zSecure Alert

User Reference Manual

Note

Before using this information and the product it supports, read the information in “Notices” on page 159.

February 2023

This edition applies to IBM® Security zSecure Alert (product number 5655-N21), version 2, release 5, modification 0, and to all subsequent versions of this product until otherwise indicated in new editions.

Contents

About this publication

This manual 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.

The manual is intended for the following people:

- Systems support personnel responsible for configuring IBM Security zSecure Alert
- Security administrators responsible for implementing the additional command controls provided by IBM Security zSecure Alert

Users of the manual must also be familiar with RACF and ACF2 concepts and commands.

For information about installing IBM Security zSecure Alert, see the *IBM Security zSecure CARLa-Driven Components Installation and Deployment Guide*.

IBM Security zSecure Suite library

This topic lists the IBM Security zSecure suite user information.

The zSecure Suite library is available at IBM Documentation for IBM Security zSecure Suite (z/OS). As of the Service Stream Enhancement (SSE) of February 2023, this also includes the former licensed documentation; that is, the *zSecure (Admin and) Audit User Reference Manuals* for RACF, ACF2, and Top Secret and the *zSecure CARLa Command Reference*.

The zSecure Suite library consists of the following topics:

- *About This Release*
  Provides information about new features and enhancements, incompatibility warnings, and documentation update information for this product version.
- *Documentation*
  Lists and briefly describes the zSecure Suite library and related documentation.
- *Program Directories*
  Are also provided with the product tapes. For the list, see Program Directories.
- *zSecure CARLa-Driven Components Installation and Deployment Guide*
  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 Messages Guide*
  Provides a message reference for all IBM Security zSecure products and 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 Admin and Audit for RACF Getting Started*
  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*

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.

- *IBM Security zSecure Admin and Audit for RACF Line Commands and Primary Commands Summary*
  Lists the line commands and primary (ISPF) commands with very brief explanations.
- *zSecure Audit for ACF2 Getting Started*
  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*
  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.
- *zSecure Audit for Top Secret User Reference Manual*
  Describes the zSecure Audit for CA-Top Secret product features and provides user instructions for performing standard tasks and procedures.
- *zSecure CARLa Command Reference*
  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.
- *zSecure Alert User Reference Manual*
  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*
  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*
  Explains how to install and use IBM Security zSecure CICS® Toolkit to provide RACF administration capabilities from the CICS environment.
- *zSecure Visual Client Manual*
  Explains how to set up and use the IBM Security zSecure Visual Client to perform RACF administrative tasks from the Windows-based GUI.
- *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.

Program Directories

Program directories are provided with the product tapes. You can also find the latest versions of the Program Directories on IBM Documentation for IBM Security zSecure Suite.

- *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 and IBM Z Security and Compliance Center 1.1:
  - 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
  - 5655-N34: *Program Directory for IBM Z Compliance and Auditing*, GI13-5255
  - 5655-N35: *Program Directory for IBM Z Compliance, Auditing and Administration*, GI13-5257

Related documentation for zSecure Suite (z/OS)

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

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.
IBM Documentation for z/OS	Information about z/OS. Table 1 on page viii 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.
z/OS Security Server RACF publications	Information about z/OS Security Server Information about z/OS Security Server Resource Access Control Facility (RACF). For information about the RACF commands, and the implications of the various keywords, see the *z/OS Security Server RACF Command Language Reference* and the *z/OS Security Server RACF Security Administrator's Guide*. You can find information about the various types of events that are recorded by RACF in the *z/OS Security Server RACF Auditor's Guide*.
QRadar® DSM Configuration Guide	For more information about QRadar, see the IBM QRadar Security Intelligence Platform on IBM Documentation.
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 Programming: Callable Services for High Level Languages	SA23-1377
z/OS MVS System Codes	SA38-0665
z/OS MVS System Commands	SA38-0666
z/OS MVS System Management Facilities (SMF)	SA38-0667
z/OS Security Server RACF Security Administrator's Guide	SA23-2289
z/OS Security Server RACF Auditor's Guide	SA23-2290
z/OS Security Server RACF Command Language Reference	SA23-2292
z/OS Security Server RACF Macros and Interfaces	SA23-2288
z/OS Security Server RACF Messages and Codes	SA23-2291
z/OS Security Server RACF System Programmer's Guide	SA23-2287
z/OS Unicode Services User's Guide and Reference	SA38-0680
z/OS UNIX System Services Messages and Codes	SA23-2284
z/OS UNIX System Services Planning	GA32-0884
z/Architecture® Principles of Operation	SA22–7832

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 intrusion prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a regulatory compliant, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective.

Important: 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. Introduction

IBM Security zSecure Alert is a real-time monitor for z/OS systems protected with the Security Server (RACF) or CA-ACF2. zSecure Alert issues alerts for important events relevant to the security of the system at the time they occur. It is part of the IBM Security zSecure suite and builds on functionality developed for zSecure Audit. This chapter explains the functionality of zSecure Alert in terms of its relationship to basic z/OS components and other auditing, automation, and monitoring software.

The main audit log of a z/OS system is the System Management Facilities (SMF) log. This log records events for Data Facility Storage Management Subsystem (DFSMS) (for example, opening a data set), z/OS UNIX System Services, network functions (VTAM®, TCP/IP), RMF (performance data), JES2 (job activity, TSO sessions, started task activity, SYSIN/SYSOUT/NJE processing), the external security manager (RACF, ACF2, TSS), and other applications. Data can be extracted by post-processing the SMF log for many different purposes. Commercial software is available for various purposes including accounting and billing based on resource use, performance analysis, capacity management, and monitoring security. zSecure Audit analyzes z/OS system security for RACF or ACF2 systems, using the SMF log as primary information for the event audit reports.

The traditional post-processing of SMF records has one major drawback: the time elapsed between the event and the post-processing can often be up to a day. While this drawback can be acceptable for billing and capacity management, it can pose a problem for security. If a real intrusion attempt is going on, you must respond to it right away. zSecure Alert is designed to do this job. You can deactivate part of your application or network, or collect data on the location and identity of the intruder while the trail is hot. You also know when a global security setting is changed to turn off logging for certain events to SMF.

zSecure Alert is active in your system, capturing SMF data before it is written to the SMF log. It can notify you in seconds to minutes about suspicious events. In addition, zSecure Alert also captures WTOs so that you can, for example, be notified the instant the SMF log becomes full. Notifications can be sent in the following forms:

- As an email
- As a text message to your pager or cell phone through an e-mail-based relay
- As a WTO, which can be used to trigger your automated operations package
- As an SNMP trap, which can be picked up by, for example, IBM Z NetView or your network console
- To a QRadar Unix syslog receiver
- To an ArcSight Unix syslog receiver

zSecure Alert also reports on changes in a system using Extended Monitoring alerts. Unlike the event-based alerts triggered by SMF and WTO events, Extended Monitoring alerts are status-based. They are triggered by changes in the status of the system and security settings. These types of alerts are based on comparing a snapshot of the current system and security settings to a snapshot of previous system and security settings. The snapshots are taken at regular, user-specified intervals. The data is compared each time a new snapshot is taken. Whenever something significant changes, an alert can be generated. This alert type can notify you of changes that occur in the system, even when those changes do not generate an SMF or WTO event.

zSecure Alert consists of two components:

- A long-living address space (a started task) that does the actual capturing, correlation, and alert generation.
- An ISPF interface that you can use to specify which events are to be reported, and in what format.

zSecure Alert comes with a set of predefined alerts described in Chapter 3, “Predefined alerts,” on page 43. You can also specify your own alerts. For information about the full power of the CARLa Auditing and Reporting Language (CARLa) and its great flexibility in selecting events and applying thresholds, see the *User Reference Manual* for your zSecure product and the *IBM Security zSecure: CARLa Command*

Reference. You can also use CARLa to customize alerts by including installation-specific data such as user data or parts of the installation data held in the security database, and key-based lookups in general.

The following graph presents the zSecure Alert architecture.

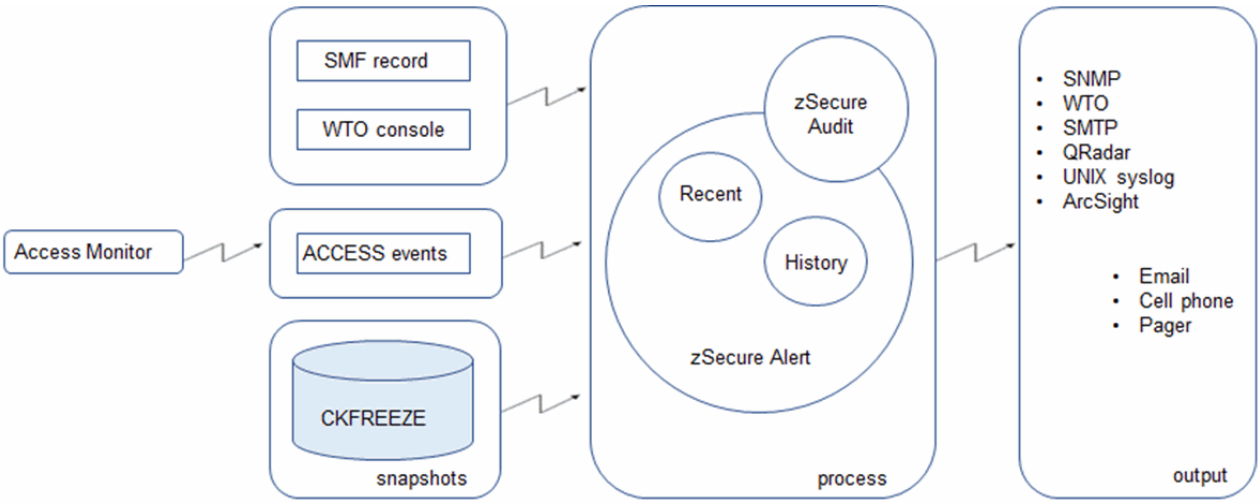

Figure 1. zSecure Alert architecture

Although zSecure Alert can be configured, maintained, and activated by using the ISPF interface, batch jobs are available to execute select tasks. See Chapter 4, “Maintenance and reporting,” on page 129.

Chapter 2. zSecure Alert configuration

This chapter describes the zSecure Alert configuration process. It explains the various steps to select, configure, and activate zSecure Alert in detail.

The ISPF user interface used during the zSecure Alert configuration process has its own configuration. This IBM Security zSecure configuration must be completed and selected as described in the post-installation tasks section in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

For information about zSecure Alert address space operations, see the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

Overview

In the configuration process, you must specify the settings that are unique to your installation. You must specify alert conditions, the destination where you want to deliver the resulting alerts, and the alert format. You can find all this information in the Alert Configuration.

If you want to work on a configuration without immediately impacting the production environment, you can create multiple Alert Configurations. By doing so, you can easily have different configurations for multiple environments or different z/OS images. In each z/OS image, only one configuration can be active at a time. In a full sysplex environment, sometimes known as a PlatinumPlex, you can use the same Alert Configuration on all z/OS images. In partial sysplex implementations, sometimes called BronzePlex or GoldPlex, you can use a different Alert Configuration for each z/OS image. After completing the Alert Configuration, you can activate the configuration.

The Alert Configuration contains two types of information.

- General settings that are required for the started task, such as the number and size of the data buffers.
- A specification of which alert conditions you want to monitor, and how the resulting alerts can be delivered.

Because zSecure Alert provides many predefined Alert Conditions, these Alert Conditions are grouped into Alert Categories. Because the alert conditions are grouped, you can configure multiple alert conditions at the same time. The following sections explain how to set options for an entire category or for individual alerts.

Aside from the Alert Configurations, you can also create an *email Destination*. An Email Destination refers to a data set that contains email addresses. The Email Destination specifies how to interpret the data and locate the email addresses you want. Alert Configurations use several of the created Email Destinations to specify where alerts can be sent.

Note: Text messages to mobile phones are also sent by email, and thus require an email address.

Figure 2 on page 4 provides an overview of the configuration of zSecure Alert. The zSecure Alert Configuration data set contains multiple Alert Configurations and zero or more Email Destination definitions. Each configuration and destination has a unique name.

Note: The names of the Alert Configurations and Email Destinations can be unrelated. However, to make it easier to identify Alert Configurations and Email Destinations, create names that are short mnemonics that reflect their intended use.

In the example in Figure 2 on page 4, the Alert Configuration `ProdA` has default Email Destination TEST. Several Alert Categories and individual Alert Conditions have overriding Email Destinations. Each Email Destination defines which parts of the associated data sets contain the desired email addresses. The email address data sets are physically separate from the zSecure Alert Configuration data set.

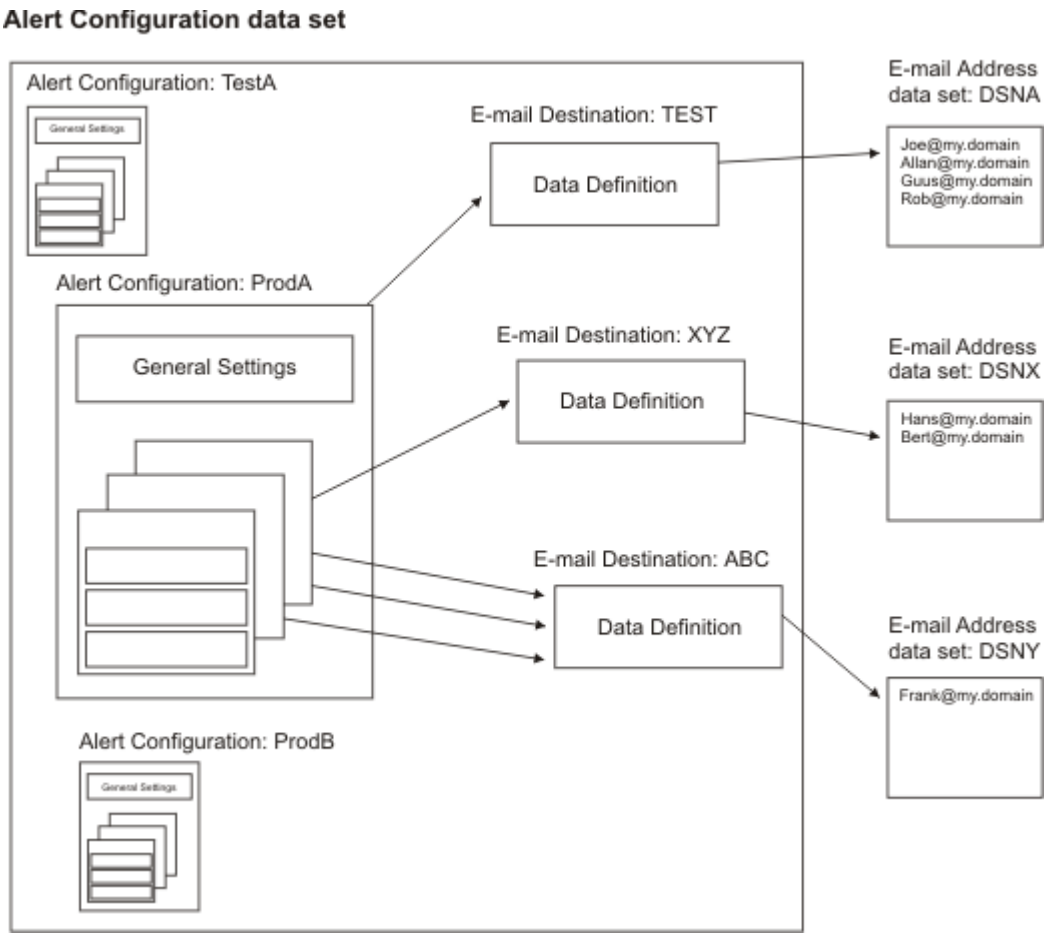

Figure 2. Alert Configuration data set

Alerts can be sent to various destinations. zSecure Alert currently supports the following destination types:

- Email
- Text message
- WTO
- SNMP trap
- QRadar Unix syslog
- ArcSight CEF

The alert format is specified per destination type:

- The alerts provided with the product have a common email layout that is described in "Standard email layout" on page 48.
- The text message format is a shortened version of the email format for use with an e-mail-to-text-message gateway. It is displayed on a cell phone or pager.
- The WTO format is documented in the *zSecure Messages Guide*.
- The SNMP trap format is explained in Appendix A, "SNMP output," on page 143.
- For the QRadar Unix syslog layout, see "QRadar Unix syslog layout" on page 41.
- For the ArcSight CEF layout, see "ArcSight CEF layout" on page 42.

For more information about the supplied IBM-alerts, see Chapter 3, "Predefined alerts," on page 43. When you add your own alerts, you can tailor the various formats to suit your needs. See "Installation-defined alerts" on page 28. For questions about configuring text messaging, contact IBM Software Support.

Alert activation guidelines

An important step in configuring zSecure Alert is deciding which alert conditions to monitor and whether you want specific destinations for the alerts. For example, activating all alerts might cause the designated recipients to be flooded with emails. You can monitor only the most relevant alert conditions first, and see how much attention they demand.

To assist you in selecting alert conditions, zSecure classifies all predefined alerts. See Table 5 on page 43.

- Class 1 contains the Alert Conditions that are most likely to be active for a basic or Low level of vigilance.
- Class 2 contains likely candidates to add for reaching a Medium level of vigilance.
- Class 3 contains Alert Conditions that you must activate if you want a High level of vigilance.

This classification is just a global guideline. To activate the alerts to reach a certain level of vigilance mainly depends on your security policy and the attacks you want to guard against. Monitoring possible abuse of authorization has other requirements than detecting an intrusion attempt or being alerted to a denial of service attack.

For example, alert 1301 is triggered when a started task gets its user ID from a catchall profile in the STARTED class on a RACF system. Alert 2301 is triggered when a started task uses the default logon ID as specified by the GSO OPTS setting DFTSTC on an ACF2 system. Your security policy might forbid this action; in that case you can monitor it. You might, in fact, have an administrative policy in place to minimize effort in administering started tasks. In this case, activating the alert would be distracting and your vigilance level would deteriorate.

You can also configure Extended Monitoring alerts. Extended Monitoring alerts are based on the detection of changes in the system. They are useful for those types of changes that are not accompanied by an SMF or WTO event record. For example, in-storage updates to certain z/OS control blocks can be detected by an appropriate Extended Monitoring alert. Such a change need not be detected by SMF-based or WTO-based alerts. Extended Monitoring alerts only detect that something has changed. They do not provide details about who made the change and how the change was made.

Note: Before Extended Monitoring Alerts can be activated, the person who installs and configures zSecure Alert must perform some configuration tasks. For more information about the configuration tasks, see the zSecure Alert Post-installation tasks section in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

During the implementation phase, consider writing specific alerts to a file instead of sending them. This practice decreases the number of alert messages that are being generated and reduces the chance that the recipient might decide to ignore all of the messages. For more information about writing alerts to a file, see “Alert configuration: manage alert configurations (SE.A.A)” on page 9.

Configuration guidelines and performance implications

zSecure Alert processing consists of several parts. The parameters specified at startup influence the overall performance of zSecure Alert and its impact on other users. The parameters that are specified in the general settings of each Alert Configuration are the *intervals*, the *buffer size*, and the *number of buffers*.

Intervals

There are several relevant intervals:

- The reporting interval for performing data analysis and generating alerts.
- The preprocessing subtask (also known as stage-1) interval for reassessing the environment.
- The "average" interval for "moving window" analysis.

By default, data analysis is done every 60 seconds. This interval can be increased if you do not need almost real-time alert messages. If you need a faster response, you can reduce the interval time.

Note: For each reporting interval, a new buffer is used so that this ties in with the buffer considerations explained in “Buffers” on page 6.

The preprocessing subtask (also known as stage-1) obtains current information about the system environment and user attributes. This task is carried out hourly by default. If you require more current information, you must process the security database and the CKFREEZE file more frequently. While processing the security database is relatively quick, obtaining a new I/O configuration image is a costly process. zSecure Collect is typically scheduled to run once a day at a particular time to refresh the full CKFREEZE file. However, it is also possible to have zSecure Alert dispatch this task by using the operator command MODIFY C2POLICE,COLLECT. At the preprocessing interval, zSecure Alert can also create a small CKFREEZE snapshot of a subset of the system environment. This small CKFREEZE snapshot is taken and processed only if extended monitoring is active. The small CKFREEZE is not intended for any other process.

As part of SMF processing, the CKRCARLA program retains certain SMF data to complete other SMF records that lack this data. An example of such SMF data is the user ID for SMF record type 15. By default, the refresh of the environment information involves stopping and starting the CKRCARLA subtask. As a result, the retained information is lost, and must be re-established. This often results in the fields being reported as "missing". It is possible to retain the information for a longer period through specification of the REFRESHMODE(INTERNAL) option. The necessary SMF information will be retained until the C2POLICE started task is restarted or stopped.

Some "averaging" alerts with thresholds might use a time window larger than the reporting interval. For these alerts, SMF records are kept in history buffers for five times the reporting interval, for example. This long-term analysis interval can be adjusted as well, depending on your reporting needs.

Buffers

Another important consideration for the configuration of zSecure Alert is the in-memory buffer usage. The buffer space used by zSecure Alert is regular pageable storage in the private area of the zSecure Alert started task address space. It is similar in all aspects to the working storage of a TSO user editing a data set. As a guideline for calculating the buffer size, you can perform the following steps.

Note: The numbers given in the steps are for illustration purposes only and must not be used as a starting point for your system.

1. Look at the output of your SMF dump program. Summarize the number of RACF SMF records (Record type 80) or ACF2 SMF records, and Accounting SMF records (Record type 30) written per day.

   For instance, on a small system, during an average day, the MAN data sets are switched and dumped five times. The output of the IFASMFDP program shows the following numbers of RACF or ACF2 SMF records: 50,000 32,000 69,000 49,000 and 27,000. The total number of RACF or ACF2 SMF records written during that average day is 227,000. The number of SMF 30 Records were: 19000 15000 31000 23000 and 17000. The total number of SMF 30 records during the day is 105,000.
2. Assuming an alert reporting interval of 1 minute (the default), calculate the number of records per interval.

   In this example, it yields 227,000 / 1440 = 158 RACF or ACF2 records, and 105,000 / 1440 = 73 SMF-30 records per minute.
3. Look at the output of your SMF dump program for the average record length of these SMF records. It must be 250 - 300 bytes for the RACF records, 600 - 700 bytes for ACF2 records, and 1000 - 1500 bytes for the SMF-30 records.
4. Multiply the average number of records by the average record length to find the average buffer size per interval.

   In the example of the small system, it results in (158 * 274) + (73 * 1224) = 132,644 bytes.
5. To accommodate for normal fluctuations in system workload, multiply the average found by a factor of 5, and round up to the nearest "nice" number to find the best starting point for your *bufsize* parameter.

In the example, a good setting for the *bufsize* parameter is 700 KB.

After determining the minimum buffer size, the next concern is about the number of buffers required. As mentioned, the minimum number of buffers is also related to your long-term event analysis. For instance, if you want to generate an alert whenever a user generates more than 10 RACF logon violations in 10 minutes, the amount of data kept in the buffers must represent at least 10 minutes. Because one buffer is always being filled with new events and therefore not available for the averaging process, the formula becomes:

```
Numbufs > (AverageInterval / Interval) + 1
```

As a starting point, use twice the number of buffers based on the previous formula. So, assuming that you use the default values for *Interval* (60 seconds) and for *AverageInterval* (300 seconds), you end up with 2*((300/60)+1) = 12 buffers.

Additional buffers allocated through this procedure can be used as overflow buffers for periods with high system activity. Typically, such periods do not last long. The previous example calculation allows for short periods (1 minutes or 2 minutes) where three to four times the normal amount of SMF records must be captured.

In the previous examples, it is assumed that the default values for *Interval*, and *AverageInterval* are used. The main criteria for determining these parameters are the reporting requirements. For most installations, an alert response time of about 1 minute seems appropriate. It is also well in the normal response time of people to emails, or other methods of alert delivery. For the *AverageInterval*, the use of a 5-minute interval is sufficiently long to avoid excessive false alarms, It is also short enough to detect most situations for which alerts are wanted.

You can use the following values as starting values for these OPTION and REPORT parameters:

Bufsize
1024 (=1 MB) for RACF systems or 2028 (=2 MB) for ACF2 systems.

This is based on the average length of an RACF or ACF2 SMF-record, the following specified interval, and an average of 40 RACF or ACF2 SMF-records per second during periods of high activity.

NumBufs
12

This is based on the long-term threshold time-period (*AverageInterval*) and the *Interval* period. It also allows for an additional six overflow buffers.

Interval
60 Seconds

AverageInterval
300 Seconds

During initial execution of zSecure Alert, monitor the in-memory buffer usage, using the DEBUG BUFFER operator or PARMLIB command. This results in three messages at the end of each *Interval* period. The C2P0325 and C2P0326 messages indicate how much buffer space was used for SMF-records and WTO-messages. If the amount of space for the SMF-records and WTO-records for each interval adds up to around the size calculated in step 4, the buffer space is adequate and does not need any further changes. In step 5, the buffer size was specified at five times the average expected space required. So, the buffers are expected to be used for only about 20 percent. It leaves ample space for fluctuations in system activity.

Using the same numbers as used in the previous example calculation, you might expect these messages:

```
C2P0333I Buffer index is 09
C2P0325I Buffer stats: SMF(cnt,len) 00000214-00131928
C2P0326I Buffer stats: WTO(cnt,len) 00000000-00000000
```

The messages confirm that your expected record rate was about right, that is, 214 records versus the expected 231, and that the average size of the records was also in the right order of magnitude, that is, 131,928 versus the expected 132,644.

When activating buffer debug messages, zSecure Alert also generates a message whenever there is a need for an overflow buffer. See the following message example:

```
C2P0334I Extended buffer used
C2P0333I Buffer index is 02
C2P0325I Buffer stats: SMF(cnt,len) 00002728-01037650
C2P0326I Buffer stats: WTO(cnt,len) 00000000-00000000
C2P0333I Buffer index is 03
C2P0325I Buffer stats: SMF(cnt,len) 00000814-00307855
C2P0326I Buffer stats: WTO(cnt,len) 00000000-00000000
```

These messages are issued in addition to the regular buffer usage messages. The indicated buffer '02' is the previous buffer that was overflowing into the subsequent buffer ('03'), which is shown in the regular C2P0325 and C2P0326 messages that follow. If the C2P0334 message is only issued a few times per day, the buffer size is adequate and does not need any further changes. During normal processing, a few C2P0334 messages are expected and their presence does not indicate any buffer shortage or problem.

Using the steps previously outlined, you can select a minimum buffer size and number of buffers that fits your needs, without using excessive system resources. The method starts with small buffers that can be increased when needed. An alternative approach is to start with many large buffers, and monitoring the buffer statistics messages. After a few tests, you can decide by which amount the buffer size can be reduced.

When allocating buffers, you must also consider the amount of virtual storage specified in the zSecure Alert started task JCL. The region parameter in the JCL must be at least 64 MB larger than the total buffer space specified by *bufsize* and *numbufs*.

Configuring zSecure Alert

The zSecure Alert configuration process involves several steps, which are performed from the option **SE.A** on the zSecure Admin and Audit menu. If you select this option, you can see the following panel:

```
  Menu  Options  Info  Commands  Setup         StartPanel
------------------------------------------------------------------------------
                        zSecure Suite - Setup Alert
Option ===> ____________________________________________________________

A    Alert           Select and customize alerts
E    E-mail          Configure e-mail address lists
P    PCI             Configure PCI data sets, userids, and groups
S    Sensitive       Configure sensitive resources, userids, and groups
```

Figure 3. zSecure Suite: Setup Alert panel for configuring zSecure Alert

The zSecure Alert configuration application provides the following options.

- Use **Alert** to configure Alert Conditions and destination of the resulting alerts.
- Use **Email** to define how to obtain email addresses from external data sets, to avoid using hardcoded email addresses in the Alert Configuration.
- Use **PCI** to define PCI PAN and PCI AUTH data sets and privileged users and groups who may access these data sets.
- Use **Sensitive** to define sensitive resources and privileged users and groups who may access these resources.

To configure zSecure Alert, perform the following steps:

1. Optional:, Use option SE.A.E to define at least one Email Destination for use in the Alert Configuration to avoid hardcoded email address specifications. See note 1.
2. Optional: Use option SE.A.P to define PCI PAN and PCI AUTH data sets and privileged users and groups who are authorized to access these data sets for RACF alerts 1209, 1210, and 1211, and for ACF2 alerts 2209, 2210, and 2211.

3. Optional: Use option SE.A.S to define sensitive resources and privileged users and groups who are authorized to access these resources for RACF alerts 1204, 1212 and 1213, and for ACF2 alerts 2204, 2212 and 2213.
4. Use option SE.A.A to copy the default Alert Configuration (C2PDFL), which is provided as part of the shipped product. See note 2.
5. Edit the General Settings.
6. Specify the Alert Destinations on the Alert Configuration level.
7. Select which Alert Conditions you want to monitor. During this process, you can override Destinations on the alert category level or on the individual alert level.
8. Verify the Alert Configuration. See note 3.
9. Refresh or Activate the Alert Configuration. See note 3.

Note:

1. After completing step "1" on page 8, you can use the Email Destination in the other steps. However, if you are a first time user, you can skip step "1" on page 8. In that case, you cannot use Email Destinations, but you can still hardcode an email address in the Alert Configuration. In this way, you can gain experience with alert monitoring and creation. At a later stage during the zSecure Alert implementation, you can revisit the configuration process. At that time you can add the necessary Email Destinations and change the Alert Configuration to use them.
2. Step "4" on page 9 is included because the default Alert Configuration is intended to be used as a template for your own configuration. For this reason also, not all adaptations are used with the default configuration. A side effect of using the Copy command to create an Alert Configuration is that the configuration application takes you automatically to all the required configuration steps. That way, you do not need to track the steps, but complete the necessary fields.
3. Steps "8" on page 9 and "9" on page 9 are both required to make the updated Alert Configuration available for the zSecure Alert address space. In some cases, it is necessary to rerun these transactions. These cases include:
   - If you have been running, for a time, with a higher release of the ISPF interface, and need to perform a fallback, see the section about backing out an upgrade in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.
   - In some cases, maintenance was applied to specific components of IBM Security zSecure. If so, the installer of the maintenance must notify you.

The following sections describe how to perform the tasks, set up email destinations for easier maintenance, and add your own alert definitions.

Alert configuration: manage alert configurations (SE.A.A)

To manage Alert configurations, use option **SE.A.A (Alert)**. An Alert configuration specifies which alert conditions you want to monitor, and where and how the alerts must be sent. It also contains general parameters that are required for the zSecure Alert started task. Only one Alert configuration can be active at a time on a z/OS image. After setting the alert conditions, destinations, and parameters, you must verify the Alert configuration. The verification process ensures that the configuration is consistent and does not contain errors that prevent it from being used. The Alert configurations that have been verified can be made active.

Note: Changes made to the alert configuration are not permanently saved until you leave option **SE.A.A**.

When you select option **SE.A.A (Alert)**, the following panel is displayed:

```
   Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
                        zSecure Suite - Setup - Alert     Row 1 from 2
 Command ===> _________________________________________________          Scroll ===> CSR

Managing alert configurations
Line commands are available depending on the configuration stage: C(opy),
D(elete), I(nsert), E(dit), W(Who/Where), S(elect), V(erify), F(Refresh),
B(rowse)

-------------------------------------------------------------------- Configuration steps ---
    Name      Description                                           Set Des Sel Ver Ref  Act
_   C2PDFL    zSecure Alert default alert configurati               Req Req Req Req Req  _
------------------------------------------------------------------------------------------
_   PRODA1    Alert config for production image A1                  Req Req Req Req Req  _
------------------------------------------------------------------------------------------
 ******************************* Bottom of data ********************************
```

Figure 4. Setup Alert panel: Configuring zSecure Alert

This panel provides an overview of the existing Alert configurations and shows how far configuration has proceeded. The Configuration steps show OK if a step has completed or Req if the Alert configuration requires that particular step. The Act column can show an indication that the configuration is currently active on this system. In the screen display, you must perform all configuration steps. The panel shows the following fields:

Name
The name of the Alert configuration. The Alert configuration name must be unique and has a maximum length of six characters. Alert configuration names with prefix C2P are reserved for IBM Security zSecure use. Several PDS/E members prefixed with this name are created by the Verify (**V**) and Refresh (**F**) line commands. For more information about the members generated during these steps, see “Alert configuration: verify alert configuration” on page 22.

Description
A description for the Alert configuration.

Configuration steps
This group of fields indicates the steps required to complete the configuration and the order of these steps. The corresponding line commands are available only when the previous step has been completed. Initially a step is indicated as **Req**. After it is successfully completed, it shows **OK**. Perform the following steps:

1. **Set:** Specify the zSecure Alert parameters. The corresponding line command is **E**; that is, Edit general Alert configuration settings.
2. **Des:** Set the default Alert destination for all selected Alert conditions in this Alert configuration. Destinations can be email addresses, text message/cell phone receivers, SNMP addresses, WTO messages, QRadar Unix syslog, and ArcSight CEF. The corresponding line command is **W**; that is, Specify Who can receive alerts or Where alerts must be sent.
3. **Sel:** Select which Alert conditions you want to monitor, and optionally specify Alert destinations on the alert category or individual alert level. You can also specify your own Alert conditions. The corresponding line command is **S**; that is, Specify alerts and their destinations for this Alert configuration.
4. **Ver:** After finishing all previous steps, you must verify the Alert configuration for errors. The corresponding line command is **V**; that is, Verify Alert configuration.
5. **Ref:** After successful verification, you can decide to put the verified Alert configuration in production. The Refresh command copies several PDS/E members over the existing production members. In addition, a refresh command is issued to the possibly active zSecure Alert address space in this system. This command causes the system to read its configuration members again. The corresponding line command is **F**; that is, Refresh production members.

   Note: The PARMLIB DD-statement in the started task JCL must point to your configuration data set and this alert configuration.

6. **Act:** A Yes in this column indicates that this Alert Configuration is the active configuration on this z/OS image. The converse is not necessarily true, because you might not have sufficient authority to issue the z/OS MODIFY command required to retrieve this information (see "Authorization problems" on page 140). If the name of the active started task does not match the name specified in this Alert configuration, the **Act** column is blank.

The Alert configuration overview panel provides all Alert configuration management functions. The following table describes the line commands that are available. Some line commands are available only after the earlier configuration steps have been completed. Enter a forward slash (/) to see the currently allowed line commands.

Table 2. Alert Configuration Management line commands

C	Copy the Alert Configuration. This action can display the general settings panel with all fields. These fields are copied from the selected Alert configuration, except for the Name field, which must be unique for each Alert configuration.
I	Insert a new Alert configuration. This action displays the general settings panel with all fields blank. When all required fields have been entered, the new Alert configuration is added.
B	Browse the general settings for this Alert configuration.
E	Edit general settings for this Alert configuration. The corresponding configuration step is **Set**.
D	Delete the selected Alert configuration.
W	Set the Alert destinations on the Alert configuration level. Destinations can be email addresses, text message/cell phone destinations, SNMP addresses, WTO messages, QRadar Unix syslog, and ArcSight CEF. The corresponding configuration step is **Des**.
S	Select which Alert conditions you want to monitor, and optionally specify Alert destinations on the alert category or individual alert level. It is also possible to create your own Alert conditions. The corresponding configuration step is **Sel**.
V	Verify the Alert configuration for errors. The corresponding configuration step is **Ver**.
F	Refresh production members. The verified members are copied to production members. If the address space is active on this system, a command is issued to reprocess its production members. This is effective only if the started task JCL uses this Alert configuration. The corresponding configuration step is **Ref**.

Alert configuration: specify general settings

The General Settings panel is displayed when you use the **E**(Edit), **C**(Copy) or **I**(Insert) line command on the Alert Configuration overview panel. The main difference between the three actions is the amount of information already present in the panel.

- When you Edit, all current information for the selected configuration is shown.
- When you Copy, all information except the Name is taken from the copied configuration.
- When you Insert, only default settings are entered. You must provide the additional information to make the configuration a valid one.

The following screen shows the panel image that you see when using the Copy command to copy the default Alert configuration (C2PDFL).

```
  Menu          Options          Info          Commands          Setup
-------------------------------------------------------------------------------
                        zSecure Suite - Setup - Alert
Command ===> ____________________________________________________________

Name  . . . . . . . . . AHJB__                    (also report member)
Description . . . . . . zSecure Alert default alert configuration

You might need to scroll forward/backward to view all parameters

SMTP node . . . . . . . ________
SMTP sysout . . . . . . B
SMTP writer . . . . . . SMTP____
SMTP atsign . . . . . . @

Interval  . . . . . . . 60__                      (in seconds)
Environment refresh . . 60__                      (in minutes)
Use internal refresh    Y                         (Y/N,blank)
WLM serviceclass SYSSTC                           (Y/N/blank)
Average . . . . . . . . 300                       (in seconds)
Buffer size . . . . . . 1024   KB                 (in KB/MB)
Number of buffers . . . 10
TCP keepalive interval  60__                      (in seconds)
TCP connect when needed Y                         (Y/N/blank)

RACF database . . . . . BACKUP_                   (PRIMARY or BACKUP)
Collect started task    C2PCOLL_
CKFREEZE data set . . . CRMA.T.DATA.SP390.C2POLICE.CKFREEZE_____
CKFREEZE Collect time   0100                      (Time of day in hhmm)
Collect stagger time    0030                      (Time offset in hhmm)

Extended Monitoring . . y                         (Y/N)
Snapshot retention  . . 12                        (Number of hours, 2-99)

_  Suppress copy of UNIX syslog message in SYSPRRPT


Enter / to view/edit the global CARLa skeleton
_  Skeleton            C2PSGLOB
```

Figure 5. Setup Alert panel: Copying the default Alert Configuration

You must provide the relevant information in this panel. After you complete the fields, you can use the END key (PF3) to save these settings. If you used the Copy or Insert line command to reach this panel, pressing END automatically takes you to the next step in the configuration process. Otherwise, you can return to the Alert Configuration overview panel.

Note: Before you use this panel, see “Configuration guidelines and performance implications” on page 5.

The General Settings panel has the following fields:

Name
The name of the Alert configuration. This field is required. See Name.

Description
A description for the Alert configuration. This field is required.

SMTP node
Specifies the JES destination to which email is routed for final processing. If the SMTP server is running on your local system, this value can be set to blanks.

The initial value is taken from SETUP OUTPUT; this option is part of the zSecure interface. When the SMTP options of SETUP OUTPUT are not configured, the SMTPNODE value in the REXX SMTPNOTE is used. When the REXX SMTPNOTE is not found or not configured, the SMTP node value is left blank.

SMTP sysout
Specifies the JES output class that is to be used for the SMTP output processing. This value is required.

The initial value for sysout class is taken from SETUP OUTPUT; this option is part of the zSecure interface. When the SMTP options of SETUP OUTPUT are not configured, the initial value B is used.

SMTP writer
Specifies a name for use in SMTP when selecting an email SYSOUT data set. The external writer name is equal to the SMTP address space name. This value is required.

The initial value is taken from SETUP OUTPUT; this option is part of the zSecure interface. When the SMTP options of SETUP OUTPUT are not configured, the SMTPJOB value in the REXX SMTPNOTE is used. When the REXX SMTPNOTE is not found or not configured, the SMTP writer value is set to SMTP.

SMTP atsign
Specifies the single character that SMTP uses instead of @ from the default codepage 1047 (hex value X'7C') to indicate the start of the domain of an email address. The value must match the ATSIGN option of the SMTP or CSSMTP server. This value is required.

The initial value is taken from SETUP OUTPUT; this option is part of the zSecure interface. When the SMTP options of SETUP OUTPUT are not configured, the ATSIGN value in the REXX SMTPNOTE is used. When the REXX SMTPNOTE is not found, not configured, or is missing the ATSIGN value, the initial atsign value is set to @ in code page 1047.

When both your terminal emulator and the SMTP server have been setup for your language, this value should be shown as @.

Interval
Specifies the reporting interval. At each interval, zSecure Alert analyzes the collected WTO and SMF records and generates alert messages. The interval also defines the frequency with which messages can be sent. A recipient gets a message for every alert subscribed, if it was triggered one or more times during the interval. The default is 60 seconds.

Interval corresponds to the REPORT option INTERVAL. See the description of the **Interval** field in the REPORT command section of the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

Environment refresh
Specifies the interval at which zSecure Alert generates the environment-dependent selection criteria (that is, analyze the RACF database and CKFREEZE file, and refresh alert definitions based on current RACF database content). The default is 60 minutes.

Environment refresh corresponds to the REPORT option STAGE1INTERVAL. See the description of the **PreProcessInterval or Stage1Interval** field in the REPORT command section of the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

Use internal refresh
Select this option to use an internal restart of CKRCARLA to refresh environment information while retaining job information. Using this option enables completion of SMF records with additional data from other SMF records for a longer period of time. If this option is not selected, completion of job data is available only if those other SMF records are written during the current environment refresh interval.

Use of this option requires additional storage to retain job information. Ensure that sufficient storage above the 2GB boundary is available; one gigabyte of storage is sufficient to retain data for approximately 8 million jobs.

WLM serviceclass SYSSTC
Specify whether or not the Alert started task is to change its service class back to SYSSTC when WLM assigns another service class.

Average
Specifies the time period in seconds over which zSecure Alert averages the occurrence of certain events for *moving window* analysis. The default is 300; that is, 5 minutes. See the description of the **Number of buffers** field for the relation between **Average**, **Interval**, and **Number of buffers**.

Average corresponds to the REPORT option AVERAGEINTERVAL. See the description of the **AverageInterval** field in the REPORT command section of the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

Buffer size
Specifies in either kilobytes or megabytes the size of each of the in-memory buffers used for storing WTO and SMF records during the interval period. You can specify 1 - 16384 kilobytes or 1 - 1024 megabytes. The default is 1024.

If a buffer proves to be too small during an interval, zSecure Alert attempts to switch to an unused buffer. If no free buffer is available, the buffer with the oldest information is overlaid with current information. If the size and number of buffers is insufficient, data-loss error messages are logged.

Buffer size corresponds to the OPTION BUFSIZE or BUFSIZEMB. See the description of the **Bufsize** and **BufsizeMB** fields in the OPTION command section of the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

Number of buffers
Specifies the number of buffers allocated. The number must be 2 - 32. The number must be sufficient to contain Average / Interval + 1 buffers. To cope with peaks in the event arrival rate, extra buffers beyond the minimum must be allocated. The extra buffers can be used in event of a buffer overflow.

Number of buffers corresponds to the OPTION NUMBUFS. See the description of the **Numbufs** field in the OPTION command section of the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

TCP keepalive interval
Specifies the TCP keepalive interval in seconds. The value of the interval specifies for how long a connection is sustained before dropping. For example a value of 240 indicates a four minute interval of TCP keep-alive messages. Blank or 0 means no keepalive interval.

TCP connect when needed
Specifies that TCP destinations, given as destination for *QRadar Unix syslog* or *Archsight CEF via syslog* are contacted only if and when an alert for that destination is generated. This option is useful for syslog receivers that terminate connections if no alerts arrive during a certain period.

- If you specifiy N or leave the field blank, zSecure Alert immediately tries to connect during startup, and tries to reconnect immediately if the connection is terminated or dropped.
- If you enter the value Y, TCP connections are set up only when alerts must be transferred. Specifying Y for this option causes a SUPPRESS IDLE_TCP_CONNECT statement in the CARLa stream. For more information, see the SUPPRESS statement in the *zSecure CARLa Command Reference*.

Security database
Specifies whether the PRIMARY or BACKUP security database is used to generate the environment-dependent selection criteria. Use of the PRIMARY database might be needed if you create your own alerts that use certain statistical information like the time of last user access. In all other cases, use of the BACKUP database has the least impact on other system components and provides all information used by the predefined alerts.

Collect started task
Specifies the name of the started task that is started by the zSecure Alert address space at **CKFREEZE Collect time**. This started task calls program CKFCOLL to collect environmental data.

Collect started task corresponds to the OPTION COLLECTSTCNAME. See the description of the **CollectSTCName** field in the OPTION command section of the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

CKFREEZE data set
Specifies the name of the CKFREEZE data set containing environmental data.

Note: zSecure Alert does not enforce that the data set name you specify here matches the one that is specified in the **Collect started task** JCL. In that case, the name you specify here is only used during Verify processing of the Alert Configuration. If this data set is specified in the **Collect started task**, it is refreshed daily at **CKFREEZE Collect time**.

CKFREEZE Collect time
Specifies the time of day at which the Collect started task must be started. The value 0000 is used to signify that the zSecure Collect for z/OS started task must not be started at all. The collect start time can be offset using a system-specific period through the **Collect stagger time**.

CKFREEZE Collect time corresponds to the first parameter on the OPTION COLLECTTIME. See the description of the CollectTime keyword in the OPTION command section of the *zSecure CARLa-Driven Components Installation and Deployment Guide*.

Collect stagger time
The **Collect stagger time** is used to determine an extra system-dependent offset to the **CKFREEZE Collect time**. The specified stagger time is multiplied by the index of the current system in the sysplex to determine the system-dependent offset. The field can be left empty to use the default, which is no system dependent offset to the collect start time.

Collect stagger time corresponds to the second parameter on the OPTION COLLECTTIME. See the description of the CollectTime keyword in the OPTION command section of the *zSecure CARLa-Driven Components Installation and Deployment Guide*.

Extended Monitoring
This field determines whether the Extended Monitoring process is active. If you specify YES, Extended Monitoring is activated. It results in a system snapshot being taken and written to a CKFREEZE data set at the interval specified in the **Environment refresh** field. This option is effective only if Extended Monitoring alerts are selected. If no Extended Monitoring alerts are selected, a warning message is issued during the verification process.

Snapshot retention
Specifies the retention period for the Extended Monitoring snapshot data sets. Snapshot data sets older than the specified period are automatically deleted. The retention period is specified in hours. The value must be in the range 2 through 99, inclusive. The default value is 24 hours. The main reason to retain snapshot data sets is that you can analyze the details for generated alerts.

Suppress copy of UNIX syslog message in SYSPRRPT
When selected, messages that are sent to the Unix syslog will not also be copied into the SYSPRRPT output. It affects messages for both QRadar Unix syslog and ArcSight CEF.

Skeleton
This member contains the global CARLa statements, such as `ALLOCATE`, `DEFTYPE`, and `DEFINE` statements. You need this option if you defined your own Alert conditions. See "Installation-defined alerts" on page 28. Normally, however, you use the provided C2PSGLOB member.

Alert configuration: specify alert destinations

You can select the Alert Destination panel from the **W** (Who/Where) line command on either the Alert Configuration overview panel or one of the alert selection panels. In this panel, you can specify where you want alerts to be sent. Using the **W** line command, you can specify Alert destinations separately for each of the following alert types:

- An Alert configuration
- An Alert category
- An individual alert

This panel can be shown automatically if you use the Copy or Insert function on the Alert Configuration overview panel. It is shown after you complete the General Settings from END, or PF3.

You can have alert messages sent to multiple destination types by selecting more than one destination type on this panel. Each destination type can have its own destinations.

When all destination types are selected, the panel displayed looks like the following screen:

```
  Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
                        zSecure Suite - Setup - Alert
Command ===> ____________________________________________________________

You can scroll forward/backward to view all recipient types
Select the destination for alert configuration C2PDFL
/  E-mail
   _  Redirect e-mails to C2RSMTP DD

   Specify e-mail recipient(s)
   From . . . . . . . &jobname at &system <mbox@domain>_____________

   Mail to  . . . . . _____________________________________________________
   (You may specify : to receive a list of defined recipients :setname.fields)

   CC . . . . . . . . _____________________________________________________
   BCC  . . . . . . . _____________________________________________________
   Reply to . . . . . _____________________________________________________
   Output format  . . 1  1. Normal (MIME/HTML)
                         2. Plain text (formatting may be lost)
       Font size  . . . . _  (number in range 1-7)

/  Text message to cell phone
   _  Redirect text messages to C2RSMTP DD

   Specify text message/cell phone recipient
   From . . . . . . . &jobname at &system <mbox@domain>_____________

   Phone@gateway  . . _____________________________________________________
   (You may specify : to receive a list of defined recipients :setname.fields)

   Reply to . . . . . _____________________________________________________

/  SNMP
   _  Redirect SNMP traps to C2RSNMP DD

   Specify SNMP receiver address(es)
   Destination (UDP)   ____________________________________________________

/  QRadar Unix syslog
   _  Redirect messages to C2RSYSLG DD

   Specify QRadar Unix syslog receiver address(es)
   Destination (UDP)  _____________________________________________________
   Destination (TCP)  _____________________________________________________

/  ArcSight CEF via syslog
   _  Redirect messages to C2RSYSLG DD

   Specify CEF receiver address(es)
   Destination (UDP)  _____________________________________________________
   Destination (TCP)  _____________________________________________________

/  WTO
   _  Redirect WTOs to C2RWTO DD

_  Reset all existing destination settings for this Alert Configuration
```

Figure 6. Setup Alert panel: Specifying destination types

When your screen size is 24 x 80, you must scroll down to see all fields.

The **Mail to** and **Phone@gateway** fields on this panel accept email addresses in several formats. You can specify the email addresses as:

- One or more email addresses of the form `auditor@mydomain.com` separated by commas (,).
- If the email addresses are contained in a data set and the data set has no other data in it, not even line numbers, you can use ***//data_set_name***.
- If you have defined an email destination, you can refer to it using

```
:destination-name.field-name
```

If you do not know the names of your email destinations, or the field names that you have used, use a single colon (:) to request information. A panel is displayed with a selection list of the defined email destinations and their defined fields.

The following fields are displayed in the **Email** section:

Email
Send the alert as email.

Write emails to C2RSMTP DD
When both this field and **email** are tagged, the generated emails are not sent, but written to the C2RSMTP DD. You can use this option when you define your own alert conditions. If you are not sure how many alerts are generated, this option ensures that you are not flooding the intended recipient with alert emails.

From
The "From" email address. This address is added to the "From:" header.

You can use the variables `&jobname` and `&system`, that is, SMF system ID, as part of the phrase, but not in quotation marks. For example, use `&jobname` at `&system<`*`mbox@domain`*`>`. These variables are case-sensitive. `&SYSTEM`, `&system` and `&System` are allowed, but no other variations.

Mail to
Enter the destination email address. For information about the specification of email addresses, see the information earlier in this section about "Mail to" and "Phone" specifications.

CC
Enter email addresses, separated by commas, for those recipients that are to receive a copy of the email.

BCC
Enter email addresses, separated by commas, for those recipients that are to receive a blind carbon copy of the email. These addresses are not displayed on the recipient list.

Reply to
The address or list of addresses to be set in the email "Reply-To" header.

Output format
This option can be used to specify the method that is to be used to format the report. The supported options are:

Normal
Use MIME/HTML email with limited HTML encoding.

Plain text
No special formatting is done. This means that no MIME/HTML encoding is performed.

Font size
This sets the HTML font size used for email. The default is 1. The HTML font size is a number in the range 1 - 7. It corresponds to 8, 10, 12, 14, 18, 24, and 26 point size if the browser default font is set at 12 point. The user can change that.

The following fields are displayed in the text message section:

Text message to cell phone
Send the alert as a text message to a mobile phone or a pager.

Write text messages to C2RSMTP DD
When both this field and **Text message to cell phone** are tagged, the generated text message is not sent, but written to the C2RSMTP DD. You can use this option when you define your own alert conditions. If you are not sure how many alerts can be generated, this option ensures that you are not flooding the intended recipient with alerts.

From, Reply to
These fields are analogous to the **From** and **Reply to** fields in the email section.

Phone@gateway
The phone or text pager address as <phone number>@<gateway>. See also the field description for Mail to.

The following fields are displayed in the SNMP section:

SNMP
Send the alert as an SNMP trap. The field SNMP destination must be specified.

Write SNMP traps to C2RSNMP DD
When both this field and **SNMP** are tagged, the generated SNMP traps are not sent, but written to the C2RSNMP DD in symbolic form; that is, the `sortlist` output is written, and not the actual ASCII trap. This field is meant for testing purposes.

Addresses
When **SNMP** is selected, you must use this field to specify where SNMP traps are sent. The destination can be a name (looked up by DNS), an IP address, or a list separated by commas. Each destination can be followed by a colon and a port number in decimal form.

The following fields are displayed in the QRadar Unix syslog section:

QRadar Unix syslog
Send the alert to a Unix syslog receiver in Log Event Extended Format (LEEF); for example, IBM QRadar SIEM.

Write messages to C2RSYSLG DD
When both this field and QRadar Unix syslog are selected, the generated alert message is not sent to the QRadar Unix syslog destination but written to the C2RSYSLG DD; the same DD is used for ArcSight CEF. This field is meant for testing purposes. It affects both QRadar Unix syslog and ArcSight CEF.

Destination
When QRadar Unix syslog is selected, you must use this field to specify where alert messages are sent. zSecure Alert supports message transfer via User Datagram Protocol (UDP) and Transmission Control Protocol (TCP). UDP can result in lost messages, whereas TCP can delay processing of all alerts when the syslog receiver is extremely slow. Both options can be used simultaneously. The destination can be a name (looked up by DNS), an IP address, or a list separated by commas. Each destination can be followed by a colon and a port number in decimal form. When using a TCP/IP destination, it is also possible to postpone connecting to the destination server until alerts are generated for this destination. This is controlled by the **TCP connect when needed** setting on the general Alert Configuration panel (Figure 5 on page 12).

The following fields are displayed in the ArcSight CEF section:

ArcSight CEF
Send the alert to an ArcSight server, using Common Event Format (CEF) messages.

Write messages to C2RSYSLG DD
When both this field and ArcSight CEF are selected, the generated alert message is not sent to the ArcSight CEF destination but written to the C2RSYSLG DD; the same DD is used for QRadar Unix syslog. This field is meant for testing purposes. It affects both QRadar Unix syslog and ArcSight CEF.

Destination
When ArcSight CEF is selected, you must use this field to specify where alert messages are sent. zSecure Alert supports message transfer via User Datagram Protocol (UDP) and Transmission Control Protocol (TCP). UDP can result in lost messages, whereas TCP can delay processing of all alerts when the syslog receiver is extremely slow. Both options can be used simultaneously. The destination can be a name (looked up by DNS), an IP address, or a list separated by commas. Each destination can be followed by a colon and a port number in decimal form. When using a TCP/IP destination, it is also possible to postpone connecting to the destination server until alerts are generated for this destination. This is controlled by the **TCP connect when needed** setting on the general Alert Configuration panel (Figure 5 on page 12).

The following fields are displayed in the WTO section:

WTO
Generate a WTO for the alert.

Write WTOs to C2RWTO DD
When both this field and **WTO** are tagged, the generated WTO is not sent to the console, but written to the C2RWTO DD. This field is meant for testing purposes.

The **Reset all existing destination settings for this Alert Configuration** option resets all destination settings for the individual alerts and groups of alerts. If this option is used at the Alert Configuration level, destinations for individual alerts and categories are reset.

Alert configuration: select alert categories

You can select this panel by using the S(elect) line command on an Alert configuration.

This panel is shown automatically if you do Copy or Insert on the Alert Configuration overview panel. It is shown after you complete the Alert destination panel through END or PF3.

```
                    zSecure Suite - Setup - Alert         Row 1 to 9 of 9
Command ===> _____________________________________________ Scroll ===> CSR

Select the alert category you want to work with
The following line commands are available: W(Who/Where), S(elect)
------------------------------------------------------------------------------
    Id  Category                                  #alerts        #selected
_   1   User alerts                              20             0
_   7   Group alerts                             1              0
_   2   Data set alerts                          18             2
_   3   General resource alerts                  7              0
_   4   UNIX alerts                              11             0
_   5   RACF control alerts                      8              0
_   6   System alerts                            15             0
_   8   Application alerts                       5              0
    0   Other alerts                             1              0
****************************** Bottom of data ********************************
```

Figure 7. Setup Alert panel: Selecting Alert categories

This panel shows the available Alert categories. The following fields are displayed:

Id
The report category ID. The second position of the alert ID is used to determine the category.

Category
The zSecure Alert report category. Currently, the following categories are defined:

- User alerts
- Group alerts (only on RACF systems)
- Data set alerts
- General resource alerts
- UNIX alerts
- RACF (or ACF2) control alerts
- System alerts
- Application alerts
- Other alerts

#alerts
The number of defined alerts in this category.

#selected
The number of selected alerts in this category.

You can use the **W** (that is, Who or Where) line command to specify a destination for all alerts in this category. Destinations set on the individual alert level for alerts in this category are discarded when **Reset all existing destination settings in this category** is selected.

The **S**(elect) command displays all alerts in the category. For example, on RACF systems, the alerts display looks like the following screen:

```
  Menu         Options       Info    Commands     Setup
 ------------------------------------------------------------------------------
                        zSecure Suite - Setup - Alert       Row 1 to 19 of 19
 Command ===> _____________________________________________ Scroll ===> CSR

 User alerts
 Select the alert you want to work with.
 The following line commands are available: A(Preview), C(opy), D(elete),
 E(dit), I(nsert), W(Who/Where),S(elect), U(nselect), B(rowse)
 ------------------------------------------------------------------------------
     Alert                                          Id    Sel  gECSWUA CA EM
 _   Logon by unknown user                          1101  No   gECSWUA    N
 _   Logon with emergency userid                    1102  No   gECSWUA Y  N
 _   Logon of a userid with UID(0) (Unix superuser) 1103  No   gECSWUA    N
 _   Highly authorized user revoked for pwd violatio 1104  No   gECSWUA    N
 _   System authority granted                       1105  No   gECSWUA    N
 _   System authority removed                       1106  No   gECSWUA    N
 _   Group authority granted                        1107  No   gECSWUA    N
 _   Group authority removed                        1108  No   gECSWUA    N
 _   SPECIAL authority used by non-SPECIAL user     1109  No   gECSWUA    N
 _   non-OPERATIONS user accessed data set with OPER 1110  No   gECSWUA    N
 _   Invalid password attempts exceed limit         1111  No   gECSWUA    N
 _   Password history flushed                       1112  No   gECSWUA    N
 _   Suspect password changes                       1113  No   gECSWUA    N
 _   Connect authority>=CREATE set                  1114  No   gECSWUA    N
 _   Too many violations                            1115  No   gECSWUA Y  N
 _   Non-expiring password enabled                  1119  No   gECSWUA    N
 _   Major administrative activity                  1120  No   gECSWUA Y  N
 _   Protected status removed                       1121  No   gECSWUA    N
 _   Logon with sensitive userid (from C2PACMON)    1122  No   gECSWUA Y  N
 _   Privilege escalation detected                  1123  Yes  gECSWUA    N
 _   Logon from a not allowed IP address           1124  No   gECSWUA Y  N
 _   Password spraying attack                       1125  No   gECSWUA Y  N
******************************* Bottom of data ********************************
```

Figure 8. Setup Alert panel: Display of alerts in the selected category

On ACF2 systems, the alerts display looks like the following screen:

```
Menu         Options       Info    Commands     Setup
------------------------------------------------------------------------------
                       zSecure Audit for ACF2 - Setup - Al Row 1 to 13 of 13
Command ===> _____________________________________________ Scroll ===> CSR

User alerts
Select the alert you want to work with.
The following line commands are available: A(Preview), C(opy), D(elete),
E(dit), I(nsert), W(Who/Where),S(elect), U(nselect), B(rowse)
------------------------------------------------------------------------------
    Alert                                          Id    Sel  gECSWUA CA EM
_   Logon with emergency logonid                   2102  Yes   E      Y  N
_   Highly authorized user revoked for pwd violatio 2104  No    E      __ N
_   System authority granted                       2105  No    E      __ N
_   System authority removed                       2106  No    E      __ N
_   Invalid password attempts exceed limit         2111  No    E      __ N
_   Password history flushed                       2112  No    E      __ N
_   Suspect password changes                       2113  No    E      __ N
_   Too many violations                            2115  No    E      Y  N
_   non-SECURITY user accessed data set with SECURI 2116 No    E      __ N
_   non-NON-CNCL user accessed data set with NON-CN 2117 No    E      __ N
_   non-READALL user accessed data set with READALL 2118 No    E      __ N
_   Non-expiring password enabled                  2119  Yes  cECSWU  __ N
_   Major administrative activity                  2120  Yes  cECSWU  Y  N
_   Logon from a not allowed IP address           2124  No   gECSWUA Y  N
******************************* Bottom of data ********************************
```

Figure 9. Setup Alert panel for ACF2 systems: Display of alerts in the selected category

The following fields are displayed:

Alert
A description of the alert.

Id
A numeric ID for the alert. IBM alert IDs use range 1000-1999. The range 4000-4999 is reserved for installation defined alerts. The ID is used to generate the skeleton member name, the WTO output message number, and the SNMP trap number.

Sel
Indicates whether this alert is selected.

gECSWUA
The Destination Types for this alert as set with the **W** line command. The following values can be displayed:

E email **C** Cell phone (text message) **S** SNMP trap **W** WTO **U** QRadar Unix syslog **A** ArcSight CEF

The value can be prefixed with **g** or **c**.

g
The destination was set globally by the **W** line command on an Alert configuration.

c
A destination was set at the category level.

C
Flag indicating whether this alert allows configuration to reflect items such as installation-specific names. When the alert is selected, a panel is displayed so that configuration can be performed. See "Configuration of predefined alerts" on page 122.

A
Flag indicating whether this alert is configured to generate an action command.

EM
Flag indicating whether this alert is an Extended Monitoring alert that requires activation of Extended Monitoring in the Alert Configuration general settings panel. For more information about Extended Monitoring alerts, see Chapter 1, "Introduction," on page 1 and "Alert activation guidelines" on page 5.

The following line commands are available:

Table 3. Line commands available on the Alert list display

A	**Preview CARLa code**. This action displays the generated CARLa for this alert in ISPF BROWSE mode.
B	**Browse Alert definition**. This action displays the alert definition.
C	**Copy alert**. This action displays the alert definition panel with all fields. These fields are copied from the selected alert, except for the field ID, which must be unique for each alert.
D	**Delete the selected alert**. IBM Security zSecure defined alerts cannot be deleted.
E	**Edit alert**. Specify the alert characteristics such as the alert ID, record types, CARLa code, and an action command. See "Alert definition - specify action" on page 122.
I	**Insert new alert**. This action displays the alert definition panel with all fields blank. When all required fields are entered, a new alert is added.
S	**Select alert**. After verification and refresh of the Alert Configuration, this alert is reported.
U	**Unselect alert**. After verification and refresh of the Alert Configuration, this alert is no longer reported.
W	**Who/Where to alert**. Destinations can be email addresses, text message/cell phone receivers, SNMP addresses, WTO messages, QRadar Unix syslog, and ArcSight CEF. When all destinations for an alert are cleared, or when selecting **Reset alert level destinations, use global destinations instead**, the destinations of the alert category are used. If the destinations of the alert category are also not set, the destinations of the Alert Configuration are used.

See “Installation-defined alerts” on page 28 for information about using the **C**(opy) or **I**(nsert) line commands to add alerts.

Alert configuration: verify alert configuration

The panel shown in Figure 10 on page 22 is displayed when you specify the **V** (Verify) line command. It shows the progress of creating and verifying the members that are needed to activate a set.

```
   Menu            Options            Info            Commands            Setup
Startpanel
 ------------------------------------------------------------------------------
                          zSecure Suite - Setup - Alert
 Command ===> ____________________________________________________________


 _  Use SETUP FILES input instead of zSecure Alert input data
 The following selections are supported:
 B Browse file           S Default action (for each file)
 V View file

 Enter a selection in front of a highlighted line below:

 _  AHJBVS       Stage one member
 _  AHJBVO       Environment dependent selection criteria
    AHJBV        zSecure Alert report member
    AHJBVE       zSecure Alert extended monitor member
    AHJBVP       zSecure Alert parameter member

 Press Enter to start Alert set verification
```

Figure 10. Setup Alert panel: Verifying the Alert configuration

The verification function emulates the Alert address space processing. Therefore, the user ID that performs the verification cannot be in restricted mode. This user ID also requires access to the security database and CKFREEZE that are specified in the Alert configuration. Or, if the user ID does not have access, they must specify an UNLOAD, or a different security database source, and a CKFREEZE that they do have access to. See **Use SETUP FILES input instead of zSecure Alert input data** in Figure 10 on page 22. If you select this option, the verification process uses the SETUP FILES-selected input set instead of the security database and CKFREEZE data set that are configured for this alert set.

Note: This option applies only to the verification function. The Alert address space always uses the security database as configured and the CKFREEZE data set as specified in the C2POLICE JCL member.

After you press **Enter**, the same panel shows the results of the verification process. You can browse or view the members that were created by the verification process. When an error is detected during verification, the file that contains the error is highlighted in red. To view the CARLa output of the successful "Alert Generation" verification process, you can use the SYSPRINT primary command. Because no SMF and WTO records are provided during the verification process, no actual alerts are generated.

The following members are created by the verification process:

<configuration-name>VS
: The verified zSecure Alert stage1 member. This member contains the CARLa commands used to generate system-dependent CARLa selection statements used during the alert analysis. When the **F** line command is issued, this member is copied to member **<configuration-name>S**. For information about the function of the stage1 member, see the sections about the Alert address space in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

<configuration-name>VO
: This member contains the environment-dependent selection criteria used during analysis and generated by the stage1 member. This member is only used by the user interface, so the zSecure Alert report member can be verified. The zSecure Alert started task writes this stage1 output to the C2P1OUT DD.

<configuration-name>V
The verified zSecure Alert report member. This member contains the main (primary) CARLa commands used to analyze the captured records. When the **F** line command is issued, this member is copied to member **<configuration-name>**.

<configuration-name>VE
The verified zSecure Alert report member for Extended Monitoring alerts. This member contains the CARLa commands used to compare the latest two CKFREEZE snapshot data sets. When the F line command is issued, this member is copied to the member **<configuration-name>E**.

<configuration-name>VP
This member contains the zSecure Alert parameters. When the **F** line command is issued, this member is copied to parameter member **<configuration-name>P**. This member is allocated by the PARMLIB DD in the started task JCL.

Alert configuration: refresh alert configuration

1. Select this panel by using the **F** (Refresh) line command on an Alert Configuration.

   This panel is shown automatically if you do Copy or Insert on the Alert Configuration overview panel at the end of verification processing.

   During the Refresh step, the verified members in the configuration data set is copied to production members. After a successful copy, the following confirmation panel is displayed:

```
            zSecure Suite - Setup - Alert

Production members generated. Use '/' to issue a refresh
command for the current system. The selected alerts will then
be reported.

_  Refresh Alert started task


Enter to continue
```

   Figure 11. Setup Alert panel: Refreshing the Alert configuration
2. In this panel, specify that a REFRESH command must be issued to the started task.

   If the JCL of the started task (PARMLIB DD-statement) is configured to use the current Alert configuration, the REFRESH command instructs the started task to reprocess the new members.
3. You can use '/' to issue an MVS MODIFY C2POLICE,REFRESH command.

   When you leave the Refresh panel by pressing PF3, the Alert configuration panel is shown again. If all configuration steps complete successfully, the status shows OK.

Email address lists (SE.A.E)

In zSecure Alert, you can use email address lists to mail alert messages to multiple people. You can do that from direct specification of a list of comma-separated email addresses in the various panels. The email option provides an alternative approach. From the option email, you specify a data set and how email addresses are to be extracted from each record. Use the term email destination to differentiate this from the list of comma-separated email addresses. The email destination referenced by its name can be used in the **Mail to** field of an alert. For details, see the field description for Mail to.

Note: Changes made to the alert configuration are not permanently saved until you leave option **SE.A.E**.

If you are a first time user of zSecure Alert, you can skip this configuration step. If you later need more flexible email addresses, revisit this section and create the required email destinations.

The first time you enter this option, the following panel is displayed:

Note: As an example, most of the fields are already completed.

```
  Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
                          zSecure Suite - Setup - Alert
Command ===> ____________________________________________________________

Enter zSecure Alert definition for e-mail destinations
Name  . . . . . . . . . SECADM
Description . . . . . . Security administrator e-mail addresses


Enter / to edit the e-mail destination data set
/  Data set name     'C2P.DATA.MAIL(SECADM)'

Field definitions
Field name        Start   Length||Word  Delimiter
secadmin userid   ______  ______  1     ;
e-mail address    ______  ______  2     ;
```

Figure 12. Setup Alert panel: Specifying email destinations

The panel has the following fields:

Name
A short descriptive name for this email destination. This field is required and must be unique. You use this name during the Alert configuration to refer to this email destination.

Description
A description for the email destination. This field is required.

Data set name
The data set containing the email addresses. It can be a sequential data set, or a partitioned data set, with the member name enclosed in parentheses: 'C2P.DATA.MAIL(SECADM)', for example. Use a partitioned data set, preferably PDS/E, because the data set is allocated (with DISP=SHR) by the zSecure Alert address space. A sequential data set requires an exclusive enqueue for edit. You would never obtain it when the started task had allocated it, and a PDS needs exclusive enqueue when you need to compress it.

Any change to the member takes effect at each F C2POLICE,REFRESH and at each environment refresh interval; default is 60 minutes.

Field name
A field name such as **e-mail address**.

When the data set consists of just email addresses but has line numbers, use the **Start** and **Length** fields to define the email address field. For example, for an FB 80 data set, enter 1 for **Start** and 72 for **Length**.

If the data set contains other information besides the email address, you need the Field Name to identify which part of the record is the email address you want to use.

During the alert configuration, you can refer to this field by specifying: ***destination-name.field-name***.

Start
Enter the numeric start position of the field. For example, enter 1 to start directly at the leftmost character. This field is used with the **Length** field to extract the email address from the data set.

This field is mutually exclusive with the fields **Word** and **Delimiter**.

Length
The length of the field. This field is used with the **Start** field.

This field is mutually exclusive with the fields **Word** and **Delimiter**.

Word
The sequence number of the "word" wanted. This field is used with the **Delimiter** field to extract the email address from the data set.

This field is mutually exclusive with the fields **Start** and **Length**.

Delimiter
The character used to separate the words from each other. Examples are ";" or a space. This field is used with the **Word** field.

This field is mutually exclusive with the fields **Start** and **Length**.

By entering a / before the data set name, it is possible to view or edit the email destination set. With the data as shown in Figure 12 on page 24, the data set layout would be:

```
  File  Edit  Confirm  Menu  Utilities  Compilers  Test  Help
-------------------------------------------------------------------------------
EDIT       C2P.DATA.MAIL(SECADM)                        Columns 00001 00072
Command ===> _____________________________________________ Scroll ===> CSR
****** ***************************** Top of Data ******************************
000001 C2PSA01;JohnBrown@company.com;
000002 C2PSA02;MarkTyler@company.com;
000003 C2PSA03;SteveJohnson@company.com;
000004 C2PSA04;KarenJones@company.com;
****** **************************** Bottom of Data ****************************
```

Figure 13. Panel for viewing or editing the email destination set

When the Email Destination has been saved by pressing END, the following panel is displayed. This panel provides an overview of the available email destinations, and enables you to manage them. In the following example, only one email destination has been defined.

```
  Menu  Options  Info  Commands  Setup
-------------------------------------------------------------------------------
                       zSecure Suite - Setup - Alert     Row 1 from 6
Command ===> _____________________________________________ Scroll ===> CSR
CKRM839 E-mail destination added
Select Alert e-mail destination
The following line commands are available: B(rowse), C(opy), D(elete),
E(dit set), I(nsert), S(elect), V(iew)
-------------------------------------------------------------------------------
    Set name  Description
              Data set name
_   SECADM    Security administrator e-mail addresses
              'C2P.DATA.MAIL(SECADM)'
-------------------------------------------------------------------------------
****************************** Bottom of data ********************************
```

Figure 14. Setup Alert panel: Save Confirmation message for email destination update

The following line commands can be used on the email destination set overview panel:

Table 4. Line commands available on the email destination set overview panel

Line Command	Description
/	Display a popup panel showing the available line commands.
C	Copy the Email Destination. This action displays the definition panel as shown in Figure 12 on page 24 with all fields. These fields are copied from the selected Email Destination, except for the field **Name**, which must be unique for each Email Destination.
D	Delete the Email Destination. This action does not affect any associated data set.
I	Insert a new Email Destination. This action displays the definition panel with all fields blank.
S	Select the General Settings for this Email Destination for modification.
B	Browse the data set with the ISPF BROWSE service.
E	Edit the data set with the ISPF EDIT service, so email addresses can be modified.
V	View the data set with the ISPF VIEW service.

Define PCI PAN and PCI AUTH data sets, users, and groups (SE.A.P)

Use this option to define Payment Card Industry primary account numbers (PCI PAN) and sensitive authentication data (PCI AUTH) data sets and privileged users and groups who are authorized to access these data sets.

The following panel is displayed:

```
  Menu         Options       Info    Commands     Setup
------------------------------------------------------------------------------
                        zSecure Suite - Alert - PCI
Command ===> ____________________________________________________________

Select library for PCI members
1  1. Use Alert library 'C2POLICE.C2PCUST'
   2. Use Audit library 'AUDIT.CKACUST'

Enter / to edit member
_  PCI-DSS sensitive data sets
_  Privileged users and groups for PCI PAN data sets
_  Privileged users and groups for clear text PCI PAN data sets
_  Privileged users and groups for PCI AUTH data sets
```

Figure 15. Alert - PCI panel

For changed members, the changes become active after a refresh of the zAlert started task (the F line command on the SE.A.A panel) or after an environment refresh.

If only a C2PCUST data set is available, the members will be saved there. If both C2PCUST and CKACUST libraries are available, you can use option **Select library for PCI members** to indicate which library to use.

If an alert configuration is created for another system and the PCI data sets and privileged users/groups are the same as for the current system, you can share the C2PCUST or CKACUST data set you selected.

If the PCI data sets and/or privileged user/groups for the configurations are not identical, then:

1. Create a new CKACUST library with SCKRSAMP job CKAZCUST.
2. Start the User Interface with the newly created CKACUST in your parameter member (default C2R$PARM).
3. Edit the members with option **SE.A.P**.
4. Complete the configuration with **SE.A.A**.

The following options are available:

PCI-DSS sensitive data sets
: Starts an edit session for member CLASSIFY which can contain SIMULATE SENSITIVE statements. For more informaton, see SENSITIVY=Site<*text*> for the SIMULATE command in *IBM Security zSecure CARLa Command Reference*. This member is exploited by alerts 1209, 1210, and 1211 for RACF, and by alerts 2209, 2210, and 2211 for ACF2.

Privileged users and groups for PCI PAN data sets
: Starts an edit session for member PCIPAN. This member can be used to enter a list of privileged users and groups for which the alert should not be generated. This member is exploited by alerts 1209 for RACF and 2209 for ACF2.

Privileged users and groups for clear text PCI PAN data sets
: Starts an edit session for member PCIPANCL. This member can be used to enter a list of privileged users and groups for which the alert should not be generated. This member is exploited by alerts 1210 for RACF and 2210 for ACF2.

Privileged users and groups for PCI AUTH data sets
: Starts an edit session for member PCIAUTH. This member can be used to enter a list of privileged users and groups for which the alert should not be generated. This member is exploited by alerts 1211 for RACF and 2211 for ACF2.

Sensitive resources, userids, and groups (SE.A.S)

Use option SE.A.S to define sensitive resources and privileged users and groups who are authorized to access these resources.

The following panel is displayed:

```
  Menu         Options       Info    Commands     Setup
------------------------------------------------------------------------------
                        zSecure Suite - Alert - Sensitive
Command ===> ____________________________________________________________

Select library for sensitive resource members
1  1. Use Alert library 'C2POLICE.C2PCUST'
   2. Use Audit library 'AUDIT.CKACUST'

Enter / to edit member
_  Sensitive resources
_  UPDATE sensitive members in specific data sets
_  Privileged users and groups for site READ sensitive resources
_  Privileged users and groups for site UPDATE sensitive resources
_  Privileged users and groups for UPDATE on APF data sets
```

Figure 16. Alert - Sensitive panel

For changed members, the changes become active after a refresh of the zAlert started task (the F line command on the SE.A.A panel) or after an environment refresh.

If only a C2PCUST data set is available, the members are saved there. If both C2PCUST and CKACUST libraries are available, you can use option **Select library for sensitive resource members** to indicate which library to use.

If an alert configuration is created for another system and the sensitive resources and privileged users and groups are the same as for the current system, you can share the C2PCUST or CKACUST data set you selected.

If the sensitive resources or privileged user and groups for the configurations are not identical, then follow the following steps:

1. Create a CKACUST library with SCKRSAMP job CKAZCUST.
2. Start the user interface with the newly created CKACUST in your parameter member (default C2R$PARM).
3. Edit the members with option **SE.A.S**.
4. Complete the configuration with **SE.A.A**.

The following options are available:

Sensitive resources
Starts an edit session for member SENSRSRC, which can contain `SIMULATE SENSITIVE` statements. This member is used by alerts 1212 and 1213 for RACF, and by alerts 2212 and 2213 for ACF2. For example:

```
SIMULATE CLASS=DATASET ACCESS=READ,
SENSITIVITY=Site-Dsn-R,
RESOURCE=FINANCE.ACCOUNT
```

For `SENSITIVITY`, use:

Site-Dsn-R
For site READ sensitive data sets

Site-Dsn-U
For site UPDATE sensitive data sets

UPDATE sensitive members in specific data sets
starts an edit session for member SENSMEMB. This member can be used to enter a list of sensitive data sets and members for which the alert must be generated. This member is used by alerts 1214

for RACF and 2214 for ACF2. The data set name must be specified in columns 1-44 and the member name in columns 46-53. Filters are allowed, for example, * for RACF or - for ACF2.

Privileged users and groups for site READ sensitive resources
Starts an edit session for member SENSREAD. This member can be used to enter a list of sensitive resources and privileged users and groups for which the alert must not be generated. This member is used by alerts 1212 for RACF and 2212 for ACF2. The alerts are not generated for resources that already have a sensitivity assigned by zSecure, for example, APF libraries, JES spool data sets, etc.

The user or group must be specified in columns 1-8, the class in columns 10-17, and the resource in columns 19-80. For example:

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
IBMUSER  DATASET  FINANCE.ACCOUNT
SYSADM   FACILITY USER.AUTH
```

The class name or resource name can be specified as * to define a privileged user or group for all classes or all resources in a specific class.

Privileged users and groups for site UPDATE sensitive resources
Starts an edit session for member SENSUPDT. This member can be used to enter a list of sensitive resources and privileged users and groups for which the alert must not be generated. This member is used by alerts 1213 and 1214 for RACF and 2213 and 2214 for ACF2.

See **Privileged users and groups for READ sensitive resources** on how to define the users, groups, and resources.

Privileged users and groups for UPDATE on APF data sets
starts an edit session for member SENSAPFU. This member can be used to enter a list of privileged users and groups for which the alert must not be generated. This member is used by alerts 1204 for RACF and 2204 for ACF2.

The user or group must be specified in columns 1-8. For example:

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
IBMUSER
SYSADM
```

Installation-defined alerts

New alerts can be created by copying and adapting an existing alert or by creating an alert from scratch.

The specification of an alert is largely done by a number of CARLa code sections in an ISPF skeleton member. This ISPF skeleton member is used during the Verify operation to create the actual CARLa that is to be passed to the zSecure Alert engine. Adapting an existing alert or creating an alert from scratch requires knowledge about ISPF file-tailoring services and advanced CARLa coding skills. This knowledge is assumed throughout this section.

Alert skeletons are subject to syntax rules of ISPF skeletons. For example, to produce CARLa that contains an ampersand (&), ISPF (with the default settings) requires you to double the ampersand (&&), instead of using a single ampersand. For details, see *zSecure CARLa Command Reference* and *z/OS ISPF Dialog Developer's Guide and Reference*.

When creating an alert, you must decide on the following items:

- The alert ID. This four-digit number serves as an identifier and is always prominently present. IBM-supplied alerts have alert numbers 1000-1999 (RACF), 2000-2999 (ACF2), and 3000-3999 (TSS). The ranges 4000-4999 (RACF), 5000-5999 (ACF2), and 6000-6999 (TSS) are reserved for installation-defined alerts. The second digit of this number assigns the alert to an Alert Category.
- The event that you want to trigger your alert.
- How to format relevant data from the Alert condition into your alert.
- Whether your alert is customizable.

For instance, your alert might need a list of data sets or user IDs. You want to maintain this list without the need to edit the skeletons each time. If you want your alert to be customizable, you must have a panel to allow customizing it.

It is up to you how the panel looks and which parameters it accepts to customize your alert. You can create a panel from scratch, or you can use, copy, or clone a standard zSecure panel that fits your requirements. If you need a panel of your own, you must store it in a library of your own. You must use the UPREFIX/WPREFIX zSecure configuration parameters to make that library available to ISPF. See *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide* for the UPREFIX/WPREFIX parameters.

To supply your skeletons with the parameters they need to generate the CARLa for your alert, you must assign the names of these parameters to a variable named EXTVAR; that is:

```
&extvar='c2peeus0,c2peeus1,c2peeus2,c2peeus3,c2peeus4'
```

You can also use the existing customization panels C2PP3ZAG for specification of users, and C2PP3ZBE for other entities, like class, program name. These panels use extension variables in the alert table C2PIDACx for IBM alerts, and C2PIUACx for user defined alerts, to specify the header and help text of the customization values. You can use ISPF option 3.16 to edit C2PIUAC*x* in your C2PCUST data set and specify these 2 extension variables.

The format in which an alert is to be sent is specified per Destination Type. There are the following Destination types:

- Email
- Text message
- WTO
- SNMP trap
- QRadar Unix syslog
- ArcSight in Common Event Format (CEF)

The email format is the most descriptive. The alerts provided with the product have a common layout, described in “Standard email layout” on page 48. The emails are sent in HTML format.

The text message format in all IBM Security zSecure-supplied alerts is a shortened version of the email format for use with an e-mail-to-text-message gateway where the recipient (for example, cell phone or pager) is specified in the "To" header of the email message. The text message itself can be taken from the subject or the body of the email, depending on the gateway. The subject and body as sent are therefore similar, though the body can contain a little more information.

The WTO format can be used with automated operation software.

The SNMP trap format can be used with your network console. For more description of this format, see Appendix A, “SNMP output,” on page 143.

Specifying the alert ID and data source

Follow these steps to create an alert:

1. To create an alert, go to the option SE.A.A and select the alert configuration you want to work with.
2. In the Alert Category panel, select any category; for example **System alerts**.

   The category to which the new alert belongs is determined by its second digit, and not by which category you use to create it.

```
   Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
                        zSecure Suite - Setup - Alert       Row 1 to 15 of 15
 Command ===> _____________________________________________ Scroll ===> CSR

System alerts
Select the alert you want to work with.
The following line commands are available: A(Preview), C(opy), D(elete),
E(dit), I(nsert), W(Who/Where),S(elect), U(nselect), B(rowse)
------------------------------------------------------------------------------
    Alert                                          Id    Sel  gECSWUA CA EM
    SMF data loss started                          1601  No   gECSWUA    N
    SMF logging resumed after failure              1602  No   gECSWUA    N
    SVC definition changed                         1603  No   gECSWUA    Y
    IBM Health Checker found low severity problem  1604  No   gECSWUA    N
    IBM Health Checker found medium severity proble 1605 No   gECSWUA    N
    IBM Health Checker found high severity problem 1606  No   gECSWUA    N
    SMF record flood detected                      1607  No   gECSWUA    N
    SMF record flood starts dropping records       1608  No   gECSWUA    N
    IP attacks blocked by filter no longer logged  1609  No   gECSWUA    Y
    IP attacks blocked by default filter no longer 1610  No   gECSWUA    Y
    IP SMF 119 subtype no longer written           1611  No   gECSWUA    Y
    IP filtering and IPsec tunnel support deactivat 1612 No   gECSWUA    Y
    IP ports below 1024 no longer reserved         1613  No   gECSWUA    Y
    IP interface security class changed            1614  No   gECSWUA    Y
    IP filter rules changed                        1615  No   gECSWUA    Y
 ****************************** Bottom of data ********************************
```

Figure 17. Setup Alert panel: Alert category overview

3. You can create an alert by issuing the **C**(Copy) or **I**(Insert) line command.

   The **Copy** command copies all fields except the Alert ID.

   The following panel is displayed after issuing the **I** line command:

```
   Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
                        zSecure Suite - Setup - Alert
 Command ===> _____________________________________________ Scroll ===> CSR

 Description  . . . . _____________________________________________________________

 Member prefix  . . . ___
 Alert id . . . . . . ____  Severity . . . . . . _  (D, I, W, E or S)
 Data source  . . . . SMF_____________________   (SMF/WTO/other newlist type)
 Extended Monitoring  N     (Y/N)
 Parameters . . . . . _____________________________________________________________

 Panel name . . . . . ________           (Panel for additional customization)

 Allowable destination types
 _ E-mail    _ Cellphone    _ SNMP    _ WTO    _ QRadar Unix syslog    _ ArcSight
 _ Action command

 Optional actions
 _  Change data source filter: SMF type
 _  Customize alert selection list
 _  Specify action command
 _  View/edit alert skeleton
```

Figure 18. Setup Alert panel: Adding an Alert

The following fields are displayed:

Description
A description of the alert.

Member prefix
A three-character prefix for the skeleton member. The generated name of the skeleton member is: **<Member prefix>S<Alert id>**. The three-character prefix must start with a letter or "@", "#", or "$", and not with a numeric digit.

Prefix C2P is reserved for IBM Security zSecure use.

Alert id
A numeric ID for the alert. IBM alert IDs use ranges 1000-1999 (RACF), 2000-2999 (ACF2), and 3000-3999 (TSS). The ranges 4000-4999 (RACF), 5000-5999 (ACF2), and 6000-6999 (TSS) are reserved for installation defined alerts. The second digit determines the Alert category. The ID is used to generate the skeleton member name.

When WTO is selected as a destination type, the value is also used to populate the **<Alert id>** field in the message ID: **C2P<Alert id><Severity>**.

Severity
A severity for the alert. When WTO is selected as a Destination type, this value is used to populate the **<Severity>** field in the message ID: **C2P<Alert id><Severity>**

The following list shows the valid severities:

D
Debug. Action is not required.

I
Information. Action is not required.

W
Attention. Action might be required.

E
Error. Action is required.

S
Severe error. Action is required urgently.

For alerts with destination type QRadar Unix syslog, these severities are translated as shown in the following list:

Severity
Priority

D
119

I
117

W
116

E
115

S
114

Data source
The CARLa newlist type that is used as input for the alert, for example, SMF or WTO.

Extended Monitoring
This field specifies whether the alert is an Extended Monitoring alert. Specify **Y** if it is an Extended Monitoring alert that compares the current and previous CKFREEZE snapshot data sets. Specify **N** if it is an Event-based alert. Ensure that the **Data Source** field specifies the correct value to match the Extended Monitoring setting. For event-based alerts, the **Data Source** field must have the value SMF or WTO. For Extended Monitoring alerts, the **Data Source** field can have the value of any supported CKFREEZE-based NEWLIST type. See “Alert activation guidelines” on page 5 for more information about Extended Monitoring alerts.

Parameters
This field is intended to pass additional parameters to the generated `NEWLIST` statement.

Panel name
If you want your new alert to be customizable, specify the name of the customizing panel in this field. The panel you specify must exist and be accessible, either as a standard zSecure panel if

there is one that fits your requirements, or as a panel that you created yourself. This panel is shown as the next transaction during creation of the new alert. It can also be used for future configuration of this alert.

Allowable destination types
Select the Destination Types for which reports can be generated by this alert. The alert skeleton must have a section for each Destination Type selected.

Change data source filter
For SMF and WTO-based alerts, this shows the collection parameters that are currently defined for the alert. For SMF, the types and optional subtypes are listed. For WTO, the message prefixes are listed. Enter a / in the check box to modify the collection parameters.

Although the panel allows specifying message prefixes starting with C2P, most of the C2P messages cannot be used to trigger alerts. Only messages C2P0100, C2P0335, and the range C2P0900 to C2P0999 can be used to trigger alerts.

Note that the alert skeleton must select the SMF records and WTOs that are relevant for the alert. So even when collection parameters are set, the alert skeleton must still contain a SELECT TYPE=*numbers* or SELECT MSGID=*wtoid*.

Customize alert selection list
If a panel name is specified for additional customization, this check box displays the panel to prompt for selection or exclusion of users, groups, jobnames, or classes.

Specify action command
This line shows if the alert currently generates action commands by showing **active** behind the prompt.

Select the check box to switch execution of action commands on or off when an alert condition triggers and to specify the command. See “Alert definition - specify action” on page 122.

ISPF Skeleton
Type a forward slash (/) in this field to edit the ISPF skeleton for this alert. The skeleton contains the CARLa code to specify the Alert Condition, the alert contents, and the alert layout.

When you add an alert using the Copy command, the skeleton of the source alert is copied; otherwise a model skeleton is used. If the skeleton exists, it is not changed.

For Extended Monitoring alerts, the COMPAREOPT must be added to the ISPF skeleton together with all the other sections.

For example, to define an alert to be triggered on the event that the APF list is updated by the SETPROG command:

```
  Menu         Options       Info    Commands     Setup
--------------------------------------------------------------------------------
                         zSecure Suite - Setup - Alert
Command ===> ____________________________________________________________________

Description  . . . . APF List changed using SETPROG command______________________
Member prefix  . . . ABJ
Alert id . . . . . . 4000  Severity . . . . W  (D, I, W, E or S)
Data source  . . . . WTO_____________________
Extended Monitoring  N     (Y/N)
Parameters . . . . . ____________________________________________________________
Panel name . . . . . ________  (Panel for additional customization)

Allowable destination types
_ E-mail    _ Cellphone    _ SNMP    _ WTO    _ QRadar Unix syslog    _ ArcSight
_ Action command

Optional actions
_  Change data source filter: SMF type
_  Customize alert selection list
_  Specify action command
_  View/edit alert skeleton
```

Figure 19. Setup Alert panel: Defining an Alert

4. When you press Enter, a panel prompts for the WTO message prefixes that are to be used to trigger the alert. Here, you specify CSV410I:

```
   Menu         Options       Info    Commands     Setup
 ------------------------------------------------------------------------------
                          Data source filters              Enter required field

Data source filters for alert 4000:

SMF records to be collected for this alert
Type Sub    Type Sub    Type Sub    Type Sub    Type Sub


WTO message ids and filters for this alert
Prefix    Prefix    Prefix    Prefix    Prefix
CSV410I   ________  ________  ________  ________
```

Figure 20. Setup Alert panel: Specify CSV410I

Type
If the data source is SMF: the SMF record type that must be collected for this alert. To collect ACF2 records, you can specify the pseudo-type ACF2. The zSecure Alert program looks up the correct record type from the ACF2 control blocks.

Sub
Specifies the SMF-record subtype that must be collected. The subtype is only used for SMF-record types 30, 80, 92, and ACF2 records. For all other SMF-record types, the subtype is ignored. The subtype is interpreted as follows:

Rectype 30 The subtype is the standard SMF-record subtype.

Rectype 80 The subtype is the RACF event code. For a complete list of RACF event codes, see the RACF Auditor's guide.

Rectype 92 The subtype is the standard SMF-record subtype. Although SMF-Record type 92 currently only has defined subtypes 1 -17, the range accepted by zSecure Alert is 1 - 255.

Rectype ACF2 The subtype is the ACF2 record type. For a complete list of ACF2 subtypes, see the "SELECT/LIST Fields" chapter in the *CARLa Command Reference*; see the ACF2_SUBTYPE field in NEWLIST TYPE=SMF.

Prefix
If the data source is WTO: specifies which message prefixes must be collected. Although the panel allows specifying message prefixes starting with C2P, most of the C2P messages cannot be used to trigger alerts. Only messages C2P0100, C2P0335, and the range C2P0900 to C2P0999 can be used to trigger alerts.

When you press Enter to save the data source filters, the check box on the alert specification panel changes as follows:

```
Change data source filter: WTO msg CSV410I
```

CARLa skeleton for existing alerts

You can edit the CARLa skeleton of an existing installation-defined alert. After using the E (Edit) line command on the individual alert, you can check the **ISPF skeleton** option to edit the skeleton member. On a zSecure-supplied alert, when you check the **ISPF Skeleton** option, you see an ISPF VIEW panel. To prevent unintended changes, use the B (Browse) line command.

When adding an alert with the C (Copy) or I (Insert) line commands, you reach the same panel. In that case, the skeleton member does not normally exist yet. After providing the required parameters, processing continues, and the existing skeleton member is either copied, or a model skeleton is created. The copied member might contain named filters. Change these to avoid name collisions. The names of all local definitions must end in the alert ID.

The information in the remainder of this section describes the content of the model skeleton member C2PSMODL. The skeleton consists of several sections, each containing its own specific statements:

Identification section
The alert skeleton starts by setting three text values for the alert messages:

C2PXNAME
Represents an event name that is used in Unix SYSLOG and CEF messages to categorize the event. It must be a short, fixed value without quotes.

C2PXMSG
Specifies the alert message text that is to be included in all alerts. The message can be composed of quoted literals and CARLa fields. The maximum length depends on the number of field names that are used and is approximately 15,000 characters.

C2PXDES
Specifies a description of the event that is to be included in all alerts formats except Cellphone and WTO messages. The message can be composed of quoted literals and CARLa fields. The maximum length is approximately 25,000 characters.

For the syntax of C2PXMSG and C2PXDES, see "Identification section" on page 35.

The message formatting skeleton C2PSFMSG uses these dialog variables to construct the appropriate fields for the destination.

The remaining sections in the skeleton are each marked with an identifying comment line, shown in the order that they appear in the skeleton. Each section starts with a)SEL command that specifies the condition for activating the section's code and ends with an)ENDSEL command.

)CM Pass one query
This section specifies a two-pass CARLa query for the stage1 member. Use it if your Alert Condition depends on the security environment and cannot be easily implemented using a field lookup. For information about field lookup, see "Indirect reference or lookup" in the information about the DEFINE command in the *zSecure CARLa Command Reference*. This query runs at the beginning of each environment refresh cycle. The output is usually another CARLa query, populated with current environmental values. This output is included near the beginning of the reporting CARLa. It enables you to generate a preselection that is based on the actual security environment. Your Alert Condition can refer to this preselection. Because the pass one query is run at the beginning of each environment refresh cycle, the preselection is also refreshed with current selections. Normally, the environment refresh cycle is once per hour. See the **Environment refresh** parameter in "Alert configuration: specify general settings" on page 11.

Insert your CARLa statements between the)SEL and)ENDSEL lines.

)CM Extended Monitoring COMPAREOPT
This section contains an optional COMPAREOPT statement that defines the comparison that triggers an alert. To avoid name collisions, the COMPAREOPT must have a name that ends with the alert ID, for example, ALRT4001. Dialog variable &C2PENCMP is set with the name of the COMPAREOPT command, so it gets referenced in all of the message sections for this alert. In previous releases of zSecure Alert, the required COMPAREOPT statements were included in member C2PSGLOB, and the corresponding COMPAREOPT parameter was included on the alert specification panel.

Insert your CARLa statements between the)SEL and)ENDSEL lines. If your extended monitoring alert does not use COMPAREOPT, then delete the assignment for &C2PENCMP and the COMPAREOPT command line from this section.

)CM Alert condition
Specify the selection criteria for the alert.

Insert your CARLa statements following the)IM C2PSGNEW line. Typically, this section contains SELECT commands, optionally preceded by DEFINE commands.

)CM EMAIL sortlist
Specify the alert message in the layout that is to be used for email destinations.

)CM Cellphone sortlist
Specify the alert message in the layout that is to be used in text messages. Whether the text message as received is taken from the subject or from the body of the email depends on the e-mail-to-text-message-gateway that you use. All IBM Security zSecure-supplied alerts send a similar message in both subject and body.

)CM SNMP sortlist
Specify the alert message in the layout that is to be used for SNMP destinations.

)CM QRadar Unix syslog sortlist
Specify the alert message in the layout that is to be used for Unix syslog destinations, for example in Log Event Extended Format (LEEF) for the zAlert DSM in IBM QRadar SIEM.

)CM ArcSight CEF
Specify the alert message conforming to the Common Event Format (CEF) that the ArcSight product uses.

)CM WTO sortlist
Specify the alert message in the layout that is to be sent to the console.

)CM Action command
Normally, this contains the following two imbed statements to be able to specify an action command:

```
)IM C2PSACTX
)IM C2PSACTS
```

When using these two)IM statements, exclude and command statements as configured via the ISPF panel interface are inserted automatically.

See "Alert definition - specify action" on page 122.

)CM Command
Use of this command section is now deprecated. You can still encounter it in existing skeleton members.

You do not need to specify message formats that you do not want to use. However, you can keep at least the alert ID in each section so that you can recognize the alert if it ever gets used in that format. The alert ID parts can be recognized by the occurrence of the &c2pemem. skeleton variable.

Each actual CARLa section is delimited by)SEL and)ENDSEL skeleton directives and also has one or more)IM directives. Do not change these directives.

The next manual sections explain each CARLa section in detail. When you are done changing the skeleton, return to the alerts panel by pressing PF3. If you add an alert, it is selected automatically. Pressing PF3 twice more, you can return to the Alert Configuration panel, where you can then issue the **V**(Verify) command to check the new alert. If the verification is successful, you can enter the **F**(Refresh) command to activate the new alert.

Identification section

The layout of alert messages that zSecure Alert generates depends on the receiver and message type. Email messages start with a Subject line, they generally repeat the information in a mail header line, and continue with a list of fields. In other cases, such as SYSLOG and CEF-formatted alerts, the alert message is at the very end of the alert, after the data fields.

To facilitate maintenance of alert skeletons, zSecure Alert contains a message formatting skeleton C2PSFMSG that constructs part of the SORTLIST commands that contain the part of the message that humans should read. There are three dialog variables that you can use to specify these common fields:

C2PXNAME
Represents an event name that is used in Unix SYSLOG and CEF messages to categorize the event. It must be a short, fixed value without quotes.

C2PXMSG
Specifies the alert message text that is to be included in all alerts. The message can be composed of quoted literals and CARLa fields. The maximum length depends on the number of field names that are used and is approximately 15,000 characters.

C2PXDES
Specifies a description of the event that is to be included in all alerts formats except Cellphone and WTO messages. The message can be composed of quoted literals and CARLa fields. The maximum length is approximately 25,000 characters.

```
)SETF C2PXNAME = &STR(Event_name)
)SETF C2PXMSG = &STR('Alert msg about' user(0))
)SETF C2PXDES = &STR('Alert description')
```

These assignments use &STR(*text*) to quote the text strings. Remember to specify an ending parenthesis at the end of your assignment. The value can be continued on more lines by writing a ? in position 72, as it applies to all ISPF skeleton lines. Otherwise, leave position 72 empty.

C2PXMSG and C2PXDES accept CARLa literals, fields and interpunction that would normally be accepted on the SORTLIST and SUMMARY commands. You should use the single quote, as illustrated, for literals. Refrain from using spaces in output modifiers; use a comma instead. Do not worry about adding commas as continuation character within the value; C2PSFMSG adds these automatically.

Besides the regular CARLa modifiers, you can also use the following as pseudo modifiers on message tokens:

T
Include the token only in email and cellphone titles.

NOT
Omit the token in email and cellphone titles.

V
Include the token only on verbose messages that are generated for cellphone and WTO destinations.

NOV
Include the token only on non-verbose messages that are generated for email, SNMP, QRadar Unix syslog, and ArcSight CEF destinations.

WTO
Include the token only on messages that are generated for WTO destinations.

NOWTO
Omit the token in message that are generated for WTO destinations.

ACF2
The token is generated only for ACF2 systems.

RACF
The token is generated only for RACF systems.

The T modifier in an C2PXMSG assignment not only suppresses the field from the header section in messages, but also passes the T modifier into the CARLa statement where it includes the field in the Subject: value.

The token can be a field, literal string, concatenation mark (|), or newline mark (/). You can mix pseudo modifiers and CARLa modifiers in the same set of parentheses. C2PSFMSG automatically removes some forbidden modifiers from email and cellphone titles: 0, HOR, WRAP, WORDWRAP, and WW. An example of these modifiers can be found in alert 1105:

```
)SETF C2PXNAME = &STR(Grant_Privilege_System)
)SEL &C2PESECP = RACF
)SETF C2PXMSG = &STR('System authority'                                  ?
spec(0,V,NOT) |(V,NOT) oper(0,V,NOT) |(V,NOT)                            ?
audi(0,V,NOT) |(V,NOT) clau(0,V,NOT) |(V,NOT)                            ?
'granted to' racfcmd_user(0)                                             ?
'by'(V) user(0,V))
)SETF C2PXDES = &STR('System-level authority granted to user')
)ENDSEL
```

```
)SEL &C2PESECP = ACF2
)SETF C2PXMSG = &STR('System authority'                                  ?
secu(0,V,NOT) |(V,NOT) read(0,V,NOT) |(V,NOT) nonc(0,V,NOT) |(V,NOT)   ?
'granted to'  acf2_rulekey(8,T) acf2_rulekey(0,NOT)                      ?
'by'(V) user(0,V))
)SETF C2PXDES = &STR('System-level authority granted to user')
)ENDSEL
```

Further customization of the message headers can be achieved with member C2PXFMSG. If this member exists in C2PCUST, it is included from the message formatting skeleton (C2PSFMSG) after the prefix of the message header for each recipient is constructed. You can copy and adapt)SETF statements from C2PSFMSG into C2PXFMSG as needed. For example, to include the system ID in the beginning of each email subject line, you specify C2PXFMSG like so:

```
)SEL &C2PERCTP = MAIL
)SETF C2PXSUB1 = &STR('Alert on'(t) system(t) | ':'(t))
)ENDSEL
```

Note: C2PXSUB1 is a variable for the start of the Subject line that is used in C2PSFMSG and is set by default to `'Alert:'(t)`.

If formatting must depend on the data source, you can further test on the newlist type in the value of &C2PENEWL.

Environment-dependent selection

You must enter the **)CM Pass one query** section if you want to use environment-dependent selection criteria in your Alert Condition.

The following example is from skeleton member C2PS1204 for IBM Security zSecure-supplied alerts 1204 and 2204. It shows a stage1 query that finds the data sets that are currently part of the APF list, using the DSN field and APF flag field of NEWLIST TYPE=SENSDSN. For more explanation, see *IBM Security zSecure: CARLa Command Reference*. These data set names are substituted into another CARLa query. This query is otherwise contained in quotation marks and thus literally copied to the output file to become the start of the reporting step query.

```
  )CM Pass one query
  )SEL &C2PEPASS = Y
  n type=system outlim=1 nopage
  sortlist,
    "n type=smf name=uapf1204 outlim=0" /,
  )SEL &C2PESECP = RACF
    " select event=access(allowed) intent>=update likelist=recent," /,
  )ENDSEL
  )SEL &C2PESECP = ACF2
    " select likelist=recent acf2_subtype=D," /,
    " acf2_access=(OUTPUT,UPDATE,INOUT,OUTIN,OUTINX)," /,
    " acf2_descriptor=LOGGING,
  )ENDSEL
    "        dsn=(,"
n type=sensdsn nopage
  select apf
  sortlist,
    "           " dsn(0) | ","
  n type=system outlim=1 nopage
  sortlist,
    "            )" /,
    " sortlist ''"
      [...]
  )ENDSEL
```

The generated query is named UAPF1204 by the NAME keyword on the generated N (Newlist) statement. It allows the Alert Condition to refer to it. The NAME ends in the alert ID to avoid name clashes with filters specified in other alerts.

The generated query is meant as a pre-selection only, and thus specifies OUTLIM=0, meaning that no output must be generated. The pre-selection is for SMF records for the following situations:

- For the APF data sets obtained from the system
- On RACF systems: for `EVENT=ACCESS(ALLOWED) INTENT>=UPDATE`

- On ACF2 systems: for ACF2_SUBTYPE=D ACF2_ACCESS=(OUTPUT|UPDATE|INOUT|OUTIN|OUTINX)

The LIKELIST=RECENT clause further restricts the selection to the SMF records written during the current reporting interval. The following section explains about the pre-selection filters that are always available to specify what SMF and WTO input data to tie the selection to.

Extended Monitoring COMPAREOPT

Extended monitoring alerts use newlist types other than SMF or WTO for reporting. They can use COMPAREOPT to identify changes in system values or contain other selections to identify the Alert condition. If the alert triggers on changes, you must define which changes to trigger on using a COMPAREOPT statement. The model skeleton contains this section:

```
)CM Extended Monitoring COMPAREOPT
)SEL &C2PEEMCO = Y
)SET C2PEEMCO  = N
)CM  Set C2PENCMP so COMPAREOPT name is included in newlist commands
)SET C2PENCMP = alrt&c2pemem
)CM  Insert COMPAREOPT here if needed for EM alert
 compareopt name=&c2pencmp,
            .....
)CM  Remove )SET and COMPAREOPT if this alert does not use COMPAREOPT
)ENDSEL
```

In previous releases of zSecure Alert, the required COMPAREOPT statements were included in member C2PSGLOB and the corresponding COMPAREOPT parameter was included on the Alert specification panel. The following example COMPAREOPT is taken from the global skeleton member C2PSGLOB for alert 1207:

```
)CM Extended Monitoring CompareOpt
)SEL &C2PEEMCO = Y
)SET C2PEEMCO  = N
)SET C2PENCMP = alrt&c2pemem
 compareopt name=&c2pencmp,
     type=sensdsn,
     base=(complex=base),
     by=(dataset),
     compare=(volser,apf,apflist),
     show=add
)ENDSEL
```

Where:

- The *name* for this example COMPAREOPT is set to alrt1207, including the alert ID to avoid name collisions. The name is saved in &C2PENCMP and passed to subsequent NEWLIST commands.
- The type value matches the value of the **Data source** field in the Figure 18 on page 30.
- The by value specifies the fields that uniquely identify the item that is compared between the BASE and the CURRENT environment.
- The compare value specifies which attributes of these items must be compared.
- show=add indicates that the alert is triggered only if a data set is added.

If you use extended monitoring without COMPAREOPT, remove the COMPAREOPT command and the assignment for &C2PENCMP.

For more information about specifying COMPAREOPT, see the following documentation:

- The "Compare Processing" section in the *zSecure (Admin and) Audit User Reference Manual* for your zSecure product
- The COMPAREOPT command information in the *zSecure CARLa Command Reference*

Alert condition

You must complete the **)CM Alert condition** section to indicate when you want to issue the alert. The following example is taken from skeleton member C2PS1204 for IBM Security zSecure-supplied alerts

1204 and 2204. The entire selection has already been done in a pre-selection named UAPF1204 that was generated by the environment-dependent selection for that alert as shown in the previous section.

```
)CM Alert condition
)SEL &C2PEPASS = N
)IM C2PSGNEW
  select likelist=uapf1204
```

Skeleton member C2PSGNEW, that is imbedded by the)IM directive, generates the CARLa NEWLIST statement for selection criteria. After the)IM statement, you can enter DEFINE and SELECT statements.

The LIKELIST keyword refers to a preceding NEWLIST that has a NAME keyword with the same value. It means that the effective selection from that NEWLIST is to be used as a clause. In this case, it is the only clause so the exact same selection is used. The filters used in an alert can end in the alert ID to avoid name clashes with other alerts. See only the following global pre-selection filters and filters defined in the alert itself. There is no guarantee that references to filters in other alerts work consistently, or at all.

The Alert Condition must always be tied to a global pre-selection filter to indicate what SMF and WTO input to monitor, either directly or indirectly. In this case the UAPF1204 pre-selection was already tied to the RECENT pre-selection filter, so this condition is indirectly satisfied. You can choose the global pre-selection filters from the following list:

likelist=recent
: Tie to the recent SMF records written during the current reporting interval.

likelist=history
: Tie to the "moving window" analysis SMF records written during the "averaging" interval. There is no overlap between **recent** and **history**.

likelist=wtorec
: Tie to the recent WTO messages written during the current reporting interval.

likelist=wtohis
: Tie to the "moving window" analysis WTO messages written during the "averaging" interval. There is no overlap between **wtorec** and **wtohis**.

This list applies to the global skeleton C2PSGLOB.

Note: If necessary, you can use a different global skeleton for an Alert Configuration.

In these pre-selections, further selection on SMF record TYPE and SUBTYPE or on WTO MSGID is often required. For example, SELECT likelist=wtorec MSGID(CSV410I) or SELECT likelist=recent type=42.

For Extended Monitoring alerts, the Alert Condition requires only a selection on the complex. The complex names BASE and CURRENT are required. For some alerts, additional selection criteria might be needed. For example, the COMPAREOPT for alert 1207 specifies that it uses the SENSDSN newlist. Because the alert only applies to APF data sets, the select statement is extended with additional criteria. It reads:

```
select complex=(base,current) and (apf=yes or apflist=yes)
```

For installation defined alerts, the COMPAREOPT statement that specifies which fields are compared, is defined in the “Extended Monitoring COMPAREOPT” on page 38 section of the alert skeleton.

A persistent dialog variable &C2PENSEL is cleared before each alert skeleton is evaluated. You can use this to activate a part of the skeleton one time and skip it for all subsequent passes, as in alert 1503, where the C2PSSHAR skeleton with DEFINE commands only has to be imbedded once:

```
)SEL &C2PENSEL = &Z
)SET C2PENSEL = ShareIncluded
)IM C2PSSHAR
)ENDSEL
```

You can also set ISPF dialog variables in C2PCUST member C2PXINIT. This member is imbedded one time at the beginning of each of the command generation stages: Stage 1, Reporting, and Extended Monitoring.

Action specification

The ISPF User Interface allows flexible specification of the action command using fill-in panels. These commands are automatically processed if you use the following two imbed statements in the **Action specification** section.

```
)IM C2PSACTX
)IM C2PSACTS
```

See "Alert definition - specify action" on page 122 for additional information about entering the action commands using the ISPF panels.

Email layout

The IBM Security zSecure-supplied alerts have a common layout as shown in "Standard email layout" on page 48. The following example shows alert 1302.

```
)CM EMAIL sortlist
)SEL &C2PERCTP = MAIL
 sortlist,
  recno(nd),
)IM C2PSFMSG
  / '   Alert id        &c2pemem;',
  / '   Date and time'(18) date(9) time(11),
  / '   Program'(18) resource,
  / '   Data set'(18) dataset,
  / '   User'(18) user(8) name,
  / '   Job name'(18) jobname,
  / '   System ID'(18) system,
  / '   Audit reason'(18) reason(0,explode,ww,hor),
  / /
)ENDSEL
```

Note: The message formatting skeleton C2PSFMSG expands the values of C2PXMSG and C2PXDES as follows:

```
'Alert: Audited program'(t) resource(t,8) 'has been executed'(t),
'Alert: Audited program' resource(0) 'has been executed' /,
'A program with auditing specified has been executed' /,
```

The title modifier (t) is used to set the email subject. The field recno(nd) keeps alert emails in their original order, by SMF record number, without actually displaying the number.

A typical Extended Monitoring alert refers to some of the key fields that identify the object (setting) that changed. For example, alert 1207 contains references to the data set and volser:

```
)SEL &C2PERCTP = MAIL
 sortlist ,
)IM C2PSFMSG
  / ' Alert id &c2pemem.',
  / ' Date and time ' collect_datetime,
  / ' Data set ' dataset,
  / ' Volume ' volser,
  / ' APF ' APF,
  / ' APFLIST ' APFLIST,
  / ' System ID ' system
/ /
)ENDSEL
```

An Extended Monitoring alert can also refer to some of the fields that changed. This can be done using variables for COMPARE_RESULT and COMPARE_CHANGES. An example of using such defined variables can be found in alert 1609:

```
)SEL &C2PERCTP = MAIL
 sortlist ,
)IM C2PSFMSG
  / '   Alert id &c2pemem.',
  / '   Date and time             ' collect_datetime,
  / '   Changed field' comp_change(cmpchgc,hor,0),
  / '   Stack ' stack(0),
```

```
  / '   System ID ' system(0)
  / /
)ENDSEL
```

The DEFINE of the variable *comp_change* can be done in the Extended Monitoring COMPAREOPT section of the alert skeleton. For more information about defining variables, see "Defining variables for comparison results (COMPAREOPT)" in the *zSecure CARLa Command Reference*.

Text message layout

You can specify the layout of the alert message for text message destinations in the **)CM Cellphone sortlist** section. Whether the text message as received is taken from the subject or the body of the email depends on the e-mail-to-text-message-gateway you use. All IBM Security zSecure-supplied alerts send a similar message in both subject and body. The following example shows alert 1204.

```
)CM Cellphone sortlist
)SEL &C2PERCTP = CELL
sortlist,
recno(nd),
)IM C2PSFMSG
)ENDSEL
```

Note that there can be no CARLa fields after the `)IM` command.

SNMP layout

You can specify the layout of the alert message for SNMP destinations in the **)CM SNMP sortlist** section. In this layout, you specify combinations of variables and their contents. See also Appendix A, “SNMP output,” on page 143. The following example shows alert 1204.

```
)CM SNMP sortlist
)SEL &C2PERCTP = SNMP
   [...]
sortlist,
 recno(nd),
 '&c2pemem.' /,
 'eventIntegral',
)IM C2PSFMSG
 'eventWhen' datetime(datetimezone,0) /,
 'onWhatDSNAME' dataset(0,hor) /,
 'onWhatGRANTED' intent /,
 'onWhatALLOWED' access /,
 'onWhatINTENT' intent /,
 'whoUSERID' userid(0) /,
 'whoNAME' name(0) /,
 'whatDESC' desc(0,explode) /,
 'whatJOBNAME' jobname(0) /,
 'whereSYSTEM' system(0)
)ENDSEL
```

QRadar Unix syslog layout

You can specify the layout of the alert message for SYSLOG destinations in the **)CM QRadar Unix syslog sortlist** section. This message format is designed for the zAlert DSM in IBM QRadar SIEM, but can be processed by other syslog receivers. The following example shows alert 1204.

```
)CM QRadar Unix syslog sortlist
)SEL &C2PERCTP = SYSL
)SEL &C2PESECP = RACF
 sortlist,
  recno(nd) '<&C2PEPRIO.>' | datetime(cef_dt,15),
  system 'C2P&c2pemem.',
  '[C2P&C2PEMEM.',
  'onWhatDSNAME="' | dataset(0,firstonly) | '"',
  'onWhatGRANTED="' |  intent(0) | '"',
  'onWhatALLOWED="' | access(0) | '"',
  'onWhatINTENT="' |  intent(0) | '"',
  'whoUSERID="' | userid(0) | '"',
  'whoNAME="' | user:pgmrname(0) | '"',
  'whatACTION="&C2PXNAME"',
```

```
  'whatDESC="' | desc(0,explode) | '"',
  'whatJOBNAME="' | jobname(0) | '"',
  'whereSYSTEM="' | system(0) | '"]',
)IM C2PSFMSG
)ENDSEL
```

Note that there can be no CARLa fields after the)IM command.

ArcSight CEF layout

You can specify the layout of the alert message for Common Event Format (CEF) destinations in the **)CM ArcSight CEF sortlist** section. The following example shows alert 1604.

```
)CM ArcSight CEF
)SEL &C2PERCTP = CEF
 sortlist,
  recno(nd) datetime(cef_dt,15),
  :run.system(4),
  'CEF:0|IBM|zSecure Alert|2.5.0|C2P&c2pemem.|' |,
  '&C2PXNAME.|&C2PECEFP.|' |,
  'dvchost=' | :run.system(0),
  'cs1=' | MsgTxt1(0),
         | MsgSep2 | MsgTxt2(0),
         | MsgSep3 | MsgTxt3(0),
         | MsgSep4 | MsgTxt4(0),
         | MsgSep5 | MsgTxt5(0),
         | MsgSep6 | MsgTxt6(0),
         | MsgSep7 | MsgTxt7(0),
         | MsgSep8 | MsgTxt8(0),
         | MsgSep9 | MsgTxt9(0),
  'cs1Label=ConsoleMsg',
  'outcome=Failure',
  'rt=' | datetime(cef_dtz,34),
  'msg=' |,
)IM C2PSFMSG
)ENDSEL
```

Note that there can be no CARLa fields after the)IM command.

Command section

For RACF systems, in the **)CM Command** section of the ISPF CARLa skeleton, you can optionally specify a command to be issued when the Alert Condition occurs. Use of this command section is now deprecated. The ISPF User Interface allows flexible specification of the action command using fill-in panels. These are automatically processed if you use the **Action specification** section.

Chapter 3. Predefined alerts

This chapter describes the alerts that are shipped with zSecure Alert. For an explanation of the Class column, see “Alert activation guidelines” on page 5. The following table explains the meaning of the Severity column. Alerts with IDs in the range 1000-1999 are RACF alerts and those alerts in the range 2000-2999 are ACF2 alerts.

Table 5. Predefined Alerts

ID	Description	Class	Severity
1001	Heartbeat event (indicates that its originator is up and running)	3	0
1101	Logon by unknown user	2	3
1102	Logon with emergency user ID	1 (*)	3
1103	Logon of a user ID with uid(0) (UNIX superuser)	2	2
1104	Highly authorized user revoked for password	2	3
1105	System authority granted	2	3
1106	System authority removed	3	2
1107	Group authority granted	2	2
1108	Group authority removed	3	2
1109	SPECIAL authority used by non-SPECIAL user	1	2
1110	non-OPERATIONS user accessed data set with OPERATIONS	1	3
1111	Invalid password attempts exceed limit	2	3
1112	Password history flushed	2	3
1113	Suspect password changes	3	2
1114	Connect authority>=CREATE set	2	2
1115	Too many violations	1	3
1119	Non-expiring password enabled	2	2
1120	Major administrative activity	2	2
1121	Protected status removed	2	2
1122	Logon with sensitive user ID (from C2PACMON)	1 (*)	3
1123	Privilege escalation detected	1	3
1124	Logon from a not allowed IP address	2	3
1125	Password spraying attack	2	3
1201	WARNING mode access on data set	1	2
1202	Public access >= UPDATE set on DATASET profile	2	3
1203	Public access > NONE set on DATASET profile	3	2
1204	Update on APF data set	2	2
1205	Data set added to APF list (WTO based)	2	3

Table 5. Predefined Alerts (continued)

ID	Description	Class	Severity
1206	Data set removed from APF list (WTO based)	2	2
1207	Data set addition to APF list detected	2	3
1208	Data set removal from APF list detected	2	2
1209	Non-regular access to PCI PAN data	2	2
1210	Non-regular access to clear text PCI PAN data	2	2
1211	Non-regular access to PCI AUTH data	2	2
1212	Access>=READ on sensitive data set	2	2
1213	Access>=UPDATE on sensitive data set	2	2
1214	Action on UPDATE sensitive member	2	2
1215	WARNING mode set on DATASET profile	1	3
1216	LEVEL value changed on DATASET profile	3	2
1217	Data set added to APF list (SMF based)	2	3
1218	Data set removed from APF list (SMF based)	2	2
1301	Catchall profile used for STC	3	2
1302	Audited program has been executed	3	2
1303	WARNING mode access on general resource	1	2
1304	Public access > NONE set on general resource profile	2	3
1305	WARNING mode set on general resource profile	1	3
1306	Trusted or privileged assigned to STC	2	3
1307	LEVEL value changed on general resource profile	3	2
1401	UNIX file access violation	3	2
1402	Global write specified when altering file access	2	3
1403	Global read specified when altering file access	3	2
1404	Extended attribute changed (Superseded by 1409)	2	2
1405	Audited UNIX program has been executed	3	2
1406	Superuser privileged UNIX program executed	2	2
1407	Superuser privileged shell obtained by user	2	2
1408	Superuser privileges set on UNIX program	2	2
1409	Extended attribute changed	2	2
1410	UID(0) assigned	2	3
1411	Permit issued on BPX.SUPERUSER	2	3
1501	Global security countermeasure activated	3 (**)	2
1502	Global security countermeasure deactivated	1 (*) (**)	4
1503	Global security countermeasure or option changed	1	3

Table 5. Predefined Alerts (continued)

ID	Description	Class	Severity
1504	RACF resource class activated	2	2
1505	RACF resource class deactivated	2	3
1506	Global access checking table has been changed	2	2
1507	Dynamic class descriptor table has been changed	2	2
1508	Command Verifier deactivated by SETPROG EXIT	1 (*)	3
1601	SMF data loss started	1 (*)	5
1602	SMF logging resumed after failure	3	2
1603	SVC definition changed	2	3
1604	IBM Health Checker found low severity problem	3	2
1605	IBM Health Checker found medium severity problem	2	3
1606	IBM Health Checker found high severity problem	1	4
1607	SMF record flood detected	1	4
1608	SMF record flood starts dropping records	1	5
1609	Attacks blocked by filter rules are no longer logged	2	2
1610	Attacks blocked by default filter rules are no longer logged	3	2
1611	Certain SMF 119 records are no longer written; audit trail incomplete	1	3
1612	IPv4 or IPv6 filtering support and IPSec tunnel support deactivated	1	4
1613	TCP or UDP ports below 1024 are not reserved any more	1	4
1614	The security class of an interface has changed	2	2
1615	IP filter rules changed	2	2
1616	SMF record type deactivated	2	2
1617	New master key promotion detected	2	2
1701	Connect to an important group	2	3
1801	zSecure Access Monitor not active	2	3
1802	zSecure Server connection lost	2	3
1804	IBM Workload Scheduler job has not started	2	3
1805	IBM Workload Scheduler job is late	2	3
1806	IBM Workload Scheduler job has failed	2	3
2001	Heartbeat event (indicates that its originator is up and running)	3	0
2102	Logon with emergency user	1 (*)	3
2104	Highly authorized user revoked for password	2	3
2105	System authority granted	2	3
2106	System authority removed	3	2

Table 5. Predefined Alerts (continued)

ID	Description	Class	Severity
2111	Invalid password attempts exceed limit for user	2	3
2112	Password history flushed	2	3
2113	Suspect password changes	3	2
2115	Too many violations	1	3
2116	SECURITY authority used by non-SECURITY logon ID	1	2
2117	NON-CNCL authority used by non-NON-CNCL logon ID	1	3
2118	READALL authority used by non-READALL logon ID	1	3
2119	Non-expiring password enabled	2	2
2120	Major administrative activity	2	2
2124	Logon from a not allowed IP address	2	3
2125	Password spraying attack	2	3
2201	WARNING mode access on data set	1	2
2204	Update on APF data sets	2	2
2205	Data set added to APF list (WTO based)	2	3
2206	Data set removed from APF list (WTO based)	2	2
2207	Data set addition to APF list detected	2	3
2208	Data set removal from APF list detected	2	2
2209	Non-regular access to PCI PAN data	2	2
2210	Non-regular access to clear text PCI PAN data	2	2
2211	Non-regular access to PCI AUTH data	2	2
2212	Access>=READ on sensitive data set	2	2
2213	Access>=UPDATE on sensitive data set	2	2
2214	Action on UPDATE sensitive member	2	2
2217	Data set added to APF list (SMF based)	2	3
2218	Data set removed from APF list (SMF based)	2	2
2301	Default STC logon ID used for STC	3	2
2407	Superuser privileged shell obtained by user	2	2
2409	Extended attribute changed	2	2
2501	Global security countermeasure added	3	2
2502	Global security countermeasure deleted	1 (*)	4
2503	Global security countermeasure or option changed	1	3
2601	SMF data loss started	1 (*)	5
2602	SMF logging resumed after failure	3	2
2603	SVC definition changed	2	3

Table 5. Predefined Alerts (continued)			
ID	**Description**	**Class**	**Severity**
2604	IBM Health Checker found low severity problem	3	2
2605	IBM Health Checker found medium severity problem	2	3
2606	IBM Health Checker found high severity problem	1	4
2607	SMF record flood detected	1	4
2608	SMF record flood starts dropping records	1	5
2609	Attacks blocked by filter rules are no longer logged	2	2
2610	Attacks blocked by default filter rules are no longer logged	3	2
2611	Certain SMF 119 records are no longer written; audit trail incomplete	1	3
2612	IPv4 or IPv6 filtering support and IPSec tunnel support deactivated	1	4
2613	TCP or UDP ports below 1024 are not reserved any more	1	4
2614	The security class of an interface has changed	2	2
2615	IP filter rules changed	2	2
2616	SMF record type deactivated	2	2
2617	New master key promotion detected	2	2
2802	zSecure Server connection lost	2	3
2804	IBM Workload Scheduler job has not started	2	3
2805	IBM Workload Scheduler job is late	2	3
2806	IBM Workload Scheduler job has failed	2	3

(*) When this alert is issued, a fast response is required.

(**) This alert is included in alert 1503, so there is little point in activating it if they have the same receiver set.

The Severity column lists the severity levels that IBM Z NetView associates with alerts. Severity levels range from 0 to 5:

Table 6. NetView severity levels	
Severity	**Meaning in NetView**
0	Cleared
1	Indeterminate
2	Warning
3	Minor error
4	Critical
5	Major

The alerts are communicated through alert messages that are available in the following different formats:

- email

- text message
- WTO
- SNMP trap
- QRadar Unix syslog
- ArcSight in Common Event Format (CEF)

See “Overview” on page 3.

Sample emails and text messages are shown with each individual predefined alert in this chapter. The SNMP trap format is explained in Appendix A, “SNMP output,” on page 143.

The rest of this chapter explains the general layout of the email format and describes the predefined alerts in detail, divided in functional categories. If an alert can be configured, it is explained here.

Each alert requires certain SMF record types to be logged or specific WTO messages to be issued. Most predefined alerts require SMF type 80, RACF processing. It is assumed that you log these SMF types. All other requirements are shown with each individual alert. SMF logging is controlled per subsystem.

Standard email layout

All email alert messages have similar output. See the following example of an email that can be sent.

```
From: C2POLICE at DINO
Subject: Alert: Emergency user EMERG1 logged on

Alert: Emergency user EMERG1 logged on
Successful logon or job submit with a userid meant for emergencies

   Alert id        1102
   Date and time   18Nov2019 15:01:16.72
   User            EMERG1   EMERGENCY ONE
   Result          Success
   Job name + id   EMERG1   STC01956
   System ID       DINO
   Source terminal 0A01FEE0
   Source (IPv4)   10.1.254.224
```

The sender of the email can be configured using the interface. The default is: *jobname* `at` *system name*. The subject header and the body of the email are generated by the CARLa code. The email subject is the same as the first line in the email body; however, formatting can vary slightly. Below that line is a general header that describes the event.

Below the headers of the alert is the section with details. The first line contains the alert ID. This number can be used to find the corresponding alert using SNMP, WTO, or SMS output and for finding the right entry in this documentation. The second line shows the date and time the event occurred. This is followed by the alert-specific fields. Finally, the job name, job ID, system name, and optional source information are listed if available.

Some SMF records contain a field **TERMINAL**, and in ACF2 system, the **ACF2_SOURCE** field is found. If these values are available for the event, they are printed as follows:

- `Source terminal` for TERMINAL field value found.
- `Source` for ACF2 SOURCE field value found.

If this value consists of a hexadecimal string, this is often the IPv4 address that originated the session. It is printed as `Source (IPv4)`, or omitted when the Source value is a text value, or missing.

For jobs submitted from another JES2 node, or submitted by another user, the email message could show the following:

- `Source node` for jobs submitted from another JES2 node.
- `Source user` for jobs submitted by another user.

For example:

```
From: C2POLICE at DINO
Subject: Alert: Audited program CKRCARLA has been executed

Alert: Audited program CKRCARLA has been executed
A program with auditing specified has been executed

   Alert id        1302
   Date and time   18Nov2019 07:49:05.13
   Program         CKRCARLA
   Data set        SHARED.CKR250.SCKRLOAD
   User            AUTOJOB  IWS TRACKER USERID
   Job name        AUTOJ87
   System ID       DINO
   Source node     JESNODE2
   Audit reason    Resource
```

Predefined RACF alerts

The following topics describe the RACF alerts that are shipped with zSecure Alert.

User alerts

Logon by unknown user (1101)

This alert is triggered on two occasions:

1. A user, unknown to RACF, successfully logs on to TSO. This user is defined in SYS1.UADS, but not in RACF.
2. A batch job is submitted by NJE on another system for this system. On the receiving system, the user that submitted the job is not defined to RACF.

To receive this alert, you must log SMF record type 30 subtype 1.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Logon by unknown user

Alert: logon by unknown user
A user unknown to RACF logged on or submitted a batch job

   Alert id        1101
   Date and time   10Feb2003 06:53:16.60
   User            *
   Result          Success
   Job name + id   TSOB     JOB00042
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1101: Logon by unknown user *        job TSOB

Alert 1101: Logon by unknown user * job TSOB
```

The generated email report always shows a '*' for the user and whether the logon succeeded.

It can be difficult to find the source of the unknown logon because the system only logs a '*' as user. However, you can verify that the SYS1.UADS data set does not contain any user IDs that are not defined in RACF. Additionally, to stop job submissions by undefined users you can set SETROPTS JES(BATCHALLRACF).

Logon with emergency user ID (1102)

An alert is sent if a user ID that is meant for emergencies is used for TSO logon or batch job submission.

To receive this alert, you must log SMF record type 30 subtype 1.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Emergency user IBMUSER  logged on

Alert: Emergency user IBMUSER logged on
Successful logon or job submit with a userid meant for emergencies

   Alert id        1102
   Date and time   03Feb2003 09:38:44.94
   User            IBMUSER  IBM DEFAULT USER
   Result          Success
   Job name + id   IBMUSER  TSU05900
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1102: emergency user IBMUSER  logged on

Alert 1102: emergency user IBMUSER logged on
```

The generated email report shows the user ID used to log on to the system and whether the logon succeeded.

You can configure the alert for your site. When selecting the alert, you are prompted with a panel. You can enter up to 10 user IDs that must be used only in case of emergencies. See “Emergency user configuration (alerts 1102 and 2102)” on page 123.

Logon of a user ID with uid(0) (UNIX superuser) (1103)

An alert is sent if a user ID with UNIX uid 0 is used to logon to TSO or OMVS. It is a sound UNIX principle that you must not log on with superuser privileges but instead use 'su' when needed.

To receive this alert, you must log SMF record type 30 subtype 1.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Superuser C##BMR1  logon

Alert: Superuser C##BMR1 logon
A user with uid(0) has logged on

   Alert id        1103
   Date and time   03Feb2003 09:38:44.94
   User            C##BMR1  MARY ROBERTSON
   Logon to        TSO
   Result          Success
   Job name + id   C##BMR1  TSU05900
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1103: Superuser C##BMR1  logon to TSO

Alert 1103: Superuser C##BMR1 logon to TSO
```

The generated email report shows the user ID that was used to log on to the system, on which subsystem the logon took place, TSO or OMVS, and the status of the logon.

If you receive these alerts, you must remove the uid 0 definition in the OMVS segments of these users. Use profiles in the UNIXPRIV class and BPX.SUPERUSER in the FACILITY class to give users selective superuser authority.

Highly authorized user revoked for password (1104)

This alert is triggered when a user with a system-level authority (SPECIAL, OPERATIONS, AUDITOR, or ROAUDIT) is revoked because of excessive invalid password attempts. It can be caused by an intruder who is trying to guess the password of the user.

Note: You must take care not all your users with system authority get revoked at the same time. You must have some procedure to make sure that at least one unrevoked user ID with SPECIAL authority is reinstated.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Highly authorized user C##CX44  revoked for password violations

Alert: Highly authorized user C##CX44 revoked for password violations
System-level authorized user revoked due to excessive password attempts

   Alert id        1104
   Date and time   07Feb2003 14:58:27.13
   User            C##CX44  TEST USER
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1104: Highly authorized user C##CX44  revoked for password violations

Alert 1104: Highly authorized user C##CX44 revoked for password violations
```

The report shows the user ID and accompanying programmer name that is revoked for excessive password violations.

System authority granted (1105)

An alert is generated when a user obtains system-level authority (SPECIAL, OPERATIONS, AUDITOR, ROAUDIT, or CLAUTH).

To receive this alert, you must have SETROPTS setting AUDIT(USER) and SAUDIT enabled.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: System authority granted to C##BMR2

Alert: System authority granted to C##BMR2
System-level authority granted to user

   Alert id        1105
   Date and time   29May2000 13:25:12.42
   Authority       SPECIAL
   Granted to      C##BMR2  MARY ROBERTSON
   Result          Success
   RACF command    ALTUSER C##BMR2 SPECIAL
   User            C##BMR1  MARY ROBERTSON
   Job name        C##BMR1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1105: System authority granted to C##BMR2  by C##BMR1

Alert 1105: System authority SPECIAL granted to C##BMR2 by C##BMR1
```

The report shows the system authority that is granted, the user that is granted the authority, the complete RACF command, and the result of the command. Additionally, it shows the user that performed the RACF command.

System authority removed (1106)

An alert is sent when a system-level authority, that is, SPECIAL, OPERATIONS, AUDITOR, ROAUDIT, or CLAUTH, is removed from a user.

To receive this alert, you must have SETROPTS setting AUDIT(USER) and SAUDIT enabled.

This alert uses the system-level attributes of the user ID as they are defined in the RACF database at the time of the environment refresh. No alert is generated if a command sets the value of the attribute to the one that is obtained at the time of the environment refresh.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: System authority removed from C##BMR1

Alert: System authority removed from C##BMR2
System-level authority removed from user

   Alert id        1106
   Date and time   29May2000 13:25:16.15
   Authority       SPECIAL
   Removed from    C##BMR2  MARY ROBERTSON
   Result          Success
   RACF command    ALTUSER C##BMR2 NOSPECIAL
   User            C##BMR1  MARY ROBERTSON
   Job name        C##BMR1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1106: System authority removed from C##BMR2  by C##BMR1

Alert 1106: System authority SPECIAL removed from C##BMR2 by C##BMR1
```

The report shows the removed authority, the user whose authority is removed, the complete RACF command, and the result of the command. In addition, it shows the user that performed the RACF command.

Group authority granted (1107)

If a group-level authorization, that is, SPECIAL, OPERATIONS, or AUDITOR, is granted to a user, an alert is generated.

To receive this alert, you must have SETROPTS setting SAUDIT, AUDIT(USER), or AUDIT(GROUP) enabled.

This alert uses the group-level attributes of the user ID as they are defined in the RACF database at the time of the environment refresh. No alert is generated if a command sets the value of the attribute to the one obtained at the time of the environment refresh. If multiple CONNECT commands are issued, you might receive an alert for each command.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Group authority granted to C##ARO2  in C##C

Alert: Group authority granted to C##ARO2 in C##C
CONNECT  Group-level authority granted to user

   Alert id        1107
   Date and time   02Feb2003 09:47:23.29
   Authority       SPECIAL
   Granted to      C##ARO2  RICK OXSON
   Connected to    C##C
   Result          Success
   RACF command    CONNECT C##ARO2 AUTHORITY(USE) GROUP(C##C) NOADSP
                   NOAUDITOR NOGRPACC NOOPERATIONS OWNER(C##C) RESUME
                   SPECIAL UACC(NONE)
   User            C##BERT  ERWIN RETTICH
   Job name        CRRAC#17
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1107: Group authority granted to C##ARO2  in C##C

Alert 1107: Group authority SPECIAL granted to C##ARO2 in C##C
```

The generated email report shows the granted authority, the user that is granted the authority, the group the authorized user is in, the complete RACF command, the result of the command, and the user who executed the command.

Note: The RACF command field shows the specified command keywords and the default keywords so it can become rather long.

Group authority removed (1108)

An alert is generated if a group-level authorization, that is, SPECIAL, OPERATIONS, or AUDITOR, is removed from a user, or a user with such authorizations is removed from a group.

To receive this alert, you must have SETROPTS setting SAUDIT, AUDIT(USER), or AUDIT(GROUP) enabled.

This alert uses the group-level attributes of the user ID as they are defined in the RACF database at the time of the environment refresh. No alert is generated if a command sets the value of the attribute to the one obtained at the time of the environment refresh. If multiple CONNECT commands are issued, you might receive an alert for each command.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Group authority removed for C##ARO2  in C##C

Alert: Group authority removed for C##ARO2 in C##C
Group-level authority removed from user

   Alert id        1108
   Date and time   02Feb2003 09:47:23.29
   Authority       OPERATIONS AUDITOR
   Removed from    C##ARO2  RICK OXSON
   Connected to    C##C
   Result          Success
   RACF command    CONNECT C##ARO2 AUTHORITY(USE) GROUP(C##C) NOADSP
                   NOAUDITOR NOGRPACC NOOPERATIONS OWNER(C##C) RESUME
                   SPECIAL UACC(NONE)
   User            C##BERT  ERWIN RETTICH
   Job name        CRRAC#17
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1108: Group authority removed for C##ARO2  in C##C

Alert 1108: Group authority OPERATIONS AUDITOR removed for C##ARO2 in C##C
```

The report shows the removed authority, or <CONNECT REMOVED> if the connection is removed, the user whose authority is removed, the group that the user is in, the complete RACF command, the result of the command, and the user who executed the command.

Note: The RACF command field shows the specified command keywords and the default keywords so it can become rather long.

SPECIAL authority used by non-SPECIAL user (1109)

This alert is generated when a user without system or group special authorization executes a command with the group or system special authorizations. It means that the user has the potential to successfully execute commands that require group or system special, but does not have SPECIAL authority itself. This condition can be set by APF-authorized software.

Note: You must analyze the SMF records cut for the job up to the time the alert was issued as a first attempt to identify the responsible program.

To receive this alert, you must have SETROPTS setting SAUDIT enabled.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: non-SPECIAL user C##BDV1  issued SPECIAL command
```

```
Alert: non-SPECIAL user C##BDV1 issued SPECIAL command
SPECIAL authority used for RACF command by user without SPECIAL

   Alert id        1109
   Date and time   17Jan2003 03:00:16.89
   User            C##BDV1  DIONNE VONT
   RACF command    ADDSD 'SYS1.APF.NODATA.**' NOSET
   Result          Success
   Job name        C##BDV1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1109: non-SPECIAL user C##BDV1  issued SPECIAL command

Alert 1109: non-SPECIAL user C##BDV1 issued SPECIAL command ADDSD
'SYS1.APF.NODATA.**' NOSET
```

The report shows the user, the RACF command the user executed, and whether the command succeeded.

If the command is issued without valid authorization, you must examine the cause for the special authorization and remove it.

Non-OPERATIONS user accessed data set with OPERATIONS (1110)

An alert is generated when a user without system or group operations accesses a data set with group or system operation authority. It implies that the user can access all data sets in the scope of the user unless explicitly denied by an ACL. This situation can arise if an APF-authorized program sets group or system operations authority in the RACF control blocks.

Note: You must analyze the SMF records cut for the job up to the time the alert got issued as a first attempt to identify the responsible program.

To receive this alert, you must have SETROPTS setting OPERAUDIT enabled.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: non-OPERATIONS user D##MUY   accessed data set with  OPERATIONS

Alert: non-OPERATIONS user D##MUY accessed data set with OPERATIONS
Successful data set access using OPERATIONS by user without OPERATIONS

   Alert id        1110
   Date and time   22Jan2003 10:26:16.81
   Data set        D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00
   Access          ALTER
   User            D##MUY
   Result          Success
   Job name        D##MUY
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1110: non-OPERATIONS user D##MUY   accessed (ALTER  ) with
OPERATIONS data set D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00

Alert 1110: non-OPERATIONS user D##MUY accessed (ALTER) with OPERATIONS
data set D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00
```

The alert shows the data set that is accessed, the access level, the accessing user, and the result of the action.

If the access is non-valid, you must examine the reason why these OPERATIONS authorizations are set, and remove the cause if necessary.

Invalid password attempts exceed limit (1111)

An alert is sent if too many failed logon attempts are made specifying an invalid password for one specific user ID in a specific time window. The measurement interval is the sum of the REPORT options **Interval**

and **AverageInterval**. See the information about the REPORT command in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

"Too many" is defined as 5 or more. If you want to use another limit, you must copy the alert to an installation defined alert. Adapt all seven instances of

```
_cnt_historyInvPw1111(nd,<5), _cnt_totalInvPw1111(nd,>=5),
```

in the new skeleton member to use the limit you want instead of 5.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Invalid password attempts exceed limit for C##BSG2

Alert: Invalid password attempts exceed limit for C##BSG2
Excessive number of password attempts by user

   Alert id        1111
   Date and time   03Mar2003 13:30:04.39 - 03Mar2003 13:39:23.78
   Attempts        6
   User            C##BSG2  SUSAN GAYNOR
   Result          Violation
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1111: Invalid password attempts exceed limit for C##BSG2

Alert 1111: Invalid password attempts exceed limit for C##BSG2
```

The generated email report shows the interval in which the logon attempts occurred, the number of attempts, the user ID that was used for trying to log on to the system, and the status of the logon; in this alert the logons are always violations.

Currently it is not possible to display the source (terminal) of the logon attempts.

Password history flushed (1112)

An alert is sent if the password for a specific user ID is changed more often than the password history SETROPTS setting in a specific time window. It means that the user flushed the entire password history, enabling reuse of a previous password. The measurement interval is the sum of the REPORT options **Interval** and **AverageInterval**. See the information about the REPORT command in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

Note: Alerts 1112 and 1113 are related. When a report interval ends while a password history is being flushed, alert 1113 is triggered, while alert 1112 occurs when flushing is complete. If you receive multiple alerts 1113 for the same user, but no alert 1112, it is also likely that the history is being flushed. The user might have taken some more time for it.

To receive this alert, you must have SETROPTS AUDIT(USER) enabled.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Password history flushed for C##BSG2

Alert: Password history flushed for C##BSG2
Repeated password changes flush password history

   Alert id        1112
   Date and time   05Mar2003 11:47:11.21 - 03Mar2003 11:47:12.04
   Pwd changes     33
   User            C##BSG2  SUSAN GAYNOR
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1112: Password history flushed for C##BSG2

Alert 1112: Password history flushed for C##BSG2
```

The generated email report shows the interval in which the password history flushing occurred, the number of password changes, and the user ID of the user who flushed the password history.

Suspect password changes (1113)

An alert is sent if the password for a specific user ID is changed too often in a specific time window, but not so often that the password history is flushed completely, which would result in alert 1112. "Too often" is defined as five times or more. If you want to use another limit, you must copy the alert to an installation defined alert. Adapt all seven instances of

```
_cnt_historyNoFlush1113(nd,<5),
_cnt_totalPwdCmd1113(nd,>=5) _cnt_totalNoFlush1113(nd),
```

in the new skeleton member to use the desired limit.

To receive this alert, you must have SETROPTS AUDIT(USER) enabled.

For further explanation, see “Password history flushed (1112)” on page 55.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Suspect password changes for C##BSG2

Alert: Suspect password changes for C##BSG2
Excessive number of password changes by user

   Alert id        1113
   Date and time   03Mar2003 15:17:12.32 - 03Mar2003 15:17:13.11
   Pwd changes     7
   User            C##BSG2  SUSAN GAYNOR
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1113: Suspect password changes for C##BSG2

Alert 1113: Suspect password changes for C##BSG2
```

The generated email report shows the interval in which the password changes occurred, the number of password changes, and the user ID that has its password changed many times.

Connect authority>=CREATE set (1114)

An alert is sent when an authority level of CREATE or higher is set on a connection. Such a level allows decentralized administrators to add group data set profiles. If the level is CONNECT or JOIN, the user can furthermore connect any existing user to the group in question. If the level is JOIN, the user can also create subgroups and give out connect authorities for the group to other users. Furthermore, if the user has class authority (CLAUTH) in the USER class, new users can be created in the group as well.

To receive this alert, you must have at least SETROPTS setting AUDIT(USER) enabled.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Connect authority JOIN    set for C##BSG2  in C##B

Alert: Connect authority JOIN set for C##BSG2 in C##B
High authority specified when adding or altering a connect

Alert id        1114
Date and time   08May2003 10:11:09.51
Authority       JOIN
Granted to      C##BSG2 SUSAN GAYNOR
Connected to    C##B
```

```
Result          Success
RACF command    ALTUSER C##BSG2 AUTHORITY(JOIN) GROUP(C##B)
User            C##BERT  ERWIN RETTICH
Job name        CBERT#17
System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1114: Connect authority JOIN    set for C##BSG2  in C##B

Alert 1114: Connect authority JOIN set for C##BSG2 in C##B
```

The generated email report shows the granted group-authority, the user and the target group, the complete RACF command, the result of the command, and the user who executed the command.

Note: The RACF command field shows the specified command keywords and the default keywords, so it can become rather long.

Too many violations (1115)

This corrective alert is generated when more violations than a configured number are recorded for a specific user ID in the interval as specified with the zSecure Alert REPORT option **AverageInterval**. For additional information, see the information about the REPORT command in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

To generate this alert, RACF access violations must be recorded. Access violations are recorded depending on the LOGOPTION settings for the class and the audit settings of the profile.

This alert is corrective in that you can specify to automatically revoke the violating user ID. In addition, with a zSecure Admin license you can choose to generate a CKGRACF DISABLE command instead of an ALTUSER REVOKE command.

The report format of the alert depends on whether you decided to let zSecure Alert perform a corrective action.

The email format of the alert without a corrective action is:

```
From:        C2POLICE at DINO
Subject:     Alert: 15 violations recorded for user C2RMUS01

Alert: 15 violations recorded for user C2RMUS01
Number of violation exceeds the configured 10

   Alert id        1115
   Date and time   09Mar2005 14:49:55.90 - 09Mar2005 14:54:57.89
   Violations      15
   User            C2RMUS01
   System ID       DINO

 Time  Intent  Allowed Class    Resource

 14:49 READ    NONE    JESSPOOL JES2DINO.DFHSM.DFHSM.STC05782.D0000002.J
                                ESMSGLG
 14:49 READ    NONE    JESSPOOL JES2DINO.DFHSM.DFHSM.STC05782.D0000003.J
                                ESJCL
 14:50 READ    NONE    JESSPOOL JES2DINO.DFHSM.DFHSM.STC05782.D0000004.J
                                ESYSMSG
 14:50 READ    NONE    JESSPOOL JES2DINO.DFHSM.DFHSM.STC05782.D0000101.?
 14:51 READ    NONE    JESSPOOL JES2DINO.DFHSM.DFHSM.STC05782.D0000104.?
```

The text message format of the alert is:

```
Subject: Alert 1115: 15 violations recorded for user C2RMUS01

Alert 1115: 15 violations recorded for user C2RMUS01
```

When you decide to generate an ALU REVOKE command for the violating user ID, the text is changed into:

```
User C2RMUS01 revoked after 15 violations
```

When you decide to generate a CKGRACF DISABLE command for the violating user ID, the text is changed into:

```
User C2RMUS01 disabled with schedule DIS#VIOL after 15 violations
```

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the number of violations you consider being excessive. Furthermore, you can specify up to 10 user IDs or user ID masks to be excluded. See "Major administrative activity (1120 and 2120) configuration" on page 124.

Non-expiring password enabled (1119)

An alert is sent when a non-expiring password is set for a user ID by issuing the PASSWORD NOINTERVAL command.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert:  User C##ASCH assigned non-expiring password for C##ABRJ

Alert: User C##ASCH assigned non-expiring password for C##ABRJ
User has been assigned a non-expiring password

    Alert id        1119
    Date and time   03Feb2013 10:12:05.30
    User            C##ABRJ JOHN BROWN
    Result          Success
    Issued by       C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
    Command         PASSWORD C##ABRJ NOINTERVAL
```

The text message format of the alert is as follows:

```
Subject: Alert 1119: User C##ASCH assigned non-expiring password for C##ABRJ

Alert 1119: User C##ASCH assigned non-expiring password for C##ABRJ
```

The alert shows the command issuer and the user ID for which the non-expiring password was set.

Major administrative activity (1120)

An alert is sent when more RACF commands than a configured number are recorded for a specific user ID in the interval as specified with the zSecure Alert REPORT option **AverageInterval**.

For more information about the zSecure Alert REPORT option **AverageInterval**, see the information about the REPORT command in *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: 126 commands recorded for user CDADMIN

Alert: 126 commands recorded for user CDADMIN
Number of commands exceeds the configured 100

    Alert id        1120
    Date and time   03Feb2013 10:12:05.30
    Commands        126
    User            CDADMIN   BATCH ADMIN JOB
    System ID       DINO

   Time  Event    Event description

   14:30 ALTUSER  Altuser command (Success:No violations detected)
   14:30 ALTUSER  Altuser command (Success:No violations detected)

   ..... .......  ........................................
```

The text message format of the alert is as follows:

```
Subject: Alert 1120: 126 commands recorded for user CDADMIN

Alert 1120: 126 commands recorded for user CDADMIN
```

The alert includes the user ID, the number of commands that are issued, and a list of events.

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the number of violations you consider being excessive. Furthermore, you can specify up to 10 user IDs or user ID masks to be excluded. See "Major administrative activity (1120 and 2120) configuration" on page 124.

Protected status removed (1121)

An alert is sent when the protected status for a user ID is removed by assigning a password or phrase to the user ID using the ALTUSER command. User IDs that have never been used are excluded from this alert. For correct exclusion of user IDs that have never been used, SETROPTS INITSTATS must be active.

This alert uses the protected status of the user ID as it is defined in the RACF database at the time of the environment refresh. If multiple ALTUSER commands are issued, you might receive an alert for each command.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert:  User C##ASCH removed protected status from COLLSTC

Alert: User C##ASCH removed protected status from COLLSTC
Protected status removed

    Alert id        1121
    Date and time   03Feb2013 10:12:05.30
    Removed from    COLLSTC COLLECT TASK
    Result          Success
    User            C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
    Command         ALTUSER COLLSTC PASSWORD(<password>)
```

The text message format of the alert is as follows:

```
Subject: Alert 1121: User C##ASCH removed protected status from COLLSTC

Alert 1121: User C##ASCH removed protected status from COLLSTC
```

The alert shows the command issuer and the user ID for which the protected status was removed.

Logon with sensitive user ID (from C2PACMON) (1122)

Alert 1122 is issued if you log on with sensitive user ID. To use this alert, you must have an ADMINRACF or equivalent entitlement and Access Monitor must be configured for event forwarding.

An alert is sent if a sensitive user ID is used. This alert is based on ACCESS records as forwarded by zSecure Admin Access Monitor. To use this alert, you must have an zSecure ADMINRACF or equivalent entitlement. If you don't have such an entitlement, or if it has been disabled, the alert specification is silently ignored. zSecure Admin Access Monitor must be running and must be configured to forward VERIFY events to the zSecure Alert started task. If Access Monitor has not been configured for event forwarding, ACCESS records for RACF VERIFY events are not available to zSecure Alert, and Alert 1122 is not issued. For more information on Access Monitor event forwarding, see the EventsToAlert keyword in the ''Setup of zSecure Admin Access Monitor'' chapter of the zSecure Installation and Deployment Guide; see the OPTION command in the ''Configuration commands'' section.

Because most job starts involve multiple RACF VERIFY events, all similar events are combined into a single alert per interval. If the events for a single job start occur in multiple intervals, multiple alerts might be issued. For some scenarios, these RACF VERIFY events return different return codes. For example, when a user tries to logon with an expired password, the failed logon is usually followed by a successful

logon. Depending on the scenario and the logic in the resource manager, the complete logon sequence might be failed or end successfully. For these situations, multiple alerts are issued as well.

The following example shows the text message format of the alert for a successful logon:

```
Subject: Alert 1122: Sensitive user IBMUSER logon
Alert 1122: Sensitive user IBMUSER logon

        Alert id              1122
        First date and time   18Nov2016 03:50:29
        Last date and time    18Nov2016 03:50:29
        User ID               IBMUSER  IBM DEFAULT USERID
        Job name + id         IBMUSER
        Return code           0
        Application
        Port of entry         TERMINAL:SC0TCP02
        System ID             BCSC
```

The following example shows the text message header for an unsuccessful logon:

```
Subject: Alert 1122: Sensitive user IBMUSER logon failed
Alert 1122: Sensitive user IBMUSER logon failed
```

The generated email report shows the user ID used to log on to the system. You can configure the alert for your environment. When selecting the alert, you are prompted with a panel where you can enter up to 10 sensitive user IDs. The configuration process is identical to the process for emergency user IDs. See “Emergency user configuration (alerts 1102 and 2102)” on page 123.

Privilege escalation detected (1123)

Alert 1123 is triggered by the IRR421I messages that RACF issued. To receive this alert, you must have the ACEECHK resource class active and racflisted. For more information about privilege escalation and IRR421I messages, see *RACF Security Administrator's Guide* section "Detecting ACEE modifications".

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: ACEE change detected for BCSCWA2  running program PERMIT

Alert: ACEE change detected for BCSCWA2 running program PERMIT
Unauthorized privilege escalation

   Alert id        1123
   Date and time   13Sep2019 04:45:23.00
   User            BCSCWA2  WALT 2
   Escalation      ACEEPRIV
   Active Program  PERMIT
   Job name        BCSCWA2P
   Job ID          J0036002
   System ID       DINO
   WTO message     IRR421I ACEE modification detected
                    for user BCSCWA2 in address space ID 0x00000015 running under user
                    BCSCWA1P and job name BCSCWA2P while program PERMIT  is running.  The
                    RACF function detecting the modification is IRRENV00.
                    Rsn=0x40002000.  (ACEEPRIV is ON).  Occurrences 1.  Command=PERMIT.
                    Profiles in the ACEECHK class were ignored because the execution
                    environment is not clean. Call chain: PERMIT <- CKGRACF
```

The text message format of the alert is:

```
Subject: Alert 1123: ACEE change detected for BCSCWA2  running program LISTDS

Alert 1123: ACEE change detected for BCSCWA2 running program LISTDS
```

Some output formats of the generated alert do not include all the details present in the IRR421I message. For example, the text message format of the alert includes only the first (most important) privilege escalation that RACF detects. For complete information to diagnose exactly why RACF detected this as an unauthorized privilege escalation, check the message in the syslog of the indicated system.

Logon from a not allowed IP address (1124)

Alert 1124 is sent when a user ID with the SPECIAL, AUDITOR, OPERATIONS, or ROAUDIT attribute logs on to TSO from an IP address that is not allowed.

To receive this alert, perform the following steps:

1. Log SMF record types 30 subtype 1, 80, and 118 or 119.
2. Set SMFINIT parameter for TELNETPARMS to TYPE119 in the telnet configuration file.
3. Set internal refresh to Y in the Alert configuration.

The email format of the alert is:

```
Alert: Authorized user CRMBXX2 logged on from 9.145.159.178
Logon by a userid from a not allowed IP address

   Alert id        1124
   Date and time   29Mar2021 13:33:08.88
   User            CRMBXX2  IBM DEFAULT USER
   Result          Success
   Job name + id   CRMBXX2  TSU07970
   System ID       8018
   Source terminal STCP0010
   Source IP       9.145.159.178
```

The text message format of the alert is:

```
Subject: Alert 1124: Authorized user CRMBRT2 logged on from 9.145.159.178

Alert 1124: Authorized user CRMBRT2 logged on from 9.145.159.178
```

The generated email report shows the user ID that is used to log on to the system and its IP address.

You can configure the alert for your site. When selecting the alert, you are prompted with a panel. You can enter up to 10 IP addresses or network prefixes that specify from where the user ID is allowed to logon. See “Allowed IP address configuration (alerts 1124 and 2124)” on page 125.

Password spraying attack (1125)

Alert 1125 is sent when password violations for multiple userids originating from one IP address exceed the specified number.

To receive this alert, perform the following steps:

1. Log SMF record types 30 subtype 1, 80, and 118 or 119.
2. Set SMFINIT parameter for TELNETPARMS to TYPE119 in the telnet configuration file.
3. Set internal refresh to Y in the Alert configuration.

The email format of the alert is:

```
Alert: Password spraying attack from 192.168.0.12
Number of userids equal or exceeding the configured 2

   Alert id        1125
   Date and time   13Jul2021 16:52:28.54 - 13Jul2021 16:53:02.34
   System ID       ZS14
   Source terminal STCP0001

   Time  Event             Userid   Name

   13Jul2021 16:52:28.54   CRMBXX3  User3
   13Jul2021 16:52:41.10   CRMBXX4  User4
   13Jul2021 16:52:43.95   CRMBXX4  User4
```

The text message format of the alert is:

```
Subject: Alert 1125: Password spraying attack from 192.168.0.12

Alert 1125: Password spraying attack from 192.168.0.12
```

The generated email report shows the IP address where the logon attempts came from and the userid's for which password violations were detected.

You can configure the alert for your site. When selecting the alert, you are prompted with a panel. You can enter a value that is the highest acceptable number of user IDs. See “Specify threshold value (alerts 1125 and 2125)” on page 125.

Data set alerts

This section describes the predefined alerts for data set access and data set profile changes.

WARNING mode access on data set (1201)

A data set is accessed and access is granted because of warning mode. See also “WARNING mode access on general resource (1303)” on page 73.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: WARNING mode READ    on data set CDS.SCDSSAMP

Alert: WARNING mode READ on data set CDS.SCDSSAMP
Data set access granted due to warning mode

   Alert id        1201
   Date and time   21Jan2003 09:11:11.01
   Data set        CDS.SCDSSAMP
   Granted access  READ
   Normal access   NONE
   Profile         CDS.SCDS*
   User            C##BMR1  MARY ROBERTSON
   Job name        C##BMR1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1201: WARNING mode READ    by C##BMR1 on data set
CDS.SCDSSAMP

Alert 1201: WARNING mode READ by C##BMR1 on data set CDS.SCDSSAMP
```

The reports show the data set, the user that requested access to it, the profile against which the access is checked, the access that is granted, and the normal access that would have been granted if the profile had not been in WARNING mode.

A profile in WARNING mode can grant any access to the resource, including what the profile would not allow otherwise. WARNING mode is typically used to analyze what the effects of the access settings of a profile are before the access control is enforced. It functions as a temporary measure to overcome production problems. If you receive these alerts, you must verify whether the access must be granted. When confirmed, change the access settings of the profile accordingly. If this access is not supposed to occur, take remedial action as required.

Public access >= UPDATE set on DATASET profile (1202)

An alert is generated if a UACC of UPDATE or higher is specified on a data set profile or ID(*) was permitted access of UPDATE or higher. If you want to receive alerts even when the specified access is equal to READ, you can use alert 1203.

To receive this alert, you must have SETROPTS setting AUDIT(DATASET) enabled.

The email format of the alert is:

```
Alert: Public access >= UPDATE set: CRMB##1.**
High UACC specified when adding or altering a data set profile

   Alert id        1202
   Date and time   19Jul2017 19:43:30.07
   Profile         CRMB##1.**
```

```
   Public access   UPDATE
   Method          UACC
   Result          Success
   RACF command    ALTDSD 'CRMB##1.**' GENERIC UACC(UPDATE)
   User            CRMB##1  RON V
   Job name        CRMB##1
   System ID       8018
```

or

```
Alert: Public access >= UPDATE set: CRMB##1.**
High ID(*) access specified when adding or altering a data set profile

   Alert id        1202
   Date and time   19Jul2017 19:43:30.07
   Profile         CRMB##1.**
   Public access   UPDATE
   Method          ID(*) access
   Result          Success
   RACF command    PERMIT 'CRMB##1.**' ACCESS(UPDATE) CLASS(DATASET) GENERIC ID(*)
   User            CRMB##1  RON V
   Job name        CRMB##1
   System ID       8018
```

The text message format of the alert is:

```
subject: Alert 1202: Public access >= UPDATE set by CRMB##1 : CRMB##1.**

Alert 1202: Public access >= UPDATE set: CRMB##1.** ID(*) access set to UPDATE by
CRMB##1
```

or

```
Alert 1202: Public access >= UPDATE set: CRMB##1.** UACC set to UPDATE by
CRMB##1
```

The alert shows the changed profile, the complete RACF command, the result of the command, the user who executed the command, and the public access level that was given.

Public access > NONE set on DATASET profile (1203)

An alert is generated if a UACC higher than NONE is specified on a data set profile or ID(*) was permitted access higher than NONE. If you want to receive alerts only when the specified access is higher than READ, you can use the alert 1202.

To receive this alert, you must have SETROPTS setting AUDIT(DATASET) enabled.

The email format of the alert is:

```
Alert: Public access > NONE set: CRMBID1.**
High ID(*) access specified when adding or altering a data set profile

   Alert id        1203
   Date and time   19Jul2017 19:24:16.93
   Profile         CRMBID1.**
   Public access   UPDATE
   Method          ID(*) access
   Result          Success
   RACF command    PERMIT 'CRMBID1.**' ACCESS(UPDATE) CLASS(DATASET) GENERIC ID(*)
   User            CRMBID1  RON V
   Job name        CRMBID1
   System ID       8018
```

or

```
Alert: Public access > NONE set: CRMBID1.**
High UACC specified when adding or altering a data set profile

   Alert id        1203
   Date and time   19Jul2017 19:24:16.94
   Profile         CRMBID1.**
   Public access   UPDATE
   Method          UACC
```

```
   Result          Success
   RACF command    ALTDSD 'CRMBID1.**' GENERIC UACC(UPDATE)
   User            CRMBID1  RON V
   Job name        CRMBID1
   System ID       8018
```

The text message format of the alert is:

```
Subject: Alert 1203: Public access > NONE set by CRMBID1 : CRMBID1.**

Alert 1203: Public access > NONE set: CRMBID1.** ID(*) access set to UPDATE by
CRMBID1
```

or

```
Subject: Alert 1203: Public access > NONE set by CRMBID1 : CRMBID1.**

Alert 1203: Public access > NONE set: CRMBID1.** ID(*) access set to UPDATE by
CRMBID1
```

The alert shows the changed profile, the complete RACF command, the result of the command, the user who executed the command, and the public access level that was given.

Update on APF data set (1204)

An alert is sent when an APF-authorized data set is updated.

To generate this alert, RACF successful update access must be recorded. This is the case if either AUDIT(success(update)) or GLOBALAUDIT(success(update)) has been specified for the relevant profiles. The necessary commands can be created using the zSecure Audit VERIFY SENSITIVE statement.

You can specify the privileged user and groups for which the alert must not be generated with SE.A.S option **Privileged users and groups for UPDATE on APF data sets**.

Note:

- You might want to refresh the CKFREEZE data set that contains the environmental data. If the APF list has been updated, for example, through a SETPROG command, issue a MODIFY C2POLICE,COLLECT command to obtain the current list of APF-authorized data sets.
- This alert does not take volume names into account. It can trigger on updates to any data set with a name that occurs in the current APF list.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Update by C##ASCH  on APF data set C##A.D.C##NEW.APF.LOAD

Alert: Update by C##ASCH on APF data set C##A.D.C##NEW.APF.LOAD
APF data set successfully updated

   Alert id        1204
   Date and time   03Feb2003 10:12:05.30
   Data set        C##A.D.C##NEW.APF.LOAD
   Access          ALTER
   User            C##ASCH  SIRAM CHRISTIAN
   Result          Success
   Job name        C##ASCHL
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1204: Update by user C##ASCH  on APF data set
C##A.D.C##NEW.APF.LOAD

Alert 1204: Update by user C##ASCH on APF data set C##A.D.C##NEW.APF.LOAD
```

The alert shows the data set that was updated, the employed access level, and the user who accessed the data set.

Data set added to APF list (WTO-based) (1205)

An alert is generated when a data set is dynamically added to the APF list using the SET PROG or SETPROG command.

To generate this alert, WTO message CSV410I must be available, and selected for processing.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert:: Data set added to APF list:   SYSPROG.APF.LOAD

Alert:: Data set added to APF list:   SYSPROG.APF.LOAD
A data set is dynamically added to the APF list

   Alert id        1205
   Date and time   21Feb2003 11:44:36.71
   Data set        SYSPROG.APF.LOAD
   Volume          <SMS MANAGED>
   Console ID      R##SLIN
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1205: Data set added to APF list from console R##SLIN:
SYSPROG.APF.LOAD

Alert 1205: Data set added to APF list from console R##SLIN
SYSPROG.APF.LOAD on volume <SMS MANAGED>
```

The alert shows the data set added to the APF list, on what volume the data set resides, or <SMS MANAGED> if it is managed by SMS. It shows the name of the console from which the user entered the SET PROG or SETPROG command, if entered from SDSF. The console name defaults to the user ID.

Data set removed from APF list (WTO-based) (1206)

An alert is generated when a data set is dynamically removed from the APF list using the SET PROG or SETPROG command.

To generate this alert, WTO message CSV410I must be available, and selected for processing.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Data set removed from APF list: SYSPROG.APF.LOAD

Alert: Data set removed from APF list: SYSPROG.APF.LOAD
A data set is dynamically removed from the APF list

Alert id        1206
Date and time   21Feb2003 11:44:36.71
Data set        SYSPROG.APF.LOAD
Volume          <SMS MANAGED>
Console ID      R##SLIN
System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1206: Data set removed from APF list from console R##SLIN:
SYSPROG.APF.LOAD

Alert 1206: APF Data set removed from APF list from console R##SLIN:
SYSPROG.APF.LOAD on volume <SMS MANAGED>
```

The alert shows the data set removed from the APF list. It also shows on what volume the data set resides, or <SMS MANAGED> if it is managed by SMS. It shows the name of the console from which the user entered the SET PROG or SETPROG command, if entered from SDSF. The console name defaults to the user ID.

Data set addition to APF list detected (1207)

This alert is generated when a data set is added to the APF list by any method.

This alert includes use of the SET PROG or SETPROG command and use of other products. To generate this alert, Extended Monitoring must be active. This alert is based on a comparison of two system snapshots. It does not provide any information about the user ID or jobname that was used to add the data set or the process that was used to perform the addition.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Data set addition to APF list detected: SYSPROG.APF.LOAD

Alert: Data set addition to APF list detected: SYSPROG.APF.LOAD
An addition of a data set to the APF list has been detected


       Alert id              1207
       Date and time         18Nov2016 03:50:29
       Data set              SYSPROG.APF.LOAD
       Volume                <SMS MANAGED>
       APF                   No
       APFLIST               Yes
       System ID             DINO
```

The text message format of the alert is:

```
Subject: Alert 1207: Data set addition to APF list detected: SYSPROG.APF.LOAD

Alert 1207: Data set addition to APF list detected: SYSPROG.APF.LOAD
```

The alert shows the data set that was added to the APF list. It also shows on what volume the data set resides (or <SMS MANAGED> if it is managed by SMS). This alert is based on a comparison of two system snapshots. It does not provide any information about the user ID or jobname that was used to add the data set or the process that was used to perform the addition.

Data set removal from APF list detected (1208)

This alert is generated when a data set is removed from the APF list by any method.

To generate this alert, Extended Monitoring must be active. This alert is based on a comparison of two system snapshots. It does not provide any information about the user ID, jobname that was used to remove the data set, or the process that was used to perform the removal.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Data set removal from APF list detected: SYSPROG.APF.LOAD

Alert: Data set removal from APF list detected: SYSPROG.APF.LOAD
A removal of a data set from the APF list has been detected


       Alert id              1208
       Date and time         18Nov2016 03:50:29
       Data set              SYSPROG.APF.LOAD
       Volume                <SMS MANAGED>
       APF                   Yes
       APFLIST               No
       System ID             DINO
```

The text message format of the alert is:

```
Subject: Alert 1208: Data set removal from APF list detected: SYSPROG.APF.LOAD

Alert 1208: Data set removal from APF list detected: SYSPROG.APF.LOAD
```

The alert shows the data set that was removed from the APF list. It also shows on what volume the data set resides (or <SMS MANAGED> if it is managed by SMS). This alert is based on a comparison of

two system snapshots. It does not provide any information about the user ID, jobname that was used to remove the data set, or the process that was used to perform the removal.

Non-regular access to PCI PAN data (1209)

An alert is sent for a successful non-regular READ or higher access to a PCI PAN (credit card Primary Account Number) data set.

To generate this alert, RACF successful read and update access must be recorded. This is the case if either AUDIT(success(read)) or GLOBALAUDIT(success(read)) has been specified for the relevant profiles.

You can specify the PCI PAN data sets and the privileged user and groups for which the alert should not be generated with option SE.A.P.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert 1209: READ access by CIDASCH on PCI-PAN data set CIDA.D.CIDNEW.PAN

Alert 1209: READ access by CIDASCH on PCI-PAN data set CIDA.D.CIDNEW.PAN
Non-regular access

    Alert id        1209
    Date and time   03Feb2013 10:12:05.30
    Data set        CIDA.D.CIDNEW.PAN
    Sensitivity     PCI-PAN
    Access          READ
    User            CIDASCH SIRAM CHRISTIAN
    Result          Success
    Job name        CIDASCHL
    System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1209: READ access by CIDASCH on PCI-PAN data set CIDA.D.CIDNEW.PAN

Alert 1209: READ access by CIDASCH on PCI-PAN data set CIDA.D.CIDNEW.PAN
```

The alert shows the data set that was accessed, the access level used (for example READ) and the user who accessed the data set.

Non-regular access to clear text PCI PAN data (1210)

An alert is sent for a successful non-regular READ or higher access to clear text PCI PAN (credit card Primary Account Number) data.

To generate this alert, RACF successful read and update access must be recorded. This is the case if either AUDIT(success(read)) or GLOBALAUDIT(success(read)) has been specified for the relevant profiles.

You can specify the clear PCI PAN data sets and the privileged user and groups for which the alert should not be generated with option SE.A.P.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert 1210: READ access by CIDASCH on PCI-PAN-clr data set
CIDA.D.CIDNEW.PAN

Alert 1210: READ access by CIDASCH on PCI-PAN-clr data set CIDA.D.CIDNEW.PAN
Non-regular access

    Alert id        1210
    Date and time   03Feb2013 10:12:05.30
    Data set        CIDA.D.CIDNEW.PAN
    Sensitivity     PCI-PAN-clr
    Access          READ
    User            CIDASCH SIRAM CHRISTIAN
    Result          Success
    Job name        CIDASCHL
    System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1210: READ access by CIDASCH on PCI-PAN-clr data set
CIDA.D.CIDNEW.PAN

Alert 1210: READ access by CIDASCH on PCI-PAN-clr data set CIDA.D.CIDNEW.PAN
```

The alert shows the data set that was accessed, the access level used (for example READ) and the user who accessed the data set.

Non-regular access to PCI AUTH data (1211)

An alert is sent for a successful non-regular READ or higher access to a PCI AUTH (credit card sensitive authentication data) data set.

To generate this alert, RACF successful read and update access must be recorded. This is the case if either AUDIT(success(read)) or GLOBALAUDIT(success(read)) has been specified for the relevant profiles.

You can specify the PCI AUTH data sets and the privileged user and groups for which the alert should not be generated with option SE.A.P

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert 1211: READ access by CIDASCH on PCI-AUTH data set CIDA.D.CIDNEW.PAN

Alert 1210: READ access by CIDASCH on PCI-AUTH data set CIDA.D.CIDNEW.PAN
Non-regular access

    Alert id        1211
    Date and time   03Feb2013 10:12:05.30
    Data set        CIDA.D.CIDNEW.PAN
    Sensitivity     PCI-AUTH
    Access          READ
    User            CIDASCH SIRAM CHRISTIAN
    Result          Success
    Job name        CIDASCHL
    System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1211: READ access by CIDASCH on PCI-AUTH data set CIDA.D.CIDNEW.PAN

Alert 1211: READ access by CIDASCH on PCI-AUTH data set CIDA.D.CIDNEW.PAN
```

The alert shows the data set that was accessed, the access level used (for example READ) and the user who accessed the data set.

Access>=READ on site sensitive data set (1212)

An alert is sent for a successful non-regular READ or higher access to a site sensitive data set.

To generate this alert, RACF successful read and update access must be recorded. This is the case if either AUDIT(success(read)) or GLOBALAUDIT(success(read)) is specified for the relevant profiles. When you change the audit settings for a profile, ensure that failure auditing is also set as intended.

You can specify the site sensitive data sets and the privileged user and groups for which the alert must not be generated with option SE.A.S. The alert is not generated for resources that already have a sensitivity assigned by zSecure; for example, APF libraries, JES spool data sets, etc.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert 1212: READ access by C##ASCH on site sensitive READ data set
C##A.D.C##NEW.MACLIB

Alert 1212: READ access by C##ASCH on site sensitive READ data set
C##A.D.C##NEW.MACLIB
Non-regular access

    Alert id        1212
```

```
    Date and time   03Feb2013 10:12:05.30
    Data set        C##A.D.C##NEW.MACLIB
    Sensitivity        Site-Dsn-R
    Access          READ
    User            C##ASCH SIRAM CHRISTIAN
    Result          Success
    Job name        C##ASCHL
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 1212: READ access by C##ASCH on site sensitive READ data set
C##A.D.C##NEW.MACLIB

Alert 1212: READ access by C##ASCH on site sensitive READ data set
C##A.D.C##NEW.MACLIB
```

The alert shows the data set that was accessed, the access level used (for example READ) and the user who accessed the data set.

Access>=UPDATE on site sensitive data set (1213)

An alert is sent for a successful non-regular UPDATE or higher access to a site sensitive data set.

To generate this alert, RACF successful update access must be recorded. This is the case if either AUDIT(success(update)) or GLOBALAUDIT(success(update)) is specified for the relevant profiles. When you change the audit settings for a profile, ensure that failure auditing is also set as intended.

You can specify the sensitive data sets and the privileged user and groups for which the alert must not be generated with option SE.A.S. The alert is not generated for resources that already have a sensitivity assigned by zSecure; for example, APF libraries, JES spool data sets, etc.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert 1213: UPDATE access by CIDASCH on site sensitive UPDATE data set
CIDA.D.CIDNEW.MACLIB

Alert 1213: UPDATE access by CIDASCH on site sensitive UPDATE data set
CIDA.D.CIDNEW.MACLIB
Non-regular access

    Alert id        1213
    Date and time   03Feb2013 10:12:05.30
    Data set        CIDA.D.CIDNEW.MACLIB
    Sensitivity     Site-Dsn-U
    Access          UPDATE
    User            CIDASCH SIRAM CHRISTIAN
    Result          Success
    Job name        CIDASCHL
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 1213: UPDATE access by CIDASCH on site sensitive UPDATE data set
CIDA.D.CIDNEW.MACLIB

Alert 1213: UPDATE access by CIDASCH on site sensitive UPDATE data set
CIDA.D.CIDNEW.MACLIB
```

The alert shows the data set that was accessed, the access level used (for example UPDATE) and the user who accessed the data set.

Action on UPDATE sensitive member (1214)

An alert is sent for a successful action on an UPDATE sensitive member. This means one of the following actions is performed on a member: INITIALIZE, DELETE, ADD, REPLACE, or RENAME.

When IEBCOPY is used to update a PDS, no SMF type 42 records are produced for individual member updates, so alert 1214 will not be issued. For a PDSE, IEBCOPY causes SMF 42 to be generated, so alert 1214 will be issued.

You can specify the members and the data sets they are in with SE.A.S. option **UPDATE sensitive members in specific data sets**. You can specify the privileged user and groups for which the alert must not be generated with SE.A.S option **Privileged users and groups for site UPDATE sensitive resources**.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert 1214: Action by C##ASCH on UPDATE sensitive member IEASYS81

Alert 1214:  Action by C##ASCH on UPDATE sensitive member IEASYS81
Action on UPDATE sensitive member

    Alert id        1214
    Date and time   03Feb2013 10:12:05.30
    Data set        USER.PARMLIB
    Action          REPLACE
    Member          IEASYS81
    Alias
    Old Member
    User            C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 1214: REPLACE action by C##ASCH on UPDATE sensitive member IEASYS81

Alert 1214: REPLACE action by C##ASCH on UPDATE sensitive member IEASYS81 in data
set USER.PARMLIB
```

The alert shows the data set and member that was updated and the action that is performed on the member.

WARNING mode set on DATASET profile (1215)

An alert is generated if a DATASET profile is set to warning mode, allowing access to all users.

The email format of the alert is:

```
Alert: WARNING mode set: CRMB##2.*.**
WARNING mode on DATASET profile allows all access, incl. UPDATE and DELETE

   Alert id        1215
   Date and time   19Jul2017 20:57:10.17
   Profile         CRMB##2.*.**
   Result          Success
   RACF command    ALTDSD 'CRMB##2.*.**' WARNING
   User            CRMB##1  RON V
   Job name        CRMB##1
   System ID       8018
```

The text message format of the alert is:

```
Subject: Alert 1215: WARNING mode set by CRMB##1 : CRMB##2.*.**

Alert 1215: WARNING mode set: CRMB##2.*.** by CRMB##1
```

The alert shows the changed profile, the complete RACF command, the result of the command, and the user who executed the command.

LEVEL value changed on DATASET profile (1216)

An alert is generated if a LEVEL value other than 0 is set on a new DATASET profile, or if the LEVEL value was changed on an existing DATASET profile.

The email format of the alert is:

```
Alert: LEVEL value set: CRMB##1.**
LEVEL can contain a security control

   Alert id        1216
```

```
   Date and time   19Jul2017 20:17:37.59
   Profile         CRMB##1.**
   Level              66
   Result          Success
   RACF command    ALTDSD 'CRMB##1.**' GENERIC LEVEL(66)
   User            CRMB##1  RON V
   Job name        CRMB##1
   System ID       8018
```

The text message format of the alert is:

```
Subject: Alert 1216: LEVEL value set by CRMB##1 : CRMB##1.**

Alert 1216: LEVEL value set: CRMB##1.** by CRMB##1
```

The alert shows the DATASET profile that was updated, the user who executed the command, and the specified LEVEL.

Data set added to APF list (SMF based) (1217)

An alert is generated when a data set is dynamically added to the APF list using the SET PROG or SETPROG command.

To generate this alert, you must log SMF record 90 subtype 37.

The email format of the alert is:

```
Alert: Data set added to APF list: SYS1.APF.LOAD

A data set is dynamically added to the APF list

   Alert id        1217
   Date and time   16Feb2020 19:18:40.61
   Data set        SYS1.APF.LOAD
   Volume          <SMS MANAGED>
   System ID       8018
   User            CRMB##1
   Session         TSO
```

The text message format of the alert is:

```
Subject: Alert 1217: Data set added to APF list from  NTCP0005: SYS.APF.LOAD

Alert 1217: Data set added to APF list from  NTCP0005:
SYS.APF.LOAD on volume  <SMS MANAGED>
```

The alert shows the data set that was added to the APF list, on what volume the data set resides, or <SMS MANAGED> if it is managed by SMS. It shows from where the SET PROG or SETPROG command was issued.

Data set deleted from APF list (SMF based) (1218)

An alert is generated when a data set is dynamically removed from the APF list using the SET PROG or SETPROG command.

To generate this alert, you must log SMF record 90 subtype 37.

The email format of the alert is:

```
Alert: Data set deleted from APF list: SYS.APF.LOAD
A data set is dynamically removed from the APF list

   Alert id        1218
   Date and time   16Feb2020 20:30:33.52
   Data set        SYS.APF.LOAD
   Volume          <SMS MANAGED>
   System ID       8018
   User            CRMB##1
   Session         TSO
```

The text message format of the alert is:

```
Data set deleted from APF list from  NTCP0005 : SYS.APF.LOAD

Alert 1218: Data set deleted from APF list from  NTCP0005:
SYS.APF.LOAD on volume  <SMS MANAGED>
```

The alert shows the data set that was removed from the APF list, on what volume the data set resided, or <SMS MANAGED> if it is managed by SMS. It shows from where the SET PROG or SETPROG command was issued.

General resource alerts

These alerts report on the use of and changes to general resources.

Catchall profile used for STC (1301)

An alert is sent if a started task is checked against a catchall profile in the STARTED class.

To receive this alert, you must set TRACE(YES) with an RALTER STARTED command on the catchall profile. This outputs WTO message IRR812I.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: STARTED/*.*  used for STC IEFBR1A .IEFBR1B

Alert: STARTED/*.*  used for STC IEFBR1A.IEFBR1B
A started task is checked against a catchall profile

   Alert id        1301
   Date and time   11Feb2003 18:14:48.78
   Profile         *.*
   Started task    IEFBR1A
   Started jobname IEFBR1B
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1301: STARTED/*.*  used for STC IEFBR1A .IEFBR1B

Alert 1301: STARTED/*.*  used for STC IEFBR1A .IEFBR1B
```

The report shows the matched catchall profile and the started task member and job name. This report does not show the user who began the started task.

You can remove the cause of this alert if you define the `member.jobname` in the STARTED class. The catchall profile is not checked anymore for this started task.

Audited program has been executed (1302)

Alert when a program that is audited has started execution.

An audited program is protected by a profile in the PROGRAM class that has at least user or auditor auditing for READ successes.

To receive this alert, the relevant profiles in the PROGRAM class must be specified with sufficient auditing enabled. You can set such auditing, for example, through the `AUDIT(SUCCESS(READ))` or `GLOBALAUDIT(SUCCESS(READ))` keywords on the `RDEFINE` or `RALTER` commands.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Audited program ASMIDFA  has been executed

Alert: Audited program ASMIDFA has been executed
A program with auditing specified has been executed

   Alert id        1302
   Date and time   07Feb2003 13:44:43.20
   Program         ASMIDFA
```

```
   Data set        SHARED.LINKLIB
   User            C##BDV2  DIONNE VONT
   Job name        C##BDV2
   System ID       DINO
   Audit reason    <reason>
```

The text message format of the alert is:

```
Subject: Alert 1302: Audited program ASMIDFA  has been executed by C##BDV2  in
job C##BDV2

Alert 1302: Audited program ASMIDFA from data set SHARED.LINKLIB has been executed
by C##BDV2 in job C##BDV2
```

The report shows the program that has started execution, the data set where the program resides, the user who executed the program, and the audit reason.

WARNING mode access on general resource (1303)

A profile in a general resource class is checked for access, and access is granted because of warning mode.

A similar alert for data sets is available in "WARNING mode access on data set (1201)" on page 62.

The e-mail format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: WARNING mode access to FACILITY IRR.LISTUSER

Alert: WARNING mode READ on FACILITY IRR.LISTUSER
Resource access granted due to warning mode

   Alert id        1303
   Date and time   07Feb2003 14:15:09.60
   Class           FACILITY
   Resource        IRR.LISTUSER
   Granted access  READ
   Normal access   NONE
   Profile         IRR.LISTUSER
   User            C##BDV2  DIONNE VONT
   Job name        C##BDV2
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1303: WARNING mode READ    by C##BDV2  on
FACILITY IRR.LISTUSER

Alert 1303: WARNING mode READ by C##BDV2 on FACILITY IRR.LISTUSER
```

The report shows the class and the name of the resource accessed, the user who requested access to it, and the profile against which the access is checked. It also shows the access that is granted and the normal access that would have been granted if the profile had not been in WARNING mode.

A profile in WARNING mode grants any access to the resource, including what the profile would not allow otherwise. WARNING mode is typically used to analyze what the effects of the access settings of a profile are, before the access control is enforced. It is also used as a temporary measure to overcome production problems. If you receive these alerts, you must verify whether the access must be allowed. If so, change the access settings of the profile accordingly. If this access is not supposed to occur, take remedial action as required.

Public access > NONE set on general resource profile (1304)

An alert is generated if a UACC higher than NONE is specified on a general resource profile or ID(*) was permitted access higher than NONE.

The email format of the alert is:

```
Alert: Public access > NONE set: FACILITY DITTO.DISK.**
High UACC specified when adding or altering a FACILITY profile
```

```
   Alert id        1304
   Date and time   19Jul2017 20:34:45.47
   Class           FACILITY
   Profile         DITTO.DISK.**
   Public access   ALTER
   Method          UACC
   Result          Success
   RACF command    RALTER FACILITY (DITTO.DISK.**) UACC(ALTER)
   User            CRMB##1  RON V
   Job name        CRMB##1
   System ID       8018
```

or

```
Alert: Public access > NONE set: FACILITY DITTO.DISK.**
High ID(*) access specified when adding or altering a FACILITY profile

   Alert id        1304
   Date and time   19Jul2017 20:34:45.48
   Class           FACILITY
   Profile         DITTO.DISK.**
   Public access   UPDATE
   Method          ID(*) access
   Result          Success
   RACF command    PERMIT DITTO.DISK.** ACCESS(UPDATE) CLASS(FACILITY) ID(*)
   User            CRMB##1  RON V
   Job name        CRMB##1
   System ID       8018
```

The text message format of the alert is:

```
Subject: Alert 1304: Public access > NONE set by CRMB##1 : FACILITY DITTO.DISK.**

Alert 1304: Public access > NONE set: FACILITY DITTO.DISK.** UACC set to ALTER by
CRMB##1
```

or

```
Alert 1304: Public access > NONE set: FACILITY DITTO.DISK.** ID(*) access set to
UPDATE by CRMB##1
```

The alert shows the general resource profile that was updated, the public access, and the user who executed the command.

WARNING mode set on general resource profile (1305)

An alert is generated if a general resource profile is set to warning mode, allowing access to all users.

The email format of the alert is:

```
Alert: WARNING mode set: OPERCMDS MVS.DUMP
WARNING mode on OPERCMDS profile allows all access.

   Alert id        1305
   Date and time   19Jul2017 21:06:44.01
   Class           OPERCMDS
   Profile         MVS.DUMP
   Result          Success
   RACF command    RALTER OPERCMDS (MVS.DUMP) WARNING
   User            CRMB##1  RON V
   Job name        CRMB##1
   System ID       8018
```

The text message format of the alert is:

```
Subject: Alert 1305: WARNING mode set by CRMB##1 : OPERCMDS MVS.DUMP

Alert 1305: WARNING mode set: OPERCMDS MVS.DUMP by CRMB##1
```

The alert shows the changed profile, the complete RACF command, the result of the command, and the user who executed the command.

Trusted or privileged assigned to STC (1306)

An alert is sent when the TRUSTED or PRIVILEGED attribute is assigned to a started task (STC) through an RDEFINE or RALTER command for a profile in the STARTED class.

To receive this alert, you must have SETROPTS setting AUDIT(STARTED) enabled.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: User C##ASCH has allowed any access for STC GRS.*

Alert: User C##ASCH has allowed any access for STC GRS.*
Started Task is now allowed to access any resource

    Alert id        1306
    Date and time   03Feb2013 10:12:05.30
    Result          Success
    Issued by       C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
    Command         ralter STARTED GRS.* STDATA(trusted(YES))
```

The text message format of the alert is as follows:

```
Subject: Alert 1306: User C##ASCH has allowed any access for STC GRS.*

Alert 1306: User C##ASCH has allowed any access for STC GRS.*
```

The alert shows the started profile and the command issuer.

LEVEL value changed on general resource profile (1307)

An alert is generated if a LEVEL value other than 0 is set on a new general resource profile, or if the LEVEL value was changed on an existing profile.

The email format of the alert is:

```
Alert: LEVEL value set: FACILITY R##E.TEST
LEVEL can contain a security control

   Alert id        1307
   Date and time   19Jul2017 21:13:29.74
   Class           FACILITY
   Profile         R##E.TEST
   Level             67
   Result          Success
   RACF command    RALTER FACILITY (R##E.TEST) LEVEL(67)
   User            CRMB##1  RON V
   Job name        CRMB##1
   System ID       8018
```

The text message format of the alert is:

```
Subject: Alert 1307: LEVEL value set by CRMB##1 : FACILITY R##E.TEST

Alert 1307: LEVEL value set: FACILITY R##E.TEST by CRMB##1
```

The alert shows the general resource profile that was updated, the user who executed the command, and the specified LEVEL.

UNIX alerts

The following alerts are triggered when events concerning UNIX files, directories, or programs occur.

UNIX file access violation (1401)

An alert is sent when an access violation occurs on a UNIX file or directory

To generate this alert, SETROPTS setting LOGOPTIONS(FAILURES(DIRACC DIRSRCH FSOBJ)) must be set. Or, the relevant files must have access failure auditing specified by the **chaudit** command.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: UNIX access violation on ./actuator/bin/db2asc

Alert: UNIX access violation on ./actuator/bin/db2asc
Non-authorized UNIX file or directory access

   Alert id        1401
   Date and time   28May2000 01:10:06.67
   Path            ./actuator/bin/db2asc
   Access type     FACCESS
   Intended access --w-
   Granted access   r-x
   User            C##BOON  OTTO ONSLEY
   Job name        C##BOON
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1401: UNIX access violation (--w-) by C##BOON
on ./actuator/bin/db2asc

Alert 1401: UNIX access violation (--w-) by C##BOON on ./actuator/bin/db2asc
```

The report shows the path of the file or directory, the access type, that is, FACCESS, DIRACCESS, DIRSRCH, the intended access and the granted access, and the user who tried to access the file or directory. If you use a CKFREEZE file created with parameter UNIX=YES, the UNIX path mentioned in the report is an absolute path.

Global write specified when altering file access (1402)

This alert is generated if write access is specified on the other group of permissions of a UNIX file or directory.

To receive this alert, you must have SETROPTS setting LOGOPTIONS(ALWAYS(FSSEC)) enabled. In the absence of a CKFREEZE file created with parameter UNIX=YES and AUTOMOUNT=YES, you might also receive this alert for other non-file UNIX objects.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Global write specified on www/log/access.log

Alert: Global write specified on www/log/access.log
Global write specified when altering file access

   Alert id        1402
   Date and time   09Feb2003 08:07:01.66
   Path            www/log/access.log
   Old permissions rw-r--r--
   New permissions rw-rw-rw-
   Result          Success
   User            C##BER2  ERWIN RETTICH
   Job name        C##BER2
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1402: Global write specified by C##BER2  on www/log/access.log

Alert 1402: Global write specified by C##BER2 on www/log/access.log
```

The alert shows the path of the file or directory and the old and new permissions. It also shows the result of the **chmod** command and the user who changed the permission mode. If you use a CKFREEZE file created with parameter UNIX=YES, the UNIX path in the report is an absolute path.

Global read specified when altering file access (1403)

This alert is sent if read access is specified on the "other" group of permissions of a UNIX file.

To receive this alert, you must have SETROPTS setting LOGOPTIONS(ALWAYS(FSSEC)) enabled. In the absence of a CKFREEZE file created with parameter UNIX=YES and AUTOMOUNT=YES, you can receive this alert also for other non-file UNIX objects.

The e-mail format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Global read specified on www/log/access.log

Alert: Global read specified on www/log/access.log
Global read specified when altering file access

   Alert id        1403
   Date and time   09Feb2003 08:05:22.61
   Path            www/log/access.log
   Old permissions rw-------
   New permissions rw-r--r--
   Result          Success
   User            C##BER2  ERWIN RETTICH
   Job name        C##BER2
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1403: Global read specified by C##BER2  on www/log/access.log

Alert 1403: Global read specified by C##BER2 on www/log/access.log
```

The alert shows the path of the file, the old and new permissions, the result of the **chmod** command, and the user who changed the permission mode. If you use a CKFREEZE file created with parameter UNIX=YES, the UNIX path in the report is an absolute path.

Extended attribute changed (1404)

An alert is generated when an extended attribute (that is, APF, program control, shared library, or shared AS) is set or removed from a UNIX file or program.

Note: This alert was superseded by alert 1409, available on z/OS 1.11 and later. Alert 1409 is much simpler to configure and uses considerably less resources than alert 1404.

To receive alert 1404, you must have at least SETROPTS setting LOGOPTIONS(DEFAULT(FSOBJ)) enabled. Then you can use the z/OS UNIX **chaudit** command to activate successful write auditing for the programs you want audited. If you have not activated successful auditing, the text of the alert as it is sent is incomplete, and essential parts (like the alert number and the file identification) are missing. To avoid the need to set successful auditing for individual files, you can consider setting LOGOPTIONS(ALL(FSOBJ)). However, doing so significantly increases the number of SMF records that are created. To receive alerts of type 1404 for files in an HFS filesystem, you cannot define a BPX.SAFFASTPATH profile in the FACILITY class.

For alerts sent by email, an attempt is made to include the actual extended attribute that was changed. For this to be successful, READ logging on the FACILITY profiles matching BPX.FILEATTR.APF, BPX.FILEATTR.PROGCTL, and BPX.FILEATTR.SHARELIB is also needed.

If auditing for these profiles is not activated, email alerts do not have any indication of the extended attribute that was changed. The attribute information is always absent if the shared AS extended attribute was changed.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Extended attribute changed: APF

Alert: Extended attribute changed: APF
Extended attribute changed on UNIX file or directory
```

```
   Alert id        1404
   Date and time   05Feb2003 13:17:52.49
   Path            audfrbg
   User            C##BERT  ERWIN RETTICH
   Job name        C##BERT
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1404: Extended attribute changed by C##BERT on
UNIX file or directory audfrbg

Alert 1404: Extended attribute changed by C##BERT on UNIX file
or directory audfrbg
```

If sufficient auditing options are enabled, the email format of the alert shows the APF, PROGCTL or SHARELIB extended attribute that is set or removed. It also shows the path of the file or directory and the user who changed the attribute. If you use a CKFREEZE file created with parameter UNIX=YES specified, and optionally AUTOMOUNT=YES, the path in the report is an absolute path.

Audited UNIX program has been executed (1405)

An alert is sent if a z/OS UNIX program that has successful execution audit (user or auditor) enabled has started execution.

This alert does not cover programs that have the setuid bit enabled and have a superuser as owner. For more information, see “Superuser privileged UNIX program executed (1406)” on page 78.

To receive this alert, you must have at least SETROPTS setting LOGOPTIONS(DEFAULT(FSOBJ)) enabled. Additionally, you must use a CKFREEZE file created with parameter UNIX=YES, and optionally AUTOMOUNT=YES. Alerts are sent only for programs that have their information in the CKFREEZE file.

You can use the z/OS UNIX **chaudit** command to set the successful execution auditing bits on the programs you want audited.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: UNIX program executed: chprot

Alert: UNIX program executed: chprot
A UNIX program with execution auditing specified has been executed.

   Alert id        1405
   Date and time   11Mar2003 11:05:11.49
   Path            /usr/bin/chprot
   User            C##BSG2  SUSAN GAYNOR
   Job name        C##BSG2
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1405: UNIX program executed by C##BSG2 : /usr/bin/chprot

Alert 1405: UNIX program executed by C##BSG2: /usr/bin/chprot
```

The alert shows the path of the program and the user who started execution of that program.

Superuser privileged UNIX program executed (1406)

An alert is sent if a UNIX program with setuid enabled and owned by uid 0 has started execution.

The program must have successful execution audit (user or auditor) enabled. Independent of the authorization of the user, these programs run with superuser privileges, and can read and write any file or directory on the UNIX subsystem.

To receive this alert, you must have at least SETROPTS setting LOGOPTIONS(DEFAULT(FSOBJ)) enabled. In addition, you must use a CKFREEZE file created with parameter UNIX=YES, and optionally AUTOMOUNT=YES. Alerts are sent only for programs that have their information in the CKFREEZE file.

This alert accompanies alert 1405. That alert sends a message if an audited UNIX program without these special privileges started execution. See "Audited UNIX program has been executed (1405)" on page 78. You can use the accompanying CARLa to generate UNIX command to set auditor execution auditing on all programs that execute with superuser privileges.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Superuser privileged UNIX program executed: rdefcha

Alert: Superuser privileged UNIX program executed: rdefcha
An audited UNIX program started execution with superuser privileges

Alert id        1406
Date and time   13May2003 21:59:05.12
Path            /usr/local/bin/rdefcha
User            C##BSG1  SUSAN GAYNOR
Job name        C##BSG1
System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1406: Superuser privileged UNIX program executed by C##BSG1: rdefcha

Alert 1406: Superuser privileged UNIX program executed by C##BSG1: rdefcha
```

The alert shows the path of the program that has setuid privileges and the user who started execution of the program.

Superuser privileged shell obtained by user (1407)

An alert is generated when a user uses the UNIX <cmdname>su</cmdname> command to obtain a shell with superuser privileges.

To receive this alert, you must have successful READ logging specified on the BPX.SUPERUSER FACILITY profile.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Superuser privileged shell obtained by user C##BSG1

Alert: Superuser privileged shell obtained by user C##BSG1
A user used su to obtain a shell with superuser privileges

Alert id        1407
Date and time   14May2003 14:15:21.98
User            C##BSG1  SUSAN GAYNOR
Job name        C##BSG1
System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1407: Superuser privileged shell obtained by user C##BSG1

Alert 1407: Superuser privileged shell obtained by user C##BSG1
```

The report shows the user who used **su** to obtain a shell with superuser privileges. This user is able to read and write any file or directory on the UNIX subsystem.

Superuser privileges set on UNIX program (1408)

This alert is generated if the setuid bit is set on a program owned by a UNIX superuser.

A program with these privileges executes with superuser authority, and can thus access any UNIX file or data set.

Note: Changing the owner to uid 0 of a program with setuid enabled resets the setuid bit, so it is not a security exposure.

To receive this alert, you must have SETROPTS setting LOGOPTIONS(ALWAYS(FSSEC)) enabled.

The e-mail format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Superuser privileges set on UNIX program collogs

Alert: Superuser privileges set on UNIX program collogs
The setuid bit is specified on a UNIX program owned by a superuser

Alert id        1408
Date and time   28Mar2003 11:49:33.66
Path            /usr/local/bin/collogs
User            C##BER2  ERWIN RETTICH
Job name        C##BER2
System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1408: Superuser privileges set on UNIX program collogs

Alert 1408: Superuser privileges set on UNIX program collogs
```

The alert shows the path of the program and the user who changed the permission so that the program executes with superuser privileges. If you use a CKFREEZE file created with parameter UNIX=YES, the UNIX path in the report is an absolute path.

Extended attribute changed (1409)

If this alert is activated, a notification message is generated when a change is detected in the extended attributes settings (APF, program control, or _BPX_SHAREAS) for a UNIX file or program. To receive this alert, the level of the z/OS system must be at least 1.11.

The e-mail format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Extended attribute changed for db2asc

Alert: Extended attribute changed for db2asc
Extended attributes indicate z/OS special handling

   Alert id         1409
   Date and time    19Jul2017 19:43:30.07
   Path             ./actuator/bin/db2asc
   Previous value   APF authorized;
   New value
   User             C##BER2 ERWIN RETTICH
   Job name         C##BER2
   System id        DINO
```

In the e-mail notification, the **Previous value** and **New value** can contain a combination of the following values: Shared library, APF authorized, and Program controlled.

The text message format of the alert is:

```
Subject: Alert 1409: Extended attribute changed (APS-> APS) by C##BER2 for db2asc.

Alert 1409: Extended attribute changed (APS-> APS) by C##BER2 for db2asc
```

The extended attributes of a UNIX file (db2asc) changed. The old and new extended attributes are shown between the parentheses. The string APS stands for the extended attributes: APF Authorized, Program controlled, and Shared Library. The command was issued by C##BER2.

UID(0) assigned (1410)

An alert is sent when an UID(0) is assigned with the ALTUSER or ADDUSER OMVS(UID(0)) command.

To receive this alert, you must have SETROPTS setting AUDIT(USER) enabled. When the command is issued by a user with the SPECIAL attribute, SETROPTS setting SAUDIT is also sufficient to receive this alert.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: User C##ASCH assigned UID(0) for C##ACS1

Alert: User C##ASCH assigned UID(0) for C##ACS1
Root privilege granted to C##ACS1

    Alert id        1410
    Date and time   03Feb2013 10:12:05.30
    User            C##ACS1 ARTHUR SMITH
    Result          Success
    Issued by       C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
    Command         ALTUSER C##ACS1 OMVS(UID(0))
```

The text message format of the alert is as follows:

```
Subject: Alert 1410: C##ASCH assigned UID(0) for C##ACS1

Alert 1410: C##ASCH assigned UID(0) for C##ACS1
```

The alert shows the user ID that the UID(0) was assigned to and the command issuer.

Permit issued on BPX.SUPERUSER (1411)

An alert is sent when a permit is issued for profile BPX.SUPERUSER in the FACILITY class.

To receive this alert, you must have SETROPTS setting AUDIT(FACILITY) enabled. When the command is issued by a user with the SPECIAL attribute, SETROPTS setting SAUDIT is also sufficient to receive this alert.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: User C##ASCH issued permit on BPX.SUPERUSER for C##ACS1

Alert: User C##ASCH issued permit on BPX.SUPERUSER for C##ACS1
Permit issued for BPX.SUPERUSER

    Alert id        1411
    Date and time   03Feb2013 10:12:05.30
    User            C##ACS1 ARTHUR SMITH
    Result          Success
    Issued by       C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
    Command         PERMIT BPX.SUPERUSER  ID(C##ACS1) ACCESS(READ) CLASS(FACILITY)
```

The text message format of the alert is as follows:

```
Subject: Alert 1411: User C##ASCH issued permit on BPX.SUPERUSER for C##ACS1

Alert 1411: User C##ASCH issued permit on BPX.SUPERUSER for C##ACS1
```

The alert shows the user ID that the permit was assigned to and the command issuer.

RACF control alerts

These alerts report on RACF SETROPTS setting changes.

Global security countermeasure activated (1501)

An alert is sent when a RACF SETROPTS command tightens the security of the system.

Note: The condition that triggers this alert is a subset of those conditions that trigger alert 1503. The only reason to select both alerts is when you want to send them to different recipients.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Global security countermeasure activated by C##BNA2

Alert: Global security countermeasure activated by C##BNA2
SETROPTS command tightened system security

   Alert id        1501
   Date and time   23Jan2003 12:13:34.58
   RACF command    SETROPTS
                   LOGOPTIONS(NEVER(FACILITY),FAILURES(DATASET))
   User            C##BNA2  NICK AFTERSOCK
   Result          Success
   Job name        C##BNA2
   System id       DINO
```

The text message format of the alert is:

```
Subject: Alert 1501: Global security countermeasure activated by C##BNA2

Alert 1501: Global security countermeasure activated by C##BNA2: SETROPTS
LOGOPTIONS(NEVER(FACILITY),FAILURES(DATASET)) PASSWORD(NOHISTORY)
```

The alert shows the executed RACF command, the user that executed the command, and the return status of the command.

Global security countermeasure deactivated (1502)

An alert is generated when a RACF SETROPTS command degraded the security of the system.

This alert ensures a more timely notification through a cell phone message when zSecure Alert is sure that a countermeasure is being deactivated.

Note: The condition that triggers this alert is a subset of those conditions that trigger alert 1503. The only reason to select both alerts is when you want to send them to different recipients.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Global security countermeasure deactivated by C##BNAT

Alert: Global security countermeasure deactivated by C##BNAT
SETROPTS command loosened system security

   Alert id        1502
   Date and time   23Jan2003 11:51:56.01
   RACF command    SETROPTS NOSAUDIT
   User            C##BNAT  NICK AFTERSOCK
   Result          Success
   Job name        C##BNAT
   System id       DINO
```

The text message format of the alert is:

```
Subject: Alert 1502: Global security countermeasure deactivated by C##BNAT

Alert 1502: Global security countermeasure deactivated by C##BNAT: SETROPTS ADSP
NOSAUDIT <Ignored>
```

The alert shows the executed RACF command, the user that executed the command, and the return status of the command.

Global security countermeasure or option changed (1503)

An alert is generated when a RACF SETROPTS command changed the security of the system.

This alert shows the executed RACF command, the user that executed the command, and the return status of the command.

Note: The conditions that trigger alerts 1501 and 1502 are subsets of those conditions that trigger alert 1503. The only reason to select alerts 1501 or 1052 combined with alert 1503 is when you want to send them to different recipients.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Global security countermeasure changed by C##BNAT

Alert: Global security countermeasure changed by C##BNAT
SETROPTS command changed system security

   Alert id        1503
   Date and time   23Jan2003 11:51:56.01
   RACF command    SETROPTS NOSAUDIT
   User            C##BNAT  NICK AFTERSOCK
   Result          Success
   Job name        C##BNAT
   System id       DINO
```

The text message format of the alert is:

```
Subject: Alert 1503: Global security countermeasure changed by C##BNAT

Alert 1503: Global security countermeasure changed by C##BNAT: SETROPTS ADSP
NOSAUDIT <Ignored>
```

RACF Resource class activated (1504)

This alert is generated when a RACF resource class is detected to have been activated.

This alert shows the resource class that was activated. Because this alert is based on a comparison of two system snapshots, it does not provide any information about how the change was accomplished.

The email format of the alert is:

```
From: C2POLICE at IDFX
Subject: Alert: RACF resource class has been activated: DASDVOL

Alert: RACF resource class has been activated: DASDVOL
A change in the status of a RACF resource class has been detected

       Alert id             1504
       Date and time        19Jul2017 19:43:30.07
       Class                DASDVOL
       Status               Active
       System ID            IDFX
```

The text message format of the alert is:

```
Subject: Alert 1504: RACF resource class has been activated: DASDVOL

Alert 1504: RACF resource class has been activated: DASDVOL
```

RACF Resource class deactivated (1505)

This alert is generated when a RACF resource class is detected to have been deactivated.

This alert shows the resource class that was deactivated. Because this alert is based on a comparison of two system snapshots, it does not provide any information about how the change was accomplished.

The email format of the alert is:

```
From: C2POLICE at IDFX
Subject: Alert: RACF resource class has been deactivated: DASDVOL

Alert: RACF resource class has been deactivated: DASDVOL
A change in the status of a RACF resource class has been detected

       Alert id              1504
       Date and time         19Jul2017 19:43:30.07
       Class                 DASDVOL
       Status                Inactive
       System ID             IDFX
```

The text message format of the alert is:

```
Subject: Alert 1505: RACF resource class has been deactivated: DASDVOL

Alert 1505: RACF resource class has been deactivated: DASDVOL
```

Global Access Checking table has been changed (1506)

An alert is sent when the global access checking table was changed by using an RDEFINE, RALTER, or RDELETE command for the GLOBAL class.

To receive this alert, you must have SETROPTS setting AUDIT(GLOBAL) enabled.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: User C##ASCH issued command to change the GAC table for class
DATASET

Alert: User C##ASCH issued command to change the GAC table for class DATASET
RACF command issued to change the Global Access Checking (GAC) table

    Alert id        1506
    Date and time   03Feb2013 10:12:05.30
    Class           GLOBAL
    Profile         DATASET
    Result          Success
    Issued by       C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
    Command         RALTER GLOBAL DATASET ADDMEM('SYS1.BRODCAST'/UPDATE)
```

The text message format of the alert is as follows:

```
Subject: Alert 1506: User C##ASCH issued command to change the GAC table for
class DATASET

Alert 1506: User C##ASCH issued command to change the GAC table for class DATASET
```

The alert shows the global access checking table that was added, deleted, or modified, and the command issuer.

Dynamic Class Descriptor Table has been changed (1507)

An alert is sent when the dynamic Class Descriptor Table (CDT) was changed by using a RDEFINE, RALTER, or RDELETE command for the CDT class.

To receive this alert, you must have SETROPTS setting AUDIT(CDT) enabled.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: User C##ASCH issued command to change the dynamic CDT for class
MYCLASS

Alert: User C##ASCH issued command to change the dynamic CDT for class MYCLASS
RACF command issued to change the dynamic CDT

    Alert id        1507
    Date and time   03Feb2013 10:12:05.30
```

```
    Class           CDT
    Profile         MYCLASS
    Result          Success
    Issued by       C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
    Command         RALTER CDT MYCLASS CDTINFO(DEFAULTRC(8))
```

The text message format of the alert is as follows:

```
Subject: Alert 1507: User C##ASCH issued command to change the dynamic CDT for
class MYCLASS

Alert 1507: User C##ASCH issued command to change the dynamic CDT for class
MYCLASS
```

The alert shows the dynamic class descriptor table entry that was added, deleted, or modified, and the command issuer.

Command Verifier deactivated by SETPROG EXIT (1508)

An alert is sent when zSecure Command Verifier is deactivated as the result of a SETPROG EXIT,DELETE,EXITNAME=IRREVX01,MODNAME=C4RMAIN operator command, or a SET PROG=*xx* operator command.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: Command Verifier deactivated

Alert: Command Verifier deactivated
System messages report the SETPROG EXIT command has been issued

    Alert id        1508
    Date and time   03Feb2013 10:12:05.30
    WTO message     CSV420I MODULE C4RMAIN HAS BEEN DELETED FROM EXIT
                  IRREVX01

    Console ID      CR@SRT1
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 1508: Command Verifier deactivated at CR@SRT1 : CSV420I MODULE
C4RMAIN HAS BEEN DELETED FROM EXIT IRREVX01

Alert 1508: Command Verifier deactivated at: CR@SRT1 : CSV420I MODULE C4RMAIN HAS
BEEN DELETED FROM EXIT IRREVX01
```

The alert shows the SETPROG command response and the console ID that the command was issued from.

System alerts

The following alerts are for monitoring general system events.

SMF data loss started (1601)

This alert is generated when WTO reports that SMF data loss has started. It is reported in messages IEE351I, IEE979W, IEE989I, and IFA786W.

Note: You can choose to activate alert 1602 so that you are notified when the immediate exposure passes.

To receive this alert, you must receive WTO messages IEE351I, IEE979W, IEE989I, and IFA786W.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: SMF data loss started
```

```
Alert: SMF data loss started
System messages report that SMF data loss has started

   Alert id        1601
   Date and time   10Feb2003 16:36:27.07
   WTO message     IEE979W SMF DATA LOST - NO BUFFER SPACE
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1601: SMF data loss started. WTO msgid: IEE979W

Alert 1601: SMF data loss started. WTO msgid: IEE979W
```

The generated email contains only the issued WTO message.

SMF logging resumed after failure (1602)

This alert is generated when SMF data was lost due to full buffers, but the system has resumed logging.

Note: You can choose to activate this alert so that you are notified when the immediate exposure indicated by alert 1601 passes.

To receive this alert, you must log SMF record type 7.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: SMF logging resumed after failure

Alert: SMF logging resumed after failure
SMF data is lost, but the system has resumed logging

   Alert id        1602
   Start of loss   10Feb2003 17:35:58.97
   Date and time   10Feb2003 17:36:27.12
   #records lost   4121
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 1602: SMF logging resumed after failure.  4121 records lost.

Alert 1602: SMF logging resumed after failure. 4121 records lost.
```

The generated email contains the start time (`Start of loss`) and end time (`Resume time`) of the period when data was lost. It also indicates the number of SMF records that were lost.

SVC definition changed (1603)

This alert is generated when a change is detected in the definition of an SVC in the SVC-table or the SVC ESR-table.

This alert shows the SVC and ESR number of the SVC that was changed. The current address of the SVC code is shown together with the current APF status. Because this alert is based on a comparison of two system snapshots, it does not provide any information about how the change was accomplished.

The email format of the alert is:

```
From: C2POLICE at IDFX
Subject: Alert: SVC Definition changed: SVC/ESR 220

Alert: SVC Definition changed: SVC/ESR 220
A change in the definition of an SVC has been detected

    Alert id               1603
    SVC/ESR number        220/
    Address                    00147080
    APF                        Yes
    System ID                 IDEX
```

The text message format of the alert is:

```
Subject: Alert 1603: SVC Definition changed: SVC/ESR 220/
Alert 1603: SVC Definition changed: SVC/ESR 220/ at address 00147080 APF
```

IBM Health Checker found low severity problem (1604)

This alert is generated when WTO reports that IBM Health Checker found a low severity problem.

This alert is reported in message HZS0001I. To receive this alert, you must receive WTO message HZS0001I.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: IBM Health Checker found low severity problem

Alert: IBM Health Checker found low severity problem
Check found a problem that should be investigated

  Alert id       1604
  Date and time  10Feb2010 16:36:27.07
  System ID      DINO
  WTO message    HZS0001I CHECK(IBMGRS,GRS_SYNCHRES):


                 ISGH0305E Global Resource Serialization synchronous
                 RESERVE processing
                 is not active.
```

The text message format of the alert is:

```
Subject: Alert 1604: IBM Health Checker low severity: HZS0001I CHECK(IBMGRS,GRS_SYNCHRES):
Alert 1604:  IBM Health Checker low severity: HZS0001I CHECK(IBMGRS,GRS_SYNCHRES):
```

IBM Health Checker found medium severity problem (1605)

This alert is generated when WTO reports that IBM Health Checker found a medium severity problem.

This alert is reported in message HZS0002E. To receive this alert, you must receive WTO message HZS0002E,

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: IBM Health Checker found medium severity problem

Alert: IBM Health Checker found medium severity problem
Check found a problem that should be investigated

  Alert id       1605
  Date and time  10Feb2010 16:36:27.07
  System ID      DINO
  WTO message    HZS0002E CHECK(IBMASM,ASM_LOCAL_SLOT_USAGE):


                 ILRH0107E Page data set slot usage threshold met or
                 exceeded
```

The text message format of the alert is:

```
Subject: Alert 1605: IBM Health Checker medium severity: HZS0002E CHECK(IBMASM,ASM_LOCAL_SLOT_USAGE):
Alert 1605:  IBM Health Checker medium severity: HZS0002E CHECK(IBMASM,ASM_LOCAL_SLOT_USAGE):
```

IBM Health Checker found high severity problem (1606)

This alert is generated when WTO reports that IBM Health Checker found a high severity problem.

This alert is reported in message HZS0003E. To receive this alert, you must receive WTO message HZS0003E,

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: IBM Health Checker found high severity problem

Alert: IBM Health Checker found high severity problem
Check found a problem that should be investigated

  Alert id       1606
  Date and time  10Feb2010 16:36:27.07
  System ID      DINO
  WTO message    HZS0003E CHECK(IBMXCF,XCF_CDS_SPOF):

                 IXCH0242E One or more couple data sets have a single
                 point of failure.
```

The text message format of the alert is:

```
Subject: Alert 1606: IBM Health Checker high severity: HZS0003E CHECK(IBMXCF,XCF_CDS_SPOF):
Alert 1606:  IBM Health Checker high severity: HZS0003E CHECK(IBMXCF,XCF_CDS_SPOF):
```

SMF record flood detected (1607)

This alert is generated when WTO reports that SMF record flood is detected.

This alert is reported in message IFA780A. To receive this alert, you must receive WTO message IFA780A.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: SMF record flood detected

Alert: SMF record flood detected
System messages report SMF record flood detected
   Alert id        1607
   Date and time   03May2010 17:50:05.46
   WTO message     IFA780A SMF RECORD FLOOD MSG FILTER FOR TYPE 40
                   EXCEEDED AT TIME=
   System ID       NMPIPL87
```

The text message format of the alert is:

```
Subject: Alert 1607: SMF record flood detected. WTO msgid:IFA780A SMF RECORD
FLOOD MSG FILTER FOR TYPE 40 EXCEEDED AT TIME=
Alert 1607: SMF record flood detected. WTO msgid:IFA780A SMF RECORD FLOOD MSG
FILTER FOR TYPE 40 EXCEEDED AT TIME=
```

SMF record flood starts dropping records (1608)

This alert is generated when WTO reports that SMF record flood starts dropping records.

This alert is reported in message IFA782A. To receive this alert, you must receive WTO message IFA782A.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: SMF record flood starts dropping records

Alert: SMF record flood starts dropping records
System messages report SMF record flood starts dropping records
   Alert id        1608
   Date and time   03May2010 17:00:00.33
   WTO message     IFA782A SMF RECORD FLOOD DROP FILTER FOR TYPE 74
                   EXCEEDED AT TIME=
   System ID       NMPIPL87
```

The text message format of the alert is:

```
Subject: Alert 1608: SMF record flood starts dropping records. WTO
msgid:IFA782A SMF RECORD FLOOD DROP FILTER FOR TYPE 74 EXCEEDED AT TIME=
```

```
Alert 1608: SMF record flood starts dropping records. WTO msgid:IFA782A SMF
RECORD FLOOD DROP FILTER FOR TYPE 74 EXCEEDED AT TIME=
```

Attacks blocked by filter rules are no longer logged – audit trail incomplete (1609)

This alert is generated when logging for packet filtering is no longer enabled.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Attacks blocked by filter rules are no longer logged

Alert: Attacks blocked by filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP
   Alert id      1609
   Changed field IPSEC_LOGENABLE(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 1609: Attacks blocked by filter rules are no longer logged

Alert 1609: Attacks blocked by filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK field IPSEC_LOGENABLE indicates that logging is not enabled for packet filtering. The alert contains the name of the changed field (IPSEC_LOGENABLE), and the old value of the field (Yes), its new value (No), and the security direction (-).

Attacks blocked by default filter rules are no longer logged – audit trail incomplete (1610)

This alert is generated when logging for packets that are denied by the implicit default rules is no longer enabled.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Attacks blocked by default filter rules are no longer logged

Alert: Attacks blocked by default filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP
   Alert id      1610
   Changed field IPSEC_LOGIMPLICIT(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 1610: Attacks blocked by default filter rules are no longer logged

Alert 1610: Attacks blocked by default filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK field IPSEC_LOGIMPLICIT indicates that logging is not enabled for packets that are denied by the implicit default rules.

SMF 119 subtype is no longer written - audit trail incomplete (1611)

This alert is generated when SMF 119 records are no longer written when any of the following actions occur:

- A user starts the FTP client command (FTPCLIENT)
- Statistics related to LINK utilization become available (IFSTAT)

- A tunnel is added, removed, activated, or deactivated (IPSECURITY)
- Statistics related to reserved PORT utilization become available (PORTSTAT)
- A TCP connection is established (TCPINIT)
- A TCP/IP stack is activated or terminated (TCPIPSTACK)
- TCP/IP statistics become available (TCPIPSTAT)
- A TCP connection is terminated (TCPTERM)
- The TSO Telnet Client code starts or ends a connection (TN3270CLIENT)
- A UDP socket is closed (UDPTERM)

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: SMF 119 FTPCLIENT is no longer written by stack name

Alert: SMF 119 FTPCLIENT is no longer written -
audit trail incomplete in TCP/IP stack TCPIP
   Alert id      1611
   Changed field SMF119_FTPCLIENT(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 1611: SMF 119 FTPCLIENT is no longer written

Alert 1611: SMF 119 FTPCLIENT is no longer written -
audit trail incomplete in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK flag field corresponding with the associated SMF 119 subtype indicates that records of the given subtype will not be written.

IP filtering support and IPSec tunnel support deactivated (1612)

This alert is generated when IPv4 or IPv6 IP filtering support and IPSec tunnel support are no longer activated.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: IPv4 IP filtering support and IPsec tunnel support deactivated

Alert: IPv4 IP filtering support and IPsec tunnel support deactivated
in TCP/IP stack TCPIP
   Alert id      1612
   Changed field IPCONFIG_IPSECURITY(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 1612: IPv4 IP filtering support and IPsec tunnel support deactivated
in TCP/IP stack TCPIP

Alert 1612: IPv4 IP filtering support and IPsec tunnel
support deactivated in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK field IPCONFIG_IPSECURITY indicates that IPv4 IP filtering and IPSec tunnel support are not activated, or that the IP_STACK field IPCONFIG6_IPSECURITY indicates that IPv6 IP filtering and IPSec tunnel support are not activated.

Ports below 1024 are not reserved anymore (1613)

This alert is generated when TCP or UDP ports 1-1023 are no longer reserved for users by the PORT and PORTRANGE statements.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: UDP ports below 1024 are not reserved anymore by stack name

Alert: UDP ports below 1024 are not reserved anymore in
TCP/IP stack TCPIP
   Alert id      1613
   Changed field UDP_RESTRICTLOWPORTS(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 1613: UDP ports below 1024 are not reserved anymore in TCP/IP stack
TCPIP

Alert 1613: UDP ports below 1024 are not reserved anymore in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK field TCP_RESTRICTLOWPORTS indicates that TCP ports 1 - 1023 are not reserved for users by the PORT and PORTRANGE statements, or that the IP_STACK field UDP_RESTRICTLOWPORTS indicates that UDP ports 1 - 1023 are not reserved for users by the PORT and PORTRANGE statements.

Interface security class changed (1614)

This alert is generated when the security class used for IP filtering with this interface changes.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Security class changed for interface interface

Alert: Interface EELINK security class has changed in
TCP/IP stack TCPIP
   Alert id       1614
   Changed field  SECCLASS(255->238)
   Interface      EELINK
   Security class 238
   Stack          TCPIP
   System ID      DINO
```

The text message format of the alert is:

```
Subject: Alert 1614: Interface EELINK           security class has changed in TCP/IP
stack TCPIP

Alert 1614: Interface EELINK security class has changed in TCP/IP stack TCPIP
```

The generated email contains the IPv4 or IPv6 interface name, and the security class used for IP filtering with this interface.

IP filter rules changed (1615)

This alert is generated when an IP filter rule is changed, added, or deleted.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: IP filter rules changed in TCP/IP stack TCPIP

Alert: IP filter rules changed in TCP/IP stack TCPIP
   Alert id                     1615
   Kind of change               CHG-
   Changed fields               LOG(Yes->No)-
   Source IP
   Source prefix length         0
   Source port                  0
   Destination IP
   Destination prefix length    0
   Destination port             0
```

```
   Protocol
   Type                          64
   Code                          0
   Packet filter logging enabled No
   Routing                       LOCAL
   Security class                0
   Stack                         TCPIP
   System ID                     DINO
```

The text message format of the alert is:

```
Subject: Alert 1615: IP filter rules changed in TCP/IP stack TCPIP

Alert:1615: IP filter rules changed in TCP/IP stack TCPIP
```

The generated email contains several components of the changed, added, or deleted IP filter rule: the source IP address for the outbound rule, the prefix length for the source subnet address, the source port for the outbound rule (for TCP or UDP traffic), the destination IP address for the outbound rule, the destination subnet address prefix length, the destination port for the outbound rule (matching the source port for the generated inbound rule), the type of traffic that the rule applies to, the ICMP value (for ICMP traffic), an indication whether packet filter logging is enabled for the default filter rule, the type of packet routing that the rule applies to, and the security class of the rule.

SMF record type deactivated (1616)

This alert is generated when a SMF record type is deactivated.

The email format of the alert is:

```
Alert: Deactivation of a SMF record type was detected  SUBSYS: STC SMF record type: 118
Deactivation of a SMF record type was detected

   Alert id        1616
   Date and time    1Mar22 11:52:01
   Subsys          STC
   SMF record type  118
   System ID       8018
```

The text message format of the alert is:

```
Subject: Alert 1616: Deactivation of a SMF record type was detected
SUBSYS: STC  SMF record type:  118

Alert 1616: Deactivation of a SMF record type was detected
SUBSYS: STC SMF record type: 118
```

The alert shows the SMF record type that was deactivated.

New master key promotion detected (1617)

This alert is generated when a new master key promotion is detected.

To receive this alert, you must log SMF record type 82 subtype 49.

The email format of the alert is:

```
Alert: New master key promotion
A new master key promotion was detected

   Alert id                1617
   Date and time            5Sep22 13:12:54
   System initiated a CCMK  Yes
   System ID               EIMG
```

The text message format of the alert is:

```
Alert 1617: New master key promotion
```

The alert shows that the system initiated a coordinated change master key and master key type.

Group alerts

Connected to an important group (1701)

This alert is generated when a userid is connected to an important group.

To receive this alert, you must have SETROPTS setting SAUDIT, AUDIT(USER), or AUDIT(GROUP) enabled.

The email format of the alert is:

```
From:           C2POLICE at DINO
Subject:        Alert: C2RMUS02 issued connect to important group SYS1 for C2RMUS01

Alert: C2RMUS02 issued connect to important group SYS1 for C2RMUS01
User connected to an important group
   Alert id        1701
   Date and time   09Mar2005 14:49:55.90
   User            C2RMUS01
   Group           SYS1
   Result          Success
   Issued by       C2RMUS02
   Job name        C2RMUS0
   System ID       DINO
   Command         CONNECT C2RMUS01 GROUP(SYS1)
```

The text message format of the alert is:

```
Subject: Alert 1701:  C2RMUS02 issued connect to important group SYS1 for C2RMUS01

Alert 1701:  C2RMUS02 issued connect to important group SYS1 for C2RMUS01
```

The generated email report shows which userid is connected to which important group.

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the number of violations you consider being excessive. Furthermore, you can specify up to 10 user IDs or user ID masks to be excluded. See “Major administrative activity (1120 and 2120) configuration” on page 124.

Application alerts

zSecure Access Monitor not active (1801)

An alert is sent when the zSecure Access Monitor is not active and Access Monitor data is not collected.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: zSecure Access Monitor not active

Alert: zSecure Access Monitor not active
System messages report the zSecure Access Monitor is no longer active

    Alert id        1801
    Date and time   03Feb2013 10:12:05.30
    WTO message     C2P0100A zSecure Access Monitor not active
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 1801: zSecure Access Monitor not active

Alert 1801: zSecure Access Monitor not active
```

The alert shows the WTO message, which indicates that the zSecure Access Monitor is no longer active.

zSecure server connection lost (1802)

An alert is sent when the last TCP connection to a partner zSecure Server was dropped. The connection remains dropped until a new allocation request is received.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: zSecure Server connection lost

Alert: zSecure Server connection lost
System messages report the zSecure Server lost a connection

    Alert id       1802
    Date and time  03Feb2013 10:12:05.30
    WTO message    CKN165I 00 zSecure Server PROD1/S1 lost last connection to PROD2/S2
    System ID      DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 1802: zSecure Server connection lost

Alert 1802: zSecure Server connection lost
```

The alert includes the WTO message, which identifies the zSecure server that is no longer connected.

IBM Workload Scheduler job has not started (1804)

An alert is sent when an IBM Workload Scheduler job did not start.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: Job JOB39 has not started in application MYAPP39

Alert: Job JOB39 has not started in application MYAPP39
System messages report that a IWS Job has not started

   Alert id        1804
   Jobname         JOB39
   JES job id      JOB00584
   Application     MYAPP39
   Date and time   04May2014 22:47:34.54
   WTO message     EQQE039I LONG TIME ON INPUT QUEUE FOR JOB JOB39(JOB00
                   (010), APPL = MYAPP39, WORK STATION = CPUA,
                   IA=1404010034
   System ID       TVT8018
```

The text message format of the alert is as follows:

```
Subject: Alert 1804: Job JOB39    has not started in application MYAPP39

Alert 1804: Job JOB39 has not started in application MYAPP39
```

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the IWS applications for which this alert must be generated.

IBM Workload Scheduler job is late (1805)

An alert is sent when an IBM Workload Scheduler job is late.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: Job JOB37 is late starting for application MYAPP37

Alert: Job JOB37 is late starting for application MYAPP37
System messages report that a IWS Job is late starting

   Alert id        1805
   Jobname         JOB37
   JES job id      1234
```

```
   Application     MYAPP37
   Date and time   14May2014 13:06:01.65
   WTO message     EQQE037I JOB RENEJOB1(1234),OPERATION (OPERNUM) IN APPLICATION MYAPP37 IS
                   LATE, WORK STATION = WSID, IA = ARRTIME
   System ID       TVT8018
```

The text message format of the alert is as follows:

```
Subject: Alert 1805: Job JOB37    is late starting for application MYAPP37

Alert 1805: Job JOB37    is late starting for application MYAPP37
```

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the IWS applications for which this alert must be generated.

IBM Workload Scheduler job has failed (1806)

An alert is sent when an IBM Workload Scheduler job failed.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: Job JOB36 ended in error in application MYAPP36

Alert: Job JOB36 ended in error in application MYAPP36
System messages report that a IWS Job ended in error

   Alert id        1806
   Jobname         JOB36
   JES job id      JOB32463
   Application     MYAPP39
   Date and time   14May2014 13:05:55.62
   WTO message     EQQE036I JOB JOB36   (JOB06424), OPERATION(0010),
             OPERATION TEXT(                      ), ENDED IN ERROR S806.
                   PRTY=5, APPL = MYAPP36         , WORK STATION = CPUA, IA= 1405150001,
                   NO E2E RC
   System ID       TVT8018
```

The text message format of the alert is as follows:

```
Subject: Alert 1806: Job JOB36    ended in error application MYAPP36

Alert 1806: Job JOB36    ended in error application MYAPP36
```

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the IWS applications for which this alert must be generated.

Predefined ACF2 alerts

The categories of ACF2 alerts that are shipped with zSecure Alert are described here.

User alerts

The following alerts are used to monitor events that pertain to specific users and for auditing changes to users.

Logon with emergency logonid (2102)

An alert is sent if a logonid that is meant for emergencies is used for TSO logon or batch job submission.

To receive this alert, you must log SMF record type 30 subtype 1.

The e-mail format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Emergency user IBMUSER  logged on

Alert: Emergency user IBMUSER logged on
Successful logon or job submit with a logonid meant for emergencies
```

```
   Alert id        2102
   Date and time   03Feb2006 09:38:44.94
   User            IBMUSER  IBM DEFAULT USER
   Job name + id   IBMUSER  TSU05900
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2102: emergency user IBMUSER  logged on

Alert 2102: emergency user IBMUSER logged on
```

The generated e-mail report shows the logonid used to log on to the system and whether the logon succeeded.

This alert enables you to configure the panel for your site. When selecting the alert, you are prompted with a panel. You can enter up to 10 logonids that must only be used in case of emergencies. See “Emergency user configuration (alerts 1102 and 2102)” on page 123.

Highly authorized user revoked for password (2104)

This alert is triggered when a user with a system-level authority (SECURITY, NON-CNCL, or READALL) is revoked because of excessive invalid password attempts.

This alert can be caused by an intruder trying to guess the password.

Note: You must take care not all your users with system authority get revoked at the same time. You must have some procedure to make sure at least one unrevoked logonid with SECURITY authority is reinstated.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Highly authorized user C##CX44  revoked for password violations

Alert: Highly authorized user C##CX44 revoked for password violations
System-level authorized user revoked due to excessive password attempts

   Alert id        2104
   Date and time   07Feb2006 14:58:27.13
   User            C##CX44  TEST USER
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2104: Highly authorized user C##CX44  revoked for password violations

Alert 2104: Highly authorized user C##CX44 revoked for password violations
```

The report shows the logonid and accompanying name that is revoked for excessive password violations.

System authority granted (2105)

An alert is generated when a user obtains system-level authority (SECURITY, NON-CNCL, or READALL).

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: System authority granted to C##BMR2

Alert: System authority granted to C##BMR2
System-level authority granted to user

   Alert id        2105
   Date and time   29May2006 13:25:12.42
   Authority       SECURITY
   Granted to      C##BMR2  MARY ROBERTSON
   Logonid         C##BMR1  MARY ROBERTSON
   Job name        C##BMR1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2105: System authority granted to C##BMR2  by C##BMR1

Alert 2105: System authority SECURITY granted to C##BMR2 by C##BMR1
```

The report shows the system authority that is granted, the user that is granted the authority, and the user that performed the ACF2 command.

System authority removed (2106)

An alert is sent when a system-level authority (SECURITY, NON-CNCL, or READALL) is removed from a user.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: System authority removed from C##BMR1

Alert: System authority removed from C##BMR2
System-level authority removed from user

   Alert id        2106
   Date and time   29May2006 13:25:16.15
   Authority       SECURITY
   Removed from    C##BMR2  MARY ROBERTSON
   Logonid         C##BMR1  MARY ROBERTSON
   Job name        C##BMR1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2106: System authority removed from C##BMR2  by C##BMR1

Alert 2106: System authority SECURITY removed from C##BMR2 by C##BMR1
```

The report shows the authority that is removed, the user whose authority is removed, and the user that performed the ACF2 command.

Invalid password attempts exceed limit (2111)

This alert is sent if too many failed logon attempts are made with an invalid password for one specific logon ID in a specific time window. The measurement interval is the sum of the REPORT options **Interval** and **AverageInterval**. See the information about the REPORT command in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

Too many is defined as 5 attempts or more. If you want to use another limit, you must copy the alert to an installation defined alert. You must adapt all seven instances of

```
_cnt_historyInvPw1111(nd,<5), _cnt_totalInvPw1111(nd,>=5),
```

in the new skeleton member to use the limit you want instead of 5.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Invalid password attempts exceed limit for C##BSG2

Alert: Invalid password attempts exceed limit for C##BSG2
Excessive number of password attempts by user

   Alert id        2111
   Date and time   03Mar2006 13:30:04.39 - 03Mar2003 13:39:23.78
   Attempts        6
   User            C##BSG2  SUSAN GAYNOR
   Result          Violation
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2111: Invalid password attempts exceed limit for C##BSG2

Alert 2111: Invalid password attempts exceed limit for C##BSG2.
```

This alert is also raised for password phrase violations. It takes into account a combined number of violations for passwords and password phrases.

The generated email report shows the interval in which the logon attempts occurred and the number of attempts. It also shows the logon ID that was used for trying to log on to the system and the status of the logon. In this alert, the logons are always violations.

Password history flushed (2112)

This alert is sent if the password for a specific logon ID is changed more often than the password history GSO setting in a specific time window. It means that the user flushed the entire password history, enabling reuse of a previous password. The measurement interval is the sum of the REPORT options **Interval** and **AverageInterval**. See the information about the REPORT command in the *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

Note: Alert 2112 and 2113 are related. When a report interval ends while a password history is being flushed, alert 2113 is triggered; alert 2112 occurs when flushing completes. If you receive multiple alerts 2113 for the same user without alert 2112, it is likely that the history is flushed or being flushed, but the user might have taken some more time for it.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Password history flushed for C##BSG2

Alert: Password history flushed for C##BSG2
Repeated PASSWORD commands flush password history

   Alert id        2112
   Date and time   05Mar2006 11:47:11.21 - 03Mar2006 11:47:12.04
   Pwd changes     33
   User            C##BSG2  SUSAN GAYNOR
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2112: Password history flushed for C##BSG2

Alert 2112: Password history flushed for C##BSG2
```

The generated email report shows the interval in which the password history flushing occurred, the number of password changes, and the logon ID of the user that flushed the password history of the user.

Suspect password changes (2113)

An alert is sent if the password for a specific logon ID is changed five times or more in a specific time window.

The password change is not so often that the password history has been flushed completely, which would result in alert 2112. If you want to use another limit, you must copy the alert to an installation defined alert. Adapt all four instances of

```
   #history(nd,<5) #total(nd,>=5),
```

in the new skeleton member to use the wanted limit instead of five.

For further explanation, see “Password history flushed (2112)” on page 98.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Suspect password changes for C##BSG2
```

```
Alert: Suspect password changes for C##BSG2
Excessive number of PASSWORD commands by user

   Alert id        2113
   Date and time   03Mar2006 15:17:12.32 - 03Mar2006 15:17:13.11
   Pwd changes     7
   User            C##BSG2  SUSAN GAYNOR
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2113: Suspect password changes for C##BSG2

Alert 2113: Suspect password changes for C##BSG2
```

The generated email report shows the interval in which the password changes occurred, the number of password changes, and the logon ID that has its password changed many times.

SECURITY authority used by non-SECURITY logon ID (2116)

An alert is generated when a user without SECURITY accesses a data set with SECURITY authority.

This alert implies that the user without SECURITY authority can access all data sets and has the potential to successfully execute commands that require SECURITY. This condition can be set by APF-authorized software.

Note: You must analyze the SMF records cut for the job up to the time the alert was issued as a first attempt to identify the responsible program.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: non-SECURITY user C##BDV1 accessed data set with SECURITY

Alert: non-SECURITY user C##BDV1 accessed data set with SECURITY
Successful data set access using SECURITY by user without SECURITY

   Alert id        2116
   Date and time   17Jan2003 03:00:16.89
   Data set        D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00
   Access          UPDATE
   User            C##BDV1  DIONNE VONT
   Result          LOGGING
   Job name        C##BDV1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2116: non-SECURITY user C##BDV1  accessed (UPDATE  ) with
SECURITY data set D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00

Alert 2116: non-SECURITY user C##BDV1 accessed (UPDATE  ) with SECURITY
data set D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00
```

NON-CNCL authority used by non-NON-CNCL logon ID (2117)

An alert is generated when a user without NON-CNCL accesses a data set with NON-CNCL authority.

This alert implies that the user can access all data sets. This condition can be set by APF-authorized software.

Note: You must analyze the SMF records cut for the job up to the time the alert was issued as a first attempt to identify the responsible program.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: non-NON-CNCL user C##BDV1 accessed data set with NON-CNCL

Alert: non-NON-CNCL user C##BDV1 accessed data set with NON-CNCL
Successful data set access using NON-CNCL by user without NON-CNCL
```

```
   Alert id        2117
   Date and time   17Jan2003 03:00:16.89
   Data set        D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00
   Access          UPDATE
   User            C##BDV1  DIONNE VONT
   Result          LOGGING
   Job name        C##BDV1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2117: non-NON-CNCL user C##BDV1  accessed (UPDATE  ) with
NON-CNCL data set D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00

Alert 2117: non-NON-CNCL user C##BDV1 accessed (UPDATE  ) with NON-CNCL
data set D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00
```

READALL authority used by non-READALL logon ID (2118)

An alert is generated when a user without READALL accesses a data set with READALL authority.

This alert implies that the user can read all data sets. This condition can be set by APF-authorized software.

Note: You must analyze the SMF records cut for the job up to the time the alert was issued as a first attempt to identify the responsible program.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: non-READALL user C##BDV1 accessed data set with READALL

Alert: non-READALL user C##BDV1 accessed data set with READALL
Successful data set access using READALL by user without READALL

   Alert id        2118
   Date and time   17Jan2003 03:00:16.89
   Data set        D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00
   Access          READ
   User            C##BDV1  DIONNE VONT
   Result          LOGGING
   Job name        C##BDV1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2118: non-READALL user C##BDV1  accessed (READ  ) with
READALL data set D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00

Alert 2118: non-READALL user C##BDV1 accessed (READ  ) with READALL
data set D##BEV.GBS001.D##Y.DC107SCK.BV0GBS00
```

Non-expiring password enabled (2119)

An alert is sent when a non-expiring password is enabled for a logon ID by assigning the LIDZMAX attribute. The non-expiring password is effective when MAXDAYS(0) is set for the logon ID.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert:  User C##ASCH enabled non-expiring password for C##ABRJ

Alert: User C##ASCH enabled non-expiring password for C##ABRJ
Non-expiring password has been enabled by assigning LIDZMAX

    Alert id        2119
    Date and time   03Feb2013 10:12:05.30
    User            C##ABRJ JOHN BROWN
    Issued by       C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 2119: User C##ASCH enabled non-expiring password for C##ABRJ

Alert 2119: User C##ASCH enabled non-expiring password for C##ABRJ
```

The alert shows the command issuer and the logon ID for which the LIDZMAX attribute was set.

Major administrative activity (2120)

An alert is sent when more ACF2 commands than a configured number are recorded for a specific user in the interval as specified with the zSecure Alert REPORT option **AverageInterval**.

For more information about the zSecure Alert REPORT option **AverageInterval**, see the information about the REPORT command in *IBM Security zSecure CARLa-Driven Components: Installation and Deployment Guide*.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: 126 commands recorded for user CDADMIN

Alert: 126 commands recorded for user CDADMIN
Number of commands exceeds the configured 100

    Alert id        2120
    Date and time   03Feb2013 10:12:05.30
    User            CDADMIN   BATCH ADMIN JOB
    System ID       DINO

       Time  Event            Event type

       10:40 ChgLogonid       REPLACE
       10:40 ChgLogonid       REPLACE

       .... ..........       ..............................................
```

The text message format of the alert is as follows:

```
Subject: Alert 2120: 126 commands recorded for user CDADMIN

Alert 2120: 126 commands recorded for user CDADMIN
```

The alert includes the user, the number of commands that are issued, and a list of events.

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the number of violations you consider being excessive. You can specify up to 10 user IDs or user ID masks to be excluded. See “Major administrative activity (1120 and 2120) configuration” on page 124.

Logon from a not allowed IP address (2124)

Alert 2124 is sent when a logonid with a system-level authority (SECURITY, NON-CNCL, or READALL) logs on to TSO from an IP address that is not allowed.

To receive this alert, perform the following steps:

1. Log SMF record types 30 subtype 1 and 118 or 119.
2. Set SMFINIT parameter for TELNETPARMS to TYPE119 in the telnet configuration file.
3. Set internal refresh to Y in the Alert configuration.

The email format of the alert is:

```
Alert: Authorized user CRMBXX2 logged on from 9.145.159.178
Logon by a logonid from a not allowed IP address

   Alert id        2124
   Date and time   29Mar2021 13:33:08.88
   User            CRMBXX2  IBM DEFAULT USER
   Result          Success
```

```
   Job name + id   CRMBXX2  TSU07970
   System ID       8018
   Source terminal STCP0010
   Source IP       9.145.159.178
```

The text message format of the alert is:

```
Subject: Alert 2124: Authorized user CRMBRT2 logged on from 9.145.159.178

Alert 1124: Authorized user CRMBRT2 logged on from 9.145.159.178
```

The generated email report shows the user ID that is used to log on to the system and its IP address.

You can configure the alert for your site. When selecting the alert, you are prompted with a panel. You can enter up to 10 IP addresses or network prefixes that specify from where the logonid is allowed to logon. See “Allowed IP address configuration (alerts 1124 and 2124)” on page 125.

Password spraying attack (1125)

To receive this alert, perform the following steps:

1. Log SMF record types 30 subtype 1 and 118 or 119.
2. Set SMFINIT parameter for TELNETPARMS to TYPE119 in the telnet configuration file.
3. Set internal refresh to Y in the Alert configuration.

The email format of the alert is:

```
Password spraying attack from 192.168.0.12
Number of userids equal or exceeding the configured 2

   Alert id        2125
   Date and time   13Jul2021 16:52:28.54 - 13Jul2021 16:53:02.34
   System ID       ZS14
   Source terminal STCP0001

   Time  Event             Userid   Name

   13Jul2021 16:52:28.54   CRMBXX3  User3
   13Jul2021 16:52:41.10   CRMBXX4  User4
   13Jul2021 16:52:43.95   CRMBXX4  User4
```

The text message format of the alert is:

```
Subject: Alert 2125: Password spraying attack from 192.168.0.12

Alert 2125: Password spraying attack from 192.168.0.12
```

The generated email report shows the IP address where the logon attempts came from and the logonids for which password violations were detected.

You can configure the alert for your site. When selecting the alert, you are prompted with a panel. You can enter a value that is the highest acceptable number of logonids. See “Specify threshold value (alerts 1125 and 2125)” on page 125.

Data set alerts

This section describes the predefined alerts for data set access.

WARNING mode access on data set (2201)

A data set is accessed and access is granted because of warning mode.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: WARNING mode READ    on data set CDS.SCDSSAMP

Alert: WARNING mode READ on data set CDS.SCDSSAMP
```

```
Data set access granted due to warning mode

   Alert id        2201
   Date and time   21Jan2006 09:11:11.01
   Data set        CDS.SCDSSAMP
   Granted access  READ
   Rule            CDS.-
   User            C##BMR1  MARY ROBERTSON
   Job name        C##BMR1
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2201: WARNING mode READ    by C##BMR1 on data set
CDS.SCDSSAMP

Alert 2201: WARNING mode READ by C##BMR1 on data set CDS.SCDSSAMP
```

The report shows the data set, the user that requested access to it, the rule against which the access is checked, and the access that is granted.

A rule in WARNING mode grants any access to the resource, including what the rule would not allow otherwise. WARNING mode is typically used to analyze what the effects of the access settings of a rule are before the access control is enforced. It is used as a temporary measure to overcome production problems. If you receive these alerts, you must verify whether the access can be allowed. If so, change the access settings of the rule accordingly. If this access is not supposed to occur, take remedial action as required.

Update on APF data set (2204)

An alert is sent when an APF authorized data set is updated.

You can specify the privileged user and groups for which the alert must not be generated with SE.A.S option **Privileged users and groups for UPDATE on APF data sets**.

Note: You might want to refresh the CKFREEZE data set that contains the environmental data. Use a SETPROG or SET PROG command to update the APF list and then use the MODIFY C2POLICE,COLLECT command.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Update by C##ASCH  on APF data set C##A.D.C##NEW.APF.LOAD

Alert: Update by C##ASCH on APF data set C##A.D.C##NEW.APF.LOAD
APF data set successfully updated

   Alert id        2204
   Date and time   03Feb2003 10:12:05.30
   Data set        C##A.D.C##NEW.APF.LOAD
   Access          UPDATE
   User            C##ASCH
   Result          LOGGING
   Job name        C##ASCHL
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2204: Update by user C##ASCH  on APF data set
C##A.D.C##NEW.APF.LOAD

Alert 2204: Update by user C##ASCH on APF data set C##A.D.C##NEW.APF.LOAD
```

The alert shows the data set that was updated, the employed access level, and the user who accessed the data set.

Data set added to APF list (WTO-based) (2205)

An alert is generated when a data set is dynamically added to the APF list using the SET PROG or SETPROG command.

To generate this alert, WTO message CSV410I must be available and selected for processing.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Data set added to APF list: SYSPROG.APF.LOAD

Alert: Data set added to APF list: SYSPROG.APF.LOAD
A data set is dynamically added to the APF list

   Alert id        2205
   Date and time   21Feb2003 11:44:36.71
   Data set        SYSPROG.APF.LOAD
   Volume          <SMS MANAGED>
   Console ID      R##SLIN
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2205: Data set added to APF list from console R##SLIN:
SYSPROG.APF.LOAD

Alert 2205: Data set added to APF list from console R##SLIN:
SYSPROG.APF.LOAD on volume <SMS MANAGED>
```

The alert shows the data set that was added to the APF list, on what volume the data set resides, or, <SMS MANAGED> if it is managed by SMS, and the name of the console from which the user entered the SET PROG or SETPROG command, if entered from SDSF, the console name defaults to the logonid of the user.

Data set removed from APF list (WTO-based) (2206)

An alert is generated when a data set is dynamically removed from the APF list using the SET PROG or SETPROG command.

To generate this alert, WTO message CSV410I must be available and selected for processing.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Data set removed from APF list: SYSPROG.APF.LOAD

Alert: Data set removed from APF list: SYSPROG.APF.LOAD
A data set is dynamically removed from the APF list

Alert id        2206
Date and time   21Feb2003 11:44:36.71
Data set        SYSPROG.APF.LOAD
Volume          <SMS MANAGED>
Console ID      R##SLIN
System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2206: Data set removed from APF list from console R##SLIN:
SYSPROG.APF.LOAD

Alert 2206: APF Data set removed from APF list from console R##SLIN:
SYSPROG.APF.LOAD on volume <SMS MANAGED>
```

The alert shows the data set that was removed from the APF list, on what volume the data set resides, or, <SMS MANAGED> if it is managed by SMS, and the name of the console from which the user entered the SET PROG or SETPROG command, if entered from SDSF, the console name defaults to the logon ID of the user.

Data set addition to APF list detected (2207)

This alert is generated when a data set is added to the APF list by any method.

This alert includes use of the SET PROG or SETPROG command and use of other products. To generate this alert, Extended Monitoring must be active. Because this alert is based on a comparison of two system

snapshots, no information is available about the user ID, jobname that was used to add the data set, or the process that was used to perform the addition.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Data set addition to APF list detected: SYSPROG.APF.LOAD

Alert: Data set addition to APF list detected: SYSPROG.APF.LOAD
An addition of a data set to the APF list has been detected


       Alert id              2207
       Date and time         18Nov2016 03:50:29
       Data set              SYSPROG.APF.LOAD
       Volume                <SMS MANAGED>
       APF                   No
       APFLIST               Yes
       System ID             DINO
```

The text message format of the alert is:

```
Subject: Alert 2207: Data set addition to APF list detected: SYSPROG.APF.LOAD

Alert 2207: Data set addition to APF list detected: SYSPROG.APF.LOAD
on volume <SMS MANAGED>
```

The alert shows the data set that was added to the APF list and the volume where the data set resides. If the data set is managed by SMS, the volume field shows <SMS MANAGED>. Because this alert is based on a comparison of two system snapshots, it does not provide any information about the user ID, jobname that was used to add the data set, or the process that was used to perform the addition.

Data set removal from APF list detected (2208)

This alert is generated when a data set is removed from the APF list by any method.

This alert includes use of the SET PROG or SETPROG command and use of other products. To generate this alert, Extended Monitoring must be active. Because this alert is based on a comparison of two system snapshots, it does not provide any information about the userid, jobname that was used to remove the data set, or the process that was used to perform the addition.

The e-mail format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Data set removal from APF list detected: SYSPROG.APF.LOAD

Alert: Data set removal from APF list detected: SYSPROG.APF.LOAD
A removal of a data set from the APF list has been detected.


       Alert id              2208
       Date and time         18Nov2016 03:50:29
       Data set              SYSPROG.APF.LOAD
       Volume                <SMS MANAGED>
       APF                   Yes
       APFLIST               No
       System ID             DINO
```

The text message format of the alert is:

```
Subject: Alert 2208: Data set removal from APF list detected: SYSPROG.APF.LOAD
Alert 2208: Data set removal from APF list detected: SYSPROG.APF.LOAD
on volume <SMS MANAGED>
```

The alert shows the data set that was removed from the APF list and on what volume the data set resides (or <SMS MANAGED> if it is managed by SMS). Because this alert is based on a comparison of two system snapshots, it does not provide any information about the userid, jobname that was used to remove the data set, or the process that was used to perform the removal.

Non-regular access to PCI PAN data (2209)

An alert is sent for a successful non-regular INPUT or higher access to a PCI PAN (credit card Primary Account Number) data set.

You can specify the PCI PAN data sets and the privileged user and groups for which the alert should not be generated with option SE.A.P.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert 2209: INPUT access by CIDASCH on PCI-PAN data set CIDA.D.CIDNEW.PAN

Alert 2209: INPUT access by CIDASCH on PCI-PAN data set CIDA.D.CIDNEW.PAN
Non-regular acces

    Alert id        2209
    Date and time   03Feb2013 10:12:05.30
    Data set        CIDA.D.CIDNEW.PAN
    Sensitivity     PCI-PAN
    Access          INPUT
    User            CIDASCH SIRAM CHRISTIAN
    Result          LOGGING
    Job name        CIDASCHL
    System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2209: INPUT access by CIDASCH on PCI-PAN data set CIDA.D.CIDNEW.PAN

Alert 2209: INPUT access by CIDASCH on PCI-PAN data set CIDA.D.CIDNEW.PAN
```

The alert shows the data set that was accessed, the access level used (for example INPUT) and the user who accessed the data set.

Non-regular access to clear text PCI PAN data (2210)

An alert is sent for a successful non-regular INPUT or higher access to clear text PCI PAN (credit card Primary Account Number) data.

You can specify the clear PCI PAN data sets and the privileged user and groups for which the alert should not be generated with option SE.A.P.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert 2210: INPUT access by CIDASCH on PCI-PAN-clr data set
CIDA.D.CIDNEW.PAN

Alert 2210: INPUT access by CIDASCH on PCI-PAN-clr data set CIDA.D.CIDNEW.PAN
Non-regular access

    Alert id        2210
    Date and time   03Feb2013 10:12:05.30
    Data set        CIDA.D.CIDNEW.PAN
    Sensitivity     PCI-PAN-clr
    Access          INPUT
    User            CIDASCH SIRAM CHRISTIAN
    Result          LOGGING
    Job name        CIDASCHL
    System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2210: INPUT access by CIDASCH on PCI-PAN-clr data set CIDA.D.CIDNEW.PAN

Alert 2210: INPUT access by CIDASCH on PCI-PAN-clr data set CIDA.D.CIDNEW.PAN
```

The alert shows the data set that was accessed, the access level used (for example INPUT) and the user who accessed the data set.

Non-regular access to PCI AUTH data (2211)

An alert is sent for a successful non-regular INPUT or higher access to a PCI AUTH (credit card sensitive authentication data) data set.

You can specify the PCI AUTH data sets and the privileged user and groups for which the alert should not be generated with option SE.A.P.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert 2211: INPUT access by CIDASCH on PCI-AUTH data set
CIDA.D.CIDNEW.PAN

Alert 2210: INPUT access by CIDASCH on PCI-AUTH data set CIDA.D.CIDNEW.PAN
Non-regular access

    Alert id        2211
    Date and time   03Feb2013 10:12:05.30
    Data set        CIDA.D.CIDNEW.PAN
    Sensitivity     PCI-AUTH
    Access          INPUT
    User            CIDASCH SIRAM CHRISTIAN
    Result          LOGGING
    Job name        CIDASCHL
    System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2211: INPUT access by CIDASCH on PCI-AUTH data set CIDA.D.CIDNEW.PAN

Alert 2211: INPUT access by CIDASCH on PCI-AUTH data set CIDA.D.CIDNEW.PAN
```

The alert shows the data set that was accessed, the access level used (for example INPUT) and the user who accessed the data set.

Access>=READ on site sensitive data set (2212)

An alert is sent for a successful non-regular READ or higher access to a site sensitive data set. For ACF2, this translates to access INPUT, READBACK, OUTPUT, UPDATE, INOUT, OUTIN, or OUTINX.

You can specify the sensitive data sets and the privileged user and groups for which the alert must not be generated with option SE.A.S. The alert is not generated for resources that already have a sensitivity assigned by zSecure; for example, APF libraries, JES spool data sets, etc.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert 2212: INPUT access by C##ASCH on site sensitive READ data set
C##A.D.C##NEW.MACLIB

Alert 2212: INPUT access by C##ASCH on site sensitive READ data set
C##A.D.C##NEW.MACLIB
Non-regular access

    Alert id        2212
    Date and time   03Feb2013 10:12:05.30
    Data set        C##A.D.C##NEW.MACLIB
    Sensitivity     Site-Dsn-R
    Access          INPUT
    User            C##ASCH SIRAM CHRISTIAN
    Result          Success
    Job name        C##ASCHL
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 2212: INPUT access by C##ASCH on site sensitive READ data set
C##A.D.C##NEW.MACLIB

Alert 2212: INPUT access by C##ASCH on site sensitive READ data set
C##A.D.C##NEW.MACLIB
```

The alert shows the data set that was accessed, the access level used (for example INPUT) and the user who accessed the data set.

Access>=UPDATE on site sensitive data set (2213)

An alert is sent for a successful non-regular UPDATE or higher access to a site sensitive data set. For ACF2, this translates to access OUTPUT, UPDATE, INOUT, OUTIN, or OUTINX.

You can specify the sensitive data sets and the privileged user and groups for which the alert must not be generated with option SE.A.S. The alert is not generated for resources that already have a sensitivity assigned by zSecure; for example, APF libraries, JES spool data sets, etc.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert 2213: OUTPUT access by C##ASCH on site sensitive UPDATE data set
C##A.D.C##NEW.MACLIB

Alert 2213: OUTPUT access by C##ASCH on site sensitive UPDATE data set
C##A.D.C##NEW.MACLIB
Non-regular access

    Alert id        2213
    Date and time   03Feb2013 10:12:05.30
    Data set        C##A.D.C##NEW.MACLIB
    Sensitivity     Site-Dsn-U
    Access          OUTPUT
    User            C##ASCH SIRAM CHRISTIAN
    Result          Success
    Job name        C##ASCHL
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject:  Alert 2213: OUTPUT access by C##ASCH on site sensitive UPDATE data set
C##A.D.C##NEW.MACLIB

Alert 2213: OUTPUT access by C##ASCH on site sensitive UPDATE data set
C##A.D.C##NEW.MACLIB
```

The alert shows the data set that was accessed, the access level used (for example OUTPUT), and the user who accessed the data set.

Action on UPDATE sensitive member (2214)

An alert is sent for a successful UPDATE or higher access to a sensitive member. This means one of the following actions is performed on a member: INITIALIZE, DELETE, ADD, REPLACE, or RENAME.

When IEBCOPY is used to update a PDS, no SMF type 42 records are produced for individual member updates, so alert 2214 will not be issued. For a PDSE, IEBCOPY causes SMF 42 to be generated, so alert 2214 will be issued.

You can specify the members and the data sets they are in with SE.A.S. option **UPDATE sensitive members in specific data sets**. You can specify the privileged user and groups for which the alert must not be generated with SE.A.S option **Privileged users and groups for site UPDATE sensitive resources**.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert 2214: Action by C##ASCH on UPDATE sensitive member IEASYS81

Alert 2214:  Action by C##ASCH on UPDATE sensitive member IEASYS81
Action on UPDATE sensitive member

    Alert id        2214
    Date and time   03Feb2013 10:12:05.30
    Data set        USER.PARMLIB
    Action          REPLACE
    Member          IEASYS81
    Alias
    Old Member
```

```
    User            C##ASCH SIRAM CHRISTIAN
    Job name        C##ASCHL
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 2214: REPLACE action by C##ASCH on UPDATE sensitive member IEASYS81

Alert 2214: REPLACE action by C##ASCH on UPDATE sensitive member IEASYS81 in data
set USER.PARMLIB
```

The alert shows the data set and member that was updated and the action that is performed on the member.

Data set added to APF list (SMF based) (2217)

An alert is generated when a data set is dynamically added to the APF list using the SET PROG or SETPROG command.

To generate this alert, you must log SMF record 90 subtype 37.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert:: Data set added to APF list:   SYSPROG.APF.LOAD

Alert:: Data set added to APF list:   SYSPROG.APF.LOAD
A data set is dynamically added to the APF list

   Alert id        2217
   Date and time   21Feb2003 11:44:36.71
   Data set        SYSPROG.APF.LOAD
   Volume          <SMS MANAGED>
   Console ID      R##SLIN
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2217: Data set added to APF list from console R##SLIN:
SYSPROG.APF.LOAD

Alert 2217: Data set added to APF list from console R##SLIN
SYSPROG.APF.LOAD on volume <SMS MANAGED>
```

The alert shows the data set that was added to the APF list, on what volume the data set resides, or <SMS MANAGED> if it is managed by SMS. It shows from where the SET PROG or SETPROG command was issued.

Data set removed from APF list (SMF based) (2218)

An alert is generated when a data set is dynamically removed from the APF list using the SET PROG or SETPROG command.

To generate this alert, you must log SMF record 90 subtype 37.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Data set removed from APF list: SYSPROG.APF.LOAD

Alert: Data set removed from APF list: SYSPROG.APF.LOAD
A data set is dynamically removed from the APF list

Alert id        2218
Date and time   21Feb2003 11:44:36.71
Data set        SYSPROG.APF.LOAD
Volume          <SMS MANAGED>
Console ID      R##SLIN
System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2218: Data set removed from APF list from console R##SLIN:
SYSPROG.APF.LOAD

Alert 2218: APF Data set removed from APF list from console R##SLIN:
SYSPROG.APF.LOAD on volume <SMS MANAGED>
```

The alert shows the data set that was removed from the APF list, on what volume the data set resided, or <SMS MANAGED> if it is managed by SMS. It shows from where the SET PROG or SETPROG command was issued.

General resource alerts

These alerts report on the use of general resources.

Default STC logon ID used for STC (2301)

An alert is sent if a started task uses the default STC logon ID.

To generate this alert, WTO message ACF9CCCD must be available and selected for processing.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: STC default LID ACFSTCID used for STC IEFBR14A

Alert: STC default LID ACFSTCID used for STC IEFBR14A
A started task uses the STC default logonid

   Alert id        2301
   Date and time   11Feb2003 18:14:48.78
   Logonid         ACFSTCID
   Started task    IEFBR14A
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2301: STC default LID ACFSTCID used for STC IEFBR14A

Alert 2301: STC default LID ACFSTCID used for STC IEFBR14A
```

The report shows the ACF2 default logon ID used and the started task member name. This report does not show the user who began the started task.

You can remove the cause of this alert if you define a GSO STC record for this started task. The default logon ID is not checked anymore for this started task.

UNIX alerts

The following alerts are triggered when a UNIX superuser privilege is obtained.

Superuser privileged shell obtained by user (2407)

An alert is generated when a user used the UNIX su command to obtain a shell with superuser privileges.

To receive this alert, you must have successful READ logging specified on the BPX.SUPERUSER FACILITY rule entry.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: Superuser privileged shell obtained by user C##BSG1

Alert: Superuser privileged shell obtained by user C##BSG1
A user used su to obtain a shell with superuser privileges

Alert id        2407
Date and time   14May2003 14:15:21.98
User            C##BSG1  SUSAN GAYNOR
```

```
Job name        C##BSG1
System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2407: Superuser privileged shell obtained by user C##BSG1

Alert 2407: Superuser privileged shell obtained by user C##BSG1
```

The report shows the user who used **su** to obtain a shell with superuser privileges. This user is able to read and write any file or directory on the UNIX subsystem.

Extended attribute changed (2409)

If this alert is activated, a notification message is generated when a change is detected in the extended attributes settings (APF, program control, or _BPX_SHAREAS) for a UNIX file or program. To receive this alert, the level of the z/OS system must be at least 1.11.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Extended attribute changed for db2asc

Alert: Extended attribute changed for db2asc
Extended attributes indicate z/OS special handling

   Alert id         2409
   Date and time    19Jul2017 19:43:30.07
   Path             ./actuator/bin/db2asc
   Previous value   APF authorized;
   New value
   User             C##BER2 ERWIN RETTICH
   Job name         C##BER2
   System id        DINO
```

In the email notification, **Previous value** and **New value** can contain a combination of the following values: Shared library, APF-authorized, and Program controlled.

The text message format of the alert is:

```
Subject: Alert 2409: Extended attribute changed (APS-> APS) by <userid> for db2asc.

Alert 2409: Extended attribute changed (APS-> APS) by C##BER2 for db2asc
```

The extended attributes of a UNIX file db2asc changed. The old and new extended attributes are shown between the parentheses. The string APS stands for the extended attributes: APF Authorized, Program controlled, and Shared Library. The command was issued by C##BER2.

ACF2 control alerts

These alerts report on ACF2 GSO setting changes.

Global security countermeasure added (2501)

An alert is sent when an ACF2 GSO setting is added.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Global security countermeasure added by C##BNA2

Alert: Global security countermeasure added by C##BNA2
ACF2 command used to add GSO setting

   Alert id        2501
   Date and time   23Jan2003 12:13:34.58
   Rule key        C-GSO-CRM     PSWD
   Field/value     WRNDAYS/5
   User            C##BNA2  NICK AFTERSOCK
```

```
   Job name        C##BNA2
   System id       DINO
```

The text message format of the alert is:

```
Subject: Alert 2501: Global security countermeasure added by C##BNA2

Alert 2501: Global security countermeasure added by C##BNA2: C-GSO-CRM     PSWD
```

The alert shows the GSO rule key, the GSO field and its value, and the user that executed the command.

For SNMP, only one GSO rule key, GSO field, and value is sent with variable `whatParm`.

Global security countermeasure deleted (2502)

An alert is sent when an ACF2 GSO setting is deleted.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Global security countermeasure deleted by C##BNA2

Alert: Global security countermeasure deleted by C##BNA2
ACF2 command used to delete GSO setting

   Alert id        2502
   Date and time   23Jan2003 12:13:34.58
   Rule key        C-GSO-CRM     PSWD
   Field/value     WRNDAYS/5
   User            C##BNA2  NICK AFTERSOCK
   Job name        C##BNA2
   System id       DINO
```

The text message format of the alert is:

```
Subject: Alert 2502: Global security countermeasure deleted by C##BNA2

Alert 2502: Global security countermeasure deleted by C##BNA2: C-GSO-CRM     PSWD
```

The alert shows the GSO rule key, the GSO field and its value, and the user that executed the command.

For SNMP, only one GSO rule key, GSO field, and value is sent with variable `whatParm`.

Global security countermeasure changed (2503)

An alert is sent when an ACF2 GSO setting is changed.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Global security countermeasure changed by C##BNA2

Alert: Global security countermeasure changed by C##BNA2
ACF2 command used to change GSO setting

   Alert id        2503
   Date and time   23Jan2003 12:13:34.58
   Rule key        C-GSO-CRM     PSWD
   Field/Old/New   WRNDAYS/5/10
   User            C##BNA2  NICK AFTERSOCK
   Job name        C##BNA2
   System id       DINO
```

The text message format of the alert is:

```
Subject: Alert 2503: Global security countermeasure changed by C##BNA2

Alert 2503: Global security countermeasure changed by C##BNA2: C-GSO-CRM     PSWD
```

The alert shows the GSO rule key, the GSO field and its old and new values, and the user that executed the command.

For SNMP, only one GSO rule key, GSO field, and value is sent with variable `whatParm`.

System alerts

The following alerts are for monitoring general system events.

SMF data loss started (2601)

This alert is generated when WTO reports that SMF data loss has started.

This alert is reported in messages `IEE351I`, `IEE979W`, and `IEE989I`.

Note: You can choose to activate alert 2602 so that you are notified when the immediate exposure passes.

To receive this alert, you must receive WTO messages `IEE351I`, `IEE979W`, and `IEE989I`.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: SMF data loss started

Alert: SMF data loss started
System messages report that SMF data loss has started

   Alert id        2601
   Date and time   10Feb2003 16:36:27.07
   WTO message     IEE979W SMF DATA LOST - NO BUFFER SPACE
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2601: SMF data loss started. WTO msgid: IEE979W

Alert 2601: SMF data loss started. WTO msgid: IEE979W
```

The generated email contains only the issued WTO message.

SMF logging resumed after failure (2602)

This alert is generated when SMF data was lost due to full buffers, but the system has resumed logging.

Note: You can choose to activate this alert so that you are notified when the immediate exposure indicated by alert 2601 passes.

To receive this alert, you must log SMF record type 7.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: SMF logging resumed after failure

Alert: SMF logging resumed after failure
SMF data is lost, but the system has resumed logging

   Alert id        2602
   Start of loss   10Feb2003 17:35:58.97
   Date and time   10Feb2003 17:36:27.12
   #records lost   4121
   System ID       DINO
```

The text message format of the alert is:

```
Subject: Alert 2602: SMF logging resumed after failure.  4121 records lost.

Alert 2602: SMF logging resumed after failure. 4121 records lost.
```

The generated email contains the start time (`Start of loss`) and end time (`Resume time`) of the period when data was lost. It also shows the number of SMF records that were lost.

SVC definition changed (2603)

This alert is generated when a change is detected in the definition of an SVC in the SVC-table or the SVC ESR-table.

This alert shows the SVC and ESR number of the SVC that was changed. The current address of the SVC code is shown together with the current APF status. Because this alert is generated based on a comparison of two system snapshots, no information is available about how the change was accomplished.

The email format of the alert is:

```
From: C2POLICE at IDFX
Subject: Alert: SVC Definition changed: SVC/ESR 220/

Alert: SVC Definition changed: SVC/ESR 220/
A change in the definition of an SVC has been detected

   Alert id        2603
   SVC/ESR number  220/
   Address         00147080
   APF             Yes
   System ID       IDFX
```

The text message format of the alert is:

```
Subject: Alert 2603: SVC Definition changed: SVC/ESR 220/
Alert 2603: SVC Definition changed: SVC/ESR 220/ at address 00147080 APF
```

IBM Health Checker found low severity problem (2604)

This alert is generated when WTO reports that IBM Health Checker found a low severity problem.

This alert is reported in message HZS0001I.

To receive this alert, you must receive WTO message HZS0001I.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: IBM Health Checker found low severity problem

Alert: IBM Health Checker found low severity problem
Check found a problem that should be investigated

  Alert id       2604
  Date and time  10Feb2010 16:36:27.07
  System ID      DINO
  WTO message    HZS0001I CHECK(IBMGRS,GRS_SYNCHRES):


                 ISGH0305E Global Resource Serialization synchronous
                 RESERVE processing
                 is not active.
```

The text message format of the alert is:

```
Subject: Alert 2604: IBM Health Checker low severity: HZS0001I CHECK(IBMGRS,GRS_SYNCHRES):
Alert 2604:  IBM Health Checker low severity: HZS0001I CHECK(IBMGRS,GRS_SYNCHRES):
```

IBM Health Checker found medium severity problem (2605)

This alert is generated when WTO reports that IBM Health Checker found a medium severity problem.

This alert is reported in message HZS0002E.

To receive this alert, you must receive WTO message HZS0002E,

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: IBM Health Checker found medium severity problem

Alert: IBM Health Checker found medium severity problem
Check found a problem that should be investigated

  Alert id       2605
  Date and time  10Feb2010 16:36:27.07
  System ID      DINO
  WTO message    HZS0002E CHECK(IBMASM,ASM_LOCAL_SLOT_USAGE):


                 ILRH0107E Page data set slot usage threshold met or
                 exceeded
```

The text message format of the alert is:

```
Subject: Alert 2605: IBM Health Checker medium severity: HZS0002E
CHECK(IBMASM,ASM_LOCAL_SLOT_USAGE):
Alert 2605: IBM Health Checker medium severity: HZS0002E
CHECK(IBMASM,ASM_LOCAL_SLOT_USAGE):
```

IBM Health Checker found high severity problem (2606)

This alert is generated when WTO reports that IBM Health Checker found a high severity problem.

This alert is reported in message HZS0003E.

To receive this alert, you must receive WTO message HZS0003E,

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: IBM Health Checker found high severity problem

Alert: IBM Health Checker found high severity problem
Check found a problem that should be investigated

  Alert id       2606
  Date and time  10Feb2010 16:36:27.07
  System ID      DINO
  WTO message    HZS0003E CHECK(IBMXCF,XCF_CDS_SPOF):

                 IXCH0242E One or more couple data sets have a single
                 point of failure.
```

The text message format of the alert is:

```
Subject: Alert 2606: IBM Health Checker high severity: HZS0003E CHECK(IBMXCF,XCF_CDS_SPOF):
Alert 2606:  IBM Health Checker high severity: HZS0003E CHECK(IBMXCF,XCF_CDS_SPOF):
```

SMF record flood detected (2607)

This alert is generated when WTO reports that SMF record flood is detected.

This alert is reported in message IFA780A.

To receive this alert, you must receive WTO message IFA780A.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: SMF record flood detected

Alert: SMF record flood detected
System messages report SMF record flood detected
   Alert id        2607
   Date and time   03May2010 17:50:05.46
   WTO message     IFA780A SMF RECORD FLOOD MSG FILTER FOR TYPE 40
```

```
                  EXCEEDED AT TIME=
   System ID      NMPIPL87
```

The text message format of the alert is:

```
Subject: Alert 2607: SMF record flood detected. WTO msgid:IFA780A SMF RECORD
FLOOD MSG FILTER FOR TYPE 40 EXCEEDED AT TIME=
Alert 2607: SMF record flood detected. WTO msgid:IFA780A SMF RECORD FLOOD MSG
FILTER FOR TYPE 40 EXCEEDED AT TIME=
```

SMF record flood starts dropping records (2608)

This alert is generated when WTO reports that SMF record flood starts dropping records.

This alert is reported in message IFA782A.

To receive this alert, you must receive WTO message IFA782A.

The email format of the alert is:

```
From: C2POLICE at DINO
Subject: Alert: SMF record flood starts dropping records

Alert: SMF record flood starts dropping records
System messages report SMF record flood starts dropping records
   Alert id        2608
   Date and time   03May2010 17:00:00.33
   WTO message     IFA782A SMF RECORD FLOOD DROP FILTER FOR TYPE 74
                   EXCEEDED AT TIME=
   System ID       NMPIPL87
```

The text message format of the alert is:

```
Subject: Alert 2608: SMF record flood starts dropping records. WTO
msgid:IFA782A SMF RECORD FLOOD DROP FILTER FOR TYPE 74 EXCEEDED AT TIME=
Alert 2608: SMF record flood starts dropping records. WTO msgid:IFA782A SMF
RECORD FLOOD DROP FILTER FOR TYPE 74 EXCEEDED AT TIME=
```

Attacks blocked by filter rules are no longer logged – audit trail incomplete (2609)

This alert is generated when logging for packet filtering is no longer enabled

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Attacks blocked by filter rules are no longer logged

Alert: Attacks blocked by filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP
   Alert id      2609
   Changed field IPSEC_LOGENABLE(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 2609: Attacks blocked by filter rules are no longer logged - audit
trail incomplete in TCP/IP stack TCPIP

Alert 2609: Attacks blocked by filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK field IPSEC_LOGENABLE indicates that logging is not enabled for packet filtering. The alert contains the name of the changed field (IPSEC_LOGENABLE), as well as the old value of the field (Yes), its new value (No), and the security direction (-).

Attacks blocked by default filter rules are no longer logged – audit trail incomplete (2610)

This alert is generated when logging for packets that are denied by the implicit default rules is no longer enabled.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Attacks blocked by default filter rules are no longer logged

Alert: Attacks blocked by default filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP
   Alert id      2610
   Changed field IPSEC_LOGIMPLICIT(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 2610: Attacks blocked by default filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP

Alert 2610: Attacks blocked by default filter rules are no longer logged -
audit trail incomplete in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK field IPSEC_LOGIMPLICIT indicates that logging is not enabled for packets that are denied by the implicit default rules.

SMF 119 subtype is no longer written - audit trail incomplete (2611)

This alert is generated when SMF 119 records are no longer written when any of the following actions occur:

- A user invokes the FTP client command (FTPCLIENT)
- Statistics related to LINK utilization become available (IFSTAT)
- A tunnel is added, removed, activated, or deactivated (IPSECURITY)
- Statistics related to reserved PORT utilization become available (PORTSTAT)
- A TCP connection is established (TCPINIT)
- A TCP/IP stack is activated or terminated (TCPIPSTACK)
- TCP/IP statistics become available (TCPIPSTAT)
- A TCP connection is terminated (TCPTERM)
- The TSO Telnet Client code starts or ends a connection (TN3270CLIENT)
- A UDP socket is closed (UDPTERM)

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: SMF 119 FTPCLIENT is no longer written by stack name

Alert: SMF 119 FTPCLIENT is no longer written -
audit trail incomplete in TCP/IP stack TCPIP
   Alert id      2611
   Changed field SMF119_FTPCLIENT(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 2611: SMF 119 FTPCLIENT is no longer written - audit trail incomplete
in TCP/IP stack TCPIP

Alert 2611: SMF 119 FTPCLIENT is no longer written -
audit trail incomplete in TCP/IP stack TCPIP
```

The generated e-mail shows that the IP_STACK flag field corresponding with the associated SMF 119 subtype indicates that records of the given subtype will not be written.

IP filtering support and IPSec tunnel support deactivated (2612)

This alert is generated when IPv4 or IPv6 IP filtering support and IPSec tunnel support are no longer activated.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: IPv4 IP filtering support and IPsec tunnel support deactivated

Alert: IPv4 IP filtering support and IPsec tunnel support deactivated
in TCP/IP stack TCPIP
   Alert id      2612
   Changed field IPCONFIG_IPSECURITY(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 2612: IPv4 IP filtering support and IPsec tunnel support deactivated
in TCP/IP stack TCPIP

Alert 2612: IPv4 IP filtering support and IPsec tunnel
support deactivated in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK field IPCONFIG_IPSECURITY indicates that IPv4 IP filtering and IPSec tunnel support are not activated, or that the IP_STACK field IPCONFIG6_IPSECURITY indicates that IPv6 IP filtering and IPSec tunnel support are not activated.

Ports below 1024 are not reserved anymore (2613)

This alert is generated when TCP or UDP ports 1 - 1023 are no longer reserved for users by the PORT and PORTRANGE statements.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: UDP ports below 1024 are not reserved anymore by stack name

Alert: UDP ports below 1024 are not reserved anymore in
TCP/IP stack TCPIP
   Alert id      2613
   Changed field UDP_RESTRICTLOWPORTS(Yes->No)-
   Stack         TCPIP
   System ID     DINO
```

The text message format of the alert is:

```
Subject: Alert 2613: UDP ports below 1024 are not reserved anymore in TCP/IP stack
TCPIP

Alert 2613: UDP ports below 1024 are not reserved anymore in TCP/IP stack TCPIP
```

The generated email shows that the IP_STACK field TCP_RESTRICTLOWPORTS indicates that TCP ports 1 - 1023 are not reserved for users by the PORT and PORTRANGE statements, or that the IP_STACK field UDP_RESTRICTLOWPORTS indicates that UDP ports 1 - 1023 are not reserved for users by the PORT and PORTRANGE statements.

Interface security class changed (2614)

This alert is generated when the security class used for IP filtering with this interface changes.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: Security class changed for interface interface

Alert: Interface EELINK security class has changed in
TCP/IP stack TCPIP
   Alert id       2614
   Changed field  SECCLASS(255->238)
   Interface      EELINK
   Security class 238
   Stack          TCPIP
   System ID      DINO
```

The text message format of the alert is:

```
Subject: Alert 2614: Interface EELINK           security class has changed in TCP/IP
stack TCPIP

Alert 2614: Interface EELINK security class has changed in TCP/IP stack TCPIP
```

The generated email contains the IPv4 or IPv6 interface name, and the security class used for IP filtering with this interface.

IP filter rules changed (2615)

This alert is generated when an IP filter rule is changed, added, or deleted.

The email format of the alert is:

```
From:    C2POLICE at DINO
Subject: Alert: IP filter rules changed in TCP/IP stack TCPIP

Alert: IP filter rules changed in TCP/IP stack TCPIP
   Alert id                      2615
   Kind of change                CHG-
   Changed fields                LOG(Yes->No)-
   Source IP
   Source prefix length          0
   Source port                   0
   Destination IP
   Destination prefix length     0
   Destination port              0
   Protocol
   Type                          64
   Code                          0
   Packet filter logging enabled No
   Routing                       LOCAL
   Security class                0
   Stack                         TCPIP
   System ID                     DINO
```

The text message format of the alert is:

```
Subject: Alert 2615: IP filter rules changed in TCP/IP stack TCPIP

Alert:2615: IP filter rules changed in TCP/IP stack TCPIP
```

The generated email contains several components of the changed, added, or deleted IP filter rule: the source IP address for the outbound rule, the prefix length for the source subnet address, the source port for the outbound rule (for TCP or UDP traffic), the destination IP address for the outbound rule, the destination subnet address prefix length, the destination port for the outbound rule (matching the source port for the generated inbound rule), the type of traffic that the rule applies to, the ICMP value (for ICMP traffic), an indication whether packet filter logging is enabled for the default filter rule, the type of packet routing that the rule applies to, and the security class of the rule.

SMF record type deactivated (2616)

This alert is generated when a SMF record type is deactivated.

The email format of the alert is:

```
Alert: Deactivation of a SMF record type was detected  SUBSYS: STC SMF record type: 118
Deactivation of a SMF record type was detected

   Alert id        2616
   Date and time    1Mar22 11:52:01
   Subsys          STC
   SMF record type  118
   System ID       8018
```

The text message format of the alert is:

```
Subject: Alert 2616: Deactivation of a SMF record type was detected
SUBSYS: STC  SMF record type:  118

Alert 1616: Deactivation of a SMF record type was detected
SUBSYS: STC SMF record type: 118
```

The alert shows the SMF record type that was deactivated.

New master key promotion detected (2617)

This alert is generated when a new master key promotion is detected.

To receive this alert, you must log SMF record type 82 subtype 49.

The email format of the alert is:

```
Alert: New master key promotion
A new master key promotion was detected

   Alert id                2617
   Date and time            5Sep22 13:12:54
   System initiated a CCMK  Yes
   System ID               EIMG
```

The text message format of the alert is:

```
Alert 2617: New master key promotion
```

The alert shows that the system initiated a coordinated change master key and master key type.

Application alerts

zSecure server connection lost (2802)

An alert is sent when the last TCP connection to a partner zSecure Server was dropped. The connection remains dropped until a new allocation request is received.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: zSecure Server connection lost

Alert: zSecure Server connection lost
System messages report the zSecure Server lost a connection

    Alert id        2802
    Date and time   03Feb2013 10:12:05.30
    WTO message     CKN165I 00 zSecure Server PROD1/S1 lost last connection to PROD2/S2
    System ID       DINO
```

The text message format of the alert is as follows:

```
Subject: Alert 2802: zSecure Server connection lost

Alert 2802: zSecure Server connection lost
```

The alert includes the WTO message, which identifies the zSecure server that is no longer connected.

IBM Workload Scheduler job has not started (2804)

An alert is sent when a IBM Workload Scheduler job did not start.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: Job JOB39 has not started in application MYAPP39

Alert: Job JOB39 has not started in application MYAPP39
System messages report that a IWS Job has not started

   Alert id        2804
   Jobname         JOB39
   JES job id      JOB00584
   Application     MYAPP39
   Date and time   04May2014 22:47:34.54
   WTO message     EQQE039I LONG TIME ON INPUT QUEUE FOR JOB JOB39(JOB00
                   (010), APPL = MYAPP39, WORK STATION = CPUA,
                   IA=1404010034
   System ID       TVT8018
```

The text message format of the alert is as follows:

```
Subject: Alert 2804: Job JOB39    has not started in application MYAPP39

Alert 2804: Job JOB39 has not started in application MYAPP39
```

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the IWS applications for which this alert must be generated.

IBM Workload Scheduler job is late (2805)

An alert is sent when a IBM Workload Scheduler job is late.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: Job JOB37 is late starting for application MYAPP37

Alert: Job JOB37 is late starting for application MYAPP37
System messages report that a IWS Job is late starting

   Alert id        2805
   Jobname         JOB37
   JES job id      1234
   Application     MYAPP37
   Date and time   14May2014 13:06:01.65
   WTO message     EQQE037I JOB RENEJOB1(1234),OPERATION (OPERNUM) IN APPLICATION MYAPP37 IS
                   LATE, WORK STATION = WSID, IA = ARRTIME
   System ID       TVT8018
```

The text message format of the alert is as follows:

```
Subject: Alert 2805: Job JOB37    is late starting for application MYAPP37

Alert 2805: Job JOB37    is late starting for application MYAPP37
```

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the IWS applications for which this alert must be generated.

IBM Workload Scheduler job has failed (2806)

An alert is sent when an IBM Workload Scheduler job failed.

The email format of the alert is as follows:

```
From: C2POLICE at DINO
Subject: Alert: Job JOB36 ended in error in application MYAPP36

Alert: Job JOB36 ended in error in application MYAPP36
System messages report that a IWS Job ended in error

   Alert id        2806
   Jobname         JOB36
   JES job id      JOB32463
   Application     MYAPP39
   Date and time   14May2014 13:05:55.62
   WTO message     EQQE036I JOB JOB36   (JOB06424), OPERATION(0010),
             OPERATION TEXT(                      ), ENDED IN ERROR S806.
                   PRTY=5, APPL = MYAPP36         , WORK STATION = CPUA, IA= 1405150001,
                   NO E2E RC
   System ID       TVT8018
```

The text message format of the alert is as follows:

```
Subject: Alert 2806: Job JOB36    ended in error application MYAPP36

Alert 2806: Job JOB36    ended in error application MYAPP36
```

This alert can be customized for your organization. When you select the alert, you are prompted with a panel. In the panel, you can specify the IWS applications for which this alert must be generated.

Configuration of predefined alerts

This section explains how some of the predefined alerts can be configured with installation-specific names.

Alert definition - specify action

When you select **Specify action** on the alert definition panel, the following panel is displayed:

```
  Menu         Options       Info    Commands     Setup
------------------------------------------------------------------------------
                        zSecure Suite - Setup - Alert
Command ===> ____________________________________________________________

Specify action
_  TSO-RACF command
   _  Write TSO-RACF command to C2RCMD DD

   Specify command (Press Help key in this field for help)
   ____________________________________________________________________________

Enter up to 5 EXCLUDE condition sets (use EGN masks)
X ____________________________________________________________________________
X ____________________________________________________________________________
X ____________________________________________________________________________
X ____________________________________________________________________________
X ____________________________________________________________________________
```

Figure 21. Setup Alert panel: Specify action

The following fields are displayed:

TSO-RACF command
Select this field to generate a TSO-RACF command for this alert.

Write TSO-RACF command to C2RCMD DD
When both this field and **TSO-RACF command** are tagged, the generated commands are not issued, but written to the C2RCMD DD.

Specify command
Enter the command you want to issue for this alert. Enclose the fixed command string parts in single quotation marks ('). For example:

```
'ALU' USER(0) 'REVOKE'
```

Enter up to 5 EXCLUDE condition sets (use EGN masks)/(use ACF2 masks). In these fields, you can enter up to 5 exclude condition sets for which no commands should be generated. For example:

```
USER=(IBMUSER,SYS*)
```

Emergency user configuration (alerts 1102 and 2102)

The alert 1102 or 2102 means logon with emergency user. When it is selected, the following panel is displayed. You can enter up to 10 emergency users.

```
  Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
               zSecure - Setup - Alert
Command ===> ____________________________________________________________
Enter emergency users
User 1  . . . . . . . IBMUSER
User 2  . . . . . . . ________
User 3  . . . . . . . ________
User 4  . . . . . . . ________
User 5  . . . . . . . ________
User 6  . . . . . . . ________
User 7  . . . . . . . ________
User 8  . . . . . . . ________
User 9  . . . . . . . ________
User 10 . . . . . . . ________
```

Figure 22. Setup Alert panel: Configuring emergency users (alerts 1102 and 2102) panel

Note: zSecure Alert expects at least one emergency user to be entered. If no input is provided, IBMUSER is used as default.

Revocation for excessive violations (1115 and 2115) configuration

Alerts 1115 and 2115 are issued when a user generates too many violations. The number of violations that trigger the alert can be configured. You can also specify a list of users to exclude from this alert, and the optional action command.

For RACF alert 1115, it is also possible to issue an action command. To be able to take the requested corrective action, the user running the started task needs sufficient authorization:

- If you select the RACF revoke action, the started task ID needs RACF system-wide or group special authorization. See the RACF documentation.
- If you select CKGRACF DISABLE, the started task needs CKGRACF authorization and the users that are to be managed must be in the CKGRACF scope of the started task user. See *zSecure Admin and Audit for RACF User Reference Manual*.

The following panel is shown when you select alert 1115 (or a similar panel for 2115):

```
  Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
                          zSecure - Setup - Alert
Command ===> ____________________________________________________________

Configure alert 1115: Too many violations

Number of violations    10

_  Issue RACF ALTUSER REVOKE command
_  Disable user with CKGRACF revoke schedule  ________

Exclude the following users from revocation
User 1  . . . . . . . . ________
User 2  . . . . . . . . ________
User 3  . . . . . . . . ________
User 4  . . . . . . . . ________
User 5  . . . . . . . . ________
User 6  . . . . . . . . ________
User 7  . . . . . . . . ________
User 8  . . . . . . . . ________
User 9  . . . . . . . . ________
User 10 . . . . . . . . ________
```

Figure 23. Setup Alert panel: Configuring revocation for excessive violations

The following fields are displayed:

Number of violations
The number of violations allowed in the history interval as specified on the Alert Configuration general settings panel by the field Average. Valid values are numbers in the range 1 - 999. When not specified, a default value of 10 is used.

For RACF systems, when the number of violations specified is exceeded, the started task might issue either a RACF or CKGRACF command to revoke the violating user.

Issue RACF ALTUSER REVOKE command
This field is available for RACF systems only. When this field is selected, a RACF ALTUSER REVOKE command is issued when the number of violations specified is exceeded.

Disable user with CKGRACF revoke schedule
This field is available for RACF systems only. If this field is selected, a CKGRACF USER DISABLE command is issued when the number of violations specified is exceeded.

This field is only available when a zSecure Admin license has been found. When this option is selected, you are required to specify the name of the revoke schedule as well.

This option is mutually exclusive with Issue RACF ALTUSER REVOKE command

User 1-10
These fields enable you to specify user IDs or logonids which must be excluded from alert processing.

It is possible to use a filter to select more than one user ID or logonid.
For RACF, filters can contain % (for any one character) and can end in * (for zero or more characters).
For ACF2, filters can contain * (for one character) and can end in - (for zero or more characters).

Major administrative activity (1120 and 2120) configuration

Alert 1120 or 2120 can be issued for Major administrative activity.

When either alert 1120 or 2120 is selected, the following panel is displayed. You can enter the number of commands you consider being excessive and up to 10 users for which the alert must not be generated.

The following panel is shown when you select this alert:

```
  Menu  Options  Info  Commands  Setup
--------------------------------------------------------------------------------
                          zSecure - Setup - Alert
Command ===> ____________________________________________________________

Configure alert 1120: Major administrative activity

Number of commands  . . 100

Do not generate alert for the following users (filter allowed)
User 1  . . . . . . . . ________
User 2  . . . . . . . . ________
User 3  . . . . . . . . ________
User 4  . . . . . . . . ________
User 5  . . . . . . . . ________
User 6  . . . . . . . . ________
User 7  . . . . . . . . ________
User 8  . . . . . . . . ________
User 9  . . . . . . . . ________
User 10 . . . . . . . . ________
```

Figure 24. Setup Alert panel: Configuring major administrative activity (Alerts 1120 and 2120)

Note: zSecure Alert expects a value for the number of commands. If no input is provided, 100 is used as default.

Allowed IP address configuration (alerts 1124 and 2124)

Alert 1124 or 2124 facilitates alerts on logons with high authorizations to TSO from unwanted IP addresses. When it is selected, the following panel is displayed to specify IP addresses or network prefixes from which logons are allowed.

When either alert 1124 or 2124 is selected, the following panel is displayed to specify IP addresses or network prefixes from which logons are allowed.

```
  Menu  Options  Info  Commands  Setup
--------------------------------------------------------------------------------
                          zSecure - Setup - Alert
Command ===> ____________________________________________________________

Specify allowed IP addresses or network prefixes

   IP address                                              User ID
 1 ____________________________________________________    ________
 2 ____________________________________________________    ________
 3 ____________________________________________________    ________
 4 ____________________________________________________    ________
 5 ____________________________________________________    ________
 6 ____________________________________________________    ________
 7 ____________________________________________________    ________
 8 ____________________________________________________    ________
 9 ____________________________________________________    ________
10 ____________________________________________________    ________

IP addresses can be specified in IPv4 format, 111.112.123.78, or as a range
with a network prefix, 111.112.0.0/16
```

Figure 25. Setup Alert panel: Specifying allowed IP addresses or network prefixes (alerts 1124 and 2124)

Specify threshold value (alerts 1125 and 2125)

Alerts 1125 and 2125 facilitate alerting on password violations for multiple user IDs or logonids originating from the same IP address.

When alerting on password violations for multiple user IDs or logonids is selected, the following panel is displayed to specify a treshold value.

```
  Menu  Options  Info  Commands  Setup
--------------------------------------------------------------------------------
                          zSecure - Setup - Alert
Command ===> ____________________________________________________________

 Specify the threshold value when to issue an alert   2
```

Figure 26. Setup Alert panel: Specify threshold value (alerts 1125 and 2125)

Public access higher than NONE configuration (1304)

On this panel, specify the class names for which access violations higher than NONE must be alerted. If no class value is specified, and the alert is selected, messages will be generated for all classes.

```
  Menu  Options  Info  Commands  Setup         StartPanel
--------------------------------------------------------------------------------
                        zSecure Suite - Setup Alert
Command ===> ____________________________________________________________

Enter CLASS names to be monitored. Leave empty to monitor all classes.
1 . . . . . . . . . . ________
2 . . . . . . . . . . ________
3 . . . . . . . . . . ________
4 . . . . . . . . . . ________
5 . . . . . . . . . . ________
6 . . . . . . . . . . ________
7 . . . . . . . . . . ________
8 . . . . . . . . . . ________
9 . . . . . . . . . . ________
10  . . . . . . . . . ________
```

Figure 27. Configure alert 1304

Important groups (1701) configuration

When alert 1701, which means connection to an important group, is selected, the following panel is displayed:

```
  Menu  Options  Info  Commands  Setup
--------------------------------------------------------------------------------
                          zSecure - Setup - Alert
Command ===> ____________________________________________________________
Specify important group(s)
Group  . . . . . . . SYS1      ________  ________  ________  ________
                     ________  ________  ________  ________  ________
                     ________  ________  ________  ________  ________
                     ________  ________  ________  ________  ________
```

Figure 28. Setup Alert panel: Configuring important groups (Alert 1701)

This panel enables you to enter up to 20 important groups.

It is possible to use a filter pattern to select more than one group. Filter patterns can contain a percent sign %, that is, one character, or can end with an asterisk *, that is, zero or more characters.

IBM Workload Scheduler (1804, 1805, 1806, 2804, 2805, 2806)

For RACF alerts 1804, 1805, or 1806, and ACF2 alerts 2804, 2805, or 2806, when it is selected, the Setup Alert panel is displayed.

```
  Menu  Options  Info  Commands  Setup
------------------------------------------------------------------------------
                         zSecure - Setup - Alert
Command ===> ____________________________________________________________

Enter application names
Application name 1  . . _________________
Application name 2  . . _________________
Application name 3  . . _________________
Application name 4  . . _________________
Application name 5  . . _________________
Application name 6  . . _________________
Application name 7  . . _________________
Application name 8  . . _________________
Application name 9  . . _________________
Application name 10 . . _________________
```

Figure 29. Setup Alert panel: Configuring IBM Workload Scheduler (Alerts 1804, 1805, 1806, 2804, 2805, 2806)

You can specify up to 10 IWS applications.

Chapter 4. Maintenance and reporting

zSecure Alert can be configured, maintained, and activated by the ISPF interface, under option SE.A. However, when a zSecure Alert configuration is distributed to many LPARs, it might be more efficient to automate some functions by using batch jobs.

The batch jobs for automating some functions can be found as members in CKRJOBS and in SCKRSAMP, or as procedures in SCKRPROC. For general instructions for customizing zSecure-supplied jobs, see *zSecure Admin and Audit for RACF User Reference Manual*.

Subscription overview for recipients

Generally, recipients of alert messages do not have access to the zSecure Alert configuration option SE.A. However, many do require some kind of assurance that their IDs are not quietly removed from the Alert configuration. An overview can be sent through email to recipients of alert emails, as a reminder and possibly as a check on correct or modified settings. For this purpose, job C2PJRECI and procedure C2PCRECI are supplied.

You must copy job C2PJRECI from SCKRSAMP or CKRJOBS to a data set that your job scheduling software uses and adapt it to your needs. Specify your Alert configuration in parameter ACONF, and you can specify the CKRPARM member name with the Security zSecure Alert-enabled zSecure configuration in parameter CONFIG.

Test an alert configuration

You can generate a "Verify set" and a "Production set" of members to test your alert configuration in a batch job.

The ISPF interface option **SE.A.A** provides the V line command. It builds CARLa members that end in a V, and tests that the generated CARLa contains no syntax errors ("Verify set" of members). Similarly, the F line command copies these members to a named member, without the V, which the Alert STC uses ("Production set" of members).

You can test either of these sets in a batch job that uses procedure member C2PCTEST. The job relies on having the input data set names that are defined in your CKRPARM configuration member &CONFIG, or specified with explicit JCL SET commands after the INCLUDE MEMBER=&CONFIG. Parameter CONFIG=C2R$VOID on the procedure ensures that these overrides are not wiped out within the procedure. Use the VERIFY parameter to select the set of members: V for the "Verify set" and blank for the "Production set".

```
//JCLLIB   JCLLIB ORDER=(your.prefix.CKRPARM,
//         #thlq.SCKRPROC)
//         SET CONFIG=C2R$PARM
//         INCLUDE MEMBER=&CONFIG.
//*
//* Optionally override names from C2R$PARM
//*
//         SET C2PCUST=your.prefix.C2PCUST
//         SET ACONF=C2PDFL
//*
//         SET UNLOAD=&DPREF..&SYS..UNLOAD
//         SET CKFREEZE=&DPREF..&SYS..CKFREEZE
//         SET SMF=&DPREF..&SYS..SMF
//         SET ACCESS=NULLFILE   If there is no ACCESS data set
//         SET ACCESS=&DPREF..&SYS..DATA.C2PACMON.DYYMMDD
//*
//* Verify the CARLa scripts (ending in V)
//*
//TESTCONF EXEC C2PCTEST,CONFIG=C2R$VOID,
//         ACONF=&ACONF,VERIFY=V
```

The batch job generates alert messages to SYSOUT data sets based on records from the input data sets UNLOAD, CKFREEZE, SMF, and, optionally, ACCESS. If your installation does not use alert 1122 (or other

alerts that use Access Monitor records), specify ACCESS=NULLFILE; otherwise, specify a consolidated ACCESS data set name. Currently, zSecure Alert does not support testing WTO-based alerts.

Note: This job uses an UNLOAD data set instead of the Active or Backup security database as the C2POLICE started task would. The CARLa commands that are supported on these data sets are slightly different.

Upgrade an Alert configuration

You can automate some steps that are required to update an Alert configuration.

The ISPF interface SE.A.A uses ISPF skeletons in the SCKRSLIB data set to build the CARLa programs. If these skeletons were updated by maintenance (PTFs) or changes to the installation defined alerts, the Verify (V) line command and the Refresh (F) line command must be used for each configuration that is used in every C2PCUST data set. In installations where the C2PCUST data set is distributed to each LPAR, verifying or refreshing the configurations is a laborious task.

The C2PJUPGR job was built to automate these steps. It performs the following tasks:

- Takes a single configuration from an existing C2PCUST data set.
- Rebuilds the "Verify set" of members from the skeletons.
- Runs CARLa in these members with events from the input data sets (as explained in “Test an alert configuration” on page 129).
- When there were no syntax failures in this verification, it refreshes the "Production set" with the "Verified set".

In other words, the C2PJUPGR job replaces the production members in the C2PCUST data set with the V members.

```
//JCLLIB   JCLLIB ORDER=(your.prefix.CKRPARM,
//         #thlq.SCKRPROC)
//         SET CONFIG=C2R$PARM
//         INCLUDE MEMBER=&CONFIG.
//*
//* Optionally override names from C2R$PARM
//*
//         SET C2PCUST=your.prefix.C2PCUST
//         SET ACONF=C2PDFL
//*
//         SET UNLOAD=&DPREF..&SYS..UNLOAD
//         SET CKFREEZE=&DPREF..&SYS..CKFREEZE
//         SET SMF=&DPREF..&SYS..SMF
//         SET ACCESS=NULLFILE   If there is no ACCESS data set
//         SET ACCESS=&DPREF..&SYS..DATA.C2PACMON.DYYMMDD
//*
//* Build the configuration for Verify (ending in V)
//*
//BUILD    EXEC C2PCBLD,CONFIG=C2R$VOID,ACONF=&ACONF
//*
//         IF (BUILD.C2PCBLD.RC<=8) THEN
//*
//* Verify the CARLa scripts (ending in V)
//*
//TESTCONF EXEC C2PCTEST,CONFIG=C2R$VOID,
//         ACONF=&ACONF,VERIFY=V
//*
//         IF (TESTCONF.STAGE1.RC<=8 AND TESTCONF.REPORT.RC<=8) THEN
//*
//* If successful, copy the Verified set to Production set
//*
//UPGRADE  EXEC C2PCREF,CONFIG=C2R$VOID,ACONF=&ACONF
//*
//         ENDIF
//         ENDIF
//*
//         IF (NOT UPGRADE.C2PCREF.RUN) THEN
//*
//* Something failed, start recovery actions
//*
//FAILMSG  EXEC PGM=IKJEFT1B,
// PARM='send ''Batch upgrade of alert configuration &ACONF failed'''
//SYSTSPRT  DD SYSOUT=*
```

```
//SYSTSIN   DD DUMMY
/*
//         ENDIF
//
```

The C2POLICE started task uses this new "Production set" after the operator issues an F C2POLICE,REFRESH (or RESTART, when new options were introduced), or upon completion of the environment interval (typically after 1 hour).

Specify the alert configuration name by using the ACONF symbol in the beginning of the job. When more configurations from the same C2PCUST data set are used, upgrade each configuration separately.

Extra parameters

C2PCBLD supports only a few parameters due to limitations of the JCL PARM field. Extra parameters can be passed as a full TSO command in a DD name, by modifying the call to C2PCBLD in the sample JCL like so:

```
//*
//* Build the configuration for Verify (ending in V)
//*
//BUILD    EXEC C2PCBLD,CONFIG=C2R$VOID,ACONF=&ACONF,
//         PARM.C2PCBLD=''
//C2PCBLD.SYSTSIN DD *
ISPSTART CMD(%C2PESETP BUILD SET(aconf) +
ALERT(alerts) +
PCIPARM(parmdsn) +
SENSPARM(parmdsn) +
SIMESM(simesm) +
)
//*
```

The parameter value must contain the following keywords:

SET
: The member name prefix of the alert configuration, also referenced as ACONF.

ALERT
: A list of alert numbers to be included in the Alert configuration. When *alerts* is omitted, the alerts that are selected though ISPF option SE.A.A are built. By specifying ALERT(ALL), all available alerts are included, even when some are not (fully) specified; this can result in syntactically incorrect alerts.

PCIPARM
: The data set that contains CLASSIFY, PCIAUTH, PCIPAN, and other members that are customized through option SE.A.P. When *parmdsn* is missing, these members are expected to be included in C2PCUST.

SENSPARM
: The data set that contains SENSAPFU, SENSMEMB, and other members that are customized through option SE.A.S. When *parmdsn* is missing, these members are expected to be included in C2PCUST.

SIMESM
: Supports building an Alert configuration for an ACF2 system while it runs on a RACF-protected system, and the other way around. When this parameter is missing, the current security system is used.

Refresh the "Production set"

In some installations, the security operations team is not authorized to change production started tasks, even the input (configuration) members used by C2POLICE. In such a situation, the security operations

team can limit themselves to selecting and modifying the Alert configuration by using SE.A.A, and verifying the result by using the V line command.

Another team (or an overnight batch job) might refresh the "Production set" by using the full C2PJUPGR job, or just the procedure C2PCREF. C2POLICE uses this new "Production set", as described in “Upgrade an Alert configuration” on page 130.

```
//JCLLIB   JCLLIB ORDER=(your.prefix.CKRPARM,
//         #thlq.SCKRPROC)
//         SET CONFIG=C2R$PARM
//         INCLUDE MEMBER=&CONFIG.
//*
//* Optionally override names from C2R$PARM
//*
//         SET C2PCUST=your.prefix.C2PCUST
//         SET ACONF=C2PDFL
//*
//* Copy the Verified set to Production set
//*
//UPGRADE  EXEC C2PCREF,CONFIG=C2R$VOID,ACONF=&ACONF
```

Export an Alert configuration

Procedure C2PCUTIL provides an EXPORT function.

The C2PCUTIL EXPORT function writes selected entries from the site alert table and the recipients table in C2PCUST to a "transport file"; this includes members from C2PCUST that those alerts need. The transport file contains as much information as is needed to copy "sets" and "installation-defined alerts" to another C2PCUST (in the same LPAR, or in another LPAR).
The C2PCUTIL IMPORT function reads the transport file and updates the destination C2PCUST data set.

The syntax of the EXPORT command is as follows:

```
EXPORT SET( set ) ALERT( alert ) MEMBER( member ) DD( dd ) WORKFILE( workfile )
       PCI SENS EXIT LIST EMPTY
```

set
Pattern or list of patterns to match the set name. The default value is *. If a pattern does not match any set, a return code of 8 is issued.

alert
Pattern or list of patterns to select specific alerts. The default value is *. For the matching alerts, the alert parameters and destinations are exported. For matching installation-defined alerts, the alert entry in the site alert table and the skeleton member are also exported. If a pattern does not match any selected alert a return code of 4 is issued.

member
Pattern or list of patterns for additional members that must be exported. For example, installation-defined control members, similar to SENSREAD.

dd
Output (transport) file: RECFM=FB,LRECL=80. Default is SYSUT2.

workfile
Temporary file that is required to export members: RECFM=FB,LRECL=80. Default is SYSWORK. C2PCUTIL JCL provides a SYSWORK DD statement.

PCI
Requests export of the PCI/DSS related control members in C2PCUST, as managed in SE.A.P.

SENS
Requests export of the SENSITIVE RESOURCE-related control members in C2PCUST, as managed in SE.A.S.

EXIT
Requests export of the C2PX members in C2PCUST.

LIST
Exports the email list definition as defined in SE.A.E, but not the actual email data sets.

EMPTY
Generates output lines for all ISPF dialog variables in the entries, even when uninitialized. By default, only initialized fields are copied.

A "pattern" in the SET, ALERT, and MEMBER keywords consists of a fixed part that is followed by an asterisk. Patterns and member names can be mixed in the "list of patterns". For example:

```
*
PROD SYS*
1* 2* 51* 52*
```

The following JCL can be used to print the contents of the transport data set (with output dd SYSUT2), or to create a transport data set in SYSUT3. The transport data set must be copied to the destination system and processed with the IMPORT function.

```
// SET  C2PCUST=C2POLICE.C2PCUST
//*
// EXEC C2PCUTIL,CONFIG=C2R$VOID
//SYSTSIN DD *
ISPSTART CMD(%C2PESETP EXPORT set(t*) alert(4*) +
pci dd(sysut3) +
)
//SYSUT2 DD SYSOUT=*
//SYSUT3  DD DISP=(NEW,CATLG),DSN=MYID.C2POLICE.EXPORT,
// UNIT=SYSDA,SPACE=(TRK,(10,10)),LRECL=80,RECFM=FB,DSORG=PS
```

Figure 30. Sample JCL to export sets that start with T, and from these (only) the RACF-specific installation-defined alerts, and the PCI-DSS control members.

Import an Alert configuration

Procedure C2PCUTIL provides an IMPORT function.

The C2PCUTIL IMPORT function reads selected entries from a previously constructed transport data set and updates an existing C2PCUST data set. If C2PCUST is empty, the necessary ISPF tables are created. If the existing ISPF tables were maintained by an older zSecure version, the tables are first upgraded.

Entries in the import data set are compared with entries in C2PCUST and flagged as either `new` or `existing`, depending on matching names. Existing entries are compared, resulting in an `identical` or `different` status. SYSTSPRT lists the status is for entries in the transport data set.

The syntax of the IMPORT command is as follows:

```
IMPORT SET( set ) ALERT( alert ) MEMBER( member ) DD( dd ) WORKFILE( workfile )
   ADD( add ) REPLACE( replace ) COMPARE( compare )
```

set
Pattern or list of patterns to match the set name. Default is *. Sets are added or replaced in C2PCUST under control of the ADD and REPLACE options.

alert
Pattern or list of patterns to match alert ID numbers. Default is *. For the selected alert ID numbers, the alert parameters and destinations are imported. For selected installation-defined alerts, the alert entry in the site alert table and the skeleton member are also imported (under control of the ADD and REPLACE options).

member
Pattern or list of patterns for additional members that must be imported. For example, installation-defined control members, similar to SENSREAD.

dd
Input file: RECFM=FB,LRECL=80. Default is SYSUT2.

workfile
Temporary file that is required to copy members: RECFM=FB,LRECL=80. Default is SYSWORK. C2PCUTIL JCL provides a SYSWORK DD statement.

add
Selects the entry types to be added, when no matching entry is found in C2PCUST. By default, no entries are added. Possible values:

SET
Alert sets and set parameters are imported, as entered with the E line command in the initial display from SE.A.A. In addition, the set parameters include the `Selected` versus `Not selected` state of all alerts.

ALERT
Custom alert entries and parameters are copied, as well as alert parameters for (IBM) standard alerts as modified by using the E line command on the alert selection lists. New alerts are not`Selected`, unless alert sets are also copied; manual selection of alerts is required.

DEST
Alert destinations for selected sets and selected alert IDs are copied, as entered with the W line command. By selecting SET and/or ALERT and omitting DEST, alerts are copied without recipient information.

LIST
Specifications of the email destination lists are copied, without affecting reference to these lists IDs.

MEMBER
Members that are included in the transport data set are copied, possibly under control of MEMBER(*member*) selection. This includes alert skeletons, PCI, and SENS value lists and other members that are selected with the EXPORT command.

replace
Selects the entry types that are to be replaced in C2PCUST. Values are SET, ALERT, DEST, LIST, MEMBER, or * (see “add” on page 134). By default, no entries are overwritten.

compare
Requests additional, line by line comparison of entries. Values are SET, ALERT, DEST, LIST, or * (see “add” on page 134). By default, no details are printed.

See “Export an Alert configuration” on page 132 for valid patterns.

The following JCL adds or replaces all sets, alerts, alert parameters, and destinations and corresponding members from the transport data set.

```
// SET  C2PCUST=C2POLICE.C2PCUST.NEW
//*
// EXEC C2PCUTIL,CONFIG=C2R$VOID
//SYSTSIN DD *
ISPSTART CMD(%C2PESETP IMPORT SET(*) alert(*) +
add(*) replace(*) +
dd(sysut1) +
)
//SYSUT1  DD DISP=OLD,DSN=MYID.C2POLICE.EXPORT
```

Figure 31. Sample JCL to import all entries from a transport data set.

Note: After the IMPORT function, before using the V line command to build the alert members, use SE.A.A to inspect the alert set and newly imported alerts that are selected in their respective sets.

Compare C2PCUST data sets

The C2PCUTIL EXPORT function followed by an IMPORT to another C2PCUST data set can be used as a rudimentary compare utility. SYSTSPRT lists the entry names in the transport data set, and the status of entries with the same name in C2PCUST. The COMPARE keyword can be used to list fields in the table

entries with differences, showing the 8-byte field name and the first 32 bytes of the values. By default, only the entry key is shown. Differences in members are not illustrated.

The following job first exports all configurations and all alerts from C2POLICE.C2PCUST.OLD, including related skeletons and PCI-DSS control members. The second step compares these entries with the corresponding entries in C2POLICE.C2PCUST.NEW, prints the status of each entry, and shows non-identical values of the table entries. Identical entry values are suppressed.

```
// SET  C2PCUST=C2POLICE.C2PCUST.OLD
//*
// EXEC C2PCUTIL,CONFIG=C2R$VOID
//SYSTSIN DD *
ISPSTART CMD(%C2PESETP EXPORT set(*) alert(*) +
pci dd(sysut3) workfile(syswork) +
)
//SYSUT3  DD DISP=(,PASS),UNIT=SYSDA,LRECL=80,RECFM=FB,DSORG=PS,DSN=&&A
//SYSWORK DD DISP=(,PASS),UNIT=SYSDA,LRECL=80,RECFM=FB,DSORG=PS,DSN=&&B
//*
// SET  C2PCUST=C2POLICE.C2PCUST.NEW
//*
// EXEC C2PCUTIL,CONFIG=C2R$VOID
//SYSTSIN DD *
ISPSTART CMD(%C2PESETP IMPORT set(*) alert(*) +
compare(*) +
dd(sysut3) workfile(syswork) +
)
//SYSUT3  DD DISP=OLD,UNIT=SYSDA,LRECL=80,RECFM=FB,DSORG=PS,DSN=&&A
//SYSWORK DD DISP=OLD,UNIT=SYSDA,LRECL=80,RECFM=FB,DSORG=PS,DSN=&&B
```

Figure 32. Sample JCL to compare entries in C2POLICE.C2PCUST.OLD with the corresponding entries in C2POLICE.C2PCUST.NEW

The following figure shows sample compare output:

```
ISPSTART CMD(%C2PESETP IMPORT SET(*) alert(*) compare(*) dd(sysut3) workfile(syswork))
zSecure Alert batch interface
Input parms IMPORT SET(*) ALERT(*) COMPARE(*) DD(SYSUT3) WORKFILE(SYSWORK)
Import alert configuration to C2POLICE.C2PCUST.NEW from SYSUT3.
Identical Configuration C2PDFL
Different Configuration ACF2
Field    C2POLICE.C2PCUST.NEW             Import
C2PESELR 2212 2213 2214 2301              2102 2104 2105 2106 2111 2112 21
C2PEMON  N                                Y

Different Configuration TEST
Field    C2POLICE.C2PCUST.NEW             Import
C2PEINTV i:60;t:300;b:1024;n:10;c:0100;s: i:60;t:301;b:1024;n:10;c:0100;s:
C2PESELR 1207 1208 1212 1213 1503 1504    1101 1102 1122 1214 1602 4042
C2PENPAR LOCAL;C;SMTP;;@;                 LOCAL;B;XMTP;F;¢;
C2PESELA                                  1111 1122

Unmatched Configuration NEW
Unmatched Custom Alert 4301
Unmatched Custom Alert 4801
Unmatched Custom Alert 4002
Unmatched Mailing List DESTIES
Different Destination ACF2
Field    C2POLICE.C2PCUST.NEW             Import
C2PESDSN WF;                              SF;
C2PESNMP                                  127.0.0.1
C2PESLUX                                  127.0.0.1
C2PECEFU                                  127.0.0.1
C2PEFROM &jobname at &system <mbox@domain &jobname at &system <mboy@domain
C2PEMATO                                  mboy@domain.old
C2PECELT                                  a@phone.com
C2PECELF &jobname at &system <mbox@domain &jobname at &system <mbox@domain
```

Figure 33. Sample compare output

```
Identical Destination C2PDFL
Different Destination TEST
Field    C2POLICE.C2PCUST.NEW             Import
C2PESDSN W;                               EF;CF;SF;WF;U;A;
C2PESNMP                                  127.0.0.1
C2PESLUX                                  127.0.0.1
C2PECEFU                                  127.0.0.1
C2PEFROM &jobname at &system <mbox@domain &jobname at &system <mbox1¢domai
C2PEMATO                                  user11¢domain.null
C2PECELT                                  0¢domain.null
C2PECELF &jobname at &system <mbox@domain &jobname at &system <mbox1¢domai
C2PECELR                                  9¢domain.null

Unmatched Destination NEW
Unmatched Alert Parms TEST
Unmatched Alert Parms TEST 1101
Unmatched Alert Parms NEW 1806
Unmatched Alert Parms NEW 1805
Unmatched Alert Parms NEW 1804
Unmatched Alert Parms NEW 1304
Unmatched Alert Parms NEW 1701
Unmatched Alert Parms NEW 1122
Unmatched Alert Parms NEW 1120
Unmatched Alert Parms NEW 1102
Unmatched Alert Parms NEW 1115
Unmatched Alert Parms TEST 1806
Unmatched Alert Parms TEST 1805
Unmatched Alert Parms TEST 1804
Unmatched Alert Parms TEST 1304
Unmatched Alert Parms TEST 1701
Unmatched Alert Parms TEST 1122
Unmatched Alert Parms TEST 1120
Unmatched Alert Parms TEST 1115
Identical Alert Parms TEST 1102
Unmatched Alert Parms ACF2 2806
Unmatched Alert Parms ACF2 2805
Unmatched Alert Parms ACF2 2804
Unmatched Alert Parms ACF2 2120
Unmatched Alert Parms ACF2 2115
Unmatched Alert Parms ACF2 2102
Skip identical Member CLASSIFY
Skip identical Member PCIAUTH
Skip identical Member PCIPAN
Skip identical Member PCIPANCL
Skip different Member PC2AUTH
Skip different Member PC2PAN
Skip identical Member PC2PANCL
Skip new Member PGMS4301
Skip new Member ROBS4002
Skip new Member SMFS4801

Import summary
No table entries changed
No members changed
Batch utility complete, return code 0
```

Figure 34. Sample compare output (continued)

Select or unselect alerts or ranges of alerts

Procedure C2PCUTIL provides mutually exclusive SELECT and UNSELECT functions.

The C2PCUTIL EDIT command provides a SELECT option to activate one or more alerts in one or more sets, and an UNSELECT option to deactivate alerts. The SELECT and UNSELECT options are mutually exclusive.

When you have modified the list of selected alerts, the set must be (V) verified and (R) refreshed before the alerts are changed.

The syntax of the EDIT command is as follows:

```
EDIT SET( set ) ALERT( alert ) {SELECT|UNSELECT}
```

set
Pattern or list of patterns to match the set name. Default is *.

alert
Pattern or list of patterns to match alert ID numbers. Default is *.

SELECT
Adds the matching alert IDs to the list of selected IDs, in the selected alert sets.

UNSELECT
Removes the matching IDs from the selected alert sets.

See “Export an Alert configuration” on page 132 for valid patterns.

The following JCL unselects all User category alerts and next selects three of the alerts.

```
// SET  C2PCUST=C2POLICE.C2PCUST.NEW
//*
// EXEC C2PCUTIL,CONFIG=C2R$VOID
//SYSTSIN DD *
ISPSTART CMD(%C2PESETP EDIT SET(C2PDFL) ALERT(11*) UNSELECT)
ISPSTART CMD(%C2PESETP EDIT SET(C2PDFL) ALERT(1120 1121 1122) SELECT)
//
```

Figure 35. Sample JCL to manage alert selections.

Chapter 5. Problem determination guide

Use this information to identify and troubleshoot problems with zSecure Alert.

A general outline describes how to determine if problems occur in the CKFCOLL or CKRCARLA programs that are used to provide standard functions for C2POLICE, which is the zSecure Alert main program. It provides a reference for common zSecure Alert abend codes and an explanation on how to diagnose license problems. It also gives you some troubleshooting hints for situations when zSecure Alert does not generate the alerts.

Information for problem diagnosis

Use these guidelines to identify and troubleshoot problems with zSecure Alert and zSecure Audit.

If you encounter a problem in the ISPF interface, see Chapter 2, “zSecure Alert configuration,” on page 3, or see the *User Reference Manual* for your zSecure product.

Information about CKF*nnn* messages from zSecure Collect and abends in the C2PCOLL started task (program CKFCOLL) can be found in the *User Reference Manual* for your zSecure product.

For other problems, the first step is to look at the output of the zSecure Alert started task. You must decide whether you have a problem in the C2POLICE main program or in the CKRCARLA program that is used for the pre-processing step and for the actual reporting step. The zSecure Alert started task output is partially written to the spool and partially written to data sets as specified in the JCL of the started task C2POLICE.

CKR*nnnn* messages are issued by the CKRCARLA program. They are documented in *IBM Security zSecure: Messages Guide*.

C2P*nnnn* messages are issued by the CKRCARLA program. They are documented in *IBM Security zSecure: Messages Guide*. Message numbers in the range 0 - 999 point to the zSecure Alert started task.

CKRCARLA problem diagnosis

If the problem you are experiencing is determined as a problem in the CKRCARLA processing, the next step is to determine if the problem occurs as part of pre-processing (also known as stage-1 processing) or as part of alert generation (also known as the reporting phase). Each use of CKRCARLA produces SYSPRINT output. The output for the most recent pre-processing run is available in the data set allocated to the SYSPRST1 DD-name in the zSecure Alert JCL. Likewise, the output for the most recent completed reporting run can be found in SYSPRRPT. Look at the JCL of the zSecure Alert started task to obtain the names of these data sets. Consider making a copy immediately, since these data sets are reused when zSecure Alert invokes CKRCARLA for a subsequent reporting interval (by default, once every hour). If zSecure Alert is still running, these data sets might already have been reused. Depending on the definition of the data set, the first part might have been overwritten by the current CKRCARLA instance. For reliable contents, you must first stop the zSecure Alert started task. If you want to inspect the contents of the data set while the zSecure Alert started task is still running, you must ensure that the definition of the data set allows concurrent shared access.

In addition to the full SYSPRINT, selected output from any CKRCARLA invocation that ends with a nonzero Return Code is added to the data set allocated to the C2PDEBUG DD-name.

When inspecting the information in the SYSPRINT file, check that the input statements provided to CKRCARLA are as expected and look for CKR*nnnn* messages. For diagnosing a problem report, this information is always crucial.

- If the SYSPRINT for a reporting run contains an error that relates to an unresolved LIKELIST keyword reference, this points to a problem in the `stage 1` run.
- If the CKR messages indicate a syntax error, the most likely cause is an error in a skeleton member.

See the *User Reference Manual* for your zSecure product for further information.

zSecure Alert problem diagnosis

If zSecure Alert abends, see “General problems and abends” on page 140. If you get C2P messages that point to buffer size problems, see Chapter 2, “zSecure Alert configuration,” on page 3.

For other problems, contact IBM software support and provide the following information:

- A description of the circumstances under which the problem occurred
- The C2POLICE message log or the relevant part of the SYSLOG
- The JCL used, and the listing of the input commands.

General problems and abends

Use these guidelines to troubleshoot and respond to abends for zSecure Alert.

This section is for abends that occur in the C2POLICE program. If they occur in the CKFCOLL or CKRCARLA programs, see the *User Reference Manual* for your zSecure product.

The following list describes the most common system abend codes encountered with zSecure Alert and provides a suggestion for the possible cause and remedy. You must also first check the appropriate message manual for your operating system, which tells you the exact meaning of the abend and reason code.

001
Problems with blocksize. Look at the message in your joblog to determine the DD-name. If you used a concatenation for this DD-name, make sure that the largest blocksize comes first. Or, specify the larger blocksize on a DCB=BLKSIZE= parameter on the first DD statement.

047
Load module is started from a non-APF authorized library. Make sure that the C2POLICE STEPLIB is APF-authorized.

322
CPU time limit exceeded. Check the job log for prior abend messages with a different abend code. If a prior abend occurred, solve this abend.

722
Too many output lines.

80A 878
GETMAIN error. Try to increase the REGION parameter on the EXEC statement. If you reached the maximum of your site, contact your system programmer.

913
Access denied to one of the data sets. Review the ICH408I or ACF99913 messages in the job log to determine which data set.

D37 B37
One of the output data sets was too small, or there was no space left on the volume to extend the data set. Look at the message in your job log to determine the DD-name.

EC6
An abend EC6 means that an abend occurred while in a UNIX service. You must have the reason code to know what it is about (like CPU time limit reached - reason FD1D).

For assistance with a problem by IBM Security zSecure, you must generally provide at least the SYSMDUMP, the JCL used, and the listing of the input commands.

Authorization problems

The administrator of zSecure Alert issues z/OS operator commands to the C2POLICE started task to retrieve the name of the current parameter member and the data set name of C2PCUST. This is achieved via a `MODIFY C2POLICE,DISPLAY`. The output is parsed for the required information.

For a REFRESH (F) line command, a `MODIFY C2POLICE,REFRESH` is issued.

zSecure Alert checks if the administrator has (READ) permission to TSOAUTH CONSOLE. If permitted, the operator command is issued via CONSOLE. If not, zSecure Alert verifies if SDSF is installed and if the ISFSLASH interface is available. If it is, the operator command is issued via ISFSLASH. To actually execute the command, the administrator must be permitted to the OPERCMDS profile that protects `MVS.MODIFY.STC.C2POLICE.C2POLICE`. If this permission is missing, authorization failures occur.

To stop the administrator from attempting `MODIFY` commands, access to `TSOAUTH CONSOLE` and to `SDSF ISFCMD.ODSP.ULOG.**` must be NONE.

License problems

zSecure Alert needs one of the zSecure Alert features to be installed and not disabled in z/OS PARMLIB member IFAPRDxx on the system where it runs. The features indicate the External Security Monitor and are represented by product codes ALERTRACF and ALERTACF2.

If you have a license problem with the zSecure Alert engine (C2POLICE), look in the C2PDEBUG file. Verify whether the information shown corresponds to what you expected.

Expected alerts do not show up

If the expected alerts do not show up, check for these possible configuration issues:

- zSecure Alert is configured to send the alert to a file, that is, option SE.A.A action R
- The alert is not in the active configuration. You can find the name of the active configuration from the operator command MODIFY C2POLICE,DISPLAY . You can look for C2P messages 127, 128, and 135. Recall that you *cannot* dynamically change *which* alert configuration is used: the Refresh action does *not* activate a different member. The member contents might have been changed since the last `stage 1` run. If you changed it, you must consider the following questions:
  - Did you Verify the alert configuration?
  - Did you issue a Refresh action to bring the configuration online?
  - Did the refresh succeed?

  You can verify it in the JESMSGLG file of the zSecure Alert started task C2POLICE, or in SYSLOG.
- The alert is in the active configuration but it is not selected.
- The SMF logging required for the alert is not activated. You must check whether SMFPRM*xx* specifies that the needed SMF record types are written. For the requirements for a predefined alert, see its description in Chapter 3, “Predefined alerts,” on page 43. You can find the current SMF options from the operator command DISPLAY SMF,O. For an installation defined alert, you must check whether you specify correct filter criteria. You must also check whether the C2PCUST data set member <set name>VP contains the corresponding filter criteria.
- The WTOs required for the alert are not found. You must check whether the WTO is intercepted by MPFLSTxx or by one of the MPF-related exits. It can be either IEAVMXIT or an exit routine you name on the USEREXIT parameter in PARMLIB(MPFLSTxx). For more information, see MVS Init and Tuning Reference.

In the SYSPRINT output from a reporting run, described in “CKRCARLA problem diagnosis” on page 139, you can see whether the alert was issued. For a WTO, CKR1239 is issued. For an SNMP trap, CKR1227 is issued. If you find this message, check on the receiving end. For an email or text message, CKR1225 is issued. If you find this message, check if the email or text message is still on the spool in the C2REMAIL file of the zSecure Alert started task C2POLICE. If so, check the SMTP settings under option SE.7 and ask your system programmer for the correct parameters. If these settings are good, you might have an SMTP problem. If the email or text message is not on the spool, it was sent by SMTP. Check the SMTP log for further diagnosis.

If the SYSPRINT reveals that the alert was not issued, check for message CKR1240 (Could not resolve to any SNMP receivers). Check any messages on WTO with a nonzero Severity.

If no alert is being sent and you cannot find a reason, check in the SMF log or SYSLOG for WTOs. See whether the event you are looking for was logged. For a "moving window" alert, verify that the threshold was exceeded in the time window.

If none of these actions help, contact IBM software support with a description of the circumstances and the problem, the SYSPRINT from the reporting subtask, and if it seems applicable the SYSPRINT from the `Stage-1` subtask as well, the JCL used, and any unexpected results encountered in the preceding diagnosis steps.

Appendix A. SNMP output

You can define your own SNMP traps. To define your SNMP traps, the LIST/SORTLIST-output must have a special form. zSecure Alert can automatically process the LIST/SORTLIST-output using NEWLIST SNMP. The special form of the output must be:

specific-trap ['**-c** *community*'] ['**-g** *global-trap*'.] ['**-e** *enterprise*'] /,
variable_1 <contents to be assigned to variable_1> /,
variable_2 <contents to be assigned to variable_2> /,
...
variable_n <contents to be assigned to variable_n>

The CARLa output conforming to this template is a set of assignment statements. It is processed by NEWLIST SNMP when generating the SNMP trap. The assignments can use predefined variables as listed in Table 7 on page 143 as well as integers that represent user-defined variables. The range 400000 - 699999 is reserved for user-defined variables. You must use the four digits of the SNMP trap number followed by two digits of your own choice. Your SNMP-generating code can contain:

```
'eventIntegral'  'short description of the specific trap at hand' /,
'eventWhen' datetime(datetimezone,0) /,
```

Here is an example of the CARLa that generates the required output:

```
)CM SNMP sortlist
)SEL &C2PERCTP = SNMP
  sortlist,
   recno(nd),
   '&c2pemem.' /,
   'eventIntegral',
    'Alert: APF list changed by SETPROG APF command' '-',
    'System messages report that SETPROG APF command is issued' /,
   'eventWhen' datetime(datetimezone,0) /,
   '&c2pemem.00' MsgTxt1(0,hor) /,
   'whereSYSTEM' system(0)
)ENDSEL
```

The variables in this example are `'eventIntegral'`, `'eventWhen'`, `'&c2pemem.00'`, and `'whereSYSTEM'`. The variables `'eventIntegral'`, `'eventWhen'`, and `'whereSYSTEM'` are predefined, while `'&c2pemem.00'` is an installation defined variable.

The contents of a variable must not contain line breaks. It might have to be enforced with a repeat group format modifier `firstonly`, or `hor`.

Between `'&c2pemem.'`, which is called the *specific-trap* field, and `/,` on the line after `recno(nd)`, you can insert the options `-c` *community*, `-g` *global-trap*, and `-e` *enterprise*. The default value of *community* is `public` while *global-trap* defaults to 6, indicating an enterprise-specific trap, and *enterprise* defaults to `1.3.6.1.4.1.9399.1.2`, indicating enterprises.consul.software.zAlert. For information about the specific-trap, community, global-trap, and enterprise parameters, you must consult SNMP literature like RFC 1215.

The following predefined variables can appear in SNMP output.

Table 7. Predefined variables that can appear in SNMP output

Variable	**Description**
eventIntegral	Human-readable alert title. Mostly the same as the title of the email report.
eventWhen	Date and time.
fromWhereCONSOLE	The console from which the user entered the command.

Table 7. Predefined variables that can appear in SNMP output (continued)	
Variable	**Description**
fromWhereSRCIP	If fromWhereTERMINAL contains a hexadecimal value, this is the corresponding IPv4 format. It can identify the IP address that originated the session.
fromWhereSYSTEM	The JES2 node where the job was submitted, when it is different from the execution node.
fromWhereTERMINAL	Value of the TERMINAL field or the ACF2 SOURCE value, indicating the VTAM LU name or source of a process.
fromWhereUSER	The user ID that submitted the job, when it is different from the execution user ID.
onWhatACCESS	RACF allowed access.
onWhatALLOWED	The access level allowed by the security rules, except for access granted because of WARNING mode; see onWhatGRANTED.
onWhatAUTHORITY	System-level authority that is granted or removed.
onWhatCLASS	The class in which a general profile resides.
onWhatDSNAME	Depending on the alert, the data set that is updated, on which an access attempt is made, or that is the origin of a program.
onWhatGRANTED	The access level granted. It includes access granted because of WARNING mode; see onWhatALLOWED.
onWhatGROUP-AUTHORITY	Group-level authority that is granted or removed.
onWhatINTENT	The access level requested.
onWhatNEW-PERMISSIONS	The permissions of a UNIX file or directory after a **chmod** command.
onWhatOLD-PERMISSIONS	The permissions of a UNIX file or directory before a **chmod** command.
onWhatPATH1	Requested path name (corresponding with extended-length relocate section 263).
onWhatPROFILE	The general resource or data set profile that is used for access checks.
onWhatRACFCMD-AUTH	Connect authority used in a RACF command.
onWhatRACFCMD-GROUP	Group that is used in a RACF command.
onWhatRACFCMD-NAME	Programmer name of the user that is used in a RACF command.
onWhatRACFCMD-USER	User ID of the user that is used in a RACF or ACF2 command.

Table 7. Predefined variables that can appear in SNMP output (continued)	
Variable	**Description**
onWhatRESOURCE	The resource on which RACF or ACF2 makes access checks. This resource can be a general resource. It also can be the resource that is created from a data set name using the RACF Naming Convention Table. For SMF describing class PROGRAM, it is the name of the program that is run.
onWhatUNIX-ACCESS-ALLOWED	Allowed UNIX access.
onWhatUNIX-ACCESS-INTENT	Intended UNIX access.
onWhatUNIX-PATHNAME	The absolute or relative path of a file or directory. If the CKFREEZE file used was made with UNIX=YES (and AUTOMOUNT=YES) and contains the file or directory, it is an absolute path name.
onWhatVOLUME	The volume on which a data set resides or <SMS MANAGED> if the data set is managed by SMS.
onWhatWORKTYPE	'TSO' or 'OMVS' depending on the type of logon.
whatATTEMPTS	The number of attempts made.
whatCOMPCODE	Job or step completion code.
whatCOMPSTAT	Job or step completion status.
whatCOUNT-SMF-LOST	The number of SMF records that were lost due to full buffers.
whatDESC	Depending on the status of the event, this field contains Success, Undefined user, Violation, or Warning, depending on the status of the event.
whatEVENT	Human readable event ID.
whatEVENTDESC	The name of the event, an indication of the result (Success, Warning, Failure, or Undefined), and a short explanation of the event qualifier (Invalid password, for example).
whatEVENTQUAL	Numeric event qualifier.
whatJOBID	Job ID of the job in which the event triggered or which is created because of the event.
whatJOBNAME	Job name of the job in which the event triggered or which is created because of the event (for example, in a logon).
whatJOBTAG	System ID, job name, reader date, and reader time.
whatLOGSTR	SAF log string.
whatNumber	The number of different user IDs found in the events that triggered the alert.
whatPARM	ACF2 GSO field, old value, and new value
whatPROGRAM	Program name.
whatPWDCHANGES	The number of password changes made in the last measurement interval

Table 7. Predefined variables that can appear in SNMP output (continued)

Variable	Description
whatRACFCMD	RACF command that triggered the alert. Ignored (because of insufficient authority) keywords are labeled <IGNORED>.
whatRECORDDESC	A descriptive string that summarizes the record.
whatRULE	ACF2 rule
whatSTC	The name of a started task procedure.
whatSTEPNAME	Step name.
whatSUBTYPE	SMF record subtype.
whatTYPE	SMF numeric record type.
whatUACC	The UACC set on a profile.
whatVIOLATIONS	Number of violations.
whatWTO-MESSAGE	The first line of output of a WTO. This line starts with the WTO message ID.
whenSMF-FAILURE	The start date and time of the period in which SMF data was lost due to full buffers. The end date and time can be found in the eventWhen field.
whenStart	Start date and start time.
whereSYSTEM	System name.
whereSYSTYPE	Operating system type.
whoNAME	Programmer name of the user in whoUSERID.
whoUSERID	User ID of the user that caused the SMF or WTO record to be written.

Appendix B. NetView configuration

Use the information in this appendix to:

- Configure NetView on AIX® and Windows for zSecure Alert
- Add a user-defined alert to a Management Information Base
- Create addtrap commands for AIX and Windows systems

Configure NetView for AIX and Windows

This section explains how you can configure NetView to properly display (user-defined) zSecure Alert traps. This task involves carrying out a shell script to import certain trap aspects into an SNMP trap configuration file.

In this section, `zSecure-Alert-addtraps.sh` is used as a shorthand for the IBM-supplied trap configuration shell script for AIX. Similarly, `user-addtraps.sh` is used as a shorthand for a user-defined trap configuration script. The Windows versions of these files are called `zSecure-Alert-addtraps.bat` and `user-addtraps.bat`. For information about the creation of `user-addtraps.sh`, see "Addtrap commands for AIX" on page 151.

You can download the IBM-supplied files from the "Samples" page for your version of zSecure Alert at IBM Documentation for IBM Security zSecure Suite. The "Samples" page is also included on the *IBM Security zSecure Documentation CD*; see Obtaining licensed documentation for information about how to download the Documentation CD .iso file.

Configuring NetView for AIX

To configure NetView on AIX for zSecure Alert, you must load the (possibly user-extended) zSecure Alert MIB into NetView. Then you must perform the following procedure; most steps require superuser privileges. If you have no user-defined traps, you can ignore the steps that involve `user-addtraps.sh`.

IBM Z NetView version 7.1.5 was employed on AIX 5.2 to carry out the NetView configuration. You must use NetView version 7.1.5 or above.

1. Locate the directory with the latest version of the `zSecure-Alert-addtraps.sh` file.
2. Locate the directory with the latest version of the `user-addtraps.sh` file.
3. From the folder that contains the `zSecure-Alert-addtraps.sh` file, carry out `sh zSecure-Alert-addtraps.sh`.

   It puts IBM-supplied zSecure Alert definitions in the NetView trap configuration file (`/usr/OV/conf/C/trapd.conf`). If you carried out this step before, it replaces older IBM-supplied zSecure Alert definitions with new ones.
4. From the folder that contains the `user-addtraps.sh` file, carry out `sh user-addtraps.sh`.

   It puts user-defined zSecure Alert definitions in the NetView trap configuration file (`/usr/OV/conf/C/trapd.conf`). If you carried out this step before, it replaces older user-defined definitions with new ones.
5. You can send a sample trap using the `snmptrap` command, where *IP.NBR.COMP* is the IP number of your computer.

   ```
   /usr/OV/bin/snmptrap -p 162 IP.NBR.COMP \
   .1.3.6.1.4.1.9399.1.2 "" 6 1601 "" \
   .1.3.6.1.4.1.9399.1.2.1 OctetString "Variable eventIntegral sample" \
   .1.3.6.1.4.1.9399.1.2.2 OctetString "Variable eventWhen sample" \
   .1.3.6.1.4.1.9399.1.2.31 OctetString "Variable whatWTO-MESSAGE sample" \
   .1.3.6.1.4.1.9399.1.2.6 OctetString "Variable whereSYSTEM sample"
   ```
6. You can check whether the trap was correctly processed.

Configuring NetView for Windows

To configure NetView on Windows for zSecure Alert, you must load the (possibly user-extended) zSecure Alert MIB into NetView. Then you must perform the following steps. If you have no user-defined traps, you can ignore the steps that involve `user-addtraps.bat`.

To carry out these steps, NetView version 7.1.5 was employed on Microsoft Windows 2000 (Service Pack 4).

1. Locate the directory with the latest version of the `zSecure-Alert-addtraps.bat` file.
2. Locate the directory with the latest version of the `user-addtraps.bat` file.
3. From the folder that contains the `zSecure-Alert-addtraps.bat` file, carry out `zSecure-Alert-addtraps.bat`.

   It puts the zSecure Alert definitions in the right place. If you carried out this step before, it replaces older zSecure Alert definitions with new ones.
4. From the folder that contains the `user-addtraps.bat` file, carry out `user-addtraps.bat`.

   It puts user-defined zSecure Alert definitions in the right place. If you carried out this step before, it replaces older user-defined definitions with new ones.

Add a user-defined alert to an MIB

This section describes the extension of a Management Information Base (MIB) with a user-defined alert, also called a trap. An MIB can be imported by using NetView running on AIX or Windows. It is discussed in "Configure NetView for AIX and Windows" on page 147.

zSecure Alert supplies the original MIB file that is going to be extended. Its name looks like *zSecure-Alert-v210.mib.*

The main components of a trap are variables. Although you can define a trap by using only variables defined in the zSecure Alert MIB, it is also possible to define and use additional variables. In "Variables" on page 148, it shows how variables can be defined in an MIB. These variables can be used in traps, whose definition is discussed in "TRAPS" on page 150. "Add a user-defined alert to an MIB" on page 148 indicates how several MIB files can be merged. This is necessary if you have a zSecure Alert-supplied but user-extended MIB, and then receive a new zSecure Alert MIB.

Variables

You can choose the variables that are part of a trap from the variables already defined in the zSecure Alert-supplied MIB, but you can also define new variables, add them to the MIB, and use them in a trap. The full variable definition syntax can be found in RFC 1212 (`www.faqs.org/rfcs`). The following example presents you a simplified variable definition syntax and a variable definition:

```
name OBJECT-TYPE          | user-whatATTEMPTS OBJECT-TYPE
   SYNTAX syntax          |     SYNTAX DisplayString (SIZE (0..1023))
   ACCESS access          |     ACCESS read-only
   STATUS status          |     STATUS mandatory
   DESCRIPTION            |     DESCRIPTION
          description     |            "Number of password attempts"
   ::= { Alert number }     |     ::= { Alert 400047 }
```

A variable has the following components:

name
The *name* must start with a lowercase letter. It must consist of lowercase letters, uppercase letters, digits, and dashes (-) only. An example variable name is

```
user-whatATTEMPTS
```

The variable names already defined by zSecure Alert are short descriptions of alert aspects. If there are several words in a variable name, each word except the first starts with an uppercase letter `justLikeThis`. You can use these conventions as well. To avoid clashes with any future zSecure

Alert-supplied variable names, you can put `user` or `user-` in front of each user-defined variable name, as in the sample variable `user-whatATTEMPTS`.

Most zSecure Alert-supplied variable names contain `who`, `what`, `onWhat`, `when`, `where`, `whereTo`, or `fromWhere`, giving an indication of the aspect do- main. Also, if there is a direct correspondence between a variable and a CARLa, or CARLa Auditing and Reporting Language, field, the variable name ends with the field name written in uppercase letters.

syntax
The *syntax* can have several forms but it typically is

```
DisplayString (SIZE (0..1023))
```

With this form, the variable can contain 1023 characters at most.

access
The *access* can have several forms but it typically is

```
read-only
```

status
The *status* can have several forms but it typically is

```
mandatory
```

description
The *description* is a quoted string like

```
"this description"
```

number
The *number* is a positive integer like

```
432100
```

The variable name and number must be unique in the MIB you want to extend. The MIB defines several variables with OBJECT-TYPE statements. Each statement starts with

name OBJECT-TYPE

and ends with

`::= { Alert` *number* `}`

The new variable must get a name which does not yet occur in front of any OBJECT-TYPE keyword in the MIB. The new variable must get a number which does not yet occur in a `::= { Alert` *number* `}` in the MIB. You must use the four digits of the trap number followed by two digits of your own choice. As indicated in “TRAPS” on page 150, a user-defined trap number must be in the range 4000-6999. Therefore, the number of a user-defined variable must be in the range 400000-699999, which is the range reserved for user-defined variables. Variable numbers outside of this range are reserved for IBM.

Note: These reservations pertain to enterprise tree iso.org.dod.internet.private.enterprises.consul.software.zAlert, coded as 1.3.6.1.4.1.9399.1.2.

When you determine the components of a variable definition, you add the definition to the MIB by inserting it right after an existing variable definition. The definition ends with `::= { Alert` *n* `}`, in the MIB.

For your convenience, sort variable definitions so their variable numbers appear in increasing order. Sorting makes it easy to see which variable numbers are already reserved. The sorting order is not mandatory.

For detailed information about variables, see RFC 1212 at `www.faqs.org/rfcs`.

TRAPS

The full trap definition syntax can be found in RFC 1215 (`www.faqs.org/rfcs`). A simplified trap definition syntax and a sample trap definition look like this example:

```
name TRAP-TYPE          | smfDataLost TRAP-TYPE
   ENTERPRISE Alert     |     ENTERPRISE Alert
   VARIABLES {          |     VARIABLES {
               v1,      |                  eventIntegral,
               v2,      |                  eventWhen,
               …        |                 whatWTO-MESSAGE,
               vm       |                  whereSYSTEM
             }          |                }
   DESCRIPTION          |     DESCRIPTION
         description    |            "SMF data is lost"
   ::= number           |     ::= 1601
```

As in the trap definition syntax, a trap definition has several components:

name
The name of a trap must start with a lowercase letter. It must consist of lowercase letters, uppercase letters, digits, and dashes (-) only. An example trap name is

```
smfDataLost
```

list of variables
Variables v_1, v_2, . . ., v_m to be sent as part of the trap. Each variable listed in the VARIABLES section of a trap must have been defined as an OBJECT-TYPE. You can read about variable definitions in “Variables” on page 148.

Note: according to the MIB syntax rules, a trap with zero variables cannot have a VARIABLES { … } section.

description
The trap names already defined by zSecure Alert are short descriptions of alerts. If there are several words in a trap name, each word except the first starts with an uppercase letter `justLikeThis`. You can use these trap naming conventions as well. The description is a quoted string like

```
"this description"
```

number
The number is a positive integer such as:

```
1601
```

The trap name and number must not yet occur in the MIB you want to extend.

To create a user-defined trap, you can simply copy a zSecure Alert-supplied trap definition. Keep the variable names and overwrite the name, description, and number with unique values. Take the following zSecure Alert-supplied trap as a starting point.

```
smfDataLost TRAP-TYPE
    ENTERPRISE Alert
    VARIABLES {
                eventIntegral,
                eventWhen,
                whatWTO-MESSAGE,
                whereSYSTEM
              }
   DESCRIPTION
         "System messages report that SMF data is lost (5)"
   ::= 1601
```

The italic parts of the trap definition can be changed to obtain the following definition:

```
mirrorGroupConnected TRAP-TYPE
    ENTERPRISE Alert
    VARIABLES {
                eventIntegral,
                eventWhen,
                user-whatMirrorGroup
              }
```

```
DESCRIPTION
       "Connect to mirror group defined"
::= 4001
```

As you can see, two zSecure Alert-supplied variables have been retained and the other variables have been replaced by a user-defined variable `user-whatMirrorGroup`. Each user-defined variable must have been defined as an OBJECT-TYPE see "Variables" on page 148.

The trap name and number must be unique across the zSecure Alert-defined and user-extended MIB. A new trap must get a name which does not yet occur in front of any TRAP-TYPE keyword in the MIB. The new trap must get a number which does not yet occur after any TRAP-TYPE ... ::= in the MIB.

The number must be in the range 4000-6999, which is the range reserved for user-defined traps. Trap numbers outside of this range are reserved for IBM. (These reservations pertain to enterprise tree iso.org.dod.internet.private.enterprises.consul.software.zAlert, coded as 1.3.6.1.4.1.9399.1.2.) The trap number must be the same as the alert number which you see in the ISPF zSecure Alert interface. The range 4000 - 4999 is intended for RACF alerts. The range 5000 - 5999 is intended for ACF2 alerts. The range 6000 - 6999 is intended for ACF2 alerts.

A new trap can be added to an MIB by inserting its definition after some trap ending with ::= *n*, where *n* is the trap number, which is already present in the MIB.

You can sort trap definitions so their numbers appear in increasing order. Sorting makes it easy to see which trap numbers are already reserved. The sorting order is not mandatory.

For detailed information about traps, refer to RFC 1215, which can be found on `www.faqs.org/rfcs`.

MIB file merging

When you add some traps and variables to an MIB and get a replacement or upgrade MIB from IBM, you must copy the customer defined traps in the range 4000-6999 and variables in the range 400000-699999 from the old MIB to the new MIB. That ensures that the customer defined traps and variables are still recognized when you unload the old MIB file and load the new MIB file.

Addtrap commands for AIX

This section describes the creation of a shell script with user-defined addtrap commands.

The shell script is intended for execution on an AIX computer that runs NetView, as described in "Configure NetView for AIX and Windows" on page 147. "Addtrap commands for Windows" on page 152 describes the creation of a script with user-defined `addtrap` commands for Windows computers.

Each `addtrap` command corresponds with a single user-defined trap present in the zSecure Alert-supplied and user-extended MIB. It is discussed in "Add a user-defined alert to an MIB" on page 148. You must put the list of `addtrap` commands in a script separate from the zSecure Alert-supplied script. Your list of `addtrap` commands cannot then be accidentally lost when IBM provides a new script version. The script to be created can be called `user-addtraps.sh` in this text but you must give it another specific name.

Suppose the trap numbers (to be found right after ::= operators) in the MIB are n_1, n_2, ..., and n_m. Each of these numbers should lie in the range of 4000-6999 reserved for user-defined traps. Trap numbers outside of this range, like 1601, are reserved for IBM.

Suppose the corresponding user-defined trap names, which can be found right before TRAP-TYPE keywords, in the MIB are $name_1$, $name_2$, ..., and $name_m$.

First assign a severity s_i to each user-defined trap i. A severity can be any of the following codes:

0
harmless/cleared

1
indeterminate or unknown

2
warning

3
minor

4
critical

5
major or fatal

Next, devise a succinct description d_i of the trap. You can use the MIB description of the trap. Finally, make a list of names of variables of the traps in the order in which they occur in the MIB: $v_{i,1}$, $v_{i,2}$, ..., $v_{i,j}$.

Then for each name $name_i$, corresponding trap number n_i, severity s_i, class name c_i, description d_i, and variables $v_{i,1}$, $v_{i,2}$, ..., $v_{i,j}$, add the following lines to `user-addtraps.sh`:

```
addtrap -l name_i -s n_i -S s_i -g 6 -n Alert \
        -i 1.3.6.1.4.1.9399.1.2 -o A \
        -c "Status Events" -e c_i \
        -D d_i \
        -E 'v_i,1' -V '$V1' \
        -E 'v_i,2' -V '$V2' \
        …
        -E 'v_i,j' -V '$Vj' \
        -t 0 -f - -F '$S $1'
```

Here is an example of an `addtrap` command, derived from the sample user-defined `mirrorGroupConnected` trap presented in "TRAPS" on page 150. The trap has severity 3 (`-S 3`).

```
addtrap -l mirrorGroupConnected -s 4001 -S 3 -g 6 -n Alert \
        -i 1.3.6.1.4.1.9399.1.2 -o A \
        -c "Status Events" -e USER_DEFINED_ALERT_MINOR \
        -D "Connect to mirror group defined" \
        -E 'eventIntegral' -V '$V1' \
        -E 'eventWhen' -V '$V2' \
        -E 'user-whatMirrorGroup' -V '$V3' \
        -t 0 -f - -F '$S $1'
```

For other sample addtrap commands, you can look at the `zSecure-Alert-addtraps.sh` script.

Note:

1. The `addtrap` command and its options are case-sensitive.
2. Each backslash in the command indicates that the command is continued on the next line.
3. Each variable name in that script starts with an underscore (_), unlike the variable names in the zSecure Alert-supplied MIB. The underscores ensure that the variables are grouped in trap displays. You can also put underscores in front of variable names in `user-addtraps.sh`.

When you already have a `user-addtraps.sh` script and have added a number of new traps to your MIB file, you must extend `user-addtraps.sh` by appending lines corresponding with the new user-defined traps. Similarly, after removing a trap from the MIB, you must also remove the corresponding addtrap line from `user-addtraps.sh`. Finally, when you want to change some aspects of a trap such as severity, you can change the corresponding `addtrap` line.

After creating or changing `user-addtraps.sh`, you must run the script to notify NetView of new or changed traps.

Addtrap commands for Windows

This section describes the creation and use of a file with `addtrap` commands corresponding with user-defined traps in an MIB. The file is intended to be executed on a Windows computer running NetView. It is described in "Configure NetView for AIX and Windows" on page 147. "Addtrap commands for AIX" on page 151 describes the creation of a script with user-defined `addtrap` commands for AIX computers.

You must create a file `user-addtraps.bat` other than the zSecure Alert-supplied `zSecure-Alert-addtraps.bat` file with `addtrap` commands. This way, your user-defined `addtrap` commands cannot be lost when IBM provides a new version of `zSecure-Alert-addtraps.bat`. Although the file to be created can be called `user-addtraps.bat` in this text, you can give it another more specific name.

Suppose the user-defined trap numbers, which can be found right after ::= operators, in the zSecure Alert-supplied and user-extended MIB (for example, `zSecure-Alert-v210.mib`) are n_1, n_2, ..., and n_m. Each of these numbers must lie in the range of 4000-6999 reserved for user-defined traps. Trap numbers outside of this range are reserved for IBM.

First assign a severity to each user-defined trap. A severity can be 0 (harmless or cleared), 1 (indeterminate or unknown), 2 (warning), 3 (minor), 4 (critical), or 5 (major or fatal). Suppose severities s_1, s_2, ..., and s_m are assigned to the traps corresponding with trap numbers n_1, n_2, ..., and n_m.

Suppose the corresponding user-defined trap names (to be found right before TRAP-TYPE keywords) in the MIB are $name_1$, $name_2$, ..., and $name_m$.

Next, for each name $name_i$, corresponding trap number n_i, and corresponding severity s_i, add the following line to `user-addtraps.bat`:

```
addtrap -l name_i -s n_i -S s_i -g 6 -n Alert
    -i 1.3.6.1.4.1.9399.1.2 -o A
        -c "Status Events" -t 0 -f - -F "$S $1\n$# args: $*"
```

Here is an example of an addtrap command, derived from the sample user-defined `mirrorGroupConnected` trap presented in "TRAPS" on page 150. The trap has severity 3 (minor).

```
addtrap -l mirrorGroupConnected -s 4001 -S 3 -g 6 -n Alert
    -i 1.3.6.1.4.1.9399.1.2 -o A
        -c "Status Events" -t 0 -f - -F "$S $1\n$# args: $*"
```

For other sample `addtrap` commands, you can look at the `zSecure-Alert-addtraps.bat` script. The `addtrap` command and its options are case-sensitive.

After loading the MIB, you must run `user-addtraps.bat` to notify NetView of certain aspects (like severity) of the user-defined traps. When you already have a file called `user-addtraps.bat` and a number of new user-defined traps, you can extend the `user-addtraps.bat` file with lines corresponding with the new user-defined traps. When you remove a user-defined trap from the MIB, you must also remove the corresponding `addtrap` line from the `user-addtraps.bat` file. Finally, when you want to change some aspects of a user-defined trap, you can change the corresponding `addtrap` line.

After changing `user-addtraps.bat`, you must rerun the file to notify NetView of new or changed user-defined trap aspects.

Note: If you have changed aspects of user-defined traps in NetView, you can rerun the `user-addtraps.bat` file to revert these aspects to the `user-addtraps.bat` file-provided values. If you do not want to change the aspects of a certain trap, (for example, with name $name_i$), you must remove the `addtrap -l` $name_i$ ... line from the `user-addtraps.bat` file before you rerun it.

Appendix C. SYSLOG format for QRadar SIEM

This section lists the CARLa fields that installation-defined alerts and extended monitoring alerts generate for use with IBM Security QRadar SIEM.

For example, installation-defined alerts that are to be sent to IBM Security QRadar SIEM must include a **whoUSERID** tag. QRadar chooses this tag for setting the Username field. To let QRadar SIEM search, view, and report on tags other than whoUSERID, you can create QRadar SIEM custom event and flow properties. This topic is discussed in the *Custom Event and Flow Properties* chapter of the *IBM Security QRadar SIEM Users Guide*, as well as in the QRadar SIEM built-in product help system.

"Installation-defined alerts" on page 28 generate the following CARLa fields:

RFC5424 field		CARLa field
eventResult	return code of RACINIT (logon) request	access_result
fromWhereCONSOLE	source of the command	console
fromWhereTERMINAL	terminal (LU name) where logon occurred	terminal, acf2_source
fromWhereSRCIP	IPv4 address if terminal is hexadecimal	terminal(hextoip)
fromWhereSYSTEM	JES2 node name of remote job entry (NJE)	utoken_snode
fromWhereUSER	User that submitted job, if different from current user (SURROGAT)	utoken_suser, acf2_submitter
onWhatACTION	action	action
onWhatALLOWED	allowed (permitted) access on resource	access
onWhatAUTHORITY	authority/privilege that allowed access/ command	SPEC, OPER, AUDIT, ROAUDIT, SECURITY, READALL, NON-CNCL
onWhatCLASS	class of resource	class
onWhatDSNAME	data set name	dsname
onWhatGranted	intended and allowed (actual) access, duplicate of onWhatINTENT	intent, acf2_access
onWhatGROUP-AUTHORITY	authority (privilege) specified on CONNECT	SPEC, OPER
onWhatINTENT	intended (actual) access	intent, acf2_access
onWhatMEMBER	member name	member
onWhatNEW-PERMISSIONS	new permissions	new_permissions
onWhatOLD-PERMISSIONS	old permissions	old_permissions
onWhatPROFILE	profile protecting resource	profile, acf2_rulekey
onWhatRACFCMD-AUTH	authority specified on CONNECT	racfcmd_auth (CREATE,CONNECT,JOIN)
onWhatRACFCMD-GROUP	group specified on PERMIT/CONNECT	racfcmd_group
onWhatRACFCMD-NAME	name of user specified on PERMIT/ CONNECT	racfcmd_user:name
onWhatRACFCMD-USER	user specified on PERMIT/CONNECT	racfcmd_user, acf2_rulekey
onWhatRESOURCE	resource	resource
onWhatSENSTYPE	reason why resource is privileged/sensitive	senstype, PCI-AUTH, PCI-PAN, PCI-PAN-clr, Site-Dsn-R, Site-Dsn-U,
onWhatUNIX-ACCESS-ALLOWED	allowed (permitted) access	unix_access_allowed
onWhatUNIX-ACCESS-INTENT	intended (actual) access	unix_access_intent
onWhatUNIX-PATHNAME	pathname	unix_pathname
onWhatVOLUME	(disk) volume	volume

whatACTION	action keyword	action
whatApplication	ZWS application	
whatATTEMPTS	number of attempts	count
whatChangedFields	fields modified by privilege escalation	
whatCommands	number of commands issued	count
whatCOUNT-SMF-LOST	lost SMF records	
whatDESC	description of RACF EVENT	desc, acf2_descriptor
whatEVENT	RACF EVENT	event
whatJOBID	job number	jobid
whatJOBNAME	job name	jobname
whatPARM	parameter on a command	value of UACC, ID(*), WARNING, LEVEL( ), acf2_changes
whatPROGRAM	program active in privilege escalation	
whatPASSWORDCHANGES	number of password changes	count
whatRACFCMD	RACF command	racfcmd
whatRULE	ACF2 RULE protecting resource	acf2_rulekey
whatSTC	started task id	stc
whatUACC	universal access permitted	value from RACFCMD
whatVIOLATIONS	count of access failures	count
whatWTO-MESSAGE	WTO message	WTO message texts
whenSMF_FAILURE	start of SMF loss	
whereAPPL	application used in logon	appl
wherePOE	source of logon	utoken_poeclass and/or utoken_poe
whereSYSTEM	system where event occurred	system or :runsystem
whoNAME	name of user	userid:name
whoUSERID	user id	userid, acfstcid

blank means this is not a standard CARLa field, but picked up from the SYSLOG msg, or a literal value inserted by the alert skeleton.

Extended Monitoring (COMPAREOPT) alerts use the hourly internal snapshots to identify changes in the system. These alerts generate the following CARLa fields:

RFC5424 field	**Meaning**	**CARLa field**
whatACTION		Change_IPConfig, Change_IPConfig_Log, Change_IPConfig_Log_Default, Change_APF_List, Change_IPConfig, ChangeSVC, Change_Security_Activate_Class, Change_Security_Inactivate_Class
onWhatAPF	data set APF authorized	apf
onWhatAPFLIST	data set in APF list	apflist
onWhatCLASS	RACF class	class
onWhatCURR-ADDRESS	SVC current address	curr_address
onWhatCURR-APF	SVC current APF protected state	curr_apf
onWhatDSNAME	dsname	dsname
onWhatESRNO	SVC extended routing number	esrno

onWhatStatus	RACF class active	active
onWhatSVCNO	SVC number	svcno
onWhatVOLUME	volser	volume
whatChangedFields	fields names of modified fields	comp_change
whatCODE	code dump	code
whatDSTIP	dest IP	dstip
whatDSTPFXLEN	dest prefix	dstpfxlen
whatDSTPORT	dest port	dstport
whatLOG	RACF log option on class	log
whatKindOfChange	ADD, DEL, CHG	comp_result
whatPROTOCOL	network protocol	protocol
whatROUTING	routing rule	routing
whatSECCLASS	SAF class	secclass
whatSRCIP	src IP	srcip
whatSRCPFXLEN	src prefix	srcpfxlen
whatSRCPORT	src port	srcport
whatTYPE	type of rule	type
whereCOMPLEX	RACF database complex	complex
whereINTERFACE	network interface	interface
whereSTACK	IP stack name	stack
whereSYSTEM	system	system

Note: A blank in the CARLa field column means that this is not a standard CARLa field, but it is picked up from the SYSLOG message, or the alert skeleton inserted a literal value.

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