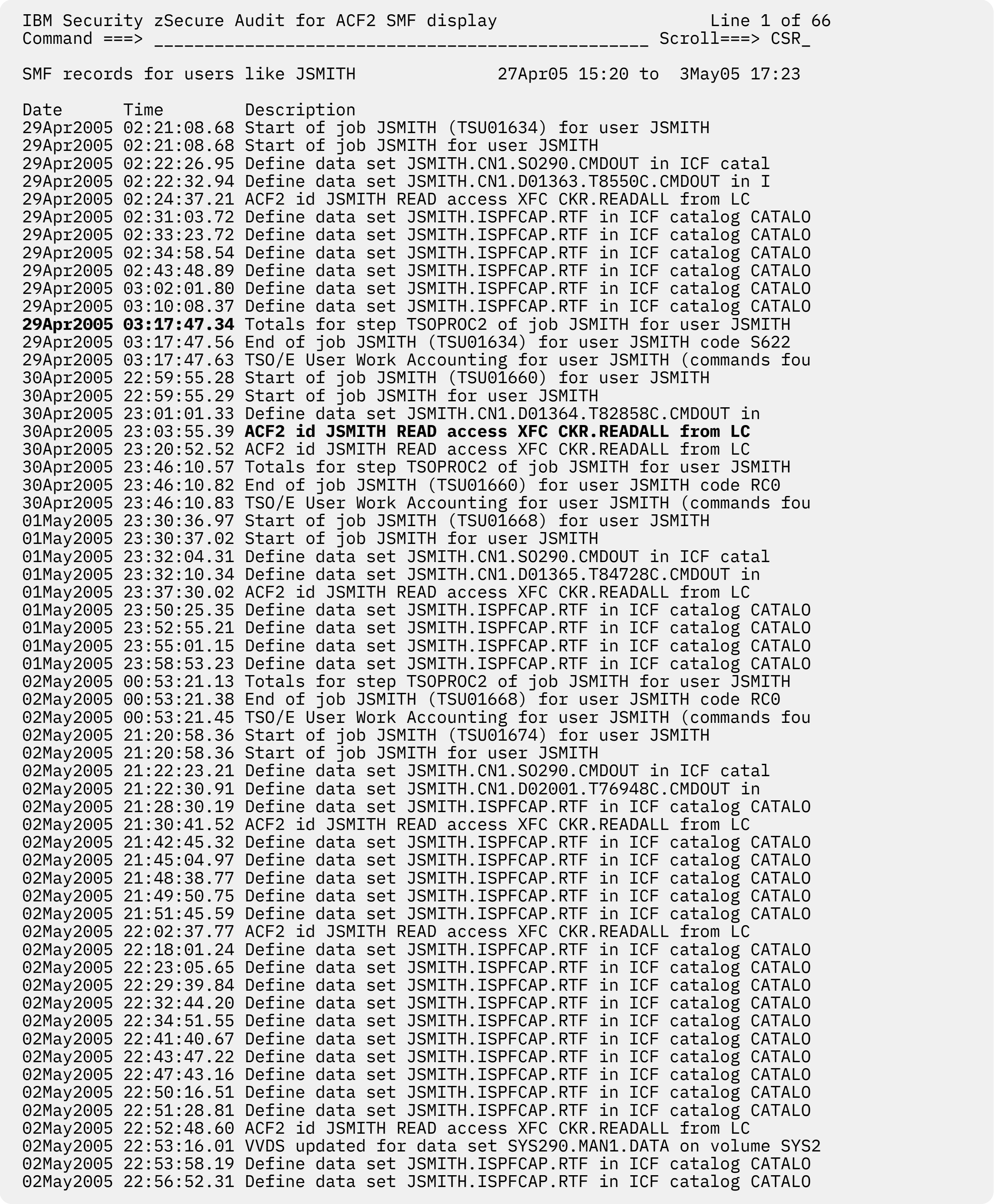


```
  Menu   Options   Info   Commands   Setup
--------------------------------------------------------------------------------
                         zSecure Audit - Events - User Selection
Command ===> __________________________________________________   _ start panel

Show records that fit all of the following criteria:
Logonid . . . . . . JSMITH__     (logonid or ACF2 mask)

System  . . . . . . ____         (system name or ACF2 mask)
Name  . . . . . . . ___________________________ (name/part of name, no filter)

Jobname . . . . . . ________     (job name or ACF2 mask)
Source  . . . . . . ________     (Source id or ACF2 mask)

Advanced selection criteria
_  User actions             _  User attributes            _  Date and time
_  Data set selection       _  HFS selection              _  Resource selection
_  DB2 selection            _  CICS selection             _  Omegamon selection
_  IP selection

Output/run options
_  Include detail          _  Summarize                  _  Specify scope
_  Output in print format  _  Customize title            _  Send as email
  _  Run in background
```

Figure 205. User selection panel - type your logon ID to view user events

3. Press Enter to view the events.

   In this example, all events for JSMITH are shown in Figure 206 on page 142. This report shows activity for a date and time range as indicated in the third line of the panel. Each entry lists the date and description for an event. To view the entire display, press PF8 to scroll a few times.



```
IBM Security zSecure Audit for ACF2 SMF display                     Line 1 of 66
Command ===> _________________________________________________ Scroll===> CSR_

SMF records for users like JSMITH              27Apr05 15:20 to  3May05 17:23

Date      Time        Description
29Apr2005 02:21:08.68 Start of job JSMITH (TSU01634) for user JSMITH
29Apr2005 02:21:08.68 Start of job JSMITH for user JSMITH
29Apr2005 02:22:26.95 Define data set JSMITH.CN1.SO290.CMDOUT in ICF catal
29Apr2005 02:22:32.94 Define data set JSMITH.CN1.D01363.T8550C.CMDOUT in I
29Apr2005 02:24:37.21 ACF2 id JSMITH READ access XFC CKR.READALL from LC
29Apr2005 02:31:03.72 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
29Apr2005 02:33:23.72 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
29Apr2005 02:34:58.54 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
29Apr2005 02:43:48.89 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
29Apr2005 03:02:01.80 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
29Apr2005 03:10:08.37 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
29Apr2005 03:17:47.34 Totals for step TSOPROC2 of job JSMITH for user JSMITH
29Apr2005 03:17:47.56 End of job JSMITH (TSU01634) for user JSMITH code S622
29Apr2005 03:17:47.63 TSO/E User Work Accounting for user JSMITH (commands fou
30Apr2005 22:59:55.28 Start of job JSMITH (TSU01660) for user JSMITH
30Apr2005 22:59:55.29 Start of job JSMITH for user JSMITH
30Apr2005 23:01:01.33 Define data set JSMITH.CN1.D01364.T82858C.CMDOUT in
30Apr2005 23:03:55.39 ACF2 id JSMITH READ access XFC CKR.READALL from LC
30Apr2005 23:20:52.52 ACF2 id JSMITH READ access XFC CKR.READALL from LC
30Apr2005 23:46:10.57 Totals for step TSOPROC2 of job JSMITH for user JSMITH
30Apr2005 23:46:10.82 End of job JSMITH (TSU01660) for user JSMITH code RC0
30Apr2005 23:46:10.83 TSO/E User Work Accounting for user JSMITH (commands fou
01May2005 23:30:36.97 Start of job JSMITH (TSU01668) for user JSMITH
01May2005 23:30:37.02 Start of job JSMITH for user JSMITH
01May2005 23:32:04.31 Define data set JSMITH.CN1.SO290.CMDOUT in ICF catal
01May2005 23:32:10.34 Define data set JSMITH.CN1.D01365.T84728C.CMDOUT in
01May2005 23:37:30.02 ACF2 id JSMITH READ access XFC CKR.READALL from LC
01May2005 23:50:25.35 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
01May2005 23:52:55.21 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
01May2005 23:55:01.15 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
01May2005 23:58:53.23 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 00:53:21.13 Totals for step TSOPROC2 of job JSMITH for user JSMITH
02May2005 00:53:21.38 End of job JSMITH (TSU01668) for user JSMITH code RC0
02May2005 00:53:21.45 TSO/E User Work Accounting for user JSMITH (commands fou
02May2005 21:20:58.36 Start of job JSMITH (TSU01674) for user JSMITH
02May2005 21:20:58.36 Start of job JSMITH for user JSMITH
02May2005 21:22:23.21 Define data set JSMITH.CN1.SO290.CMDOUT in ICF catal
02May2005 21:22:30.91 Define data set JSMITH.CN1.D02001.T76948C.CMDOUT in
02May2005 21:28:30.19 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 21:30:41.52 ACF2 id JSMITH READ access XFC CKR.READALL from LC
02May2005 21:42:45.32 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 21:45:04.97 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 21:48:38.77 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 21:49:50.75 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 21:51:45.59 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:02:37.77 ACF2 id JSMITH READ access XFC CKR.READALL from LC
02May2005 22:18:01.24 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:23:05.65 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:29:39.84 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:32:44.20 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:34:51.55 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:41:40.67 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:43:47.22 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:47:43.16 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:50:16.51 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:51:28.81 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:52:48.60 ACF2 id JSMITH READ access XFC CKR.READALL from LC
02May2005 22:53:16.01 VVDS updated for data set SYS290.MAN1.DATA on volume SYS2
02May2005 22:53:58.19 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
02May2005 22:56:52.31 Define data set JSMITH.ISPFCAP.RTF in ICF catalog CATALO
```

Figure 206. User events report

Chapter 10. Report generation

This information can be helpful when troubleshooting problems, preparing an audit report, and investigating what happened during a particular time frame.

Use the Results function to complete the following tasks:

- Browse a file.
- Edit a file.
- Print a file.
- View a file.
- Run commands.
- Submit jobs for command execution.
- Write a file to a sequential or partitioned data set.

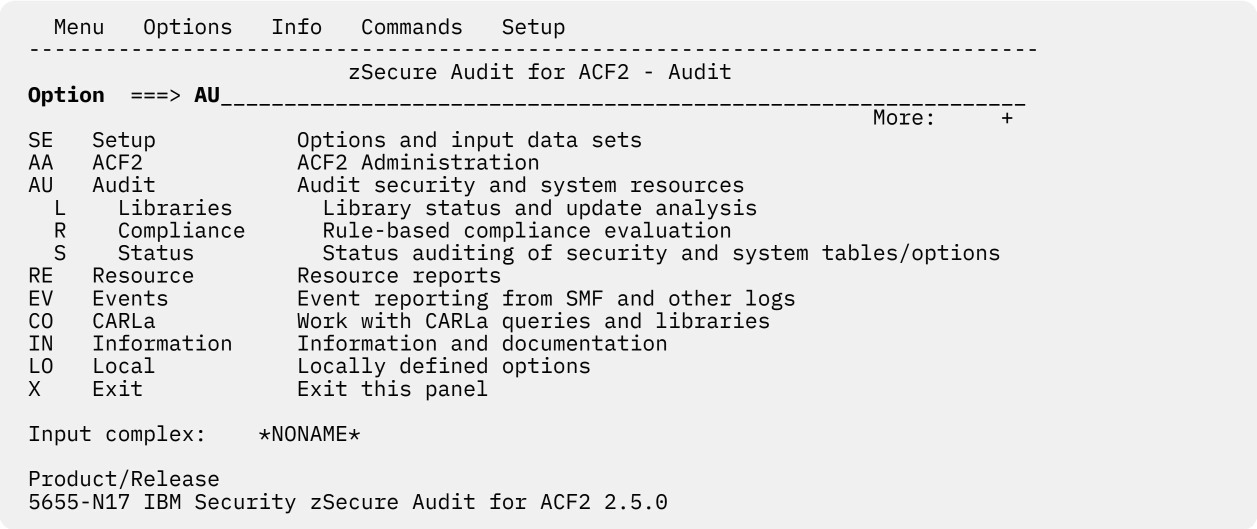
Results panel

- "Creating an audit report" on page 143
- "Archiving reports" on page 145
- "Printing reports" on page 146

Creating an audit report

Procedure

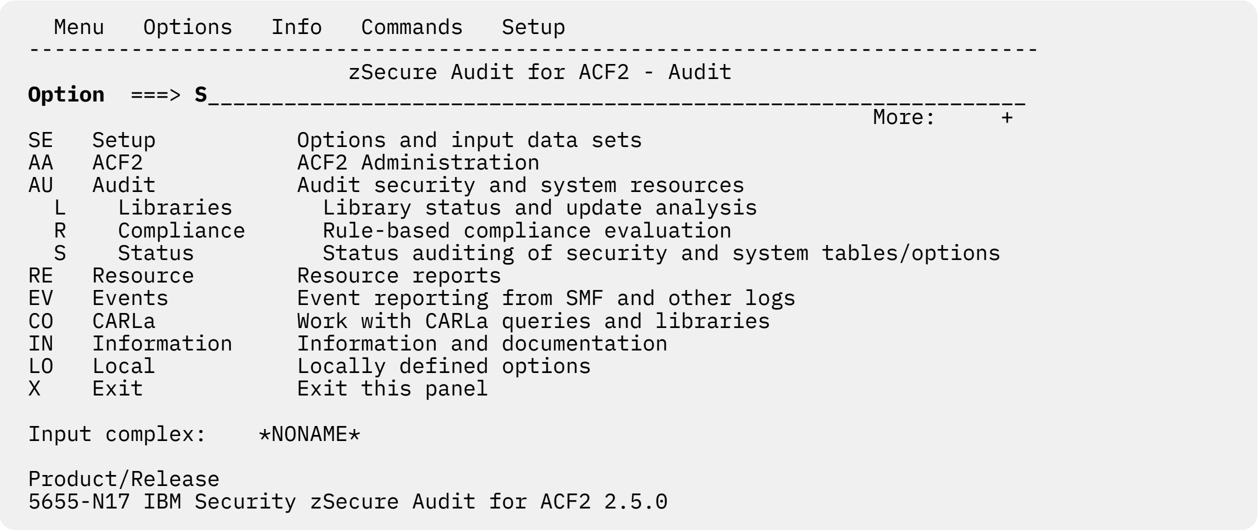
1. From the IBM Security zSecure Audit for ACF2 Main menu, type AU in the Option command line to select the Audit option as shown in Figure 207 on page 143.



```
  Menu   Options   Info   Commands   Setup
-------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Audit
Option  ===> AU_______________________________________________________________
                                                                  More:     +
SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
AU   Audit           Audit security and system resources
  L    Libraries       Library status and update analysis
  R    Compliance      Rule-based compliance evaluation
  S    Status          Status auditing of security and system tables/options
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

Input complex:    *NONAME*

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 207. Main menu - select Audit option

2. After selecting the Audit option, type S in the Option command line to select the Audit Status option as shown in Figure 208 on page 144.



```
  Menu   Options   Info   Commands   Setup
--------------------------------------------------------------------------------
                         zSecure Audit for ACF2 - Audit
Option  ===> S_________________________________________________________________
                                                                  More:     +
SE   Setup           Options and input data sets
AA   ACF2            ACF2 Administration
AU   Audit           Audit security and system resources
  L    Libraries       Library status and update analysis
  R    Compliance      Rule-based compliance evaluation
  S    Status          Status auditing of security and system tables/options
RE   Resource        Resource reports
EV   Events          Event reporting from SMF and other logs
CO   CARLa           Work with CARLa queries and libraries
IN   Information     Information and documentation
LO   Local           Locally defined options
X    Exit            Exit this panel

Input complex:    *NONAME*

Product/Release
5655-N17 IBM Security zSecure Audit for ACF2 2.5.0
```

Figure 208. Select Audit Status option

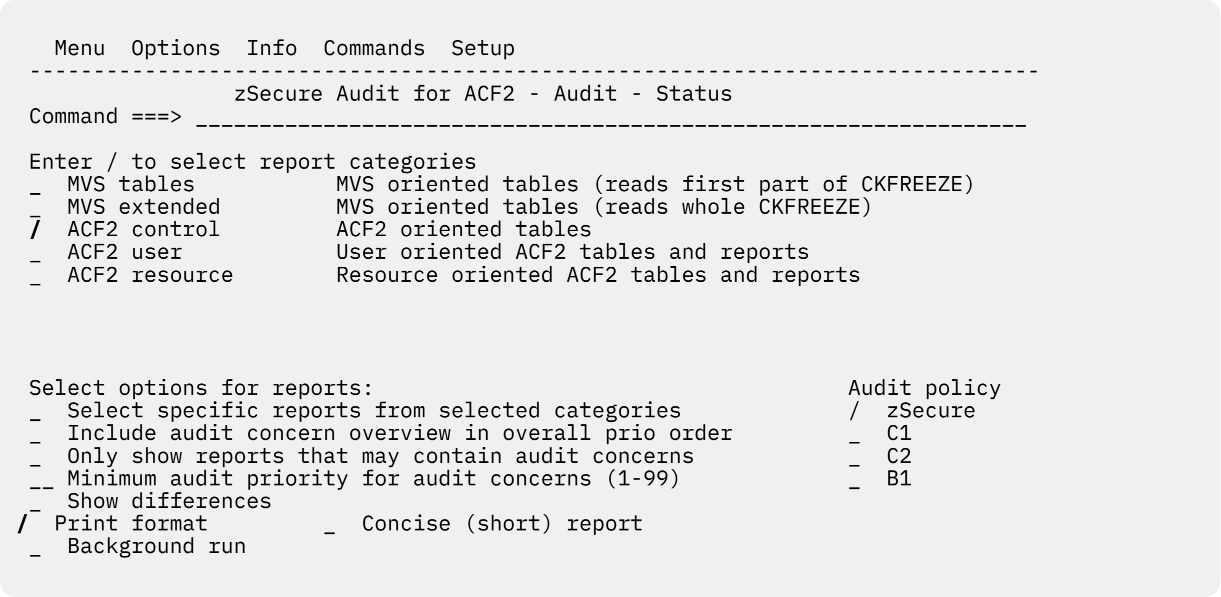
3. Press Enter to open the panel to select report settings.

   This example procedure illustrates how to generate an ACF2 control settings report.

4. To select the ACF2 control report option, tab to the **ACF2 control** field. Then, type / in the selection field.

   a) To specify the report output setting, tab to the **Print format** field in the **Select options for reports** section. Then, type / in the selection field.

   The screen should look similar to the one shown in Figure 209 on page 144. The selections are shown in bold type.

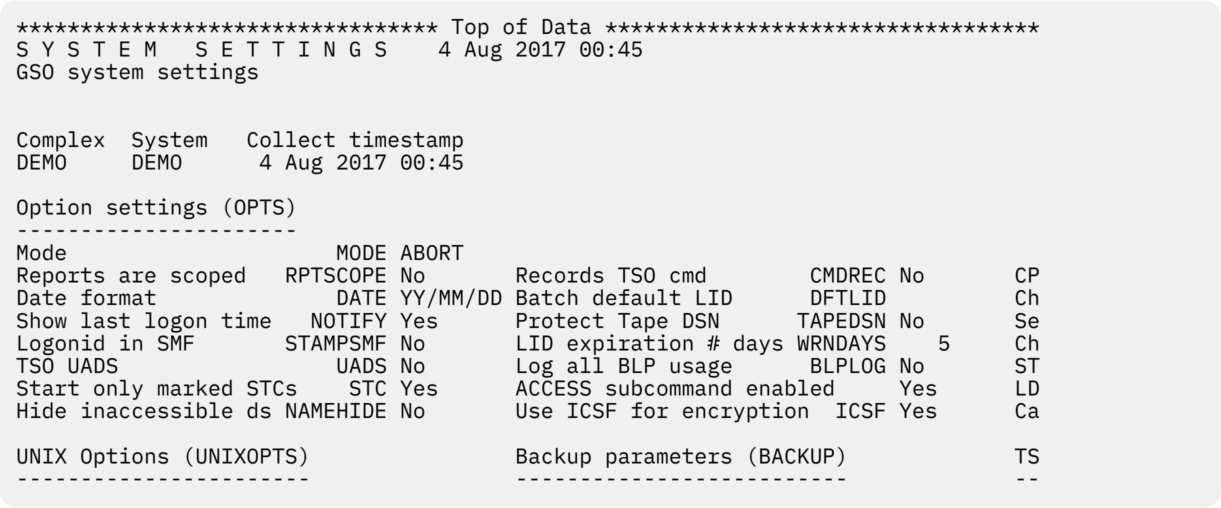


```
  Menu  Options  Info  Commands  Setup
--------------------------------------------------------------------------------
                zSecure Audit for ACF2 - Audit - Status
Command ===> _________________________________________________________________

Enter / to select report categories
_  MVS tables           MVS oriented tables (reads first part of CKFREEZE)
_  MVS extended         MVS oriented tables (reads whole CKFREEZE)
/  ACF2 control         ACF2 oriented tables
_  ACF2 user            User oriented ACF2 tables and reports
_  ACF2 resource        Resource oriented ACF2 tables and reports



Select options for reports:                                     Audit policy
_  Select specific reports from selected categories             /  zSecure
_  Include audit concern overview in overall prio order         _  C1
_  Only show reports that may contain audit concerns            _  C2
__ Minimum audit priority for audit concerns (1-99)             _  B1
_  Show differences
/ Print format          _  Concise (short) report
_  Background run
```

Figure 209. Select Output in print format

   b) Press Enter.

   Figure 210 on page 145 shows the report generated after selecting report settings and pressing Enter. To review the entire report, scroll to the right and down.



```
********************************* Top of Data **********************************
S Y S T E M   S E T T I N G S    4 Aug 2017 00:45
GSO system settings


Complex  System   Collect timestamp
DEMO     DEMO      4 Aug 2017 00:45

Option settings (OPTS)
----------------------
Mode                     MODE ABORT
Reports are scoped   RPTSCOPE No       Records TSO cmd        CMDREC No       CP
Date format              DATE YY/MM/DD Batch default LID      DFTLID          Ch
Show last logon time   NOTIFY Yes      Protect Tape DSN      TAPEDSN No       Se
Logonid in SMF       STAMPSMF No       LID expiration # days WRNDAYS    5     Ch
TSO UADS                 UADS No       Log all BLP usage      BLPLOG No       ST
Start only marked STCs    STC Yes      ACCESS subcommand enabled     Yes      LD
Hide inaccessible ds NAMEHIDE No       Use ICSF for encryption  ICSF Yes      Ca

UNIX Options (UNIXOPTS)                Backup parameters (BACKUP)             TS
-----------------------                --------------------------             --
```

Figure 210. Sample report output - ACF2 Control report

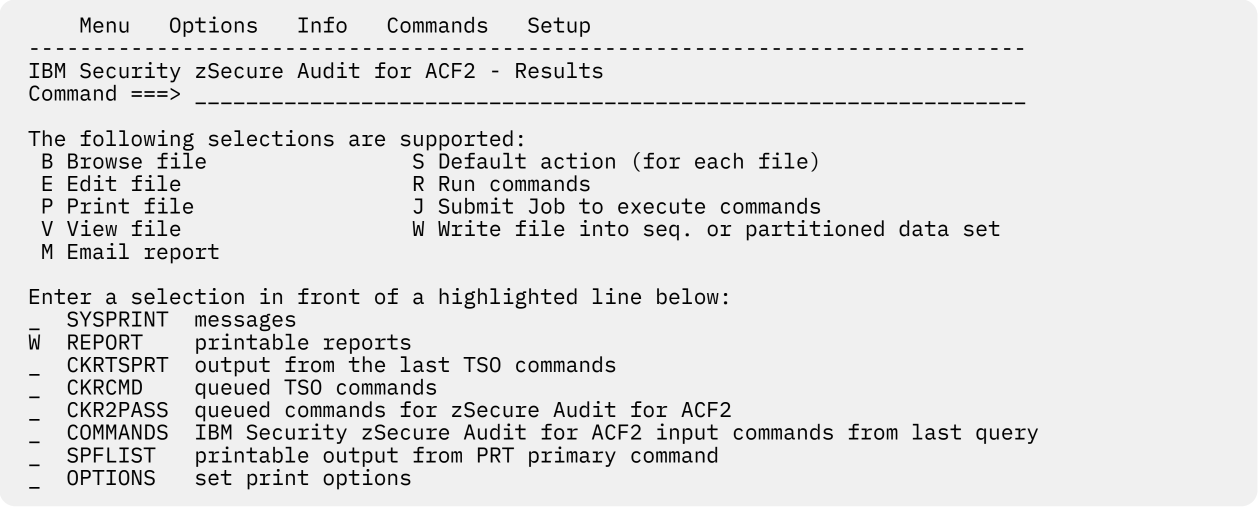
To select the options for saving the report, press PF3 in the panel that shows the report output.

When you press PF3, the Results panel opens so you can archive or save the report. For details, see “Archiving reports” on page 145 and “Printing reports” on page 146.

Archiving reports

Procedure

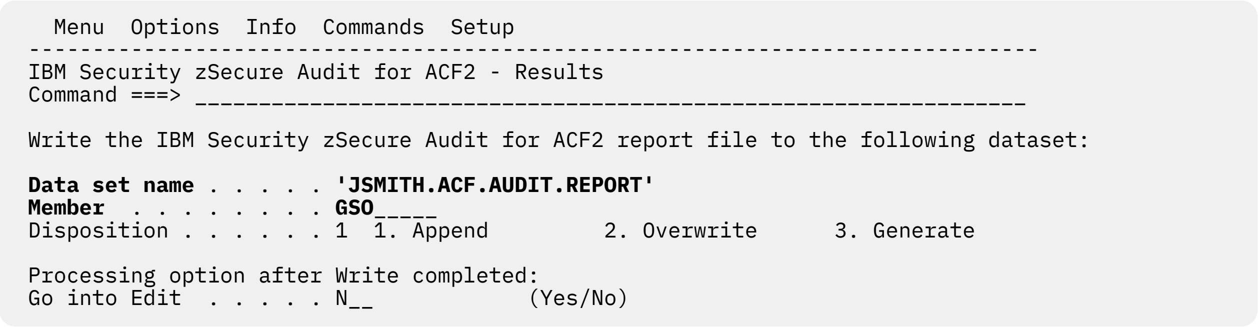
1. Type W in the Report selection field as shown in Figure 211 on page 145.



```
    Menu   Options   Info   Commands   Setup
------------------------------------------------------------------------------
IBM Security zSecure Audit for ACF2 - Results
Command ===> _________________________________________________________________

The following selections are supported:
 B Browse file                S Default action (for each file)
 E Edit file                  R Run commands
 P Print file                 J Submit Job to execute commands
 V View file                  W Write file into seq. or partitioned data set
 M Email report

Enter a selection in front of a highlighted line below:
_  SYSPRINT  messages
W  REPORT    printable reports
_  CKRTSPRT  output from the last TSO commands
_  CKRCMD    queued TSO commands
_  CKR2PASS  queued commands for zSecure Audit for ACF2
_  COMMANDS  IBM Security zSecure Audit for ACF2 input commands from last query
_  SPFLIST   printable output from PRT primary command
_  OPTIONS   set print options
```

Figure 211. Write reports to data set from the Results panel

2. Press Enter to open a panel to specify the data set name for the reports.
3. In the **Data set name** field, type the data set name in which you want to save the report as shown in Figure 212 on page 146.
4. If the data set is partitioned (PDS), type the member name in the **Member** field as shown in Figure 212 on page 146.



```
  Menu  Options  Info  Commands  Setup
-------------------------------------------------------------------------------
IBM Security zSecure Audit for ACF2 - Results
Command ===> _________________________________________________________________

Write the IBM Security zSecure Audit for ACF2 report file to the following dataset:

Data set name . . . . . 'JSMITH.ACF.AUDIT.REPORT'
Member  . . . . . . . . GSO_____
Disposition . . . . . . 1  1. Append         2. Overwrite      3. Generate

Processing option after Write completed:
Go into Edit  . . . . . N__            (Yes/No)
```

Figure 212. Specify the data set name for archiving reports

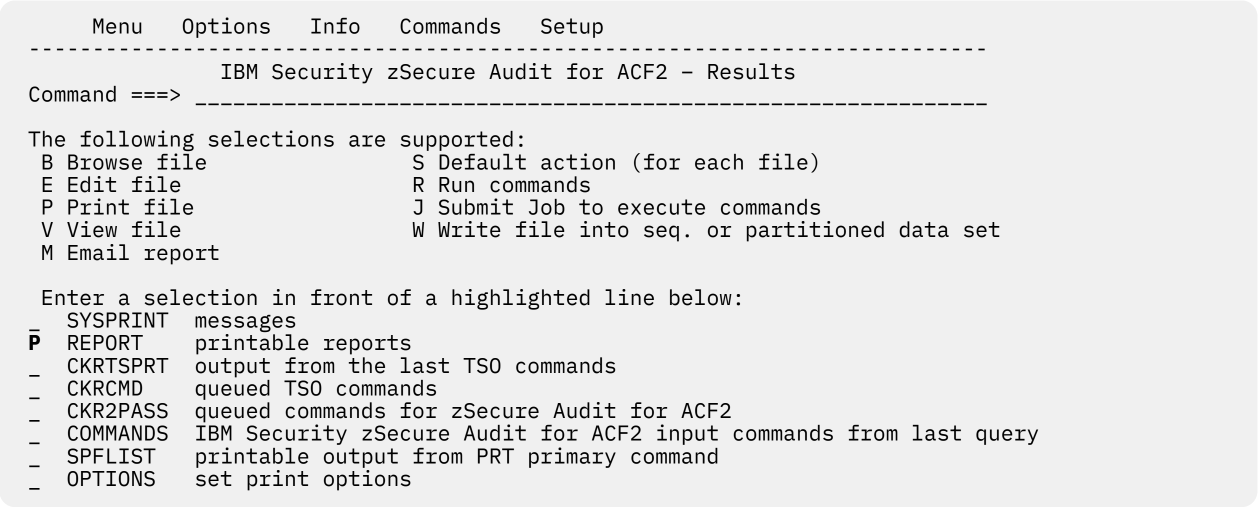
5. After you specify the data set name information, press Enter.

   The report is saved to the specified data set for archiving and future reference.

Printing reports

Procedure

1. Type P beside the report selection as shown in Figure 213 on page 146.
2. Press Enter.



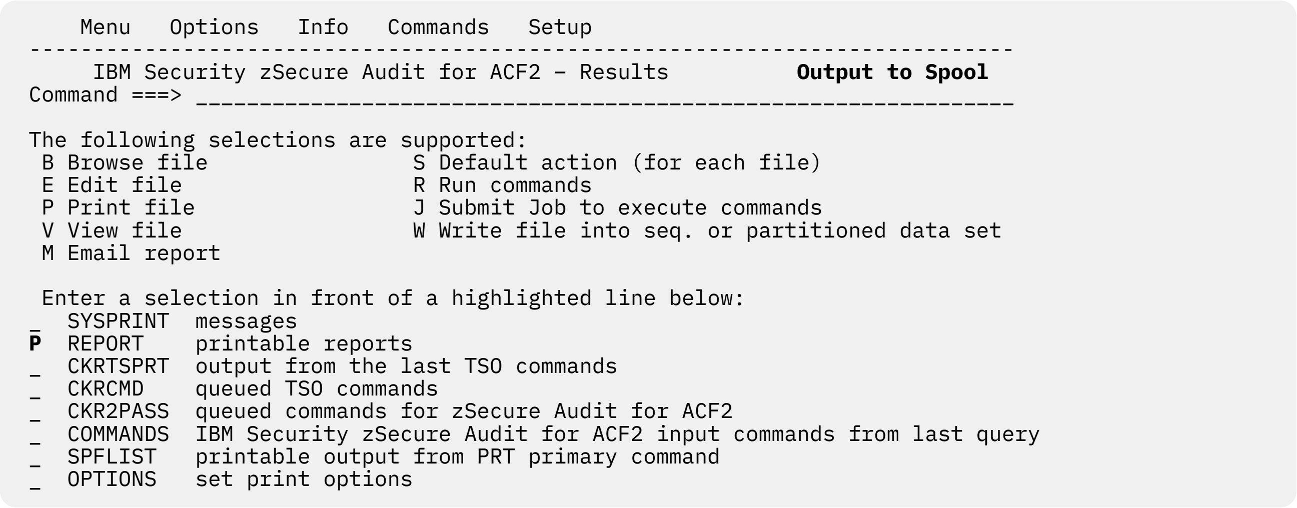
```
     Menu   Options   Info   Commands   Setup
---------------------------------------------------------------------------
               IBM Security zSecure Audit for ACF2 – Results
Command ===> ______________________________________________________________

The following selections are supported:
 B Browse file                S Default action (for each file)
 E Edit file                  R Run commands
 P Print file                 J Submit Job to execute commands
 V View file                  W Write file into seq. or partitioned data set
 M Email report

 Enter a selection in front of a highlighted line below:
_  SYSPRINT  messages
P  REPORT    printable reports
_  CKRTSPRT  output from the last TSO commands
_  CKRCMD    queued TSO commands
_  CKR2PASS  queued commands for zSecure Audit for ACF2
_  COMMANDS  IBM Security zSecure Audit for ACF2 input commands from last query
_  SPFLIST   printable output from PRT primary command
_  OPTIONS   set print options
```

Figure 213. Printing reports from the Results panel

This action does not generate a new panel. Look in the upper right corner for a message that indicates the outcome of your print result.

Results

Figure 214 on page 147 shows an example of the print result message. **Output to Spool** indicates that your report is staged for hardcopy printing.



```
    Menu   Options   Info   Commands   Setup
-----------------------------------------------------------------------------
     IBM Security zSecure Audit for ACF2 – Results          Output to Spool
Command ===> ________________________________________________________________

The following selections are supported:
 B Browse file                S Default action (for each file)
 E Edit file                  R Run commands
 P Print file                 J Submit Job to execute commands
 V View file                  W Write file into seq. or partitioned data set
 M Email report

 Enter a selection in front of a highlighted line below:
_  SYSPRINT  messages
P  REPORT    printable reports
_  CKRTSPRT  output from the last TSO commands
_  CKRCMD    queued TSO commands
_  CKR2PASS  queued commands for zSecure Audit for ACF2
_  COMMANDS  IBM Security zSecure Audit for ACF2 input commands from last query
_  SPFLIST   printable output from PRT primary command
_  OPTIONS   set print options
```

Figure 214. Printing reports - Print result message

Appendix A. Frequently asked questions

Table 18. Frequently Asked Questions

Q: Why is the Main panel empty?

A: You need READ access to $KEY(CKR) rule in the XFACILIT class TYPE(XFC). CKR rules can allow or prohibit the use of IBM Security zSecure Audit for ACF2.

Q: Can I collect information (unloaded ACF2 and CKFREEZE data sets) on different systems and send this information to one system for display and analysis?

A:Yes. All the systems involved must be covered by your license framework. This is a common way to use IBM Security zSecure Audit for ACF2.

Q: How do I handle a shared JES2 spool environment, with one ACF2 database and several MVS images?

A: Run the ACF2 unload one time from any system, unless you want to work with *live* ACF2 data. Run multiple COLLECT jobs (one on each system). You can use the SHARED=NO parameter with the second and additional COLLECT job to reduce the size of the resulting CKFREEZE data sets. Do this only if your UCBs are properly defined with SHARED options to exactly reflect the sharing environment, otherwise COLLECT everything. Create an INPUT SET for IBM Security zSecure Audit for ACF2 that has these multiple CKFREEZE data sets defined.

Q: When should I use my *live* ACF2 database with IBM Security zSecure Audit for ACF2, and when should I use unloaded data?

A: It is suggested using the unloaded ACF2 database for all queries to prevent an enqueue failure on the ACF2 backup job.

Q: I used the SETUP.INPUT options to define my input sets. The next time I used IBM Security zSecure Audit for ACF2, my setup values were not saved. Why?

A: You probably used a different TSO user ID the second time. The setup information is remembered in your ISPF profile, and each TSO user ID has its own ISPF profile data set. Also, there is a SETUP option to use the input files you last used. Look at the Setup Options menu to determine the setting of this option.

Q: I browsed the User Reference manual, and it talks about IBM Security zSecure Audit for ACF2 commands and the CARLa command language. Do I need this command language? Your evaluation guide seems to ignore it.

A: The interactive ISPF panels automatically generate the CARLa commands or queries. For any IBM Security zSecure Audit for ACF2 functions that can be done through the ISPF panels, you can use the panels and ignore the command language.

However, if you want to do something unusual, such as produce a highly customized report, you might need to use the command language. You can enter IBM Security zSecure Audit for ACF2 queries through batch or by using Option CO (CARLa options) in the IBM Security zSecure Audit for ACF2 primary menu.

Q: IBM Security zSecure Audit for ACF2 inspects many MVS controls, for various reports. When does it obtain these controls from MVS storage, and when should you use a CKFREEZE data set?

Table 18. Frequently Asked Questions (continued)

A: For full checking, IBM Security zSecure Audit for ACF2 uses MVS control blocks that were copied into the CKFREEZE data set. While this issue is more complex than using in-storage MVS data, it produces results that are much more consistent. The results are meaningful for the time at which the CKFREEZE data was collected. For this reason, you might want to collect CKFREEZE data when your system is fully loaded and most active. This also means that you can perform IBM Security zSecure Audit for ACF2 studies for remote MVS systems, by using a CKFREEZE data set and ACF2 unloaded data created on the remote system. IBM Security zSecure Audit for ACF2 licenses are required for all systems involved.
Q: Some panels, such as the AUDIT/STATUS panel, differentiate between full CKFREEZE data sets and some other type of CKFREEZE data sets. What is this? **A:** Using the instructions in this evaluation guide when you defined new input files, and ran the refresh job, you have a full CKFREEZE data set. In large or widely distributed installations, a CKFREEZE data set can be large. You might want to save multiple CKFREEZE data sets for audit and comparison purposes. There are options in zSecure Collect to gather only part of the potential CKFREEZE data. Multiple CKFREEZE data sets are useful. For example, if you use IBM Security zSecure Audit for ACF2 freeze functions to detect changes in various libraries, or if your auditors want system snapshots at certain defined times.
Q: Does ACF2 Scoping work with IBM Security zSecure Audit for ACF2? **A:** By default, ACF2 Scoping also applies to IBM Security zSecure Audit for ACF2. There is an override mechanism that enables someone to perform and evaluation and also for daily auditing.

Appendix B. zSecure Collect memory requirements

zSecure Collect is a component of IBM Security zSecure Audit for ACF2 that enables the product to collect the data from audited systems. It is designed to run as fast as possible and uses memory in return for speed. In a smaller z/OS installation, it might operate well in 6-8 MB, while it might grow to over 60 MB in a large installation. By default, zSecure Collect collects various information, which contributes to its memory requirements. If necessary, you can control memory usage by reducing the amount of parallel operation involved, and by not collecting certain types of data.

zSecure Collect is run as a batch job. The job is often submitted by using the **REFRESH** command while in the Input panels. When this is done, you have the opportunity to edit the job before it is submitted. You can add some or all of the following statements to the job. By default, there is no **SYSIN DD** statement. Do not add the comments in parentheses.

```
     //SYSIN DD *
     PARALLEL=PATHGROUP        (reduces parallel operation), or
     PARALLEL=NONE                (remove any parallel operation)
     CAT=MCAT                        (do not read user catalogs)
     DMS=NO                            (collect no CA Disk data)
     CICS=NO                           (collect no CICS data)
     DB2=NO                            (collect no DB2 data)
     MQ=NO                             (collect no MQ data)
     VMF=NO                            (collect no TLMS data)
     RMM=NO                            (collect no RMM data)
     MCD=NO                            (collect no primary HSM data)
     BCD=NO                            (collect no backup HSM data)
     TMC=NO                            (collect no CA-1 data)
     ABR=NO                            (no FDR/ABR file data)
     UNIX=NO                        (no UNIX file directories)
/*
```

Figure 215. Job statements to add to the zSecure Collect job to reduce memory requirements

Even if you have no memory constraints, you might want to consider using some of these restrictions. In particular, you might want to exclude **HSM** and tape catalog data. The **MCD** and **BCD** parameters refer to **HSM** data. This consideration is not related to product operation, but to your installation security policies. A policy discussion is not within the scope of this document.

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