

CA Verify® Automated Regression Testing for VTAM

User Guide

r8.5



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CA Product References

This document references the following CA products:

CA ACF2™

CA IDMS™

CA InterTest™ Batch

CA Top Secret®

CA Verify® Automated Regression Testing for VTAM (CA Verify ART for VTAM)

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Chapter 1: Introduction

This section contains the following topics:

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[Benefits of CA Verify ART for VTAM](#) (see page 13)

[Additional Features](#) (see page 14)

[Types of Testing](#) (see page 15)

[Security Considerations](#) (see page 15)

[How to Get Started](#) (see page 16)

About CA Verify ART for VTAM

CA Verify Automated Regression Testing for VTAM, (CA Verify ART for VTAM), an automated quality assurance testing tool, ensures that new or revised CICS application and system changes are thoroughly tested so they function correctly in production.

CA Verify ART for VTAM is a testing tool for *all* applications running under VTAM. That means you can use CA Verify ART for VTAM with IMS/DC, TSO, CICS, CMS, and CA IDMS/DC environments.

CA Verify ART for VTAM *automates* testing by capturing a sequence of input and output screens from live CICS transactions. The captured screens constitute a *test stream*. After an application or system change, you can re-execute the test stream. CA Verify ART for VTAM compares the current output screens with the original output screens and displays all differences (*mismatches*) online. You can also use CA Verify ART for VTAM to run test streams in batch and print the differences.

CA Verify ART for VTAM also permits *rules* and *rulesets* to be defined and applied to captured test streams. The rules notify CA Verify ART for VTAM in advance of expected test stream differences and how to handle them. The rules feature makes it easy to run captured test streams against new releases of an application, by eliminating the need to stop for expected changes.

Benefits of CA Verify ART for VTAM

Here are some of the benefits when you use CA Verify ART for VTAM for testing:

- You will not have to re-key data during test sessions because CA Verify ART for VTAM saves the original input screens with the data already entered.
- You will not have to compare test results manually. Manual *before* and *after* comparisons, always tedious and error-prone, are eliminated.

- Once you have captured a test stream, you can modify it directly or establish rules that model and handle expected changes, as your testing needs change.
- You can simulate production conditions — for example, you can:
 - Use real, rather than contrived, test data
 - Execute similar or identical transactions which try to perform the same task at the same time
 - Simulate high-volume activity *without* tying up system resources or affecting response time because CA Verify ART for VTAM uses *virtual* terminals

Additional Features

Other important CA Verify ART for VTAM features include:

- A user exit interface that lets you customize CA Verify ART for VTAM. For example, you can call an external security system or modify screen data when a test stream is executed.
- The ability to process command lists which can be used to open files, verify CICS initialization, and perform CICS termination tasks
- A powerful rules function to give advance notification to CA Verify ART for VTAM of expected test stream differences and how to handle them. This feature is particularly useful in filtering out the anticipated changes of a new release from the unexpected changes.
- An online demo session that helps users quickly learn how to use CA Verify ART for VTAM
- Menus and PF keys which follow ISPF standards, so new users find it easy to use
- An automated signon and signoff capability which eliminates the need to capture required security transactions in every test stream
- A TSO interface that lets you use the Browse, Edit, and Utility functions under TSO

Types of Testing

CA Verify ART for VTAM is the ideal tool for all of the following types of testing:

Unit:

Test a program change and see how it affects the rest of the program

Integration:

Test whether a modified program works properly in conjunction with other programs

Concurrency:

Test what happens when two or more transactions try to perform the same task at the same time; for example, update a record

Regression:

Test whether a system performs as usual after a change to one component of that system

Stress:

Test how your system behaves under heavy loads and determine how increased transaction volume affects response time

Migration:

Test whether existing applications perform as expected following hardware or system changes; for example, a new disk drive or a new release of CICS

See the Chapter "Testing" for suggestions on how to perform different types of testing.

Security Considerations

Because CA Verify ART for VTAM is a VTAM application, it is subject to whatever VTAM security system you are using. In addition, CA Verify ART for VTAM performs its own internal checking based on operator ID to ensure that test streams are accessed only by authorized users.

CA Verify ART for VTAM provides important safeguards to protect against unauthorized use.

- Interfaces to most operating system security packages, such as RACF, CA ACF2 and CA Top Secret, are provided. These interfaces can be used to restrict access to authorized users.
- You can specify read, write, or print protection for test streams and rulesets

- You can specify that CA Verify ART for VTAM not display the contents of dark (non-display) screen fields.
- Specific applications can be globally excluded from test streams. Moreover, when you create an individual test stream, you can specify which applications to include or exclude.

How to Get Started

If you are a new user, read the *Getting Started* and *Testing with CA Verify ART* for VTAM chapters and then perform the demo session located in the chapter "Install Verification Procedure and Demo Session". Then you will have all the information you need to begin creating your own test streams.

To perform simple tests, you will only need to see the:

- Log Function chapter for instructions on creating a test stream
- Run Function chapter for instructions on executing a test stream

See the "Browse Function" chapter to learn how to examine test streams online.

To begin using the rules function, see the *Rules Primer*, and the chapter "Rules Function" in this guide.

As you become more expert in using CA Verify ART for VTAM, you will want to see other chapters which explain more complex functions.

Chapter 2: Getting Started

This chapter describes functions and explains which ones to use to perform different types of testing; it also describes the contents of a test stream and the types of comparisons CA Verify ART for VTAM can perform.

This section contains the following topics:

[Invoke CA Verify ART for VTAM](#) (see page 17)

[Function Overview](#) (see page 20)

[Types of Screens](#) (see page 22)

[Test Stream Contents](#) (see page 22)

[Types of Comparisons](#) (see page 24)

[Panels](#) (see page 25)

[Commands and PF Keys](#) (see page 26)

[Using TSO](#) (see page 29)

Invoke CA Verify ART for VTAM

To invoke CA Verify ART for VTAM from the USS menu or the menu from your routing application, type:

VERIFY

CA Verify ART for VTAM displays either the signon menu or the Primary Options Menu, depending on options specified at installation.

The signon menu is illustrated next.

```

                CCCCCCCCCCCCCC
                CCCCCCCCCCCCCC
                CCCC
                CCCC      AAAAAAAAAA
                CCCC      AAAAAAAAAA
                CCCC      AAAA      AAAA
                CCCC      AAAA      AAAA
                CCC AAAA      AAAA
                C AAAACCCCCCCCCC
                AAAACCCCCCCCCC
                AAAA      AAAA
                AAAA      AAAA
                AAAA      AAAA

                C A - V E R I F Y / E E O
                VERSION 8.5.0

                COPYRIGHT © 1991-2010 CA.  ALL RIGHTS RESERVED

                USERID  ==>
                PASSWORD ==>
                NEW PASSWORD ==>

                ENTER THE ABOVE INFORMATION AND PRESS ENTER TO CONTINUE OR F3 TO END

```

Type your userid, password, and, optionally, a new password and press Enter. CA Verify ART for VTAM displays the Primary Options Menu.

Note:If your installation is using a security package (for example, RACF, CA Top Secret, or CA ACF2) with CA Verify ART for VTAM:

- The security package will verify your password
- The new password option may or may not be functional, depending on how security was implemented

If your installation is not using a security package, just type your name. CA Verify ART for VTAM will use it for its own internal security (see the Test Stream Protection option in the chapter "Log Function").

```
VERSION 8.5.0----- CA VERIFY PRIMARY OPTIONS MENU -----10:29:28
ENTER COMMAND ==>                                     TERM: A68L904
                                                         OPER: VERIFY

  L  LOG A TEST STREAM

  B  BROWSE A TEST STREAM

  R  RUN A TEST STREAM

  E  EDIT A TEST STREAM

  M  MAINTAIN RULES

  I  INQUIRY/TERMINATION OF FUNCTIONS

  U  UTILITIES

  T  TUTORIAL

  X  EXIT
      *** ENTER "KEYS" COMMAND TO SEE PF KEY ASSIGNMENTS ***

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```

The previous menu lists the CA Verify ART for VTAM functions, which are described in the next section. To select a function, type its letter in the Enter Command field and press Enter.

Bypass the Primary Options Menu

You can access a function without returning to the Primary Options Menu by entering **=x** on the command line of any menu except those displayed when a test stream is running. Replace x with the letter identifying the function. For example:

=B

accesses the Browse function.

Function Overview

Log a Test Stream

The Log function is the process by which CA Verify ART for VTAM captures input screens as they are received from the terminal and output screens as they are sent to the terminal. The captured records constitute a *test stream*.

Browse a Test Stream

The Browse function lets you examine a test stream you have logged or run. You can look at any of the screens and any information saved when the test stream was run.

Run a Test Stream

The Run function is the process by which CA Verify ART for VTAM re-executes a test stream. CA Verify ART for VTAM sends the captured input screens to the application, compares the output screens generated by the application with the original output screens, and flags any differences.

Edit a Test Stream

The Edit function lets you modify a test stream you have logged or run. For example, you can delete screens or change input data.

Maintain Rules

The Maintain Rules function lets you create, modify, and delete rulesets and rules that can be applied to one test stream, all test streams within an application, and/or all test streams in a system. Rulesets and rules tell CA Verify ART for VTAM, in advance, what changes you expect to see when running a test stream in a modified application or environment. When using rulesets, CA Verify ART for VTAM will not flag the differences accounted for by the rules, which greatly streamlines the testing of new releases with existing test streams.

In addition to controlling the changes made within a test stream, you can use the Rules function while logging to control which terminals, applications, or users should be logged.

Inquiry and Termination of Active Functions

The Inquiry function lets you display the status of all active and suspended functions and terminate Log functions.

Utilities

The Utilities let you manipulate test streams. Using the Utilities, you can:

- Update a test stream's directory information
- Append screens from one test stream to the end of another test stream
- Insert screens from one test stream into another test stream
- Merge two test streams
- Copy a test stream from one name to a new name, and, optionally, copy its ruleset at the same time
- Rename a test stream and its associated ruleset
- Delete a test stream and its associated ruleset

Tutorial

Use the Tutorial to learn how to use CA Verify ART for VTAM.

Exit CA Verify ART for VTAM

Use the Exit function to exit from CA Verify ART for VTAM.

Types of Screens

While using CA Verify ART for VTAM, you will encounter three types of screens:

- **Original Screen**

This screen displays the record from the originally logged test stream with no changes applied.

- **Expected Screen**

This screen displays the original screen with rules applied.

- **Current Screen**

This screen shows the screen that results from the test stream being run.

In most cases, you can use PF2 (Rotate) to switch the display from Expected to Current to Original and then back to Expected.

Test Stream Contents

Each record in a test stream created by the Log function contains either an input or output screen. Records in test streams created (or updated) by the Run function may also contain additional information: an original screen or mismatch signoff comments.

Each test stream record consists of one or more parts, as illustrated next.

Input Record	Output Record
Current input screen	Current output screen
Original input screen (optional)	Original output screen (optional)
	Mismatch Data (optional)
	Applied Rules (optional)
	Expected Screen (optional)

Input Record

Current Input Screen

The current input screen always appears in a test stream. It is the input from the log or most recent run.

Original Input Screen

The original input screen appears in a test stream created by the Run function only if it differs from the current input screen and record history was specified.

Output Record

Applied Rules Screen

Shows the rules applied to the original screen to obtain the expected screen. This screen is similar to the Rules Applied During Run screen.

Current Output Screen

The current output screen always appears in the test stream. It is the output from the log or most recent run.

Expected Output Screen

The original output screen showing any rules that have been applied.

Original Output Screen

The original output screen appears in a test stream created by the Run function only if it differs from the current output screen and record history was specified.

Signoff Data

This information is specified by the user during the Run function to explain the mismatch.

Mismatch signoff information is available only if this option was specified during the most recent run.

Record Numbers

A record number identifies every record in the test stream. This is a sequential number associated with each current input or output screen. For example, if a test stream consists of one input screen, followed by one output screen, followed by one input screen, followed by one output screen, all input screens will be odd numbered and all output screens will be even numbered.

Types of Comparisons

When CA Verify ART for VTAM runs a test stream, it compares the original output screens with the current screens. You can specify one of the following comparison types:

Screen

Compares corresponding rows of two screens to see if they are the same; comparison base includes all output screens between two input screens.

This type of comparison *must* be used when processing a test stream with a ruleset.

logical

Screens to see if they are the same. Variation in bytes transmitted to the terminal is allowed as long as the end result is the same.

A logical comparison also allows for variable fields (that is, fields you would expect to be different, such as run date or time-of-day).

Note: A logical comparison is not supported for non-3270 terminals.

Physical

Compares 80-byte segments of the data streams.

Use this type of comparison for non-3270 terminal test streams and for test streams that use graphics.

During a logical, physical, or screen comparison, CA Verify ART for VTAM halts the run if it detects any difference between the original and current screens. At this point you have many different options. For example, you can ignore the mismatch, define additional rules, or terminate the run.

Panels

Most panels have the same header format. A sample panel is shown next, followed by an explanation of the common areas.

1	2	3																																																						
SAMPLE.TEST.001 -----	BROWSE: DIRECTORY INFORMATION	-----10:41:46																																																						
ENTER COMMAND ==>4																																																								
5	DESCRIPTION: SAMPLE TEST STREAM OF CAROL'S COOKIES COMPANY																																																							
<table> <tr> <td>LOG:</td> <td>RUN:</td> <td>EDIT:</td> <td>TEST STREAM:</td> <td>IN:</td> <td>OUT:</td> </tr> <tr> <td>INVOKED BY: DORI</td> <td></td> <td></td> <td>TOTAL SCREENS:</td> <td>9</td> <td>11</td> </tr> <tr> <td>INVOKED ON: 02/09/1999</td> <td></td> <td></td> <td>AVERAGE BYTES:</td> <td>35</td> <td>315</td> </tr> <tr> <td>START TIME: 10:41:01</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DURATION: 00:00:38</td> <td>00:00:16</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SYSTEM: A04IC9NA</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>STATUS: NORMAL</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TERMINAL: A60L2049</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>VSAM CI'S: 2</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>			LOG:	RUN:	EDIT:	TEST STREAM:	IN:	OUT:	INVOKED BY: DORI			TOTAL SCREENS:	9	11	INVOKED ON: 02/09/1999			AVERAGE BYTES:	35	315	START TIME: 10:41:01						DURATION: 00:00:38	00:00:16					SYSTEM: A04IC9NA						STATUS: NORMAL						TERMINAL: A60L2049						VSAM CI'S: 2					
LOG:	RUN:	EDIT:	TEST STREAM:	IN:	OUT:																																																			
INVOKED BY: DORI			TOTAL SCREENS:	9	11																																																			
INVOKED ON: 02/09/1999			AVERAGE BYTES:	35	315																																																			
START TIME: 10:41:01																																																								
DURATION: 00:00:38	00:00:16																																																							
SYSTEM: A04IC9NA																																																								
STATUS: NORMAL																																																								
TERMINAL: A60L2049																																																								
VSAM CI'S: 2																																																								
AVERAGE THINK TIME: 00:00:02.437 AVERAGE RESPONSE TIME: 00:00:01.417 MAXIMUM SCREEN SIZE: 24 BY 80 PROTECTION STATUS: ORIGINATING TEST STREAM:																																																								
OWNER: DORI CREATED BY FUNCTION: LOG																																																								
F1-HELP	F3-END	F4-RETURN																																																						

1 - name area - indicates the name of the test stream when a specific test stream is being processed; otherwise, it contains dashes

2 - title — identifies the menu

3 - message area — contains an error or informational message; otherwise, contains the time

4 - command area — use this field to type a command, option, or parameter

5 - extended message area — displays an extended, numbered message if you type the Help (PF1) command when an error message appears in the message area 3. At other times, instructions on how to proceed will appear.

Commands and PF Keys

The following commands can be used with all functions. Commands that apply to a specific function are discussed in the appropriate chapters. All commands except Redisplay can be entered in the command area.

Where applicable, the default PF key that can be used instead of the command is listed.

Caps On/Off

Translates lowercase characters to uppercase on menus with the following fields that support lowercase:

Edit function

Field and Hex format input

Browse and Edit functions

Find and Change command parameters

Rules function

All values and description fields

Log and Utility functions

Terminal names

End (PF3)

Ends processing of the current menu and returns to prior processing level.

Help (PF1)

If a brief error message is displayed, replaces that message with a more detailed, numbered message on the third line of the menu. If an error message is not displayed, displays the Tutorial panel for the current function.

Keys (PF12)

Displays a list of PF key assignments.

OPTS

Displays the options as currently set in the OPTIONS module.

Redisplay (PA2, CLEAR, PFn)

Refreshes the last menu displayed. Invoke this command by pressing the PA2 key, Clear, or the assigned PF key.

Resume

Continues processing from the point of suspension. This command is valid only from the Primary Options Menu. See Suspend.

Return (PF4)

Ends processing of the current menu and returns to the Primary Options Menu. During Run Mismatch processing, this command is treated as the End command.

Shutdown

Shuts down the control task. If the installation option SHUTDWN has been set to YES, anyone can issue this command on any menu as long as he is the only person using the control task. If the installation option SHUTDWN has been set to NO (the default), only a security administrator or console operator can shut down the control task.

Size Def/Alt

Directs CA Verify ART for VTAM to use the default or alternate screen size for its menus. Both the default and alternate sizes are defined during installation. The sizes supported are dependent on terminal models. If this command is specified without either parameter, CA Verify ART for VTAM toggles between the default and alternate sizes.

Suspend

Suspends current processing and displays the Primary Options Menu. The suspended function will appear on the menu, followed by (SUSPENDED). Only one Suspend command may be issued from a terminal. This command is not valid from the Primary Options Menu. See Resume.

The following chart lists the commands for which default PF keys are assigned. Default PF key assignments are determined when CA Verify ART for VTAM is installed. Minimum abbreviations are underlined.

Default PF Key	Command
PF1	Help
PF2	Rotate
PF3	End
PF4	Return
PF5	Prev
PF6	Next
PF7	Up
PF8	Down
PF9	Format
PF10	Left
PF11	Right

PF12

Keys

Note: Defaults for PF keys 13-24 are the same as for PF keys 1-12.

See the preceding section for an explanation of commands used with all functions. Commands for specific functions are discussed in the appropriate chapters.

Be aware of the following:

- If a PF key command is not appropriate to the function you are performing, CA Verify ART for VTAM treats it as the Enter key.
- If a command requires parameters, type them in the command area.
- If you type more parameters than a command requires, CA Verify ART for VTAM ignores them.

Display PF Key Assignments

Type the Keys (PF12) command on any menu to display a list of PF key assignments.

```

----- CA VERIFY PF KEY ASSIGNMENTS -----10:31:13
                                             HK

      KEY  ASSIGNMENT                      KEY  ASSIGNMENT
      PF1:  HELP                          PF13:  HELP
      PF2:  ROTATE                        PF14:  ROTATE
      PF3:  END                          PF15:  END
      PF4:  RETURN                       PF16:  RETURN
      PF5:  PREV                        PF17:  PREV
      PF6:  NEXT                        PF18:  NEXT
      PF7:  UP                          PF19:  UP
      PF8:  DOWN                       PF20:  DOWN
      PF9:  FORMAT                      PF21:  FORMAT
      PF10: LEFT                       PF22:  LEFT
      PF11: RIGHT                      PF23:  RIGHT
      PF12: KEYS                      PF24:  KEYS
                                   PA2:  REDISPLAY

      PRESS ANY PF KEY TO RETURN TO THE PRIOR MENU
  
```

Using TSO

You can use the Browse, Edit, Utility, and Tutorial functions under TSO. A data set can be allocated and then CA Verify ART for VTAM can be invoked either by:

```
CALL 'VERIFY.LOADLIB(XTCAMAIN)'
```

or as a command processor:

```
XTCAMAIN
```

If you invoke CA Verify ART for VTAM as a command processor, the load modules must be in a STEPLIB.

Note: The Suspend and Resume commands are not supported.

Chapter 3: Testing

This chapter discusses using CA Verify ART for VTAM to perform unit, integration, concurrency, regression, stress, and migration testing.

This section contains the following topics:

[Testing in Many Environments](#) (see page 31)

[Unit Testing](#) (see page 32)

[Integration Testing](#) (see page 33)

[Concurrency Testing](#) (see page 34)

[Regression Testing](#) (see page 36)

[Stress Testing](#) (see page 36)

[Migration Testing](#) (see page 37)

[Automated Batch Testing](#) (see page 38)

Testing in Many Environments

Testing programs without CA Verify ART for VTAM is difficult because your test region differs significantly from your production environment. For example, it is very hard to replicate the:

- Number of terminals
- Types of terminals
- Program activity

With CA Verify ART for VTAM, it is easy to simulate production conditions. That means you can perform all types of testing; unit, integration, concurrency, regression, stress, and migration, so you know your application will perform as expected. This chapter explains in detail how to use CA Verify ART for VTAM to perform these types of testing.

To test applications effectively, you need well-constructed tests. CA Verify ART for VTAM greatly simplifies the task of creating these tests. All you have to do is log test streams. Optionally, you can edit these test streams to meet your testing needs. For example, you can combine test streams, alter the input data to test a variety of conditions, or delete a sequence of screens. As you save test streams, you'll create a library of tests that will always be available to test application and system changes.

You can test all applications that run under MVS VTAM, including IMS/DC, CICS, TSO, and CA IDMS/DC applications. For example, you can create a system test to run after an IMS or MVS upgrade. Or, use CA Verify ART for VTAM to test VM applications running under Netview or to capture TSO SPUFI sessions. You can even automate batch testing by logging a test stream which submits and reviews batch jobs under TSO.

You can even log applications that run under multiple environments. For example, suppose you have a CICS application that passes data to another CICS application. However, before the data is passed, it is sorted in batch. You can use CA Verify ART for VTAM to log all three steps: the first CICS application, the middle TSO application that submits the batch job, and the second CICS application. If any step changes, you can test the entire job.

To further streamline the testing of application or system changes, CA Verify ART for VTAM provides a powerful Rules function to use with your library of test streams. Rulesets let you identify the expected changes to the existing test stream due to application or system changes. By running the test stream in the new application with a specified ruleset, you can eliminate the need to stop at the expected changes, greatly streamlining your testing.

Unit Testing

Unit testing is the most common type of testing. You change individual *units of work* and test each change. A unit of work may be a program, a sequence of events, or just an input/output screen. However, unit testing does not test how a program interacts with other programs or its effect on the system.

For example, suppose you need to change a field on a screen. Here's how to use CA Verify ART for VTAM to test the change:

1. Create a test stream by logging the screens connected with the change. If the program is small, you may want to log all the screens.

If you already have a test stream that tests this unit of work, you will not need to create a new one.
2. Change the screen in the application.
3. Run the logged test stream. CA Verify ART for VTAM compares the output produced by the program *before* the change with the output produced *after* the change.

CA Verify ART for VTAM flags all differences. You expect *one* difference — the difference in the single field, which you changed. Otherwise, the original and current screens should be the same.

4. If you find any unexpected differences, make corrections and rerun the logged test stream until you are sure the modified program is functioning as anticipated.

Integration Testing

Integration testing determines if a program works properly with other programs. A program can pass unit testing — and then fail when executed in conjunction with other programs that were not part of the unit test. For example, if several programs update the same file, a change to one program may have unexpected effects on the others.

This is how you would use CA Verify ART for VTAM to perform integration testing to test the change described in the preceding unit testing section.

1. Create a test stream logging all affected programs — that is, the program that changed and all programs run in conjunction with it. Or, use a previously logged test stream that tests this application.

The logged test stream can be created by one of the following methods:

- Capturing a series of transactions in your production region
- Combining several unit test streams. Use the Append or Insert utilities if you want the test streams to run sequentially, or the Merge utility if you want the test streams to run concurrently.

2. Change the screen in the application.
3. After the changed program passes unit testing, run the logged test stream. CA Verify ART for VTAM compares the output produced by all the programs *before* the change with the output produced *after* the change.

CA Verify ART for VTAM automatically flags all differences. You expect *one* difference — the difference in the single field, which you changed. Otherwise, all the original and current screens should be the same.

4. If you find any unexpected differences, make corrections and rerun the logged test stream until you are sure the modified program and all programs connected to it are functioning as anticipated.

Repetition Testing

Another form of integration testing is *repetition* testing. This type of testing ensures that programs remain re-usable and is generally used to test reentrancy. To perform repetition testing, simply re-execute a test stream a few times to make sure that each execution is successful and produces the same results.

Concurrency Testing

Concurrency testing determines what happens when similar or identical transactions execute at the same time and try to perform the same task, such as processing the same file or data base record.

Manual concurrency testing is virtually impossible. You would have to have multiple users simultaneously enter the same transaction on different terminals. Even if that were practical, network and access method processing would affect how CICS processes the transactions. With CA Verify ART for VTAM, however, concurrency testing is both easy and accurate because CA Verify ART for VTAM automatically ensures that the transactions are processed concurrently.

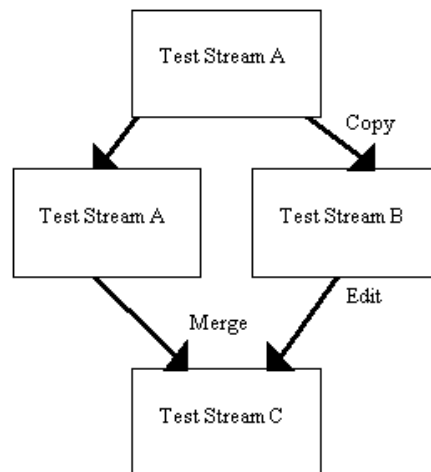
For example, suppose you want to make sure that concurrent attempts to update an inventory file are successful. Here's how you would use CA Verify ART for VTAM to perform concurrency testing:

1. Create a test stream by logging the screens when a transaction updates an inventory file. Or, use an existing test stream.
2. Merge the test stream with itself. The new test stream consists of two identical sets of records, each assigned to a different terminal. If necessary, you can merge the new test stream with itself again, creating four identical sets of records assigned to four terminals.
3. Optionally, you can edit the test stream to alter the test data. For example, you may want to alter the inventory file key to ensure that the test stream updates different records. You can edit the test stream by copying it before the merge, editing one test stream, and then merging the two test streams. Or, you can first create the merged test stream and then edit it.
4. Run the merged test stream.
 - CA Verify ART for VTAM sends the first input screen from terminal 1 to the application. Then, CA Verify ART for VTAM sends the first input screen from terminal 2 to the application. These are, of course, identical screens unless you edited one.
 - Next, the application sends the first output screen from the application to terminal 1. Then, the application sends the first output screen from the application to terminal 2.
 - CA Verify ART for VTAM continues to run the test stream. You can easily determine how the application concurrently processes these requests.

When CA Verify ART for VTAM runs a single terminal test stream that has been merged into itself, it ensures that all output screens are received by the terminals before it sends the next input screens. Using this method, a multiple terminal test stream always produces consistent results.

The following diagrams illustrate two ways in which you can edit the test stream.

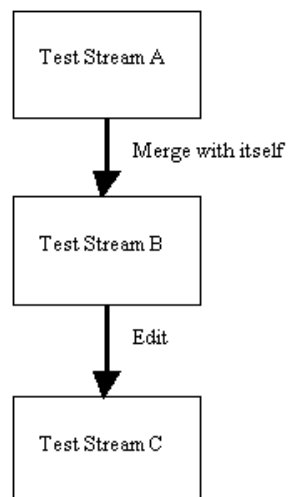
Example 1



In Example 1:

1. The test stream is copied.
2. One of the copies is edited.
3. The two test streams are merged.

Example 2



In Example 2:

1. The test stream is merged with itself.
2. The merged test stream is edited.

Regression Testing

Regression testing ensures that a change to a component of a system does not have unexpected effects on the rest of the system.

For regression testing, you create a benchmark test and then re-execute the system *using the same test data*. CA Verify ART for VTAM compares the results with the benchmark results to determine if there are any unexpected differences.

With CA Verify ART for VTAM, it is easy to create and maintain standardized tests for all your systems. Whenever you make a change, you can quickly determine whether or not the system still performs as expected. For example, suppose you want to make sure that a change to a single program has not affected the payroll system.

1. Create a test stream by logging a standard set of payroll transactions, or use an existing test stream. This test stream will be your benchmark test for the payroll system.
2. Change the program.
3. Unit test the program to make sure the change is working as expected.
4. Run the logged payroll test stream. The only difference CA Verify ART for VTAM should detect is the single program change.

Stress Testing

Stress testing lets you find out how your system behaves under heavy loads and how increased transaction volume affects response time. System programmers can use this information to tune the system. Capacity planners can use it to determine when and how to expand system capability to meet projected growth estimates. Because CA Verify ART for VTAM uses *virtual* terminals instead of real terminals, you can simulate system activity *without* tying up valuable system resources.

Here's how you can use CA Verify ART for VTAM for stress testing:

1. Create one or more multiple terminal test streams by logging many terminals at once. For example, you may want to log all the terminals in a particular department or all the terminals in a region.
2. Create a large-volume test stream by merging the test stream with itself or by merging several test streams. The screens from one test stream are interspersed among the screens from a second test stream.

3. Run the merged test stream either online or as a batch job.
 - When CA Verify ART for VTAM runs in batch, it brings up a CICS region in which it is the only user. Because there is no resource contention, transactions execute under optimal conditions. Such information may be valuable for optimization or tuning.
 - To simulate increased stress, reduce the operator think time. For example, you can request that input screens be sent to the application twice as quickly as the operators originally sent them. You can even specify no operator think time. Reducing think time is a good way to simulate a stress test even with moderate transaction activity.
 - Because you're not concerned with program changes, instruct CA Verify ART for VTAM *not* to compare the original and current screens. Of course, if you logged only input screens, no comparison will take place.

Note: To test an incremental increase in transaction volume, run a test stream containing the additional volume during peak periods.

Migration Testing

Migration testing ensures that existing applications perform as expected when you have major hardware or software changes; for example, upgrading from one release of CICS to another, adding disk packs, or even migrating from VSE to MVS.

Suppose, for example, you have applied maintenance to CICS. You want to make sure your production work won't be affected. Here's how to perform migration testing with CA Verify ART for VTAM:

1. Create a test stream by logging several critical hours of activity for as many terminals as you believe are necessary to provide a realistic "slice of life." For example, you may want to log all the terminals in a particular branch or department. Or, you may want to create a controlled test by combining and/or editing many unit tests.

Remember, once you create this test stream, you can use it again and again to test system or software upgrades.

2. At night or on a weekend, run the logged test stream, either from a terminal or as a batch job. Specify no operator think time so the test completes as quickly as possible.
3. If the transactions execute normally and the output is correct, you can assume that the hardware or software change won't have any unexpected impact on production.

Automated Batch Testing

CA Verify ART for VTAM can speed up batch testing by making it possible to automatically submit and review jobs.

To test batch jobs, log a test stream which consists of the following steps:

1. Logon to TSO.
2. Edit the batch job.
3. Submit the batch job. Use the NOTIFY parameter so a message is issued when the job completes.
4. If you are using a full-screen product like ISPF to submit the job, exit from ISPF to await notification that the job has completed.
5. Review the job output under TSO. Use the FIND command to position yourself after the job informational messages which may vary from one execution to another.
6. Delete the output.

Running this test stream will submit the job and automatically review the output and identify any differences. You can use one test stream to submit and review many jobs in succession.

Chapter 4: Log Function

This chapter explains how to create a test stream.

This section contains the following topics:

[Overview](#) (see page 39)

[How the Log Function Works](#) (see page 40)

[Invoke the Log Function and Specify Terminal Options](#) (see page 40)

[Log One or More Terminals](#) (see page 41)

[Log an Application](#) (see page 50)

[Apply Rules to the Logging Session](#) (see page 56)

[Terminate the Log Function](#) (see page 67)

Overview

The Log function is used to create a test stream of input and output terminal screens for an application or system. Once a test stream has been logged, it can be run and rerun to test changes to the underlying program.

For example, suppose you modify an application and want to check for changes and errors in the application that may have been unintentionally introduced. You can log a test stream on the original program and run that test stream on the new version. CA Verify ART for VTAM will compare the logged output screens with the new output screens and flag any differences, making it easy to spot and correct errors. Alternatively, if you install new disk drives or a new release of CICS, you can run your logged test streams to make sure all your applications perform as expected.

You can log a test stream from one or more terminals. Logging a test stream from multiple terminals provides the tools you need for stress testing. You can also run such a test stream under varying conditions to gauge the impact on your system.

As you log test streams, you'll be creating a library of benchmark tests you can use over and over again to test application and system changes. For this reason, you'll want to make sure the test streams you create are as complete as possible.

Note: Test streams can be browsed and edited. For example, you can change a test stream so you can test different input, or you can merge test streams to create a new test case.

How the Log Function Works

Here's how CA Verify ART for VTAM logs a test stream:

1. You initiate logging.
2. The first output from USS or the routing application to the terminal being logged will usually be the *first* screen for that terminal in the test stream. That screen will be followed by input and output screens in any order.
3. Logging continues until you explicitly terminate it.

CA Verify ART for VTAM can log:

- Single session test streams; for example, a TSO session
- Multiple session test streams; for example, a CICS session followed by a TSO session followed by an IMS/DC session
- An application which passes terminals to other applications
- Multiple test streams at the same time. These test streams can be logged from the same or different terminals. For example, two users can request at the same time that terminal A be logged. CA Verify ART for VTAM would then create two test streams.

You won't even be aware that logging is taking place. CA Verify ART for VTAM does *not* tie up a terminal that is being logged. A single control task, which does *not* use a terminal, records the screens for *all* logging.

Invoke the Log Function and Specify Terminal Options

To invoke the Log function, type **L** on the Primary Options Menu. CA Verify ART for VTAM displays the Log Options Menu.

----- LOG OPTIONS MENU -----		-10:31:39
ENTER COMMAND ==>		L
T	THIS TERMINAL	
O	ANOTHER TERMINAL	
M	MULTIPLE TERMINALS	
A	AN APPLICATION	
F1-HELP	F3-END	F4-RETURN

Indicate which terminals CA Verify ART for VTAM should log by specifying one of the following:

- T** your terminal
- O** another terminal
- M** multiple terminals
- A** all terminals associated with a specific application

Press Enter. CA Verify ART for VTAM displays the menu for the option you have specified.

Note: You can bypass the Log Options Menu by typing L.T, L.O, L.M, or L.A on the Primary Options Menu.

Log One or More Terminals

You have the option of logging a test stream on the terminal where you are operating CA Verify ART for VTAM, on another terminal, on multiple terminals, or all terminals associated with a specific application.

Logging Your Terminal

If you specify **T** on the Log Options Menu or **L.T** on the Primary Options Menu, CA Verify ART for VTAM displays the Single Terminal Log menu.

```
----- SINGLE TERMINAL LOG -----13:45:18
ENTER COMMAND ==> L1

LOG TEST STREAM AS:
  DDNAME      ==> TCADS
  APPLICATION ==>
  MEMBER      ==>
  VERSION     ==> 001

DESCRIPTION ==>
             ==>
             ==>

STOP OPTION           ==> DISC (DISC, MAN, PF__, PA_, OR CLEAR)
PROCESS WITH RULES    ==> N   (Y/N)
TEST STREAM PROTECTION ==>    (R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY ==> N   (Y/N)
EXTEND TEST STREAM    ==> N   (Y/N)
VIRTUAL TERMINAL      ==>    (TO USE A SPECIFIC VIRTUAL TERMINAL)

RULESET NAME:

F1-HELP   F3-END   F4-RETURN
```

Default values, specified when CA Verify ART for VTAM is installed, will appear for the following fields: DDname, Application, Version, Stop Option, and Extend Test Stream.

The DDname, Application, Member, Version, and Description fields are required to identify the test stream.

DDNAME

The ddname of the file to which the test stream will be logged. Specify one to eight alphanumeric or national characters. The first character cannot be numeric. This file must be allocated in the JCL for CICS.

APPLICATION

The group to which the test stream belongs; for example, an application, department, project, and so on. Specify one to eight alphanumeric or national characters. The first character cannot be numeric.

MEMBER

The specific test stream; for example, a screen or program. Specify one to eight alphanumeric or national characters. The first character cannot be numeric.

VERSION

The test stream version when multiple versions of the test stream have the same name. Specify one to three numeric characters.

DESCRIPTION

The comments that describe the test stream. Specify up to three lines of information. You may want to use this field to document files which must be restored when the test stream is run. This field is ignored when the Extend Test Stream option is Y.

STOP OPTION

The option which will terminate logging:

DISC

Logging terminates when the session is disconnected. This is the default; it can be overridden by modifying the options module.

DISC prevents multiple session test streams because logging terminates when you disconnect from the first session.

MAN

Logging terminates when you manually stop logging in one of two ways:

- Clear your screen and type XTCA STOP
- Use the Inquiry function to display a list of all active logging and select the logging you wish to terminate. See the Inquiry function for more details.

Only the person who invoked logging or a security administrator can terminate logging using the Inquiry function.

Note: The MAN option can always be used to stop logging even if you select another Stop option.

PFxx/Pax

Logging terminates when you press the specified PF or PA key.

CLEAR

Logging terminates when you clear your screen.

PROCESS WITH RULES

This field allows you to apply a ruleset to this logging session. If **Y** is typed in this field, a list of available rulesets will appear when you press Enter. These rulesets contain rules that specify user IDs, terminals, or transaction IDs that are to be included or excluded from the test stream. If you do not wish to apply a ruleset to this logging session, leave **N** as the default.

Note: L.T only applies application rule actions; terminal and user rule actions are ignored.

TEST STREAM PROTECTION

Sets protection options for the test stream. Valid options are:

R

Read: the test stream cannot be browsed, edited, run, appended to, inserted into, or merged into another test stream by anyone except its owner or a security administrator. If the test stream is copied or renamed, read protection is extended to the new test stream.

W

Write: the test stream cannot be extended, replaced (during the Run function), edited, renamed, deleted, appended to, inserted or merged into another test stream, nor can its directory be updated, by anyone except its owner or a security administrator

P

Print: the test stream cannot be printed

You can use any combination of options; for example, RW, WP, RWP.

To change the protection option, use the Utilities Update Directory function.

Note: A read-protected Autsign (automated signon and signoff) test stream can be invoked by any user for Autsign purposes; it cannot be read in any other way except by its owner or a security administrator. See the *Installation Guide* for information about Autsign test streams.

LOG INPUT SCREENS ONLY

Type **Y** to log just input screens; otherwise, leave **N** as the default. Use **Y** with caution, because it means there will be no output screens to compare during a Run. Selecting **Y** also diminishes the usefulness of CA Verify ART for VTAM as a regression testing tool, and makes problem determination difficult if the application does not perform as expected. However, when you have a completely predictable test stream, logging just the input screens can reduce the size of the test stream.

EXTEND TEST STREAM

Type **Y** to append additional logging to an existing test stream (identified in the ddname, Application, Member, and Version fields); otherwise, leave **N** as the default.

If you extend a test stream, the current logging should be compatible with the existing test stream as follows:

- The current terminal should be the same type as the terminal originally used to create the test stream
- The existing test stream should end with a clear screen. If not, use the Online Utilities to copy the existing test stream. You can then truncate the copied version after a clear screen.

VIRTUAL TERMINAL

Specify a specific or generic virtual terminal name. Use = as a generic character to replace any character. For example, if you specify VTERM=, CA Verify ART for VTAM will use any virtual terminal beginning with the characters VTERM followed by up to two characters; for example, VTERM6, VTERM01, VTERM02, and so on.

Assigning a virtual terminal is important if the application you are logging has terminal name or other terminal characteristic dependencies. The virtual terminal specification will be saved with the test stream so that CA Verify ART for VTAM can use the *same assignment* when the test stream is run. A generic specification is recommended to avoid conflicts when test streams specifying the same virtual terminal are run concurrently.

You can change the virtual terminal assignment by editing the test stream.

Leave this option blank if it doesn't matter which virtual terminal is used for logging. In this case, CA Verify ART for VTAM will use a virtual terminal specified at installation.

RULESET NAME

Displays the name of the ruleset selected. A name only appears if you have selected **Y** for Process With Rules and have selected a ruleset.

Initiate Logging on Your Terminal

When you have completed this menu, press Enter.

- If you typed **N** to Process With Rules, CA Verify ART for VTAM will display either the USS menu, or the menu from your routing application. The first output screen is not logged. Logging begins with whatever you type next (for example, the application you specify).
- If you typed **Y**, the next screen to display will be the Specify Ruleset Name panel.

See [Apply Rules to the Logging Session](#) (see page 56) for details.

Log Another Terminal

If you type **O** on the Log Options Menu or L.O on the Primary Options Menu, CA Verify ART for VTAM displays the Other Terminal Log menu.

```
----- OTHER TERMINAL LOG -----11:20:10
ENTER COMMAND ==> L2

LOG TEST STREAM AS:
  DDNAME      ==> TCADS
  APPLICATION  ==>
  MEMBER       ==>
  VERSION      ==> 001

DESCRIPTION ==>
             ==>
             ==>

TERMINAL TO BE LOGGED ==>
STOP OPTION           ==> DISC      (DISC, MAN, PF__, PA_,OR CLEAR)
PROCESS WITH RULES    ==> N        (Y/N)
TEST STREAM PROTECTION ==>         (R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY ==> N        (Y/N)
EXTEND TEST STREAM    ==> N        (Y/N)
VIRTUAL TERMINAL       ==>         (TO USE A SPECIFIC VIRTUAL TERMINAL)
INTERRUPT SESSION      ==> QUEUE    (NO, QUEUE, REQUEST, UNCOND, OR FORCE)
RULESET NAME:

F1-HELP      F3-END      F4-RETURN
```

This menu is identical to the Single Terminal Log menu except for two additional fields: Terminal to be Logged, and Interrupt Session. Also, the Stop option is interpreted differently and the Process With Rules field only applies certain rule actions.

TERMINAL TO BE LOGGED

The name of the terminal to be logged. If the terminal is in use by a user, logging will not begin until the user exits from CA Verify ART for VTAM.

STOP OPTION

How logging will be terminated. See the [Logging Your Terminals](#) (see page 42) section for an explanation of the options.

Remember that the Stop option you select applies to the terminal being logged, not to your terminal. For example, if you select PF12, the operator of the terminal being logged must press PF12 to terminate logging. If the operator at that terminal is unaware of the logging, select MAN as the Stop option. Then you can use the Inquiry function to terminate logging.

PROCESS WITH RULES

If Y is typed in this field and L.O is specified, application and user rule actions are applied, while terminal rule actions are ignored.

INTERRUPT SESSION

If the terminal to be logged is already in a session, this option determines the type of deactivation that should occur to terminate this session.

No

Do not interrupt the current session and do not queue a session for the terminal. Logging will not begin until the user at the terminal to be logged ends the current session and logs onto CA Verify ART for VTAM.

Queue

Do not interrupt the current session. Logging will begin when the current session ends. This is the default.

Request

Request that the application currently in session with the terminal terminate the session. The application may deny this request.

Uncond

Instruct the application currently in session with the terminal that it must terminate the session. CA Verify ART for VTAM waits for the application to formally terminate the session before beginning to log the terminal.

Force

Force termination of the session. Generally, this type of deactivation is not recommended; however, it may be advisable for terminals in sessions that do not terminate when the Request or Uncond parameters are in effect.

The default for this option is specified at installation. The five parameters represent five levels of interruption, with No as the lowest level and Force as the highest. Only a security administrator can specify a higher level of interruption on this menu than the installation default.

For example, if the installation default is Uncond, users (other than a security administrator) can change the parameter to No, Queue, or Request, but *not* to Force.

Initiate Logging on Another Terminal

When you have completed this menu, press Enter.

- If you typed **N** to Process With Rules, CA Verify ART for VTAM redisplay the Log Options Menu and informs you that logging has begun.
- If you typed **Y**, the next screen to display will be the Specify Ruleset Name panel.

See [Apply Rules to the Logging Session](#) (see page 56) for details.

Log Multiple Terminals

If you type **M** on the Log Options Menu or **L.M** on the Primary Options Menu, CA Verify ART for VTAM displays the Multiple Terminal Log menu.

```
----- MULTIPLE TERMINAL LOG -----11:20:43
"
ENTER COMMAND ==>                                     L3

LOG TEST STREAM AS:
  DDNAME      ==> TCADS
  APPLICATION  ==>
  MEMBER       ==>
  VERSION      ==> 001

DESCRIPTION ==>
              ==>
              ==>

PROCESS WITH RULES      ==> Y          (Y/N)
TEST STREAM PROTECTION  ==>          (R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY  ==> N          (Y/N)
INTERRUPT SESSIONS      ==> QUEUE     (NO, QUEUE, REQUEST, UNCOND, OR FORCE)

RULESET NAME:

F1-HELP      F3-END      F4-RETURN
```

This menu is similar to the Single Terminal Log and Other Terminal Log menus with these exceptions:

- There is no Stop option because you must terminate logging *manually* using the Inquiry function.
- There is no Extend Test Stream option because multiple terminal test streams cannot be extended. Use the Append utility to extend multiple test streams (see the "Utilities" chapter).
- The Process With Rules option is *automatically* set to **Y**. The terminals to be logged *must* be listed in a LOGGING ruleset. See [Apply Rules to the Logging Session](#) (see page 56) for instructions.
- **Note:** L.M applies all three rule actions: application, user, and terminal.
- There is no Virtual Terminal option. You can assign virtual terminals through the Terminal ID Logging rule option.

When you have completed this menu, press Enter to display the Specify Ruleset Name panel. See [Apply Rules to the Logging Session](#) (see page 56) for instructions on completing this panel.

Multiple Terminal Logging Considerations

When logging multiple terminals:

- The terminals to be logged **MUST** be listing in a LOGGING Ruleset. See [Add a Multiple Terminal Logging Rule Action](#) (see page 63).
- Bear in mind that at least 8 KB per terminal for the Run function and 2 KB to 8 KB for the Print and Browse functions are required. You can reduce the Run requirements to 100 bytes per terminal by using the Batch Run function or the online Run function with the Stop at Mismatches option set to N.
- CA Verify ART for VTAM tries to ensure that the same concurrences exist when test streams are run as when they were logged. However, timing considerations could possibly cause problems because CA Verify ART for VTAM runs test streams so much faster than when they were logged.

For example, suppose an operator at Terminal **A** adds an item to a file. Next, an operator at terminal B inquires on the same item. If the inquiry occurs *after* a confirmation message has been sent to Terminal A, CA Verify ART for VTAM guarantees the correct sequence during the Run function. However, if the inquiry occurs *before* the confirmation message has been sent, during the Run function the inquiry may actually occur *before* the item has been added.

CICS/ESA FEPI Considerations

CA Verify ART for VTAM can log and run *front-end* CICS/ESA FEPI applications that are terminal oriented. When you run a logged test stream for a front-end application, both the front-end and back-end applications are executed.

To test back-end FEPI applications independently of the front-end applications, you must use CA Verify ART for CICS. CA Verify ART for VTAM cannot log a FEPI back-end application because it does not recognize FEPI virtual terminals.

Log an Application

If you type **A** on the Log Options Menu or **L.A** on the Primary Options Menu, CA Verify ART for VTAM displays the Application Log menu.

```

----- APPLICATION LOG -----11:21:05

ENTER COMMAND ==> LP

LOG TEST STREAM AS:
  DDNAME      ==> TCADS
  APPLICATION  ==>
  MEMBER      ==>
  VERSION     ==> 001

DESCRIPTION ==>
             ==>
             ==>

REAL APPLID      ==> (APPLID USERS WILL LOGON TO)
VIRTUAL APPLID   ==> (APPLID USED BY THE APPLICATION)
PROCESS WITH RULES ==> N (Y/N)
TEST STREAM PROTECTION ==> (R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY ==> N (Y/N)

RULESET NAME:

F1-HELP      F3-END      F4-RETURN

```

Complete the DDname, Application, Member, Version, Description, Process with Rules, Test Stream Protection, and Log Input Screens Only fields as described in the Logging a Terminal section earlier in this chapter. Complete the other fields as follows:

REAL APPLID

Specify the applid to which users will log on. CA Verify ART for VTAM will communicate with users using this applid.

VIRTUAL APPLID

Specify the applid the application will be using. The virtual terminals will communicate with the application using this applid.

Note: See [How to Use the Log an Application Function](#) (see page 51) later in this section for instructions on specifying the Real and Virtual Applids. If you use Method 1 or Method 3, you will specify an alias applid in the Real Applid field, and the normal applid in the Virtual Applid field.

Initiate Logging

To initiate logging, press Enter.

- If you typed N to Process With Rules, CA Verify ART for VTAM redisplay the Log Options Menu and informs you that logging has begun.
- If you typed **Y**, the next screen to display will be the Specify Ruleset Name panel.

See [Apply Rules to the Logging Session](#) (see page 56) for details.

How to Use the Log an Application Function

Logging an application allows you to log *all* the terminals for a particular application without specifying most of the terminal names and without incurring the overhead associated with logging all the terminals in a network.

There are three ways to log an application. Use *one* of the following three methods.

Method 1: Log on to an Alias Applid

1. Access the Application Log menu and specify an alias applid as the Real Applid (for example, IMSTEST). Specify the application's normal applid as the Virtual Applid (for example, IMS). A sample Application Log menu follows.

```

----- APPLICATION LOG -----11:21:05
ENTER COMMAND ==> LP

LOG TEST STREAM AS:
  DDNAME      ==> TCADS
  APPLICATION  ==> IMSTEST
  MEMBER      ==> LA
  VERSION     ==> 001

DESCRIPTION ==> LOG USERS OF IMS
              ==> NOTE: HAVE USERS LOG ON TO APPLID IMSTEST
              ==>

REAL APPLID      ==> IMSTEST  (APPLID USERS WILL LOGON TO)
VIRTUAL APPLID   ==> IMS      (APPLID USED BY THE APPLICATION)
PROCESS WITH RULES ==> N      (Y/N)
TEST STREAM PROTECTION ==> (R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY ==> N  (Y/N)

RULESET NAME:

F1-HELP      F3-END      F4-RETURN

```

2. Begin logging and instruct users to log on to the alias applid (IMSTEST).

Method 2: Modify the Application's Applid

1. Bring down the application.
2. Modify its applid to an alias (for example, MSTEST).
3. Bring the application back up using the alias applid.
4. Access the Application Log menu. Specify the application's normal applid (for example, IMS) as the Real Applid and specify the alias applid (IMSTEST) as the Virtual Applid. A sample Application Log menu follows.

----- APPLICATION LOG -----		11:21:40
ENTER COMMAND ==>		LP
LOG TEST STREAM AS:		
DDNAME	==>	TCADS
APPLICATION	==>	IMSTEST
MEMBER	==>	LA
VERSION	==>	002
DESCRIPTION ==> LOG USERS OF IMS		
==> NOTE: MODIFY IMS TO USE APPLID IMSTEST. USERS WILL		
==> LOG ON TO APPLID IMS AS USUAL.		
REAL APPLID	==>	IMS (APPLID USERS WILL LOGON TO)
VIRTUAL APPLID	==>	IMSTEST (APPLID USED BY THE APPLICATION)
PROCESS WITH RULES	==>	N (Y/N)
TEST STREAM PROTECTION	==>	(R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY	==>	N (Y/N)
RULESET NAME:		
F1-HELP	F3-END	F4-RETURN

5. When users log on to the normal applid (IMS), logging will begin.

Method 3: Modify the USS Table or Routing Application

1. Modify your USS table or routing application to translate the application's normal applid to an alias (for example, IMS to IMSTEST).
2. Access the Application Log menu and specify the alias applid (for example, IMSTEST) as the Real Applid and the normal applid (for example, IMS) as the Virtual Applid. A sample Application Log menu follows.

```

----- APPLICATION LOG -----11:25:03"
ENTER COMMAND ==> LP

LOG TEST STREAM AS:
DDNAME ==> TCADS
APPLICATION ==> IMSTEST
MEMBER ==> LA
VERSION ==> 003

DESCRIPTION ==> LOG USERS OF IMS
==> NOTE: MODIFY USS TO TRANSLATE LOGONS TO APPLID IMS
==> INTO LOGONS TO APPLID IMSTEST.

REAL APPLID ==> IMSTEST (APPLID USERS WILL LOGON TO)
VIRTUAL APPLID ==> IMS (APPLID USED BY THE APPLICATION)
PROCESS WITH RULES ==> N (Y/N)
TEST STREAM PROTECTION ==> (R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY ==> N (Y/N)

RULESET NAME:

F1-HELP F3-END F4-RETURN

```

3. Initiate logging.
4. When users log on to the normal applid (IMS), the applid will be translated to the alias applid (IMSTEST) and logging will begin.

Log Printers or Acquired Devices

If you want to log printers or other acquired devices for any of the three examples illustrated in the following three screens, add the following steps:

1. Bring down the application.
2. Modify your application so that it acquires CA Verify ART for VTAM's virtual terminals instead of real devices.

3. Access the Application Log menu. Fill in the Real Applid and Virtual Applid fields as illustrated in the following three screens and press Enter.

```
----- APPLICATION LOG -----10:32:3
6
ENTER COMMAND ==> LP

LOG TEST STREAM AS:
DDNAME ==> TCADS
APPLICATION ==> IMSTEST
MEMBER ==> LA
VERSION ==> 001

DESCRIPTION ==> LOG USERS OF IMS
==> NOTE: HAVE USERS LOG ON TO APPLID IMSTEST. ALSO LOG
==> PRINTER PRT01 AND ACQUIRED TERMINALS TRM001 & TRM002

REAL APPLID ==> IMSTEST (APPLID USERS WILL LOGON TO)
VIRTUAL APPLID ==> IMS (APPLID USED BY THE APPLICATION)
PROCESS WITH RULES==> Y (Y/N)
TEST STREAM PROTECTION ==> (R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY ==> NO (Y/N)

RULESET NAME:

ENTER PRINTERS AND OTHER ACQUIRED TERMINALS: PF: 7-UP 8-DOWN
==> PRT01 ==> TRM001 ==> TRM002 ==>
==> ==> ==> ==>
==> ==> ==> ==>
==> ==> ==> ==>
ENTER THE ABOVE INFORMATION AND PRESS ENTER TO CONTINUE OR PF3 TO END
```

CA Verify ART for VTAM displays the Virtual Terminal Assignment menu.

4. Specify the virtual terminals that correspond to the real devices as per your application modifications in Step 2. A sample Virtual Terminal Assignment menu, which assigns virtual terminals to PRT01, TRM001, and TRM002, follows.

```

----- VIRTUAL TERMINAL ASSIGNMENT -----14:13:3
4
ENTER COMMAND ==>                                LV

LEAVE VIRTUAL TERMINAL ASSIGNMENTS BLANK TO USE INSTALLATION DEFAULTS
OR SPECIFY SPECIFIC VIRTUAL TERMINAL ASSIGNMENTS:

REAL      VIRTUAL      REAL      VIRTUAL      REAL      VIRTUAL
PRT01     ==> VTRM1     TRM001    ==> VTERM2     TRM002    ==> VTERM3
==>
==>
==>

PRESS ENTER TO CONTINUE OR PF3 TO MODIFY LIST
PF: 3-END 7-UP 8-DOWN

```

5. Press Enter to begin the log.
6. Bring the application back up. The application will acquire CA Verify ART for VTAM's virtual terminals and CA Verify ART for VTAM, in turn, will acquire the real devices.

Note: You can use the TCAXLATE macro, which is coded at installation time, to automatically pick the virtual terminals. However, verify that the macro is coded to pick the virtual terminals you have specified to your application.

Considerations When Logging an Application

If you are logging an application that will run under a different APPLID from the logged APPLID, review the considerations which follow. If the logged application runs under the same APPLID, the considerations do not apply.

Run an Application Log Test Stream with a Changed APPLID

You must use an automated signon (AUTSIGN) test stream, as described in the *Installation Guide*. This is necessary because the application log test stream does not begin until the user signs on to the application. Consequently, the connection sequence – for example, LOGON APPLID(applid) – is not logged. Therefore, you must create an application-based automated signon test stream (AUTSIGN=APPLICATION) to perform the connection when the test stream is run.

Be aware of possible mismatches and missing output the first time you run an application log test stream. Because the automated signon test stream has already connected to the application, welcome screens and signon menus will have been encountered already. Either accept the mismatches as permanent changes or use the TCAEXCLD macro to exclude such screens from logging.

Log with Multiple Sessions

Whenever possible, avoid multiple session test streams; i.e., test streams in which a terminal logs on more than once. Because the automated signon test stream connects all terminals to the application, subsequent connections are not made and mismatches will occur when the test stream is run.

If multiple sessions must be logged, edit the test stream in one of the following ways:

- Delete the terminal's logoff sequence, disconnection and connection records, and subsequent signon screens.
or
- Insert a connection sequence after the disconnection record to reconnect the terminal to the application. Also, insert any signon screens.

Apply Rules to the Logging Session

Before initiating a logging session, you can choose to apply a set of rules to this session. Logging rules allow you to specify a list of user IDs, terminals, or application IDs that are to be included or excluded from the test stream. Logging rules can be created in system, application, or test stream rulesets.

Important! You cannot add a new ruleset when you are setting up for the Log function. You must create the ruleset using the Maintain Rules selection from the Primary Options menu before performing the log session.

To apply a ruleset to the logging session, type Y in the Process With Rules field on the Terminal Log Screen, as explained in the section [Log One or More Terminals](#) (see page 41). When you complete the logging information on the screen and press Enter, you will be prompted to select or specify the name of the ruleset to apply to this session.

Note: There is a hierarchy in applying rulesets. During logging, system rulesets are applied first, application next, and test stream rulesets last. During a run, test stream rulesets are applied first, application next, and system rulesets last.

Specify a Ruleset to Apply

The first screen to appear when you press Enter on the Terminal Log screen is the Log: Specify Ruleset Name panel, shown next. Application and system rulesets do not need to be specified during a logging session; if they exist, they are automatically applied. You also cannot exclude application and system rulesets from a logging session.

```

----- LOG: SPECIFY RULESET NAME-----15:53:
10
ENTER COMMAND ==>

S-SELECT    B-BROWSE    E-EDIT

- TEST STREAM RULESET
  DDNAME     ==> TCADS
  APPLICATION ==>
  MEMBER     ==>
  VERSION    ==>
                                     (LEAVE APPLICATION, MEMBER,
                                     OR VERSION BLANK AND PRESS
                                     ENTER FOR A SELECTION LIST)

APPLICATION RULESET: TCADS.application.#RULESET.001
DESCRIPTION:

SYSTEM RULESET: TCADS.SYSTEM.#RULESET.001
DESCRIPTION:

F1-HELP      F3-END      F4-RETURN

```

Rulesets are identified by DDname, Application, Member, and Version information. If you know the name of the ruleset you want to apply, type the information in the Test Stream Ruleset fields. If you do not know the name of the ruleset, see the next section for instructions on selecting a ruleset from a list.

When you are finished, type **S** to the left of the ruleset name and press Enter. You will return to the Terminal Log panel and the information you specified will appear in the Ruleset Name field. To initiate logging, press Enter from this panel.

Edit the Ruleset

To view or modify your specified ruleset before selecting it to apply, type the information, type B to browse or E to edit to the left of the ruleset and press Enter. The Edit Rules—Summary screen will appear with the details of your selected ruleset. See the section [Add or Edit a Logging Rule](#) (see page 59) for information on how to edit a ruleset or add a rule from this screen.

Note: You cannot create a new ruleset while using the Log function; use the Rules function to create the new ruleset first.

Select a Ruleset From a List

If you do not know the exact name of the ruleset you want to apply, leave the ruleset information fields on the Specify Ruleset Name panel blank, type B to the left of the ruleset, and press Enter. The Browse: Ruleset Selection panel will appear, displaying a list of available rulesets. You can select a ruleset from the list and return to the Specify Ruleset Name panel.

----- BROWSE: RULESET SELECTION -----14:07:32									
ENTER COMMAND ==>									
FILE: TCADS									
S-SELECT									
			--CREATED----	BY----	--UPDATED----	BY----	RULES	ITEMS	
_	ITEST	TEST	001	04/22/1998	04/22/1998		1	1	
			TEST DATAGEN						
_	LOGRULES	SAMPLE	001	05/19/1998	06/19/1998		1	3	
			A BUNCH OF LOGGING RULES						
_	LOGRULES	SAMPLE	004	06/19/1998	06/19/1998		1	1	
			JUST TERM RULE ACTION						
s	LOGRULES	SAMPLE	005	06/19/1998	GRID001 07/07/1998		1	2	
			MULT TERM ALL ='S; COUPLE USERID'S						
_	SAMPLE	DADS	001	10/30/1997	11/04/1997		4	26	
			SAMPLE RULESET USING MODELLING						
			** KEEP THIS !! DO NOT DELETE !! **						
_	SAMPLE	DADS	999	05/19/1998	05/19/1998		3	5	
			SAMPLE OF DADS 3.4 TEST STREAM						
_	SYSTEM	#RULESET	001	04/14/1998	05/29/1998		1	1	
			SYSTEM RULESET						
_	SYSTEM	#RULESET	998	05/19/1998			1	1	

This panel lists all defined rulesets in alphabetical order by ruleset name. The information shown for each ruleset includes: member, version, date the ruleset was created and who created it, the date it was updated and who updated it, the number of rules the ruleset contains, and the number of rule actions. A description of the ruleset is displayed on the line(s) beneath the ruleset name.

To select a ruleset to be applied to this logging session, type **S** next to the ruleset you are selecting as shown in the previous example. Press Enter to return to your log screen (either single, other, or multiple terminal). Press Enter to begin logging.

Add or Edit a Logging Rule

To add or edit a logging rule, use the following steps:

1. Select a ruleset from the Ruleset Selection panel by typing **S** to the left of the ruleset name that you want to edit.
2. Press Enter. The Log: Specify Ruleset Name panel will redisplay with the name of the ruleset you selected placed in the TEST STREAM RULESET field.
3. Type **E** next to TEST STREAM RULESET and press Enter. The Edit Rules—Summary panel will appear as shown next.

```

----- EDIT RULES - SUMMARY -----
-11:34:22 ENTER COMMAND ==>

RULE NAME: LOGGING          RULESET NAME: TCADS.LOGRULES.SAMPLE.005
LINE 1 TO 5 OF 5          TEST STREAM NAME: TCADS.SAMPLE.TEST.555

S-EDIT I-INSERT D-DELETE R-REPLICATE P-PREVIEW
OBJECT  TYPE ROW COL LEN OP VALUE FROM THE MODEL SCREEN/DESCRIPTION
- RULESET T/S TCADS.LOGGING.RULESET.001
- RULE LOGGING <NO MODEL SCREEN>
- APPLID INCL A04IC9NA A04IC9NC
- TERM/V INCL A55TG001/
- USERID INCL GRID001 BUCBR01

F1-HELP F3-END F4-RETURN F7-UP F8-DOWN

```

The Edit Rules—Summary panel summarizes the rules contained in your selected ruleset. It includes the following information.

OBJECT

This column lists the rules within this ruleset and the rule actions within each rule. See the chapter "Rules Function", for a list of values that can appear in the OBJECT column.

TYPE

Indicates what type of ruleset or rule this is. See the chapter "Rules Function", for a list of values that can appear in this column.

The column values for ROW, COL, LEN, OP and VALUE are taken from the panel where that particular rule action was defined.

The actions you can take from this panel include:

- Adding a logging rule or logging rule action. Type I next to an existing rule and press Enter. The Add Rules—Rule Action panel appears.
- Editing the description of the ruleset. Type S to the left of the ruleset and press Enter. The Edit Rules—Ruleset Description panel will appear. See the chapter "Rules Function" for detailed instructions on how to edit a ruleset's description.
- Editing the rule. Type **S** to the left of the rule to be edited and press Enter. See the chapter "Rules Function", for detailed instructions on how to edit a rule.
- Editing a logging rule action. Type S to the left of the rule action and press Enter. An Edit Rule Action screen will appear where you can edit the information for the rule action you selected.

Each logging-specific action is discussed in one of the following sections.

Add a Logging Rule and a Logging Rule Action

To add a logging rule and a logging rule action, follow these steps.

1. Start at the Edit Rules—Summary panel.
2. Type I next to an existing rule and press Enter to display the Add Rules—Rule Action panel.
3. Enter LOGGING as the name of the rule. The name LOGGING is required; typing a description is optional.

Note: There can only be one rule named LOGGING in a ruleset.

```

-----ADD RULES - RULE ACTIONS-----
ENTER COMMAND ==>

RULE NAME: LOGGING          RULESET NAME: TCADS.CCC.ORDERAPP.001
                           TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

DESCRIPTION ==>
               ==>

      1 FIELD RECOGNITION      11 GENERATE FIELD VALUE
      2 SCREEN RECOGNITION    12 INSERT SCREENS
      3 VARIABLE FIELD        13 DELETE SCREENS
      4 DELETE FIELD          14 CUT SCREEN FIELD
      5 MOVE FIELD            15 PASTE SCREEN FIELD
      6 CHANGE FIELD VALUE    20 USERID LOGGING
      7 NEW FIELD              21 TERMINAL ID LOGGING
      8 CHANGE AID KEY        22 APPLICATION ID LOGGING
      9 CHANGE CURSOR LOCATION
     10 CHANGE WCC VALUES

F1-HELP      F2-PREVIEW    F3-END      F4-RETURN    F9-SELECT

```

4. Select the appropriate rule action: either 20 (Userid Logging), 21 (Terminal ID Logging), or 22 (Application ID Logging).

Use selections 20 and 22 to create logging rule actions to control the user IDs (USERID) or the application IDs (APPLID) that are to be included or excluded from the logging session. Use selection 21 to create a rule action that lists the terminal IDs (TERMID) to be included for a multiple terminal logging session.

Selections 20, 21, and 22 are the only rule actions that can be specified within the LOGGING rule. The LOGGING rule can contain one of each of these logging rule action types.

Each type of logging rule action and its associated screen are discussed in the following sections.

Add a User ID Logging Rule Action

To add a user ID logging rule, select option 20 from the Rules menu. This displays the Add Rule—Userid Logging screen, as shown next.

[illegible]

Indicate whether this is a list of user IDs to be included or excluded from the logging session. In the Include or Exclude List field, type an I for include or an E for exclude.

Note: Depending on the security settings, user IDs that are excluded from the logging session may still view the log.

Enter up to 120 specific or generic user IDs in the fields provided. The user ID must exactly match the one maintained in the security system (it is case sensitive and there must be no trailing underscore).

When you are finished, press Enter to add the information to the rule; press PF3 to return to the Edit Rules—Rules Summary panel.

Type up to 60 specific or generic terminal IDs with their optional virtual terminal assignment, to be included in the logging session in the fields provided. The terminal ID must exactly match the one maintained in the TCTIE (it is case sensitive). You can use = as a wildcard to replace any character. For example, if you instruct CA Verify ART for VTAM to log TRM==, CA Verify ART for VTAM will log all terminals beginning with the characters TRM followed by up to two characters; such as, TRM1, TRM01, TRM29, and so on.

Note: CA Verify ART for VTAM assumes the terminal name is its netname *unless* a field mark (X'1E') follows the name. In this case, CA Verify ART for VTAM assumes the name is the CICS terminal ID. The field mark key is labeled Field Mark or FM on most keyboards.

Specify the Virtual Terminal Assignment

For each real terminal you want to log, you can assign a specific or generic virtual terminal. These virtual terminals will also be used when the test stream is run.

Use = as a generic character to replace any character. For example, if you specify VTERM==, CA Verify ART for VTAM will use any virtual terminal beginning with the characters VTERM followed by up to two characters; for example, VTERM6, VTERM01, VTERM02, and so on.

Assigning a virtual terminal is important if the application you are logging has terminal name or other terminal characteristic dependencies. The virtual terminal specification will be saved with the test stream so that CA Verify ART for VTAM can use the *same assignment* when the test stream is run. A generic specification is recommended to avoid conflicts when test streams specifying the same virtual terminal are run concurrently.

You can change the virtual terminal assignment by editing the test stream.

Leave the virtual terminal field blank if it doesn't matter which virtual terminals are used for logging. In this case, CA Verify ART for VTAM will use virtual terminals specified at installation.

When you are finished, press Enter to add the information to the rule; press PF3 to return to the Rules Menu.

Enter up to 120 specific or generic application IDs in the fields provided. You can use = as a wildcard to replace any character.

When you are finished, press Enter to add the information to the rule; press PF3 to return to the Rules Menu.

Edit a Logging Rule Action

To edit a logging rule action in the LOGGING rule, follow these steps.

1. Start at the Edit Rules—Summary panel.
2. Tab to the rule action you want to edit.
3. Type S and press Enter to display the Edit Rule Actions screen for the logging rule action you have selected. For example, if you selected an APPLID rule action to edit, the Edit Rule Actions—an APPLID Logging screen will appear showing the current definition of this rule action.
4. Add, delete, or overwrite any of the current values following the same guidelines used to add this type of rule action.
5. Press Enter when you are finished to add the information to the rule. At this point, you can press PF3 to return to the Edit Rules—Summary panel to add or edit another rule in this ruleset or press PF3 to return to the Ruleset Selection panel.

Apply the Ruleset to the Logging Session

Once the name of the ruleset is entered in the Specify Ruleset Name panel, type **S** next to the test stream ruleset to select it for the current logging session as shown next.

```

-----SPECIFY RULESET NAME-----15:53:10
ENTER COMMAND ==>

B-BROWSE      E-EDIT
              S-SELECT

S TEST STREAM RULESET
DDNAME        ==> TCADS
APPLICATION    ==> A1          (LEAVE APPLICATION, MEMBER,
MEMBER         ==> A1          OR VERSION BLANK AND PRESS
VERSION        ==> 001
              ENTER FOR A SELECTION LIST)

APPLICATION RULESET: TCADS.application.#RULESET.001
DESCRIPTION:

SYSTEM RULESET: TCADS.SYSTEM.#RULESET.001
DESCRIPTION:

F1-HELP      F3-END      F4-RETURN
  
```

Then, press Enter to return to the Terminal Log panel where you can initiate the logging session.

Terminate the Log Function

CA Verify ART for VTAM stops capturing input and output screens as soon as you request log termination.

For single terminal and other terminal logging, the Stop option determines how logging is terminated. For example, if you specify a PF key, pressing that key will terminate logging.

Multiple terminal logging must be terminated manually using the Inquiry function. You can also terminate single and other terminal logging manually even if you have designated another Stop option.

To manually terminate logging, clear your screen, and type XTCA STOP or access the Primary Options Menu and select the Inquiry function. When you select Inquiry, CA Verify ART for VTAM displays a list of all functions, as illustrated next.

```

GENLEVEL=9809 ----- INQUIRY/TERMINATION -----12:34:58
ENTER COMMAND ==> I1

FUNCTION INVOKED AT USING RECORD
INQUIRY BY TERMINAL TIME TERMINAL NUMBER TEST STREAM NAME
- INQUIRY VERIFY A60L2048 12:34
- OPTION BUCBR01 A55TG001 11:56
- LOG BUCBR01 A55TG001 11:56 2 BRUCE.LMTEST.003
- LOG BUCBR01 A55TG001 11:55 2 BRUCE.LMTEST.002

DATA CAPTURE BUFFERS 00% FULL, NO SECONDARY BUFFERS ALLOCATED
RPLS USED (HIGH/MAX): VIRTUAL SEND: 0/50 REAL SEND: 0/50
REAL RECEIVE: 1/50 SESSION INIT: 0/9999

TYPE AN "S", "P", OR "D" NEXT TO YOUR LOG FUNCTION TO STOP IT
TYPE AN "I" NEXT TO A RUN FUNCTION TO INTERRUPT IT (AT ORIGINATING TERMINAL)
F1-HELP F3-END F4-RETURN F7-UP F8-DOWN

```

Type S, P, or D next to the log functions you want to terminate and press Enter.

S

Stops logging without disconnecting the terminal from the application.

P

Stops logging and passes the terminal to the application to which it is currently connected. This option disrupts the session and is primarily useful for non-prime time sessions or when users have been warned to expect the disruption.

D

Stops logging and disconnects the terminal from the application.

Note: If another log function is active, **P** or **D** is treated as **S**; that is, the log function is terminated but the terminal is not disconnected from the application. For a detailed explanation of this screen see the chapter "Inquiry Function".

When you request log termination, CA Verify ART for VTAM displays the Log Termination menu. If you are logging more than one test stream from the same terminal and you stop them by the same PF key or by typing XTCA STOP, the Log Termination screen will first display information for the most recently initiated test stream.

```

SAMPLE.TEST.001 ----- LOG TERMINATION -----11:48:32
ENTER COMMAND ==>                                     L5

DESCRIPTION: SAMPLE TEST OF A04IC9NA, CAROL'S COOKIES COMPANY

      LOG:      RUN:      EDIT:      TEST STREAM:      IN:  OUT:
INVOKED BY: DORI                                     TOTAL SCREENS:    9   11
INVOKED ON: 02/09/1999                             AVERAGE BYTES:   35  315
START TIME: 11:36:44
DURATION: 00:10:49  00:04:32
SYSTEM:  A04IC9NA
STATUS:  NORMAL
TERMINAL: A60L2049
VSAM CI'S: 2

AVERAGE THINK TIME: 00:00:41.906
AVERAGE RESPONSE TIME: 00:00:24.729
MAXIMUM SCREEN SIZE: 24 BY 80
PROTECTION STATUS:
ORIGINATING TEST STREAM:
                                OWNER: DORI
                                CREATED BY FUNCTION: LOG

F1-HELP      F3-END      F4-RETURN
  
```

DESCRIPTION

The test stream description entered when logging was initiated.

INVOKED BY

The ID of the user who initiated logging.

INVOKED ON

The date when logging began.

START TIME

The time when logging began.

DURATION

The time, in hours, minutes, and seconds, which elapsed during logging.

SYSTEM

The VTAM applid. For a test stream consisting of multiple sessions, MULTIPLE will be displayed.

STATUS

The log completion status:

Normal

Incomplete:

CA Verify ART for VTAM could not log some screens because the data capture buffer overflowed

Ext:nnn:

The data stream was extended; nnn indicates the number of records that existed before the extension.

TERMINAL

The name of the logged terminal. For multiple terminal test streams, this field indicates the number of terminals logged.

VSAM CI'S

The number of control intervals used to store the test stream.

AVERAGE THINK TIME

The average time that elapsed between an output screen and the next input from the terminal.

AVERAGE RESPONSE TIME

The average time that elapsed between terminal input and the next output screen.

MAXIMUM SCREEN SIZE

The maximum screen size used during logging.

PROTECTION STATUS

The Test Stream Protection option specified when logging was initiated.

ORIGINATING TEST STREAM

No information appears in this field for a test stream that was just logged.

OWNER

The ID of the user who owns this test stream.

CREATED BY FUNCTION

LOG always appears in this field for a test stream that has just been logged.

TOTAL SCREENS IN: OUT:

The number of input and output screens.

AVERAGE BYTES IN: OUT:

The average number of bytes in the input and output data streams.

Exit Log Termination

Use the End (PF3) or Return (PF4) command to exit from the Log Termination menu.

- End redisplay the Primary Options Menu, unless you entered Log Termination from the Inquiry function. In that case, CA Verify ART for VTAM redisplay the Inquiry menu.

Return redisplay the Primary Options Menu.

Chapter 5: Run Function

This chapter explains how to execute a test stream.

This section contains the following topics:

[Overview](#) (see page 73)

[How the Run Function Works](#) (see page 74)

[Invoke the Run Function](#) (see page 77)

[Select a Terminal](#) (see page 85)

[Review the Run Status](#) (see page 87)

[Terminate the Run](#) (see page 89)

[Specify Mismatch Options](#) (see page 90)

[Confirm the Mismatch](#) (see page 106)

[Display, Field, and Hex Screen Formats](#) (see page 107)

[View Connection and Disconnection Records](#) (see page 114)

[Wait for Missing Output](#) (see page 117)

[Complete the Run](#) (see page 119)

Overview

The Run function lets you re-execute an application with the same data that was captured during logging.

CA Verify ART for VTAM acts like a terminal operator, sending the stored input screens to the application, which responds with output. CA Verify ART for VTAM then compares this output with the output from the logged test stream and flags any differences.

Use the Run function to:

- Test changes in a program
 - If the run completes normally, you know that the program is still processing the input data correctly.
 - If CA Verify ART for VTAM interrupts the run because it detects differences between the logged screens and the current run screens, you can determine whether those differences are expected (because the program changed) or unexpected (because of an error).

Note: Most anticipated changes can be identified using the Rules function; see the chapter "Rules Function", for details.

- Test changes in hardware or system software; for example, a new disk drive or a new TSO release
- Stress test your system; for example, run a large multiple terminal test stream to see how response time is affected.

How the Run Function Works

Here's how CA Verify ART for VTAM runs a test stream:

- CA Verify ART for VTAM allocates virtual terminals for all the terminals you select. CA Verify ART for VTAM uses either the same virtual terminals used during logging, or virtual terminals from the same group of terminals as defined at installation.

If the applications being run in a test stream require UserID security, the virtual terminal needs to go through signon processing. See the "Security" chapter in the *Installation Guide* for details on using automated signon for virtual terminals.

- CA Verify ART for VTAM allocates an original display area, a modified display area, and a current display area for each selected terminal. These display areas represent the original terminal display as it appeared during logging, the original display areas as modified by any rules, and the current display as it would appear if the virtual terminal were real.
- CA Verify ART for VTAM then processes each screen in the test stream as follows:
 - For each input screen, CA Verify ART for VTAM enters the data and sends the data to the application. The input screen updates both the original and current display areas.
 - For each input screen that is affected by a rule, CA Verify ART for VTAM creates an expected screen showing the effect of the application of the rule.
 - For each output screen, CA Verify ART for VTAM updates the original display area and waits for the corresponding output from the application. When the virtual terminal receives the output, CA Verify ART for VTAM updates the current display area. CA Verify ART for VTAM then compares the two output display areas.

If CA Verify ART for VTAM detects a mismatch, it can:

- Interrupt the run. CA Verify ART for VTAM identifies the differences between the expected and current screens. You can then display all three screens (original, expected, and current), correct the differences, terminate, or continue the run.

Note: During a run, modeling can only be done on the record that has the mismatch.

- Continue the run. You can elect to save both the original and current screens so the mismatches can be viewed when you subsequently browse or print the test stream.

You determine how CA Verify ART for VTAM will execute the run. For example, you can specify:

- What to do with the output from the run—discard it or save it as a new test stream
- What type of comparison CA Verify ART for VTAM should perform—physical, logical, or screen
- What to do with anticipated changes by designing a ruleset to be used when this test stream is run
- Whether or not the operator should explain a mismatch
- The rate at which input is sent to the application, simulating operator think time

Restore Test Data

When you run a test stream, you must use the same test data that was used when you logged the test stream. For example, if the logged test stream adds a customer record, the run test stream must be able to add the same record. Sometimes this means you will have to restore your test data.

- If the application you are testing does *not* modify the test data, you can use the original data. For example, you should be able to retest an inquiry transaction using the same unrestored data.
- If the application you are testing *does* modify the test data, you can either:
 - Back up the data before testing so it can be restored
 - Construct the test stream so that all changes are reversed at the endFor example, delete any items added, add any items deleted, and reverse all updates.

Virtual Terminals

When CA Verify ART for VTAM runs a test stream, it allocates virtual terminals for each terminal in the test stream. If you assign a specific virtual terminal when you log the test stream, CA Verify ART for VTAM uses that virtual terminal when it runs the test stream; otherwise, it uses either the same virtual terminal or a terminal from the same group of terminals as defined at installation.

If an application has terminal name or other terminal characteristic dependencies, assign a virtual terminal on the Terminal Log menu or when you edit the test stream.

Using virtual terminals saves system resources and doesn't restrict testing to the number of physical terminals available.

Convert Variables to Rules

CA Verify ART for VTAM Release 1.2 provides three types of variables: global, auto, and local. These variables are stored with each test stream. Starting with release 1.4, these three types of variables have been incorporated into the Rules function. Variables, as well as all other types of field changes (like move field and change field value), can be defined using recognition and screen rules. See the "Rules Function" chapter for details on defining rulesets and the rules they contain.

Conversion Details

The first time a Release 1.2 test stream runs in a Release 1.4 environment, the test stream will be reviewed to see if it has existing global, auto, or local variables. If it does, these variables will be automatically converted to Release 1.4 rules that will be applied during the run. Variables are converted as follows:

- **Auto** variables translate into a rule with Field Recognition criteria
- **Local** variables translate into a rule with Screen Recognition criteria
- **Global** variables translate into a rule with no recognition criteria (neither Field or Screen)

The resulting Release 1.4 test stream will no longer contain any global, auto, or local variables, but will have a ruleset with the same name as the test stream associated with it.

In addition, if a Release 1.2 test stream is *copied* to a new test stream using the online utilities or a batch copy in a Release 1.4 environment, the global, auto, and local variables will be converted into a ruleset with a matching name—just as if the test stream had been run in a Release 1.4 environment. This is the recommended method if you have Release 1.2 test streams that will need to be manipulated using the Rules function.

Note: If a Release 1.2 test stream has run in a Release 1.4 environment, it can still run in a Release 1.2 environment; however, any test stream created in Release 1.4 *cannot* run in Release 1.2.

Invoke the Run Function

To run a test stream, type R on the Primary Options Menu and press Enter. CA Verify ART for VTAM displays the Run Options menu.

The default ddname, Application, and Version values appear; if necessary, these can be changed.

```

----- RUN OPTIONS -----12:54:57
ENTER COMMAND ==>

ENTER INPUT TEST STREAM NAME:
DDNAME      ==> TCADS
APPLICATION ==>
MEMBER      ==>
VERSION     ==> 001      (LEAVE APPLICATION, MEMBER,
                        OR VERSION BLANK AND PRESS
                        ENTER FOR A SELECTION LIST)

CREATE NEW OUTPUT TEST STREAM:
DDNAME      ==>          ("*" USES NEXT AVAILABLE VERSION)
APPLICATION ==>
MEMBER      ==>
VERSION     ==>

PROCESS WITH RULES      ==> Y      (Y/N OR S-SELECT)
COMPARISON TYPE        ==> S      (S-SCREEN, L-LOGICAL, P-PHYSICAL)
RECORD HISTORY         ==> Y      (Y/N)
  REQUIRE SIGNOFF DATA ==> N      (Y/N)
SIMULATED USER THINK TIME ==> NONE (NONE, NNN% OF ORIGINAL, NN SECONDS)
STATUS INTERVAL        ==> 005    (SECONDS)
CANCEL INTERVAL         ==> 001    (MINUTES)
STOP AT MISMATCHES     ==> Y      (Y/N)

F1-HELP      F3-END      F4-RETURN

```

Select a Test Stream

If you know which test stream you want to run:

1. Type the Application name, Member name and other identifiers, if necessary.
2. Indicate whether a ruleset is to be used when this test stream is run.
3. Specify the options on this menu.
4. Press Enter.
5. CA Verify ART for VTAM runs the test stream and displays the Run Status menu.

If you don't know which test stream you want to run:

1. Leave the Application and Member field blank.
2. Optionally, blank out other identifiers.
3. Press Enter.
4. CA Verify ART for VTAM displays the Test Stream Selection menu.

Select a Test Stream from the Test Stream Selection Menu

The Test Stream Selection menu lists all the test streams for the specified ddname.

Your position in the list depends on your specifications on the Run Options menu.

- If both the Application and Member fields are blank, CA Verify ART for VTAM positions you at the first test stream for the specified ddname.
- If you leave only the Member field blank, CA Verify ART for VTAM positions you just before the first test stream for the specified ddname and application.
- If you type a partial name, CA Verify ART for VTAM positions you accordingly. For example, if you specify PAY as the Member name and blank out the Version number, CA Verify ART for VTAM positions you just before the first test stream whose member name begins with 'PAY'.

A sample Test Stream Selection list is illustrated in the following screen.

```

----- RUN: TEST STREAM SELECTION -----14:00:10
ENTER COMMAND ==>
FILE: TCADS
MULTI-

LOG-DATE BY RECORDS RUN-DATE RESULT TERM
_ CLIST OPERATOR 001 01/02/1998 AJC 28 03/21/1998 LGC EQ
CENT INQUIRY OF ALL PROGRAMS AND FILES
s DEMO DEMOPROG 001 03/22/1998 NGN 8
CUSTOMER MAINTENANCE DEMO PROGRAM
_ PAYROLL DOCUMENT 001 02/01/1998 120
ALL PAYROLL SCREENS FOR USER TRAINING
_ PAYROLL INQUIRY 001 01/16/1998 RSM 154 01/16/1998 NOT EQ
TEST OF NEW INQUIRY MENU

_ PAYROLL UPDATE 002 01/28/1998 112
TEST OF NEW UPDATE SCREEN
_ QA TEST1 003 01/29/1998 NGN 1022 02/29/1998 NOT EQ
TEST1 IN CONVERSION FROM DOS TO MVS

_ QA TEST2 007 02/21/1998 724
TEST2 IN CONVERSION FROM DOS TO MVS

_ SYSTEMS MIGRATE 008 02/21/1998 SAB 2380 03/14/1998 LGC EQ M
MIGRATION TEST FOR CICS 1.7 TO 2.1

_ SYSTEMS STRESS1 018 03/22/1998 JSN 1502
STRESS TEST FOR CICS TEST REGION

_ SYSTEMS STRESS2 019 03/22/1998 1208

```

Type S to the left of the test stream you want to run and press Enter. The Run Options menu is redisplayed with the name of the test stream you selected.

The Test Stream Selection menu provides the following information for each test stream:

- Its name: Application, Member, and Version
- The date on which it was logged
- The ID of the operator who initiated the log
- The number of records in the test stream

- The result of the last run:

LGC EQ

There was a mismatch during the run, but you did not stop at it because your variables or rules resolved it automatically

PHY EQ

The test streams are byte-for-byte physically equal

NOT EQ

There was a mismatch during the run, which you stopped at

- The description of the test stream specified when it was logged
- **M** to indicate a multiple terminal test stream.

Create new output test stream

This option controls the disposition of the run output. The following chart illustrates how these options should be specified.

Create New Output	Disposition of Run Output
Blank	Run output test stream and the output ruleset is discarded.
Specified	Run output creates new output test stream and new output ruleset (if rulesets are being used); input test stream and ruleset remain unchanged.

The default is blank (to discard the output test stream and output ruleset). To use this option you must also set the Record History option to N (because History is stored in the output test stream).

To create a new output test stream, specify the entire name or let CA Verify ART for VTAM generate it as follows:

- Type an asterisk (*) as the first character of the ddname to generate the same test stream name with the version incremented by one.
- Type an equal sign (=) for any part of the name — for example, ddname, Application, Member, or Version — to instruct CA Verify ART for VTAM to use that part of the name from the input test stream. For example, if you specify = for Member, CA Verify ART for VTAM will use the input Member name for the new output Member name.

Press Enter after specifying the new output name. CA Verify ART for VTAM generates the name and redisplay the Run Options menu with the new name.

- When an input test stream contains only input screens and an output test stream is created, the output test stream will contain both input and output screens.
- When a new output test stream is created, a new output ruleset is also created (if rulesets are being used). This ruleset will match the output test stream and will contain just the recognition criteria and the variables from the input ruleset.

Specify Run Options

Most of the options on the Run Options menu shown in the previous screen contain default values selected during installation. Change these options to meet your testing needs.

PROCESS WITH RULES

Rulesets can be defined and associated with test streams to eliminate unnecessary RUN MISMATCHES of expected differences. See the chapter "Rules Function" for details on how to create and maintain rulesets and rules.

Y

Runs the test stream with the matching test stream ruleset and/or system ruleset and/or application ruleset. This is the default.

Note: The test stream ruleset must have the same name as the test stream.

N

Runs the test stream without applying any rulesets.

S

Displays the Ruleset Run Selection panel prior to initiating the run, where you can review and select the rulesets associated with the selected input test stream. See the section [Select Rulesets for a Run](#) (see page 84) for more information.

COMPARISON TYPE

Identifies the type of comparison CA Verify ART for VTAM will perform:

S (Screen)

A row-by-row comparison of the final screen image as presented to the user, regardless of the number of I/Os. This is the recommended comparison type for most situations.

Use S, the default, to run test streams associated with rules. This type of comparison is similar to a logical comparison which compares corresponding rows of the two screens to see if they're the same. However, the comparison base includes all output screens between two input screens.

L (Logical)

A row-by-row comparison of the screen image for each I/O.

A logical comparison compares the corresponding rows on the two screens to see if they're the same. This type of comparison allows variation in the bytes being transmitted as long as the *end result* is the same.

P (Physical)

A byte-for-byte comparison of the data stream.

Use physical to compare the data streams to determine if identical screen images were produced in the same way, for non-3270 terminals, or for test streams that use graphics. In a physical comparison, 80-byte segments of the data streams are compared.

RECORD HISTORY

Determines the contents of the output test stream after the run.

Y

The output test stream will contain the screens that will be used the next time it is run or edited, as well as historical information. Record History can include: original screens, expected screens, rules, differences, and signoff data. If you specify Y, you must create a new output test stream.

N

The output test stream will contain only the screens that will be used the next time it is run or edited.

REQUIRE SIGNOFF DATA

Y

Requires the operator to explain each mismatch when CA Verify ART for VTAM compares the original, expected, and current screens. For example, you may want to require an explanation during a final Quality Assurance run. This option is not valid if Record History is N (no).

N

No explanation of mismatches is required. This is the default.

Note: Only functional if Stop At Mismatches = Y

SIMULATED USER THINK TIME

Controls the rate at which CA Verify ART for VTAM sends input screens to the application, simulating the user's think time.

None

Specifies the minimum think time. CA Verify ART for VTAM will not wait before sending screens to the application. This is the default.

nnn%

Specifies the think time as a percentage of the original user think time. For example, 50% specifies half the original think time, 100% specifies the same think time, and 200% specifies twice the original think time. 200 is the maximum percentage that can be specified.

Nn

Specifies the think time in seconds. CA Verify ART for VTAM will wait the same number of seconds before sending each input screen. 20 seconds is the maximum specification allowed.

STATUS INTERVAL

Determines the number of seconds between updates in the Run Status menu. While the test stream is running, CA Verify ART for VTAM periodically updates this menu to indicate the number of records processed and the estimated remaining run time. The default is five seconds.

CANCEL INTERVAL

Determines the number of minutes between opportunities to cancel the run. During a long test stream run, CA Verify ART for VTAM periodically pauses, issues a terminal read, and displays a message on the Run Status menu which allows you to cancel the run. Run processing is suspended while you react to this message. The default is one minute.

You can also use the Inquiry function to interrupt a run which will not issue a terminal read for several minutes. See the chapter "Inquiry Function" for details.

STOP AT MISMATCHES**Y**

When Y is selected the run will stop if any mismatches are encountered. The default is Y.

N

When N is selected the run will not stop at mismatches.

Select Rulesets for a Run

If you specify the run option for Process With Rules as S (SELECT), after you press Enter CA Verify ART for VTAM displays the Ruleset Run Selection panel, as shown next. Use this panel to review or choose which rulesets to use for this run.

```
-----RULESET RUN SELECTION-----08:20:58
ENTER COMMAND ==>

USE

Y TEST STREAM RULESET: TCADS.CCCORDER.REL63.001
  DESCRIPTION: CAROL'S COOKIES COMPANY
               CONVERSION FROM REL 6.3 TO 7.0

N APPLICATION RULESET: NOT USED
  DESCRIPTION:

Y SYSTEM RULESET:      TCADS.SYSTEM.#RULESET.001
  DESCRIPTION: GLOBAL RULES FOR ALL SCREENS

F1-HELP  F3-END  F4-RETURN
```

TEST STREAM RULESET

Contains the name of the test stream ruleset associated with this test stream. Type Y to the left of the heading if this ruleset is to be used during this run; type N if it is not to be used.

APPLICATION RULESET

Contains the name of the application ruleset associated with this test stream. An application ruleset contains rules that apply to every test stream on the TCADS file that has the same Application name. Type Y to the left of the heading if this ruleset is to be used during this run; type N if it is not to be used.

Note: If there is no application ruleset, then NOT USED appears in this field.

SYSTEM RULESET

Contains the name of the system ruleset associated with this TCADS. A system ruleset contains rules that apply to every test stream on a specific TCADS file. Type Y to the left of the heading if this ruleset is to be used during this run; type N if it is not to be used.

Note: If there is no system ruleset, then NOT USED appears in this field.

Note: Rules will be applied in the order they are specified in the ruleset you select. If you select multiple rulesets, rules in the test stream ruleset will be applied first; rules in the application ruleset will be applied second; rules in the system ruleset will be applied last.

To initiate the Run with the Specified Rulesets named on this panel, press Enter. Continue with the instructions in the next section, [Initiate the Run](#) (see page 85).

To exit back to the Run Options menu without processing the changes, press PF3 (End).

Initiate the Run

When you have finished specifying the run options, press Enter.

- If you are running a single terminal test stream, CA Verify ART for VTAM initiates the run.
- If you are running a multiple terminal test stream, CA Verify ART for VTAM displays the Terminal Selection menu.

Select a Terminal

CA Verify ART for VTAM displays the Terminal Selection menu before you run a multiple terminal test stream.

```

SAMPLE.MULTTERM.001 ----- RUN: TERMINAL SELECTION -----14:14:22
ENTER COMMAND ==> RT

SELECT: "S"      ORIGINAL  TERMINAL  SCREEN  ALTERNATE  VIRTUAL
INQUIRY: "I"     TERMINAL  TYPE      SIZE     SIZE       TERMINAL

      -      A60L2048  3277 REMOTE  24 BY 80  24 BY 80
      -      A60L2049  3277 REMOTE  24 BY 80  24 BY 80
      -      A60L205A  3277 REMOTE  24 BY 80  24 BY 80
      -      A60L205B  3277 REMOTE  24 BY 80  24 BY 80
      *** END OF TERMINALS ***

TYPE AN "S" TO SELECT TERMINAL FOR RUN      TYPE AN "I" TO VIEW TERMINAL STATUS
F1-HELP      F3-CONTINUE  F4-RETURN      F7-UP      F8-DOWN

```

For each terminal in the test stream, CA Verify ART for VTAM identifies its name, type, screen size, alternate size, and, if specified, the virtual terminal assignment.

You can run one, all, or a combination of terminals. You must select at least one terminal.

- Type S to the left of each terminal you want included in the run and specify Continue (PF3) to initiate the run.
- Type I and press Enter to view the Initial Terminal Status menu for a terminal. See the screen in the "Browse Function" chapter for an explanation of this menu.

When you have finished viewing the Initial Terminal Status menu, use (PF3) to redisplay the Terminal Selection menu. Press PF3, Continue, to initiate the run.

Use the following CA Verify ART for VTAM commands:

Assign

Inserts S to the left of each terminal

Reset

Restores the initial menu setting with an underscore to the left of each terminal

Cancel

Redisplays the Test Stream Selection list or Run Options menu

Up (PF7) Down (PF8)

Scrolls through the terminal list

Review the Run Status

During the run, CA Verify ART for VTAM displays the Run Status panel at the terminal where the Run function was initiated. CA Verify ART for VTAM updates this panel at the status interval specified on the Run Options menu.

```
----- RUN STATUS -----11:50:16
                                     R3

INPUT TEST STREAM:      TCADS.SAMPLE.TEST.001
OUTPUT TEST STREAM:     TCADS.SAMPLE.TEST.002

RULESET(S) :
  TESTSTREAM: TCADS.SAMPLE.TEST.001
  APPLICATION: NOT USED
  SYSTEM:     NOT USED

CURRENTLY PROCESSING RECORD:      5
TOTAL RECORDS TO BE PROCESSED:   21
ESTIMATED REMAINING RUN TIME: 00:02:19

STATUS INTERVAL:  5 SECONDS
CANCEL INTERVAL:  1 MINUTE

DESCRIPTION: SAMPLE TEST OF A04IC9NA, CAROL'S COOLIES COMPANY
IN PROGRESS FOR A04IU001: REQSESS

F1-HELP      F3-END      ENTER-CONTINUE
```

This menu provides the following information:

INPUT TEST STREAM	Identifies the ddname, application, member, and version of the logged test stream, separated by periods.
OUTPUT TEST STREAM	Identifies the ddname, application, member, and version of the output test stream, separated by periods. None will appear if you did not specify a new name for the output test stream.
RULESET(S):	Identifies the rulesets CA Verify ART for VTAM will apply to the input test stream during the current run processing TESTSTREAM: Applies changes only to this test stream APPLICATION: Applies changes to every test stream on the TCADS file that contains the same application name SYSTEM: Applies changes to every test stream on a specific TCADS file.
CURRENTLY	Identifies the record CA Verify ART for VTAM is

PROCESSING RECORD	currently processing.
TOTAL RECORDS TO BE PROCESSED	Identifies the total number of records in the test stream.
ESTIMATED REMAINING RUN TIME	Estimates the amount of time required to complete the run, based on the total response time of the remaining records. Remember, this is only an estimate and may be inaccurate for many reasons; for example, for a multiple terminal test stream in which some terminals have been excluded.
STATUS INTERVAL	Indicates the number of seconds between updates of this menu.
CANCEL INTERVAL	Indicates the number of minutes between opportunities to cancel the run. When the cancel interval expires, a message at the bottom of the menu indicates that you can cancel or continue the run. Run processing is suspended while you react to this message.
DESCRIPTION	The description of the test stream specified when it was logged.

IN PROGRESS FOR terminal

When an application pauses in its communication with CA Verify ART for VTAM, an IN PROGRESS FOR terminal message is added to the Run Status menu, where terminal is the virtual terminal name. It is generally normal for CA Verify ART for VTAM to display the message once or twice and then continue the run. If the message persists, then the application should be checked for conditions such as starting up or shutting down, being swapped out, or being held in a wait state for some other reason.

To continue the run, press Enter; to cancel the run, press any PF key or type End.

Note: The command line appears on the menu only when CA Verify ART for VTAM displays the message allowing you to cancel the run.

Terminate the Run

If you cancel the run from the Run Status panel, CA Verify ART for VTAM displays the Run Termination menu. You can also access this menu by using the End (PF3) command from the Run Mismatch Options menu, and the End (PF3) command from the Missing Output menus, discussed later in this chapter.

```
----- RUN TERMINATION -----11:35:49
ENTER COMMAND ==>                                     RX

      1  END RUN, SAVE OUTPUT TEST STREAM

      2  CANCEL RUN, DO NOT SAVE OUTPUT TEST STREAM

INPUT TEST STREAM:
  CCCORDER.REL63.001

OUTPUT TEST STREAM:
  NONE

RULESET(S) IN USE:
  TESTSTREAM:  TCADS.CCCORDER.REL63.001
  APPLICATION: NOT USED

  SYSTEM:      NOT USED

CURRENTLY PROCESSING RECORD: 4

F1-HELP      F3-END
```

- Type 1 and press Enter to end the run and save the output test stream and ruleset.
- Type 2 and press Enter to cancel the run *without* saving the output test stream.
- Use the End (PF3) command to continue the run or return to the previous menu.

Specify Mismatch Options

When CA Verify ART for VTAM detects a mismatch during a logical, physical , or screen comparison, it stops the run and displays the Run Mismatch Options menu. The mismatch can be any of the following:

- I/O difference; for example, a write instead of a read
- Type of operation; for example, an erase/write instead of an erase/write alternate
- Cursor location
- A byte of data or an attribute
- Write control character
- Screen size

```

----- RUN MISMATCH OPTIONS -----16:08:57
ENTER COMMAND ==>                                     R6

1 1 DISPLAY RULESET SUMMARY                6 ACCEPT ORIGINAL OUTPUT
2 DISPLAY PREVIOUS INPUT                  7 ACCEPT CURRENT OUTPUT
3 DISPLAY NEXT INPUT                      8 CHANGE NEXT INPUT
4 SKIP ORIGINAL OUTPUT                    9 INSERT CURRENT OUTPUT AND INPUT

5 SKIP ORIGINAL OUTPUT AND INPUT          10 INSERT CURRENT OUTPUT

2
INPUT: CCCORDER.REL63.001                CURRENT RECORD: 4
OUTPUT: NONE

3
RULESET: TESTSTREAM: TCADS.CCCORDER.REL63.001
APPLICATION: NOT USED
SYSTEM: NOT USED

4      TYPE      OPERATION      WCC  CURSOR  SIZE  LENGTH  TERMINAL
EXPECTED: OUTPUT  ERASE/WRITE    C3   9  2  24*80    602    NN01
CURRENT:  OUTPUT  ERASE/WRITE    C3   9  2  24*80    602    VTERM001
ONLY UNEQUAL ROW: 02

                                .ORDER STATUS          .DATE.07/22/97
                                .ORDER STATUS          .DATE.09/11/1997
                                                XXXXXXXXXXXXXXXX

F1-HELP  F2-ROTATE  F3-END  F7-UP  F8-DOWN

```

This menu consists of four sections:

1. Lists the available options.
2. Describes the run.
3. Contains the rulesets used for this run.
4. Identifies the differences between the original/expected, and current screens that generated the mismatch.

Mismatch Options

To specify an option, type its number (or the corresponding command) and press Enter, or press the appropriate PF key. The options consist of the following groups:

option 1:	Displays the rules summary menu for viewing or updating the rules being applied to the input test stream.
options 2-3:	Displays the previous or next input
options 4-5:	Skips the original output screen, or the next output/input screen pair
options 6-7:	Ignore or accept the change; if you accept the change, the output test stream is updated for use in the next edit or run
option 8:	Displays the screen for you to update
options 9-10:	Adds a new output/input screen pair, or a new output screen

When you use options 2-3 to display screens, you can use the Format (PF9) command to view the screens in Display, Field, and Hex formats. See the [Display, Field, and Hex Screen Formats](#) (see page 107) section for a discussion of screen formats.

To scroll forward through a test stream, use the Next (PF6) command to display the next screen. However, you cannot scroll backward. If you need to see earlier screens, suspend the Run function and use the Browse function to inspect them.

The mismatch options are described next.

1 DISPLAY RULESET SUMMARY

Instructs CA Verify ART for VTAM to display a summary of the rulesets applied during the run. This option allows you to define a new rule or update an existing rule and save your updates to the current ruleset.

If you modify the existing ruleset and specify End (PF3), CA Verify ART for VTAM will repeat the comparison, taking into account your rule specification. If CA Verify ART for VTAM no longer detects a mismatch, it will continue the run; otherwise, it will redisplay the Run Mismatch Options menu. For example, if the run was interrupted because of a discrepancy between the dates on the original and current screens and you identify the date field as a variable field, CA Verify ART for VTAM will continue the run.

See the chapter "Rules Function" for instructions on how to define a ruleset and the rules it contains; see the section [Adjust Rules During a Run](#) (see page 99) for instructions on how to change or add rules to a ruleset during a run.

2 DISPLAY PREVIOUS INPUT

Instructs CA Verify ART for VTAM to display the last screen sent to the application. Specify End (PF3) to return to the Run Mismatch Options menu.

3 DISPLAY NEXT INPUT

Instructs CA Verify ART for VTAM to display the next screen to be sent to the application. Specify Next (PF6) to display subsequent screens in the input test stream; specify End (PF3) to return to the Run Mismatch Options menu.

4 SKIP ORIGINAL OUTPUT

Use this option when the input test stream has two consecutive output screens but one has been deleted by the application. This option deletes the first output screen so it will not be used the next time the output test stream is run, browsed, or edited. CA Verify ART for VTAM then repeats the comparison, using the next screen in the original test stream and the current screen. If there is no mismatch, the run continues; otherwise, CA Verify ART for VTAM redisplay the Run Mismatch Options menu.

In the previous example, if record 4 was in the test stream but had been eliminated from the application, you would use option 4 to delete it.

5 SKIP ORIGINAL OUTPUT AND INPUT

Use this option when an output and input screen have been deleted from the application. This option deletes the output screen and any input screens up to the next output screen so they will not be used the next time the output test stream is run, browsed, or edited. CA Verify ART for VTAM then repeats the comparison, using the next output screen in the input test stream and the current screen. If there is no mismatch, the run continues; otherwise, CA Verify ART for VTAM redisplay the Run Mismatch Options menu.

In the previous example, if records 2 and 3 were in the test stream but had been eliminated from the application, you would use option 5 to delete them.

6 ACCEPT ORIGINAL OUTPUT

Instructs CA Verify ART for VTAM to retain the original screen in the output test stream and continue the run. Use this option when the output screen generated by the application reflects an error and the original screen is correct.

7 ACCEPT CURRENT OUTPUT

Instructs CA Verify ART for VTAM to replace the original screen with the current screen in the output test stream and continue the run. Use this option when the application has changed and the original screen is no longer correct.

8 CHANGE NEXT INPUT

Select this option when you want to change the next *input* screen required by the application. This may be necessary when the current output screen changes the location or contents of a field which would be part of the next input screen, or when an input field has been added to the screen. Option 8 ensures that the application receives the data it expects.

For example, suppose your next input screen should select menu item C. However, your application has been updated and what was formerly item C is now item D. Option 8 lets you replace the original input screen with an updated input screen which specifies item D.

When you select option 8, CA Verify ART for VTAM displays the current screen. Type the necessary data and press the appropriate key (attention identifier) required by the application (like Enter or PF1). Whatever key you use will be interpreted according to the application specifications. CA Verify ART for VTAM sends the input to the application and will use this data the next time you run or edit the output test stream.

When you choose option 8, CA Verify ART for VTAM accepts the mismatch on the current screen and continues the run.

Note: Before specifying option 8, you may need to select option 3 to display the next input screen so you know what input the application expects. Use the Format (PF9) command to display the screen in Field format, which shows only the input fields and identifies the AID (attention identifier key). Then return to the Run Mismatch Options menu, select option 8, and type the required input data.

See the section [Use Options 8 and 9 With Non-3270 Devices](#) (see page 94) for additional information.

9 INSERT CURRENT OUTPUT AND INPUT

Use this option to insert an output screen and an input screen. CA Verify ART for VTAM displays the current output screen. Type the input data and press the appropriate key as required by the application. CA Verify ART for VTAM will insert the new screen into the test stream and send it to the application. CA Verify ART for VTAM also holds the original screen because CA Verify ART for VTAM assumes it will match the next output screen from the application.

In the previous example, if records 2 and 3 were not in the test stream but had been added to the application, you would use option 9 to insert them.

See the section [Use Options 8 and 9 With Non-3270 Devices](#) (see page 94) for additional information.

10 INSERT CURRENT OUTPUT

Use this option to insert the current screen into the output test stream. CA Verify ART for VTAM then repeats the comparison, using the next screen from the application. You can choose this option only if the application has already sent a second output screen.

In the previous example, if record 4 was not in the test stream but had been added to the application, you would use this option to add it.

Note: When new or deleted screens are anticipated, use the Rules function to identify the screens to be added or removed. The Rules function is discussed in the chapter "Rules Function".

Use Options 8 and 9 With Non-3270 Devices

Options 8 and 9 work differently with non-3270 devices:

- CA Verify ART for VTAM does not display the current screen, so you should use PF2 to rotate to the current screen to examine it *before* invoking option 8 or 9.
- Non-3270 data streams often contain hexadecimal control information that varies, depending on the devices and controller programs used. You must type this information with the character data. CA Verify ART for VTAM will expect:

X'hex data',C'character data',X'hex data' . . .

CA Verify ART for VTAM will reject data that does not conform to this format and ask for the input again. To determine the format of non-3270 data at your installation, you can request a batch print of a data stream using the Hex option or you can browse it in hex format.

Description of the Run

The information next to the options on the Run Mismatch Options menu describes the run.

INPUT

Identifies the input test stream being run.

OUTPUT

Identifies the output test stream being created; NONE if you are not saving the output from the run.

CURRENT RECORD

Identifies the record number of the screen in the input test stream.

Description of the Rulesets

The information next to the run description on the Run Mismatch Options menu identifies the ruleset(s) being used when this test stream is run.

TESTSTREAM

The name of the test stream ruleset, if one is used.

APPLICATION

The name of the application ruleset, if one is used.

SYSTEM

The name of the system ruleset, if one is used.

Important! To invoke a System ruleset during a log or a run, Rulesys=Yes must be set in the TCAOPTS macro option. To invoke an Application ruleset during a log or run, Ruleapp=Yes must be set in the TCAOPTS Macro Options. For more information see the *Installation Guide*.

Description of the Screens

The information next to the Ruleset on the Run Mismatch Options menu describes the original, expected, and current screens where the mismatch occurs.

Type

Input or output. Usually, both will be output screens.

Operation type of 3270 operation; for example, write, erase/write. A logical or screen comparison does not compare the operation because any difference will be detected during the row comparison.

WCC

Two-character hex representation of the write control character. If the two WCCs differ, their meanings are listed beneath the First Unequal Row information.

Cursor

Location of the cursor by row and column. Cursor location is included in logical and screen comparisons; in a physical comparison the difference will be detected in the data stream comparison.

Size

Screen size used when the screen was received from the application. Both logical and physical comparisons compare screen size. If screens of different sizes are used, the logical comparison pads the rows and columns of the smaller screen with nulls.

Length

number of bytes in the data stream. A physical comparison compares data length.

Terminal

name of the terminal that received the screen from the application. CA Verify ART for VTAM does not compare the terminal, but this information is provided when you run a multiple terminal test stream so that you know which terminal the screens are for.

Unequal Row Information

The unequal row information at the bottom of the Run Mismatch Options menu describes the first or only mismatch between the original/expected and current screens.

- During a *logical* or *screen* comparison, CA Verify ART for VTAM compares the rows. When it detects a mismatch, it displays unequal row information.
- During a *physical* comparison, CA Verify ART for VTAM compares the two data streams without formatting them, and consequently compares 80-byte segments rather than rows. When CA Verify ART for VTAM detects a mismatch, it displays unequal segment information. If the two data streams are unequal in length, CA Verify ART for VTAM pads the shorter stream with underscores.

CA Verify ART for VTAM displays the unequal data when it detects a mismatch in the data or attributes. When it detects a different type of mismatch — for example, differences in the operation or write control character — it displays a message explaining the mismatch.

FIRST/ONLY UNEQUAL ROW (SEGMENT)

Identifies the row in which the first mismatch was detected. For a physical comparison, this is the offset of the first unequal segment, relative to zero.

UNEQUAL ROWS (SEGMENTS)

Identifies how many rows or segments are unequal.

OFFSET

For a physical comparison only, identifies the offset of the 80-byte segment displayed, relative to zero.

Data in Unequal Rows (Segments)

Beneath the *First/Only Unequal Row* information, CA Verify ART for VTAM displays three lines:

line 1

Row or segment from the original or the expected original screen

line 2

Row or segment from the current screen

line 3

Differences between the rows or segments, specified as follows:

blank

The two rows or segments contain the same characters

X

The two rows or segments contain different characters

-

Variable field; not compared

Note: In the original/expected and current rows, CA Verify ART for VTAM substitutes a blank for nulls and a period for unprintable characters (usually attributes). An X beneath two periods means the attributes are different; display the screens using Field format to view the attributes. An X beneath two blanks means one is a null and the other is a blank.

If the screens have more than one set of unequal rows, use the Down (PF8) and Up (PF7) commands to scroll through all the additional unequal rows. If the width of the test stream screen exceeds the width of the terminal you are using, use the Left (PF10) and Right (PF11) commands to display the entire screen.

When you page down through the sets of unequal rows, the menu you are viewing is titled *All Unequal Rows*. This menu has a column ruler to help you determine the location of the mismatch. You can type all mismatch options on this menu. Use the Rotate (PF2) command to rotate between the original, expected, and current screens and the All Unequal Rows menu.

If the following mismatches are found, CA Verify ART for VTAM displays this information after the last unequal screen row:

WCC

Explains the difference between the WCC's; for example:

Expected: NL/EM/CR Print Cntl, Alarm

Current: NL/EM/CR Print Cntl, Resetmdt

The Write Control Character has changed

Screen Size

Explains the difference in screen size; for example:

Expected: 24 * 80

Current: 27 * 132

The screen size in use has changed

Cursor

Explains the difference in cursor position; for example:

Expected: Row: 3 Column: 8

Current: Row: 1 Column: 1

The cursor location has changed

Operation

Explains the difference in operation; for example:

Expected: Erase/Write

Current: Erase/Write Alternate

The operation has changed

Type of Screen

If CA Verify ART for VTAM detects a difference in the type of screen (for example, the original screen is an input screen, the current screen is an output screen), it displays the following message:

The application has issued a write when a read was expected. Either the write has been added or a read has been eliminated. Select option 6, 8, or 10.

This is an I/O mismatch, caused by a change in the application or the deletion of an output screen during editing. Only the options identified in the message can be used. Select option:

- **6** if you don't expect the write to be issued again
- **8** to accept the current output screen and change the input screen which follows this output screen
- **10** to accept the new output screen and continue

Note: When new or deleted screens are anticipated, use the Rules function to identify the screens to be added or removed. The Rules function is discussed in Chapter 8.

Sign off on the Mismatch

If you specified **Y** for both the Record History and Require Signoff Data options on the Run Options menu, CA Verify ART for VTAM provides three lines beneath each mismatch in which you can explain the difference. Press PF8 from a mismatch display to view the unequal rows.

The following example illustrates how you would specify mismatch signoff information.

```

CCC.ORDERAPP.001 ----- RUN: ALL UNEQUAL ROWS -----11:18:23
ENTER COMMAND ==>                                     RL

                                RECORD:    2
                                70        80
ROW: 1-----+-----+-----+-----+-----+-----+
.DATE.02/06/1998          CAROL'S COOKIES COMPANY      .RELEASE 7.0
.DATE.02/10/1998          CAROL'S COOKIES COMPANY      .RELEASE 6.2
      XX                                     x x
SIGNOFF ==> The difference in the date field will
ON ABOVE ==> be resolved by defining a variable field
      ==>
      *** END OF UNEQUAL ROWS ***
                                OPER ==> STERIO2

F1-HELP      F2-ROTATE      F3-END  F7-UP   F8-DOWN F10-LEFT
F11-RIGHT

```

Notes:

- If you select mismatch option 6, 7, 8, or 9, you must type at least one non-blank character in the first Signoff On Above field. If there are additional mismatch rows *on the same screen*, you can specify an asterisk (*) in subsequent Signoff On Above fields to indicate that the initial information be copied. An asterisk cannot be used to copy signoff information from another screen.
- Your signon operator ID appears by default in the OPER field. If necessary, you can change this ID.

Adjust Rules During a Run

To help eliminate mismatches during a run, you may occasionally need to change an existing rule or add another rule to the ruleset for a test stream. (A common example is forgetting to create a rule for a change.)

To add or change a rule during a run, select option 1 (Display Ruleset Summary) from the Run Mismatch Options menu (shown previously). Selecting option 1 displays the Applied Rules panel shown next.

Note: When adding a rule to a ruleset, remember that rules are applied in the order specified in the ruleset.

```
----- APPLIED RULES -----14:12:16
ENTER COMMAND ==>

INPUT TEST STREAM: TCADS.CCC.ORDERAPP.001                                CURRENT RECORD: 2
                                                                           LINE 1 TO 6 OF 6

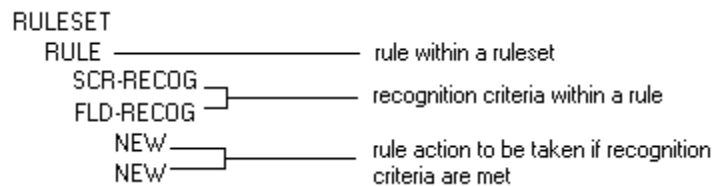
B-BROWSE   E-EDIT
OBJECT     TYPE ROW COL LEN OP VALUE FROM THE MODEL SCREEN/DESCRIPTION
- RULESET  T/S                                     TCADS.CCC.ORDERAPP.001
- RULE                                           R1                                <APPLIED>
- FLD-RECOG                                     EQ CAROL'S COOKIES COMPANY_____ <RECOGNIZED>
- MOVED    OUT 1 3 2 98_____                                <APPLIED>
- NEW      OUT 1 13 2 19_____                                <APPLIED>
- CHANGED  OUT 1 2 3 7.0_____                                <APPLIED>

F1-HELP      F2-ROTATE      F3-END      F4-RETURN      F7-UP      F8-DOWN
```

This panel is similar to the Browse Rules—Summary panel, except that it lists all of the rulesets associated with this test stream and indicates which rule within those rulesets has been recognized or applied. Fields that are important for adjusting rules during a run are explained next; see Chapter 8, *Rules Function*, for an explanation of the rest of the fields.

OBJECT

This column lists the rulesets, rules, and rule actions in the order they are to be applied. Objects are arranged in hierarchical order with ruleset at the top of the hierarchy and rule actions being at the bottom. An illustration of the hierarchy appears next.



TYPE

Indicates which type of ruleset or rule this is. Valid types for ruleset are:

T/S	Test Stream
APPL	Application
SYST	System
OUT	Applies to this output screen
IN	Applies to the next input screen

<APPLIED>**<RECOGNIZED>**

These messages indicate whether the rule has been applied during this run (<APPLIED>), or whether screens have been located that match the recognition criteria specified (<RECOGNIZED>).

To help identify any remaining changes, use PF2 (Rotate) to switch the display from the Expected screen to the Current view to the Original test stream record and then back to the Expected screen.

- The expected screen contains the originally-logged test stream with the rules applied.
- The current view shows the test stream record as it is now.
- The original test stream record displays the record from the originally-logged test stream with no changes applied.

If you have the proper security authorizations, you can take several actions from this panel. You can:

- Browse or edit any ruleset by typing a B or E to its left. From there, browse or edit as needed.
- Browse or edit any rule by typing a B or E to the left of RULE.
- Browse or edit any rule action by typing a B or E to the left of the rule action.
- Add a rule or rule action by typing an E to the left of the ruleset that will contain the rule. See the next section, [Add a Rule or Rule Action](#) (see page 102) or details.

See the chapter "Rules Function" for detailed instructions on browsing, editing, and deleting rules and rule actions. The procedure for adding a rule or rule action is covered next.

Add a Rule or Rule Action

Use the following procedure to add a rule or rule action during a run.

1. From the Applied Rules panel, type an **E** next to the ruleset that you want to add the rule or rule action to. Press Enter to display the Edit Rules—Summary panel.
2. Type an **I** (for Insert) to the left of the object that is to immediately precede the new rule or rule action. Press Enter to display the Rules Menu.
3. Add this rule or rule action as you would any other rule or rule action. (Detailed instructions are in Chapter 8, *Rules Function*.)

Note: Rule actions are processed in the order in which they are defined, so it is important to insert a new item in the correct position.

4. After you type the specific information for this field (that is, ROW, COL, LEN), press Enter. If the add was successful, the message ADD SUCCESSFUL appears in the message area.
5. Press PF3 to return to the Edit Rules—Summary where you can check the details of the rule or rule action you just added.
6. Press PF3 to display the Applied Rules to check whether the rule or rule action was applied. (Rules and rule actions are applied as soon as you add them.)
7. Continue with the run.

Resolve Conflicts between Rule Actions

Whenever CA Verify ART for VTAM detects a conflict between rule actions, the run stops and the Mismatch screen is displayed. Using this screen, you must correct any conflicts between rule actions before the run can continue.

Rules Summary Status Messages

The following error messages may appear on the Rules Summary panel and the Rules Applied During Run panel after running a test stream.

<APPLIED>

Reason: This rule or rule action has been applied.

<CONFLICT>

Reason: One or more rule actions applied to the same location and a conflict occurred.

<ERROR>

Reason: This is a general error code set when the reason code is unknown.

<INCOMPLETE RULE>

Reason: The rule does not have any rule actions defined to it.

<INV DATE MASK-ERROR>

Reason: The data in the specified data generation field does not match the mask specified in the date aging format field.

<INV NUMBER-ERROR>

Reason: The data specified in the data generation field is not numeric.

<M,D,Y IS NOT NUM-ERROR>

Reason: The month, day, or year in the data generation field location is not numeric.

<MULTI ACTION-ERROR>

Reason: More than one delete screen or insert test stream rule action was specified for the same screen.

<NEGATIVE DATE-ERROR>

Reason: The date generated has a negative value.

<NESTED ACTION-ERROR>

Reason: A nested delete or insert test stream rule action was specified, which is not allowed.

<NO ATTR ROW-COL-ERROR>

Reason: An attribute byte was missing for this row-column location.

<NO CUT DATA-ERROR>

Reason: The requested cut data does not exist, so it cannot be pasted.

<NO MODEL SCREEN>

Reason: No model screen applies to this rule.

<NOT APPLICABLE DURING RUN>

Reason: This is a LOGGING rule action and is ignored during a run.

<NOT APPLIED>

Reason: This rule or rule action has not been applied.

<NOT RECOGNIZED>

Reason: The recognition criteria did not match.

<NOT RECOGNIZED-NOT APPLIED>

Reason: The recognition criteria did not match, so the rule was not applied.

<NUM OVERFLOW-ERROR>

Reason: An overflow condition occurs when the value of a field is too large to fit in the field length specified on the data generation rule action. Either re-specify the length or set OVERFLOW equal to YES.

<OUTBOUNDS-ERROR>

Reason: The row, column, and length coordinates of this rule action are outside the screen size of the terminal used by Run.

<OUTBOUNDS-NOT RECOGNIZED>

Reason: The row, column, and length coordinates of the recognition criteria are outside the screen size of the terminal used by Run.

<RECOGNIZED>

Reason: The recognition criteria matched.

<SCREEN FAILURE-ERROR>

Reason: A screen failure occurred because the attributes for the expected screen did not match those of the current screen. Check that all rules for deletes, moves, and changed fields are correct. The row, column, and length coordinates of this rule action overlap the position where the attribute mismatch was detected.

<SCREENID NOT EQ-NOT APPLIED>

Reason: The specified screen ID did not match, so the rule was not applied.

<T/S EMPTY-ERROR>

Reason: The test stream to be inserted is empty.

<T/S IN USE-ERROR>

Reason: The test stream to be inserted is in use.

<T/S I/O-ERROR>

Reason: An I/O error occurred reading the test stream.

<T/S IS MTTS-ERROR>

Reason: The test stream to be inserted is a multiple terminal test stream.

<T/S NOTAUTH-ERROR>

Reason: The test stream to be inserted is READ protected.

<T/S NOTFOUND-ERROR>

Reason: The test stream to be inserted is not in the TCADS.

<T/S REC#1 NOT OUTPUT-ERROR>

Reason: The first record in the test stream is not an output record.

VARIABLE CONFLICT - WARNING

Reason: A variable rule action overlapped row and column location with a non-variable rule action; an informational warning.

Action: Verify that the overlap is what you intended, then continue the Run. The conflict does not have to be resolved or bypassed.

WARNING

Reason: An informational warning.

Action: Verify that the overlap is what you intended, then continue the Run. The conflict does not have to be resolved or bypassed.

Errors Requiring CA Support

If any of the following errors occur, you must call CA support

.<INV OPER VALUE-ERROR>

Reason: The data generation operator value is zero or not numeric.

<JULIAN DATE MASK-ERROR>

Reason: The Julian date mask cannot contain a month.

<MULT M,D,Y IN MASK-ERROR>

Reason: More than one MM, DD, or YY[YY] was specified in the date mask.

<ZERO OPER VALUE-ERROR>

Reason: The operator value was zero.

Confirm the Mismatch

If you select options 4, 6, 7, 8, or 10 on the Run Mismatch Options menu, CA Verify ART for VTAM validates the next input screen to check for the following conditions:

- The input data does not fit in the corresponding field in the current output screen
- The location of an input field has changed
- An input field was deleted

Any of these conditions will probably generate a mapping error (mapfail condition) when the next input screen is sent to the application. To avoid this, CA Verify ART for VTAM displays the Mismatch Confirmation panel.

```
----- RUN: MISMATCH CONFIRMATION -----11:49:50
ENTER COMMAND ==>                                     RC

                                RECORD NUMBER:      2
THE OPTION YOU SELECTED (6) MAY RESULT IN A MAPPING ERROR (MAPFAIL
CONDITION) WHEN THE NEXT INPUT IS SENT TO THE APPLICATION.

1 INPUT FIELD NO LONGER CORRESPONDS (BECAUSE 1 OR MORE FIELDS HAVE BEEN
MOVED, DELETED, OR SHORTENED). THE FIRST INPUT DATA WHICH DOES NOT
CORRESPOND TO ANY FIELD ON THE CURRENT SCREEN IS AT ROW 8, COLUMN 51.
IT IS 1 BYTE LONG.

MISMATCH OPTION 8 CAN BE USED TO ENTER THE NEXT INPUT INTO THE NEW SCREEN
LOCATIONS.

OPTION 5 OR 9 MAY ALSO BE APPLICABLE (IF SCREENS HAVE BEEN INSERTED OR
DELETED).

F1-HELP      F3-END
```

Usually, you can correct the error by selecting option 8 on the Run Mismatch Options menu. This option displays the current output screen so you can type the input data and submit that screen in place of the original input screen. If the error occurred because screens were removed from the application, select option 5; if the error occurred because screens were added, select option 9.

Enter the End (PF3) command to return to the Run Mismatch Options menu to select another option. Press Enter to continue the run, using the option you selected.

Display, Field, and Hex Screen Formats

When you select mismatch options 2 or 3, or use the Rotate command (PF2), CA Verify ART for VTAM displays an input or output screen. You can view screens in three formats:

- Display
- Field
- Hex

Change Formats

Use the Format (PF9) command to shift between the Display, Field, and Hex formats. Although parameters are not required, you can specify Format xxx, replacing xxx with one of the following:

Display	Immediately shifts to Display format
Field	Immediately shifts to Field format
Hex	Immediately shifts to Hex format
NODisplay	Disables Display format
NOField	Disables Field format
NOHex	Disables Hex format

For example, Format F displays the screen in field format.

Note: If the format being disabled is the one currently in use, CA Verify ART for VTAM automatically switches to the next available format. If the current format is the only one enabled, CA Verify ART for VTAM displays an error message and does not alter the display.

Display Format

Display format is the default format for viewing a screen. A sample screen in Display format is illustrated next.

```

CCC.ORDERAPP.001 ----- RUN: CURRENT SCREEN -----13:37:07
ENTER COMMAND ==>
      10      20      30      40      50      60      70      R5
-----+-----+-----+-----+-----+-----+-----+
| DATE 06/29/98          CAROL'S COOKIES COMPANY      RELEASE 6.2
| TIME 13:19:17          MAIN MENU
|
4
|
| ENTER OPTION:
|
|      1) PLACE AN ORDER
|
12      2) CHECK STATUS OF AN ORDER
|
|
16
|
|
20

```

CA Verify ART for VTAM displays four rows of information above the test stream screen:

- Title
- Command line and record number
- Two-line column number ruler

Also, CA Verify ART for VTAM displays a row number ruler to the left of the screen. The default row and column for Display format are both zero. Use the Up (PF7), Down (PF8), Left (PF10), and Right (PF11) commands to change the starting row and column. You can specify a number or Maximum with these commands; for example, Up 7, Right 20, Down Maximum. If you change the starting row or column, CA Verify ART for VTAM uses the new starting position until you change it or exit from CA Verify ART for VTAM.

Field Format

Field format displays the data stream transmitted to or from the terminal rather than the full screen displayed in Display format. Except on erase/writes, Field format usually does not display all the fields shown in Display format; for example, this format displays only those fields which were modified for read-modified inputs.

The Field format version of the screen illustrated previously is illustrated next.

CCC.ORDERAPP.001 ----- RUN: CURRENT SCREEN -----13:37:14

ENTER COMMAND ==> R4

TYPE: OUTPUT

TRAN: XCCC

RECORD NUMBER: 2

OPERATION: ERASE/WRITE

DATE: 06/29/1998

DATA LENGTH: 266

RESPONSE: 00:00:00.002

TIME: 13:18:56.730

SCREEN SIZE: 24 BY 80

WCC: C2: NL/EM/CR PRINT CNTL,

KEYBOARD RESTORE

TERMINAL: VV01

ORDER	ROW	COL	ATTR	LENGTH	
SBA	7	16		0	
IC				0	
FLD	1	1	PSH	4	DATE
SF			PS	8	06/29/98
FLD	1	29	PSH	23	CAROL'S COOKIES COMPANY
FLD	1	63	PSH	7	RELEASE
SF			PSM	3	6.2
FLD	2	1	PSH	4	TIME
SF			PS	8	13:19:17
FLD	2	36	PSH	9	MAIN MENU
FLD	7	1	PSH	13	ENTER OPTION:
SF			UM	0	
FLD	7	17	PS	1	
FLD	10	9	PSH	17	1) PLACE AN ORDER
FLD	12	9	PSH	27	2) CHECK STATUS OF AN ORDER

Header Information

RUN OPTION

The option on the Run Mismatch Options menu selected for this screen during the last run. This information is omitted if the screen did not have a mismatch or was excluded from the last run, or if the test stream was never run.

TYPE

The type of screen; for example, input or output.

OPERATION

The type of operation; for example, read modified, read buffer, write, erase/write, and so on.

RESPONSE/THINK

For output screens, the response time; for example, the elapsed time in hours, minutes, seconds, and thousandths of seconds since the last terminal input. For input screens, the think time; for example, the elapsed time since the last output.

AID/WCC

For input screens, the attention identifier key pressed to generate input. For output screens, the write control character:

NL/EM/CR PRINT CNTL

For print operations, specifies a variable line length depending on placement of a new line, end of message, or carriage return orders in the data stream.

80 CHARACTER PRINT

For print operations, specifies an 80-character line.

64 CHARACTER PRINT

For print operations, specifies a 64-character line.

40 CHARACTER PRINT

For print operations, specifies a 40-character line.

KEYBOARD RESTORE

Restores keyboard function.

START PRINT

Initiates a printout operation.

RESETMDT

Resets all modified data tags.

ALARM

Sounds the audible alarm.

TRAN

The transaction associated with the screen.

DATE

The date the test stream was logged. This date may have been updated if the screen was edited or changed during the Run.

TIME

The time the test stream was logged. This time may have been updated if the screen was edited or changed during the Run.

RECORD NUMBER

The record number of the screen within the test stream.

DATA LENGTH

The total number of bytes transmitted to or from the terminal. For input screens, this includes three bytes for the AID and cursor position. For output screens, this includes one byte for the WCC.

SCREEN SIZE

The logged screen size.

TERMINAL

The terminal to which the screen was sent, or from which it was received.

CURSOR

For input screens, the cursor position (row and column).

Screen Display

CA Verify ART for VTAM starts a new row on your display for every 3270 order in the screen. If there are no orders, only one row is displayed. Data that follows the order appears under the ruler. Non-3270 data streams are displayed in 40-byte rows.

A common sequence of orders is set buffer address (SBA) followed by start field (SF). To condense the display, CA Verify ART for VTAM merges these orders into an FLD order type.

Each row in the display consists of:

ORDER

The 3270 order. This will be blank for the first field if the screen does not begin with an order. The most common orders are summarized next. See the *3270 Component Description* or *Programmer's Guide* for a complete description of valid orders.

SBA

Set buffer address specifies the row and column for the data which follows.

SF

Start field specifies the beginning of a field and its attributes.

IC

Insert cursor specifies cursor positioning in the current row and column.

RA

Repeat to address repeats the first character that follows up to the specified row and column.

PT

Program tab specifies the next unprotected field as the location for the data that follows. If there is any data between the program tab order and the previous order, all fields between the current display position and the destination field are set to nulls.

EUA

Erase unprotected to address sets all unprotected fields from the current display position up to the specified row and column to nulls.

ROW

The row specified by the order.

COL

The column specified by the order.

ATTR

The field attributes specified by a start field order:

U unprotected field — can be modified

P protected field — cannot be modified

N numeric field — only numeric data can be typed

S cursor will auto-skip over the field

H high-intensity field

D field can be selected with a selector pen

L low-intensity (non-display) field

M field with modified data tag which will be transmitted from the terminal even if the operator makes no entry

LENGTH

The length of the data following the order.

DATA

The actual data appears next beneath the ruler.

Scrolling

The default scroll amount is 19 rows for the Up (PF7) and Down (PF8) commands and 40 columns for the Left (PF10) and Right (PF11) commands.

The Up and Down commands affect the display starting with the fifth row; for example, the header row on which Type, Tran, and Data Length information appears. The Left and Right commands affect only the ruler and the data beneath it. You can specify a number or Maximum with these commands; for example, Up 4, Right Maximum.

When data is not displayed beginning with the first character, the number of the first column appears in the ruler.

Hex Format

Hex format segments the data stream as Field format does. A new segment appears for each order for 3270 data streams. Non-3270 data streams are displayed in 40-byte increments.

Three rows are used to display each segment:

- Row 1 contains the character representation
- Rows 2 and 3 contain the hexadecimal representation

The Hex format version of the previous screen appears next.

```

CCC.ORDERAPP.001 ----- RUN: CURRENT SCREEN -----13:37:20
ENTER COMMAND ==> R9

OFFSET  LENGTH  -----+-----|-----+-----|-----+-----|-----+-----RECORD:  2
0         4      B.G?
                C1C6
                217F

4         1      .
                1
                3

5         9      . .8DATE
                1441FCCEC
                100D84135

14        10     .006/29/98
                1FFF6FF6FF
                D006129198

24        28     . *.8CAROL'S COOKIES COMPANY
                1451FCCDD7E4CDDDCCE4CDDDCDE
                10CD831963D20366295203647158

F2-ROTATE  F3-END  F5-PRV          F7-UP  F8-DWN  F9-FORMAT  F10-LEFT  F11-RIGHT

```

This format provides the offset and length of each segment. Because this example is an output screen, the first byte of the first segment is the WCC. For an input screen, the first three bytes of the first segment would be the AID (one byte) and the cursor position (two byte binary offset relative to zero).

Scrolling

The default scroll amount is 5 segments for the Up (PF7) and Down (PF8) commands and 60 columns for the Left (PF10) and Right (PF11) commands. You can specify a number or Maximum with these commands; for example, Up 3, Right Maximum.

View Connection and Disconnection Records

In addition to viewing input and output screens, you can view connection and disconnection records.

You can display these records by specifying the Next (PF6) command when viewing the original screen (mismatch option 1), or the next input screen (mismatch option 4).

Connection records contain the Logmode and BIND images used in the connection process. Disconnection records identify the application that was disconnected and the reason for the disconnection.

A sample connection record is displayed next.

VERDEMO2.APR02.001 ----- RUN: CONNECTION RECORD -----11:28:54			
ENTER COMMAND ==>			DC
TERMINAL: A68L901		DATE: 01/21/1999	RECORD: 4
APPLID: VERDEMO		TIME: 10:27:43.757	
REASON: USER INITIATED VIA USS			
BINDS:	FROM TERMINAL	TO APPLICATION	FROM APPLICATION
LOGMODE:	DSILGMOD	DSILGMOD	
FM PROFILE:	02	02	02
TS PROFILE:	02	02	02
PLU PROTOCOL:	71	71	71
SLU PROTOCOL:	40	40	40
COM PROTOCOL:	2000	2000	2000
TS FIELDS:	0000 8000 8000	0000 0000 0000	0087 8700 8700
LU TYPE:	00	00	00
EXT STREAM:	00	00	00
RESERVED:	00000000	00000000	00000000
SIZES:	0000 0000	0000 0000	0000 0000
FLAGS:	0200	0200	0200
CRYPTOGRAPHY:	00	00	00
LOGON DATA:			
F1-HELP	F3-END	F4-RETURN	F5-PREV
F6-NEXT	F10-LEFT	F11-RIGHT	

This menu provides the following information:

TERMINAL	The name of the terminal used to log the test stream.																												
APPLID	The application ID.																												
REASON	The reason for the connection.																												
DATE	The date of the connection.																												
TIME	The time of the connection.																												
RECORD NUMBER	This record's number in the test stream.																												
BINDS	The following fields describe the BIND request parameters from the sending terminal to CA Verify ART for VTAM, from CA Verify ART for VTAM to the application, from the application to CA Verify ART for VTAM, and from CA Verify ART for VTAM to the receiving terminal. <table><tr><td>Logmode</td><td>Logon mode name which specifies a set of session parameters</td></tr><tr><td>FM Profile</td><td>Function management profiles used</td></tr><tr><td>TS Profile</td><td>Transmission services profile used</td></tr><tr><td>PLU Protocol</td><td>Primary logical unit protocols</td></tr><tr><td>SLU Protocol</td><td>Secondary logical unit protocols</td></tr><tr><td>COM Protocol</td><td>Common logical unit protocols</td></tr><tr><td>TS Fields</td><td>Transmission Services Usage fields</td></tr><tr><td>LU Type</td><td>Type of LU-LU session in terms of SNA protocols and options</td></tr><tr><td>Ext Stream</td><td>3270 extended data stream identifier</td></tr><tr><td>Reserved</td><td>Contents of reserved field</td></tr><tr><td>Sizes</td><td>Presentation space sizes</td></tr><tr><td>Flags</td><td>PLU and SLU flags</td></tr><tr><td>Cryptography</td><td>Cryptographic control</td></tr><tr><td>Logon Data</td><td>Logon user data (if any) from the initial logon command</td></tr></table>	Logmode	Logon mode name which specifies a set of session parameters	FM Profile	Function management profiles used	TS Profile	Transmission services profile used	PLU Protocol	Primary logical unit protocols	SLU Protocol	Secondary logical unit protocols	COM Protocol	Common logical unit protocols	TS Fields	Transmission Services Usage fields	LU Type	Type of LU-LU session in terms of SNA protocols and options	Ext Stream	3270 extended data stream identifier	Reserved	Contents of reserved field	Sizes	Presentation space sizes	Flags	PLU and SLU flags	Cryptography	Cryptographic control	Logon Data	Logon user data (if any) from the initial logon command
Logmode	Logon mode name which specifies a set of session parameters																												
FM Profile	Function management profiles used																												
TS Profile	Transmission services profile used																												
PLU Protocol	Primary logical unit protocols																												
SLU Protocol	Secondary logical unit protocols																												
COM Protocol	Common logical unit protocols																												
TS Fields	Transmission Services Usage fields																												
LU Type	Type of LU-LU session in terms of SNA protocols and options																												
Ext Stream	3270 extended data stream identifier																												
Reserved	Contents of reserved field																												
Sizes	Presentation space sizes																												
Flags	PLU and SLU flags																												
Cryptography	Cryptographic control																												
Logon Data	Logon user data (if any) from the initial logon command																												

To see the rest of the Logon Data, use the Right (PF11) command. Use the Left (PF10) command to redisplay the original menu.

A sample Disconnection record is illustrated next.

```
VERDEMO2.APR02.001 ----- RUN: DISCONNECTION RECORD -----11:31:18
ENTER COMMAND ==>                                         DD

TERMINAL: A68L901          DATE: 01/21/1999          RECORD:    5
APPLID:  VERDEMO          TIME: 10:27:43.761
REASON:  UNBIND RECEIVED, TYPE 002 (BIND FORTHCOMING)

F1-HELP    F3-END    F4-RETURN  F5-PREV    F6-NEXT
```

This record identifies the terminal, applid, reason, date, and time of the disconnection. Moreover, this record lists the events that followed the disconnection and the reason codes. See the *VTAM Programming Guide*, *VTAM Messages and Codes*, and SNA manuals for information on specific codes.

Wait for Missing Output

If the application does not return an output screen when expected, CA Verify ART for VTAM displays the Missing Output menu.

```

VERDEMO2.APR02.001 ----- RUN: MISSING OUTPUT -----11:41:23
ENTER COMMAND ==>                                     RN

TERMINAL: VTERM001                                RECORD NUMBER: 7
THE RUN FUNCTION IS WAITING FOR AN OUTPUT SCREEN. THE OUTPUT SCREEN MIGHT
HAVE BEEN ELIMINATED FROM THE APPLICATION. THE SESSION IS BETWEEN BRACKETS.

      1 DISPLAY THE ORIGINAL OUTPUT SCREEN WHICH THE RUN FUNCTION IS WAITING FOR
      2 WAIT ANOTHER 20 SECONDS FOR THE OUTPUT SCREEN TO BE SENT BY THE
        APPLICATION
      3 IGNORE TEMPORARY CHANGE (THE OUTPUT SCREEN IS NOT EXPECTED, BUT RETAIN
        THE ORIGINAL SCREEN IN THE OUTPUT TEST STREAM)
      4 ACCEPT PERMANENT CHANGE (THE OUTPUT SCREEN IS NOT EXPECTED OR WANTED,
        DELETE THE SCREEN FROM THE OUTPUT TEST STREAM)

      SELECT OPTION 2 IF THE OUTPUT MIGHT BE DELAYED DUE TO POOR RESPONSE TIME

      SELECT OPTION 3 OR 4 IF THE APPLICATION HAS CHANGED

F1-HELP      F3-END
  
```

The message at the top of the screen always indicates that the Run function is waiting for an output screen that may have been eliminated from the application. The message then indicates one of the following:

- The session is in a bracket and the application is in send, receive, or contention state.
- The session is between brackets and the application is in send, receive, or contention state.
- The application is in send, receive, or contention state.
- The session with xxxxxxxx application is no longer active.
- Application xxxxxxxx is no longer active.

Output screens may be missing for any of these reasons:

- Response time is slower than when the test stream was logged
- An input screen was deleted by the Edit function
- The application changed
- Screens from a printer were logged, but the terminal which starts the printer was not logged
- Messages from one terminal to another were logged, but both terminals were not logged

Use the End (PF3) command to end the run or choose one of the following options:

1 DISPLAY THE ORIGINAL OUTPUT SCREEN

Displays the original output screen for which the Run function is waiting. Use the End (PF3) command to return to the Missing Output menu.

2 WAIT ANOTHER nn SECONDS

Directs CA Verify ART for VTAM to wait for nn seconds for the missing screen. Select this option at least once to allow for poor response time unless you are sure the screen is really missing. The number of seconds CA Verify ART for VTAM should wait is determined at installation time.

3 IGNORE TEMPORARY CHANGE

Ignores the missing output screen and continues the run. The original output screen is retained in the output test stream. Select this option if the application will be changed to send the missing screen.

4 ACCEPT PERMANENT CHANGE

Ignores the missing output screen and continues the run. The output screen is deleted from the output test stream. Select this option when the application has changed so that it no longer sends the missing screen.

Complete the Run

When the run completes, CA Verify ART for VTAM displays the Run Completion panel.

```
CCORDER.REL63.001 ----- RUN COMPLETION -----13:02:28
ENTER COMMAND ==>                                         R8

OUTPUT SCREENS COMPARED:          4
PHYSICALLY EQUAL SCREENS:        1
LOGICALLY EQUAL SCREENS:         3

OUTPUT TEST STREAM: NONE

RULESET(S) USED:
  TESTSTREAM: TCADS.CCORDER.REL63.001
  APPLICATION: NONE
  SYSTEM:     TCADS.SYSTEM.#RULESET.001

F1-HELP  F3-END  F4-RETURN
```

Use the End (PF3) command to return to the Run Options menu or the Return (PF4) command to return to the Primary Options menu.

Note: If CA Verify ART for VTAM detects a severe error during the run — for example, an I/O error — it displays an error message instead of the Run Completion menu. In this case, the output test stream, if any, is deleted.

Chapter 6: Browse Function

This chapter describes how to examine a test stream online.

This section contains the following topics:

[Overview](#) (see page 121)

[Invoke the Browse Function](#) (see page 122)

[Browse Directory Information](#) (see page 126)

[Browse Terminal Information](#) (see page 129)

[Browse Screens](#) (see page 134)

[Browse Commands](#) (see page 137)

Overview

The Browse function displays online the input and output screens captured during the Log and Run functions. You can view:

- The original screens captured during logging
- The expected screens created during the Run function
- The current screens captured during the Run function
- The differences CA Verify ART for VTAM found between the expected and the current screens
- The rules that were applied to the original screen which created the expected screen
- Operator instructions to CA Verify ART for VTAM during the Run function when CA Verify ART for VTAM detected a mismatch

Use the Browse function to analyze online the results of your testing. Use the Edit function if you intend to modify the test stream; use the batch Print function if you want a hard copy.

Note: How to browse through rulesets and rules (which includes variables) is covered in the chapter "Rules Function."

Invoke the Browse Function

To browse a test stream, type B on the Primary Options Menu. CA Verify ART for VTAM displays the Test Stream Browse menu.

```

----- TEST STREAM BROWSE -----14:51:31
ENTER COMMAND ==> B1

ENTER TEST STREAM NAME:

DDNAME      ==> TCADS

APPLICATION ==>          (LEAVE APPLICATION, MEMBER,
MEMBER      ==>          OR VERSION BLANK AND PRESS
VERSION     ==> 001      ENTER FOR A SELECTION LIST)

HISTORY VIEWING OPTIONS:
ORIGINAL SCREENS ==> Y    (Y/N)
EXPECTED SCREENS ==> Y    (Y/N)
APPLIED RULES   ==> Y    (Y/N/O-ONLY)
DIFFERENCES     ==> Y    (Y/N/O-ONLY)
SIGNOFF DATA   ==> Y    (Y/N)

F1-HELP      F3-END      F4-RETURN
  
```

The default ddname, Application, and Version values appear; these can be changed.

If you know the test stream you want to browse:

1. Type the Application name, Member name, and other identifiers, if necessary
2. Optionally modify the History viewing options
3. Press Enter.
4. CA Verify ART for VTAM displays the Directory Information menu for that test stream.

If you don't know the test stream you want to browse:

1. Leave the Application and Member field blank.
2. Optionally, blank out other identifiers.
3. Press Enter.
4. CA Verify ART for VTAM displays the Test Stream Selection menu.

Select a Test Stream

The Test Stream Selection menu lists all the test streams for the specified ddname.

----- BROWSE: TEST STREAM SELECTION -----14:00:10							
ENTER COMMAND ==>							
FILE: TCADS				MULTI-			
		LOG-DATE	BY	RECORDS	RUN-DATE	RESULT	TERM
_ CLIST	OPERATOR	001 01/02/1998	AJC	28	03/21/1998	LGC EQ	
		CEMT INQUIRY OF ALL PROGRAMS AND FILES					
s DEMO	DEMOPROG	001 03/22/1998	NGN	8			
		CUSTOMER MAINTENANCE DEMO PROGRAM					
_ PAYROLL	DOCUMENT	001 02/01/1998		120			
		ALL PAYROLL SCREENS FOR USER TRAINING					
_ PAYROLL	INQUIRY	001 01/16/1998	RSM	154	01/16/1998	NOT EQ	
		TEST OF NEW INQUIRY MENU					
_ PAYROLL	UPDATE	002 01/28/1998		112			
		TEST OF NEW UPDATE SCREEN					
_ QA	TEST1	003 01/29/1998	NGN	1022	02/29/1998	NOT EQ	
		TEST1 IN CONVERSION FROM DOS TO MVS					
_ QA	TEST2	007 02/21/1998		724			
		TEST2 IN CONVERSION FROM DOS TO MVS					
_ SYSTEMS	MIGRATE	008 02/21/1998	SAB	2380	03/14/1998	LGC EQ	M
		MIGRATION TEST FOR CICS 1.7 TO 2.1					
_ SYSTEMS	STRESS1	018 03/22/1998	JSN	1502			
		STRESS TEST FOR CICS TEST REGION					
_ SYSTEMS	STRESS2	019 03/22/1998		1208			

Your position in the list depends on your specifications on the Test Stream Browse menu.

- If both the Application and Member fields are blank, CA Verify ART for VTAM positions you at the first stream for the specified ddname.
- If you fill in a partial name, CA Verify ART for VTAM positions you accordingly. For example, if you specify PAY as the Member name and blank out the Version number, CA Verify ART for VTAM positions you just before the first test stream whose member name begins with 'PAY'.

See the second screen in the "Run Function" chapter for an explanation of the Test Stream Selection menu.

Type S to the left of the test stream you want to browse and press Enter. CA Verify ART for VTAM redisplay the Test Stream Browse menu with the Test Stream identifiers filled in. Specify the History viewing options and press Enter to display the Directory Information menu for the test stream.

Use the Up (PF7) and Down (PF8) commands to scroll through the Test Stream Selection list. To override the default, specify the number of lines or Maximum; for example, Down 25, Down Maximum.

Specify Browse Viewing Options

Complete the Test Stream Browse menu by specifying the Browse viewing options. Enter Y, N, or O.

If Record History was set to Y for the run that created this test stream, then original screens, rules (if available), and unequal rows will be included when you Browse.

Note: When you view input only test streams, use either Field or Hex format; do not use Display format.

When you have completed the Test Stream Browse menu, press Enter.

- If you have not specified a complete test stream name, CA Verify ART for VTAM displays the Test Stream Selection list.
- If you have specified a complete test stream name, CA Verify ART for VTAM displays the Directory Information menu for that test stream.

ORIGINAL SCREENS

Y, the default, displays the original logged screens which differ from the current screens, subject to your specifications for the Differences option. **Y** is valid only for test streams which have mismatch information recorded where the Record History option was **Y**. Enter **N** if you do not want to display the original screens.

EXPECTED SCREENS

Y, the default, displays the expected screens. The expected screen is the original screen with rules applied to it. **Y** is only valid if Record History was set to **Y** during the Run.

APPLIED RULES

Y, the default, lets you view a list of the rules that were applied to each original screen as it was processed. **Y** is only valid for test streams that have Record History set to **Y** during the Run. Enter **N** if you do not want to view the rules; type **O** if you only want to view the screens that have had rules applied to them.

DIFFERENCES

Y, the default, displays the unequal rows associated with the current screens. Enter **O** to display only those records for which CA Verify ART for VTAM detected a mismatch. **Y** and **O** are valid only for test streams that have mismatch information recorded where the Record History option was **Y**. Enter **N** if you don't want to display unequal row information.

SIGNOFF DATA

Y, the default, displays the information, if any, the operator supplied during the Run function when CA Verify ART for VTAM detected a mismatch. **Y** is valid only for test streams for which mismatch signoff information was recorded; for example, the Require Signoff Data option was **Y**. Enter **N** if you don't want to access this information.

Browse Directory Information

When you select a test stream, CA Verify ART for VTAM redisplay the Test Stream Browse panel with the test stream name fields completed. Press Enter to display the Browse: Directory Information panel that contains the directory information for the test stream you selected.

```

CCC.ORDERAPP.002 ---- BROWSE: DIRECTORY INFORMATION -----13:40:40
ENTER COMMAND ==>                                         B3

DESCRIPTION: CAROL'S COOKIES COMPANY DEMO PROGRAM

LOG:      RUN:      EDIT:      TEST STREAM:      IN:      OUT:
INVOKED BY:
INVOKED ON: 06/02/1998 06/03/1998      TOTAL SCREENS:      6      6
START TIME: 13:23:04 08:34:50      AVERAGE BYTES:      46      315
DURATION: 00:02:02 00:00:00      LAST RUN:      IN:      OUT:
SYSTEM: A04IC9NA A04IC9NA      EQUAL:      6      1
STATUS: NORMAL LOGICALLY EQUAL      EQUIVALENT:      5
TERMINAL: A60L2048      IGNORED:      0
VSAM CI'S: 2      ACCEPTED:      0
      INSERTED:      0      0
      DELETED:      0      0
      CHANGED:      0
      NOT RUN:      0      0
      OWNER:
      CREATED BY FUNCTION: RUN

AVERAGE THINK TIME: 00:00:20.256
AVERAGE RESPONSE TIME: 00:00:00.013
MAXIMUM SCREEN SIZE: 24 BY 80
PROTECTION STATUS:
ORIGINATING TEST STREAM: CCC.ORDERAPP.001

F1-HELP      F3-END      F4-RETURN

```

If you press Enter, CA Verify ART for VTAM displays:

- The Initial Terminal Status menu for a *single* terminal test stream
- The Terminal Selection menu for a *multiple* terminal test stream

If you type a record number in the Command field and press Enter, CA Verify ART for VTAM displays the record you selected.

CA Verify ART for VTAM provides directory information describing Log, Run, and Edit functions involving the test stream. If the Utilities were used to append, insert, or merge the test stream, the Edit heading will be replaced with the appropriate heading.

DESCRIPTION

The description associated with the test stream when it was logged. This description may have been updated by the Edit function or Update utility.

INVOKED BY

The ID of the user who initiated the function.

INVOKED ON

The date the test stream was logged, last run, or edited.

START TIME

The time the function was initiated.

DURATION

The duration of the Log function or the estimated duration of the Run function, based on total response time.

SYSTEM

The VTAM applid. For a test stream consisting of multiple sessions, 'MULTIPLE' will be displayed.

STATUS

For the Log function:

Normal**Incomplete:**

CA Verify ART for VTAM could not log some screens because the data capture buffer overflowed or the data set became full

Ext:nnn:

The data stream was extended; nnn indicates the number of records that existed before the extension

For the Run function:

Equal:

The data streams produced by the application were physically equal to those logged

Logically Equal:

The output screens produced by the application were logically equal to those logged, but the data streams were not physically equal

Not Equal:

The output from the application was not the same as the output logged

TERMINAL

The terminal used to log the test stream. For a multiple terminal test stream, the number of terminals appears instead.

VSAM CI'S

The number of control intervals used to store the test stream.

AVERAGE THINK TIME

The average time which elapsed between an output screen and the next input from the terminal.

AVERAGE RESPONSE TIME

The average time which elapsed between terminal input and the next output screen.

MAXIMUM SCREEN SIZE

The largest screen size used in the test stream.

PROTECTION STATUS

The Test Stream Protection option specified when the test stream was logged.

ORIGINATING TEST STREAM

The source of this test stream. In other words, the test stream that was run which created this test stream.

OWNER

The person to whom this test stream belongs.

CREATED BY FUNCTION

The function that was used on the source test stream to create this test stream. Functions can be LOG, RUN, COPY, or RENAME.

Test Stream

The following fields are displayed in the Test Stream area.

TOTAL SCREENS IN: OUT:

The number of input and output screens in the test stream.

AVERAGE BYTES IN: OUT:

The average number of bytes in the input and output data streams.

Last Run

The following fields are displayed if the test stream was run.

EQUAL IN: OUT:

The number of physically or logically equal screens.

EQUIVALENT OUT:

The number of output screens which became logically equal through the definition of variable fields.

IGNORED OUT:

The number of unequal output screens which were ignored (option 6 on the Run Mismatch Options menu).

ACCEPTED OUT:

The number of unequal output screens which were accepted (option 7 on the Run Mismatch Options menu).

INSERTED IN: OUT:

The number of screens which were inserted (options 4 and 5 on the Run Mismatch Out-of-Synch Options menu).

DELETED IN: OUT:

The number of screens which were deleted (options 9 and 10 on the Run Mismatch Out-of-Synch Options menu).

CHANGED IN:

The number of input screens which were changed (option 8 on the Run Mismatch Options menu or a different buffer value when a Read Buffer is issued and the installation option READBUF=CURRENT is in effect).

NOT RUN IN: OUT:

The number of screens which were not run. The terminals associated with these screens were not selected when the test stream was run or the user terminated the run before they were processed.

Browse Terminal Information

When you type Enter on the Directory Information menu, CA Verify ART for VTAM displays:

- The Initial Terminal Status menu for a single terminal test stream
- The Terminal Selection menu for a multiple terminal test stream

The Initial Terminal Status menu is discussed next. See the [Select a Terminal](#) (see page 132) section for a discussion of the Terminal Selection menu.

Display the Initial Terminal Status

The Initial Terminal Status menu displays information for each terminal in the test stream.

```
CCC.ORDERAPP.001 ----- BROWSE: INITIAL TERMINAL STATUS -----12:36:51
ENTER COMMAND ==> B6

TERMINAL: A60L2049

VIRTUAL TERMINAL
ASSIGNMENT:

SCREEN SIZE: 24 BY 80          DEVICE TYPE: LOGICAL UNIT
ALTERNATE: IN USE             DEVICE CHARS: C06D001033800000

FEATURES:

BIND: LOGMODE:      D4C32782      LU TYPE:      02
    FM PROFILE:    03              EXT STREAM:   00
    TS PROFILE:    03              RESERVED:    00000000
    PLU PROTOCOL:  B1              SIZES:       18500000
    SLU PROTOCOL:  90              FLAGS:       7E00
    COM PROTOCOL:  3080            CRYPTOGRAPHY: 09
    TS FIELDS:     000187F80000
    LOGON DATA:

F1-HELP      F3-END      F4-RETURN    F10-LEFT    F11-RIGHT
```

This menu displays information about a terminal used to log the test stream. Most of the terminal status information is determined by the system programmer when the network is defined.

If the Log function extended a test stream, the screens may be from multiple terminals. In this case, the original terminal status information is used for the entire test stream.

When you have finished browsing the terminal status information for a single terminal test stream, press Enter to display the Record Selection menu.

TERMINAL

The name of the terminal used to log the test stream.

VIRTUAL TERMINAL ASSIGNMENT

The virtual terminal (if any) assigned to the terminal when the test stream was logged or edited.

SCREEN SIZE

The default screen size.

ALTERNATE

The alternate screen size.

DEVICE TYPE

The type of terminal used during logging; for example, 3277, 3284, logical unit, etc.

DEVICE CHARS

Device characteristics; i.e., model number and physical device address.

FEATURES

Identifies the terminal as capable of supporting a 3270 extended data stream, if applicable.

BIND

The following fields describe the BIND request parameters.

Logmode

Logon mode name which specifies a set of session parameters

FM Profile

Function management profiles used

TS Profile

Transmission services profile used

PLU Protocol

Primary logical unit protocols

SLU Protocol

Secondary logical unit protocols

COM Protocol

Common logical unit protocols

TS Fields

Transmission Services Usage fields

Logon Data

Logon user data (if any) from the initial logon command

LU Type

Type of LU-LU session in terms of SNA protocols and options

Ext Stream

3270 extended data stream identifier

Reserved

Contents of reserved field

Sizes

Presentation space sizes

Flags

PLU and SLU flags

Cryptography

Cryptographic control

Select a Terminal

The Terminal Selection menu is illustrated next. This menu is displayed automatically whenever you browse a multi-terminal test stream.

```
SAMPLE.MULTTERM.001 ---- BROWSE: TERMINAL SELECTION -----14:08:56
ENTER COMMAND ==>                                     BT

SELECT: "S"      ORIGINAL  TERMINAL  SCREEN  ALTERNATE  VIRTUAL
INQUIRY: "I"     TERMINAL  TYPE      SIZE     SIZE       TERMINAL

      -      A60L2048   3277 REMOTE  24 BY 80   24 BY 80
      -      A60L2049   3277 REMOTE  24 BY 80   24 BY 80
      -      A60L205A   3277 REMOTE  24 BY 80   24 BY 80
      -      A60L205B   3277 REMOTE  24 BY 80   24 BY 80
      ***  END OF TERMINALS  ***

TYPE AN "S" TO SELECT TERMINAL FOR BROWSE  TYPE AN "I" TO VIEW TERMINAL STATUS
F1-HELP          F3-CONTINUE  F4-RETURN      F7-UP          F8-DOWN
```

This menu lists all the terminals in the test stream. For each terminal, CA Verify ART for VTAM identifies its name, type, screen size, alternate size, and the virtual terminal (if any) assigned to that terminal.

Type **S** to the left of each terminal whose screens you want to browse. Then use the End (PF3) command to display the Record Selection menu.

Type **I** to the left of any terminal for which you want terminal status information. Then press Enter to display the Initial Terminal Status menu. When you are finished viewing the terminal status information, use the End (PF3) command to redisplay the Terminal Selection menu.

Use these commands as follows:

Assign

CA Verify ART for VTAM inserts **S** to the left of each terminal.

Reset

CA Verify ART for VTAM restores the initial screen setting with an underscore to the left of each terminal.

Cancel

CA Verify ART for VTAM cancels the browse and redisplay either the Test Stream Browse menu or the Test Stream Selection menu.

Use the Up (PF7) and Down (PF8) commands to scroll through the terminal list.

Browse Screens

If you select one or more terminals for browsing from the Terminal Selection menu or press Enter from the Initial Terminal Status menu (single terminal test stream only), CA Verify ART for VTAM displays the Record Selection menu. This menu lists the records in the test stream associated with all the terminals you selected.

```

CCC.ORDERAPP.001 ----- BROWSE: RECORD SELECTION -----12:40:4
2
ENTER COMMAND ==>
B7

  TERMINAL  APPLID    T/R TIME  OP   AID   VIEW  RECORD  ROW: 1 COL: 30
- A55TG001  USS         00:01.144 EW    ENTER    1  SSOCIATES INTERNAT
- A55TG001  USS         00:20.455 RM    ENTER    2  SSOCIATES INTERNAT
- A55TG001  USS         00:20.455 EW    3  EQUEST ACCEPTED AN
- A55TG001  A04IC9NA     00:26.796 CON   4  EQUEST ACCEPTED AN
- A55TG001  A04IC9NA     00:00.871 EW    5  NG MY REGION? (CIC
- A55TG001  A04IC9NA     00:01.680 RM    CLEAR    6
- A55TG001  A04IC9NA     00:00.000 EW    7
- A55TG001  A04IC9NA     00:01.843 RM    ENTER    8
- A55TG001  A04IC9NA     00:00.596 EW    9  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:01.235 RM    ENTER   10  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:00.001 EW   11  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:04.182 RM    ENTER   12  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:00.001 EW   13  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:01.703 RM    PF3    14  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:00.001 EW   15  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:00.814 RM    PF3    16  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:00.002 EW   17  CAROL'S COOKIES CO
- A55TG001  A04IC9NA     00:00.848 RM    PF3    18  CAROL'S COOKIES CO

TYPE AN "S" TO SELECT A RECORD
F1-HELP F3-END F4-RETURN F7-UP F8-DOWN F9-FORMAT F10-LEFT F11-RIGHT

```

Type S to the left of the record you want to browse and press Enter. Once you have selected a record, you can use the Prev (PF5) and Next (PF6) commands to display other records. See the chapter "Run Function", for examples of screens in Display, Field, and Hex format.

For each screen, CA Verify ART for VTAM identifies its:

Terminal:

The terminal name

Applid:

The VTAM applid

T/R Time:

The think time (for an input screen) or response time (for an output screen)

OP:

The operation:

W: write

EW: erase/write

EWA: erase/write alternate

RB: read buffer

RM: read modified

RMA: read modified all

EAU: erase all unprotected

WSF: write structured field

CPY: copy

RD: read

LUS: lstat

SIG: signal

DSC: disconnection

CON: connection

AID:

Attention ID used to generate input; for example, Enter, PF3

View:

Whether there are mismatches (M), rules applied (R), or both (M,R)

Record:

Record number

ROW COL:

Data from the record which appears in row 1

To position the display beginning with a specific record, type the record number in the Command field and press Enter.

Use the Left (PF10) and Right (PF11) commands to shift the display so you can view additional data from the record.

Use CA Verify ART for VTAM commands as follows:

Profile

Displays the Selection Profile so you can select which information should appear when CA Verify ART for VTAM redisplay the Record Selection menu. This menu is illustrated in the following screen.

Format

Changes the data display beneath the Row/Col to Display or Dump.

See the [Browse Commands](#) (see page 137) section later in this chapter for a detailed discussion of the Format command.

Change the Fields on the Record Selection Menu

Enter the Profile command on the Record Selection menu to display the Selection Profile menu.

```
CCC.ORDERAPP.001 ----- BROWSE: SELECTION PROFILE -----12:41:16
ENTER COMMAND ==> B8

S  TERMINAL  (TERMINAL NAME)
S  APPLID    (APPLICATION ID)
S  T/R TIME  (THINK/RESPONSE TIME)
S  OP        (OPERATION)
   LEN       (DATA LENGTH)
S  AID       (ATTENTION ID)
S  VIEW      (MISMATCH/RULES INDICATORS)
   WCC       (WRITE CONTROL CHARACTER)
S  RECORD    (RECORD NUMBER)
   CURSOR    (CURSOR ROW/COLUMN)
   SIZE      (SCREEN SIZE)
   DATE      (DATE LOGGED OR LAST CHANGED)
   TIME      (TIME LOGGED OR LAST CHANGED)
   RH        (REQUEST HEADER)
S  DATA     (DISPLAY OR DUMP FORMAT DATA)

TYPE AN "S" TO SELECT A FIELD FOR DISPLAY

F1-HELP      F3-END      F4-RETURN
```

This menu lists all the fields which can appear on the Record Selection menu. The currently displayed fields have an S next to them. In addition to the fields illustrated in the previous screen, you can select the following fields:

LEN:

Data length

WCC:

Write control character

Cursor:

Cursor's row and column position

Size:

Screen size

Date:

Date the record was logged or last changed by the Edit or Run functions

Time:

Time the record was logged or last changed by the Edit or Run functions

RH:

Request header

When you have finished selecting fields, use the End (PF3) command to return to the Record Selection menu. The fields you have selected will now appear.

Browse Commands

Use the following commands to browse screens:

Command	Function
Up (PF7)	Scrolls up through a record.
Down (PF8)	Scrolls down through a record.
Left (PF10)	Scrolls left through a record.
Right (PF11)	Scrolls right through a record.
Prev (PF5)	Scrolls backward through a test stream.
Next (PF6)	Scrolls forward through a test stream.
Rotate (PF2)	Rotates between the original and current screens and mismatch information.
Enter	Scrolls forward through a test stream.
Format (PF9)	Shifts between Display, Field, and Hex formats.
Find	Scans a test stream for a character string.
Rfind	Repeats the last Find command.
Reset	Removes the Find or Change parameters specified on the menu.
End (PF3)	Ends the browse of a record and redisplay the Record

Selection menu.

Most of these commands are discussed in detail in the sections which follow.

Scrolling

UP (PF7), Down (PF8), Left (PF10), Right (PF11)

Scrolls through the record for all three formats. You can enter these commands with a number to scroll a specified number of rows, columns, or segments; for example, Up 8, Left 20. You can also specify Maximum to scroll to the top, bottom, extreme left or right of the data; for example, Up Maximum.

Next (PF6), Prev (PF5)

Scrolls forward or backward through the test stream in accordance with the Browse viewing options you selected on the Test Stream Browse menu. The default is one record. You can also specify a number or Maximum with these commands. For example, if record 1 is displayed and you type Next 4, CA Verify ART for VTAM displays record 5. If you type Next Maximum, CA Verify ART for VTAM displays the last record.

You can also view a record by typing its record number in the Command field. If the record you specify cannot be viewed, the next or last viewable record will be displayed.

Rotate (PF2)

Scrolls within a record in accordance with the Browse viewing options you selected. For example, you can shift between the original output screen, the current output screen and unequal rows.

Enter

Scrolls within a record, like the Rotate command, and from the last viewable part of one record to the next viewable part of the next record in accordance with the Browse viewing options you selected.

Change Formats

Format (PF9)

Use the Format (PF9) command to shift between Display, Field, and Hex formats. Although parameters aren't required, you can also specify Format xxx, replacing xxx with one of the following:

Display	Immediately shifts to Display format
Field	Immediately shifts to Field format

Hex	Immediately shifts to Hex format
NODisplay	Disables Display format
NOField	Disables Field format
NOHex	Disables Hex format

For example, Format F displays the screen in Field format.

If the format being disabled is the one currently in use, CA Verify ART for VTAM automatically switches to the next available format. If the current format is the only one enabled, CA Verify ART for VTAM displays an error message and does not alter the display.

Note: Do *not* use Display format for input-only test streams.

Locate Data

Find/Rfind

Scans the test stream for a character string. You can specify these commands in all three display formats.

The Find command searches once for the specified value; the Rfind command repeats the previous Find command. Use the Rfind command to locate additional occurrences of the value *without* respecifying it.

When you enter the Find command, CA Verify ART for VTAM inserts the Find parameters on the menu as illustrated next.

```

CCC.ORDERAPP.001 ----- BROWSE: DISPLAY FORMAT -----14:56:22
ENTER COMMAND ==>                                     RECORD: 2

ROW      COLUMN      SCREEN ID ==>
==>      ==>      SCAN      ==>
==>      10        20        30        40        50        60        70      B5
-----+-----+-----+-----+-----+-----+-----+-----
| DATE 01/04/98                CAROL'S COOKIES COMPANY                RELEASE 6.2
|
| TIME 12:49:58                MAIN MENU
|
| 4
|
|
| 8      ENTER OPTIONS:
|
|          1) PLACE AN ORDER
|          12
|          2) CHECK STATUS OF AN ORDER
|          16

```

The Find command has two parameters: Screen ID and Scan. You can specify values for one or both parameters. If you specify both values, both must be satisfied.

Screen ID

The value specified for this parameter applies to the screen as it appears in Display format. The Row and Column sub-parameters must be specified. CA Verify ART for VTAM will search for the value only in the specified row and column.

Scan

The value specified for this parameter applies to the screen in Field format. The Row and Column sub-parameters are optional. Specify a row without a column to limit the search to a single row; specify a column without a row to limit the search to a single column. Omit both row and column to search the entire screen for the value.

Although the Find and Rfind commands can be entered in Display format, the value specified in the Scan parameter applies to the screen in Field format.

Note: To find orders, specify the Find or Rfind command in Hex format, omitting the Scan parameter row and column.

If CA Verify ART for VTAM finds the string, it displays the record in which it was found; otherwise, the current record is redisplayed along with a message.

Specify the Value

Follow these rules when specifying the Screen ID and Scan values:

- A character value should *not* be specified in single quotes; for example, value.
- A hexadecimal value should be preceded by X and enclosed in single quotes; for example, X'value'.
- Embedded blanks are permitted within a character value; trailing blanks are ignored.

When to Use Screen ID or Scan

A difference exists between the data you view on your terminal and the data transmitted to and from your terminal for the following reasons:

- On *output*, successive transmissions can cumulatively build a terminal display.
- On *input*, only *modified* data is transmitted, not the entire display.

Although CA Verify ART for VTAM captures only the actual transmission, during the Browse, Run, and Edit functions the terminal display is reconstructed.

Use Screen ID to find a screen based on how it appears at a terminal (Display format). Use Scan to find a screen by the actual data transmitted to or from the terminal (Field format).

Remove Parameters

Reset

Removes the Find command parameters from the menu. These parameters are also removed when the Find command is successfully processed or when the parameters are blank.

Chapter 7: Edit Function

This chapter describes how to edit a test stream.

This section contains the following topics:

[Overview](#) (see page 143)

[Invoke the Edit Function](#) (see page 144)

[Edit Directory Information](#) (see page 146)

[Edit Terminal Information](#) (see page 147)

[Select Records](#) (see page 149)

[Edit Records](#) (see page 150)

[Edit Commands](#) (see page 153)

Overview

The Edit function lets you change input and output screens in a test stream. You can reduce your need for the Edit function by using rules the next time you upgrade your test stream or application to a new release.

Use the Edit function to:

- Change fields, such as dates, before running a test stream
- Create new test data. For example, you can copy a test stream and then revise the input data to create different test cases.

If you edit a test stream, CA Verify ART for VTAM also updates the log date and time stored with each record that is changed.

Note: How to edit a ruleset or rule is covered in the chapter "Rules Function".

Invoke the Edit Function

To edit a test stream, type **E** on the Primary Options Menu. CA Verify ART for VTAM displays the Test Stream Edit menu.

```
----- TEST STREAM EDIT -----13:59:34
ENTER COMMAND ==>                                     E1

ENTER TEST STREAM NAME:
DDNAME      ==> TCADS
APPLICATION ==>
MEMBER      ==>
VERSION     ==> 001      (LEAVE APPLICATION, MEMBER,
                        OR VERSION BLANK AND PRESS
                        ENTER FOR A SELECTION LIST)

F1-HELP    F3-END    F4-RETURN
```

The default ddname and Version values appear and can be changed.

If you know the test stream you want to edit:

1. Type the Application and Member name and other identifiers, if necessary
2. Press Enter.
3. CA Verify ART for VTAM displays the Directory Information menu for that test stream.

If you don't know the test stream you want to edit:

1. Leave the Application and Member field blank.
2. Optionally, blank out other identifiers.
3. Press Enter.
4. CA Verify ART for VTAM displays the Test Stream Selection menu.

Select a Test Stream from the Test Stream Selection Menu

The Test Stream Selection menu lists all the test streams for the specified ddname.

Your position in the list depends on your specifications on the Test Stream Edit menu.

- If the Application field was blank, CA Verify ART for VTAM positions you at the first test stream for the specified ddname.
- If you left only the Member field blank, CA Verify ART for VTAM positions you just before the first test stream for the specified ddname and Application.
- If you keyed in a partial name, CA Verify ART for VTAM positions you accordingly. For example, if you specified PAY as the Member name without a Version number, CA Verify ART for VTAM positions you just before the first test stream whose member name begins with 'PAY'.

See the chapter "Browse Function" for a description of the Test Stream Selection menu.

Type S to the left of the test stream you want to edit and press Enter. CA Verify ART for VTAM displays the Directory Information menu for that test stream.

Use the Up (PF7) and Down (PF8) commands to scroll through the Test Stream Selection list. The default scroll amount is 17 rows. To override the default, specify the number of lines or Maximum (for example, Down 25, Down Maximum).

Edit Directory Information

The Directory Information menu describes Log, Run, and Edit functions involving the test stream. If the Online Utilities were used to Append, Insert, or Merge the test stream, the Edit heading will be replaced with the appropriate heading.

```

CCC.ORDERAPP.002 ----- EDIT: DIRECTORY INFORMATION -----13:44:46
ENTER COMMAND ==>                                     E3

DESCRIPTION ==> CAROL'S COOKIES COMPANY DEMO PROGRAM
              ==>
              ==>

LOG:          RUN:          EDIT:          TEST STREAM:      IN:    OUT:
INVOKED BY:                                TOTAL SCREENS:    6      6
INVOKED ON: 06/02/1998 06/03/1998          AVERAGE BYTES:   46    315
START TIME: 13:23:04 08:34:50
DURATION:   00:02:02 00:00:00              LAST RUN:          IN:    OUT:
SYSTEM:     A04IC9NA A04IC9NA              EQUAL:          6      1
STATUS:     NORMAL  LOGICALLY EQUAL        EQUIVALENT:         5
TERMINAL:   A60L2048                      IGNORED:           0
VSAM CI'S:  2                             ACCEPTED:         0
                                           INSERTED:         0
                                           DELETED:         0
                                           CHANGED:         0
                                           NOT RUN:         0
                                           OWNER:
ORIGINATING TEST STREAM: CCC.ORDERAPP.001  CREATED BY FUNCTION: RUN

AVERAGE THINK TIME: 00:00:20.256
AVERAGE RESPONSE TIME: 00:00:00.013
MAXIMUM SCREEN SIZE: 24 BY 80

F1-HELP      F3-END      F4-RETURN

```

See the "Browse Function" chapter for a description of the Directory Information fields.

Update Directory Information

You can change the Description field by keying in a new description.

If you edit the test stream — for example, by deleting screens or changing fields, CA Verify ART for VTAM will update the Total Screens and Average Bytes fields when you save the edited test stream. If necessary, CA Verify ART for VTAM will also adjust the Duration, Average Think Time, and Average Response Time fields.

Continue the Edit Function

When you press Enter, CA Verify ART for VTAM displays:

- The Initial Terminal Status menu for a *single* terminal test stream
- The Terminal Selection menu for a *multiple* terminal test stream

If you type a record number in the Command field and press Enter, CA Verify ART for VTAM displays the record you selected—bypassing the Terminal Status and Terminal Selection panels.

Edit Terminal Information

The Initial Terminal Status menu displays information for each terminal in the test stream.

```

CCC.ORDERAPP.001 ----- EDIT: INITIAL TERMINAL STATUS -----12:41:41
ENTER COMMAND ==>                                         E6

TERMINAL ==> A55TG001

VIRTUAL TERMINAL
ASSIGNMENT ==>

SCREEN SIZE: 24 BY 80                                DEVICE TYPE: LOGICAL UNIT
ALTERNATE: IN USE                                   DEVICE CHARS: C06D000000800000

FEATURES: EXTENDED 3270 DATA STREAM

BIND: LOGMODE:      T3278M2E                          LU TYPE:      02
FM PROFILE: 03      EXT STREAM: 80
TS PROFILE: 03      RESERVED: 00000000
PLU PROTOCOL: B1    SIZES: 00000000
SLU PROTOCOL: 90    FLAGS: 0200
COM PROTOCOL: 3080  CRYPTOGRAPHY: 09
TS FIELDS: 000788888700
LOGON DATA:

F1-HELP      F3-END      F4-RETURN      F10-LEFT      F11-RIGHT

```

See the "Browse Function" chapter for a description of the fields.

Use the Enter key to display the Record Selection menu.

Two fields can be specified on this menu and are explained next.

Terminal Name

Change the terminal by overtyping the terminal name. The Record Selection menu and Field format displays will reference the old name until you save the edited test stream. For a multiple terminal test stream, the Terminal Selection menu will reference the new name if you redisplay that menu.

Virtual Terminal Assignment

Assign a virtual terminal to be used whenever the test stream is run by specifying a netname in this field. This assignment overrides installation and other specifications, such as running with real terminals or printers. Virtual terminal assignment applies only to VTAM virtual terminals and is ignored if you are using BTAM virtual terminals.

You can specify a generic netname; for example, NET===== . CA Verify ART for VTAM will then use any virtual terminal that fits the specification, such as NET00001, NET00002, and so on.

Select a Terminal

The Terminal Selection menu lists all the terminals in the test stream. See the "Browse Function" chapter for a description of this menu.

Type S to the left of each terminal whose screens you want to edit and use the End (PF3) command. CA Verify ART for VTAM displays the Record Selection menu.

Type I to the left of any terminal for which you want terminal status information and press Enter. CA Verify ART for VTAM displays the Initial Terminal Status menu, illustrated in the previous panel.

Use these commands:

Assign

CA Verify ART for VTAM inserts **S** to the left of each terminal.

Reset

CA Verify ART for VTAM restores the initial screen setting with an underscore to the left of each terminal.

Cancel

CA Verify ART for VTAM cancels the edit and redisplay either the Test Stream Edit menu or the Test Stream Selection menu.

Up (PF7)/Down (PF8)

Commands are used to scroll through the terminal list.

Select Records

The Record Selection menu lists the records in the test stream associated with all the terminals you selected and is automatically displayed whenever you select a multi-terminal test stream to browse.

```

CCC.ORDERAPP.001 ----- EDIT: RECORD SELECTION -----12:41:45

ENTER COMMAND ==> E7

  TERMINAL  APPLID    T/R TIME  OP  AID  VIEW  RECORD  ROW: 1 COL: 30
-  A55TG001  USS       00:01.144  EW                1  SSOCIATES INTERNAT
-  A55TG001  USS       00:20.455  RM  ENTER         2  SSOCIATES INTERNAT
-  A55TG001  USS       00:20.455  EW                3  EQUEST ACCEPTED AN
-  A55TG001  A04IC9NA    00:26.796  CON              4  EQUEST ACCEPTED AN
-  A55TG001  A04IC9NA    00:00.871  EW                5  NG MY REGION? (CIC
-  A55TG001  A04IC9NA    00:01.680  RM  CLEAR         6
-  A55TG001  A04IC9NA    00:00.000  EW                7
-  A55TG001  A04IC9NA    00:01.843  RM  ENTER         8
-  A55TG001  A04IC9NA    00:00.596  EW                9  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:01.235  RM  ENTER        10  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.001  EW        11  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:04.182  RM  ENTER        12  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.001  EW        13  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:01.703  RM  PF3          14  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.001  EW        15  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.814  RM  PF3          16  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.002  EW        17  CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.848  RM  PF3          18  CAROL'S COOKIES CO
TYPE AN "S" TO SELECT A RECORD
F1-HELP F3-END F4-RETURN F7-UP F8-DOWN F9-FORMAT F10-LEFT F11-RIGHT

```

See the "Browse Function" chapter for a description of this menu and a list of the commands which you can type. See the "Browse Function" chapter for an explanation of the Selection Profile menu which you can use to change the fields displayed on the Record Selection menu.

Type S to the left of the record you want to edit and press Enter.

Screen Formats

The Edit function displays records in Field, Hex, and Display format. Field format is the default. The Edit function also displays Connection and Disconnection records. See the discussion of screen formats and Connection/Disconnection records in the chapter "Run Function" for more information.

Note: Do *not* use Display format for input only test streams.

Scroll through the Record

Use the Up (PF7), Down (PF8), Left (PF10), and Right (PF11) commands to display the entire record. The default scroll amounts for each screen format are described in the "Run Function" chapter.

Scroll through the Test Stream

In Display format, you can press Enter to scroll forward from one screen to another in the test stream. For example, if you select the first screen for editing, you can press Enter repeatedly to scroll forward through the entire test stream.

Use the Next (PF6) and Prev (PF5) commands to scroll to the next or previous record. You can specify a number with these commands. For example, if record 1 is displayed and you type Next 4, CA Verify ART for VTAM displays record 5.

Scroll directly to a record by typing its record number in the Command line. If the specified record cannot be displayed, CA Verify ART for VTAM will display the next or previous record which can be displayed.

Edit Records

You can type editing commands on any test stream record display. See the Edit Commands section in this chapter.

When you save a test stream which has been edited, CA Verify ART for VTAM updates the log date and time of each record which has been changed. The date and time are displayed when you view the record in Field format.

Change Screen Data

You can change the data transmitted to or from the terminal in Field or Hex formats. A sample screen in Field format is illustrated next.

Note: Use PF9 to rotate between the formats.

CCC.ORDERAPP.001 ----- EDIT: FIELD FORMAT -----12:42:14
ENTER COMMAND ==> E4

TYPE:	OUTPUT	RH:	039040	RECORD NUMBER:	9
OPERATION:	ERASE/WRITE	APPL:	A04IC9NA	DATA LENGTH:	266
RESPONSE:	00:00:00.596	DATE:	11/03/1998	SCREEN SIZE:	24 BY 80
		TIME:	11:53:58.406	TERMINAL:	A55TG001
WCC: C2: NL/EM/CR PRINT CNTL, KEYBOARD RESTORE					
ORDER	ROW	COL	ATTR	LENGTH	-----+----- -----+----- -----+----- -----+----- -----+-----
SBA	7	16		00000	
IC				00000	
FLD	1	1	PSH	00004	DATE
SF			PS	00008	11/03/98
FLD	1	29	PSH	00023	CAROL'S COOKIES COMPANY
FLD	1	63	PSH	00007	RELEASE
SF			PSM	00003	6.2
FLD	2	1	PSH	00004	TIME
SF			PS	00008	11:53:58
FLD	2	36	PSH	00009	MAIN MENU
FLD	7	1	PSH	00013	ENTER OPTION:
SF			UM	00000	
FLD	7	17	PS	00001	
FLD	10	9	PSH	00017	1) PLACE AN ORDER
FLD	12	9	PSH	00027	2) CHECK STATUS OF AN ORDER

The display is divided into segments determined by each order. For non-3270 terminal test streams, the Field and Hex display is divided into 40-byte segments.

Edit this screen as follows:

- Change the data under the ruler by overtyping it
- Change the length of the data by overtyping the Data Length field. CA Verify ART for VTAM will either truncate the data or pad it with blanks to the specified length.

The following rules apply:

- The row, column, or attribute of a field cannot be changed in Field format; use Hex format to make changes.
- Invalid 3270 characters cannot be changed in Field format; use Hex format to change them.
- Input screens which contain non-display (dark) fields and which were captured when the installation option DRKPROT=YES was in effect can be edited only in Field format.

A sample screen in Hex format appears next.

```

CCC.ORDERAPP.002----- EDIT: HEX FORMAT -----13:49:08
ENTER COMMAND ==>E9

OFFSET  LENGTH  -----+-----|-----+-----|-----+-----|-----+-----RECORD:  2
0      00004    B G?
                  C1C6
                  217F

4      00001
                  1
                  3

5      00009      8DATE
                  1441FCCEC
                  100D84135

14     00010      006/29/98
                  1FFF6FF6FF
                  D006129198

24     00028      * 8CAROL'S COOKIES COMPANY
                  1451FCCDD7E4CDDDCCE4CDDDCDE
                  10CD831963D20366295203647158

F2-ROTATE  F3-END  F5-PRV  F6-NXT  F7-UP  F8-DWN  F9-FORMAT  F10-LEFT  F11-RIGHT

```

The display is divided into segments determined by each order. For non-3270 terminal test streams, the display is divided into 40-byte segments.

Edit this screen as follows:

- Change the data, including orders, by overtyping it
- Change the length of the data by overtyping the Length field. CA Verify ART for VTAM will either truncate the data or pad it with blanks to the specified length.
- Change invalid 3270 characters in either of the hex lines, but *not* in the character line

The following rules apply:

- The offset cannot be changed.
- Erased characters in the character line are replaced with blanks; erased characters in hex lines are restored to their original values.
- Changes in either hex line take precedence over changes in the character line, except when a character has been changed in the character line and its corresponding hex representation has been erased in one or both of the hex lines. In this case, the character change takes precedence.

- For a 3270 test stream, if you type an order or modify existing data so that it becomes an order, the existing field will be split at the new order when the screen is refreshed.
- Input screens which contain non-display (dark) fields and which were captured when the installation option DRKPROT=YES was in effect can only be edited in Field format.

Edit Commands

Use the following commands to edit screens:

Find

Scans a test stream for a character string.

Rfind

Repeats the last Find command.

Change

Scans a test stream for a character string and replaces it with a specified string.

Rchange

Repeats the last Change command.

Reset

Removes the Find or Change command parameters specified on the menu.

Delete

Removes a specified range of screens from a test stream or removes all screens associated with a terminal for a multiple terminal test stream.

Save

Saves the edited test stream. CA Verify ART for VTAM remains in edit mode.

End(PF3)

Saves the edited test stream and redisplay the Test Stream Edit or Test Stream Selection menu.

Return(PF4)

Saves the edited test stream and redisplay the Primary Options Menu.

Cancel

Cancels the edit, discards all changes, and redisplay the Test

Clear

Stream Edit or Test Stream Selection menu.

PA2

Redisplays the current menu. Any data you have keyed in is removed *without* being processed.

Locate Data**Find/Rfind**

Scans the test stream for a character string. You can specify these commands in all three formats.

Note: Although the Find and Rfind commands can be typed in Display format, the value specified in the Scan parameter applies to the screen in Field format. Similarly, if the commands are typed in Field or Hex format, the value specified in the Screen ID parameter applies to the screen in Display format.

The Find command searches once for the specified value; the Rfind command repeats the previous Find command. Use the Rfind command to locate additional occurrences of the character string *without* respecifying it.

When you type the Find command, CA Verify ART for VTAM inserts the Find parameters on the menu as illustrated next.

```

CCC.ORDERAPP.001 ----- EDIT: FIELD FORMAT -----12:43:12
ENTER COMMAND ==>                                         E4

ROW      COLUMN      VALUE
==>      ==>          ==>
==>      ==>          ==>
                        SCREEN ID
                        SCAN
                        RH: 039040      RECORD NUMBER: 9
TYPE:      OUTPUT      APPL: A04IC9NA    DATA LENGTH: 266
OPERATION: ERASE/WRITE  DATE: 11/03/1998    SCREEN SIZE: 24 BY 80
RESPONSE:  00:00:00.596 TIME: 11:53:58.406  TERMINAL: A55TG001
WCC: C2: NL/EM/CR PRINT CNTL, KEYBOARD RESTORE
ORDER ROW COL ATTR LENGTH -----|-----|-----|-----|-----
SBA   7  16      00000
IC    1   1      00004
FLD   1   1 PSH   00008 DATE
SF    1   1 PS    00023 11/03/98
FLD   1  29 PSH   00007 CAROL'S COOKIES COMPANY
FLD   1  63 PSH   00003 RELEASE
SF    1   1 PSM   00004 6.2
FLD   2   1 PSH   00008 TIME
SF    2   1 PS    00008 11:53:58
FLD   2  36 PSH   00009 MAIN MENU
FLD   7   1 PSH   00013 ENTER OPTION:
SF    7   1 UM    00000

```

The Find command has two parameters: Screen ID and Scan. You can specify values for one or both parameters. If you specify both values, both must be satisfied.

Screen ID

The value specified for this parameter applies to the screen as it appears in Display format. The Row and Column sub-parameters must be specified. CA Verify ART for VTAM will search for the value only in that row and column.

Scan

The value specified for this parameter applies to the screen in Field format. The Row and Column sub-parameters are optional. Specify a row without a column to limit the search to a single row; specify a column without a row to limit the search to a single column. Omit both row and column to search the entire screen.

Although the Find and Rfind commands can be typed in Display format, the value specified in the Scan parameter applies to the screen in Field format.

Note: To find orders, specify the Find and Rfind commands in Hex format, omitting the Scan parameter row and column.

If CA Verify ART for VTAM finds the string, it displays the record in which it was found; otherwise, the current record is redisplayed along with a message.

Specifying the Value

Follow these rules when specifying the Screen ID and Scan values:

- A character value should *not* be specified in single quotes; for example, value
- A hexadecimal value should be preceded by X and enclosed in single quotes; for example, X'value'
- Embedded blanks are permitted within a character value; trailing blanks are ignored.

When to Use Screen ID or Scan

A difference exists between the data you view on your terminal and the data transmitted between your terminal and CICS for the following reasons:

- On *output*, successive transmissions can cumulatively build a terminal display.
- On *input*, only *modified* data is transmitted, not the entire display.

Although CA Verify ART for VTAM captures only the actual transmission, during the Browse, Run, and Edit functions the terminal display is reconstructed.

Use Screen ID to find a screen based on how it appears at a terminal (Display format); use Scan to find a screen by the actual data transmitted to or from the terminal (Field format).

Locate and Change Data

Change/Rchange

Finds and changes data in a test stream. These commands can be typed in all three formats. The values specified in the Scan and Replace parameters apply to the screen in Field format. Similarly, if these commands are typed in Field or Hex format, the value specified in the Screen ID parameter applies to the screen in Display format.

The Change command searches for each occurrence of the specified value and replaces it. The Rchange command repeats the previous Change command for the next occurrence. Use the Rchange command to locate and change additional occurrences of the value *without* respecifying it.

You can also specify the Rfind command after the Change command to repeat the search *without* replacing the value.

You can optionally specify the range of records which CA Verify ART for VTAM should search.

If CA Verify ART for VTAM finds the value, it replaces it with the new value and displays the changed record; otherwise, it redisplay the current record along with a message.

If you expand a field, the location of subsequent 3270 fields will **not** be changed. Avoid destructive field overlap.

When you type the Change command, CA Verify ART for VTAM inserts the Change parameters on the menu as illustrated next.

```

CCC.ORDERAPP.001 ----- EDIT: FIELD FORMAT -----12:43:41
ENTER COMMAND ==>                                         E4

ROW      COLUMN      VALUE
==>      ==>      SCREEN ID ==>
==>      ==>      SCAN ==>
                        REPLACE ==>
START WITH RECORD NUMBER ==> 000009 STOP AFTER RECORD NUMBER ==> 000009
                                RH: 039040 RECORD NUMBER: 9
TYPE: OUTPUT APPL: A04IC9NA DATA LENGTH: 266
OPERATION: ERASE/WRITE DATE: 11/03/1998 SCREEN SIZE: 24 BY 80
RESPONSE: 00:00:00.596 TIME: 11:53:58.406 TERMINAL: A55TG001
WCC: C2: NL/EM/CR PRINT CNTL, KEYBOARD RESTORE
ORDER ROW COL ATTR LENGTH -----+-----+-----+-----+-----+
SBA 7 16 00000
IC 00000
FLD 1 1 PSH 00004 DATE
SF PS 00008 11/03/98
FLD 1 29 PSH 00023 CAROL'S COOKIES COMPANY
FLD 1 63 PSH 00007 RELEASE
SF PSM 00003 6.2
FLD 2 1 PSH 00004 TIME
SF PS 00008 11:53:58
FLD 2 36 PSH 00009 MAIN MENU

```

The Change command has five parameters: Screen ID, Scan, Replace, Start With Record Number, and Stop After Record Number. The Scan and Replace parameters must be specified; other parameters are optional.

Screen ID

If specified, CA Verify ART for VTAM checks the screen as it appears in Display format before processing the Scan and Replace parameters. The Row and Column sub-parameters *must* be specified. The change will apply only to screens which contain the Screen ID value specified in the row and column.

Usually this parameter is specified with a record range (see the Start With Record Number and Stop After Record Number parameters next).

When processing the Screen ID parameter, CA Verify ART for VTAM treats an attribute or null on the screen as a blank.

Scan

The value specified for this parameter applies to the screen in Field format. You can scan only for data because attributes and nulls will not be changed. (Use Hex format to change attributes and orders.)

The Row and Column sub-parameters are optional. Specify a row without a column to limit the search to a single row; specify a column without a row to limit the search to a single column. Omit both row and column to search the entire screen.

To change orders, the AID, WCC, or cursor position, specify the Change or Rchange command in Hex format, omitting the Scan parameter row and column. Be careful when using these commands in Hex format to avoid changing orders unintentionally.

Replace

Specify the value to replace the Scan value. The number of characters may be the same, greater than, or less than the number of characters in the Scan value. Data in the field following the Scan value will be shifted left or right if the Replace value is shorter or longer than the Scan value.

Start with Record Number/

Specify either or both of these parameters to expand the

Stop after Record Number

Is the current record. Use these parameters to make global changes.

See the earlier discussion of the Find/Rfind commands for an explanation of how to specify the value and when to specify Screen ID and Scan.

Remove Parameters

Reset

Removes the Find and Change command parameters from the menu. These parameters are also removed when these commands are successfully processed or when the parameters are blank.

Delete Records and Terminals

Delete

Deletes the displayed record or all the records for a terminal. This command can be typed in all three display formats.

Delete Records

Specify the Delete command to delete the displayed record.

To delete multiple records, type Delete nn, where nn represents the number of records to be deleted. For example, if you type Delete 3, CA Verify ART for VTAM will delete the displayed record and the next two records.

For a multiple terminal test stream, the deleted records will be from the same terminal as the displayed record; records from other terminals will be ignored.

Because most applications alternately receive input from the terminal and send output to the terminal, you should usually delete an even number of screens. CA Verify ART for VTAM will display a warning message on the Confirm Delete menu, illustrated in the following panel, if the deletion will result in:

- Two consecutive input screens
- Two consecutive output screens
- An output screen which is the first record for a single terminal test stream or the first record for a terminal in a multiple terminal test stream

Deleting Terminals and All Records

To delete *all* the records for a terminal in a multiple terminal test stream, type the Delete command on the Initial Terminal Status menu. CA Verify ART for VTAM will also delete the initial terminal status information.

You cannot delete all the records for:

- A single terminal test stream
- The only remaining terminal in a multiple terminal test stream. Instead, use the Utilities Delete function to delete the test stream.

Confirming the Deletion

When you specify the Delete command, CA Verify ART for VTAM displays the Confirm Delete menu.

```
----- EDIT: CONFIRM DELETE -----10:15:30
ENTER COMMAND ==>                                ED

FIRST RECORD TO BE DELETED:          2
LAST RECORD TO BE DELETED:          2
NUMBER OF RECORDS TO BE DELETED:    1

NOTE: THE TEST STREAM WILL CONTAIN TWO CONSECUTIVE INPUT SCREENS FROM THE SAME
TERMINAL. THIS MAY CAUSE SYNCHRONIZATION ERRORS IN THE RUN FUNCTION.  THE PRIOR
INPUT SCREEN FROM THIS TERMINAL SHOULD ALSO BE DELETED.

F1-HELP    F3-END    F4-RETURN
```

Note: CA Verify ART for VTAM warns you if the deletion might create a synchronization error.

Press Enter to confirm the deletion or use the End (PF3) command to cancel it.

Chapter 8: Rules Function

This chapter explains how to access the Rules function, define rulesets, and specify rules *before* running a test stream. See the "Run Function" chapter for detailed instructions on using rulesets *while* running a test stream.

You can also control what is logged by using logging rules. See the chapter "Log Function" for details on using this type of rule.

See the *Rules Primer* for a tutorial that focuses on using the Rules function.

This section contains the following topics:

[Overview](#) (see page 161)

[Use the Rules Function Panels](#) (see page 164)

[Invoke the Rules Function](#) (see page 166)

[Browse Through Rulesets and Rules](#) (see page 167)

[Create a Ruleset](#) (see page 171)

[Add Rules to a Ruleset](#) (see page 175)

[Maintain a Ruleset](#) (see page 207)

Overview

CA Verify ART for VTAM is used to identify changes in a test stream of pre-recorded 3270 activities. This test stream can be used over and over again against a new software release for both regression and volume testing. However, instead of using the RUN Mismatch panel to pinpoint these changes during runtime, you can use the *Rules* function to identify known changes before running a test stream and specify, in advance, how CA Verify ART for VTAM is to handle each change.

To identify changes within a test stream, you must first tell CA Verify ART for VTAM how to recognize the screens that need changes. This is done by creating rules that define what the changes are. This collection of rules is called a *ruleset*.

There are three types of rulesets: test stream, system, and application. How a rule is applied when the test stream is run depends on the type of ruleset that the rule belongs to.

- In a *test stream ruleset*, rules are applied to all screens in the test stream.
- In a *system ruleset*, rules are applied to all screens in all test streams in the system.
- In an *application ruleset*, rules are applied to all test streams in the application.

You can find more detailed information on the different types of rulesets in the section, [Create a Ruleset](#), (see page 171) later in this chapter.

All of the rulesets in the data set are listed on the Ruleset Selection Menu. From this menu, you can use the Ruleset Browse feature to examine the summary information about the rules within a ruleset. This information lists all of a ruleset's rules, and summarizes the actions each rule performs.

How is the Rules Function Used?

There are two situations in which rules are used:

- During Logging

Logging rules are used to control what is logged. Using the Rules function, you can create lists of user IDs, terminals, or transaction IDs that can be included or excluded while logging. For details on this Rules function capability, see the chapter "Log Function".

- During a Run

Run rules are used to manipulate a test stream for known application changes. You can define these rules during a run or before a run begins.

A ruleset is run with a particular test stream to dynamically identify specified changes during runtime—allowing your test stream to run more smoothly and efficiently. For example, a common change within an application is to upgrade its release number. Using a ruleset, you can identify this change once, tell CA Verify ART for VTAM how to handle the release number discrepancy whenever it is encountered, and then forget about it. CA Verify ART for VTAM will then interrupt your test stream only for true exceptions.

Procedure for Using the Rules Function

The procedure for using the Rules function to identify changes before a run begins is shown next.

1. Review the expected application changes.
2. Determine which of these changes will produce screen changes in your existing test streams (for example, a field was added, a field was moved, a title has been changed, a new screen was added, or an existing screen was removed).
3. Establish a ruleset. This ruleset notifies CA Verify ART for VTAM that you are expecting certain changes and specifies how to handle them.

To establish a ruleset, you must:

- a. Invoke the Rules function.
- b. Select Add a Ruleset to create a new ruleset.
- c. Add rules to the ruleset.

- d. Add rule actions to the rules. Recognition criteria and modeling are optional.

While defining rules, calculating the exact coordinates of a field within a panel can be very time consuming. You can allow CA Verify ART for VTAM to automate this calculation for you by using the modeling feature of the Rules function. The modeling feature can be used wherever rule actions are specified. This feature takes the guesswork out of the placement of the fields on a panel by allowing CA Verify ART for VTAM to fill in the placement values for you.

4. Run the test stream. CA Verify ART for VTAM will recognize which screens need to be changed, automatically make the substitutions, and add or delete fields as specified in the rules without interrupting the run.

Create Rules for Existing Test Streams

If you have an existing test stream that was created with CA Verify ART for VTAM Release 1.2 or earlier, you can create a base ruleset for it by either:

- Running the test stream with the current release
- Using an online or batch utility copy.

The current release will automatically convert any variables into their corresponding rules and create a base ruleset containing the converted variables, which you can then modify further at your convenience. Complete migration details are in the section [Convert Variables to Rules](#) (see page 76) in the chapter "Run Function".

Understand the Terminology

As with most things, the Rules function has its own terminology that you must understand before you can use the function to its full capability. Here is a list of terms, with their explanations, that you will encounter while using the Rules function. Each term is also explained at the point where you would use it.

Expected Screen: The model screen with the rule actions applied.

Logical Screen: A collection of test stream records (each reflecting a physical I/O) that together form the screen image seen by the end user.

Model Screen: A copy of the logical screen that is used to specify field changes.

Recognition Criteria: A set of identifiers that tells CA Verify ART for VTAM how to recognize a logical screen in order to make changes to it. Recognition criteria can be generic (so it applies to many logical screens), or very specific (so it applies to only one logical screen).

There are two types of recognition criteria:

Field:

The rule looks for a specific field or fields on a screen. Whenever the field is found, the rule is applied.

Screen:

The rule applies only to a specific screen.

Rule: A rule is a set of recognition criteria and rule actions.

Rule Action: An instruction for manipulating a field on a screen or which screens to log.

Ruleset: A set of rules detailing how to handle screens during a run or during a logging session. These rules may contain Recognition Criteria that define, to CA Verify ART for VTAM, which screens these rules should take action on.

Use the Rules Function Panels

There are two types of panels within the Rules function—menus and data entry screens.

- When using a Rules function menu, make your selection as you would when using any other menu. Any rules-specific functions are discussed with the appropriate menu.
- When using Rules function data entry screens, use one of the following methods to complete it:
 1. Tab to the input field and type the value directly into the field.
 2. Use the modeling feature to let CA Verify ART for VTAM fill in the values for you. How to use the modeling feature is explained in the section, [Use the Modeling Feature](#) (see page 182).

When you are finished entering data, you can take one of these actions:

1. Press Enter to add the rule action you have just defined.
2. Press PF3 (End) to leave the panel without making any changes.

Commands

Use the Caps On/Off command to translate lowercase characters to uppercase characters for screen IDs, value fields, and description fields.

- Caps On, the default, translates characters to uppercase.
- Caps Off ignores translation and uses the capitalization of the characters that appears on the panel.

Common Field Explanations

Fields that appear on many data entry panels are explained next.

RULESET NAME

Identifies the ruleset being defined.

TEST STREAM NAME

Identifies the test stream to which these rules are to be applied. The names of the ruleset and test stream must match.

RULE NAME

The name of this rule.

ROW

Type the number of the row that contains the value to be used. A valid value is any two-digit number beginning with 01 (referring to the first row).

COL

Type the number of the column that contains the value to be used. A valid value is any three-digit number beginning with 001 (referring to the first column).

LEN

Type the length of the value. Valid values are 1 to 999.

Invoke the Rules Function

All Rules function activities begin by typing M on the Primary Options Menu. CA Verify ART for VTAM then displays the Maintain Rules menu. A sample menu is shown next.

```
----- MAINTAIN RULES -----12:05:38
ENTER COMMAND ==>

  A  ADD A RULESET           C  COPY A RULESET
  B  BROWSE A RULESET        D  DELETE A RULESET
  E  EDIT A RULESET          R  RENAME A RULESET

RULESET NAME:

DDNAME      ==> TCADS
APPLICATION ==> ccc          (LEAVE APPLICATION, MEMBER,
MEMBER       ==> orderapp     OR VERSION BLANK AND PRESS
VERSION      ==> 001          ENTER FOR A SELECTION LIST)

F1-HELP      F3-END      F4-RETURN
```

In the RULESET NAME: area, type the name of the ruleset you want to create or display. Detailed instructions on how to name a ruleset are in the section, [Name the Ruleset](#) (see page 172) in the chapter "Rules Function".

Indicate which rules activity you want to perform by specifying one of the following letters:

- A** Add a Ruleset
- B** Browse a Ruleset
- E** Edit a Ruleset
- C** Copy a Ruleset or Rule
- D** Delete a Ruleset
- R** Rename a Ruleset

Press Enter. CA Verify ART for VTAM displays the menu for the activity you specified.

Note: If you do not specify a letter, pressing Enter will display a list of existing rulesets.

Browse Through Rulesets and Rules

To display a list of rulesets and rules contained in the data set, type B on the Maintain Rules menu. CA Verify ART for VTAM displays the Browse: Ruleset Selection menu shown next.

----- BROWSE: RULESET SELECTION -----13:04:									
05									
ENTER COMMAND ==>									
FILE: TCADS									
S-SELECT									
S									
--CREATED-----BY--- --UPDATED-----BY--- RULES ITEM									
_ A A 001 09/02/1997 1 3									
A									
_ B B 001 09/02/1997 1 2									
A DIFFERENT APPLICATION									
A DIFFERENT SET OF RULES TO TRY									
_ CCCORDER REL63 001 09/04/1997 0 0									
CAROL'S COOKIES COMPANY									
CONVERSION FROM REL 6.3 TO REL 7.0									
_ DADS34 #RULESET 001 09/02/1997 0 0									
APPLICATION RULESET FOR DADS CONVERSION 3.4 TO 3.5									
_ DADS34 SAMP1 001 09/02/1997 1 3									
SAMPLE RECOGNITION/CHANGE TRICK:									
IF A FIELD HAS A VALUE OF 4, CHANGE IT TO A 5.									
_ DADS34 SAMP2 001 09/02/1997 1 2									
ADD A GLOBAL RULE									
IN A TEST STREAM.									
F1-HELP F3-END F4-RETURN F7-UP F8-DOWN									

This menu lists all defined rulesets in alphabetical order by ruleset name. The information shown for each ruleset includes: application, member, version, date the ruleset was created and who it was created by, the date it was updated and who it was updated by, the number of rules the ruleset contains, and the number of rule actions. The ruleset's complete description is displayed on the line(s) beneath the ruleset name.

Invoke the Browse Feature

To browse through the rules in a ruleset, type **S** to the left of the ruleset name on the Browse: Ruleset Selection menu. The Rules—Summary (Browse) panel will be displayed. A sample panel is shown next.

```

-----BROWSE RULES - SUMMARY -----12:53:26
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME: TCADS.CCC.ORDERAPP.001
LINE  1 TO 14 OF 25         TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

S-BROWSE  P-PREVIEW
OBJECT    TYPE ROW  COL LEN OP  VALUE FROM MODEL SCREEN/DESCRIPTION
- RULESET  T/S
- RULE
- FLD-RECOG      1   30  23 EQ  CAROL'S COOKIES COMPANY_____
- CHANGED OUT    1   74   1    3_____
- VARIABLE OUT   1    7   8    02/11/98_____
- VARIABLE OUT   2    7   8    14:06:31_____

F1-HELP  FF3-END  F4-RETURN  F7-UP  F8-DOWN

```

For a description of the RULESET NAME, MODEL NAME, and RULE NAME fields, see the section, [Use the Rules Function Panels](#). (see page 164)

OBJECT

This column lists the rules within this ruleset and the rule actions within each rule. Values that can appear in the OBJECT column are:

RULESET

Ruleset you are viewing

RULE

A rule within this ruleset

FLD-RECOG

Field recognition criteria

SCR-RECOG

Screen recognition criteria

MOVED

Moved field

NEW

New field

CHANGED

Changed field

VARIABLE

Variable field

DELETED

Removed field

AID KEY

Change in use of a PF key

CURSOR

Change in cursor position

WCC

Change in the Write Control Character

DEL-SCRN

Screen removed

INS-SCRN

Test stream inserted

DATAGEN

Field that includes data manipulation

USERID

User IDs being logged

TRANID

Transaction IDs being logged

TERMID

Terminal IDs being logged

CUT

Data to be copied from one screen and pasted into another

PASTE

Cut data pasted into field

TYPE

Indicates what type of ruleset or rule this is. Valid values are:

T/S

A test stream ruleset

APPL

An application rulest

SYST

A system ruleset

INCL/EXCL

The rule action contains a list of items to be included or excluded while logging

OUT

The rule action applies to an output screen

IN

The rule action applies to an input screen

The column values for ROW, COL, LEN, OP and VALUE are taken from the panel where that particular ruleset, rule, or rule action was defined.

From this panel you can:

- Select an entry to see the details by typing S next to the entry and pressing Enter.
- Preview a rule by typing P next to the rule entry and pressing Enter.

Note: Only rules and rule actions can be previewed.

Select an Entry

When you select either a ruleset, rule, or rule action, details about the item you have selected are displayed.

- **Selecting a ruleset** displays the Browse: Ruleset Directory panel. This panel contains the name of the ruleset, its description, and statistics about it (such as the date it was created and the protection status it has been assigned).
- **Selecting a rule** displays the Browse Rules—Rule Name panel. This panel contains the name of the ruleset that this rule belongs to, the name of the rule, and its description.

- **Selecting a rule action** (like FLD-RECOG, MOVE, or NEW) displays the completed data entry screen for the rule action you have selected.

All screens are display-only. To change any of the information, you must return to the Maintain Rules menu (press PF3 until this menu is displayed) and then type E (Edit) on the command line.

Preview a Rule

Use Preview to display what a screen would look like if all of the rule actions in a rule were applied.

Rules summary status messages may appear when you do a preview. See the section, [Rules Summary Status Messages](#) (see page 102) in the chapter "Run Function" for a list of messages.

Create a Ruleset

There are three types of rulesets: test stream, application, and system. A test stream can be run with more than one type of ruleset. CA Verify ART for VTAM will try to apply all of the rules from all of the rulesets and will inform you if any conflicts occur.

Note: There is a hierarchy in applying rulesets. During logging, system rulesets are applied first, application next, and test stream rulesets last. During a run, test stream rulesets are applied first, application next, and system rulesets last.

- A *test stream ruleset* is applied only to the test stream whose name matches the ruleset name.

A test stream ruleset is the most specific. Use it to identify very specific changes for a test stream, such as fields that have moved their position on a screen.

- An *application ruleset* is applied only to those test streams whose application name matches the application name of the ruleset.

An application ruleset is the next most specific. It is most often used for screens that are common within an application, such as the application main menu. By creating an application-level ruleset, changes to the main menu can be identified in one ruleset, but applied to more than one test stream (for example, all test streams whose application node name matches the node name of the application ruleset).

- A *system ruleset* is applied to all test streams in the system. Only one system ruleset can be specified.

A system ruleset is the least specific. Use it to apply a change to all screens across all applications.

The type of ruleset you create is determined by how it is named; see the section [Name the Ruleset](#) (see page 172) for details.

The procedure for creating any type of ruleset is explained in the following table.

Task	Description	Panel Used
1	Name the ruleset	Maintain Rules menu
2	Add a ruleset description	Add Rules—Ruleset Description panel
3	Add rules to the ruleset	Begins with the Add Rules—Rule Actions menu

Name the Ruleset

The first step in creating a ruleset is to specify a name for it. The ruleset's name depends on the type of ruleset it is:

- For a test stream ruleset, the ruleset's name must be the same as the name of the test stream it will be run against.
- For a system ruleset, the ruleset's name must be:
`ddname.SYSTEM.#RULESET.001`

Specify the appropriate *ddname*; the rest of the name must be specified as shown.

- For an application ruleset, the ruleset's name must be:
`ddname.application.#RULESET.001`

Specify the appropriate *ddname* and *application*; the rest of the name must be specified as shown.

All ruleset names consist of the following four parts:

DDNAME

Must match the DDname in your startup JCL. A DDname can be one to eight characters long, and can be any combination of letters, numbers, or national characters. The first character cannot be a number.

APPLICATION

Must match the application node in the test stream name. An application can be one to eight characters long, and can be any combination of letters, numbers, or national characters. The first character cannot be a number.

MEMBER

Must match the member node in the test stream name. A member can be one to eight characters long, and can be any combination of letters, numbers, or national characters. The first character cannot be a number.

VERSION

Must match the version used in the test stream name. Specify a number from one to three digits long.

The name of the ruleset is specified on the Maintain Rules menu in the RULESET NAME: section. (A sample menu appears in the section [Invoke the Rules Function](#) (see page 166).) After typing the ruleset name, press Enter to display the Add Rules—Ruleset Description panel where you can add a description of this ruleset.

Note: If you do not supply the application, member, or version pieces of the name, the Ruleset Selection menu will be displayed when you press Enter; see the earlier section, [Browse Through Rulesets and Rules](#) (see page 167), for details.

Add a Ruleset Description

Ruleset descriptions are added from the Add Rules—Ruleset Description panel. This panel is displayed by typing A and pressing Enter on the Maintain Rules menu. A sample Add Rules—Ruleset Description panel is shown next.

-----ADD RULES - RULESET DESCRIPTION-----07:24:02

ENTER COMMAND ==>

RULESET NAME: TCADS.CCC.ORDERAPP.001

DESCRIPTION ==>

==>

==>

RULESET PROTECTION ==> (R-READ W-WRITE P-PRINT)

F1-HELP F3-END F4-RETURN

Type a description of this ruleset in the DESCRIPTION field. The description can be up to three lines long and should be as informative as possible.

If this ruleset name matches the name of an existing test steam, the test stream description will automatically be copied into the ruleset description. You may leave it or overwrite the description with a new one.

Protect a Ruleset

You can also add protection for a ruleset from the Add Rules—Ruleset Description panel by specifying protection options in the RULESET PROTECTION field. Valid options are:

R

Read. The ruleset cannot be browsed, edited, run, appended to, inserted into, or merged into another ruleset by anyone *except* its owner or a security administrator. If the ruleset is copied or renamed, read protection is extended to the new ruleset.

W

Write. The ruleset cannot be extended, edited, renamed, deleted, appended to, inserted or merged into another ruleset, nor can its directory be updated, by anyone *except* its owner or a security administrator.

P

Print. The ruleset cannot be printed.

You can use any combination of options (for example, RW, WP, RWP).

Add Rules to a Ruleset

Rules define what the changes are within an application. As explained previously, a collection of rules is called a ruleset. There are two ways you can invoke a rule:

■ SCREEN RECOGNITION

Identifies a specific screen that this rule applies to. This type of rule applies changes only to a single specific screen (used when only *one* screen changes). You can have only one Screen Recognition criterion in a rule, but multiple rule actions can be defined for that single screen.

■ FIELD RECOGNITION

Specifies criteria that a screen must meet before the rule will be applied. This type of rule applies changes only to screens that meet the specified recognition criteria. Field recognition rules are useful when one panel occurs multiple times within a test stream. This type of rule allows you to specify a change once, and then CA Verify ART for VTAM will apply the change to all screens that meet the field recognition criteria.

To add a rule to a ruleset, follow the procedure in the table shown next. All tasks are performed from the Add Rules—Rule Actions panel.

Task	Description
1	Specify a name for the rule

2	Give the rule a description (optional)
3	Identify when this rule should be applied (to a specific screen or to multiple screens based on field recognition criteria). A model screen can be designated at this time.
4	Specify the rule actions

This section explains how to name a rule and specify rule actions. How to locate and select a model screen is covered in the section, [Select and Use Model Screens](#) (see page 177) in the chapter "Rules Function".

Name the Rule

To specify a rule name, you must complete the RULE NAME and DESCRIPTION fields on the Add Rules—Rule Actions panel shown next. This panel is displayed by first typing A on the Maintain Rules menu, then completing the Add Rules—Ruleset Description panel and pressing Enter. When you are finished entering information, press Enter and you will be prompted to add a rule action.

```

-----ADD RULES - RULE ACTIONS-----
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:    TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

DESCRIPTION ==>
              ==>

      1  FIELD RECOGNITION
      2  SCREEN RECOGNITION
      3  VARIABLE FIELD
      4  DELETE FIELD
      5  MOVE FIELD
      6  CHANGE FIELD VALUE
      7  NEW FIELD
      8  CHANGE AID KEY
      9  CHANGE CURSOR LOCATION
     10  CHANGE WCC VALUES
     11  GENERATE FIELD VALUE
     12  INSERT SCREENS
     13  DELETE SCREENS
     14  CUT SCREEN FIELD
     15  PASTE SCREEN FIELD
     20  USERID LOGGING
     21  TERMINAL ID LOGGING
     22  APPLICATION ID LOGGING

F1-HELP      F2-PREVIEW      F3-END      F4-RETURN      F9-SELECT
  
```


RULE NAME

When you first enter this screen, a default rule name is given: RULnnnnn, where *nnnnn* is a series of numbers starting with 00001. You can either use the default name, or overtype the name with your own descriptive name. Rule names can be up to eight characters long, and can be any combination of letters and numbers.

DESCRIPTION (optional)

Type a description of the rule, up to two lines in length. The description serves as an explanation of what this rule does, so make it as informative as possible.

Now you are ready to select a model screen and specify the kinds of changes this rule will identify. Selecting a model screen is optional; the next section contains instructions on how to select a model screen.

Select and Use Model Screens

One of the most difficult tasks when specifying changes is figuring out the exact coordinates of the field being changed. The modeling feature lets you easily calculate the exact coordinates of a field within a panel by pointing to the field on a model panel and letting CA Verify ART for VTAM fill in the coordinates on the data entry panel. This feature takes the guesswork out of the placement of the fields on a panel by allowing CA Verify ART for VTAM to fill in the placement values for you.

A *model screen* is a physical representation of the screen being changed. It is used while specifying rule actions to help identify *what* fields are being changed and *how* they are being changed. Model screens are selected from the test stream that the ruleset is associated with. The model screen and the test stream automatically become associated by their matching names. Only one model screen can be associated with each rule. However, multiple rules can be created within a ruleset, each with their own model screen.

The collection of test stream records, both input and output, that together form the screen image seen by the end user and which is used to create the model screen, is called a *logical screen*.

Specify a Model Test Stream

The model test stream that you will use depends on the type of ruleset it will be used with.

- For a test stream ruleset, the test stream is used as the model (the default). Here, the model test stream will have the same name as the test stream ruleset.
- For a system ruleset, you must create a model test stream with this name:
ddname.SYSTEM.#TSTREAM.001
ddname must match the DDname used in the system ruleset.
- For an application ruleset, you must create a model test stream with this name:
ddname.application.#TSTREAM.001
ddname and *application* must match the DDname and application node used in the application ruleset.

The use of model test streams and model screens is optional. A model screen can be selected at any time during the rule creation process. If a model has not been selected at the time you want to use it, you will be prompted to select a model screen to use.

The next section explains how to locate and select a model screen. Once you have specified a model test stream and selected a model screen, you are ready to use the modeling feature as explained in the section [Use the Modeling Feature](#) (see page 182) in the chapter "Rules Function".

Locate and Select the Model Screen

The first step in selecting a model screen is locating the logical screen that contains the fields being changed. All of the logical screens within a test stream are listed in the Rules—Record Selection panel shown next. To display this panel, press PF9 (Select) from the Add Rules—Rule Actions panel or from any of the individual rule action panels.

```

CCC.ORDERAPP.001 ----- BROWSE: RECORD SELECTION -----12:40:
42
ENTER COMMAND ==>
B7

  TERMINAL  APPLID    T/R TIME  OP   AID   VIEW  RECORD  ROW: 1 COL: 30
-  A55TG001  USS         00:01.144 EW
-  A55TG001  USS         00:20.455 RM   ENTER  2      SSOCIATES INTERNAT
-  A55TG001  USS         00:20.455 EW   3      EQUEST ACCEPTED AN
-  A55TG001  A04IC9NA    00:26.796 CON  4      EQUEST ACCEPTED AN
-  A55TG001  A04IC9NA    00:00.871 EW   5      NG MY REGION? (CIC
-  A55TG001  A04IC9NA    00:01.680 RM   CLEAR  6
-  A55TG001  A04IC9NA    00:00.000 EW   7
-  A55TG001  A04IC9NA    00:01.843 RM   ENTER  8
-  A55TG001  A04IC9NA    00:00.596 EW   9      CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:01.235 RM   ENTER  10     CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.001 EW   11     CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:04.182 RM   ENTER  12     CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.001 EW   13     CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:01.703 RM   PF3    14     CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.001 EW   15     CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.814 RM   PF3    16     CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.002 EW   17     CAROL'S COOKIES CO
-  A55TG001  A04IC9NA    00:00.848 RM   PF3    18     CAROL'S COOKIES CO
TYPE AN "S" TO SELECT A RECORD
F1-HELP F3-END F4-RETURN F7-UP F8-DOWN F9-FORMAT F10-LEFT F11-RIGHT

```

For each screen, CA Verify ART for VTAM identifies its:

Terminal:

The terminal name

Tran:

The transaction

T/R Time:

The think time (for an input screen) or response time (for an output screen)

OP:

The operation

W: write

EW: erase/write

EWA: erase/write alternate

RB: read buffer

RM: read modified

RMA: read modified all

EAU: erase all unprotected

WSF: write structured field

CPY: copy

RD: read

AID:

Attention ID used to generate input; for example, Enter, PF3

VIEW:

Whether there are mismatches (M), rules applied (R), or both (M,R)

Record:

Record number

ROW COL:

Data from the record which appears in row 1.

Note: You can change the columns using the Profile command. See the section [Browse Screens](#) (see page 134) in the chapter "Browse Function" for details on Profile.

Use the FIND/RFIND Function

Use the Find/RFind function to locate data. First, select a screen from the Rules—Record Selection panel. Then, while viewing the screen, enter the Find or RFind command. The Find command searches once for the specified value; the Rfind command repeats the previous Find command. See the section, [Locate Data](#) (see page 154) in the chapter "Browse Function" for complete details on using Find/RFind.

Note: You can select the first record, so the entire test stream is scanned, or you can position yourself part-way through the list to save scan time.

Confirm Your Choice

The logical screen you have selected or located using the Rules—Record Selection panel is displayed in the Rules—Model Output Screen panel. A sample logical screen is shown next.

```

CCC.ORDERAPP.001 -----RULES: MODEL OUTPUT SCREEN-----
ENTER COMMAND ==>                                     OUT RECORD:      2
TCA4048 - PRESS "SELECT" KEY TO SELECT -THIS- AS THE MODEL SCREEN
-----+-----+-----+-----+-----+-----+-----+
| DATE 02/06/98                CAROL'S COOKIES COMPANY      RELEASE 6.2
| TIME 13:23:43                MAIN MENU
|
4 |
|
| ENTER OPTION:
8 |
|
|      1) PLACE AN ORDER
12 |
|      2) CHECK STATUS OF AN ORDER
|
16 |
|
20 |

```

To verify that this is the correct screen, view all parts of the screen by scrolling up, down, left, and right.

If the Screen is Correct

If this is the correct screen, press PF9 to select this screen as the model. You will then be prompted to use the model screen to complete your rule actions.

If the Screen is Not Correct

If you had entered search criteria to get to this screen and it is not the correct one, type RFind to display the next occurrence of your search criteria. To type different search criteria, press PF3 to return to the Rules—Record Selection panel and type new criteria. After you find the correct screen, press PF9 to select it as the model screen.

Use the Modeling Feature

To use the modeling feature, you must have a model screen selected. Since you can select a model screen at any time while defining rules or rule actions by pressing PF9 (Select), it is not necessary to define a model screen before you begin defining rules. How to select a model screen is covered in the previous section, [Locate and Select a Model Screen](#) (see page 179). If you need to *change* a model screen you have already selected, see the section, [Edit a Rule](#) (see page 210) in the chapter "Rules Function".

After you have selected a model screen for a rule, it will be automatically displayed whenever you select a rule action to define from the Add Rules—Rule Actions menu for that rule. For example, to define the date as a variable field, select 3 from the Add Rules—Rule Actions menu as shown next.

-----ADD RULES - RULE ACTIONS-----	
ENTER COMMAND ==> 3	
RULE NAME: RUL00001	RULESET NAME: TCADS.CCC.ORDERAPP.001 TEST STREAM NAME: TCADS.CCC.ORDERAPP.001
DESCRIPTION ==> ==>	
1 FIELD RECOGNITION	11 GENERATE FIELD VALUE
2 SCREEN RECOGNITION	12 INSERT SCREENS
3 VARIABLE FIELD	13 DELETE SCREENS
4 DELETE FIELD	14 CUT SCREEN FIELD
5 MOVE FIELD	15 PASTE SCREEN FIELD
6 CHANGE FIELD VALUE	20 USERID LOGGING
7 NEW FIELD	21 TERMINAL ID LOGGING
8 CHANGE AID KEY	22 APPLICATION ID LOGGING
9 CHANGE CURSOR LOCATION	
10 CHANGE WCC VALUES	
F1-HELP	F2-PREVIEW
F3-END	F4-RETURN
	F9-SELECT

When you press Enter, the model screen you have selected will appear in the Rules: Modified Screen panel, as shown next.

```

CCC.ORDERAPP.001 -----RULES: EXPECTED SCREEN-----
ENTER COMMAND ==>                                     OUT RECORD:      2
TCA4041 - MOVE CURSOR TO VARIABLE FIELD AND PRESS "SELECT" KEY
-----+-----+-----+-----+-----+-----+-----+-----+
| DATE 02/06/98                                     CAROL'S COOKIES COMPANY   RELEASE 6.2
| TIME 13:23:43                                     MAIN MENU
|
4
|
| ENTER OPTION:
8
|
|      1) PLACE AN ORDER
|
12      2) CHECK STATUS OF AN ORDER
|
|
16
|
20

```

Move the cursor to the first character of the DATE field and press PF9 to select it. The Add Rule Actions—Variable Field panel appears with the field values automatically filled in. A sample is shown next.

```

----- ADD RULE ACTIONS - VARIABLE FIELD -----08:00:31
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

VARIABLES:
  ROW  COL  LEN  VALUE OR DESCRIPTION
  01   007   008  02/06/98 _____
                      _____
                      _____

F1-HELP  F2-PREVIEW  F3-END  F4-RETURN  F9-SELECT

```

If the values are correct, press PF3 (End) to return to the Add Rules—Rule Actions menu where you can continue to define additional rule actions.

Display the Changed Panel

At any time during the rule creation process, you can press PF2 to preview the panel you are working on. All of the changes you have made will appear on the panel.

Specify Rule Actions

Rule actions define the changes that are to be made to a panel when this rule is applied. Rule actions include:

- Specifying field or screen recognition criteria
- Identifying a field as a variable (a field that changes from run to run)
- Changes to a field (like changing its length or its place on the panel)
- Adding or removing a field
- Defining a field value as a variable
- Changing the AID or PF keys
- Changing the cursor location or the WCC (Write Control Character) values
- Generating a new value for a date or a field automatically
- Inserting or deleting screens
- Copying data from one screen and pasting it into another screen

Rule action definition begins at the Add Rules—Rule Actions menu; a sample is shown next. To display this menu, press Enter from the Add Rules—Ruleset Description or Add Rules—Confirm Selection panels.

Note: Since rules actions are applied in the order they appear in the ruleset, you should insert the actions in the order you want them applied.

```

-----ADD RULES - RULE ACTIONS-----
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

DESCRIPTION ==>
              ==>

      1  FIELD RECOGNITION          11  GENERATE FIELD VALUE
      2  SCREEN RECOGNITION         12  INSERT SCREENS
      3  VARIABLE FIELD             13  DELETE SCREENS
      4  DELETE FIELD               14  CUT SCREEN FIELD
      5  MOVE FIELD                 15  PASTE SCREEN FIELD
      6  CHANGE FIELD VALUE         20  USERID LOGGING
      7  NEW FIELD                  21  TERMINAL ID LOGGING
      8  CHANGE AID KEY             22  APPLICATION ID LOGGING
      9  CHANGE CURSOR LOCATION
     10  CHANGE WCC VALUES

F1-HELP      F2-PREVIEW      F3-END      F4-RETURN      F9-SELECT

```

For a description of the RULESET NAME, TEST STREAM, and RULE NAME fields, see the previous section, [Use the Rules Function Panels](#) (see page 164).

DESCRIPTION (optional)

Type a description for this rule.

FIELD RECOGNITION

Select option 1, Field Recognition, to identify which fields to find on a screen before this rule can be applied.

SCREEN RECOGNITION

Select option 2, Screen Recognition, to apply this rule only to this screen.

VARIABLE FIELD

Select option 3, Variable Field, to create a new variable field or change an existing one. Variable fields identify fields that CA Verify ART for VTAM should ignore in a logical comparison. An example of a field containing a variable value would be date or time.

DELETE FIELD

Select option 4, Delete Field, to remove an existing field from a panel.

MOVE FIELD

Select option 5, Move Field, to change the placement of an existing field on the panel.

CHANGE FIELD VALUE

Select option 6, Change Field Value, to change the value of a field.

NEW FIELD

Select option 7, New Field, to add a new field to the panel.

CHANGE AID KEY

Select option 8, Change AID Key, to change the value assigned to an AID key.

CHANGE CURSOR LOCATION

Select option 9, Change Cursor Location, to change the placement of the cursor on the panel or to make the cursor location a variable.

CHANGE WCC VALUES

Select option 10, Change WCC Values, to change the Write Control Character or to make it a variable.

GENERATE FIELD VALUE

Select option 11, Generate Field Value, if you need to generate or accumulate values for a numerical field or for date aging.

INSERT SCREENS

Select option 12, Insert Screens, if you need to insert logical screens from a test stream.

DELETE SCREENS

Select option 13, Delete Screens, if you need to delete logical screens from a test stream.

CUT SCREEN FIELD

Select option 14, Cut Screen Field, if you need to use some data from this screen on another screen.

PASTE SCREEN FIELD

Select option 15, Paste Screen Field, to place data that was cut from one screen onto this screen.

USERID LOGGING

TERMINAL ID LOGGING

APPLICATION ID LOGGING

Select one of these options to create a list to include or exclude user IDs (option 20), terminal IDs (option 21), or application IDs (option 22) while logging. These selections are discussed in the chapter "Log Function".

Specify Recognition Criteria

You can specify recognition criteria whenever you define a rule or rule action, but it is not required. There are two types of recognition criteria you can specify:

- **Field Recognition**

Used to identify which fields must be found on a screen for this rule to be applied.

- **Screen Recognition**

Used to set this screen as the only screen to which this rule applies.

Each type of recognition criteria is discussed in the following sections.

Note: Field and screen recognition criteria cannot be defined in the same rule. However, each type of criteria can be defined in a separate rule within the same ruleset.

Use Field Recognition Criteria

To display the Add Rule Actions—Recognition Criteria panel, shown next, type **1** on the Add Rules—Rule Actions menu.

```

-----ADD RULE  ACTIONS - RECOGNITION CRITERIA-----07:56:
58
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

ROW COL  LEN  OPER VALUE
--  --  --  --  -----
                                     -----
                                     -----
                                     -----

F1-HELP    F2-PREVIEW    F3-END    F4-RETURN    F9-SELECT

```

For instructions on completing a data entry panel and for a description of the RULESET NAME, TEST STREAM, RULE NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#) (see page 164).

OPER

Type an operation. Valid values are:

EQ

Equal

NE

Not Equal

LT

Less Than

GT

Greater Than

LE

Less than or Equal to

GE

Greater than or Equal to

VALUE

Type the information you want to match exactly as it appears on the logical screen. A value is required.

Use Screen Recognition Criteria

To display the Add Rules—Screen Recognition panel, shown next, type 2 on the Add Rules—Rule Actions menu.

Note: You can have only one Screen Recognition criteria in a rule, but multiple rule actions can be defined for that single screen.

----- ADD RULES - SCREEN RECOGNITION -----08:38:04

ENTER COMMAND ==>

RULE NAME: RUL00001 RULESET NAME: TCADS.CCC.ORDERAPP.001

TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

SCREEN RECOGNITION:

DESCRIPTION

THIS RECOGNITION RULE SPECIFIES THAT ALL RULE ACTIONS FOR THIS RULE APPLY ONLY TO THE SINGLE SPECIFIC SCREEN SELECTED.

F1-HELP F2-PREVIEW F3-END F4-RETURN F9-SELECT

For instructions on completing a data entry panel and for a description of the RULESET NAME, TEST STREAM, and RULE NAME fields, see the section [Use the Rules Function Panels](#). (see page 164)

DESCRIPTION

Type a sample of the screen or a short description. Used for documentation purposes only.

Set a Variable Field

To create a variable field, type **3** on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Variable Field panel. A sample panel is shown next.

----- ADD RULE ACTIONS - VARIABLE FIELD-----08:00:31
ENTER COMMAND ==>

RULE NAME: RUL00001 RULESET NAME: TCADS.CCC.ORDERAPP.001
 TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

VARIABLES:
 ROW COL LEN VALUE OR DESCRIPTION
 -- --- --- -----

F1-HELP F2-PREVIEW F3-END F4-RETURN F9-SELECT

For instructions on completing a data entry panel and for a description of the RULESET NAME, TEST STREAM, RULE NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#). (see page 164)

VALUE OR DESCRIPTION

Type the information about the field to be set as a variable; optional. You can either put a description for why this field is a variable or a sample of the variable data in this field.

A completed Add Rule Actions—Variable Field panel is shown next. The date has been changed to a variable value.

```

----- ADD RULE ACTIONS - VARIABLE FIELD----- ADD SUCCE
SSFUL
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

VARIABLES:
  ROW  COL  LEN  VALUE OR DESCRIPTION
   03   068  010  07/10/97 _____
                        _____
                        _____

F1-HELP  F2-PREVIEW  F3-END  F4-RETURN  F9-SELECT

```

When you are finished specifying variables, press PF3 from the Add Rule Actions—Variable Field panel to return to the Add Rules—Rule Actions Menu.

Delete a Field

To remove a field from a panel, type 4 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Delete Field panel. A sample panel is shown next.

```

----- ADD RULE ACTIONS - DELETE FIELD -----08:00:31
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

VARIABLES:
  ROW  COL  LEN  VALUE OR DESCRIPTION
   --   --   --   _____
                        _____
                        _____

F1-HELP  F2-PREVIEW  F3-END  F4-RETURN  F9-SELECT

```

For instructions on completing a data entry panel and for a description of the RULESET NAME, TEST STREAM, RULE NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#). (see page 164)

Note: When removing a field that consists of a heading (like birthdate) and an area for data entry, remove both parts of the field by specifying the total length of both parts for LEN.

VALUE OR DESCRIPTION

Type the name of the field to be deleted; optional. You can either put an explanation for why this field was deleted or a sample of the value being deleted in this field.

A completed Add Rule Actions—Delete Field panel is shown next. The birthdate field is being removed.

----- ADD RULE ACTIONS - DELETE FIELD -----		ADD SUCCE	
SSFUL			
ENTER COMMAND ==>			
RULE NAME: RUL00001		RULESET NAME: TCADS.CCC.ORDERAPP.001 TEST STREAM NAME: TCADS.CCC.ORDERAPP.001	
VARIABLES:			
ROW	COL	LEN	VALUE OR DESCRIPTION
15	009	010	BIRTHDATE : _____

F1-HELP F2-PREVIEW F3-END F4-RETURN F9-SELECT			

Move a Field

To move a field on a panel, type 5 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Move Field panel. A sample panel is shown next.

----- ADD RULE ACTIONS - MOVE FIELD-----		07:50:50	
ENTER COMMAND ==>			
RULE NAME: RUL00001		RULESET NAME: TCADS.CCC.ORDERAPP.001 TEST STREAM NAME: TCADS.CCC.ORDERAPP.001	
MOVE FROM/TO:			
ROW	COL	LEN	VALUE OR DESCRIPTION
---	---	---	_____
---	---	---	_____

F1-HELP F2-PREVIEW F3-END F4-RETURN F9-SELECT			

For instructions on completing a data entry panel and for a description of the RULESET NAME, TEST STREAM, RULE NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#). (see page 164)

MOVE FROM/TO

Type the row, column, and length values of the *current* location of the field being moved on the first line.

Type the row and column values of the *new* location for the field being moved on the second line.

VALUE OR DESCRIPTION

Type the name of the field to be moved; optional. The field name can be up to three lines long. You can either put an explanation for why this field is being moved or a sample of the data being moved in this field.

A completed Add Rule Actions—Move Field panel is shown next. This sample shows a field being moved two spaces to the left.

-----ADD RULE ACTIONS - MOVE FIELD-----				ADD
SUCCESSFUL				
ENTER COMMAND ==>				
RULE NAME: RUL00001		RULESET NAME: TCADS.CCC.ORDERAPP.001		
		TEST STREAM NAME: TCADS.CCC.ORDERAPP.001		
MOVE FROM/TO:				
ROW	COL	LEN	VALUE OR DESCRIPTION	
03	065	011	_____	
03	063		_____	

F1-HELP F2-PREVIEW F3-END F4-RETURN F9-SELECT				

Change a Field Value

To change the value of a field on a panel, type **6** on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Change Field panel. A sample panel is shown next.

```
-----ADD RULE ACTIONS - CHANGE FIELD VALUE-----08:23:24
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:    TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

CHANGED FIELDS:
ROW COL  LEN  ATTR FIELD VALUE
--  --  --  --  -----
                                     -----
                                     -----

OUTPUT/INPUT FIELD ==> 0      ( I=INPUT, 0=OUTPUT)

F1-HELP  F2-PREVIEW  F3-END  F4-RETURN  F9-SELECT
```

For instructions on completing a data entry panel and for a description of the RULESET NAME, TEST STREAM, RULE NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#). (see page 164)

ATTR

Type a field attribute, if the attribute is changing. If the attribute is not changing, leave ATTR blank and CA Verify ART for VTAM will default to the original attribute value. Select one of these values for ATTR: U, UM, UH, UHM, UN, UNM, UNH, UNHM, P, PM, PH, PHM, PS, PSM, PSH, PSHM. The meaning of each letter is explained next.

U Unprotected field; can be modified

P Protected field; cannot be modified

N Numeric field; only numeric data can be entered

S Cursor will auto-skip over the field

H High-intensity field

M Field with modified data tag which will be transmitted from the terminal even if the operator makes no entry

FIELD VALUE

Type the new value to be used in the field. A value is required.

INPUT/OUTPUT FIELD

Indicates whether the value being changed is an input or an output field. The default is Output.

A completed Add Rule Actions—Change Field Value panel is shown next. This sample shows the value of a field being changed to 7.0.

```

-----ADD RULE ACTIONS - CHANGE FIELD VALUE----- ADD SUCCE
SSFUL
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:    TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

CHANGED FIELDS:
ROW COL  LEN  ATTR FIELD VALUE
02  075  003   ____ 7.0 _____
                             _____
                             _____

OUTPUT/INPUT FIELD ==> 0      ( I=INPUT, 0=OUTPUT)

F1-HELP  F2-PREVIEW  F3-END  F4-RETURN  F9-SELECT

```

Add a New Field

To add a new field on a panel, type 7 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—New Field panel. A sample panel is shown next.

```

-----ADD RULE ACTIONS - NEW FIELD-----08:28:40
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:    TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

NEW FIELDS:
ROW COL  LEN  ATTR FIELD VALUE
--  --  --  --  _____
                             _____
                             _____

F1-HELP  F2-PREVIEW  F3-END  F4-RETURN  F9-SELECT

```

For instructions on completing a data entry panel and for a description of the RULESET NAME, TEST STREAM, RULE NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#). (see page 164)

ATTR

Type a field attribute, if the field is new. However, leave ATTR blank if the new field is being inserted into the middle of an existing field.

If the field is not new, leave ATTR blank and CA Verify ART for VTAM will use the original attribute value for the whole field.

Select one of these values for ATTR: U, UM, UH, UHM, UN, UNM, UNH, UNHM, P, PM, PH, PHM, PS, PSM, PSH, PSHM. The meaning of each letter is explained next.

U Unprotected field; can be modified

P Protected field; cannot be modified

N Numeric field; only numeric data can be entered

S Cursor will auto-skip over the field

H High-intensity field

M Field with modified data tag which will be transmitted from the terminal even if the operator makes no entry

FIELD VALUE

Type the new value to be used in the field. A value is required.

A completed Add Rule Actions—New Field panel is shown next.

-----ADD RULE ACTIONS - NEW FIELD-----		ADD SUCCE
SSFUL		
ENTER COMMAND ==>		
RULE NAME: RUL00001		RULESET NAME: TCADS.CCC.ORDERAPP.001
		TEST STREAM NAME: TCADS.CCC.ORDERAPP.001
NEW FIELDS:		
ROW	COL	LEN ATTR FIELD VALUE
03	074	002 ____ 19

F1-HELP F2-PREVIEW F3-END F4-RETURN F9-SELECT		

Change the AID Key

To change an AID key on a panel, type 8 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Change AID Key panel. A sample panel is shown next.

Note: A rule can contain only one rule action of this type.

```

-----ADD RULE ACTIONS - CHANGE AID KEY-----13:17:43
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

ORIGINAL  CHANGE | ORIGINAL  CHANGE | ORIGINAL  CHANGE |
AID:      TO      | AID      TO:      | AID      TO:      |
PF1 ==>    _____ | PF11 ==>  _____ | PF21 ==>  _____ |
PF2 ==>    _____ | PF12 ==>  _____ | PF22 ==>  _____ |
PF3 ==>    _____ | PF13 ==>  _____ | PF23 ==>  _____ |
PF4 ==>    _____ | PF14 ==>  _____ | PF24 ==>  _____ |
PF5 ==>    _____ | PF15 ==>  _____ | ENTER==>  _____ |
PF6 ==>    _____ | PF16 ==>  _____ | PA1  ==>  _____ |
PF7 ==>    _____ | PF17 ==>  _____ | PA2  ==>  _____ |
PF8 ==>    _____ | PF18 ==>  _____ | PA3  ==>  _____ |
PF9 ==>    _____ | PF19 ==>  _____ | CLEAR==>  _____ |
PF10 ==>   _____ | PF20 ==>  _____ |

F1-HELP      F2-PREVIEW    F3-END       F4-RETURN    F9-SELECT

```

For a description of the RULESET NAME, TEST STREAM, and RULE NAME fields, see the section [Use the Rules Function Panels](#). (see page 164)

ORIGINAL AID

Contains the original AID key name.

CHANGE TO

Type the new value next to the AID keys you wish to change.

Note: The Add Rule Actions—Change AID Key panel only changes the AID key keystroke. To change the words at the bottom of a panel that indicate PF key use, use the change field value option on the Add Rule Actions menu.

Change the Cursor Location

To change the cursor location a panel, type **9** on the Add Rules—Rule Actions Menu to display the Add Rule Action—Cursor Location panel. This panel has two purposes:

1. To identify a new location for the cursor and then compare the cursor's location to make sure it is the correct one, or
2. To set the cursor as a variable so that no comparison is done on the cursor location.

A rule can contain a maximum of one input cursor change and one output cursor change.

A sample panel is shown next.

----- ADD RULE ACTION - CURSOR LOCATION -----16:51:43		
ENTER COMMAND ==>		
RULE NAME: RUL00001	RULESET NAME:	TCADS.CCC.ORDERAPP.001
	TEST STREAM NAME:	TCADS.CCC.ORDERAPP.001
	ORIGINAL VALUE	CHANGE TO
	-----	-----
CURSOR LOCATION:		
ROW: 0 7	==>	__
COLUMN: 0 16	==>	___
COMPARE CURSOR LOCATION	==> Y	(Y/N)
INPUT/OUTPUT FIELD	==> 0	(I=INPUT,0=OUTPUT)
F1-HELP	F2-PREVIEW	F3-END F4-RETURN F9-SELECT

For a description of the RULE NAME, TEST STREAM NAME, and RULESET NAME fields, see the section [Use the Rules Function Panels.](#) (see page 164)

CURSOR LOCATION

The current value for ROW and COLUMN are listed in the ORIGINAL VALUE column. Type the new values for ROW and COLUMN in the CHANGE TO column.

Note: A change in cursor location is only valid if you specify **Y** for the COMPARE CURSOR LOCATION field.

COMPARE CURSOR LOCATION

Indicates whether you want to compare the location of the cursor. Valid values are Y (yes) or N (no). Specifying N means that no comparison will be done, making the cursor location a variable.

OUTPUT/INPUT FIELD

Indicates whether the criteria specified on this panel applies to the output or input version of the screen. Valid values are I (input) or O (output).

Note: If the criteria applies to both output and input versions of the screen, you must create two rule actions—one for output and one for input.

Change the WCC Value

To change the WCC value on a panel, type 10 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—WCC Values panel. This panel has two purposes:

- To identify changes to the setting of the WCC and then compare the WCCs during the Run function, or
- To set the WCC as a variable so no comparison will be done during the Run.

Note: A rule can contain only one rule action of this type.

A sample panel is shown next.

-----ADD RULE ACTIONS - WCC VALUES-----				13:17:50
ENTER COMMAND ==>				
RULE NAME: RUL00001	RULESET NAME: TCADS.CCC.ORDERAPP.001			
	TEST STREAM NAME: TCADS.CCC.ORDERAPP.001			
	ORIGINAL VALUE	CHANGE TO		
	-----	-----		
START PRINT:	N	==> N	(Y/N)	
SOUND ALARM:	N	==> N	(Y/N)	
RESTORE KYBD:	Y	==> Y	(Y/N)	
RESET MDT:	N	==> N	(Y/N)	
COMPARE WCC VALUES		==> Y	(Y/N)	
F1-HELP F2-PREVIEW F3-END F4-RETURN F9-SEELCT				

For a description of the RULESET NAME, TEST STREAM, and RULE NAME fields, see the section [Use the Rules Function Panels](#) (see page 164).

WCC

The current value for START PRINT, SOUND ALARM, RESTORE KYBD, and RESET MDT are listed in the ORIGINAL VALUE column. Type the new values in the CHANGE TO column. Valid values are Y or N.

Note: A change in WCC is only valid if you specify **Y** for the COMPARE WCC VALUES field.

COMPARE WCC VALUE

Indicates whether you want to compare the value of the WCC. Valid values are Y (yes) or N (no). Specifying N means that no comparison will be done, making the WCC a variable.

Generate a Screen Value

To generate an input or output screen value, type 11 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Data Generation panel. Use this panel to generate a value for an input or an output field. The target field must be a number, numeric currency, or a numeric date. A sample panel is shown next.

----- ADD RULE ACTIONS - DATA GENERATION-----16:51:53			
ENTER COMMAND ==>			
RULE NAME: RUL00001		RULESET NAME: TCADS.CCC.ORDERAPP.001	
		TEST STREAM NAME: TCADS.CCC.ORDERAPP.001	
SCREEN LOCATION:			
ROW	COL	LEN	VALUE
---	---	---	-----

INITIAL VALUE	==>	N	(Y/N)
OPERATOR	==>	-	(ADD=+, SUBTRACT=-, MULTIPLY=*, DIVIDE=)
OPERATOR VALUE	==>	-----	(1 - 9999999)
OVERFLOW	==>	N	(Y/N)
ACCUMULATE	==>	N	(Y/N)
SCOPE	==>	-	(S=SYSTEM, T=TERMINAL, U=USER)
DATE AGING FORMAT	==>	-----	
AGE DATE BY D Y	==>	-	(D=DAYS, Y=YEARS)
INPUT/OUTPUT FIELD	==>	I	(I=INPUT, O=OUTPUT)
F1-HELP	F2-PREVIEW	F3-END	F4-RETURN F9-SELECT

For a description of the RULE NAME, TEST STREAM NAME, RULESET NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#). (see page 164)

SCREEN LOCATION

Indicates the location of the field that contains the value being accumulated or the date being aged. You can fill in the location values by either using a model screen, or by typing the values directly into the appropriate columns.

Note: The field containing the value being accumulated or the date being aged can be either an input field or an output field.

INITIAL VALUE

Indicates whether or not you will supply a starting value for the generated field. Specify N (no) to use the value in the specified field as the initial value. Specify Y (yes) to supply a different starting value; type the new value to be used in the VALUE field.

OPERATOR

Specifies the arithmetic operation to be performed on the initial value; a value is required. Valid values are: + (add the operator value to the initial value), - (subtract the operator value from the initial value), * (multiply the initial value by the operator value), or / (divide the initial value by the operator value).

OPERATOR VALUE

Type a whole number that is to be added to, subtracted from, multiplied by, or used as the divisor of the initial value; a value is required. Valid values are 1 to 9,999,999.

OVERFLOW

Indicates whether processing is to continue if a value overflows the target field length. Specify Y (yes) to ignore any overflows and continue processing. Specify N (no) if overflowing the field boundaries is *not* allowed; processing will stop and the Mismatch panel will be displayed.

ACCUMULATE

Indicates whether or not you want to use the *last* generated value for this field as the basis for the *next* generated value for this field. Type N (no) if you do not, Y (yes) if you do.

If you specify Y, then a value for SCOPE is required. SCOPE controls how the data is accumulated: by user, by terminal, or by system.

Note: If a data generation rule action is changed *during* a run and the accumulator is set to Y, then the accumulator will *not* be adjusted for the remainder of the run. The only exception is if the *length* of the value has changed.

SCOPE

When Y is specified for ACCUMULATE, you must indicate how the data is to be accumulated. Specify S (system) to accumulate the data by system; specify T (terminal) to accumulate the data by terminal; specify U (user) to accumulate the data by user.

DATE AGING FORMAT

Specify the date format you are using in this application. This value is required if the initial value or the value found at the screen location is a date. Valid date formats are:

MMDDYY	MM/DD/YY	MM / DD / YY	YYDDD
YYMMDD	YY/MM/DD	YY / MM/ /DD	
YYDDMM	YY/DD/MM	YY / DD / MM	

In any of these formats, the year can be specified as two characters (YY) or four characters (YYYY). You can also replace the / with any national character (such as a -). However, the format, the format's length, and the separator characters specified in the date aging format must match what is found in the screen location during the run. If they do not match, a conflict will occur and the Mismatch panel will appear.

If you specify a value for DATE AGING FORMAT, then you must also specify a value for AGE DATE BY.

AGE DATE BY D|Y

Specify how the date is to be aged: by day (D) or by year (Y).

INPUT/OUTPUT FIELD

Indicates whether this rule applies to an input or an output screen. Specify I for input; O for output.

Insert Screens

To insert a new screen, type 12 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Insert Screens panel. A sample panel is shown next.

Note: A rule can contain only one rule action of this type.

```

-----ADD RULE  ACTIONS - INSERT SCREENS-----13:18:03
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

INSERT SCREENS FROM TEST STREAM:

  DDNAME    ==> TCADS          (LEAVE APPLICATION, MEMBER,
  APPLICATION ==>              OR VERSION BLANK AND PRESS
  MEMBER     ==>              ENTER FOR A SELECTION LIST.)
  VERSION    ==>

F1-HELP      F2-PREVIEW    F3-END      F4-RETURN    F9-SELECT

```

For a description of the RULESET NAME, TEST STREAM, and RULE NAME fields, see the section [Use the Rules Function Panels](#). (see page 164)

Insert a New Screen

Before you can insert a new screen, you must build a test stream containing the screens you want to insert. Follow the steps shown next.

1. Give the test stream a name.
2. Record the new screens using the Log function of CA Verify ART for VTAM.
3. Edit the test stream so that only the new records are in it.

Once you have performed these steps, you are ready to complete the field under Insert Screens From Test Stream on the Add Rule Actions—Insert Screens panel.

Type the application, member, and version of the test stream containing the new screens in the appropriate fields. The inserted test stream must be from the same TCADS file as the original test stream. The new screens will be inserted in the existing test stream immediately *after* the logical screen you are currently working on.

Delete Screens

To delete a current screen, type 13 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Delete Screens panel. A sample panel is shown next.

Note: A rule can contain only one rule action of this type.

-----ADD RULE ACTIONS - DELETE SCREENS-----13:18:03				
ENTER COMMAND ==>				
RULE NAME: RUL00001		RULESET NAME: TCADS.CCC.ORDERAPP.001		
		TEST STREAM NAME: TCADS.CCC.ORDERAPP.001		
DELETE __ SCREENS STARTING WITH THE CURRENT OUTPUT				
F1-HELP	F2-PREVIEW	F3-END	F4-RETURN	F9-SELECT

For a description of the RULESET NAME, TEST STREAM, and RULE NAME fields, see the section [Use the Rules Function Panels](#). (see page 164)

Deleting Screens when Comparison Type = Screen on Run Option Menu

Type the number of screens to be deleted in the DELETE field. The removal takes place beginning with the current output record. When a screen is deleted, all of the output records that make up the output screen, as well as all of the subsequent input records until the next output screen is encountered, are removed.

Deleting Records when Comparison Type = Logical on Run Option Menu

Type the number of records to be deleted in the DELETE field. The removal takes place beginning with the current output record.

Copy Data from a Screen

To copy data from a screen to use in another screen, type 14 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Cut Fields panel. A sample panel is shown next.

Note: You can use the data you select any number of times on any number of panels.

```

-----ADD RULE ACTIONS - CUT  FIELDS-----16:52:
11
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

CUT FROM:
  ROW  COL  LEN  VALUE OR DESCRIPTION
  ---  ---  ---  -----
                                     -----
                                     -----

OUTPUT/INPUT FIELD ==> 0          (I=INPUT,0=OUTPUT)

CUT ID = C00001

F1-HELP  F2-PREVIEW  F3-END  F4-RETURN  F9-SELECT

```

For a description of the RULE NAME, TEST STREAM NAME, RULESET NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#). (see page 164)

CUT FROM

Indicates the location of the field that contains the data you want to reuse. You can use a model screen to fill in the location values.

Note: Data that you cut is not removed from the screen. It is copied so you can paste it into another screen.

VALUE OR DESCRIPTION

Type the name of the field to be cut; optional. The field name can be up to three lines long. In this field you can either put an explanation for why this field is being copied or a sample of the data being copied.

INPUT/OUTPUT FIELD

Indicates whether this rule applies to an input or an output screen. Specify I for input; O for output.

After you complete the screen and press Enter, the system-generated CUT ID for the piece of data you have selected will appear on the panel. The CUT ID always begins with the letter C and is followed by five numbers. A sample CUT ID would be C00001. You will use this CUT ID whenever you want to paste this particular data into another panel.

Paste Data Into a Screen

To paste data into screen, type 15 on the Add Rules—Rule Actions Menu to display the Add Rule Actions—Paste Field panel. A sample panel is shown next.

```

-----ADD RULE ACTIONS - PASTE FIELD-----UPD SUCCESSFUL
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

PASTE TO:
  ROW COL  VALUE OR DESCRIPTION
   07  021  _____
               _____
               _____

          CUT ID ==> C00009
OUTPUT/INPUT FIELD ==> I          (I=INPUT,0=OUTPUT)

CUT INFORMATION:
  ROW COL  LEN  VALUE OR DESCRIPTION
   10  022  005  ORDER

F1-HELP    F2-PREVIEW    F3-END    F4-RETURN    F9-SELECT
  
```

For a description of the RULE NAME, TEST STREAM NAME, RULESET NAME, ROW, COL, and LEN fields, see the section [Use the Rules Function Panels](#) (see page 164).

PASTE TO

Indicates the location of the field where you want the data to be put. You can use a model screen to fill in the location values.

VALUE OR DESCRIPTION

Type the name of the field where the data is to be pasted; optional. The field name can be up to three lines long. In this field you can either put an explanation for the paste operation, or a sample of the data being pasted.

CUT ID

Type the CUT ID of the data you want to paste into this panel. This ID is generated on the Add Rule Actions—Cut Field panel.

INPUT/OUTPUT FIELD

Indicates whether this rule applies to an input or an output screen. Specify I for input; O for output.

CUT INFORMATION

Displays the location of the field containing the data associated with the CUT ID. Use this information to make sure you are pasting the correct data.

Maintain a Ruleset

Maintaining a ruleset includes:

- Editing a ruleset
- Copying a ruleset
- Deleting a ruleset
- Renaming a ruleset
- Printing a ruleset, and
- Any changes to the rules and rule actions that make up the ruleset

The following sections contain detailed instructions for performing each of these tasks.

Edit Rulesets, Rules and Rule Actions

To edit a ruleset, rule, or rule action, begin at the Maintain Rules menu. Type the name of the ruleset you want to edit (if you know it), or leave the name blank (if you do not know it). Then, type E on the Maintain Rules menu and press Enter.

If you did not specify a ruleset name, the Ruleset Selection menu is displayed. (This menu is discussed in a prior section, [Browse Through Rulesets and Rules](#) (see page 167).) Locate and select the ruleset you want to edit.

If you specified a ruleset name, the Rules—Summary (Edit) panel for it is displayed. A sample panel is shown next.

```

----- EDIT RULES - SUMMARY -----12:53:26
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME: TCADS.CCC.ORDERAPP.001
LINE 1 TO 14 OF 25          TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

S-EDIT  I-INSERT  D-DELETE  R-REPLICATE  P-PREVIEW
OBJECT   TYPE ROW COL LEN OP VALUE FROM MODEL SCREEN/DESCRIPTION
--- RULESET T/S
--- RULE RUL00001
--- SCR-RECOG 2 29 23 EQ CAROL'S COOKIES COMPANY
--- DATAGEN OUT 1 71 10 01/23/1998+4(d)
--- DATAGEN OUT 22 43 8 04/22/97+279(D)
--- VARIABLE OUT 22 53 1 1
--- VARIABLE OUT 2 71 8 08:22:49
--- CURSOR OUT 1 33 11 NEW CURSOR ROW-6,COL-17
--- DATAGEN IN 17 33 11 INFORMATION + 37
--- RULE CUSTINFO
--- VARIABLE OUT 1 1 1
--- DELETED OUT 1 1 1
--- MOVED OUT 8 8 10 BIRTHDATE:
--- CHANGED OUT 15 20 8 TEXT

F1-HELP FF3-END F4-RETURN F7-UP F8-DOWN F9-MODEL SCREEN

```

From this panel, you can perform one of the following actions:

S

Edit a ruleset, rule, or rule action.

I

Inserts a rule when specified on a ruleset or rule line; inserts a rule action when specified from a rule action line. All insertions are placed *after* the line on which I is specified.

D

Deletes a rule or rule action.

R

Replicates a rule or rule action.

P

Previews a rule or rule action.

Edit a Ruleset

To edit a ruleset, including its description or protection level, type an S next to RULESET in the OBJECT column and press Enter. The Edit Rules—Ruleset Description panel is displayed. A sample panel is shown next.

```
-----EDIT RULES - RULESET DESCRIPTION-----07:24:02
ENTER COMMAND ==>

RULESET NAME: TCADS.CCC.ORDERAPP.001

DESCRIPTION ==>
              ==>
              ==>

RULESET PROTECTION ==>                (R-READ W-WRITE P-PRINT)

F1-HELP      F3-END      F4-RETURN
```

On this panel, you can change the ruleset's description and the protection assigned to the ruleset. Press Enter to have your changes accepted, then press PF3 (End) to return to the Summary panel.

Note: To change the name of a ruleset, follow the instructions in the section, [Rename a Ruleset](#) (see page 213) in the chapter "Rules Function".

Edit a Rule

To edit a rule's description, from the Edit Rules—Summary panel type an S next to the rule you want to edit and press Enter. The Edit Rules—Rule Actions panel is displayed. A sample panel is shown next.

```

-----EDIT RULES - RULE  ACTIONS-----07:55:37
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:   TCADS.CCC.ORDERAPP.001
                             TEST STREAM NAME: TCADS.CCC.ORDERAPP.001

DESCRIPTION ==> RELEASE 6.2 TO 6.3 CHANGES
              ==>

RESET MODEL SCREEN SELECTION: N          (Y=RESET, N=NO ACTION)

F1-HELP    F2-PREVIEW    F3-END    F4-RETURN    F9-SELECT
  
```

On this panel, you can change the rule name and description. Press Enter to have your changes accepted, then press PF3 (End) to return to the Summary panel.

Edit a Rule Action

To edit a rule action, follow this procedure.

1. Type an S to the left of the rule action you want to change.
2. Press Enter to display the completed data entry panel used to define that rule action.
3. Make changes by either overtyping the value or by using the modeling feature (explained in a prior section, [Locate and Select the Model Screen](#) (see page 179)).
4. When you are satisfied with your changes, press Enter and then press PF3.

Change Your Model Screen

To change your currently selected model screen, follow this procedure.

1. Type Y in the RESET MODEL SCREEN SELECTION field. Press Enter.
2. Press PF9 to select a new model screen.

Copy a Ruleset or Rule

To copy a ruleset or rule, begin at the Maintain Rules menu. Type the name of the ruleset you want to copy (if you know it), or leave the name blank (if you do not know it). Then, type **b** on the Maintain Rules menu and press Enter.

If you did not specify a ruleset name, the Ruleset Selection menu is displayed. (This menu is discussed in the section [Browse Through Rulesets and Rules](#) (see page 167).) Locate and select the rule you want to copy.

If you specified a ruleset name, the Copy Ruleset panel for it is displayed. A sample panel is shown next.

```

-----COPY RULESET-----13:04:13
ENTER COMMAND ==>

RULESET NAME: TCADS.CCC.ORDERAPP.001

COPY TO:
  DDNAME      ==> TCADS
  APPLICATION ==> CCC
  MEMBER      ==> ORDERAPP
  VERSION     ==> 001

DESCRIPTION ==> SAMPLE RULESET
           ==>
           ==>

COPY RULE:
  RULE NAME ==>
  NEW NAME  ==>

F1-HELP    F3-END    F4-RETURN

```

RULESET NAME

Contains the name of the ruleset you are copying.

COPY TO

Specify the destination of the copied ruleset.

DESCRIPTION

Contains the description of the source ruleset. At this time, you can change the description for the new ruleset.

COPY RULE

Use to copy a single rule. Specify the name of the rule you want to copy in RULE NAME. Specify the name of the copied rule in NEW NAME.

When you are finished, press Enter to return to your previous screen.

Delete a Ruleset

To delete a ruleset, begin at the Maintain Rules menu. Type the name of the ruleset you want to delete (if you know it), or leave the name blank (if you do not know it). Then, type D on the Maintain Rules menu and press Enter.

If you did not specify a ruleset name, the Ruleset Selection menu is displayed. (This menu is discussed in the section, [Browse Through Rulesets and Rules](#) (see *page 167*).) Locate and type D next to the ruleset you want to delete. The Confirm Delete of Ruleset panel is displayed.

If you specified a ruleset name, the Confirm Delete of Ruleset panel for it is displayed. A sample panel is shown next.

-----CONFIRM DELETE OF RULESET-----13:04:28	
ENTER COMMAND ==>	
RULESET NAME: TCADS.A.A.001	
DESCRIPTION: SAMPLE RULE	
STATISTICS:	
CREATION DATE:	09/02/1997
CREATION TIME:	14:57:32
CREATED BY:	
LAST UPDATE DATE:	
LAST UPDATE TIME:	TOTAL RULES: 000006
LAST UPDATED BY:	TOTAL RULE ACTIONS: 000016
TEST STREAM NAME: TCADS.A.A.001	
PROTECTION STATUS:	
F1-HELP	F3-END F4-RETURN

RULESET NAME

Contains the name of the ruleset you are removing.

DESCRIPTION

Contains the description of the ruleset you are removing.

STATISTICS

Displays information relevant to this ruleset.

TEST STREAM NAME

Displays the test stream, if any, that this ruleset is associated with.

PROTECTION STATUS

Displays the protection assigned to this ruleset.

When you are finished, press Enter to return to your previous screen.

Rename a Ruleset

To rename a ruleset, begin at the Maintain Rules menu. Type the name of the ruleset you want to rename (if you know it), or leave the name blank (if you do not know it). Then, type R on the Maintain Rules menu and press Enter.

If you did not specify a ruleset name, the Ruleset Selection menu is displayed. (This menu is discussed in the section, [Browse Through Rulesets and Rules](#) (see page 167).) Locate and select the rule you want to rename.

If you specified a ruleset name, the Rename Ruleset panel is displayed. A sample panel is shown next.

```

-----RENAME RULESET-----13:04:21
ENTER COMMAND ==>

RULESET NAME: TCADS.CCC.ORDERAPP.001

RENAME TO:
DDNAME      ==> TCADS
APPLICATION ==> CCC
MEMBER      ==> ORDERAPP
VERSION     ==> 002

DESCRIPTION ==> EXAMPLE TWO
            ==>
            ==>

F1-HELP      F3-END      F4-RETURN

```

RULESET NAME

Contains the name of the ruleset that you are renaming.

RENAME TO

Specify the new name of this ruleset.

DESCRIPTION

Contains the description from the source ruleset. You can change the description at this time.

When you are finished, press Enter to return to your previous screen.

Chapter 9: Inquiry Function

This chapter explains how to inquire about and terminate active and suspended functions.

This section contains the following topics:

[Overview](#) (see page 215)

[Inquire into Active or Suspended Functions](#) (see page 216)

[Terminate Logging](#) (see page 219)

[Interrupt a Run](#) (see page 220)

[Clean up and Reconnect Sessions](#) (see page 220)

[Terminate the Inquiry](#) (see page 220)

Overview

Use the Inquiry function to:

- Display a list of all active or suspended functions
- Terminate logging
- Interrupt a run
- Clean up or reconnect CA Verify ART for VTAM sessions

This function is helpful when you want to monitor all CA Verify ART for VTAM activity. The Inquiry function is also the only way you can terminate logging when multiple terminals are being logged, or when the user of a terminal is unaware that his terminal is being logged.

Inquire into Active or Suspended Functions

To inquire into active or suspended functions, type **I** on the Primary Options Menu. CA Verify ART for VTAM displays the Inquiry/Termination menu.

```

GENLEVEL=9903 ----- INQUIRY/TERMINATION -----12:44:27
ENTER COMMAND ==>                                     I1

      FUNCTION  INVOKED  AT          USING  RECORD
      FUNCTION  BY      TERMINAL  TIME    TERMINAL  NUMBER  TEST STREAM NAME
- INQUIRY  VERIFY  A60L2048  12:44
- OPTION   BUCBR01  A55TG001  11:56
- LOG      BUCBR01  A55TG001  11:56  2          BRUCE.LMTEST.003
- LOG      BUCBR01  A55TG001  11:55  2          BRUCE.LMTEST.002

DATA CAPTURE BUFFERS 00% FULL, NO SECONDARY BUFFERS ALLOCATED
RPLS USED (HIGH/MAX): VIRTUAL SEND: 0/50    REAL SEND: 0/50
                      REAL RECEIVE: 1/50    SESSION INIT: 0/9999

TYPE AN "S", "P", OR "D" NEXT TO YOUR LOG FUNCTION TO STOP IT
TYPE AN "I" NEXT TO A RUN FUNCTION TO INTERRUPT IT (AT ORIGINATING TERMINAL)
F1-HELP      F3-END      F4-RETURN    F7-UP      F8-DOWN

```

FUNCTION

Identifies the function:

Browse

A test stream is being browsed

Edit

A test stream is being edited

Inquiry

The Inquiry function is being used

Log

A terminal or terminals are being logged

Log Init

A user selected the Log function but logging has not yet begun

Log Full

Logging stopped because the data set is full

Log Term

Logging was either user-terminated or terminated due to an error; if due to an error, the error message number is shown in the RECORD NUMBER column. See the [Error Messages](#) (see page 219) section later in this chapter for details.

Option

The Primary Options Menu is being displayed

Rules

The Maintain Rules function is being used

Run

A test stream is being run

Run Init

A user selected the Run function but is not currently running a test stream

Tutorial

The tutorial is being viewed

Utility

One of the utilities is being used

INVOKED BY

The ID of the user who invoked the function.

AT TERMINAL

The terminal at which the function was invoked.

TIME

The time of the last write to the terminal at which the function was invoked. For the Log function, this is the time logging began. If the function was invoked over 24 hours ago, CA Verify ART for VTAM displays the date instead.

USING TERMINAL

For the Log function, the terminal being logged or, for a multiple terminal test stream, the number of terminals being logged.

For the Run function, the virtual terminal being used or, for a multiple terminal test stream, the number of virtual terminals being used.

RECORD NUMBER

- For the Log function, the number of records written to disk
- For a Log Term function due to an error, the error message number appears in this column
- For the Run function, the number of records processed
- For the Browse and Edit functions, the number of the record currently being displayed
- For suspended functions, *SUSP* appears in this column

TEST STREAM NAME

The test stream's name: Application, Member, and Version.

Buffer Utilization

Beneath the list of functions CA Verify ART for VTAM displays this message:

```
DATA CAPTURE BUFFERS nn% FULL, NO/NUMBER OF SECONDARY  
BUFFERS ALLOCATED
```

To avoid affecting system performance, CA Verify ART for VTAM stores screens captured during the Log and Run functions in a buffer before processing them. If the primary buffer becomes full, CA Verify ART for VTAM allocates secondary buffers. This message indicates what percentage of all allocated buffers are full, and how many — if any — secondary buffers have been allocated.

Note: If you find that secondary buffers are frequently allocated, you should increase the size of the primary buffer in the options module. See the *Installation Guide* for instructions.

RPLs Used

Beneath the buffer utilization message CA Verify ART for VTAM indicates the number of RPLs used. An installation option determines the maximum number of RPLs CA Verify ART for VTAM can use.

VIRTUAL SEND

The number of RPLs used to send data to applications.

REAL SEND

The number of RPLs used to send data to terminals.

REAL RECEIVE

The number of RPLs used to receive data from terminals.

SESSION INIT

The number of RPLs used to initiate sessions.

Error Messages

If an error occurs during the Log function, CA Verify ART for VTAM changes the Log designation in the Function column to Log Term and displays an error message number in the Record Number field. When the log is terminated, CA Verify ART for VTAM displays the error message in the upper right section of the menu. Then you can use the Help (PF1) command to display a longer version of the message.

It's possible, although unlikely, that a note may also be displayed with the buffer utilization message. The following notes may appear:

Buffer Overflow

One or more screens have been lost because the data capture buffer overflowed. Modify the options module to increase the size of the primary buffer or the number of secondary buffers.

Invalid Address

An invalid address was found in a program, control block, or data capture buffer. See the Problem Reporting section of the *Installation Guide*.

Terminate Logging

To terminate logging, type S, P, or D to the left of the Log function and press Enter

S

Stops logging without disconnecting the terminal from the application

P

Stops logging and passes the terminal to the application to which it is currently connected. This option disrupts the session and is primarily useful for non-prime time sessions or when users have been warned to expect the disruption.

D

Stops logging and disconnects the terminal from the application

Note: If another Log function is active, **P** or **D** is treated as **S**; that is, the Log function is terminated but the terminal is not disconnected from the application.

CA Verify ART for VTAM displays the Log Termination menu. See the chapter "Log Function" for an explanation of this menu.

Use this function to terminate:

- **All** logging, regardless of the Stop Option
- **Multiple terminal** logging. This is the *only* way logging at multiple terminals can be terminated.
- **Other terminal** logging when the terminal user is unaware of logging

Interrupt a Run

To interrupt a run, type **I** to the left of the Run function and press Enter. CA Verify ART for VTAM displays the Run Status menu with the cancellation message at the terminal where the Run function was invoked.

Use this function to cancel long-running test streams with very long cancel intervals.

To interrupt a run at your terminal, you must invoke the Inquiry function from another terminal.

Clean up and Reconnect Sessions

To clean up a session started at a terminal that is no longer available, type **C** to the left of that function and press Enter.

To reconnect a session left on a terminal, type **R** to the left of that function and press Enter. After you specify Reconnect, pressing Enter at the terminal which owned the session may redisplay the Primary Options Menu.

Reconnect cannot be specified for:

- Run functions, unless the run has not yet begun or has completed
- Applications which have abended

Use Cleanup instead of Reconnect in these situations.

Terminate the Inquiry

To terminate the inquiry, use the End (PF3) command. CA Verify ART for VTAM redisplay the Primary Options Menu.

Chapter 10: Utilities

This chapter explains how to manipulate test streams.

This section contains the following topics:

[Overview](#) (see page 221)

[Invoke the Utilities](#) (see page 222)

[Copy a Test Stream](#) (see page 224)

[Rename a Test Stream](#) (see page 226)

[Delete a Test Stream](#) (see page 227)

[Update a Test Stream Directory](#) (see page 228)

[Append Records to a Test Stream](#) (see page 229)

[Insert Records into a Test Stream](#) (see page 231)

[Merge Terminals into a Test Stream](#) (see page 235)

Overview

The utilities make it easy for you to create new test streams to meet your testing needs. For example, you can:

- Copy a test stream and then edit the copy to create a different test case
- Merge terminals and their screens from the same or different test streams into a single test stream to create a large volume test stream for stress or concurrency testing
- Append one test stream onto the end of another test stream or onto itself for stress testing or repetition testing. This utility also lets you copy just the automated variable fields from one test stream to another.
- Insert screens from one test stream into another to modify the test case

The utilities also help you maintain existing test streams. For example, you can:

- Delete test streams you no longer need
- Update a test stream directory to modify its protection status or change the test stream's owner
- Rename a test stream

Invoke the Utilities

To invoke the utilities, type **U** on the Primary Options Menu. CA Verify ART for VTAM displays the Utilities menu.

```
----- UTILITIES -----13:50:35
ENTER COMMAND ==>                                     U1

      C COPY A TEST STREAM                               A APPEND RECORDS TO A TEST STREAM
      R RENAME A TEST STREAM                             I INSERT RECORDS INTO A TEST STREAM
      D DELETE A TEST STREAM                             M MERGE TERMINALS INTO A TEST STREAM
      U UPDATE A TEST STREAM DIRECTORY

ENTER TEST STREAM NAME:
DDNAME      ==> TCADS
APPLICATION ==> CCC      (LEAVE APPLICATION, MEMBER,
MEMBER       ==> ORDERAPP OR VERSION BLANK AND PRESS
VERSION      ==> 002      ENTER FOR A SELECTION LIST)

F1-HELP      F3-END      F4-RETURN
```

The default ddname and Version values appear; these can be changed.

If you know the test stream you want to process:

1. Type the Application and Member name and other identifiers, if necessary
2. Type on the command line the letter which identifies the utility you want to use: C, R, D, U, A, I, or M.
3. Press Enter.
4. CA Verify ART for VTAM displays the menu for the utility you selected.

If you don't know the test stream you want to process:

1. Leave the Application and Member name blank.
2. Optionally, blank out other identifiers.
3. Optionally, type on the command line the letter which identifies the utility you want to use: C, R, D, U, A, I, or M.
4. Press Enter.
5. CA Verify ART for VTAM displays the Test Stream Selection menu.

----- UTILITIES: TEST STREAM SELECTION -----14:00:10									
ENTER COMMAND ==>									
FILE: TCADS									
			LOG-DATE	BY	RECORDS	RUN-DATE	RESULT	MULTI-TERM	
_	CLIST	OPERATOR	001	01/02/1998	AJC	28	03/21/1998	LGC	EQ
			CEMT INQUIRY OF ALL PROGRAMS AND FILES						
s	DEMO	DEMOPROG	001	03/22/1998	NGN	8			
			CUSTOMER MAINTENANCE DEMO PROGRAM						
_	PAYROLL	DOCUMENT	001	02/01/1998		120			
			ALL PAYROLL SCREENS FOR USER TRAINING						
_	PAYROLL	INQUIRY	001	01/16/1998	RSM	154	01/16/1998	NOT	EQ
			TEST OF NEW INQUIRY MENU						
_	PAYROLL	UPDATE	002	01/28/1998		112			
			TEST OF NEW UPDATE SCREEN						
_	QA	TEST1	003	01/29/1998	NGN	1022	02/29/1998	NOT	EQ
			TEST1 IN CONVERSION FROM DOS TO MVS						
_	QA	TEST2	007	02/21/1998		724			
			TEST2 IN CONVERSION FROM DOS TO MVS						
_	SYSTEMS	MIGRATE	008	02/21/1998	SAB	2380	03/14/1998	LGC	EQ
_	SYSTEMS	STRESS1	018	03/22/1998	JSN	1502			M
			STRESS TEST FOR CICS TEST REGION						
_	SYSTEMS	STRESS2	019	03/22/1998		1208			

Complete this menu as follows:

- If you typed on the Utilities menu the letter of the utility you want to use, select test streams by typing S to the left of each test stream you want to process and press Enter.
- If you did not enter on the Utilities menu the letter of the utility you want to use, type the letter — C, R, D, U, A, I, or M — to the left of each test stream you want to process and press Enter.

In either case, CA Verify ART for VTAM displays the panel for the utility you selected.

If you select multiple test streams, CA Verify ART for VTAM will redisplay the Test Stream Selection menu each time you press Enter until all selected test streams are processed.

Copy a Test Stream

When you type **C** on the Utilities or Test Stream Selection menu, CA Verify ART for VTAM displays the Test Stream Copy panel.

```
CCC.ORDERAPP.001 ----- TEST STREAM COPY -----10:15:43
ENTER COMMAND ==>                                     U3

TEST STREAM TO COPY TO:
DDNAME      ==> TCADS
APPLICATION ==> CCC
MEMBER      ==> ORDERAPP
VERSION     ==> 001

OPTIONS:
START WITH RECORD NUMBER ==> 000001      (1-999999)
STOP AFTER RECORD NUMBER ==> 999999      (1-999999)
INCLUDE RULESET           ==> Y          (Y/N)
TERMINAL                  ==>           (BLANK - SELECTION LIST)
```

F1-HELP F3-END F4-RETURN

TEST STREAM TO COPY TO

The name of the test stream being copied appears in the DDname, Application, Member, and Version fields. Modify the name as you wish.

START WITH RECORD NUMBER

The first record to be copied to the output test stream. The default is record 1. Terminal status information is automatically copied because it is required by the Run function.

STOP AFTER RECORD NUMBER

The last record to be copied to the output test stream. The default is record 999999. Use this option to truncate a test stream that ends in the middle of a transaction or at another inconvenient point.

INCLUDE RULESET

Copies the associated ruleset to the corresponding name. Y, the default, copies the ruleset; type N if you do not want the ruleset to be copied.

TERMINAL

Enter a terminal name to select one terminal from a multiple terminal test stream. If you leave this field blank, CA Verify ART for VTAM displays the Terminal Selection menu.

```

SAMPLE.MULTTERM.001 ----- COPY: TERMINAL SELECTION -----14:14:40
ENTER COMMAND ==> UW

SELECT: "S"   ORIGINAL   TERMINAL   SCREEN   ALTERNATE   VIRTUAL
INQUIRY: "I"  TERMINAL   TYPE       SIZE     SIZE        TERMINAL

      -      A60L2048   3277 REMOTE  24 BY 80   24 BY 80
      -      A60L2049   3277 REMOTE  24 BY 80   24 BY 80
      -      A60L205A   3277 REMOTE  24 BY 80   24 BY 80
      -      A60L205B   3277 REMOTE  24 BY 80   24 BY 80
      ***      END OF TERMINALS      ***

TYPE AN "S" TO SELECT TERMINALS FOR COPY
TYPE AN "I" TO VIEW TERMINAL STATUS
F1-HELP      F3-CONTINUE  F4-RETURN    F7-UP        F8-DOWN

```

This menu lists the following for each terminal in the test stream:

- Original terminal name
- Terminal type; for example, 3277 remote, 3277 local
- Screen size
- Alternate screen size
- Virtual terminal to be used when the test stream is run

Type **S** to the left of one or more terminals and use the Continue (PF3) command. The terminals you select are the ones from which records will be copied.

Type **I** to the left of a terminal for which you want to view Initial Terminal Status information and press Enter. See the "Browse Function" chapter for an explanation of the Initial Terminal Status menu. When you exit from this menu, CA Verify ART for VTAM redisplay the Terminal Selection menu.

Use CA Verify ART for VTAM commands as follows:

- Up (PF7) and Down (PF8) to view additional terminals which do not appear on the initial menu
- End (PF3) to cancel the copy

Press Enter when you have completed the Copy menu. CA Verify ART for VTAM copies the test stream and redisplay the Utilities or Test Stream Selection menu, along with a message.

Use the End (PF3) command to cancel the copy.

Rename a Test Stream

When you type R on the Utilities or Test Stream Selection menu, CA Verify ART for VTAM displays the Test Stream Rename menu.

Note: If the test stream you are renaming has an associated ruleset, the name of the ruleset will automatically be renamed also.

```
CCC.ORDERAPP.001 ----- TEST STREAM RENAME -----10:21:42
ENTER COMMAND ==>                                     U4
```

NEW TEST STREAM NAME:

```
APPLICATION ==> DEMO
MEMBER       ==> DEMOPROG
VERSION      ==> 001
```

F1-HELP F3-END F4-RETURN

The current test stream name appears in the Application, Member, and Version fields. Modify this name and press Enter. CA Verify ART for VTAM renames the test stream and ruleset (if any), and redisplay the Online Utilities or Test Stream Selection menu, along with a message.

Use the End (PF3) command to cancel the renaming.

Delete a Test Stream

When you type D on the Utilities or Test Stream Selection menu, CA Verify ART for VTAM displays the Confirm Delete menu.

Note: If the test stream you are deleting has an associated ruleset, the ruleset will also be deleted. You will receive a confirmation/warning message before the delete takes place.

CCC.ORDERAPP.002 ----- CONFIRM DELETE -----

ENTER COMMAND ==>

TCA0548 - CORRESPONDING RULESET WILL ALSO BE DELETED

DESCRIPTION: CAROL'S COOKIES COMPANY DEMO PROGRAM

LOG:RUN:EDIT:TEST STREAM:IN:OUT:

INVOKED BY:TOTAL SCREENS:66

INVOKED ON: 06/02/1998 06/03/1998AVERAGE BYTES:46315

START TIME: 13:23:04 08:34:50

DURATION: 00:02:02 00:00:00LAST RUN:IN:OUT:

SYSTEM: A04IC9NA A04IC9NAEQUAL:61

STATUS: NORMAL LOGICALLY EQUALEQUIVALENT:5

TERMINAL: A60L2048IGNORED:0

VSAM CI'S: 2ACCEPTED:0

AVERAGE THINK TIME: 00:00:20.256INSERTED:00

AVERAGE RESPONSE TIME: 00:00:00.013DELETED:00

MAXIMUM SCREEN SIZE: 24 BY 80CHANGED:0

PROTECTION STATUS:NOT RUN:00

ORIGINATING TEST STREAM: CCC.ORDERAPP.001OWNER:CREATED BY FUNCTION: RUN

F1-HELPF3-CANCEL

This panel lists directory information for the test stream. See the "Browse Function" chapter for an explanation of the directory fields.

Press Enter to confirm the deletion; press PF3 to cancel it. CA Verify ART for VTAM redisplayes the Utilities or Test Stream Selection menu, along with a message.

Update a Test Stream Directory

When you type U on the Utilities or Test Stream Selection menu, CA Verify ART for VTAM displays the Directory Update menu.

```

CCC.ORDERAPP.002 ----- DIRECTORY UPDATE -----13:51:57
ENTER COMMAND ==>                                         U6

DESCRIPTION ==> CAROL'S COOKIES COMPANY DEMO PROGRAM
==>
==>

LOG:      RUN:      EDIT:      TEST STREAM:      IN:      OUT:
INVOKED BY:
INVOKED ON: 06/29/1998 06/29/1998      TOTAL SCREENS:      5      5
START TIME: 13:18:52 13:39:44      AVERAGE BYTES:      52      289
DURATION: 00:00:12 00:00:00      LAST RUN:      IN:      OUT:
SYSTEM: A04IC9NA A04IC9NA      EQUAL:      5      1
STATUS: NORMAL NOT EQUAL      EQUIVALENT:      0
TERMINAL: A55TG001      IGNORED:      0
VSAM CI'S: 1      ACCEPTED:      4
      INSERTED:      0      0
      DELETED:      0      0
      CHANGED:      0
      NOT RUN:      0      0
AVERAGE THINK TIME: 00:00:02.388
AVERAGE RESPONSE TIME: 00:00:00.002
MAXIMUM SCREEN SIZE: 24 BY 80
PROTECTION STATUS ==>      OWNER ==>
ORIGINATING TEST STREAM: CCC.ORDERAPP.001      CREATED BY FUNCTION: RUN

F1-HELP      F3-END

```

This menu lists directory information for the test stream. See the "Browse Function" chapter for an explanation of the directory fields.

The test stream owner — the user who initiated logging — or a security administrator can change these fields:

- Description
- Protection Status
- Owner

Note: If the test stream is not write-protected, anyone can change the description.

See the "Log Function" chapter for a discussion of the Description and Protection Status fields.

Use the End (PF3) command to save the updated directory; use the Cancel command to cancel the update.

Append Records to a Test Stream

When you type A on the Utilities or Test Stream Selection menu, CA Verify ART for VTAM displays the Append menu.

```

CCC.ORDERAPP.002 ----- APPEND -----13:52:59
ENTER COMMAND ==>                                     UA

APPEND FROM TEST STREAM:
DDNAME      ==> TCADS
APPLICATION ==> CCC          (LEAVE APPLICATION, MEMBER,
MEMBER      ==> ORDERAPP      OR VERSION BLANK AND PRESS
VERSION     ==> 002          ENTER FOR A SELECTION LIST)

OPTIONS:
INCLUDE RULESET ==> Y          (Y/N)

F1-HELP      F3-END      F4-RETURN

```

The Append utility copies the test stream you identify on this menu onto the end of the test stream you identified on the Utilities or Test Stream Selection menu.

Lengthening the test stream may be useful for stress testing. You can also append a test stream to itself for repetition testing. Make sure, however, that the appended records make sense in the context of the records which they follow.

The following rules apply to the Append utility:

- Rules will be included in the output ruleset if the Include Ruleset option is Y.
- When a single terminal test stream is appended to a single terminal test stream, the output is a single terminal test stream.
- If either of the test streams is a multiple terminal test stream, the output is a multiple terminal test stream. Terminals will be added to the test stream for the terminals in the second test stream which are not in the first.

APPEND FROM TEST STREAM

The name of the test stream which is the source of the appended records.

If you leave the Application, Member, or Version fields blank, CA Verify ART for VTAM displays the Test Stream Selection menu. Type S to the left of the test stream you want to select and press Enter.

INCLUDE RULESET

Leave Y as the default to copy rules when the test stream is appended; type N to exclude them.

The appended fields will be referenced in the next Run, Browse, Edit, or Print function.

Press Enter when you have completed the specifications. CA Verify ART for VTAM either performs the append or displays the Append Confirmation menu. If CA Verify ART for VTAM performs the append, it redisplay the Utilities or Test Stream Selection menu, along with a message.

Confirm the Append

If the output test stream contains two consecutive input or output screens from the same terminal, CA Verify ART for VTAM displays the Append Confirmation menu. The message on this menu indicates whether CA Verify ART for VTAM found two consecutive input or output screens.

Here's how either situation could occur. Suppose test stream A is being appended to test stream B. If the first screen for test stream A is an input screen and the last screen for test stream B is an input screen, the output test stream would contain two consecutive input screens. In this case, you may want to edit test stream B to delete the last input screen.

Similarly, if the first screen for test stream A is an output screen and the last screen for test stream B is an output screen, the output test stream would contain two consecutive output screens. In this case, you may want to edit test stream A to delete the first output screen.

Press Enter to confirm the Append or use the End (PF3) command to cancel it. If you confirm the Append, CA Verify ART for VTAM appends the records and redisplay the Utilities or Test Stream Selection menu, along with a message. If you cancel the Append, CA Verify ART for VTAM redisplay the Append menu.

Insert Records into a Test Stream

When you type I on the Utilities or Test Stream Selection menu, CA Verify ART for VTAM displays the Insert menu.

Note: If the records you are inserting use a different ruleset than the test stream you are inserting them into, then the rules from both test streams will be combined.

```

CCC.ORDERAPP.001 ----- INSERT -----10:24:22
ENTER COMMAND ==>                                     UI

INSERT FROM TEST STREAM:
DDNAME      ==> TCADS
APPLICATION ==> CCC                      (LEAVE APPLICATION, MEMBER
MEMBER      ==> ORDERAPP                  OR VERSION BLANK AND PRESS
VERSION     ==> 001                      ENTER FOR A SELECTION LIST)

OPTIONS:
START WITH RECORD NUMBER ==> 000001      (1-999999)
STOP AFTER RECORD NUMBER ==> 999999      (1-999999)
INSERT AFTER RECORD NUMBER ==> 999999     (1-999999)
INCLUDE RULESET           ==> Y           (Y/N)

MULTIPLE TERMINAL TEST STREAM OPTIONS:
TERMINAL TO SELECT FROM ==>
TERMINAL TO INSERT AS   ==>

F1-HELP    F3-END    F4-RETURN

```

The Insert utility inserts records from one or more test streams into the test stream you identified on the Utilities or Test Stream Selection menu. You can also insert records from a test stream into that same test stream. Make sure, however, that:

- The records from both test streams are from similar types of terminals
- The inserted transactions will work where they are inserted

Inserting records is one way of expanding a test stream and changing the testing scenario.

INSERT FROM TEST STREAM

The name of the test stream which is the source of the inserted records.

If you leave the Application, Member, or Version fields blank, CA Verify ART for VTAM displays the Test Stream Selection menu. Type **S** to the left of the test stream you want to select and press Enter. See the screen earlier in this chapter.

START WITH RECORD NUMBER

The first record to be inserted. The default is record 1.

STOP AFTER RECORD NUMBER

The last record to be inserted. The default is record 999999; such as, the last record in the test stream.

INSERT AFTER RECORD NUMBER

The record in the output test stream after which the records should be inserted.

- If you specify 0, the records are inserted at the beginning of the test stream.
- If you leave 999999 as the default or specify a number greater than the number of records in the test stream, the records are inserted at the end of the test stream.

INCLUDE RULESET

Indicates whether the ruleset from the target test stream should be inserted into the source test stream. Y, the default, inserts the ruleset; **N** does not.

The last two options apply to *multiple test streams only*.

TERMINAL TO SELECT FROM

The name of the terminal in the source test stream from which records are to be selected. If you leave this field blank, CA Verify ART for VTAM displays the From Terminal Selection menu.

TERMINAL TO INSERT AS

The terminal name that should be used for the inserted records in the output test stream. If you leave this field blank, CA Verify ART for VTAM displays the To Terminal Selection menu.

Press Enter when you have completed the specifications.

- If necessary, CA Verify ART for VTAM displays the From Terminal Selection and/or To Terminal Selection menus. See the [Select a Terminal](#) (see page 233) section next.
- If necessary, CA Verify ART for VTAM displays the Insert Confirmation menu. See the [Confirm the Insert](#) (see page 233) section.
- Otherwise, CA Verify ART for VTAM displays the Insert Status menu. See the [Review the Insert Status](#) (see page 234) section.

Select a Terminal

For multiple terminal test streams, CA Verify ART for VTAM displays the From Terminal Selection menu if you leave the Terminal to Select from field blank, and the To Terminal Selection menu if you leave the Terminal to Insert As field blank.

These menus are similar to the Terminal Selection menu illustrated in a previous screen.

Type S to the left of *one* terminal and use the End (PF3) command.

- The terminal you select on the From Terminal Selection menu is the terminal from which records will be selected for insertion.
- The terminal you select on the To Terminal Selection menu is the terminal which will be associated with the inserted records.

Type I to the left of a terminal for which you want to view Initial Terminal Status information and press Enter. See the "Browse Function" chapter for an explanation of the Initial Terminal Status menu. When you exit from this menu, CA Verify ART for VTAM redisplay the From or To Terminal Selection menu.

Use CA Verify ART for VTAM commands as follows:

- **Up (PF7)** and **Down (PF8)** to view additional terminals which don't appear on the initial menu
- **Cancel** to cancel the insertion.

Confirm the Insert

If the output test stream contains two consecutive input or output screens from the same terminal, CA Verify ART for VTAM displays the Insert Confirmation menu. The message on this menu indicates whether CA Verify ART for VTAM found two consecutive input or output screens.

If this situation is acceptable — for example, your application issues consecutive reads or writes — press Enter to confirm the Insert. CA Verify ART for VTAM displays the Insert Status menu. Otherwise, use the End (PF3) command to cancel it. CA Verify ART for VTAM then redisplay the Insert menu so you can modify the record numbers.

Review the Insert Status

After you specify all the information required for record insertion, CA Verify ART for VTAM displays the Insert Status menu.

```

CCC.ORDERAPP.001 ----- INSERT: STATUS -----10:25:11
ENTER COMMAND ==>                                     UM

THE FOLLOWING RECORDS HAVE BEEN SELECTED FOR INSERTION

FROM          FIRST    LAST    FROM    TO      AFTER
TEST STREAM   RECORD   RECORD  TERMINAL  TERMINAL  RECORD
CCC.ORDERAPP.001      1       16     NN01     NN01      16

F1-HELP      F3-END      F4-RETURN    F7-UP        F8-DOWN

```

If your specifications are correct, use the Enter key to perform the insertion and save the output test stream. CA Verify ART for VTAM inserts the records and redisplay the Utilities or Test Stream Selection menu, along with a message.

If your specifications are incorrect, use the End (PF3) key to cancel the insertion.

Merge Terminals into a Test Stream

When you type M on the Utilities or Test Stream Selection menu, CA Verify ART for VTAM displays the Merge menu.

Note: If the test streams being merged have associated rulesets, then the rulesets are also merged.

```

CCC.ORDERAPP.001 ----- MERGE -----10:17:55
ENTER COMMAND ==>                                     UV

TEST STREAM TO BE MERGED INTO THE OUTPUT TEST STREAM:
DNAME      ==> TCADS
APPLICATION ==> CCC          (LEAVE APPLICATION, MEMBER,
MEMBER      ==> ORDERAPP      OR VERSION BLANK AND PRESS
VERSION     ==> 001          ENTER FOR A SELECTION LIST)

OUTPUT TEST STREAM: TCADS.CCC.ORDERAPP.002

OPTIONS:
BEGIN MERGE AT OUTPUT TEST STREAM RECORD ==> 000001      (1-999999)
INCLUDE RULESET                          ==> Y          (Y/N)
ADJUST THINK TIMES                       ==> NO         (Y/N)

F1-HELP    F3-END    F4-RETURN

```

The Merge utility merges terminals and their records from a test stream into the test stream you identified on the Utilities or Test Stream Selection menu. You can merge records from a test stream into the same test stream or into a different test stream.

The new records are interspersed among the existing records in the test stream. CA Verify ART for VTAM calculates the position for each record to be merged as follows:

- First, CA Verify ART for VTAM calculates its offset from the beginning of the test stream (think times plus response times for the terminal).
- Then, CA Verify ART for VTAM inserts the record at the corresponding offset in the test stream into which it is being merged.

You can modify the record's placement by specifying a record number after which the new records should be interspersed. You can also adjust the think times of the merged records.

Merging records is an excellent way of creating different testing situations. For example, you can merge a test stream with itself for concurrency testing. Or, you can merge several test streams to create a large test stream for stress testing.

TEST STREAM TO BE MERGED INTO THE OUTPUT TEST STREAM

The name of the test stream which is the source of the merged records.

If you leave the Application, Member, or Version fields blank, CA Verify ART for VTAM displays the Test Stream Selection menu. Type S to the left of the test stream you want to select and press Enter. See the screen earlier in this chapter.

OUTPUT TEST STREAM:

Identifies the name of the output test stream. This is the name you specified on the Utilities or Test Stream Selection menu.

BEGIN MERGE AT OUTPUT TEST STREAM RECORD

The record in the output test stream after which the records should be merged. The default is the first record. Specify a record number to indicate the point in the test stream at which CA Verify ART for VTAM should begin interspersing the merged records.

INCLUDE RULESET

Indicates whether the ruleset from the source test stream should be merged into the target test stream. Y, the default, merges the ruleset; N does not.

ADJUST THINK TIMES

Enter Yes if the two test streams are of different durations and you want them to be the same. CA Verify ART for VTAM will adjust the think times of the test stream to be merged so it is approximately as long as the test stream into which it is being merged.

Press Enter when you have completed the specifications.

- If necessary, CA Verify ART for VTAM displays the Terminal Selection menu. See the [Select Terminals](#) (see page 236) section.
- Otherwise, CA Verify ART for VTAM displays the Merge Status menu. See the [Review the Merge Status](#) (see page 237) section.

Select Terminals

If the test stream to be merged is a multiple terminal test stream, CA Verify ART for VTAM displays the Terminal Selection menu. See the section Copy a Test Stream for a description of this menu.

Type S to the left of each terminal you want to select and use the End (PF3) command. You must select at least one terminal.

Type in I to the left of each terminal for which you want to view Initial Terminal Status information and press Enter. See the the "Browse Function" chapter for an explanation of the Initial Terminal Status menu. When you exit from the Initial Terminal Status menu, CA Verify ART for VTAM redisplay the Terminal Selection menu.

Use CA Verify ART for VTAM commands as follows:

- **Assign** to insert S to the left of every terminal
- **Reset** to insert _ (the initial setting) to the left of every terminal
- **Up** (PF7) and **Down** (PF8) to view additional terminals which don't appear on the initial menu
- **Cancel** to cancel the merge

Review the Merge Status

After you specify the Merge information, CA Verify ART for VTAM displays the Merge Status menu.

CCC.ORDERAPP.001 ----- MERGE: STATUS -----10:18:55		
ENTER COMMAND ==> UX		
FROM CCC.ORDERAPP.001	FROM CCC.ORDERAPP.001	OUTPUT TERMINAL
TERMINAL	TERMINAL	==> NN01
NN01	NN01	==> NN02
F1-HELP	F3-END	F4-RETURN F7-UP F8-DOWN

- The first From column identifies terminals from the to test steam.
- The second From column identifies terminals from the source test stream.
- The Output Terminal column names the output terminals.

If the specifications are correct, use the End (PF3) command to perform the merge and save the output test stream. CA Verify ART for VTAM merges the test streams and redisplay the Utilities or Test Stream Selection menu, along with a message.

If any of the terminals in the test stream to be merged have the same name as a terminal in the test stream into which they are being merged, CA Verify ART for VTAM assigns a new name to be used for that terminal in the output test stream. The new name appears in the Output Terminal column.

You can change the name of any terminal listed on the Merge Status menu; however, *each name must be unique*.

Use the commands as follows:

- **Up** (PF7) and Down (PF8) to scroll through the terminal list
- **Cancel** to cancel the merge

Merge Considerations

When CA Verify ART for VTAM runs multiple terminal test streams, it recreates, as much as possible, the same concurrences and order of events that existed when the test stream was originally logged.

During logging, CA Verify ART for VTAM records input and output screens in the order in which they pass through terminal control. During a run, input screens are transmitted in the same order in which they were logged. The application controls the order of outputs, but each time CA Verify ART for VTAM finds an output screen in the test stream, it waits for the application to write an output screen before transmitting subsequent input screens.

This method ensures that multiple terminal test streams produce consistent results. When you merge test streams, you must make sure that the new order of events represents a possible one. Failure to do so may cause mismatches, missing output, or a *deadly embrace* situation when you run the new test stream.

Chapter 11: Batch Functions

This chapter discusses how to use CA Verify ART for VTAM in batch to run, copy, delete, or print test streams and rulesets.

This section contains the following topics:

[Overview](#) (see page 239)

[JCL Requirements](#) (see page 240)

[Define and Initialize Data Sets](#) (see page 242)

[Format the Data Sets](#) (see page 243)

[Directory Listing of Test Streams and Rulesets](#) (see page 243)

[Select Test Streams and Rulesets to Copy, Print, and Delete](#) (see page 244)

[Select Terminals for Copy and Print Functions](#) (see page 245)

[Copy Test Streams and Rulesets](#) (see page 246)

[Delete Test Streams and Their Rulesets](#) (see page 246)

[Print Test Streams and Rulesets](#) (see page 247)

[Batch Run](#) (see page 257)

[Batch Log](#) (see page 259)

Overview

Using the batch functions of CA Verify ART for VTAM, you can:

- Copy, delete, and print test streams.
- Define, initialize, and format your CA Verify ART for VTAM data sets easily.
- Perform stress testing at night or on weekends. This lets you avoid periods of peak system activity, and keeps testing from interfering with your staff's everyday tasks.
- Perform other important CA Verify ART for VTAM tasks in batch. For example, you can execute CA Verify ART for VTAM in batch to run your test streams and print the differences.

JCL Requirements

Use JCL similar to the following example for CA Verify ART for VTAM batch functions.

```
//TCABATCH      EXEC    PGM=TCABATCH,REGION=512K[ , PARM='LINECNT=nn' ]
//STEPLIB       DD      DISP=SHR,DSN=VTAM.TCA.LOADLIB
//TCADSIN       DD      DISP=SHR,DSN=VTAM.TCADS
//TCADSOUT      DD      DISP=SHR,DSN=VTAM.TCADS2
//SYSPRINT      DD      SYSOUT=A
//TCAPRINT      DD      SYSOUT=A
//SYSIN         DD      *
```

TCABATCH

The EXEC statement specifies program TCABATCH, the load module which performs batch functions. The size of the required region varies depending on the function, but 512 KB is usually enough. However, CA Verify ART for VTAM may require additional storage when processing multiple terminal test streams.

You can specify a parameter to override the default number of lines per page:

PARM='LINECNT=nn'

where *nn* is a 2-digit number between 40 and 99. The default is 58.

Note: The batch functions can usually be run in 512 KB. For batch print using display format, allow 512 KB plus 8 KB per terminal.

STEPLIB

Required unless CA Verify ART for VTAM is installed in a linklist library.

TCADSIN

Defines the *input* CA Verify ART for VTAM data set for the Print, Copy, and Directory functions.

TCADSOUT

Defines the *output* CA Verify ART for VTAM data set for the Initialization, Format, Delete, and Copy functions.

SYSPRINT

Control statements and any error messages are written to this data set. If there is no TCAPRINT DD statement, output from the Print and Directory List functions are also written to SYSPRINT.

SYSPRINT can be allocated to disk, tape, or other sequential device. No DCB information is required. The data set attributes are fixed blocked 133-byte records with ASA carriage control. CA Verify ART for VTAM selects the largest blocksize applicable to the device.

TCAPRINT

If specified, output from the Print and Directory Listing functions is written to this data set. If omitted, this output is written to SYSPRINT.

TCASNAP

If specified, diagnostic dumps are written to this data set during a batch run.

SYSIN

Defines the *control statement input* for batch functions. It can be allocated to disk, tape, or other sequential device. The record length can exceed 80 bytes.

Control Statement Format

Observe the following rules when coding control statements:

Use columns 1-72.

- Blank statements and statements with an asterisk in column 1 are printed but not processed.
- Many control statements and parameters can be abbreviated. In the following sections, the minimum abbreviation is underlined.
- All batch functions can be specified in the same execution.
- It is not necessary to continue control statements. However, the Print command can effectively be continued by specifying two or more consecutive Print commands.

Define and Initialize Data Sets

Define Data Sets

Use JCL similar to the following example to define a data set.

```
//DEFINEIT      EXEC    PGM=IDCAMS
//SYSPRINT      DD      SYSOUT=A
//SYSIN         DD      *
               DEFINE CLUSTER ( -
                       NONINDEXED                      /* REQUIRED */ -
                       SHAREOPTIONS(2 3)                /* OR (3 3) */ -
                       SPEED -
                       UNIQUE -
                       CYLINDERS(5 5) -
                       VOLUMES(VSAM01) -
                       NAME('VTAM.TCADS') -
                       RECORDSIZE(16377 16377) /* MUST BE CFSIZE-7 */ -
                       CONTROLINTERVALSIZE( 16384) )
```

- The first parameter is required.
- The space allocation must be large enough for at least 11 control intervals.
- The control interval size must be a multiple of 4096 up to a maximum size of 28,672. The recommended size is 16,384.
- The record size must be 7 less than the control interval size.
- The other parameters have no special requirements.

Note: Use SHAREOPTIONS (2 3) if the data set is only being used in one region. Use SHAREOPTIONS (3 3) if the data set will be updated from two regions.

Initialize the Data Sets

You must use the TCABATCH Init function after you have used IDCAMS to define the data set or file. This function initializes the data set allocated to TCADSOUT.

The format is:

INIT

This function has no parameters.

See the [JCL Requirements](#) (see page 240) section earlier in this chapter for the necessary JCL.

Format the Data Sets

Use the TCABATCH Format function to format control intervals on the data set allocated to TCADSOUT. Although CA Verify ART for VTAM will automatically format control intervals as needed, it is more efficient to format control intervals in batch when CA Verify ART for VTAM is not in use.

Specify the Format card in the SYSIN DD data set. The format is:

FORMAT

Directory Listing of Test Streams and Rulesets

The Directory function lists the test streams and rulesets in the data set allocated to TCADSIN.

Specify the Directory card in the SYSIN DD data set. The format is:

DIRECTORY

This function has no parameters.

The Directory listing provides the same test stream information as the Directory Information and Initial Terminal Status menus. See the "Browse Function" chapter for a discussion of the fields.

The same ruleset information that appears on the Browse: Ruleset Directory panel is also provided.

Listing Totals and Averages for All Test Streams

After listing information for each test stream, the Directory listing includes the following statistics for the entire data set:

- Total number of test streams
- Total number of input and output screens
- Average input and output screen size
- VSAM control interval size
- Formatted control intervals; i.e., the number formatted by the Format function or formatted as needed by CA Verify ART for VTAM
- Number of control intervals currently in use
- Unused control intervals
- Unavailable control intervals

Note: The *unavailable* control intervals cannot be used because of system failures during data set updates. Usually this number will be zero; it should always be small. If this number is large, you can recover the space by using the file reorganization procedure. The file reorganization procedure is described in the [Reorganize the CA Verify Data Set](#) (see page 246) section.

Select Test Streams and Rulesets to Copy, Print, and Delete

Use the Select function to specify the test streams and rulesets to be copied, printed, or deleted. One or more Select cards must follow a Copy, Print, or Delete card. The format is:

```
SELECT name name name ... name
```

- Specify one or more names separated by blanks. When you specify a name, *both* the test stream *and* the ruleset having that name are selected.
- Specify each name as follows:

```
application.member.version
```

For example:

```
SELECT GENERAL.TEST.001 GENERAL.TEST.002
```

selects the test streams and rulesets named GENERAL.TEST.001 and GENERAL.TEST.002

Specify Names Generically

To specify names generically, use an equal sign to represent an actual character. For example:

```
SELECT GENERAL.TEST.===
```

Selects all versions of the test stream with an Application of GENERAL and a Member of TEST.

```
SELECT GENERAL.=====001
```

Selects version 001 of all test streams and rulesets with an Application of GENERAL, regardless of the Member name.

```
SELECT GENERAL.=.===
```

Selects all test streams and rulesets with an Application of GENERAL, providing the Member name is only one character. CA Verify ART for VTAM pads with blanks to the end of each section of a generic name.

```
SELECT =X=====,=====,==
```

Selects all test streams and rulesets that have X as the second character of the Application.

You can also specify that CA Verify ART for VTAM select the *highest* version of a test stream by substituting >>> for the version number. For example:

```
SELECT GENERAL.TEST.>>>
```

Selects the highest version of the GENERAL.TEST test stream.

Select Terminals for Copy and Print Functions

Use the Terminals function to specify terminals to be copied or printed. The Terminals card applies only to test streams. One or more Terminals cards may precede a Copy or Print card. The format is:

```
TERMINALS name name name ... name
```

Specify one or more terminal names, separated by blanks. For example:

```
TERMINALS TRM1 TRM2
```

selects terminals TRM1 and TRM2.

You can specify consecutive Terminals cards to create a cumulative list of terminals to be copied or printed. Non-consecutive Terminals cards create separate lists. For example:

```
TERMINALS TRM1 TRM2  
PRINT  
SELECT GENERAL.TEST.001  
TERMINALS TRM3 TRM4  
COPY  
SELECT GENERAL.TEST.002
```

In this case, CA Verify ART for VTAM will print screens for terminals TRM1 and TRM2 for test stream GENERAL.TEST.001, and copy screens for terminals TRM3 and TRM4 for test stream GENERAL.TEST.002.

Copy Test Streams and Rulesets

Use the Copy function to copy test streams and rulesets from the data set allocated to TCADSIN to the data set allocated to TCADSOUT.

Specify the Copy card in the SYSIN DD data set. The format is:

COPY

This function has no parameters. One or more Select cards should follow the Copy card. You can also specify one or more Terminals cards to indicate which terminals are to be copied. See the section, [Select Test Streams for Copy, Print, and Delete Functions](#) (see page 244) earlier in this chapter for details.

Reorganize the Data Set

The copy function can be used to migrate an existing CA Verify ART for VTAM data set to a larger data set or to reclaim unavailable control intervals. Usually reorganization is not required.

A data set cannot be reorganized in place. Follow these steps to reorganize it:

1. Define a new data set with IDCAMS.
2. Run TCABATCH with TCADSIN allocated to the old data set and TCADSOUT allocated to the new one. Use the following control cards to initialize and format the new data set and copy the test streams:

```
INIT
FORMAT
COPY
SELECT =====,=====,==
```

3. Delete the old data set and rename the new one.

Delete Test Streams and Their Rulesets

Use the Delete function to delete test streams and rulesets from the data set allocated to TCADSOUT.

Specify the Delete card in the SYSIN DD data set. The format is:

DELETE

This function has no parameters. One or more Select cards should follow the Delete card. The Select card will select both the test streams and the rule sets that match it. For details, see the section, [Select Test Streams and Rulesets to Copy, Print, and Delete](#) (see page 244) that appeared earlier in this chapter.

Print Test Streams and Rulesets

Use the Print function to print test streams and rulesets from the data set allocated to TCADSIN.

Specify the Print card in the SYSIN DD data set. The format is:

PRINT

One or more Select cards should follow the Print card. See the section, [Select Test Streams and Rulesets to Copy, Print, and Delete](#) (see page 244) earlier in this chapter for details. You can also specify one or more Terminals cards to indicate which terminals are to be printed. See [Select Terminals for Copy and Print Functions](#) (see page 245) earlier in this chapter for details.

For each *test stream* selected, the Print function lists directory information, terminal status information, and the screens. See the chapter "Browse Function" for an explanation of directory and terminal status information.

For each *ruleset* selected, a summary like the Rules—Summary panel shown in the chapter "Rules Function" will be printed. See the chapter "Rules Function" for an explanation of the rules information.

Parameters for the Print function follow. All of the following parameters see how the *test stream* will be printed. Mutually exclusive parameters are separated by slashes, with the default listed first. If mutually exclusive parameters are specified, CA Verify ART for VTAM uses the parameter specified last. Overrides to defaults remain in effect until CA Verify ART for VTAM encounters the next Print card. However, consecutive Print cards are considered a continuation and overrides remain in effect.

Format Parameters

DISPLAY/DUMP/FIELD

Specifies screen format:

Display

The screen appears as it appeared at the terminal during logging — for 3270 non-graphic test streams.

Dump

The screen appears in dump format — for test streams created at any terminal. Minimal formatting is provided. The header information includes the record number, data length, terminal name, and so on, followed by the data stream sent to or received from the terminal. If specified or left as the default, the hexadecimal translation of the data stream appears. For 3270 test streams, the data stream includes the Write Control Character (WCC) for output screens and the attention identifier (AID) and cursor location for input screens.

Field

Each field in the data stream is listed on a separate line — designed for 3270 graphic or non-graphic test streams, but supports any terminal.

See the chapter "Run Function" for a detailed description of the different formats.

Note: You can specify Display format even if a test stream has mixed terminal types. When necessary, the Print function will print screens in Field or Dump format.

General Parameters

The following parameters apply to all three formats.

RULER/NORULER

Determines whether or not a column number ruler should be printed for the terminal control table user area and data in Field and Dump formats.

Ruler

A ruler is printed

Noruler

A ruler is not printed

NOHEX/HEX

Specifies whether or not the hexadecimal equivalent of each character should be printed on the next two lines for the terminal control table user area and data in Field and Dump formats.

Nohex

The hex equivalent is not printed. This is the default for Display and Field formats.

Hex

The hex equivalent is printed. This is the default for Dump format.

NOINPUT/NOOUTPUT

Controls whether input or output screens are printed.

Noinput

Only output screens are printed.

Nooutput

Only input screens are printed.

If this parameter is omitted, both input and output screens are printed.

Display Parameters

The following parameters apply *only* to Display format.

FRAME/NOFRAME

Specifies whether or not a frame of dashes surrounds the screen.

Frame

A frame is printed.

Noframe

A frame is not printed.

CENTER/NOCENTER

Specifies whether or not the screen is centered on the page.

Center

The screen is centered.

Nocenter

The screen is left justified. Use this option when you intend to photocopy the page.

HIGH/NOHIGH

Specifies whether or not high-intensity fields are overprinted.

High

High-intensity fields are overprinted. Do not specify this parameter if the output is sent to a laser printer or a printer which does not support overprinting.

Nohigh

High-intensity fields are not overprinted.

NOULINE/ULINE

Specifies whether or not unprotected fields are underlined.

Nouline

Unprotected fields are not underlined.

Uline

Unprotected fields are underlined by overprinting.

NOLOW/LOW

Specifies whether or not low-intensity (non-display) fields are printed.

Nolow

Low-intensity fields are not printed.

Low

Low-intensity fields are printed.

Note: For test streams logged with the DRKPROT=YES installation option in effect, input data entered in low-intensity fields will *not* be printed even if LOW is specified.

NOSHRINK/SHRINK

Specifies whether or not blank screen rows should be skipped in order to reduce the size of the listing.

Noshrink

Blank screen rows are printed.

Shrink

Blank screen rows are skipped. The printed rows are numbered.

NOSTATS/STATS

Specifies whether or not statistics for the current screens should be printed.

Nostats

Statistics are not printed.

Stats

Statistical information, including record number, type of operation, data stream length, screen size, and so on, is printed.

CURSOR(_ _)/CURSOR/NOCURSOR

Specifies how the cursor position should be handled.

Cursor (_ _)

One or two characters — for example, underscores, the default — will be overprinted to indicate cursor position. Do not specify this parameter if the output is sent to a laser printer or a printer which does not support overprinting.

Cursor

The cursor row and column will be printed under each screen.

Nocursor

The cursor position will be not be indicated.

Print Parameters

Depending on the options specified when a test stream is run, the output test stream may contain mismatch and applied rules information. The following parameters control the printing of this information.

APRULES(YES)/(NO)/(ONLY)

Controls the printing of the rules applied before the mismatch occurred.

APRules(Yes)

Print the Rules Applied Before Mismatch screens while printing the test stream.

APRules(No)

Do not print the Rules Applied Before Mismatch screens while printing the test stream.

APRules(Only)

Print only those screens that had a Rules Applied Before Mismatch screen created by the Run.

DIFF(NO)/(YES)/(ONLY)

Controls the printing of mismatch information recorded when the Run Record History option is set at Y.

DIFF(No)

Differences are not printed.

DIFF(Yes)

Differences are printed.

DIFF(Only)

Only those screens that had a difference are printed.

SEPARATE(EXPECTED/CURRENT/NONE)/COMBINED

Controls the format of mismatch information.

Separate

Prints information in this order: Expected screen, current screen, Differences, and Applied Rules. Separate is the default.

Separate(Expected)

Prints everything except the Current screen.

Separate(Current)

Prints everything except the Expected screen.

Separate(None)

Only the differences and the Applied Rules are printed.

Combined

One screen is printed. This screen contains one row for each row that is the same and three rows for each row that is different. The rows are labeled:

E/C

Expected and current — for rows that are the same

Expt

Expected — the row from the expected screen when the rows are different

Curr

Current — the row from the current screen when the rows are different

Diff

The differences between the rows:

blank

The characters are equal

X

The characters are not equal

-

The characters are within a variable field

Regardless of your specifications, Combined format uses the following Print function parameters: Nohigh, Low, Nouline, Nocenter, Noshrink, and Cursor.

SIGNOFF(NO)/(YES)/(ONLY)

Controls printing of mismatch signoff information recorded when the Run Require Signoff Data option is set to Y.

Signoff(No)

Mismatch signoff information is not printed.

Signoff(Yes)

Mismatch signoff information is printed.

Signoff(Only)

Only screens with a mismatch are printed.

If signoff information was specified, it is printed to the right of the screen rows which had a mismatch, or on a separate row if more room is needed.

If signoff information was not specified, rows of underscores are printed so the signoff information can be inserted.

Examples

The examples on the next pages illustrate output from the Print function. The same input and output screens are illustrated in the three formats: Display, Field, and Dump.

This input screen was printed in Display format with the default options:

08/14/1998 10:56:18	CA-VERIFY VERSION 1.4	PAGE 5 CCC.ORDERAPP.001

DATE 07/10/98	CARL'S COOKIES COMPANY	RELEASE 6.3
TIME 14:06:05	ORDER STATUS SELECTION	

CUSTOMER NAME	ORDER NUMBER	STATUS	AMOUNT
- JOHN SMITH	100-120-15	ON ORDER	17.90
- BILL JONES	100-205-12	SHIPPED	22.67
- SUE WILLIAMS	100-271-15	ON ORDER	34.30

RECORD: 5	ENTER

This output screen was printed in Display format with the default options:

06/14/1998 10:56:18	CA-VERIFY VERSION 1.4	PAGE 5 CCC.ORDERAPP.001																																			
DATE 07/10/98 TIME 14:06:05 CARL'S COOKIES COMPANY ORDER STATUS RELEASE 6.3																																					
CUSTOMER NAME: JOHN SMTH STATUS: O N ORDER																																					
<table> <thead> <tr> <th>ITEM #</th> <th>DESCRIPTION</th> <th>QUANTITY</th> <th>PRICE</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr> <td>137</td> <td>CHOC CHIP</td> <td>1 IE</td> <td>5.00</td> <td>5.00</td> </tr> <tr> <td>474</td> <td>OATMEAL RSN</td> <td>2 IE</td> <td>5.00</td> <td>10.00</td> </tr> <tr> <td colspan="3">SUBTOTAL:</td> <td>15.00</td> <td></td> </tr> <tr> <td colspan="3">TAX:</td> <td>.90</td> <td></td> </tr> <tr> <td colspan="3">SHIPPING & HANDLING</td> <td>2.00</td> <td></td> </tr> <tr> <td colspan="3">TOTAL:</td> <td>17.90</td> <td></td> </tr> </tbody> </table>			ITEM #	DESCRIPTION	QUANTITY	PRICE	AMOUNT	137	CHOC CHIP	1 IE	5.00	5.00	474	OATMEAL RSN	2 IE	5.00	10.00	SUBTOTAL:			15.00		TAX:			.90		SHIPPING & HANDLING			2.00		TOTAL:			17.90	
ITEM #	DESCRIPTION	QUANTITY	PRICE	AMOUNT																																	
137	CHOC CHIP	1 IE	5.00	5.00																																	
474	OATMEAL RSN	2 IE	5.00	10.00																																	
SUBTOTAL:			15.00																																		
TAX:			.90																																		
SHIPPING & HANDLING			2.00																																		
TOTAL:			17.90																																		
RECORD 6																																					

This screen was printed in Display format with the Shrink, Nocenter, Stats, Noframe, and Nocursor options:

06/14/1998 10:59:21	CA-VERIFY VERSION 1.4	CCC.ORDERAPP.001
RECORD: 1 TRAN:MCCC DATA LENGTH: 7 TYPE: INPUT TIME: 06/02/1998 13:18:56 SCREEN SIZE: 24 BY 80 OPERATION: READ MODIFIED CURSOR OFFSET: 4 ROW 1 COL 5 TERMINAL: A60L2048 AID: ENTER THINK 00:00:38.057		
MCCC 1 ENTER		
RECORD: 2 TRAN:MCCC DATA LENGTH: 266 TYPE: OUTPUT TIME: 06/02/1998 13:18:56 SCREEN SIZE: 24 BY 80 OPERATION: ERASE/WRITE RESPONSE 00:00:00.002 WCC: NL/EMCR PRINT CNL, KEYBOARD RESTORE		
DATE: 06/02/1998 CARL'S COOKIES COMPANY RELEASE 6.2 1 TIME 13:18:56 MAIN MENU 2 ENTER OPTION: 7 1) PLACE AN ORDER 10 2) CHECK STATUS OF AN ORDER 12		
RECORD: 3 TRAN:MCCC DATA LENGTH: 13 TYPE: INPUT TIME: 06/02/1998 13:19:26 SCREEN SIZE: 24 BY 80 OPERATION: READ MODIFIED CURSOR OFFSET: 495 ROW 7 COL 15 TERMINAL: A60L2048 AID: ENTER THINK 00:00:35.017		
DATE: 06/02/1998 CARL'S COOKIES COMPANY RELEASE 6.2 1 TIME 13:18:56 MAIN MENU 2 ENTER OPTION: 2 7 1) PLACE AN ORDER 10 2) CHECK STATUS OF AN ORDER 12		
:		

This input screen was printed in Field format with the default options:

```

08/14/1998                                CA-VERIFY VERSION 1.4                                CCC.ORDERAPP.001
11:00:59

RECORD      3                                DATA LENGTH 13
TYPE:       INPUT                                SCREEN SIZE: 24 BY 80
OPERATION:  READ MODIFIED                        TIME: 06/02/1998 13:18:56    TERMINAL: A60L2048
AID        ENTER                                CURSOR OFFSET: 4 ROW  CCL 5    THINK    00:00:38.057

ORDER ATTR ROW CCL .....|.....|.....|.....|.....|.....|.....|.....|.....|.....
SEA      1  72  3  6.2
SEA      7  16  1  2

```

This output screen was printed in Field format with the default options:

```

08/14/1998                                CA-VERIFY VERSION 1.4                                CCC.ORDERAPP.001
11:00:59

RECORD      6                                DATA LENGTH 468
TYPE:       OUTPUT                                SCREEN SIZE: 24 BY 80
OPERATION:  ERASE/ WRITE                        TIME: 13:18:56    TERMINAL: A60L2048
WCC        NL/ EM CR PRINT CNTL, KEYBOARD RESTORE    RESPONSE: 00:00:00.002

ORDER ATTR ROW CCL .....|.....|.....|.....|.....|.....|.....|.....|.....|.....
SEA      1  1    0
IC
ELD PSH    1  1    4 DATE
SF PS      8    8 06/29/98
ELD PSH    1 29   23 CAROL'S COOKIES COMPANIES
ELD PSH    1 63    7 RELEASE
SF PSM     3    3 6.2
ELD PSH    2  1    4 TIME
SF PS      8    8 13:19:56
ELD PSH    2 34   12 ORDER STATUS
ELD PSH    7 16   14 CUSTOMER NAME
SF PSM     40   40 JOHN SMITH
ELD PSH    9 16    7 STATUS:
SF PSM    23   23 ON ORDER
ELD PSH   12 16   46 ITEM# DESCRIPTION QUANTITY PRICE AMOUNT
ELD PSM   13 17    3 137
ELD PSM   13 23   12 CBDC CHIP
ELD PSM   13 37    5 1 DE
ELD PSM   13 48    5 5.00
ELD PSM   13 56    6 5.00
ELD PSM   14 17    3 474
ELD PSM   14 23   12 OATMEAL RSN
ELD PSM   14 37    5 2 DE SF
ELD PSM   14 48    5 5.00
ELD PSM   14 56    6 10.00

```

[illegible]

```

08/14/1998                      CA-VERIFY VERSION 1.4                      PAGE 5
11:16:18                      CCC.ORDERAPP.002

```

```

DATE 07/10/98                      CAROL'S COOKIES COMPANY                      RELEASE 6.3
TIME 14:06:05                      ORDER STATUS SELECTION

```

CUSTOMER NAME	ORDER NUMBER	STATUS	AMOUNT
- JOHN SMITH	100-120-15	ON ORDER	17.90
- BILL JONES	100-205-12	SHIPPED	22.67
- SUE WILLIAMS	100-271-15	ON ORDER	34.30

```

RECORD: 4                      RUN OPTION: 1
APPLIED RULES                   VALUE FROM THE MODEL SCREEN/DESCRIPTION
RULESET T/S                    CCC.ORDERAPP.001
RULE                            RUL00001
FLD-RECOG                      1 30 23 EQ CAROL'S COOKIES COMPANIES
CHANGED OUT                    1 74 1 3
VARIABLE OUT                   1 7 8 06/02/98
VARIABLE OUT                   2 7 8 13:23:43

```


The next screens printed contain Differences:

08/14/1998 11:16:18 EXPECTED	CA-VERIFY VERSION 1.4 PAGE 4 CCC.ORDERAPP.444
DATE 07/10/98 CAROL'S COOKIES COMPANY RELEASE 6.3 TIME 14:06:05 MAIN MENU ENTER OPTION: 1) PLACE AN ORDER 2) CHECK STATUS OF AN ORDER	
CURRENT	RECORD: 2 RUN OPTION: 7
DATE 08/14/98 CAROL'S COOKIES COMPANY RELEASE 6.3 TIME 11:14:05 MAIN MENU ENTER OPTION: 1) PLACE AN ORDER 2) CHECK STATUS OF AN ORDER	
	RECORD: 2 RUN OPTION: 7

08/14/1998 11:16:18 ROW: 1	CA-VERIFY VERSION 1.4 PAGE 5 CCC.ORDERAPP.444
EXPT: .DATE.07/10/98 .CAROL'S COOKIES COMPANY .RELEASE.6.3	
CURR: .DATE.08/14/98 .CAROL'S COOKIES COMPANY .RELEASE.6.3	
DIFF: X XX	
ROW: 2	
EXPT: .TIME.14:06:05 .MAIN MENU	
CURR: .TIME.11:14:05 .MAIN MENU	
DIFF: X XX	

Batch Run

The Batch Run function executes CA Verify ART for VTAM and runs test streams in batch. Differences between the expected and current screens can then be printed using the Print function.

Use the Run command to invoke the Run function

RUN d.a.m.v. THINK(NONE) LIMIT(999999)
[SCREEN/LOGICAL/PHYSICAL/NONE] SUPOTS [BATSIGN = xxxxxxxx]

RUN (Required)

Invokes the run.

d.a.m.v. (Required)

Identifies the test stream:

d = DDname

a = application

m = member

v = version

THINK(NONE) (Optional)

Specifies no simulated operator think time, the default. You can also specify a number of seconds or a percentage. See the "Run Function" chapter for valid parameters.

LIMIT(nnnnnn) (Optional)

Specifies the maximum number of mismatches CA Verify ART for VTAM should allow. The default is 999999. If this number is exceeded, CA Verify ART for VTAM stops the run. Mismatches generated up to that point are recorded and the output test stream is retained.

SCREEN/LOGICAL/PHYSICAL(Optional)

Specifies the type of comparison. The default is screen. See the "Run Function" chapter for an explanation of these options.

SUPOTS (Optional)

The default is for CA Verify ART for VTAM to create an output test stream with the same name as the input test stream and the version incremented to the next available one. Differences are automatically recorded. Specify this option to suppress the output test stream.

[BATSIGN = xxxxxxxx] (Optional)

Specifies an override for the XTCAOPTS installation option AUTSIGN = APPLICATION. xxxxxxxx is the name of the #SIGNON and #SIGNOFF test stream. The BATSIGN parameter value will be substituted for the application when the #SIGNON and #SIGNOFF test streams are run.

Processing during a Batch Run

During a batch run, CA Verify ART for VTAM:

- Accepts missing outputs
- Does not perform mismatch confirmation
- Accepts I/O mismatches; i.e., replaces the original screen with the current screen in the output test stream

Sample JCL

Use JCL similar to the following example to run test streams in batch.

```
//TCABATCH      EXEC    PGM=TCABATCH,REGION=1024K
//STEPLIB       DD      DISP=SHR,DSN=VTAM.TCA.LOADLIB
//TCADSIN       DD      DISP=SHR,DSN=VTAM.TCADS
//TCADSOUT      DD      DISP=SHR,DSN=VTAM.TCADS2
//SYSPRINT      DD      SYSOUT=A
//TCAPRINT      DD      SYSOUT=A
//TCASNAP       DD      SYSOUT=A
//SYSIN DD      *
RUN TCADSOUT.GENERAL.PAYROLL.001 THINK(50%) NONE
RUN TCADSOUT.GENERAL.CLAIMS.003 LIMIT(100) PHYSICAL
PRINT DIFF(ONLY) COMBINED
SELECT GENERAL.PAYROLL.>>>>>>
SELECT GENERAL.CLAIMS.>>>>>>
/*
```

In this example:

- The Run commands specify that two test streams be run.
- The Print command specifies that only screens with differences be printed. The screens are printed in Combined format.
- The Select cards specify versions of >>> which instructs CA Verify ART for VTAM to select the highest versions of the test streams.

Two return codes are set by the batch Run function:

0 – No mismatches

4 – Mismatches

Note: The Print function can be executed without the Run function to print the results of runs for which the Run Record History option was Yes. See the [Print Parameters](#) (see page 251) section earlier in this chapter.

Batch Log

The Batch Log function must be executed using the CA Verify ART for VTAM control task. See the *Installation Guide* for instructions on invoking batch functions using the control task.

The Batch Log function initiates logging as part of control task initialization. Use this function when you want to initiate logging after VTAM startup so you log all data.

You can start the control task before VTAM, in which case the control task will wait for VTAM to start and then begin logging. However, if you want logging to begin when VTAM starts, don't specify other batch function commands after the LOG command because the other commands may interfere with the Log function.

You can specify that an *application* or *multiple terminals* be logged. See the chapter "Log Function" for detailed information on logging an application or multiple terminals.

To halt the Batch Log function, the security administrator must use the Inquiry/Termination menu.

Use the following control cards to invoke the Log function:

```
TERMINALS real(virt) real2(virt2) ... realn(virtn)
APPLLIST name1 name2 ... namen
DESC1  description
DESC2  description
DESC3  description
LOG d.a.m.v.      REALAPPLID(applid)
                  VIRTAPPLID(applid)
                  PROTECTION(RWP)
                  INONLY/NOINONLY
                  INTERRUPT(NO/REQUEST/UNCOND/FORCE)
                  INCLUDE/EXCLUDE
```

TERMINALS real(virt) real2(virt2) ... realn(virtn) (Optional)

Selects terminals to be logged and optionally assigns virtual terminals for the real terminals being logged. You can use = as a generic character to replace any character in either the real or virtual terminal name. For example, if you specify TRM== as the real terminal name, CA Verify ART for VTAM will log all terminals beginning with the characters TRM followed by up to two characters; for example, TRM1, TRM66, TRMAB, and so on.

The TERMINALS control card is required when logging multiple terminals and is optional when logging an application.

For logging by terminal:

If you specify:

```
TERMINALS real real2 real3 ...
```

CA Verify ART for VTAM will log the specified terminals and use virtual terminals specified at installation.

If you specify:

```
TERMINALS real(virt) real2(virt2) real3(virt3)...
```

CA Verify ART for VTAM will log the real terminals and use the virtual terminals specified.

You can specify virtual terminals for some of the real terminals you are logging and let CA Verify ART for VTAM use installation-specified virtual terminals for the others.

For logging by application:

- Specify printers and other terminals which the application acquires. Terminals which are not acquired need not be specified.
- For terminals which are acquired, change the real names within the application to virtual names. Use this control card to specify both the real and virtual names.
- You should usually specify a virtual terminal for each real terminal to be acquired, although you can also allow virtual terminals to be selected as per TCAXLATE macro specifications defined at installation. In that case, the TCAXLATE macro should use the PAIR parameter to insure that the correct devices are selected. See the "Customizing Macros" chapter in the *Installation Guide* for details.

APPLIST name1 name2 ... namen (Optional)

Identifies application IDs to be included or excluded from logging. Use multiple cards to extend the list. Specify the INCLUDE or EXCLUDE parameter on the LOG card.

The APPLIST control card is ignored when logging an application.

DESC1 – DESC3 (Required)

Describes the test stream. You can specify up to 59 characters on each of the three lines. You must specify at least one character.

LOG command

Invokes the log and specifies logging parameters.

LOG (Required)

Invokes the log.

d.a.m.v (Required)

Identifies the test stream:

d = ddname

a = application

m = member

v = version

REALAPPLID(applid) (Optional)

Specifies the real applid under which the application will be logged. This parameter must be specified if you are logging an application; otherwise, omit it.

VIRTAPPLID(applid) (Optional)

Specifies the virtual applid with which CA Verify ART for VTAM will communicate with the application. This parameter must be specified if you are logging an application; otherwise, omit it.

Note: See [Procedures for Logging an Application](#) (see page 263) for an explanation of how to specify the REALAPPLID and VIRTAPPLID parameters.

PROTECTION(RWP) (Optional)

Specifies Read, Write, and/or Print protection for the test stream.

INONLY/NOINONLY (Optional)

Specifies whether or not input screens only should be logged.

INTERRUPT(NO/QUEUE/REQUEST/UNCOND/FORCE) (Optional)

Specifies whether or not the current session(s) should be interrupted.

No

Don't interrupt the current session and do not queue a session for the terminal. Logging will not begin until the user at the terminal to be logged ends the current session and logs on to CA Verify ART for VTAM.

Queue

Don't interrupt the current session. Logging will begin when the current session ends. This is the default.

Request

Request that the application currently in session with the terminal terminate the session. The application may deny the request.

Uncond

Instruct the application currently in session with the terminal that it must terminate the session. CA Verify ART for VTAM waits for the application to formally terminate the session before beginning to log the terminal.

Force

Force termination of the session. Generally, this type of deactivation is not recommended; however, it may be advisable for terminals that do not terminate when the Request or Uncond parameters are in effect.

The parameters represent five levels of interruption, with No as the lowest level and Force as the highest. Only the product administrator can specify a level of interruption that is higher than the default specified in the DISC installation option. For example, if DISC=UNCOND is in effect, users other than the security administrator can specify No, Queue, or Request, but not Force.

INCLUDE/EXCLUDE (Optional)

Specifies whether or not the applications in the APPLIST statement should be included or excluded from logging.

The INCLUDE/EXCLUDE parameters are ignored when logging an application.

Procedures for Logging an Application

Logging an application lets you log *all* the terminals for a particular application without specifying most of the terminal names and without incurring the overhead associated with logging all the terminals in a network.

To log an application, follow *one* of the following procedures:

1. Recycle the application and change its applid. For example, change CICSTST to XXXXTST. Then specify CICSTST as the REALAPPLID and XXXXTST as the VIRTAPPLID. When logging begins, users of CICSTST will be logged.
2. Change the USS table or routing application to translate the applid. For example, translate CICSTST to PASSTST. Then specify PASSTST as the REALAPPLID and CICSTST as the VIRTAPPLID. When logging begins, users of CICSTST will be logged.
3. Specify another applid as the REALAPPLID. For example, specify PASSTST as the REALAPPLID and CICSTST as the VIRTAPPLID. Instruct users to log onto PASSTST rather than CICSTST. This method is recommended if you want to log some of the application activity but you don't know the names of the terminals you want to log.

Sample JCL

Use JCL similar to the following example to log test streams in batch.

```
//TCABATCH      EXEC      PGM=TCABATCH,REGION=4096K,PARM='CONTROL '  
//STEPLIB       DD        DISP=SHR,DSN=VTAM.TCA.LOADLIB  
//TCADS DD      DISP=SHR,DSN=VTAM.TCADS  
//SYSPRINT      DD        SYSOUT=A  
//TCAPRINT      DD        SYSOUT=A  
//TCASNAP       DD        SYSOUT=A  
//SYSIN DD      *  
APPLLIST TEST01 TEST02 TEST03  
DESC1 STRESS TEST OF THREE APPLICATIONS  
LOG TCADS.TEST.STRESS.001 PROTECTION(R) INTERRUPT(NONE) INCLUDE  
/*
```

In this example:

- The APPLLIST statement identifies the applids that will be included in the log.
- The DESC1 statement describes the test stream.
- The LOG statement specifies:
 - the name of the logged test stream
 - read protection for the test stream
 - that logging begin when the current session ends
 - that the applids listed in the APPLLIST statement be logged

Chapter 12: Installation Verification Procedure and Demo Session

When you complete this session, you will understand how to use CA Verify ART for VTAM to test application program changes.

The session uses a demonstration program that is distributed and automatically installed with CA Verify ART for VTAM.

Here's what you will do:

1. First, you will log the input and output screens associated with the demo program to create a test stream.
2. Next, you will change the demo program, deliberately creating an error.
3. Then you will run the logged test stream. CA Verify ART for VTAM will detect the error in the demo program when it compares the logged output screens with the output screens produced during the run.
4. Next, you will correct the demo program.
5. Finally, you will retest the corrected program with CA Verify ART for VTAM.

To simplify the demo session, you do not actually have to change the demo program. Instead, three versions of the demo program exist:

DEMO OLD	The original version <i>before</i> any changes
DEMO BUG	The changed version with the error
DEMO NEW	The corrected version

The demo program is a Customer Maintenance Program. You will perform a simple inquiry to list information for a customer.

Note: The defaults at your installation may differ from the delivered defaults, so some of your menus may differ slightly from the menus presented here. These differences won't affect your use of the demo session.

This section contains the following topics:

- [Invoke CA Verify ART for VTAM](#) (see page 267)
- [Select the Log Function](#) (see page 268)
- [Specify Log Options](#) (see page 269)
- [Specify Single Terminal Log Options](#) (see page 270)
- [Select an Option on the Demo Program's Menu](#) (see page 273)
- [Select a Customer Number](#) (see page 274)
- [Exit the Demo Program](#) (see page 275)
- [Stop Logging](#) (see page 276)
- [View Log Termination Information](#) (see page 277)
- [Select the Edit Function](#) (see page 278)
- [Specify the Test Stream to be Edited](#) (see page 279)
- [Select a Test Stream](#) (see page 280)
- [View the Directory Information](#) (see page 281)
- [View the Initial Terminal Status Information](#) (see page 282)
- [View Record Information](#) (see page 283)
- [Select a Record](#) (see page 284)
- [Edit the Screen](#) (see page 285)
- [Select the Run Function](#) (see page 286)
- [Specify Run Options](#) (see page 287)
- [Execute the Run](#) (see page 289)
- [CA Verify ART for VTAM Detects a Mismatch](#) (see page 290)
- [View the Expected Screen](#) (see page 291)
- [View the Current Screen](#) (see page 292)
- [View the Original Screen](#) (see page 293)
- [Select the Ruleset Option](#) (see page 293)
- [View the Applied Rules Screen](#) (see page 295)
- [Insert a New Rule Into a Ruleset](#) (see page 296)
- [Create a Rule Name](#) (see page 297)
- [Establish Recognition Criteria](#) (see page 298)
- [Set Up the Date and Time Fields as Variables](#) (see page 300)
- [Select the Time Variable](#) (see page 301)
- [Display Applied Rules](#) (see page 303)
- [CA Verify ART for VTAM Detects Another Mismatch](#) (see page 304)
- [View Additional Mismatches](#) (see page 305)
- [View the Expected Screen](#) (see page 306)
- [View the Current Screen](#) (see page 307)
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- [Ignore the Screen Changes](#) (see page 309)
- [View Run Statistics](#) (see page 309)
- [Select a Test Stream](#) (see page 311)
- [View Directory Information](#) (see page 312)
- [View Initial Terminal Status Information](#) (see page 313)
- [Select a Record](#) (see page 314)
- [Edit the Screen](#) (see page 315)

[Select the Run Function](#) (see page 316)
[Specify the Run Options](#) (see page 317)
[Initiate the Run](#) (see page 318)
[CA Verify ART for VTAM Detects a Mismatch](#) (see page 318)
[View the Expected Screen](#) (see page 320)
[View the Current Screen](#) (see page 321)
[View the Original Screen](#) (see page 322)
[Accept the Program Change](#) (see page 323)
[View Run Statistics](#) (see page 324)

Invoke CA Verify ART for VTAM

Action:

Type verify on the USS menu or on the menu from your routing application and press Enter.

Result:

CA Verify ART for VTAM displays the Signon menu or the Primary Options Menu, depending on your installation's options.

```

                CCCCCCCCCCCCCC
                CCCCCCCCCCCCCC
                CCCC
                CCCC      AAAAAAAAAA
                CCCC      AAAAAAAAAA
                CCCC      AAAA      AAAA
                CCCC      AAAA      AAAA
                CCC      AAAA      AAAA
                C      AAAACCCCCCCCCC
                AAAACCCCCCCCCC
                AAAA      AAAA
                AAAA      AAAA
                AAAA      AAAA

                C A - V E R I F Y / E E O
                VERSION 8.5.0

                COPYRIGHT © 1991-2010 CA.    ALL RIGHTS RESERVED

                USERID  ==>
                PASSWORD ==>
                NEW PASSWORD ==>

                ENTER THE ABOVE INFORMATION AND PRESS ENTER TO CONTINUE OR F3 TO END
  
```

Action:

At the Signon menu, type your userid and password and press Enter.

Result:

CA Verify ART for VTAM displays the Primary Options Menu.

Select the Log Function

The Primary Options Menu lists all of CA Verify ART for VTAM's primary functions. Like all of the menus, it is ISPF-like. From this menu you can:

- Select a function by typing the first character of the function on the command line and pressing Enter.
- View the online Tutorial by typing T and pressing Enter. The tutorial describes each of CA Verify ART for VTAM's functions and related topics.
- Exit from CA Verify ART for VTAM by typing X and pressing Enter, or by pressing PF3 or PF4.

Your first task is to log the screens associated with the demo program.

```
VERSION 8.5.0 ----- CA VERIFY PRIMARY OPTIONS MENU -----11:27:44
ENTER COMMAND ==> L                                     TERM: A60L2049
                                                         OPER: SAMPLE

  L  LOG A TEST STREAM

  B  BROWSE A TEST STREAM

  R  RUN A TEST STREAM

  E  EDIT A TEST STREAM

  M  MAINTAIN RULES

  I  INQUIRY/TERMINATION OF FUNCTIONS

  U  UTILITIES

  T  TUTORIAL

  X  EXIT
*** ENTER "KEYS" COMMAND TO SEE PF KEY ASSIGNMENTS ***

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```

Action:

Type 1 and press Enter.

Result:

CA Verify ART for VTAM displays the Log Options Menu.

Specify Log Options

The Log Options Menu lets you specify whether screens will be logged from your terminal, another terminal, multiple terminals, or all terminals associated with a specific application.

For the demo session, you will capture screens only from your terminal.

```
----- LOG OPTIONS MENU -----11:28:05
ENTER COMMAND ==> t                                     L
    T  THIS TERMINAL
    O  ANOTHER TERMINAL
    M  MULTIPLE TERMINALS
    A  AN APPLICATION

F1-HELP      F3-END      F4-RETURN
```

Action:

Type t and press Enter.

Result:

CA Verify ART for VTAM displays the Single Terminal Log menu.

Note: For future reference, you could have bypassed the Log Options Menu by typing L.T on the Primary Options Menu to direct CA Verify ART for VTAM to display the Single Terminal Log menu.

Specify Single Terminal Log Options

The Single Terminal Log Options menu lets you specify the name for the series of screens – test stream – you are going to log. You can also specify options that affect the logging.

```

----- SINGLE TERMINAL LOG -----11:28:13
ENTER COMMAND ==>                                     L1

LOG TEST STREAM AS:
DDNAME          ==> TCADS
APPLICATION     ==> demo
MEMBER         ==> demoprogram
VERSION        ==> 001

DESCRIPTION ==> customer maintenance demo program
            ==>
            ==>

STOP OPTION      ==> DISC      (DISC, MAN, PF__, PA_,OR CLEAR)
PROCESS WITH RULES ==> N      (Y/N)
TEST STREAM PROTECTION ==>      (R-READ W-WRITE P-PRINT)
LOG INPUT SCREENS ONLY ==> N  (Y/N)
EXTEND TEST STREAM ==> N      (Y/N)
VIRTUAL TERMINAL ==>          (TO USE A SPECIFIC VIRTUAL TERMINAL)

RULESET NAME:

F1-HELP      F3-END      F4-RETURN

```

Action:

Fill in the four fields whose contents are shown in lower case in the LOG TEST STREAM AS; field, and press Enter.

Result:

CA Verify ART for VTAM redisplay the USS menu or the menu from your routing application.

Field Definitions

LOG TEST STREAM AS:

DDNAME, APPLICATION, MEMBER, VERSION

Identifies the test stream.

- The ddname is the data set into which the screens will be logged. Your installation may have many valid ddnames. TCADS is the default and should be available. However, you can tab to this field and overwrite it if necessary.

- The Application and Member are the names you specify for the test stream.
 - Tab to the Application field and type demo.
 - Then tab to the Member field and type demoprogram.
- The Version identifies the test stream when multiple test streams have the same DDname, Application, and Member names. Leave **001** as the default.

DESCRIPTION

Describes the test stream.

Tab to this field and type any meaningful text, using up to three lines.

STOP OPTION

Specifies how you will terminate logging.

Leave **DISC** as the default. Logging will end when you disconnect from the VTAM session. You can also specify a PF or PA key, CLEAR, or MAN to manually stop logging.

PROCESS WITH RULES

Specifies whether Rules should be applied to this logging session.

Leave **N** as the default.

TEST STREAM PROTECTION

Limits access to this test stream by other users.

Leave this field blank.

LOG INPUT SCREENS ONLY

Logs only input screens from the terminal to the application.

Leave **N** as the default.

EXTEND TEST STREAM

Specifies whether or not this test stream is to be appended to an existing test stream.

Leave **N** as the default.

VIRTUAL TERMINAL

Assigns a specific virtual terminal to the real terminal.

Leave this field blank.

Specify the Program

Your USS menu or the menu from your routing application should be displayed. This screen will be logged, along with whatever you type next. CA Verify ART for VTAM will continue to log each input and output screen until you stop logging by ending the session.

Now you can invoke the demo program.

Action:

If you are using a routing application:

Type verdemo and press Enter.

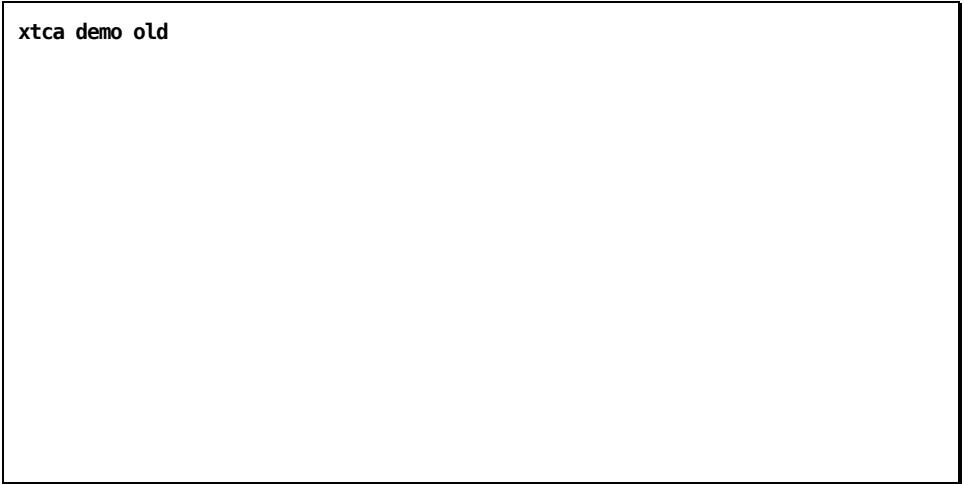
If you are using USS:

Type logon applid(verdemo) and press Enter.

Result:

CA Verify ART for VTAM clears your screen.

Now, access the demo program's Main Menu.

A rectangular terminal window with a black border. Inside the window, the text 'xtca demo old' is displayed in a monospaced font at the top left. The rest of the window is empty.

```
xtca demo old
```

Action:

Type xtca demo old and press Enter.

Result:

The demo program's Main Menu is displayed.

Select an Option on the Demo Program's Menu

The demo program's Main Menu has the literal XTCADemo in the upper left corner. This identifier appears on all demo program screens.

XTCADemo	CA VERIFY DEMONSTRATION PROGRAM CUSTOMER MASTER MAINTENANCE MAIN MENU	02/19/1999
SELECT OPTION ==> 2		
1 - INQUIRE / CHANGE CUSTOMER		
2 - LISTING BY SALES PERSON		
CUSTOMER NUMBER OR SALES PERSON ==>		
PF3=QUIT		

Action:

Type 2 in the Select Option field, as illustrated. The cursor moves to the next field. Press Enter.

Result:

The demo program's Sales Person Inquiry screen is displayed.

Select a Customer Number

Select a customer to see general information about his account.

XTCADMO		CA VERIFY DEMONSTRATION PROGRAM		02/19/1999	
CUSTOMER MASTER MAINTENANCE		11:41:29		SALES	
PERSON INQUIRY					
SALES PERSON: Ellen Jenkins					
NUMBER	CUSTOMER NAME	CITY	STATE	MAIN CONTACT	TOTAL AR
s 9045	Allied Gene Splicing	San Antonio	TX	Geronimo Davis	112,000
_ 2353	U. S. Tire Nozzles	Greenwich	CT	Alex Schnitzwattle	1,065,000
_ 6028	3D Computer Graphics	N Hollywood	CA	Horatio Ivanowitz	2,331,756
TYPE "S" NEXT TO DESIRED CUSTOMER AND ENTER PF3=QUIT					

Action:

Type s next to Customer Number 9045, as illustrated previously, and press Enter.

Result:

The demo program's Customer Inquiry screen is displayed.

Exit the Demo Program

The demo program displays information for the customer you specified on the previous screen. Now you are going to exit from the demo program.

XTCADemo	CA VERIFY DEMONSTRATION PROGRAM	02/19/1999
	CUSTOMER MASTER MAINTENANCE	11:41:59
	CUSTOMER INQUIRY	
SALES PERSON: Ellen Jenkins		
CUSTOMER NAME:	Allied Gene Splicing	CONTACT1: Geronimo Davis
ADDRESS1:	Technologies Plaza	CONTACT2: Ellen Jenkins
ADDRESS2:	114 McCauley Avenue	CONTACT3: Henry Meehan
CITY:	San Antonio	CONTACT4: Bradley Thomas
STATE:	TX	ZIP: 78221
***** ACCOUNTING INFORMATION *****		
CREDIT LINE:	83,500.00	AR 30 DAYS: 35,000.00
		AR 60 DAYS: 37,000.00
		AR 90 DAYS: 40,000.00

		TOTAL AR: 112,000.00
PLEASE CHANGE DESIRED INFORMATION AND PRESS ENTER		PF3=QUIT

Action:

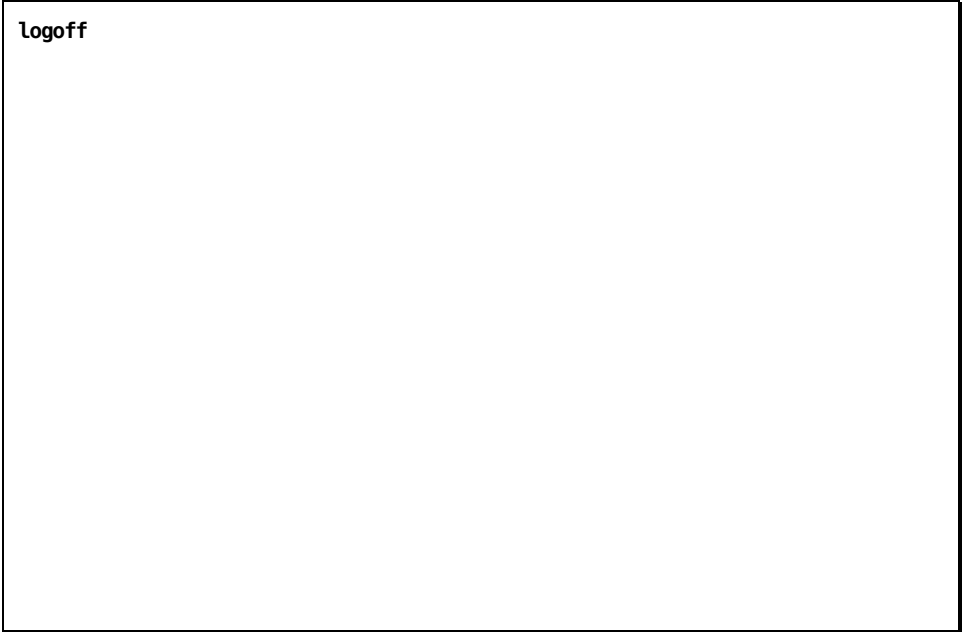
Press PF3.

Result:

The demo program terminates and your screen is cleared.

Stop Logging

You are now ready to stop logging.



Logoff

Action:

Type logoff and press Enter.

Result:

You are disconnected from the VTAM session. Because you specified DISC as the log stop option, CA Verify ART for VTAM stops logging and displays the Log Termination screen.

View Log Termination Information

The Log Termination screen displays statistics for the test stream you just logged.

DEMO.DEMOPROG.001 ----- LOG TERMINATION -----11:42:17
ENTER COMMAND ==> L5

DESCRIPTION: CUSTOMER MAINTENANCE DEMO PROGRAM

LOG:	RUN:	EDIT:	TEST STREAM:	IN:	OUT:
INVOKED BY: SAMPLE			TOTAL SCREENS:	6	7
INVOKED ON: 02/19/1999			AVERAGE BYTES:	11	400
START TIME: 11:40:49					
DURATION: 00:01:24	00:00:01				
SYSTEM: MULTIPLE					
STATUS: NORMAL					
TERMINAL: A60L2049					
VSAM CI'S: 2					

AVERAGE THINK TIME: 00:00:13.858
AVERAGE RESPONSE TIME: 00:00:00.143
MAXIMUM SCREEN SIZE: 24 BY 80
PROTECTION STATUS:
ORIGINATING TEST STREAM:

OWNER: SAMPLE
CREATED BY FUNCTION: LOG

F1-HELP F3-END F4-RETURN

Once a test stream has been logged, it can be used for all kinds of testing.

In this demo session, you are going to test a change in the application – unit testing. This is a typical use of CA Verify ART for VTAM. After an application has been changed, you run the test stream to make sure the output generated by the changed application is still correct.

First, however, you exit this screen and then change the demo program.

Action:

Press PF3 to exit from the Log Termination screen.

Result:

CA Verify ART for VTAM displays the Primary Options Menu.

Select the Edit Function

For the purposes of the demo session, you are not going to actually change the demo program. Instead, three versions of the program exist:

DEMO OLD	the original version <i>before</i> any changes
DEMO BUG	the changed version with the error
DEMO NEW	the corrected version

The first screen in the logged test stream invoked the demo program with this command:

XTCA DEMO OLD

Now you are going to use the demo program DEMO BUG when you retest the application. To do this, you must change the first logged screen to invoke DEMO BUG instead of DEMO OLD.

Changing this screen will demonstrate the Edit function.

```
VERSION 8.5.0 ----- CA VERIFY PRIMARY OPTIONS MENU -- -----11:42:31
ENTER COMMAND ==> e                                     TERM: A60L2049
                                                         OPER: SAMPLE

  L LOG A TEST STREAM
  B BROWSE A TEST STREAM
  R RUN A TEST STREAM
  E EDIT A TEST STREAM
  M MAINTAIN RULES
  I INQUIRY/TERMINATION OF FUNCTIONS
  U UTILITIES
  T TUTORIAL
  X EXIT
    *** ENTER "KEYS" COMMAND TO SEE PF KEY ASSIGNMENTS ***

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```

Action:

Type e and press Enter.

Result:

CA Verify ART for VTAM displays the Test Stream Edit menu.

Specify the Test Stream to be Edited

On this menu you specify the test stream you want to edit.

The DDname, Application, and Version fields contain the default values.

If you filled in the test stream Member name, CA Verify ART for VTAM would display that test stream. However, if you don't know the name, you can leave the Application and/or Member fields blank and CA Verify ART for VTAM will list all the test streams so you can select the one you want, which is what you are going to do now.

```
----- TEST STREAM EDIT -----11:42:44
ENTER COMMAND ==>                                     E1

ENTER TEST STREAM NAME:
DDNAME      ==> TCADS
APPLICATION ==> DEMO      (LEAVE APPLICATION, MEMBER,
MEMBER      ==>              OR VERSION BLANK AND PRESS
VERSION     ==> 001        ENTER FOR A SELECTION LIST)

F1-HELP      F3-END      F4-RETURN
```

Action:

Leave the Member field blank and press Enter.

Result:

CA Verify ART for VTAM displays the Test Stream Selection menu.

Select a Test Stream

The Test Stream Selection menu lists all the test streams for the specified DDname. The first column identifies the Application name; the second column identifies the Member name.

You are positioned in the list just before the test streams for DEMO, the Application name you specified.

Now select the test stream you just logged.

```

----- EDIT: TEST STREAM SELECTION -----11:45:52
ENTER COMMAND ==>
FILE: TCADS
          LOG-DATE  BY      RECORDS  RUN-DATE  RESULT  MULTI-
          TERM
BRUCE    DEMO      202 01/20/1999  BUCBR01    16
X
s DEMO    DEMOPROG 001 02/19/1999  SAMPLE    16
CUSTOMER MAINTENANCE DEMO PROGRAM
_ JAN27   TEST1    001 01/27/1999  BBBRUCE    0
SAMPLE TEST
_ JAN27   TEST2    001 01/27/1999  NOTBRUCE    5
ANOTHER TEST
_ SAMPLE  TEST     001 02/09/1999  DORI       21
_ SAMPLE  TEST     002 02/09/1999  DORI       21 02/09/1999 LGC EQ
SAMPLE TEST OF A04IC9NA, CAROL'S COOKIES COMPANY
_ TEST    LOGRULES 001 01/11/1999  V          37
TEST LOG RULES: INCLUDE APPLID A04IC9NA
_ TEST    LOGRULES 002 01/11/1999  V          36 01/11/1999 NOT EQ
TEST LOG RULES: INCLUDE APPLID A04IC9NA
END OF DIRECTORY * "M" WHEN MULTIPLE TERMINALS, "I" WHEN INCOMPLETE

```

Action:

Type s to the left of the test stream DEMO DEMOPROG and press Enter.

Result:

CA Verify ART for VTAM displays the Directory Information screen for your test stream.

View the Directory Information

The Directory Information screen displays the statistics for the test stream that were displayed on the Log Termination menu.

```
DEMO.DEMOPROG.001 ----- EDIT: DIRECTORY INFORMATION -----11:46:30
ENTER COMMAND ==>                                     E3

DESCRIPTION ==> CUSTOMER MAINTENANCE DEMO PROGRAM
              ==>
              ==>

LOG:          RUN:          EDIT:          TEST STREAM:          IN:    OUT:
INVOKED BY:  SAMPLE                                     TOTAL SCREENS:         6      7
INVOKED ON: 02/19/1999                                   AVERAGE BYTES:        11    400
START TIME: 11:40:49
DURATION:   00:01:24   00:00:01
SYSTEM:     MULTIPLE
STATUS:     NORMAL
TERMINAL:   A60L2049
VSAM CI'S:  2

AVERAGE THINK TIME:   00:00:13.858
AVERAGE RESPONSE TIME: 00:00:00.143
MAXIMUM SCREEN SIZE:  24 BY 80
PROTECTION STATUS:
ORIGINATING TEST STREAM:                                     OWNER: SAMPLE
                                                           CREATED BY FUNCTION: LOG

F1-HELP      F3-END      F4-RETURN
```

Action:

Press Enter.

Result:

CA Verify ART for VTAM displays the Initial Terminal Status screen.

View the Initial Terminal Status Information

The Initial Terminal Status screen displays information about the terminal from which the test stream was logged.

```
DEMO.DEMOPROG.001 ----- EDIT: INITIAL TERMINAL STATUS -----11:46:41
ENTER COMMAND ==>                                         E6

TERMINAL ==> A60L2049

VIRTUAL TERMINAL
ASSIGNMENT ==>

SCREEN SIZE: 24 BY 80                                DEVICE TYPE: LOGICAL UNIT
ALTERNATE: IN USE                                DEVICE CHARS: C06D001033800000

FEATURES:

BIND: LOGMODE:      D4C32782                        LU TYPE:      02
FM PROFILE: 03                        EXT STREAM: 00
TS PROFILE: 03                        RESERVED: 00000000
PLU PROTOCOL: B1                       SIZES:      18500000
SLU PROTOCOL: 90                       FLAGS:      7E00
COM PROTOCOL: 3080                     CRYPTOGRAPHY: 09
TS FIELDS: 000187F80000
LOGON DATA:

F1-HELP      F3-END      F4-RETURN      F10-LEFT      F11-RIGHT
```

Action:

Press Enter.

Result:

CA Verify ART for VTAM displays the Record Selection menu.

View Record Information

The Record Selection menu lists information for each screen in the test stream, such as the terminal at which the screen was logged and its application.

```

DEMO.DEMOPROG.001 ----- EDIT: RECORD SELECTION -----11:46:49
ENTER COMMAND ==>                                         E7

  TERMINAL  APPLID    T/R TIME  OP   AID  VIEW RECORD  ROW: 1 COL: 30
- A60L2049  USS       00:00.094  EW   ENTER      1  SSOCIATES INTERNAT
- A60L2049  USS       00:09.118  RM   ENTER      2  SSOCIATES INTERNAT
- A60L2049  USS       00:00.031  EW   ENTER      3  EQUEST ACCEPTED AN
- A60L2049  VERDEMO   00:00.442  CON   ENTER      4  EQUEST ACCEPTED AN
- A60L2049  VERDEMO   00:00.051  DSC   ENTER      5  EQUEST ACCEPTED AN
- A60L2049  A04IVRFY  00:00.008  CON   ENTER      6  EQUEST ACCEPTED AN
- A60L2049  A04IVRFY  00:00.100  EWA   ENTER      7
- A60L2049  A04IVRFY  00:20.330  RM   ENTER      8
- A60L2049  A04IVRFY  00:00.265  EWA   ENTER      9  ERIFY DEMONSTRATIO
- A60L2049  A04IVRFY  00:06.174  RM   ENTER     10  ERIFY DEMONSTRATIO
- A60L2049  A04IVRFY  00:00.004  EWA   ENTER     11  ERIFY DEMONSTRATIO
- A60L2049  A04IVRFY  00:29.923  RM   ENTER     12  ERIFY DEMONSTRATIO
- A60L2049  A04IVRFY  00:00.002  EWA   ENTER     13  ERIFY DEMONSTRATIO
- A60L2049  A04IVRFY  00:09.621  RM   PF3       14  ERIFY DEMONSTRATIO
- A60L2049  A04IVRFY  00:00.002  EWA   ENTER     15
- A60L2049  A04IVRFY  00:07.980  RM   ENTER     16
***  END OF RECORDS  ***

TYPE AN "S" TO SELECT A RECORD
F1-HELP  F3-END  F4-RETURN  F7-UP  F8-DOWN  F9-FORMAT  F10-LEFT  F11-RIGHT

```

Note: The terminal name and Think/Response (T/R) Times may differ on your menu.

Underneath the Row: 1 and Col: 30 fields, the actual data on the screen in Row 1, Column 30 is displayed. For each application screen this is VERIFY DEMONSTRATION, part of the literal CA VERIFY DEMONSTRATION PROGRAM.

You can scroll left or right to display other data in Row 1.

Action:

Press PF10.

Result:

CA Verify ART for VTAM scrolls the display to the left.

Action

Press PF10 again.

Result:

CA Verify ART for VTAM positions the display at Row 1: Col: 1.

Select a Record

The data on the right of the menu is that which appears in Row 1, Column 1 on the logged screens.

Now you can see the eighth record contains the data xtca demo old beginning in Row 1, Column 1. This is the screen you want to change.

```
S.S.001 ----- EDIT: RECORD SELECTION -----13:44:11
ENTER COMMAND ==> E7

  TERMINAL  APPLID  T/R TIME  OP  AID  VIEW  RECORD  ROW: 1 COL: 1
- A60L2049  USS      00:00.661  EW
- A60L2049  USS      00:20.111  RM  ENTER      2  -----
- A60L2049  USS      00:00.004  EW      3  USSMSG00 LUNAME=A
- A60L2049  VERDEMO  00:00.107  CON      4  USSMSG00 LUNAME=A
- A60L2049  VERDEMO  00:00.014  DSC      5  USSMSG00 LUNAME=A
- A60L2049  A04IVRFY  00:00.005  CON      6  USSMSG00 LUNAME=A
- A60L2049  A04IVRFY  00:00.048  EWA      7
- A60L2049  A04IVRFY  00:05.553  RM  ENTER      8  xtca demo old
- A60L2049  A04IVRFY  00:00.001  EWA      9  XTCADemo
- A60L2049  A04IVRFY  00:02.004  RM  ENTER     10  XTCADemo
- A60L2049  A04IVRFY  00:00.002  EWA     11  XTCADemo
- A60L2049  A04IVRFY  00:01.588  RM  ENTER     12  XTCADemo
- A60L2049  A04IVRFY  00:00.005  EWA     13  XTCADemo
- A60L2049  A04IVRFY  00:01.467  RM  PF3      14  XTCADemo
- A60L2049  A04IVRFY  00:00.001  EWA     15
- A60L2049  A04IVRFY  00:02.040  RM  ENTER     16  logoff
***  END OF RECORDS  ***

TYPE AN "S" TO SELECT A RECORD
F1-HELP  F3-END  F4-RETURN  F7-UP  F8-DOWN  F9-FORMAT  F10-LEFT  F11-RIGHT
```

Action:

Tab to the eighth record, type s, and press Enter.

Result

CA Verify ART for VTAM displays the screen.

Edit the Screen

The eighth screen in the test stream appears. This is the screen on which you typed xtca demo old to invoke the demo program.

Now you want CA Verify ART for VTAM to invoke DEMO BUG instead of DEMO OLD so you can test the change in the program.

```

DEMO.DEMOPROG.001 ----- EDIT: FIELD FORMAT -----11:47:47
ENTER COMMAND ==>                                     E4

TYPE:          INPUT                RH:  0392A0          RECORD NUMBER:      8
OPERATION:     READ MODIFIED        APPL: A04IVRFY      DATA LENGTH:      16
THINK:         00:00:20.330         DATE: 02/19/1999    SCREEN SIZE:  24 BY 80
AID:          ENTER                TIME: 11:41:23.174    TERMINAL:         A60L2049
ORDER  ROW  COL  ATTR  LENGTH      CURSOR ROW:  1 COL:  14
                                00013  xtca demo bug
                                ***  END OF FIELDS  ***

```

Action:

Move the cursor to old and overkey it with bug, and press Enter. Press PF3, then PF3 AGAIN.

Result:

CA Verify ART for VTAM saves the changed screen.

Now the test stream will use a different version of the demo program, simulating a change to the original program.

Let's return to the Primary Options Menu and retest the program.

Action:

Press PF4.

Result:

CA Verify ART for VTAM displays the Primary Options Menu.

Select the Run Function

Select the Run Function from the Primary Options Menu.

```
VERSION 1.4.0 ----- CA VERIFY PRIMARY OPTIONS MENU -----14:18:36
ENTER COMMAND ==> r                                     TERM: A60L2049
                                                         OPER: SAMPLE

  L  LOG A TEST STREAM
  B  BROWSE A TEST STREAM
  R  RUN A TEST STREAM
  E  EDIT A TEST STREAM
  M  MAINTAIN RULES
  I  INQUIRY/TERMINATION OF FUNCTIONS
  U  UTILITIES
  T  TUTORIAL
  X  EXIT
      *** ENTER "KEYS" COMMAND TO SEE PF KEY ASSIGNMENTS ***

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```

Action:

Type r and press Enter.

Result:

CA Verify ART for VTAM displays the Run Options screen.

Specify Run Options

Some of the fields on this screen contain default values. See the field definitions that follow.

```

----- RUN OPTIONS -----14:18:51
ENTER COMMAND ==>

ENTER INPUT TEST STREAM NAME:
DDNAME      ==> TCADS
APPLICATION ==> demo      (LEAVE APPLICATION, MEMBER,
MEMBER       ==> demoprogram OR VERSION BLANK AND PRESS
VERSION      ==> 001      ENTER FOR A SELECTION LIST)

CREATE NEW OUTPUT TEST STREAM:
DDNAME      ==> *          ("*" USES NEXT AVAILABLE VERSION)
APPLICATION ==>
MEMBER      ==>
VERSION     ==>

PROCESS WITH RULES      ==> Y   (Y/N OR S-SELECT)
COMPARISON TYPE        ==> S   (S-SCREEN, L-LOGICAL, P-PHYSICAL)
RECORD HISTORY         ==> Y   (Y/N)
REQUIRE SIGNOFF DATA ==> N   (Y/N)
SIMULATED USER THINK TIME ==> NONE (NONE, NNN% OF ORIGINAL, NN SECONDS)
STATUS INTERVAL        ==> 005 (SECONDS)
CANCEL INTERVAL        ==> 001 (MINUTES)
STOP AT MISMATCHES     ==> Y   (Y/N)
F1-HELP  F3-END  F4-RETURN

```

Action:

Type the information in the ENTER INPUT TEST STREAM NAME:fields. Press Enter.

Result:

CA Verify ART for VTAM redisplay the Run Options screen.

Field Definitions

INPUT TEST STREAM NAME:

DDNAME, **APPLICATION**, **MEMBER**, **VERSION**

Fill in the name of the test stream you logged.

CREATE NEW OUTPUT TEST STREAM

Specifies the name of the new test stream. Typing an asterisk in the DDNAME field instructs CA Verify ART for VTAM to generate a name automatically. This name will be the same as the original name with the Version incremented to the next version available.

Type * in the DDNAME field.

PROCESS WITH RULES

Specifies whether rules should be applied during the run.

Leave Y as the default.

COMPARISON TYPE

Specifies the type of comparison: screen, logical, or physical.

Leave S as the default.

RECORD HISTORY

Specifies whether or not CA Verify ART for VTAM should store any history information it detects. If stored, this information can later be viewed or printed.

Leave Y as the default.

REQUIRE SIGNOFF DATA

Specifies whether or not the operator must explain each mismatch.

Leave N as the default.

SIMULATED USER THINK TIME

Specifies the rate at which input screens are sent to the application, simulating user think time.

Leave NONE as the default.

STATUS INTERVAL

Specifies, in seconds, how often CA Verify ART for VTAM should report the status of the run.

Leave 005 as the default.

CANCEL INTERVAL

Specifies, in minutes, how often CA Verify ART for VTAM should give you the opportunity to cancel the run.

Leave 001 as the default.

STOP AT MISMATCHES

Specifies whether the run should be interrupted if a mismatch is encountered.

Leave Y as the default.

Execute the Run

The NAME GENERATED message appears in the top right corner of the Run Options screen. Also, the name of the output test stream appears in the CREATE NEW OUTPUT TEST STREAM fields. This name is the same as the INPUT TEST STREAM NAME except the Version number has changed.

```

----- RUN OPTIONS -----NAME GENERATED
ENTER COMMAND ==>

ENTER INPUT TEST STREAM NAME:
DDNAME      ==> TCADS
APPLICATION ==> DEMO      (LEAVE APPLICATION, MEMBER,
MEMBER      ==> DEMOPROG   OR VERSION BLANK AND PRESS
VERSION     ==> 001       ENTER FOR A SELECTION LIST)

CREATE NEW OUTPUT TEST STREAM:
DDNAME      ==> TCADS      ("*" USES NEXT AVAILABLE VERSION)
APPLICATION ==> DEMO
MEMBER      ==> DEMOPROG
VERSION     ==> 002

PROCESS WITH RULES      ==> Y   (Y/N OR S-SELECT)
COMPARISON TYPE         ==> S   (S-SCREEN, L-LOGICAL, P-PHYSICAL)
RECORD HISTORY          ==> Y   (Y/N)
REQUIRE SIGNOFF DATA  ==> N   (Y/N)
SIMULATED USER THINK TIME ==> NONE (NONE, NNN% OF ORIGINAL, NN SECONDS)
STATUS INTERVAL         ==> 005 (SECONDS)
CANCEL INTERVAL         ==> 001 (MINUTES)
STOP AT MISMATCHES     ==> Y   (Y/N)
F1-HELP  F3-END  F4-RETURN

```

Now CA Verify ART for VTAM is going to test the changed demo program by re-executing the logged test stream. Remember, CA Verify ART for VTAM is testing a *new version* of the demo program which simulates a change in the original program.

When CA Verify ART for VTAM runs the test stream, it compares the original output screens from the application with the current output screens and displays any differences it finds.

Action:

Press Enter.

Result:

CA Verify ART for VTAM begins running the test stream and displays the Run Status menu and then the Run Mismatch Options menu.

CA Verify ART for VTAM Detects a Mismatch

When CA Verify ART for VTAM displays the Run Mismatch Options menu, it means it has detected a mismatch. In other words, one of the original logged screens differs from the current screen generated by the application.

```
----- RUN MISMATCH OPTIONS -----14:19:39
ENTER COMMAND ==>R6

  1 DISPLAY RULESET SUMMARY          6 ACCEPT ORIGINAL OUTPUT
  2 DISPLAY PREVIOUS INPUT           7 ACCEPT CURRENT OUTPUT
  3 DISPLAY NEXT INPUT               8 CHANGE NEXT INPUT
  4 SKIP ORIGINAL OUTPUT             9 INSERT CURRENT OUTPUT AND INPUT
  5 SKIP ORIGINAL OUTPUT AND INPUT 10 INSERT CURRENT OUTPUT

INPUT:  TCADS.DEMO.DEMOPROG.001      CURRENT RECORD:  11
OUTPUT: TCADS.DEMO.DEMOPROG.002

RULESET: TESTSTREAM: TCADS.DEMO.DEMOPROG.001
         APPLICATION: NOT USED
         SYSTEM:      NOT USED

      TYPE      OPERATION      WCC  CURSOR  SIZE  LENGTH  TERMINAL
EXPECTED: OUTPUT  ERASE/WRITE ALT. C3   9   2  24*80   607  A60L2049
CURRENT:  OUTPUT  ERASE/WRITE ALT. C3   9   2  24*80   607  A04IU001
ONLY UNEQUAL ROW: 02

                        .CUSTOMER MASTER MAINTENANCE      .11:41:29
                        .CUSTOMER MASTER MAINTENANCE      .14:19:39
                                                X XX X

F1-HELP  F2-ROTATE  F3-END  F7-UP    F8-DOWN
```

The information on the bottom half of the Run Mismatch Options menu indicates that when CA Verify ART for VTAM compared the eleventh record, Row 2 was the only unequal row. The data on Row 2 appears at the bottom of the menu, and CA Verify ART for VTAM inserts X's underneath the field which differed. In this case the field is the time stamp.

Let's look at the Expected, Current, and Original screens.

Action:

Press PF2. PF2 rotates the display between the Expected, Current, and Original screens, and the Run Mismatch Options menu.

Result:

CA Verify ART for VTAM displays the Expected screen.

View the Expected Screen

The Expected Screen is the originally logged screen, with any rules applied to it. In our case, we have not yet defined any rules. So, the Expected screen will look the same as the Original screen.

```

DEMO.DEMOPROG.001 ----- RUN: EXPECTED SCREEN -----14:19:39
ENTER COMMAND ==>                                OUT RECORD: 11
              10      20      30      40      50      60      70 R5
-----+-----+-----+-----+-----+-----+-----+-----
| XTCADemo                CA VERIFY DEMONSTRATION PROGRAM      02/19/
|                          CUSTOMER MASTER MAINTENANCE         11:4
|                          SALES PERSON INQUIRY
|
| 4
|
|                          SALES PERSON: Ellen Jenkins
|
| 8  NUMBER      CUSTOMER NAME      CITY      STATE      MAIN CONTACT      TOTAL
|  _9045  Allied Gene Splicing    San Antonio  TX      Geronimo Davis      112,
|  _2353  U. S. Tire Nozzles      Greenwich  CT      Alex Schnitzwattle 1,065,
| 12 _6028  3D Computer Graphics  N Hollywood CA      Horatio Ivanowitz  2,331,
|
| 16
|
| 20

```

Action:

Press PF11 to scroll the display to the right.

Result:

CA Verify ART for VTAM scrolls the display. The row number ruler no longer appears on the left side of the screen. Now you can see the time stamp. Notice that the date appears right above the time.

Action:

Press PF2.

Result:

CA Verify ART for VTAM rotates the display and displays the Current screen.

View the Current Screen

This is the screen generated during the Run function when CA Verify ART for VTAM retested the changed program.

DEMO.DEMOPROG.001 ----- RUN: CURRENT SCREEN -----14:19:57									
ENTER COMMAND ==>									
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----									
XTCADMO									
CA VERIFY DEMONSTRATION PROGRAM									
CUSTOMER MASTER MAINTENANCE									
SALES PERSON INQUIRY									
SALES PERSON: Ellen Jenkins									
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----									
NUMBER CUSTOMER NAME CITY STATE MAIN CONTACT TOTAL AR									
_ 9045 Allied Gene Splicing San Antonio TX Geronimo Davis 112,000									
_ 2353 U. S. Tire Nozzles Greenwich CT Alex Schnitzwattle 1,065,000									
_ 6028 3D Computer Graphics N Hollywood CA Horatio Ivanowitz 2,331,756									

Notice that you do not have to use PF11 to scroll the display to the right. Once you scroll the display, CA Verify ART for VTAM uses the new screen position to display all future screens *unless* you use PF10 to change it again.

Of course, the time stamp differs from the time stamp on the Original screen. Fields like date and time are always changing. CA Verify ART for VTAM doesn't know that this difference is acceptable, so it flags it as a mismatch.

However, you can instruct CA Verify ART for VTAM to *ignore* fields like date and time which change with every execution by defining them as *variable fields*.

Action:

Press PF2.

Result:

CA Verify ART for VTAM rotates and displays the Original screen.

View the Original Screen

This is the way the Original screen looked when you logged it.

```
DEMO.DEMOPROG.001 ----- RUN: ORIGINAL SCREEN -----14:20:00
ENTER COMMAND ==>                                     OUT RECORD: 11
          10      20      30      40      50      60      70      R5
-----+-----+-----+-----+-----+-----+-----+-----+
XTCADemo                CA VERIFY DEMONSTRATION PROGRAM      02/19/1999
                        CUSTOMER MASTER MAINTENANCE          11:41:29
                        SALES PERSON INQUIRY
                        SALES PERSON: Ellen Jenkins

NUMBER  CUSTOMER NAME      CITY  STATE  MAIN CONTACT  TOTAL AR
_ 9045  Allied Gene Splicing  San Antonio  TX  Geronimo Davis    112,000
_ 2353  U. S. Tire Nozzles   Greenwich  CT  Alex Schnitzwattle 1,065,000
_ 6028  3D Computer Graphics  N Hollywood CA  Horatio Ivanowitz 2,331,756
```

Action:

Press PF2.

Result:

CA Verify ART for VTAM redisplay the Run Mismatch Options menu.

Select the Ruleset Option

CA Verify ART for VTAM allows you to change or add a rule to a ruleset without terminating the run. For instance, if you forgot to account for an expected screen change, you can select Option 1 to display the Applied Rules panel. From here, rulesets and individual rules can be browsed, edited, or deleted. After you modify a ruleset and reactivate the run, CA Verify ART for VTAM will repeat the comparison, taking into account your rule specification. CA Verify ART for VTAM also provides other options for dealing with mismatches during a run, including ignoring the mismatch to continue the run, and updating or replacing a screen in the test stream. See the chapter "Run Function", for more information.

Shortly, you will define the time as a variable field. When CA Verify ART for VTAM compares the Original and Current screens, it will exclude variable fields from the comparison. First, however, you must establish a ruleset.

```

----- RUN MISMATCH OPTIONS -----14:20:05
ENTER COMMAND ==> 1                                     R6

    1 DISPLAY RULESET SUMMARY                6 ACCEPT ORIGINAL OUTPUT
    2 DISPLAY PREVIOUS INPUT                7 ACCEPT CURRENT OUTPUT
    3 DISPLAY NEXT INPUT                    8 CHANGE NEXT INPUT
    4 SKIP ORIGINAL OUTPUT                  9 INSERT CURRENT OUTPUT AND INPUT
    5 SKIP ORIGINAL OUTPUT AND INPUT       10 INSERT CURRENT OUTPUT

INPUT:  TCADS.DEMO.DEMOPROG.001          CURRENT RECORD:  11
OUTPUT: TCADS.DEMO.DEMOPROG.002

RULESET: TESTSTREAM: TCADS.DEMO.DEMOPROG.001
         APPLICATION: NOT USED
         SYSTEM:      NOT USED

      TYPE  OPERATION      WCC  CURSOR  SIZE  LENGTH  TERMINAL
EXPECTED: OUTPUT  ERASE/WRITE ALT.  C3   9   2  24*80    607  A60L2049
CURRENT:  OUTPUT  ERASE/WRITE ALT.  C3   9   2  24*80    607  A04IU001
ONLY UNEQUAL ROW: 02

                        .CUSTOMER MASTER MAINTENANCE      .11:41:29
                        .CUSTOMER MASTER MAINTENANCE      .14:19:39
                        X XX X

F1-HELP  F2-ROTATE  F3-END  F7-UP    F8-DOWN

```

Action:

Type 1 and press Enter.

Result:

You will be presented with the Applied Rules panel.

View the Applied Rules Screen

The Applied Rules panel lists all of the rulesets that you requested to be included in the run: test stream, application, and system. It will also display all rules where the rule actions were applied.

```
----- APPLIED RULES -----14:20:17
ENTER COMMAND ==>

INPUT TEST STREAM: TCADS.DEMO.DEMOPROG.001          CURRENT RECORD: 11
                                                    LINE 1 TO 1 OF 1

B-BROWSE  E-EDIT
OBJECT    TYPE ROW COL LEN OP  VALUE FROM THE MODEL SCREEN/DESCRIPTION
e RULESET T/S                                TCADS.DEMO.DEMOPROG.001

F1-HELP    F2-ROTATE    F3-END      F4-RETURN   F7-UP      F8-DOWN
```

Our ruleset has no rules in it yet, so no rules have been applied.

Action:

Type e next to the ruleset and press Enter.

Result:

CA Verify ART for VTAM displays the Edit Rules Summary panel.

Insert a New Rule Into a Ruleset

The Edit Rules Summary panel lists all the rules in the ruleset and provides information as to whether each rule was applied.

Now, you can insert a rule into your ruleset.

```
----- EDIT  RULES - SUMMARY -----14:20:24
ENTER COMMAND ==>

RULE NAME:                RULESET NAME:   TCADS.DEMO.DEMOPROG.001
LINE   1 TO   1 OF   1    TEST STREAM NAME: TCADS.DEMO.DEMOPROG.001

S-EDIT I-INSERT D-DELETE R-REPLICATE
OBJECT      TYPE ROW COL LEN OP VALUE FROM THE MODEL SCREEN/DESCRIPTION
i RULESET   T/S                                TCADS.DEMO.DEMOPROG.001

F1-HELP      F3-END      F4-RETURN    F7-UP      F8-DOWN
```

Action:

Type i next to the ruleset name to insert a new rule into the ruleset.

Result:

CA Verify ART for VTAM displays the Add Rules – Rule Actions panel.

Create a Rule Name

CA Verify ART for VTAM automatically creates a rule name. You can change it if you wish, but the generated name is used for the purposes of this demonstration.

You may, optionally, type in a description for the rule.

----- ADD RULES - RULE ACTIONS -----14:20:29

ENTER COMMAND ==> 1

RULE NAME ==> RUL00001

RULESET NAME: TCADS.DEMO.DEMOPROG.001

TEST STREAM NAME: TCADS.DEMO.DEMOPROG.001

DESCRIPTION ==>

DESCRIPTION ==>

1 FIELD RECOGNITION

2 SCREEN RECOGNITION

3 VARIABLE FIELD

4 DELETE FIELD

5 MOVE FIELD

6 CHANGE FIELD VALUE

7 NEW FIELD

8 CHANGE AID KEY

9 CHANGE CURSOR LOCATION

10 CHANGE WCC VALUES

11 GENERATE FIELD VALUE

12 INSERT SCREENS

13 DELETE SCREENS

14 CUT SCREEN FIELD

15 PASTE SCREEN FIELD

20 USERID LOGGING

21 TERMINAL ID LOGGING

22 APPLID LOGGING

F1-HELP

F2-PREVIEW

F3-END

F4-RETURN

F9-SELECT

Action:

Type a 1 in the Enter Command field and press Enter.

Result:

The Run: Expected Screen will be displayed so you can cursor select the identification field information.

Establish Recognition Criteria

Now, you need to specify the recognition criteria CA Verify ART for VTAM will use to identify screens in this application. Use this criterion:

DEMONSTRATION PROGRAM

Place your cursor on the first character of the field to select it, and then press PF9 to drag that field information into the Recognition Criteria panel. CA Verify ART for VTAM will do the work of figuring out the Row, Column, Length, Operator, and Value coordinates.

```

DEMO.DEMOPROG.001 ----- RUN: EXPECTED SCREEN ----- ENT
ER COMMAND ==>                                OUT RECORD: 11 TCA404
9 - MOVE CURSOR TO IDENTIFICATION CRITERIA FIELD; PRESS "SELECT" KEY
-----+-----+-----+-----+-----+-----+-----+-----+
| XTCADemo                CA VERIFY DEMONSTRATION PROGRAM      02/19/
|                          CUSTOMER MASTER MAINTENANCE         11:4
|                          SALES PERSON INQUIRY
|
4 |                          SALES PERSON: Ellen Jenkins
|
|      NUMBER    CUSTOMER NAME      CITY    STATE    MAIN CONTACT    TOTAL
8 | _ 9045 Allied Gene Splicing  San Antonio TX  Geronimo Davis      112,
| _ 2353 U. S. Tire Nozzles    Greenwich  CT  Alex Schnitzwattle 1,065,
12| _ 6028 3D Computer Graphics  N Hollywood CA  Horatio Ivanowitz  2,331,
|
|
16|
|
20|

```

Action:

Position the cursor on the C in CA Verify Demonstration Program on the top line, and press PF9.

Result:

The Add Rule Actions³/₄Recognition Criteria screen will be displayed, with the recognition criteria information automatically entered, as shown next.

The ADD SUCCESSFUL message appears in the top right corner of the panel.

```
----- ADD RULE ACTIONS - RECOGNITION CRITERIA-----ADD SUCCESSFUL
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:    TCADS.DEMO.DEMOPROG.001
                             TEST STREAM NAME: TCADS.DEMO.DEMOPROG.001

RECOGNITION CRITERIA:
ROW COL  LEN  OPER VALUE
01  026  044  EQ   CA VERIFY DEMONSTRATION PROGRAM
```

F1-HELP F2-PREVIEW F3-END F4-RETURN F9-SELECT

Action:

Press PF3 to return to the Add Rules¾Rule Actions panel.

Result:

CA Verify ART for VTAM displays the Add Rules¾Rule Actions panel.

Set Up the Date and Time Fields as Variables

Now you can make the time field (and date field, if necessary) into a variable.

```
----- ADD RULES - RULE ACTIONS ----- ENT
ER COMMAND ==> 3
TCA5155 - RULE IS NOT YET COMPLETE -- MUST ADD RULE ACTION
RULE NAME   ==> RUL00001    RULESET NAME:    TCADS.DEMO.DEMOPROG.001
                                TEST STREAM NAME: TCADS.DEMO.DEMOPROG.001

DESCRIPTION ==>
              ==>

          1 FIELD RECOGNITION          11 GENERATE FIELD VALUE
          2 SCREEN RECOGNITION         12 INSERT SCREENS
          3 VARIABLE FIELD              13 DELETE SCREENS
          4 DELETE FIELD                14 CUT SCREEN FIELD
          5 MOVE FIELD                  15 PASTE SCREEN FIELD
          6 CHANGE FIELD VALUE          20 USERID LOGGING
          7 NEW FIELD                   21 TERMINAL ID LOGGING
          8 CHANGE AID KEY              22 APPLID LOGGING
          9 CHANGE CURSOR LOCATION
         10 CHANGE WCC VALUES

F1-HELP  F2-PREVIEW  F3-END  F4-RETURN  F9-SELECT
```

Action:

Type 3 in the command field and press Enter.

Result:

CA Verify ART for VTAM will display the Run: Expected Screen panel.

Select the Time Variable

Next, select the time variable.

```

DEMO.DEMOPROG.001 ----- RUN: EXPECTED SCREEN -----EN
TER COMMAND ==>                                OUT RECORD: 11TCA40
41 - MOVE CURSOR TO VARIABLE FIELD AND PRESS "SELECT" KEY
-----|-----|-----|-----|-----|-----|-----|-----
XTCADemo          CA VERIFY DEMONSTRATION PROGRAM          02/19/1999
                  CUSTOMER MASTER MAINTENANCE             11:41:29
                  SALES PERSON INQUIRY
                  SALES PERSON: Ellen Jenkins

NUMBER  CUSTOMER NAME      CITY      STATE  MAIN CONTACT  TOTAL AR
_ 9045  Allied Gene Splicing  San Antonio  TX  Geronimo Davis    112,000
_ 2353  U. S. Tire Nozzles    Greenwich   CT  Alex Schnitzwattle 1,065,000
_ 6028  3D Computer Graphics   N Hollywood CA  Horatio Ivanowitz  2,331,756

```

Action:

Position the cursor on the first digit of the time, then press PF9.

Result:

The Add Rule Actions Variable Field screen will be displayed, with the time variable automatically entered, as shown next.

The ADD SUCCESSFUL message appears in the top right corner of the panel.

```

----- ADD RULE ACTIONS - VARIABLE FIELD-----ADD SUCCESSFUL
ENTER COMMAND ==>

RULE NAME: RUL00001          RULESET NAME:      TCADS.DEMO.DEMOPROG.001
                           TEST STREAM NAME: TCADS.DEMO.DEMOPROG.001

VARIABLES:
  ROW  COL  LEN  VALUE OR DESCRIPTION
  02   073   008   11:41:29

F1-HELP      F2-PREVIEW      F3-END      F4-RETURN      F9-SELECT

```

Action:

Press PF3.

Result:

You are returned to the Add Rules Rule Actions screen.

Action:

Press PF3.

Result:

You are returned to the Edit Rules Summary panel, where you can view the rule you just created.

Action:

Press PF3.

Result:

You are returned to the Applied Rules panel.

Display Applied Rules

This panel shows how the rule we just created has been applied to the originally logged screen.

```

----- APPLIED RULES -----14:21:35
ENTER COMMAND ==>

INPUT TEST STREAM: TCADS.DEMO.DEMOPROG.001          CURRENT RECORD: 11
                                                    LINE 1 TO 4 OF 4

B-BROWSE  E-EDIT
OBJECT    TYPE ROW  COL LEN OP  VALUE FROM THE MODEL SCREEN/DESCRIPTION
RULESET   T/S
- RULE
-   FLD-RECOG      1   26  44 EQ  CA VERIFY DEMONSTRATION PROGR <RECOGNIZED>
-   VARIABLE OUT   2   73   8    11:41:29 <APPLIED>

F1-HELP    F2-ROTATE    F3-END      F4-RETURN   F7-UP      F8-DOWN

```

Action:

Press PF2 to rotate the display to Expected, which consists of the originally logged test stream record with the rules applied; to the current view of the test stream record, and to the original test stream record from the originally logged test stream. When you are finished, press PF3.

Result:

If there are no additional mismatches, the run will continue until either the next mismatch, or the end of the test stream

CA Verify ART for VTAM Detects Another Mismatch

CA Verify ART for VTAM redisplay the Mismatch Options menu.

```
----- RUN MISMATCH OPTIONS -----14:21:57
ENTER COMMAND ==> R6

  1 DISPLAY RULESET SUMMARY          6 ACCEPT ORIGINAL OUTPUT
  2 DISPLAY PREVIOUS INPUT           7 ACCEPT CURRENT OUTPUT
  3 DISPLAY NEXT INPUT               8 CHANGE NEXT INPUT
  4 SKIP ORIGINAL OUTPUT             9 INSERT CURRENT OUTPUT AND INPUT
  5 SKIP ORIGINAL OUTPUT AND INPUT  10 INSERT CURRENT OUTPUT

INPUT:  TCADS.DEMO.DEMOPROG.001      CURRENT RECORD:  13
OUTPUT: TCADS.DEMO.DEMOPROG.002

RULESET: TESTSTREAM: TCADS.DEMO.DEMOPROG.001
         APPLICATION: NOT USED
         SYSTEM:      NOT USED

      TYPE      OPERATION      WCC  CURSOR  SIZE  LENGTH  TERMINAL
EXPECTED: OUTPUT  ERASE/WRITE ALT. C3   7  19   24*80   870  A60L2049
CURRENT: OUTPUT  ERASE/WRITE ALT. C3   7  19   24*80   855  A04IU001
FIRST UNEQUAL ROW: 11  UNEQUAL ROWS: 03
      STATE: .TX. ZIP: .78221.
      STATE: .TX. ZIP: .78221-2718.
                        XXXXXXXX
F1-HELP  F2-ROTATE  F3-END  F7-UP  F8-DOWN
```

As the UNEQUAL ROWS field indicates, CA Verify ART for VTAM has detected three more mismatches.

The first mismatch is the zip code field in Row 11. This mismatch occurred because the program increased the length of the zip code field from 5 to 10.

Let's page down to see the other two mismatches.

Action:

Press PF8.

Result:

CA Verify ART for VTAM displays the All Unequal Rows screen.

View Additional Mismatches

The All Unequal Rows screen displays the other mismatches

```

DEMO.DEMOPROG.001 ----- RUN: ALL UNEQUAL ROWS -----14:23:11 ENTER
COMMAND ==>
                                RL
                                RECORD: 13
                                70      80
10      20      30      40      50      60
ROW: 11--+-----+-----+-----+-----+-----+
        STATE: .TX. ZIP: .78221.
        STATE: .TX. ZIP: .78221-2718.
                                XXXXXXX
ROW: 17--+-----+-----+-----+-----+-----+
                                AR 60 DAYS: . 37,000.00.
                                AR 60 DAYS: . 35,000.00.
                                X
ROW: 18--+-----+-----+-----+-----+-----+
                                AR 90 DAYS: . 40,000.00.
                                AR 90 DAYS: . 35,000.00.
                                XX
*** END OF UNEQUAL ROWS ***

F1-HELP    F2-ROTATE  F3-END    F7-UP    F8-DOWN    F10-LEFT  F11-RIGHT

```

In addition to the zip code field mismatch, mismatches occur in rows 17 and 18 in the AR fields.

Let's examine the Expected, Current, and Original screens.

Action:

Press PF2.

Result:

CA Verify ART for VTAM displays the Expected screen.

View the Expected Screen

The Expected screen is the originally logged screen with any rules applied to it.

```
DEMO.DEMOPROG.001 ----- RUN: EXPECTED SCREEN -----14:23:11
ENTER COMMAND ==>                                OUT RECORD: 13
          10          20          30          40          50          60          70          R5
-----+-----+-----+-----+-----+-----+-----+-----+
XTCADemo                CA VERIFY DEMONSTRATION PROGRAM      02/19/1999
                        CUSTOMER MASTER MAINTENANCE          11:41:59
                        CUSTOMER INQUIRY

                        SALES PERSON: Ellen Jenkins

CUSTOMER NAME: Allied Gene Splicing    CONTACT1: Geronimo Davis
ADDRESS1:    Technologies Plaza        CONTACT2: Ellen Jenkins
ADDRESS2:    114 McCauley Avenue       CONTACT3: Henry Meehan
CITY:        San Antonio               CONTACT4: Bradley Thomas
STATE: TX   ZIP: 78221

***** ACCOUNTING INFORMATION *****

CREDIT LINE: 83,500.00    AR 30 DAYS: 35,000.00
                        AR 60 DAYS: 37,000.00
                        AR 90 DAYS: 40,000.00
                        -----
                        TOTAL AR: 112,000.00
```

Action:

Press PF2.

Result:

CA Verify ART for VTAM rotates the display and displays the Current Screen.

View the Current Screen

This is the screen generated during the Run function when CA Verify ART for VTAM retested the changed program.

```

DEMO.DEMOPROG.001 ----- RUN: CURRENT SCREEN -----14:23:22
ENTER COMMAND ==>                                OUT RECORD: 13
          10          20          30          40          50          60          70          R5
-----+-----+-----+-----+-----+-----+-----+-----+
XTCADemo                CA VERIFY DEMONSTRATION PROGRAM      2/19/1999
                        CUSTOMER MASTER MAINTENANCE          14:21:43
                        CUSTOMER INQUIRY

                        SALES PERSON: Ellen Jenkins

CUSTOMER NAME: Allied Gene Splicing    CONTACT1: Geronimo Davis
ADDRESS1:    Technologies Plaza        CONTACT2: Ellen Jenkins
ADDRESS2:    114 McCauley Avenue       CONTACT3: Henry Meehan
CITY:        San Antonio               CONTACT4: Bradley Thomas
STATE: TX    ZIP: 78221-2718

***** ACCOUNTING INFORMATION *****

CREDIT LINE: 83,500.00    AR 30 DAYS: 35,000.00
                        AR 60 DAYS: 35,000.00
                        AR 90 DAYS: 35,000.00
                        -----
                        TOTAL AR: 112,000.00

```

Notice that the zip code does not match the zip code on the original screen. That's because one of the changes made in the demo program increased the length of the zip code field from 5 to 10. The 10-character zip code on the current screen confirms that the changed program is performing as expected in this instance.

But the differences in the values of the AR 60 DAYS and AR 90 DAYS fields represent errors in the program you are testing. These errors must be corrected.

Action:

Press PF2.

Result:

CA Verify ART for VTAM displays the Original Screen

View the Original Screen

This is the way the original screen looked when you logged it. Notice the values in the ZIP, AR 30 DAYS, AR 60 DAYS, and AR 90 DAYS fields.

```
DEMO.DEMOPROG.001 ----- RUN: ORIGINAL SCREEN -----14:23:25
ENTER COMMAND ==>                                OUT RECORD: 13
          10          20          30          40          50          60          70          R5
-----+-----+-----+-----+-----+-----+-----+-----+
XTCADemo                CA VERIFY DEMONSTRATION PROGRAM      02/19/1999
                        CUSTOMER MASTER MAINTENANCE          11:41:59
                        CUSTOMER INQUIRY

                        SALES PERSON: Ellen Jenkins

CUSTOMER NAME: Allied Gene Splicing    CONTACT1: Geronimo Davis
ADDRESS1:    Technologies Plaza        CONTACT2: Ellen Jenkins
ADDRESS2:    114 McCauley Avenue       CONTACT3: Henry Meehan
CITY:        San Antonio               CONTACT4: Bradley Thomas
STATE: TX   ZIP: 78221

***** ACCOUNTING INFORMATION *****

CREDIT LINE: 83,500.00    AR 30 DAYS: 35,000.00
                        AR 60 DAYS: 37,000.00
                        AR 90 DAYS: 40,000.00
                        -----
                        TOTAL AR: 112,000.00
```

Action:

Press PF2.

Result:

CA Verify ART for VTAM redisplay the All Unequal Rows menu.

Action:

Press PF7.

Result:

CA Verify ART for VTAM redisplay the Run Mismatch Options menu.

Ignore the Screen Changes

Because CA Verify ART for VTAM detected errors as well as a valid program change, you want to ignore the changes in the current screen. You can instruct CA Verify ART for VTAM to use the original screen rather than the incorrect current screen in the new test stream. This lets you use the new test stream to retest the program after you've corrected the error.

```

----- RUN MISMATCH OPTIONS -----14:24:28
ENTER COMMAND ==> 6                                     R6

  1 DISPLAY RULESET SUMMARY          6 ACCEPT ORIGINAL OUTPUT
  2 DISPLAY PREVIOUS INPUT           7 ACCEPT CURRENT OUTPUT
  3 DISPLAY NEXT INPUT               8 CHANGE NEXT INPUT
  4 SKIP ORIGINAL OUTPUT             9 INSERT CURRENT OUTPUT AND INPUT
  5 SKIP ORIGINAL OUTPUT AND INPUT 10 INSERT CURRENT OUTPUT

INPUT:  TCADS.DEMO.DEMOPROG.001      CURRENT RECORD: 13
OUTPUT: TCADS.DEMO.DEMOPROG.003

RULESET: TESTSTREAM: TCADS.DEMO.DEMOPROG.001
         APPLICATION: NOT USED
         SYSTEM:      NOT USED

      TYPE      OPERATION      WCC  CURSOR  SIZE  LENGTH  TERMINAL
EXPECTED: OUTPUT  ERASE/WRITE ALT. C3   7  19   24*80   870  A60L2049
CURRENT:  OUTPUT  ERASE/WRITE ALT. C3   7  19   24*80   855  A04IU001
FIRST UNEQUAL ROW: 11  UNEQUAL ROWS: 03
      STATE: .TX. ZIP: .78221.
      STATE: .TX. ZIP: .78221-2718.
                        XXXXXXXX
F1-HELP  F2-ROTATE  F3-END  F7-UP      F8-DOWN

```

Action:

Type 6 (Accept Original Output) and press Enter.

Result:

CA Verify ART for VTAM continues the run, and then displays the Run Completion screen.

View Run Statistics

The Run Completion screen provides statistics about the run which has just completed. As a result of the run, you know that the revised program has an error that must be fixed.

As before, you will not actually change the program. Instead, you will use a different version of the program to simulate that the program has been fixed.

Again, use the Edit function to change the name of the program invoked by the demo application.

You can access the Edit function by selecting it from the Primary Options Menu, or you can enter Edit directly, which is what you're going to do now.

```
TCADS.DEMO.DEMOPROG.001      RUN COMPLETION -----14:25:52
ENTER COMMAND ==> =e                                         R8

OUTPUT SCREENS COMPARED:      6
PHYSICALLY EQUAL SCREENS:    3
LOGICALLY EQUAL SCREENS:     5

OUTPUT TEST STREAM: TCADS.DEMO.DEMOPROG.003

RULESET(S) USED:
  TESTSTREAM: TCADS.DEMO.DEMOPROG.001
  APPLICATION: NOT USED
  SYSTEM:     NOT USED
      IN:     OUT:
EQUAL:        6      3
EQUIVALENT:   2
IGNORED:      1
ACCEPTED:     0
INSERTED:     0      0
DELETED:      0      0
CHANGED:      0
NOT RUN:      0      0

F1-HELP  F3-END  F4-RETURN
```

Action:

Type =e and press Enter.

Result:

CA Verify ART for VTAM displays the Test Stream Edit menu.

Select a Test Stream

Now you are going to change the test stream version created during the previous run.

```
----- TEST STREAM EDIT -----14:26:21
ENTER COMMAND ==>                                     E1

ENTER TEST STREAM NAME:
DDNAME      ==> TCADS
APPLICATION ==> DEMO      (LEAVE APPLICATION, MEMBER,
MEMBER      ==> DEMOPROG   OR VERSION BLANK AND PRESS
VERSION     ==> 002        ENTER FOR A SELECTION LIST)

F1-HELP      F3-END      F4-RETURN
```

Action:

Complete the menu as illustrated next and press Enter. Note that the Version is now 002.

Result:

CA Verify ART for VTAM displays the Directory Information screen.

View Directory Information

This screen provides *Last Run* information; that is, statistics related to the run.

```

DEMO.DEMOPROG.002 ----- EDIT: DIRECTORY INFORMATION -----14:26:31
ENTER COMMAND ==>                                     E3

DESCRIPTION ==> CUSTOMER MAINTENANCE DEMO PROGRAM
==>
==>

LOG:      RUN:      EDIT:      TEST STREAM:      IN:      OUT:
INVOKED BY: SAMPLE    SAMPLE    SAMPLE    TOTAL SCREENS:      6      7
INVOKED ON: 02/19/1999 02/19/1999 02/19/1999 AVERAGE BYTES:      11    400
START TIME: 11:40:49  14:25:52  11:47:50
DURATION:   00:01:24  00:00:00
SYSTEM:     MULTIPLE MULTIPLE
STATUS:     NORMAL   LOGICALLY EQUAL
TERMINAL:   A60L2049
VSAM CI'S:  2

AVERAGE THINK TIME:  00:00:13.858
AVERAGE RESPONSE TIME: 00:00:00.053
MAXIMUM SCREEN SIZE:  24 BY 80
PROTECTION STATUS:
ORIGINATING TEST STREAM: DEMO.DEMOPROG.001  OWNER: SAMPLE
CREATED BY FUNCTION: RUN

F1-HELP      F3-END      F4-RETURN

```

- Four output screens were *equal* to the logged screens.
- One output screen was *equivalent* to the logged screen. This was the output screen that you made logically equal to the logged output screen by defining time as a variable field.
- One output screen was *ignored*. This was the screen with the zip code and AR changes that you asked CA Verify ART for VTAM to ignore.

Action:

Press Enter.

Result:

CA Verify ART for VTAM displays the Initial Terminal Status screen.

View Initial Terminal Status Information

The Initial Terminal Status screen displays information about the terminal from which the test stream was logged.

```
DEMO.DEMOPROG.002 ----- EDIT: INITIAL TERMINAL STATUS -----14:26:53
ENTER COMMAND ==>                                         E6

TERMINAL ==> A60L2049

VIRTUAL TERMINAL
ASSIGNMENT ==>

SCREEN SIZE: 24 BY 80                                DEVICE TYPE: LOGICAL UNIT
ALTERNATE: IN USE                                    DEVICE CHARS: C06D001033800000

FEATURES:

BIND: LOGMODE:      D4C32782                        LU TYPE:      02
FM PROFILE: 03                      EXT STREAM: 00
TS PROFILE: 03                      RESERVED: 00000000
PLU PROTOCOL: B1                    SIZES:      18500000
SLU PROTOCOL: 90                    FLAGS:      7E00
COM PROTOCOL: 3080                  CRYPTOGRAPHY: 09
TS FIELDS: 000187F80000
LOGON DATA:

F1-HELP      F3-END      F4-RETURN      F10-LEFT      F11-RIGHT
```

Action:

Press Enter.

Result:

CA Verify ART for VTAM displays the Record Selection menu.

Select a Record

The Record Selection menu lists each record in the test stream.

You are going to change the eighth screen again – the screen which invokes the demo program.

```

DEMO.DEMOPROG.002 ----- EDIT: RECORD SELECTION -----14:27:05
ENTER COMMAND ==>                                         E7

  TERMINAL  APPLID    T/R TIME  OP   AID   VIEW  RECORD  ROW: 1 COL: 30
-  A60L2049  USS       00:00.060  EW           1  SSOCIATES INTERNAT
-  A60L2049  USS       00:09.118  RM   ENTER    2  SSOCIATES INTERNAT
-  A60L2049  USS       00:00.003  EW           3  EQUEST ACCEPTED AN
-  A60L2049  VERDEMO    00:00.034  CON          4  EQUEST ACCEPTED AN
-  A60L2049  VERDEMO    00:00.008  DSC          5  EQUEST ACCEPTED AN
-  A60L2049  A04IVRFY    00:00.004  CON          6  EQUEST ACCEPTED AN
-  A60L2049  A04IVRFY    00:00.003  EWA          7
s  A60L2049  A04IVRFY    00:20.330  RM   ENTER    8
-  A60L2049  A04IVRFY    00:00.002  EWA          9  ERIFY DEMONSTRATIO
-  A60L2049  A04IVRFY    00:06.174  RM   ENTER   10  ERIFY DEMONSTRATIO
-  A60L2049  A04IVRFY    00:00.009  EWA          R  11  ERIFY DEMONSTRATIO
-  A60L2049  A04IVRFY    00:29.923  RM   ENTER   12  ERIFY DEMONSTRATIO
-  A60L2049  A04IVRFY    00:00.003  EWA          R  13  ERIFY DEMONSTRATIO
-  A60L2049  A04IVRFY    00:09.621  RM   PF3      14  ERIFY DEMONSTRATIO
-  A60L2049  A04IVRFY    00:00.242  EWA          15
-  A60L2049  A04IVRFY    00:07.980  RM   ENTER   16
***  END OF RECORDS  ***

TYPE AN "S" TO SELECT A RECORD
F1-HELP  F3-END  F4-RETURN  F7-UP  F8-DOWN  F9-FORMAT  F10-LEFT  F11-RIGHT

```

Action:

Tab to the eighth record, type s, and press Enter.

Result:

CA Verify ART for VTAM displays the screen.

Edit the Screen

Now you want to change the demo program from DEMO BUG to DEMO NEW to simulate that the program error has been corrected.

```
DEMO.DEMOPROG.002 ----- EDIT: FIELD FORMAT -----14:27:57
ENTER COMMAND ==>                                         E4

TYPE:      INPUT          RH: 0392A0          RECORD NUMBER:      8
OPERATION: READ MODIFIED  APPL: A04IVRFY       DATA LENGTH:      16
THINK:     00:00:20.330   DATE: 02/19/1999     SCREEN SIZE:  24 BY 80
AID:      ENTER          TIME: 14:25:30.424    TERMINAL:      A60L2049
ORDER  ROW  COL  ATTR  LENGTH  -----+-----+-----+-----+
                00013  xtca demo new
                        ***  END OF FIELDS  ***
```

Action:

Move the cursor and overkey BUG with new. Press Enter. Then press PF3 three times.

Result:

CA Verify ART for VTAM saves the edited test stream and displays the Primary Options Menu.

Select the Run Function

Now you can select the Run function to retest the corrected program.

```
VERSION 1.4.0 ----- CA VERIFY PRIMARY OPTIONS MENU -- -----14:28:20 ENTER
COMMAND ==> r                                     TERM: A60L2049
                                                    OPER: SAMPLE

  L  LOG A TEST STREAM

  B  BROWSE A TEST STREAM

  R  RUN A TEST STREAM

  E  EDIT A TEST STREAM

  M  MAINTAIN RULES

  I  INQUIRY/TERMINATION OF FUNCTIONS

  U  UTILITIES

  T  TUTORIAL

  X  EXIT
      *** ENTER "KEYS" COMMAND TO SEE PF KEY ASSIGNMENTS ***

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```

Action:

Type r and press Enter.

Result:

CA Verify ART for VTAM displays the Run Options menu.

Specify the Run Options

Complete the Run Options menu as shown next.

```

----- RUN OPTIONS -----14:28:27
ENTER COMMAND ==>

ENTER INPUT TEST STREAM NAME:
DDNAME      ==> TCADS
APPLICATION ==> DEMO      (LEAVE APPLICATION, MEMBER,
MEMBER      ==> DEMOPROG   OR VERSION BLANK AND PRESS
VERSION     ==> 002       ENTER FOR A SELECTION LIST)

CREATE NEW OUTPUT TEST STREAM:
DDNAME      ==> *          ("*" USES NEXT AVAILABLE VERSION)
APPLICATION ==>
MEMBER      ==>
VERSION     ==>

PROCESS WITH RULES      ==> Y   (Y/N OR S-SELECT)
COMPARISON TYPE        ==> S   (S-SCREEN, L-LOGICAL, P-PHYSICAL)
RECORD HISTORY         ==> Y   (Y/N)
REQUIRE SIGNOFF DATA ==> N   (Y/N)
SIMULATED USER THINK TIME ==> NONE (NONE, NNN% OF ORIGINAL, NN SECONDS)
STATUS INTERVAL        ==> 005 (SECONDS)
CANCEL INTERVAL        ==> 001 (MINUTES)
STOP AT MISMATCHES     ==> Y   (Y/N)
F1-HELP  F3-END  F4-RETURN

```

Action:

Type the name of the input test stream, specifying Version 002, the version created during the last run.

Type * in the DDNAME field under CREATE NEW OUTPUT TEST STREAM.

Press Enter.

Result:

CA Verify ART for VTAM redisplay the Run Options menu.

Initiate the Run

The Run Options menu now contains the generated name of the output test stream; that is, same name, version 003.

----- RUN OPTIONS -----		NAME GENERATED
ENTER COMMAND ==>		
ENTER INPUT TEST STREAM NAME:		
DDNAME	==> TCADS	
APPLICATION	==> DEMO	(LEAVE APPLICATION, MEMBER,
MEMBER	==> DEMOPROG	OR VERSION BLANK AND PRESS
VERSION	==> 002	ENTER FOR A SELECTION LIST)
CREATE NEW OUTPUT TEST STREAM:		
DDNAME	==> TCADS	("*" USES NEXT AVAILABLE VERSION)
APPLICATION	==> DEMO	
MEMBER	==> DEMOPROG	
VERSION	==> 003	
PROCESS WITH RULES	==> Y	(Y/N OR S-SELECT)
COMPARISON TYPE	==> S	(S-SCREEN, L-LOGICAL, P-PHYSICAL)
RECORD HISTORY	==> Y	(Y/N)
REQUIRE SIGNOFF DATA	==> N	(Y/N)
SIMULATED USER THINK TIME	==> NONE	(NONE, NNN% OF ORIGINAL, NN SECONDS)
STATUS INTERVAL	==> 005	(SECONDS)
CANCEL INTERVAL	==> 001	(MINUTES)
STOP AT MISMATCHES	==> Y	(Y/N)
F1-HELP F3-END F4-RETURN		

Action:

Press Enter to begin the run.

Result

CA Verify ART for VTAM initiates the run, displays the Run Status menu, and then displays the Run Mismatch Options menu.

CA Verify ART for VTAM Detects a Mismatch

Remember that the last time you ran the test stream CA Verify ART for VTAM detected several mismatches:

- Time
- Zip code
- AR60 and AR90 fields

You resolved the time mismatch by creating rule actions and marking the time as a variable field. CA Verify ART for VTAM will now ignore a mismatch in that field.

The zip code mismatch still exists. That is a valid difference because the updated program increased the zip code field from 5 to 10. Notice that this is now the *only* unequal row.

```

----- RUN MISMATCH OPTIONS -----14:30:01
ENTER COMMAND ==>                                     R6

      1 DISPLAY RULESET SUMMARY                6 ACCEPT ORIGINAL OUTPUT
      2 DISPLAY PREVIOUS INPUT                7 ACCEPT CURRENT OUTPUT
      3 DISPLAY NEXT INPUT                   8 CHANGE NEXT INPUT
      4 SKIP ORIGINAL OUTPUT                 9 INSERT CURRENT OUTPUT AND INPUT
      5 SKIP ORIGINAL OUTPUT AND INPUT      10 INSERT CURRENT OUTPUT

INPUT:  TCADS.DEMO.DEMOPROG.002          CURRENT RECORD:  13
OUTPUT: TCADS.DEMO.DEMOPROG.003

RULESET: TESTSTREAM: TCADS.DEMO.DEMOPROG.002
         APPLICATION: NOT USED
         SYSTEM:      NOT USED

      TYPE  OPERATION      WCC  CURSOR  SIZE  LENGTH  TERMINAL
EXPECTED: OUTPUT  ERASE/WRITE ALT.  C3   7  19  24*80   870  A60L2049
CURRENT:  OUTPUT  ERASE/WRITE ALT.  C3   7  19  24*80   855  A04IU001
ONLY UNEQUAL ROW: 11
                STATE: .TX. ZIP: .78221.
                STATE: .TX. ZIP: .78221-2718.
                        XXXXXXXX
      F1-HELP    F2-ROTATE    F3-END    F7-UP      F8-DOWN

```

Let's look at the Expected, Current, and Original screens.

Action:

Press PF2.

Result:

CA Verify ART for VTAM displays the Expected screen.

View the Expected Screen

Look at the values in the AR fields.

DEMO.DEMOPROG.002	-----	RUN: EXPECTED SCREEN	-----	14:30:01
ENTER COMMAND ==>				OUT RECORD: 13
10	20	30	40	50
-----+----- -----+----- -----+----- -----+----- -----				
4	XTCADemo	CA VERIFY DEMONSTRATION PROGRAM		03/04/
		CUSTOMER MASTER MAINTENANCE		12:5
		CUSTOMER INQUIRY		
		SALES PERSON: Ellen Jenkins		
8	CUSTOMER NAME: Allied Gene Splicing	CONTACT1: Geronimo Davis		
	ADDRESS1: Technologies Plaza	CONTACT2: Ellen Jenkins		
	ADDRESS2: 114 McCauley Avenue	CONTACT3: Henry Meehan		
	CITY: San Antonio	CONTACT4: Bradley Thomas		
12	STATE: TX ZIP: 78221			
	***** ACCOUNTING INFORMATION *****			
16	CREDIT LINE: 83,500.00	AR 30 DAYS: 35,000.00		
		AR 60 DAYS: 37,000.00		
		AR 90 DAYS: 40,000.00		
20		-----		
		TOTAL AR: 112,000.00		

Action:

Press PF2 to look at the Current screen.

Result:

CA Verify ART for VTAM displays the Current screen.

View the Current Screen

Notice the AR fields. They now have the same values as the Expected screen, indicating that the bug in the program has been fixed.

```

DEMO.DEMOPROG.002 ----- RUN: CURRENT SCREEN -----14:30:37
ENTER COMMAND ==>                                     OUT RECORD: 13
               10      20      30      40      50      60      70 R5
-----+-----+-----+-----+-----+-----+-----+
| XTCADemo                CA VERIFY DEMONSTRATION PROGRAM      03/04/
|                          CUSTOMER MASTER MAINTENANCE         13:1
|                          CUSTOMER INQUIRY
|
4 |                          SALES PERSON: Ellen Jenkins
|
|  CUSTOMER NAME: Allied Gene Splicing   CONTACT1: Geronimo Davis
8 |  ADDRESS1:   Technologies Plaza       CONTACT2: Ellen Jenkins
|  ADDRESS2:   114 McCauley Avenue       CONTACT3: Henry Meehan
|  CITY:       San Antonio               CONTACT4: Bradley Thomas
|  STATE: TX   ZIP: 78221-2718
12 |
|
|          ***** ACCOUNTING INFORMATION *****
16 |          CREDIT LINE: 83,500.00      AR 30 DAYS: 35,000.00
|                                         AR 60 DAYS: 37,000.00
|                                         AR 90 DAYS: 40,000.00
20 |                                         -----
|                                         TOTAL AR: 112,000.00

```

Action:

Press PF2.

Result:

CA Verify ART for VTAM displays Original screen.

View the Original Screen

Notice the values in the AR fields.

```

DEMO.DEMOPROG.002 ----- RUN: ORIGINAL SCREEN -----14:30:40
ENTER COMMAND ==>                                OUT RECORD: 13
          10          20          30          40          50          60          70 R5
-----+-----+-----+-----+-----+-----+-----+-----
| XTCADemo                CA VERIFY DEMONSTRATION PROGRAM      03/04/
|                          CUSTOMER MASTER MAINTENANCE         12:5
|                          CUSTOMER INQUIRY
|
| 4
|
|                          SALES PERSON: Ellen Jenkins
|
| 8  CUSTOMER NAME: Allied Gene Splicing   CONTACT1: Geronimo Davis
|    ADDRESS1:   Technologies Plaza       CONTACT2: Ellen Jenkins
|    ADDRESS2:   114 McCauley Avenue      CONTACT3: Henry Meehan
|    CITY:       San Antonio              CONTACT4: Bradley Thomas
|    STATE: TX   ZIP: 78221
|
| 12
|
|          ***** ACCOUNTING INFORMATION *****
|
| 16  CREDIT LINE:  83,500.00      AR 30 DAYS:  35,000.00
|                                     AR 60 DAYS:  37,000.00
|                                     AR 90 DAYS:  40,000.00
|                                     -----
| 20                                     TOTAL AR:  112,000.00

```

Action:

Press PF2.

Result:

CA Verify ART for VTAM displays the Run Mismatch Options menu.

Accept the Program Change

Now you can instruct CA Verify ART for VTAM to accept the program change – the extended zip code field – as permanent. This means CA Verify ART for VTAM will not flag this field as a mismatch in future testing.

```

----- RUN MISMATCH OPTIONS -----14:30:47
ENTER COMMAND ==> 7                                     R6

  1 DISPLAY RULESET SUMMARY                6 ACCEPT ORIGINAL OUTPUT
  2 DISPLAY PREVIOUS INPUT                 7 ACCEPT CURRENT OUTPUT
  3 DISPLAY NEXT INPUT                     8 CHANGE NEXT INPUT
  4 SKIP ORIGINAL OUTPUT                   9 INSERT CURRENT OUTPUT AND INPUT
  5 SKIP ORIGINAL OUTPUT AND INPUT        10 INSERT CURRENT OUTPUT

INPUT:   TCADS.DEMO.DEMOPROG.002          CURRENT RECORD: 13
OUTPUT:  TCADS.DEMO.DEMOPROG.003

RULESET: TESTSTREAM: TCADS.DEMO.DEMOPROG.002
         APPLICATION: NOT USED
         SYSTEM:      NOT USED

      TYPE      OPERATION      WCC  CURSOR  SIZE  LENGTH  TERMINAL
EXPECTED: OUTPUT  ERASE/WRITE ALT. C3   7  19   24*80   870  A60L2049
CURRENT:  OUTPUT  ERASE/WRITE ALT. C3   7  19   24*80   855  A04IU001
ONLY UNEQUAL ROW: 11
                STATE: .TX. ZIP: .78221.
                STATE: .TX. ZIP: .78221-2718.
                        XXXXXXXX
F1-HELP  F2-ROTATE  F3-END   F7-UP    F8-DOWN

```

Action:

Type 7 (Accept Current Output) and press Enter.

Result:

CA Verify ART for VTAM continues the run, displays the Run Status menu, and then displays the Run Completion menu.

View Run Statistics

The Run Completion menu provides information on the run that has just completed.

TCADS.DEMO.DEMOPROG.002	RUN COMPLETION	-----14:30:54
ENTER COMMAND ==>		R8
OUTPUT SCREENS COMPARED:	6	
PHYSICALLY EQUAL SCREENS:	4	
LOGICALLY EQUAL SCREENS:	5	
OUTPUT TEST STREAM: TCADS.DEMO.DEMOPROG.003		
RULESET(S) USED:		
TESTSTREAM:	TCADS.DEMO.DEMOPROG.002	
APPLICATION:	NOT USED	
SYSTEM:	NOT USED	
	IN:	OUT:
EQUAL:	6	4
EQUIVALENT:		1
IGNORED:		0
ACCEPTED:		1
INSERTED:	0	0
DELETED:	0	0
CHANGED:	0	
NOT RUN:	0	0
F1-HELP F3-END F4-RETURN		

You have now finished testing the demo program.

With CA Verify ART for VTAM, you were able to:

- Detect program errors
- Ignore valid differences
- Fix a program bug and retest to make sure the error was corrected

If you wish, you can print the test stream you just created for documentation purposes. See the chapter "Batch Functions" for directions.

This demo has illustrated some of the features of CA Verify ART for VTAM. To learn more about CA Verify ART for VTAM, see the other chapters in this guide.

Action:

Press PF4.

Result:

CA Verify ART for VTAM displays the Primary Options Menu.

Now you can exit from CA Verify ART for VTAM or use the test streams you created to learn more about CA Verify ART for VTAM 's other features.

Chapter 13: Messages and Codes

This chapter provides explanations of all messages.

Note: When CA Verify ART for VTAM opens a data set under MVS, access method services may issue message IEC161 056-84 if the file was not closed when it was last used. CA Verify ART for VTAM handles this internally; the message can be ignored.

This section contains the following topics:

[Abend Codes](#) (see page 327)

[MVS Return Codes](#) (see page 328)

[VSE Return Codes](#) (see page 328)

[Messages](#) (see page 329)

Abend Codes

0002

Identifies dumps requested using the XTCAABEND command.

0003

Issued by CA Verify ART for VTAM when an unexpected error was encountered processing the XTCADUMPS command.

AKC3

Issued by CICS Release 3.1 thru 8 systems when CA Verify ART for VTAM terminates conversational transactions left at the virtual terminals when the Run function completes. Because this is completely normal, ignore these dumps. You can suppress them by issuing the CICS command:

```
CEMT S TRD(AKC3) MAX(0)
```

For details on suppressing CICS dumps, see the *IBM manual System Programming Reference for CICS-Supplied Transactions*.

TCAR

Issued by CICS 2.1 and 2.2 systems when CA Verify ART for VTAM terminates conversational transactions left at the virtual terminals when the Run function completes. Because this is completely normal, ignore these dumps.

CORE

Issued by CA Verify ART for VTAM if it finds CICS is short on storage. CA Verify ART for VTAM frees all its main storage areas when it issues this abend.

XTCA

Identifies dumps requested using the XTCADUMPS command. See the *Installation guide* section on Problem Reporting.

TSRA

Identifies segment storage dumps related to XTCA ASRA abends. If you get these dumps, save them with the related ASRA dumps.

MVS Return Codes

The batch component of CA Verify ART for VTAM uses the following return codes:

- 0** **No errors**
- 8** **Name not found, and so on**
- 12** **Control card error**
- 16** **DD card missing**

VSE Return Codes

The batch component of CA Verify ART for VTAM will cancel (due to program request) under some circumstances. In each case, the registers displayed in the dump will contain a cancel code:

00000001

A CDLOAD failed. Increase the available GETVIS by either increasing the partition size or decreasing the SIZE= parameter. Also, be sure that the CA Verify ART for VTAM core image library is assigned.

00000002

A GETVIS failed. Increase the available GETVIS by either increasing the partition size or decreasing the SIZE= parameter.

00000003

SYSIPT is not assigned to a supported device. Resubmit the job with SYSIPT assigned to a printer, the spooler, or tape.

Messages

CA Verify ART for VTAM error messages are numbered by the type of processing being performed:

Error Message	Processing
0000 - 0099	Initialization
0100 - 0199	Log initialization
0200 - 0299	Inquiry
0400 - 0499	Run function
0500 - 0599	Utilities
0600 - 0699	Command list processing and data set/file open
0700 - 0799	Browse and Edit
0800 - 0899	Terminal selection
1000 - 1099	Automated mismatch processing
2000 - 2099	Terminal and command handling
2200 - 2299	Test stream selection
2300 - 2399	New test stream initialization
2500 - 2599	Data set/file handling
2700 - 2799	Terminal control exits
2800 - 2899	Supervisor services
3000 - 3099	Authorization exit
3200 - 3299	Screen displays
3300 - 3499	Batch
3500 - 3599	Virtual terminal handling
4000 -	Rules function

The following pages give the number, short form, long form, and explanation (if not self-explanatory) of each message.

Note: To obtain the message number, press the Help key when the message short form appears in the top right corner of the menu.

0001 - 0012

0001	No short form INITIALIZATION ERROR nn where <i>nn</i> is the subcode for initialization errors:
01	Common area is corrupted.
02	CA Verify ART for VTAM is short on storage.
03	Control blocks have been corrupted.
04	Program xxxxxxxx could not be loaded.
05	Options module is from the wrong version of CA Verify ART for VTAM.
06	LMP module interface failure.
07	CA Verify ART for VTAM is running from the wrong load library. See the <i>Installation Guide</i> for instructions.
08	CA Verify ART for VTAM does not support release x.x of CICS.
09	CA Verify ART for VTAM CA90s is not active on your system.
0002	STOP IGNORED XTCA STOP IS NOT VALID FROM THIS TERMINAL, OR AT THIS TIME Issued when you type XTCA STOP at a terminal which is not being logged.
0003	INVALID OPTION THE OPTION WHICH WAS ENTERED IS NOT VALID
0004	INVALID OPTION THE OPTION WHICH WAS ENTERED IS NOT VALID UNDER TSO
0005	TRIAL EXPIRED ACCESS UNAUTHORIZED - TRIAL PERIOD EXPIRED xxxxxxxx
0006	NOT SUPPORTED ALTERNATE SCREEN SIZE IS NOT SUPPORTED FOR THIS TERMINAL The terminal does not have an alternate size

- defined. Check the terminal control table entry.
Either the alternate size rows or columns is zero.
- 0007** INVALID SCREEN SIZE
ALTERNATE SCREEN SIZE IS INVALID
The alternate screen size must have at least 24 rows and 80 columns.
- 0008** PARAMETER IS INVALID
VALID PARAMETERS ARE DEFAULT AND ALTERNATE
A parameter other than 'default' or 'alternate' was typed. The minimum abbreviations are 'def' and 'alt' , respectively.
- 0009** ALTERNATE ENABLED
THE ALTERNATE SIZE HAS BEEN ENABLED AND WILL BE USED
The alternate screen size will be used.
- 0010** ALTERNATE DISABLED
THE ALTERNATE SIZE HAS BEEN DISABLED, THE DEFAULT SIZE WILL BE USED
The default screen size will be used.
- 0012** No short form
PRIOR SESSION REESTABLISHED, PRESS ENTER TO CONTINUE

0101 - 0199

- 0101** NO MATCHES FOUND
NO TERMINALS WERE FOUND WHICH MATCHED THE GENERIC NAME GIVEN
- 0102** INVALID STOP OPTION
STOP OPTION MUST BE ONE OF THE LISTED OPTIONS
- 0103** ENTER TERMINAL
THE NAME OF THE TERMINAL TO BE LOGGED IS REQUIRED
- 0104** LOG HAS BEEN STARTED
LOGGING IS ACTIVE FOR THE REQUESTED TERMINAL(S)
- 0105** ENTER DESCRIPTION
A DESCRIPTION IS REQUIRED FOR ALL TEST STREAMS

0106	TERMINALS REQUIRED A TERMINAL RULE IS REQUIRED WHEN LOGGING MULTIPLE TERMINALS
0107	INVALID EXTEND OPTION EXTEND OPTION MUST BE 'Y' OR 'N'
0108	CAN NOT EXTEND MTTS MULTIPLE TERMINAL TEST STREAMS CAN NOT BE EXTENDED
0109	TOO MANY TERMINALS YOU CAN NOT LOG MORE THAN nnnn TERMINALS CONCURRENTLY You have attempted to log more terminals than is permitted in your installation. Increase the MAXMTTS installation option.
0110	INVALID SCROLL AMOUNT THE SCROLL AMOUNT MUST BE NUMERIC OR ' MAXIMUM'
0111	INVALID OPTION INCLUDE/EXCLUDE OPTION MUST BE 'I' OR 'E'
0112	INVALID PROTECT STATUS PROTECTION STATUS MUST BE 'R' , 'W' AND/OR 'P'
0113	ENTER INC/EXCL OPTION INCLUDE/EXCLUDE OPTION - 'I' OR 'E' IS REQUIRED
0116	INVALID OPTION LOG INPUT ONLY OPTION MUST BE 'Y' OR 'N'
0150	INVALID LOG OPTIOND VALID LOG OPTIONS ARE T, O, OR M
0151	ENTER TRANID TRANID TO BE INCLUDED/EXCLUDED IS REQUIRED
0152	INVALID TRANID TRANID MUST CONTAIN AT LEAST 1 HARD CHARACTER
0160	INVALID LOG OPTIONS VALID LOG OPTIONS ARE T, O, M, OR A
0161	APPLID REQUIRED APPLID TO BE INCLUDED/EXCLUDED IS REQUIRED
0162	No short form INVALID APPLID SPECIFIED

0163	INVALID INTERRUPT INVALID INTERRUPT OPTION SPECIFIED
0164	OPTION CONFLICT DISC IS INVALID IF APPLID INCLUSION OR EXCLUSION IS SPECIFIED
0165	AUTH NEEDED ONLY THE SECURITY ADMINISTRATOR CAN INCREASE THE INTERRUPT OPTION
0166	SPECIFY APPLID A REAL AND VIRTUAL APPLID ARE REQUIRED
0167	APPLID IN USE THE REAL APPLID YOU HAVE SPECIFIED IS ALREADY IN USE
0168	APPLID NOT DEFINED THE REAL APPLID YOU HAVE SPECIFIED IS NOT DEFINED TO VTAM
0169	PASSWORD REQUIRED THE REAL APPLID YOU HAVE SPECIFIED IS PASSWORD PROTECTED
0170	INVALID APPLID THE APPLID YOU HAVE SPECIFIED CONTAINS INVALID CHARACTERS
0171	INVALID NETNAME THE NETNAME YOU HAVE SPECIFIED CONTAINS INVALID CHARACTERS
0172	APPLID EXCLUDED THIS APPLID HAS BEEN EXCLUDED FROM BEING LOGGED VIA INSTALL OPTION
0173	DUPLICATE APPLIDS REAL AND VIRTUAL APPLIDS CANNOT BE THE SAME
0174	INVALID ACQUIRED TERM LOG INITIATION FROM AN L.A ACQUIRED TERMINAL IS PROHIBITED
0175	No short form LOGON REQUEST REJECTED AT L.A SPECIFIED ACQUIRED TERMINAL: xxxxxxxx
0176	LOG DISALLOWED

LOGGING OF TERMINALS ACTIVE IN AN L.A SESSION IS PROHIBITED

0177 LOG DISALLOWED

ACQUIRED TERMINAL CURRENTLY IN SESSION WITH VERIFY

0178

LOGON TO L.A APPLICATION xxxxxxxx FROM VIRTUAL TERMINAL xxxx DISALLOWED

0179 APPLID NOT AN APPL

REQUESTED APPLID IS DEFINED TO VTAM, BUT NOT AS AN APPL

0190 INVALID OPTION

VALID SELECTION OPTIONS ARE S, B, OR E

0191 INVALID OPTION

PROCESS WITH RULES OPTION MUST BE 'Y' OR 'N'

0200 - 0299

0200 INVALID SELECTION

SELECTION CODE IS INVALID, SEE HELP MENUS FOR VALID CHOICES

0201 INVALID SCROLL AMOUNT

THE SCROLL AMOUNT MUST BE EITHER A NUMBER OR 'MAXIMUM'

0202 FUNCTION NOT ACTIVE

THE FUNCTION TO BE INTERRUPTED OR STOPPED IS NO LONGER ACTIVE

The function to be stopped or interrupted has terminated since the Inquiry menu was last displayed.

0203 FUNCTION NOT LOG

ONLY THE LOG FUNCTION CAN BE STOPPED

0204 FUNCTION NOT RUN

ONLY THE RUN FUNCTION CAN BE INTERRUPTED

0205 INTERRUPT REQUESTED

A TERMINAL READ WILL BE ISSUED AFTER THE NEXT STATUS

	UPDATE
0206	USE XTCA STOP EXIT VERIFY, AND TYPE 'XTCA STOP' TO STOP LOGGING
0207	RESTRICTED FUNCTION YOU MUST BE THE TEST STREAM OWNER OR SECURITY ADMINISTRATOR Only the owner can stop a Log function or reconnect a function.
0208	TASK ACTIVE YOU CAN NOT RECONNECT WHILE A TASK IS ACTIVE FOR THE FUNCTION Reconnect is not possible while there is a task active for the function to be reconnected. Wait for the task to complete or terminate the task using the CICS master terminal facilities. Then use Cleanup to clean up the function.
0209	USE CLEANUP TASK FOR FUNCTION DID NOT END NORMALLY - USE CLEANUP Reconnect was requested for a function whose task did not end normally. Reconnect is not possible, but Cleanup can be used.
0210	TASK ACTIVE YOU CAN NOT CLEANUP WHILE A TASK IS ACTIVE FOR THE FUNCTION Cleanup is not possible while there is a task active for the function to be cleaned up. Wait for the task to complete or terminate the task using the CICS master terminal facilities.
0211	CLEANUP SUCCESSFUL CLEANUP WAS SUCCESSFUL FOR THE ABENDED FUNCTION The storage and test streams in use by the function have been freed.
0212	USE STOP USE AN 'S' TO STOP AN ACTIVE LOG FUNCTION
0213	USE RECONNECT THE FUNCTION CAN BE RECONNECTED INSTEAD OF CLEANED UP
0217	RECONNECT COMPLETE RETURN TO THE PRIMARY OPTIONS MENU AND RESUME THE FUNCTION
0218	SCREEN SIZES DIFFER

SIZES MUST MATCH FOR RECONNECT, USE CLEANUP OR A DIFFERENT TERMINAL

0400 - 0499

- 0415** OPTION CONFLICT
COMPARISON MUST BE 'S' OR 'L' WHEN PROCESSING WITH RULES
- 0416** INVALID PROCESS OPTION
PROCESS WITH RULES MUST BE 'Y', 'N', OR 'S'
- 0418** USE Y OR N
THE USE SELECT VALUE MUST BE 'Y' OR 'N'
- 0420** REQUESTED CANCEL
THE RUN HAS BEEN CANCELLED PER YOUR REQUEST
- 0421** CONTROL BLOCK ERROR
VERIFY CONTROL BLOCKS HAVE BEEN OVERLAID
Contact CA for support.
- 0422** CAPTURE BUFFER FULL
THE DATA CAPTURE BUFFER FILLED UP, DATA HAS BEEN LOST
Buffer allocation is controlled by the BUFFER option in the TCAOPTS Macro. See the "Options" chapter in the *Installation Guide* for information on expanding the size of the buffer.
- 0423** PROGRAM OVERLAY
A STORAGE VIOLATION HAS CORRUPTED VERIFY PROGRAMS
Contact CA for support.
- 0424** CONTROL BLOCKS LOST
CONTROL BLOCKS RELATED TO THIS RUN HAVE BEEN OVERLAID
Contact CA for support.
- 0425** BUFFER OVERLAID
THE DATA CAPTURE BUFFER HAS BEEN OVERLAID
Contact CA for support.
- 0426** INVALID RECORDING OPT
THE HISTORY RECORDING OPTION MUST BE 'Y' OR 'N'
- 0427** NO OUTPUT STREAM

	HISTORY RECORDING REQUIRES AN OUTPUT TEST STREAM
0428	INVALID SIGNOFF OPT THE SIGNOFF DATA OPTION MUST BE 'Y' OR 'N'
0429	NO OUTPUT STREAM SIGNOFF DATA REQUIRES AN OUTPUT TEST STREAM
0430	RECORD HISTORY REQUIRED SIGNOFF DATA REQUIRES HISTORY RECORDING
0431	DEBUG ENABLED SECURITY DEBUGGING HAS BEEN ENABLED
0433	INVALID STOP OPTION INPUT-ONLY TEST STREAMS REQUIRE STOP AT MISMATCH = 'N'
0439	NO PREVIOUS INPUT THERE IS NO PREVIOUS INPUT TO BE DISPLAYED
0440	SELECT OPTION ENTER THE NUMBER OF ONE OF THE LISTED OPTIONS
0441	INVALID OPTION THE OPTION CHOSEN MUST BE ONE OF THOSE LISTED BELOW
0442	END OF TEST STREAM THE CURRENT SCREEN IS THE LAST IN THE TEST STREAM Issued when the Next command would scroll off the end of the test stream. The last screen is displayed.
0443	ROW MUST BE NUMERIC THE ROW NUMBER MUST BE NUMERIC
0444	ROW OUT OF RANGE THE ROW CAN NOT BE ZERO OR GREATER THAN THE NUMBER ON THE SCREEN
0445	COLUMN MUST BE NUMERIC THE COLUMN NUMBER MUST BE NUMERIC
0446	COLUMN OUT OF RANGE THE COLUMN CAN NOT BE ZERO OR GREATER THAN THE NUMBER ON THE SCREEN
0447	LENGTH MUST BE NUMERIC THE LENGTH NUMBER MUST BE NUMERIC
0448	LENGTH OUT OF RANGE

	THE LENGTH CAN NOT BE ZERO OR GREATER THAN THE SCREEN SIZE
0449	ENTER ' Y' OR ' N' THE CURSOR, SIZE, AND WCC FLAGS MUST BE ' Y' OR ' N'
0450	ROW REQUIRED THE STARTING ROW IS REQUIRED TO DEFINE A VARIABLE FIELD
0451	COLUMN REQUIRED THE STARTING COLUMN IS REQUIRED TO DEFINE A VARIABLE FIELD
0452	LENGTH REQUIRED THE LENGTH IS REQUIRED TO DEFINE A VARIABLE FIELD
0456	TERMINAL TOO SMALL THE ORIGINAL SCREEN WILL NOT FIT ON THIS TERMINAL Options 8 and 13 in run mismatch processing display the original screen on your terminal for update. This can not be done if your terminal is smaller than that used to log the screen.
0458	INVALID SCROLL AMOUNT THE SCROLL AMOUNT MUST BE NUMERIC
0460	2ND SCREEN NOT FOUND THE APPLICATION HAS NOT PRODUCED A SECOND OUTPUT SCREEN
0461	ONLY ONE OUTPUT THERE ARE NOT TWO CONSECUTIVE OUTPUT SCREENS, THE NEXT IS AN INPUT Mismatch option 11 deletes the first of two output screens. It is not applicable unless the screen currently being processed is the first of two outputs.
0462	INVALID SCROLL AMOUNT THE SCROLL AMOUNT MUST BE NUMERIC OR 'MAXIMUM'
0463	EDITED TEST STREAM THE SCREEN MAY HAVE BEEN DELETED IN AN EDIT SESSION It is possible to cause an input/output mismatch by deleting an output screen in edit. When an input/output mismatch occurs, this message is displayed if screens were deleted using the Edit function. Similarly, it is possible to cause missing output by deleting an input screen.

- 0464** SECURITY MISMATCH
- xxxxxxx SECURITY PROCESSING WAS INCOMPLETE BECAUSE OF A MISMATCH
- xxxxxxx is either SIGNON or SIGNOFF. A mismatch was encountered in automated security processing. Run the automated security test stream to view the mismatch.
- 0465** SECURITY MISSING
- THE xxxxxxx SECURITY TEST STREAM COULD NOT BE FOUND
- xxxxxxx is either SIGNON or SIGNOFF. The automated security test stream was not on the dataset or file.
- 0466** SECURITY IN USE
- THE xxxxxxx SECURITY TEST STREAM IS IN USE BY ANOTHER USER
- xxxxxxx is either SIGNON or SIGNOFF. The automated security test stream was in use by another user.
- 0467** SECURITY NOT SINGLE
- MAKE THE xxxxxxx SECURITY TEST STREAM A SINGLE TERMINAL TEST STREAM
- xxxxxxx is either SIGNON or SIGNOFF. The automated security test stream is a multiple terminal test stream. Such test streams must be single terminal test streams. (They are run repeatedly to handle multiple terminal test streams).
- 0468** SECURITY ERROR nnnn
- WHILE PROCESSING THE xxxxxxx TEST STREAM, ERROR NUMBER nnnn OCCURRED
- xxxxxxx is either SIGNON or SIGNOFF. nnnn is the error number. See the description of the supplied error number.
- 0471** SPECIFY REPEAT COUNT
- THE REPEAT NUMBER MUST BE NUMERIC
- 0472** REPEAT MUST BE NUMERIC
- THE REPEAT NUMBER MUST BE NUMERIC
- 0473** REPEAT OUT OF RANGE
- THE REPEAT NUMBER CANNOT BE ZERO
- 0474** INVALID ON THIS LINE
- THE REPEAT NUMBER MUST BE UNDER A VALID VARIABLE FIELD
- 0475** INVALID SCROLL AMOUNT
- THE SCROLL AMOUNT MUST BE NUMERIC OR 'MAXIMUM'

0476	FIELDS DROPPED THE MAXIMUM NUMBER OF VARIABLE FIELDS (2000) HAS BEEN EXCEEDED
0477	INVALID STRING THE NON-3270 CHARACTER STRING FOR OPTION 8/13 WAS INVALID
0478	INVALID COMPARISON THE COMPARISON TYPE CANNOT BE LOGICAL FOR NON-3270 DEVICES
0480	RUN HALTED: RULES IN CONFLICT - USE OPTION 1 TO VIEW CONFLICT
0481	No Short Form RUN HALTED AT SCREEN: \$ - RULES IN CONFLICT
0482	INVALID STOP OPTION THE STOP AT MISMATCH OPTION MUST BE 'Y' OR 'N'
0483	SIGNOFF CONFLICT SIGNOFF REQUIRES STOP AT MISMATCH OPTION MUST BE 'Y'
0490	INVALID SCROLL AMOUNT THE SCROLL AMOUNT MUST BE NUMERIC OR 'MAXIMUM'
0491	SIGNOFF REQUIRED SIGNOFF IS REQUIRED PRIOR TO SELECTING AN OPTION
0492	INVALID OPTION OPTIONS 5, 8, AND 9 ARE NOT ALLOWED FOR PRINTERS Mismatch options 5, 8, and 9 all involve manipulation of inputs, which is not appropriate for printers.
0493	RULES NOT USED RULESET PROCESSING NOT IN EFFECT Option 5 only valid when running with Ruleset processing.
0494	DUP OUTPUT RULESET THE OUTPUT RULESET NAME ALREADY EXISTS When running a test stream with rules processing, and creating an output test stream, CA Verify ART for VTAM will create a corresponding output ruleset defining the variables. In the case of this error, the ruleset already exists. Action: Delete or rename the existing output ruleset; or, rename the output test stream name.

0499 No short form
READ BUFFER COULD NOT BE SATISFIED
CA Verify ART for VTAM uses this text to respond to a read buffer request when the original read buffer input is not in the input test stream (it has been added to the application), and READBUF=CURRENT cannot be used because the comparison type is none.

0500 - 0599

0500 INVALID OPTION
THE OPTION MUST BE 'C' , 'R' , 'D' , 'U' , 'A' , 'I' , OR 'M'

0501 DELETE CANCELLED
THE TEST STREAM HAS NOT BEEN DELETED

0502 TEST STREAM DELETED
THE TEST STREAM HAS BEEN DELETED

0503 UPDATE COMPLETE
THE DIRECTORY OF THE TEST STREAM HAS BEEN UPDATED

0504 UPDATE CANCELLED
THE DIRECTORY OF THE TEST STREAM IS UNCHANGED

0505 CANNOT BE DESCENDING
THE START WITH AND STOP AFTER RECORD NUMBERS CAN NOT BE DESCENDING

0506 START CANNOT BE ZERO
THE STARTING RECORD NUMBER MUST BE AT LEAST 1

0507 NON-NUMERIC RECORD
THE START WITH AND STOP AFTER RECORD NUMBERS MUST BE NUMERIC

0509 RENAME COMPLETED
THE TEST STREAM HAS BEEN RENAMED

0510 START POINT TOO HIGH
THE STARTING NUMBER IS GREATER THAN THE TOTAL NUMBER OF RECORDS

0511 NO RECORDS SELECTED
NO OUTPUT TEST STREAM WAS CREATED, NO RECORDS WERE COPIED

The copy utility would have produced an empty output test stream because the limiting terminal was not found in the test stream. No output test stream was created.

0512 NULL TEST STREAM

THE TEST STREAM CONTAINS NO RECORDS, AND SHOULD BE DELETED

The copy and rename utilities can not be used for empty test streams.

0513 COPY COMPLETED

THE TEST STREAM HAS BEEN COPIED

0514 SELECTION INVALID

THE TEST STREAM ONLY HAS ONE TERMINAL, SELECTION IS INVALID

0515 ENTER TYPE

SELECT ONE OF THE UTILITY TYPES

0516 NOT AUTHORIZED

YOU ARE NOT AUTHORIZED TO UPDATE THIS TEST STREAM

0517 INVALID PROTECT STATUS

PROTECTION STATUS MUST BE 'R' , 'W' AND/OR 'P'

0518 TERMINAL NOT FOUND

THE SELECTED TERMINAL IS NOT IN THE TEST STREAM

0520 NULL TEST STREAM

NULL TEST STREAMS CAN NOT BE APPENDED, INSERTED, OR MERGED INTO

0521 No Short Form

n RECORDS APPENDED TO tsn

n is the number of records appended; tsn is the test stream to which they were appended.

0522 NON-NUMERIC RECORD

RECORD NUMBERS MUST BE NUMERIC

0523 CANNOT BE DESCENDING

STOP AFTER RECORD NUMBER CAN NOT BE LESS THAN START WITH NUMBER

0524 NULL TEST STREAM

YOU CAN NOT INSERT OR MERGE FROM A NULL TEST STREAM

0525	SELECT ONLY ONE SELECT ONLY ONE TERMINAL FOR INSERTION
0526	INVALID SCROLL AMOUNT THE SCROLL AMOUNT MUST BE NUMERIC OR 'MAXIMUM'
0527	TERMINAL NOT FOUND THE TERMINAL TO INSERT FROM IS NOT IN THE TEST STREAM
0528	TERMINAL NOT FOUND THE TERMINAL TO INSERT AS IS NOT IN THE TEST STREAM
0529	INSERT CANCELLED THE TEST STREAM IS UNCHANGED
0530	INSERT COMPLETE n RECORDS INSERTED INTO tsn n is the number of records inserted; tsn is the test stream into which they were inserted.
0531	INSERT CANCELLED tsn HAS CHANGED SINCE SPECIFIED FOR INSERTION While processing the inserts, the Insert utility found that one of the test streams to insert from had been altered (using Edit, Run, and so on) since it was specified for insertion. tsn is the name of the test stream which was altered. The insert is cancelled.
0532	OPEN ERROR tsn COULD NOT BE OPENED, ERROR nnnn tsn is the test stream which had the error; nnnn is the error number. When the Insert utility was processing the inserts, test stream tsn could not be opened. See the error message.
0533	NO INSERT RECORDS NO RECORDS WERE FOUND FOR THE TERMINAL IN THE RECORD NUMBER RANGE
0540	ENTER Y OR N ADJUST THINK TIMES MUST BE Y OR N
0541	MERGE CANCELLED THE TEST STREAM IS UNCHANGED
0542	DUPLICATE NAME DUPLICATE OUTPUT TERMINAL FOUND, THEY MUST BE UNIQUE

- 0543** No short form
n RECORDS MERGED INTO tsn
n is the number of records merged; tsn is the test stream into which they were merged.
- 0544** ENTER NAME
TERMINAL NAMES CAN NOT BE BLANK
- 0545** COPY REQUIRED
INPUT TEST STREAM MUST FIRST BE COMVERTED BY DOING A COPY FUNCTION
- 0546** INVALID TERMID
TERMID-BASED TERMINAL NAME CANNOT EXCEED 4 BYTES
- 0547** DELETES COMPLETED
THE TEST STREAM AND CORRESPONDING RULESET HAVE BEEN DELETED
- 0548** No short form
CORRESPONDING RULESET WILL ALSO BE DELETED
- 0549** ENTER Y OR N
THE INCLUDE RULESET OPTION MUST BE Y OR N

0600 - 0699

- 0600** No short form
THE TEST STREAM MEMBER NAME IS REQUIRED
- 0601** No short form
THE NAME IS TOO LONG, THE MAXIMUM IS 8 CHARACTERS
- 0602** No short form
THE DATASET [VSE: FILE] HAS BEEN OPENED
- 0603** No short form
THE COMMAND LIST HAS BEEN RUN, THERE WERE NO UNEQUAL SCREENS
- 0604** No short form
nnnn UNEQUAL SCREENS, RECORD NUMBERS xxxx, xxxx, xxxx, xxxx

This message is issued by the command list processor if there were one or more logically unequal screens in the test stream. nnnn is the total number of unequal records; the xxxx's are the

	record numbers of the first four unequal screens.
0605	No short form THE DATASET [VSE: FILE] HAS BEEN CLOSED
0606	No short form THE DATASET [VSE: FILE] CAN NOT BE CLOSED, IT IS IN USE
0607	No short form THE PARAMETER SPECIFIED IS INVALID FOR 'XTCA RUN'
0608	No short form THE TEST STREAM NAME IS INVALID
0609	No short form THE THINK TIME PARAMETER IS INVALID
0610	No short form THE LIMIT PARAMETER IS INVALID
0611	No short form A TEST STREAM NAME IS REQUIRED
0612	No short form nnnn UNEQUAL SCREENS, OUTPUT TO d.a.m.v For batch run, nnnn is the number of unequal screens, and d.a.m.v. is the output test stream name (ddname.application.member.version) [VSE: filename.application.member.version]. This is the normal completion message from batch run.
0613	No short form MISMATCH LIMIT EXCEEDED, RUN ENDED PRIOR TO COMPLETION For batch run, the number of mismatches specified in the limit parameter was exceeded. The run was ended and mismatches were recorded until the limit was reached.
0614	No short form INVALID PARAMETER. MUST BE 'REAL' , 'VIRTUAL' or 'ORIGINAL'
0615	No short form RUN IS NOW SET FOR xxxx TERMINALS where xxxx is 'REAL' , 'VIRTUAL' or 'ORIGINAL' .
0616	No short form RUN xxxx IS NOT ALLOWED FOR BTAM TERMINALS

0617	No short form nnn UNEQUAL SCREENS, OUTPUT TEST STREAM SUPPRESSED
0618	No short form #SIGNON TEST STREAM MISSING, CONTINUING RUN WITHOUT IT For batch run, issued when the automated signon and signoff processing option, AUTSIGN, is set to WARN for a missing signon test stream.
0619	No short form THE BATSIGN PARAMETER IS INVALID
0638	No short form TERMIDS COMMAND IS ONLY VALID UNDER CICS
0639	No short form TRANLIST COMMAND IS ONLY VALID UNDER CICS
0640	No short form NO TERMID(S) SPECIFIED FOR THE TERMIDS COMMAND
0641	No short form INVALID TERMID SPECIFIED FOR THE TERMIDS COMMAND
0643	No short form NO TRANID SPECIFIED ON TRANLIST COMMAND
0644	No short form INVALID TRANID SPECIFIED ON TRANLIST COMMAND
0650	No short form APPLLIST COMMAND IS ONLY VALID UNDER THE CONTROL TASK
0651	No short form INVALID PARAMETER SPECIFIED FOR THE LOG COMMAND: xxxxxxx
0652	No short form NO APPLID SPECIFIED ON APPLLIST COMMAND
0653	No short form INVALID APPLID SPECIFIED ON APPLLIST COMMAND
0654	No short form BATCH RUN COMMAND IS NOT VALID
0655	No short form

	NO INTERRUPT OPTION SPECIFIED FOR THE INTERRUPT PARAMETER
0656	No short form DESCRIPTION COMMAND IS ONLY VALID UNDER THE CONTROL TASK
0657	No short form NO VIRTUAL APPLID SPECIFIED, UNABLE TO BEGIN LOGGING
0658	No short form NO REAL APPLID SPECIFIED, UNABLE TO BEGIN LOGGING
0659	No short form INVALID INCLUDE/EXCLUDE SPECIFIED FOR THE LOG COMMAND
0660	No short form BATCH LOG COMMAND IS ONLY VALID UNDER THE CONTROL TASK
0661	No short form INVALID INTERRUPT OPTION SPECIFIED FOR THE INTERRUPT PARAMETER
0662	No short form INVALID VIRTUAL TERMINAL SPECIFIED FOR THE TERMINAL COMMAND: xxxxxxxx
0663	No short form TEST STREAM NAME MISSING FROM LOG COMMAND
0664	No short form INVALID PROTECTION SPECIFIED FOR THE LOG COMMAND
0665	No short form NO DESCRIPTION SPECIFIED FOR THE DESCRIPTION COMMAND
0666	No short form INVALID APPLID SPECIFIED FOR THE LOG COMMAND
0667	No short form INVALID LOG INONLY/NOINONLY PARAMETER SPECIFIED
0668	No short form AMBIGUOUS PARAMETER SPECIFIED xxxxxxxx
0669	No short form INVALID TEST STREAM NAME SPECIFIED

0670	No short form INVALID RUN PARAMETER SPECIFIED FOR THE RUN COMMAND: xxxxxxx
0671	No short form INVALID THINK TIME SPECIFIED FOR THE RUN COMMAND
0672	No short form INVALID LIMIT SPECIFIED FOR THE RUN COMMAND
0673	No short form TEST STREAM NAME MISSING FROM RUN COMMAND
0674	No short form RUN FAILED DUE TO INITIALIZATION ERROR
0680	No short form NO TERMINALS SPECIFIED FOR THE TERMINALS COMMAND
0681	No short form INVALID TERMINAL SPECIFIED FOR THE TERMINALS COMMAND: XXXX xxxx is the invalid terminal.
0682	No short form A BATCH COMMAND WAS PROCESSED BUT UNUSED A TERMINALS command was specified, but end-of-file occurred before the COPY or PRINT command was processed.

0700 - 0799

0700	NULL TEST STREAM THE TEST STREAM CAN NOT BE BROWSED, IT CONTAINS NO SCREENS
0701	INVALID SCROLL AMOUNT THE SCROLL AMOUNT IN THE COMMAND AREA IS INVALID
0702	END OF SCREENS THIS IS THE LAST SCREEN IN THE TEST STREAM
0703	INVALID OPTION THE VIEWING OPTION SELECTED IS INVALID The viewing option was not YES, NO, or ONLY.
0704	TEST STREAM SAVED

	THE TEST STREAM HAS BEEN SAVED
0705	ID VALUE NOT FOUND THE SCREEN ID VALUE COULD NOT BE FOUND
0706	VALUE FOUND THIS SCREEN CONTAINS YOUR SCREEN ID/SCAN VALUES
0707	RECORD NOT AVAILABLE THE RECORD HAS BEEN DELETED OR EXCLUDED FROM THE TEST STREAM This message is displayed when you type a record number in the command area, and the record was excluded (by terminal for multiple terminal test streams, or through specification of ONLY for viewing options). The next available screen is displayed.
0708	nnnn RECORD(S) DELETED nnnn RECORD(S) HAVE BEEN DELETED FROM THE TEST STREAM
0709	DATA REPLACED nnnn OCCURRENCE(S) CHANGED IN nnnn SCREEN(S) This message is displayed following the Change command.
0710	OPTION UNAVAILABLE THE OPTION CANNOT BE SELECTED, THE DATA WAS NOT RECORDED DURING RUN
0711	SCAN VALUE NOT FOUND THE SCAN VALUE COULD NOT BE FOUND
0712	NO AUTO DATA TEST STREAM DOES NOT CONTAIN ANY AUTOMATED MISMATCH PROCESSING DATA
0713	COMPARISON ERROR MULTIPLE SETS OF AUTOMATED VARIABLE FIELDS APPLY — NONE WERE USED
0714	ORIGINAL USED NEXT ORIGINAL SCREEN WILL BE USED IN THE NEXT RUN OR EDIT Because mismatch option 6 was selected in the last run, the original screen will be used in the next run or edit.
0715	OPTION CONFLICT DIFFERENCE IS A REQUIRED FIELD BUT WAS NOT ENTERED
0730	INVALID SELECT CODE

	VALID VALUES ARE S, UNDERSCORE, AND BLANK
0731	TOO MANY FIELDS THE FIELDS YOU HAVE SELECTED WILL NOT FIT ON YOUR DISPLAY
0732	SELECT 1 FIELD AT LEAST ONE FIELD MUST BE SELECTED FOR DISPLAY
0769	NON-NUMERIC LEN THE LENGTH MUST BE NUMERIC
0770	INVALID SCREEN ID ROW ID ROW MUST BE NUMERIC, NON-ZERO, LESS THAN SCREEN SIZE
0771	INVALID SCREEN ID COL ID COLUMN MUST BE NUMERIC, NON-ZERO, LESS THAN SCREEN SIZE
0772	ID VALUE REQUIRED THE SCREEN ID VALUE IS REQUIRED, IT CAN NOT BE LEFT BLANK
0773	INVALID SCAN ROW SCAN ROW MUST BE NUMERIC, NON-ZERO, LESS THAN SCREEN SIZE, OR BLANK
0774	INVALID SCAN COL SCAN COL MUST BE NUMERIC, NON-ZERO, LESS THAN SCREEN SIZE, OR BLANK
0775	SCAN VALUE REQUIRED THE SCAN VALUE IS REQUIRED, IT CAN NOT BE LEFT BLANK
0776	INVALID START RECORD THE START RECORD MUST BE NUMERIC AND NON-ZERO
0777	RECORDS DESCENDING THE START RECORD MUST NOT BE LARGER THAN THE STOP RECORD
0778	INVALID STOP RECORD THE STOP RECORD MUST BE NUMERIC AND NON-ZERO
0779	DATA STREAM TOO LARGE CHANGE SUPPRESSED - THE DATA STREAM WOULD HAVE EXCEEDED 65535 BYTES CA Verify ART for VTAM limits terminal input and output area

lengths to 65535. The total length of this data stream would have exceeded that limit if the change had been made. The change command is halted.

0780 REPLACE VALUE REQUIRED

THE REPLACE VALUE IS REQUIRED, IT CAN NOT BE LEFT BLANK

0781 SAVE REQUIRED

MAXIMUM EDIT WORK SPACE EXHAUSTED, SAVE OR CANCEL

The EDITCOR installation option controls the maximum edit work space for each edit session. Save and continue editing or cancel the edit session.

0783 INVALID HEX STRING

HEX STRING MUST CONTAIN EVEN NUMBER OF DIGITS AND BE NON-EMPTY

A hexadecimal string with an odd number of digits or with no digits was typed. A hex string cannot be empty because a null character is represented by X'00'. A hex string cannot have an odd number of digits because every character must be represented by two hex digits.

0784 MISSING CLOSING QUOTE

HEX STRING MUST BE TERMINATED BY A QUOTATION MARK

0800 - 0899

0800 INVALID SELECT CODE

THE SELECTION CODE MUST BE 'I' , 'S' , '_' , OR BLANK

0801 INVALID SCROLL AMOUNT

THE SCROLL AMOUNT MUST BE NUMERIC OR 'MAXIMUM'

0802 LAST TERMINAL

YOU CANNOT DELETE THE LAST OR ONLY TERMINAL IN A TEST STREAM

Use the Utilities to delete an entire test stream.

0803 SELECT ONE TERMINAL

YOU MUST SELECT AT LEAST ONE TERMINAL OR CANCEL

For Browse, Edit, and Run, at least one terminal must be selected. Type 'S' to select one of the terminals.

0804 SELECT A TERMINAL

YOU MUST SELECT A TERMINAL TO INSERT xxxx OR CANCEL

- xxxx is TO or FROM.
- 0805** DUPLICATE TERMINAL
NEW TERMINAL ALREADY EXISTS IN THE TEST STREAM —
CHOOSE ANOTHER
- When renaming a terminal in Edit, the new terminal cannot be a duplicate of one of the other terminals in the test stream.
- 0806** INVALID TERMINAL NAME
TERMINAL NAME CONTAINS INVALID CHARACTERS
- 0807** ENTER TERMINAL NAME
TERMINAL NAME CANNOT BE BLANK
- 0808** INVALID TERMID
TERMID-BASED TERMINAL NAMES CANNOT EXCEED FOUR
CHARACTERS

1000 - 1099

- 1000** IDENTIFY SCREEN
IDENTIFY THE SCREEN ON THIS MENU BEFORE DEFINING
VARIABLE FIELDS
- 1001** NAME REQUIRED
USE THE CANCEL COMMAND TO EXIT WITHOUT DEFINING AUTO
INFORMATION
- Issued when the End key or command is typed while the name is blank. If you wish to exit automated mismatch processing, use the Cancel command. Otherwise, type the screen name, description, and identifiers.
- 1002** DESC REQUIRED
A DESCRIPTION IS REQUIRED
- 1003** ID INVALID
DO NOT SPECIFY SCREEN IDENTIFIERS FOR GLOBAL AUTO
PROCESSING
- 1004** xxx REQUIRED
THE xxx IS REQUIRED FOR THE FIRST SCREEN IDENTIFIER
xxx is either ROW, COLUMN, RELATION, or VALUE. All four
parameters must be specified.
- 1005** Nth ROW INVALID
THE Nth ROW MUST BE NUMERIC, NON-ZERO, NOT GREATER

	THAN THE SCREEN SIZE
	Nth is 'FIRST' , 'SECOND' , or 'THIRD' .
1006	Nth COLUMN INVALID
	THE Nth COLUMN MUST BE NUMERIC, NON-ZERO, NOT GREATER THAN SCREEN SIZE
	Nth is 'FIRST' , 'SECOND' , or 'THIRD' .
1007	Nth RELATION INVALID
	THE Nth RELATION MUST BE 'EQ' , 'NE' , 'GT' , 'LT' , 'GE' , OR 'LE'
	Nth is 'FIRST' , 'SECOND' , or 'THIRD' .
1008	Nth CONNECTOR INVALID
	THE Nth CONNECTOR MUST BE 'AND' OR 'OR'
	Nth is 'FIRST' or 'SECOND' .
1009	CONNECTOR REQUIRED
	ENTER 'AND'OR 'OR' TO CONNECT THE SCREEN IDENTIFIERS
1010	ID INCOMPLETE
	THE ROW, COLUMN, RELATION, AND VALUE MUST ALL BE SPECIFIED
1011	INVALID ID
	THE IDENTIFICATION CRITERIA SUPPLIED DO NOT APPLY TO THE CURRENT SCREEN
1012	SELECT OPTION 5
	SELECT OPTION 5 TO DEFINE VARIABLE FIELDS TO BE USED WITH THIS SCREEN
1013	INVALID NAME
	NAME NOT COMPOSED OF LETTERS, NUMBERS, & NATIONAL CHARACTERS
1014	ERROR CORRECTED
	THE ERROR HAS BEEN CORRECTED, PRESS THE END KEY TO CONTINUE
1015	INVALID DELETE CODE
	ENTER A 'D' TO DELETE
1090	INVALID SELECT CODE
	THE SELECTION CODE MUST BE 'I' , 'S' , ' _ ' , OR BLANK
1091	INVALID SCROLL AMOUNT
	THE SCROLL AMOUNT MUST BE NUMERIC OR 'MAXIMUM'

1092 GLOBAL UNDEFINED
NO GLOBAL VARIABLE FIELDS HAVE BEEN DEFINED FOR THIS
TEST STREAM

2000 - 2099

2000 MENU INPUT ERROR
THE TERMINAL INPUT CONTAINED UNEXPECTED DATA
This message may appear if an I/O error occurs at your terminal
or if you turn your terminal off and on. The menu is redisplayed.

2001 INVALID COMMAND
THE COMMAND ENTERED IS NOT VALID ON THIS MENU

2002 DUMP COMPLETE
THE REQUESTED DUMP REQUIREMENTS HAVE BEEN
COMPLETED

2003 HELP NOT AVAILABLE
THE HELP PROGRAM IS NOT AVAILABLE OR IS DISABLED
Program XTCAHELP is not in the PPT or is disabled.

2004 INVALID TOPIC NUMBER
THE TOPIC NUMBER IS NOT IN THE LIST BELOW

2005 INVALID COMMAND
THE COMMAND ENTERED IS NOT A VERIFY COMMAND

2006 DUMP SUPPRESSED
TCASNAP ALLOCATION REQUIRED FOR DUMP

2007 INVALID KEY
AN INVALID FUNCTION KEY WAS ENTERED FOR THIS FUNCTION

2040 INVALID COMMAND
SUSPEND IS NOT VALID UNDER TSO
The Suspend command cannot be used under TSO.

2041 SUSPEND OUTSTANDING
THERE IS ALREADY A SUSPENDED FUNCTION FOR THIS
TERMINAL
Only one suspended function is allowed per terminal at any time.
You must resume and complete the currently suspended function
before suspending another function.

2042	TASK START FAILED THE SUSPEND TRANSFER TASK DID NOT START SUCCESSFULLY CICS was unable to successfully attach a new task to complete the suspend request. Check the dump data set and contact CA for support.
2043	UNABLE TO RESUME THE SUSPENDED TASK NO LONGER EXISTS The function you are trying to resume no longer exists on CICS's suspend chain. Check the dump data set and contact CA for support.
2044	NOTHING SUSPENDED THERE IS NO SUSPENDED FUNCTION FOR THIS TERMINAL This message is issued in response to a Resume command. A suspended function for a specific terminal is indicated on the Primary Options menu of that terminal. The Inquiry menu will indicate all suspended CA Verify ART for VTAM functions and their owning terminals.
2045	SUSPEND FAILED INTERNAL ERROR — SUSPEND LOCK NOT AVAILABLE — TRY LATER If the message persists, contact CA for support.
2050	xxxxxxx EXPRESSION EVALUATED TO THE ADDRESS (xxxxxxx)
2051	xxxxxxx STORED THE RESULT (xxxxxxx) WAS STORED FOR LATER USE
2052	xxxxxxx / xxxxxx ADDRESS WAS RESOLVED TO CSECT (xxxxxxx) / OFFSET (xxxxxxx)
2053	ADDRESS OUT OF RANGE EVALUATION OF EXPRESSION RESULTED IN INVALID ADDRESS
2054	SYNTAX ERROR ARGUMENT OR OPERATOR IS INVALID
2060	'ON' OR 'OFF' THE PARAMETER FOR THE CAPS COMMAND MUST BE 'ON' OR 'OFF'
2061	CAPS ARE xxx

- CURRENT CAPS SETTING IS 'CAPS xxx'
xxx is the caps setting: 'ON' or 'OFF' .
- 2062** FUNCTIONS ACTIVE
ONLY THE SECURITY ADMINISTRATOR CAN SHUTDOWN WITH ACTIVE FUNCTIONS
- 2063** SHUTDOWN ACCEPTED
SHUTDOWN INVOKED BY xxxxxxxx FROM xxxxxxxx
- 2064** xxxxxxxx
xxxxxxx xxxxxxxx
- 2065** ZAP COMPLETE
THE DATA HAS BEEN ALTERED
- 2066** INVALID ZAP DATA
AN EVEN NUMBER OF HEX DIGITS (0-F) MUST BE SPECIFIED
- 2067** DSFREE NOT VALID HERE
THE DSFREE COMMAND IS NOT VALID ON THIS MENU
You issued DSFREE from one of the few menus where it is invalid.
Use the SUSPEND command to exit the menu and reissue DSFREE from the Primary Options Menu.
- 2068** INVALID PARAMETER
THE DSFREE PARAMETER MUST BE A DDNAME OR A NUMBER LESS THAN 10,000
- 2069** n IN dddddddd
THERE ARE n FREE CONTROL INTERVALS IN THE dddddddd DATASET
In response to a DSFREE command, 'n' is the number of free control intervals in the data set (DDname: dddddddd). All control intervals in the data set were searched.
You can determine the average number of screens per control interval by running a batch directory and dividing the total number of screens by the number of control intervals in use.
- 2070** OVER n FREE
THERE ARE AT LEAST n FREE CONTROL INTERVALS IN THE dddddddd DATASET
In response to a DSFREE command, 'n' is the number of free control intervals found in the data set (DDname: dddddddd) when the maximum number of control intervals to be searched was reached. The maximum is either the DSFREE default number

	or the number typed as a parameter to the DSFREE command.
2071	EXT TRACE ENABLED EXTERNAL TRACE FACILITY STARTED SUCCESSFULLY
2072	EXT TRACE ALREADY ON EXTERNAL TRACE FACILITY IS ALREADY ACTIVE
2073	TRACE COMMAND ERROR SYNTAX ERROR OR INVALID DESTINATION SPECIFIED
2074	EXT TRACE DISABLED EXTERNAL TRACE FACILITY TURNED OFF
2075	DEST LRECL TO SHORT LRECL OF TRACE DESTINATION MUST BE > OR = 80
2076	TRACE NOT ACTIVE TRACE NOT ACTIVE WHEN TRACE OFF COMMAND ENTERED
2077	TRACE FILE OPEN ERR THE VERIFY EXTERNAL TRACE FILE COULD NOT BE OPENED
2078	TRACE FILE OVERFLOW EXTERNAL TRACE FILE IS FULL, TRACING STOPPED
2079	TRACE FILE CLOSED EXTERNAL TRACE FILE CLOSED PER REQUEST

2200 - 2299

2200	DDNAME [VSE: FILENAME] REQUIRED ENTER THE DDNAME [VSE: FILENAME] OF THE DATA SET [VSE: FILE] TO BE USED
2201	INVALID SELECT CODE THE SELECT CODE MUST BE AN 'S'
2202	TOP OF LIST THERE ARE NO DIRECTORY ENTRIES BEFORE (ABOVE) THE FIRST ON THE MENU
2204	INVALID SCROLL AMOUNT THE SCROLL AMOUNT IN THE COMMAND AREA IS INVALID
2205	C, R, D, U, A, I, OR M THE SELECT CODE MUST BE 'C' , 'R' , 'D' , 'U' , 'A' , 'I', OR 'M'

2206 INVALID SELECT CODE
SELECT CODE MUST BE 'S' OR FIRST CHARACTER OF THE
UTILITY FUNCTION

2300 - 2399

2300 INVALID DDNAME [VSE: FILENAME] CHARS
DDNAME [VSE: FILENAME] NOT COMPOSED OF LETTERS,
NUMBERS, & NATIONAL CHARACTERS

2301 INVALID APPLICATION
APPLICATION NOT COMPOSED OF LETTERS, NUMBERS, &
NATIONAL CHARACTERS

2302 INVALID MEMBER CHARS
MEMBER NOT COMPOSED OF LETTERS, NUMBERS, &
NATIONAL CHARACTERS

2303 VERSION NOT NUMERIC
VERSION MUST BE NUMERIC AND NON-ZERO

2304 INVALID DDNAME [VSE: FILENAME]
FIRST CHARACTER OF DDNAME [VSE: FILENAME] CAN NOT
BE NUMERIC

2305 INVALID APPLICATION
FIRST CHARACTER OF APPLICATION CAN NOT BE NUMERIC

2306 INVALID MEMBER
FIRST CHARACTER OF MEMBER CAN NOT BE NUMERIC

2307 DDNAME [VSE: FILENAME] REQUIRED
DDNAME [VSE: FILENAME] IS REQUIRED, AND CAN NOT BE
OMITTED

2308 APPLICATION REQUIRED
APPLICATION IS REQUIRED, AND CAN NOT BE OMITTED

2309 MEMBER REQUIRED
MEMBER IS REQUIRED, AND CAN NOT BE OMITTED

2310 VERSION REQUIRED
VERSION IS REQUIRED, AND CAN NOT BE OMITTED

2311 INVALID TERMINAL NAME
GENERIC SELECTION VALID ONLY FOR LOG MULTIPLE

2500 - 2599

2500	MAX FILES EXCEEDED THE MAXIMUM NUMBER (128) OF VERIFY DATASETS [VSE: FILES] ARE ALREADY OPEN
2501	DDNAME [VSE: FILENAME] NOT FOUND THE DDNAME [VSE: FILENAME] IS NOT ALLOCATED
2502	INVALID DATASET [VSE: FILE] THE DATASET [VSE: FILE] IS A NON-VSAM DATASET [VSE: FILE]
2503	INVALID DISP THE DATASET [VSE: FILE] IS ALLOCATED WITH DISP=NEW OR MOD, MUST BE OLD OR SHR
2504	NOT VERIFY DATASET [VSE: FILE] THE DATASET [VSE: FILE] WAS NOT INITIALIZED BY VERIFY
2505	FILE TOO NEW THE DATASET [VSE: FILE] WAS INITIALIZED BY A NEWER VERSION OF VERIFY
2506	VSAM mmmm ERROR VSAM ERROR ON mmmm FUNCTION, RETURN CODE nnnn, REASON CODE nnnn An unexpected error was received from VSAM. The return and reason codes are documented in the <i>VSAM Programmer's Reference</i> guide. mmmm is the macro, suffixed with A if the ACB was being processed, or R if the RPL was being processed. Contact CA for support. The possible values of mmmm and source of the reason code are shown next. SHOWCB-A Register 0 SHOWCB-R Register 0 GENCB-A Register 0 GENCB-R Register 0 MODCB-A Register 0 MODCB-R Register 0 GET RPL feedback field PUT RPL feedback field

	ENDREQ	RPL feedback field
	OPEN	ACB error field
	CLOSE	ACB error field
	CLOSE-T	ACB error field
2507	MAIN STORAGE SHORTAGE	
	VSAM REQUIRED MORE MAIN STORAGE THAN WAS AVAILABLE	
	Increase the value specified for the MVS OSCOR parameter in the CICS system initialization table or VSE partition GETVIS area parameter in the CICS JCL.	
2509	No short form	
	THE VERIFY DATASET [VSE: FILE] IS FULL - THE FUNCTION WAS NOT COMPLETED	
	Issued when a CA Verify MVS data set or VSE file is full, and no secondary allocation is possible. Will also occur if the data set or file is defined with SHAREOPTIONS=4.	
2510	RPL USAGE ERROR	
	VSAM INDICATED THAT THE VERIFY RPL IS IN USE BY ANOTHER USER	
	Contact CA for support.	
2511	NO TEST STREAMS	
	THE DATASET [VSE: FILE] DOES NOT CONTAIN ANY TEST STREAMS	
2512	DATASET [VSE: FILE] NOT FORMATTED	
	THE DATASET [VSE: FILE] MUST BE INITIALIZED PRIOR TO USE	
	Use the batch Init function to initialize the MVS data set or VSE file.	
2513	DATASET [VSE: FILE] NOT NEW	
	THE DATASET [VSE: FILE] HAS BEEN PREVIOUSLY INITIALIZED	
2514	INSUFFICIENT STRINGS	
	MORE CONCURRENT DATASET [VSE: FILE] OPERATIONS ARE REQUIRED THAN SUPPORTED	

	See the installation option STRNO for information on increasing the number of concurrent operations.
2515	DATASET [VSE: FILE] LOGIC ERROR THE DATASET [VSE: FILE] DIRECTORY CONTAINS INVALID OR UNEXPECTED DATA Contact CA for support.
2516	BAD LRECL THE DATASET RECORDSIZE IS INVALID, IT MUST BE CFSIZE-7
2530	TEST STREAM IN USE ANOTHER USER IS USING THIS TEST STREAM
2531	STREAM BEING UPDATED ANOTHER USER HAS THIS TEST STREAM IN UPDATE MODE
2532	DUPLICATE NAME THE SPECIFIED TEST STREAM IS ALREADY IN THE DATASET [VSE: FILE]
2533	TEST STREAM NOT FOUND THE SPECIFIED TEST STREAM IS NOT IN THE DATASET [VSE:FILE]
2534	DATASET [VSE: FILE] LOGIC ERROR THE TEST STREAM CONTAINS INVALID OR UNEXPECTED DATA Contact CA for support.
2535	UNSUPPORTED STREAM THE TEST STREAM WAS CREATED BY A NEWER VERSION OF VERIFY
2536	NOT AUTHORIZED UNAUTHORIZED xxxx ATTEMPT xxxx is either READ, WRITE, or PRINT

2538	UNSUPPORTED STREAM PLEASE COPY THIS TEST STREAM TO CONVERT FROM VERSION 1 FORMAT Version 1 test streams are in a different format from test streams from later versions of CA Verify ART for VTAM. The Copy utility will reformat the test stream.
2539	DATASET [VSE: FILE] INDEX ERROR DATASET [VSE: FILE] INDEX IS OUT OF SYNC - RUN BATCH REBUILD An update to the data set index was lost (probably due to system termination during an update). Run the TCABATCH 'rebuild' process.
2540	DATASET [VSE: FILE] INDEX LOGIC ERROR DATASET [VSE: FILE] INDEX RECORD DOES NOT CONTAIN EXPECTED DATA Contact CA for support.
2541	NO RULESETS THE DATASET [VSE: FILE] DOES NOT CONTAIN ANY RULESETS
2550	RULESET IN USE ANOTHER USER IS USING THIS RULESET
2551	RULESET BEING UPDATED ANOTHER USER HAS THIS RULESET IN UPDATE MODE
2552	DUPLICATE NAME THE SPECIFIED RULESET IS ALREADY IN THE DATASET [VSE: FILE]
2553	RULESET NOT FOUND THE SPECIFIED RULESET IS NOT IN THE DATASET [VSE: FILE]
2554	DATASET [VSE: FILE] LOGIC ERROR THE RULESET CONTAINS INVALID OR UNEXPECTED DATA

- 2555** UNSUPPORTED RULESET
- THE RULESET WAS CREATED BY A NEWER VERSION OF
VERIFY
- 2556** ADD SUCCESSFUL
- THE RULESET WAS SUCCESSFULLY ADDED
- 2557** UPDATE SUCCESSFUL
- THE RULESET WAS SUCCESSFULLY UPDATED
- 2558** UPDATE CONFLICT
- RULESET HAS BEEN UPDATED BY ANOTHER USER - PRESS
PF9 TO REFRESH

2700 - 2799

- 2700** TCP EXIT ABENDED
- THE TERMINAL CONTROL DATA CAPTURE EXIT HAS ABENDED
- Print the dump and contact CA for support
- 2701** UNEXPECTED UEM ERROR
- THE USER EXIT MANAGER HAS RETURNED AN UNEXPECTED
ERROR CODE
- Contact CA for support.
- 2702** EXITS NOT ENABLED
- THE USER EXIT FACILITY IS NOT AVAILABLE
- Specify EXITS=YES in CICS initialization.
- 2703** BUFFER SHORTAGE
- THE DATA CAPTURE BUFFER IS GREATER THAN 75% FULL — TRY
LATER
- To prevent possible data loss, CA Verify ART for VTAM will not
start additional logging if the data capture buffer is nearly full.
Retry it later.
- 2704** INTERNAL ERROR - SESS
- DATA CAPTURE INITIALIZATION MODULE RECEIVED
UNEXPECTED INPUT
- Contact CA for support.

- 2705** TASK START FAILED
THE INDEPENDENT LOG TASK DID NOT SUCCESSFULLY START
The non-terminal oriented task used to handle the Log function does not appear to have started. Try again, making sure that CA InterTest is not monitoring CA Verify ART for VTAM either explicitly or by default. Print the dump data set to determine if the task abended. If the problem persists, contact CA for support.
- 2706** INTERNAL ERROR - ACT
THE USER EXIT ACTIVATE FUNCTION RECEIVED AN UNEXPECTED ERROR
Contact CA for support.
- 2707** INTERNAL ERROR - BUFF
MULTIPLE TASKS ARE ATTEMPTING TO CAPTURE THE SAME DATA
Contact CA for support.
- 2708** UNEXPECTED DATA FOUND
THE LENGTH OF SOME SCREENS WAS NOT THE SAME AS EXPECTED
Contact CA for support.
- 2710** AUTHORIZATION FAILED
LOG AND RUN CAN NOT USE THE SAME TERMINAL
When DRKPROT=YES has been specified in the options module, only the authorized security administrator may log a virtual terminal which is being used by the Run function.

2800 - 2899

- 2800** TGET INPUT ERROR
TERMINAL READ RETURNED AN INVALID RETURN CODE
Issued when a terminal I/O error occurs when using CA Verify ART for VTAM under TSO. Contact CA for support.
- 2801** LOAD FAILED: xxxxxxxx
PROGRAM (LOAD MODULE [VSE: PHASE]) xxxxxxxx IS NOT AVAILABLE OR IS DISABLED
xxxxxxx is the name of the CA Verify ART for VTAM program which was unavailable.

2802	GETMAIN FAILED INSUFFICIENT VIRTUAL STORAGE AVAILABLE TO SATISFY REQUEST
2803	TERM NOT FOUND: xxxx TERMINAL xxxx IS NOT CURRENTLY DEFINED TO THE SYSTEM xxxx is the name of the terminal which was requested for logging, but which is not in the system.
2804	XLATE NOT FOUND NO TCAXLATE SPECIFICATION WAS FOUND NAMED xxxxxxxx OR GLOBAL
2805	NO MATCHING MASK NO TCAXLATE MASK SPECIFICATION MATCHED YOUR REAL TERMINAL
2806	NO MATCHING REPL NO SUITABLE VIRTUAL TERMINAL FOUND TO MATCH TCAXLATE REPL
2807	NETNAME BUSY REPLACEMENT NETNAME WAS FOUND BUT IT WAS BUSY
2808	No short form ABEND xxxxxxxx xxxxxxxx OCCURRED IN VERIFY CONTROL TASK, DUMP WILL BE TAKEN
2809	No short form VERIFY DUMP SUPPRESSED - NO TCASNAP DDCARD
2810	NETNAME NOT FOUND ASSIGNED NETNAME xxxxxxxx COULD NOT BE FOUND
2811	LOAD FAILED: xxxxxxxx PROGRAM (LOAD MODULE) xxxxxxxx IS LINKED RMODE(31)
2812	VLIST MISSING

NO TCALIST WAS FOUND IN THE OPTIONS MODULE FOR VLIST

2813 NETNAME BUSY

ASSIGNED NETNAME xxxxxxxx FOUND BUT IT WAS BUSY

2814 No short form.

TCABATCH CANNOT BE RUN RMODE (31), WITHOUT DFP 2.3 OR HIGHER. USE RMODE (24) STEBLIB

The SMP install process creates two load libraries. You must use the RMODE (24) when executing program TCABATCH.

3000 - 3099

3000 TERMINAL RESTRICTED

DATA CAPTURE FROM TERMINAL xxxx IS RESTRICTED

xxxx is the terminal requested for logging. The authorization exit has disallowed access to the terminal.

3001 SCREENS DROPPED

ONE OR MORE SCREENS WERE DROPPED DUE TO LACK OF AUTHORIZATION

3002 AUTHORIZATION FAILED

THE SELECTED TEST STREAM IS RESTRICTED, AND CAN NOT BE OPENED

3003 AUTHORIZATION FAILED

THE AUTHORIZATION EXIT PROGRAM IS DISABLED OR MISSING

All CA Verify ART for VTAM functions are disallowed if the authorization exit cannot be found. Contact CA for support.

3004 RUN CANCELLED

RUN CANCELLED BY USER IN USER EXIT

3005 TERMINAL(S) REJECTED

TERMINAL(S) REJECTED FROM LOGGING AS PER USER EXIT

3006 UNAUTHORIZED ACCESS

YOU ARE NOT AUTHORIZED FOR THIS FUNCTION

3007 SIGNON FAILED

THE SIGNON WAS NOT VALID

3008 No short form

ERROR DETECTED WHILE PROCESSING SIGNOFF EVENT FOR
TERMINAAL xxxxxxxx

3009 No short form

PASSWORD HAS EXPIRED

3010 No short form

PASSWORD IS INVALID

3011 No short form

SECURITY ERROR FOR USER: xxxxxxxx

3100 - 3199

3100 No short form

VERIFY INITIALIZATION IN PROGRESS

3101 No short form

VERIFY INITIALIZATION COMPLETE

3102 No short form

VERIFY INITIALIZATION ERROR

3103 No short form

VERIFY BATCH FUNCTIONS COMPLETE, HIGHEST RETURN CODES
WAS nn

3104 No short form

VERIFY TERMINATION IN PROGRESS

3105 No short form

VERIFY ACB OPEN FAILURE - APPLID xxxxxxxx IN USE

3106 No short form

VERIFY ACB OPEN FAILURE - ALL BATCH RUN APPLIDS IN USE

3107	No short form VERIFY ACB OPEN FAILURE - NO BATCH RUN APPLIDS DEFINED
3108	No short form UNKNOWN VERIFY COMMAND ENTERED, ONLY SUPPORTED COMMAND IS SHUTDOWN
3109	No short form VERIFY SHUTDOWN COMMAND ACCEPTED
3110	No short form FUNCTION TERMINATED DUE TO ABEND, PRESS ENTER TO EXIT
3111	No short form VERIFY TERMINATING DUE TO RECEIVE ANY ERROR
3112	No short form USS TABLE xxxxxxxx COULD NOT BE LOADED
3199	No short form VERIFY TERMINATION COMPLETE

3200 - 3299

3200	INVALID SCROLL AMOUNT THE SCROLL AMOUNT IN THE COMMAND AREA IS INVALID
3202	NOT A 3270 DISPLAY FORMAT IS INVALID FOR NON-3270 DEVICES Issued if you try to use the Display format for a screen which was not logged on a 3270 device.
3203	LENGTHS INVALID THE TOTAL LENGTHS OF ALL FIELDS IS 0 OR EXCEEDS 65535 The maximum terminal input or output area length supported by CA Verify ART for VTAM is 65535. The total length of this data stream is zero or exceeds that limit or the total length of the data exceeds the work area required to make the changes (65520). Reduce some of the lengths.
3204	INVALID LENGTH THE LENGTH MUST BE NUMERIC
3205	INVALID FORMAT PARAMETER SPECIFIED IS NOT A VALID FORMAT

The Format requested is not a valid CA Verify ART for VTAM format. Valid formats are 'FIELD' , 'DISPLAY' , and 'HEX' .

3206 COMMAND IGNORED

CURRENT FORMAT IS THE ONLY ONE ENABLED, CANNOT BE DISABLED

3207 INVALID HEX DIGIT

VALID HEX DIGITS ARE (0123456789ABCDEF)

One or more characters in the string do not represent valid hexadecimal digits. The cursor is positioned at the first invalid digit.

3300 - 3399

3300 No short form

parameter IS NOT A VALID FUNCTION

Parameter is the text which CA Verify ART for VTAM could not interpret.

3301 No short form

parameter IS NOT A VALID PARAMETER

Parameter is the text which CA Verify ART for VTAM could not interpret.

3302 No short form

parameter IS AN AMBIGUOUS PARAMETER

Parameter is the text which CA Verify ART for VTAM could not interpret. You have abbreviated the parameter too much.

3303 No short form

TOO MANY CHARACTERS ARE SPECIFIED FOR THE CURSOR PARAMETER

Only two cursor overprint characters are supported.

3304 No short form

THE RIGHT PARENTHESIS IS REQUIRED ON THE CURSOR PARAMETER

3308 No short form

PARM=CONTROL IGNORED. XTCAVTAM NOT FOUND.

PARM=CONTROL is not valid on the EXEC card.

3309 No short form

EXEC CARD PARM FIELD INVALID — SHOULD BE LINECNT=NN
AND/OR CONTROL

Only the LINECNT PARM is valid on the EXEC card.

3310 No short form

SELECT CARD IGNORED, DOES NOT FOLLOW A COPY, PRINT, OR
DELETE CARD

3311 No short form

END OF FILE OCCURRED ON FIRST READ OF SYSIN [VSE:
SYSIPT]

The control card file was empty.

3312 No short form

tsn IS INCOMPLETE, SHOULD BE
APPLICATION.MEMBER.VERSION

tsn is the test stream name which CA Verify ART for VTAM could
not interpret.

3313 No short form

tsn APPLICATION IS TOO LONG, MAXIMUM IS EIGHT
CHARACTERS

tsn is the test stream name which CA Verify ART for VTAM could
not interpret.

3314 No short form

tsn MEMBER IS TOO LONG, MAXIMUM IS EIGHT CHARACTERS

tsn is the test stream name which CA Verify ART for VTAM could
not interpret.

3315 No short form

tsn VERSION IS TOO LONG, MAXIMUM IS THREE CHARACTERS

tsn is the test stream name which CA Verify ART for VTAM could
not interpret.

3316 No short form

NO SELECT CARDS WERE FOUND FOR PRIOR PRINT CARD

3317 No short form

NO SELECT CARDS WERE FOUND FOR PRIOR COPY CARD

3318 No short form

tsn VERSION IS MISSING FROM TEST STREAM NAME

tsn is the test stream name which CA Verify ART for VTAM could
not interpret.

- 3319** No short form
THE CURSOR PARAMETER IS INVALID (NULL)
- 3320** No short form
NO TEST STREAM NAMES GIVEN TO BE SELECTED
- 3321** No short form
tsn TEST STREAM NAME INVALID
tsn is the test stream name which CA Verify ART for VTAM could not interpret.
- 3322** No short form
tsn TEST STREAM NAME IS INVALID (NULL)
tsn is the test stream name which CA Verify ART for VTAM could not interpret.
- 3323** No short form
tsn APPLICATION MUST BE AT LEAST ONE CHARACTER LONG
tsn is the test stream name which CA Verify ART for VTAM could not interpret.
- 3324** No short form
tsn MEMBER MUST BE AT LEAST ONE CHARACTER LONG
tsn is the test stream name which CA Verify ART for VTAM could not interpret.
- 3325** No short form
THE DATASET [VSE: FILE] ALLOCATED TO DDNAME
TCADSOUT [VSE: FILENAME TCADSOU] WILL BE xxxxxxxx.
xxxxxxx is either FORMATTED or INITIALIZED.
- 3326** No short form
DATASET [VSE: FILE] dsn HAS BEEN INITIALIZED
dsn is the name of the MVS data set allocated to TCADSOUT or the VSE file allocated to TCADSOU.
- 3327** No short form
THE CONTROL INTERVAL SIZE IS nnK
nn is the number of K (1024 bytes) per control interval.
- 3328** No short form
NO SELECT CARDS WERE FOUND FOR PRIOR DELETE CARD
- 3329** No short form
D IS AN AMBIGUOUS COMMAND (USE 'DIR' FOR DIRECTORY,

'DEL' FOR DELETE)

3330

No short form

nn CONTROL INTERVALS WERE FORMATTED

nn is the number of control intervals which were formatted.

3331

No short form

NUMBER OF CONTROL INTERVALS TO BE FORMATTED IS
INVALID

The number of control intervals to be formatted must be numeric
and less than 16 digits or blank.

3400 - 3499

3400

DUPLICATE NAME

\$TEST STREAM HAS NOT BEEN COPIED - ALREADY EXISTS IN
TARGET DATA SET

3401

DUPLICATE NAME

\$RULESET HAS NOT BEEN COPIED - ALREADY EXISTS IN THE
TARGET DATA SET

3402

No short form

nn TEST STREAMS WERE PROCESSED

nn is the number of test streams processed by a generic selection
for the Copy, Delete, or Print function.

3403

No short form

NOTE: ONE OR MORE SCREENS WERE LOST IN LOGGING DUE
TO OVERFLOW OF THE DATA CAPTURE BUFFER

The stream is incomplete. See the installation option BUFFER for
information on increasing the size of the data capture buffer.

3405

'X'

\$TEST STREAM HAS BEEN DELETED

3406

'X'

HISTORY DATA WAS NOT RECORDED FOR THIS TEST STREAM --
HISTORY PRINT OPTIONS IGNORED

3407

No short form

FOR THIS SCREEN, MULTIPLE SETS OF AUTOMATED VARIABLE
FIELDS APPLY - NONE WERE USED

3408

ORIGINAL SCREEN WILL BE USED IN THE NEXT RUN OR EDIT

Because mismatch option 6 was selected in last run, the original

screen will be used in next run or edit.

3409 'X'
\$TEST STREAM HAS BEEN COPIED

3410 'X'
\$RULESET HAS BEEN COPIED

3411 'X'
\$TEST STREAM HAS BEEN PRINTED

3412 'X'
\$RULESET HAS BEEN PRINTED

3413 'X'
\$RULESET HAS BEEN DELETED

3414 'X'
\$RULESET HAS BEEN CREATED FROM TEST STREAM VARIABLES

3415 'X'
\$RULESETS WERE PROCESSED

3416 'X'
\$RULESETS WERE CREATED

3500 - 3599

3500 NO BTAM LINES FOUND
THERE ARE NO NON-VTAM LINES GENNED IN THE TCT
This error can occur when required parameters are changed or missing on the DFHTCT TYPE=LINE or TYPE=TERMINAL macros. See the *Installation* guide for information on adding virtual terminals to the TCT.

3501 NO VALID LINES FOUND
THERE ARE NO VALID xxxx IN THE TCT
For BTAM virtual terminals, xxxx is '3270 LINES GENNED' . For VTAM virtual terminals, xxxx is 'yyyy TERMINALS' , where yyyy is the terminal type.
This error can occur when required parameters are changed or missing on the DFHTCT TYPE=LINE (BTAM only) or TYPE=TERMINAL (BTAM and VTAM) macros. See the *Installation* guide for information on adding virtual terminals to the TCT. Make sure no MVS DDcards or VSE ASSGN statements were defined for the virtual line.

- 3502** ALL TERMINALS IN USE
- ALL THE xxxx VIRTUAL TERMINALS ARE IN USE NOW, TRY LATER
- All the virtual terminals defined are in use. xxxx is the device type. More virtual terminals can be added if necessary. For VTAM virtual terminals in CICS 1.7 thru 8, this can be done using RDO.
- 3503** xxxx TCP QUIESCED
- THE BTAM/VTAM TERMINAL CONTROL PROGRAM HAS QUIESCED
- xxxx is BTAM or VTAM. The terminal control program quiesce flag is on, and no further reads will be issued to the virtual terminal. The quiesce flag is turned on during CICS shutdown. It can also be turned on when using BTAM virtual terminals if the virtual terminals are the only non-VTAM terminals in the terminal control table or if the version of TCP specified in the SIT (or startup overrides) does not contain BTAM support.
- 3504** LINE OUT OF SERVICE
- THE VIRTUAL LINE IS OUT OF SERVICE
- The line for the BTAM virtual terminals is out of service. This message is also issued when BTAM support is not generated in CICS.
- 3505** TERM OUT OF SERVICE
- THE VIRTUAL TERMINAL IS OUT OF SERVICE (TERMID=xxxx)
- One of the virtual terminals being used by the Run function is out of service. xxxx is the terminal ID.
- 3506** NO L3270 SUPPORT
- TCP REQUIRES xxxx LOCAL 3270 SUPPORT.
- xxxx is BTAM or VTAM. BTAM/VTAM local 3270 support is explained in the CICS Requirements section of the *Installation* guide.
- 3507** PLTPI ENTRY NEEDED
- XTCAMAIN MUST BE IN THE PLTPI WHEN USING VTAM VIRTUAL TERMINALS
- Use of VTAM virtual terminals requires that a virtual RPL be captured from the R.A. RPL pool at PLTPI time. This cannot be done unless an entry for XTCAMAIN is added to the PLTPI. See the *Installation* guide for further information.
- 3508** R.A. RPL NOT ACTIVE

THE VIRTUAL RECEIVE ANY RPL IS NOT ACTIVE

The virtual RECEIVE ANY RPL is neither in RECEIVE status, nor is it processing an input.

3509 DEFINITION ERROR**THE VIRTUAL TERMINALS ARE INCORRECTLY DEFINED — DUPLICATE NETNAME**

A VTAM virtual terminal was found which has the same netname as a VTAM virtual terminal which CA Verify ART for VTAM is already using. Netnames must be unique.

3510 SOS**THE VIRTUAL RECEIVE ANY RPL IS NOT ACTIVE — SOS**

A RECEIVE ANY was not reissued on the virtual RECEIVE ANY RPL because CICS was short-on-storage. CICS will reissue the RECEIVE ANY after the SOS condition is resolved.

3511 MAX TASKS**THE VIRTUAL RECEIVE ANY RPL IS NOT ACTIVE — MAX TASKS**

A RECEIVE ANY was not reissued on the virtual RECEIVE ANY RPL. CICS is at max tasks. CICS will reissue the RECEIVE ANY after the max tasks condition is resolved.

3512 PRINTER NOT FOUND**ORIGINAL PRINTER xxxx CANNOT BE FOUND**

Running printers requires that the original printer be available to receive the output; however, the original printer is not currently defined to CICS. Either define the printer to CICS, or use the Edit function to rename the terminal to the new name for the printer. xxxx is the ID of the printer that was not found.

3513 PRINTER NOT AVAILABLE**ORIGINAL PRINTER xxxx IS NOT AVAILABLE — nn**

xxxx is the printer which is not available. nn is the reason why it is unavailable:

- 01** The device class (left nibble of device type) is incorrect
- 02** Another Run function is using the printer
- 03** There is a task active at the printer
- 04** The printer is on the activate queue
- 05** The printer is on the system service queue
- 06** The user area size of the printer is too small

07 Your user exit has denied use of the terminal

3514 VTAM NOT SUPPORTED

VTAM VIRTUAL TERMINALS ARE NOT SUPPORTED UNDER
VSE CICS 1.5

Use BTAM virtual terminals in a VSE 1.5 environment.

3515 PLTPI ERROR

PLTPI VIRTUAL RPL CAPTURE WAS UNSUCCESSFUL - xxxx
xxxx can be:

- RAPOOL MUST BE > 1. Specify 2 or more for the RAPOOL parameter in the SIT. A value of 3 is recommended.
- RPL WAS ALREADY ACTIVE When CA Verify ART for VTAM attempted to acquire a RECEIVE ANY RPL, it was already active. This can occur if your CICS has been modified. Contact CA for support.

3516 VTERM ASSIGN NOT FOUND

ASSIGNED VIRTUAL TERMINAL xxxx CANNOT BE FOUND

3517 VTERM UNAVAILABLE

ASSIGNED VIRTUAL TERMINAL xxxxxxxx IS UNAVAILABLE

Virtual terminal xxxxxxxx was assigned to represent the real terminal in the Run function, but it is in use.

3518 ORIGINAL TERM UNAVAILABLE

ORIGINAL TERMINAL xxxx IS UNAVAILABLE

3600 - 3699

3600 VTAM ERROR

xxxxxxx VTAM xxxxxxxx ERROR: RETURN CODE nn, REASON nn

3601 VTAM ERROR

xxxxxxx VTAM xxxxxxxx ERROR: RETURN CODE nn, FDBK2 nn

3602 VTAM ERROR

xxxxxxx xxxxxxxx ERROR: RC nn, FDBK2 nn , SENSE xxxxxxxx
xxxxxxx

3603 VTAM ERROR

VERIFY REQUESTED A VTAM FUNCTION AFTER SESSION
TERMINATION

3630 No short form

	VTAM DEFINITION ERROR, VERIFY NOT AUTHORIZED FOR PASS
3631	No short form THE LOGON MODE TABLE WAS NOT IN THE EXPECTED FORMAT
3632	No short form LOGMODE xxxxxxxx INVALID FOR TERM xxxx , DEFAULT USED
3633	No short form NSEXIT DRIVEN FOR REQSESS: xxxxxxxx , xxxxxxxx , xxxxxxxx
3634	No short form NO CONNECTION FOR REQSESS: xxxxxxxx , xxxxxxxx , xxxxxxxx
3635	No short form ERROR OCCURRED ATTEMPTING CONNECTION WITH APPL xxxxxxx
3636	No short form BIND MISMATCH: LOGMODE xxxxxxxx FOR xxxxxxxx WITH xxxxxxx
3637	No short form UNSUPPORTED BIND REJECTED: LOGMODE xxxxxxxx FOR xxxxxxx Contact CA for support.
3638	No short form xxxxxxx BIND: xxxxxxxx
3639	No short form REBIND IN PROGRESS FOR TERMINAL xxxx
3690	MISSING USSTAB SPO ERROR: THE USSTAB (XTCAUSS) IS NOT INSTALLED
3691	NOT A TERMINAL RESOURCE xxxxxxxx IS NOT AN APPLICATION OR TERMINAL
3692	MESSAGES MISSING SPO ERROR: MESSAGE xxxxxxxx WAS NOT RECEIVED FROM VTAM
3693	BAD MESSAGE FORMAT SPO ERROR: MESSAGE xxxxxxxx WAS NOT IN THE EXPECTED FORMAT
3694	VTAM SPO ERROR

SPO xxxxxxxx ERROR: RETURN CODE nn, FDBK2 nn

3695 VTAM SPO ERROR

SPO xxxxxxxx ERROR: RETURN CODE nn, FDBK2 nn, SENSE
xxxxxxxx xxxxxxxx

3696 NEED SPO AUTH

VTAM DEFINITION ERROR, VERIFY NOT AUTHORIZED FOR SPO

3697 TERMINAL UNKNOWN

TERMINAL xxxx IS NOT DEFINED TO THE SYSTEM

3698 NO TERMINALS FOUND

SPO COMMAND FOUND NO REAL TERMINALS DEFINED TO THIS
DOMAIN

4000 - 4099

4010 INVALID COMMAND

THE COMMAND MUST BE A, B, E, C, D, OR R

4011 ENTER COMMAND

SELECT A VALID COMMAND: A, B, E, C, D, OR R

4012 INVALID RULE NAME

RULE NAME NOT COMPOSED OF LETTERS, NUMBERS, &
NATIONAL CHARACTERS

4014 COMMAND MISSING

ENTER A COMMAND IN THE COMMAND LINE

4013 ENTER RULE NAME

FIRST CHARACTER OF RULE NAME CAN NOT BE NUMERIC

4030 MISSING DESC

DESCRIPTION IS A REQUIRED FIELD BUT WAS NOT ENTERED

4031 PROTECTION INVALID

IF ENTERED, PROTECTION MUST BE R, W, P, OR ANY
COMBINATION

4032 MISSING DDNAME

IF MODEL IS USED, DDNAME IS REQUIRED

4033 MODEL T/S NOT FOUND

MODEL TEST STREAM NAME DOES NOT EXIST

4034 MODEL VERSION INVALID

	MODEL VERSION MUST BE NUMERIC
4035	T/S SEL ERROR
	TEST STREAM SELECTION ERROR
4040	NO SELECTION
	NO MODEL FIELD SELECTION IS REQUIRED
4041	No short form
	MOVE CURSOR TO VARIABLE FIELD AND PRESS 'SELECT' KEY
4042	No short form
	MOVE CURSOR TO CHANGED FIELD AND PRESS 'SELECT' KEY
4043	No short form
	MOVE CURSOR TO NEW FIELD LOCATION AND PRESS 'SELECT' KEY
4044	No short form
	MOVE CURSOR TO DELETED FIELD AND PRESS 'SELECT' KEY
4045	No short form
	MOVE CURSOR TO FIELD TO BE MOVED AND PRESS 'SELECT' KEY
4046	No short form
	MOVE CURSOR TO NEW LOCATION FOR MOVED FIELD AND PRESS 'SELECT' KEY
4047	No short form
	MOVE CURSOR TO NEW CURSOR POSITION AND PRESS 'SELECT' KEY
4048	No short form
	PRESS 'SELECT' KEY TO SELECT THIS AS THE MODEL SCREEN
4049	No short form
	MOVE CURSOR TO IDENTIFICATION CRITERIA FIELD; PRESS SELECT KEY
4050	NOT FOUND
	MODEL SCREEN NOT FOUND; RE-SELECT
4051	MOVE CURSOR TO CUT FIELD LOCATION AND PRESS 'SELECT' KEY
4052	MOVE CURSOR TO PASTE FIELD LOCATION AND PRESS 'SELECT' KEY
4053	NO SELECTION
	NO MODEL SCREEN/FIELD IN BROWSE MODE

4054	No short form MOVE CURSOR TO DATA GENERATION FIELD LOCATION; PRESS SELECT KEY
4055	MOVE CURSOR TO DESCRIPTIVE FIELD AND PRESS SELECT KEY
4054	NOT ALLOWED PREVIEW OR SELECT FUNCTION NOT ALLOWED FOR HISTORY RULES
4057	RULE NOT FOUND OBJECT ID OF SELECTED RULE NOT FOUND IN RULESET
4058	CURSOR LOCATION CURSOR WAS OUTSIDE OF MODEL SCREEN BOUNDARY
4059	RULE NOT APPLIED RULE WAS NOT APPLIED, CHECK YOUR RECOGNITION RULES
4062	B, E, D, C, OR R THE SELECT CODE MUST BE: B, E, D, C, OR R
4063	INVALID SELECT CODE SELECT CODE MUST BE S OR FIRST CHARACTER OF A FUNCTION
4070	MODEL SCREEN REQD PRESS SELECT KEY TO SELECT A MODEL SCREEN
4071	No short form PRESS SELECT KEY TO SELECT MODEL SCREEN
4072	MISSING DESC DESCRIPTION IS A REQUIRED FIELD BUT WAS NOT ENTERED

4100 - 4199

4100	RULESET COPIED THE RULESET WAS SUCCESSFULLY COPIED
4101	RULE COPIED THE RULE WAS SUCCESSFULLY COPIED
4110	RULESET DELETED THE RULESET WAS SUCCESSFULLY DELETED
4120	RULESET RENAMED THE RULESET WAS SUCCESSFULLY RENAMED

4130	INVALID OPTION OPTION MUST BE 1, 2, OR 3
4131	RULE NOT FOUND RULE NOT FOUND
4132	INVALID OPTION OPTION 1 IS ONLY VALID WHEN THE RULETYPE = RECOGNITION
4139	FUTURE USE THIS MESSAGE NUMBER RESERVED FOR FUTURE USE
4141	ROW INVALID ROW MUST BE NUMERIC
4142	ROW INVALID ROW MUST BE NON-ZERO
4143	COLUMN INVALID COLUMN MUST BE NUMERIC
4144	COLUMN INVALID COLUMN MUST BE NON-ZERO
4145	LENGTH INVALID LENGTH MUST BE NUMERIC
4146	LENGTH INVALID LENGTH MUST BE NON-ZERO
4147	OPERATION INVALID THE OPERATION MUST BE EQ, NE, GT, LT, GE, OR LE
4148	MISSING VALUE VALUE IS A REQUIRED FIELD BUT WAS NOT ENTERED
4149	FUTURE USE THIS MESSAGE NUMBER RESERVED FOR FUTURE USE
4150	INVALID OPTION VALID OPTIONS ARE 1-15, AND 20-22
4151	INVALID OPTION SCREEN RECOGNITION NOT VALID WHEN THERE IS NO TEST STREAM
4152	INVALID OPTION SCREEN RULES NOT ALLOWED IN SYSTEM OR APPLICATION

	RULESETS
4153	MISSING RULE NAME RULE NAME IS REQUIRED
4154	INVALID SELECTION RULE NAME MUST BE 'LOGGING' FOR OPTIONS 20-22
4155	INVALID OPTION OPTION NOT VALID FOR RULES CONTAINING FIELD RECOGNITION
4156	INVALID RESET RESET MODEL SCREEN SELECTION MUST BE Y OR N
4157	RESET NOT ALLOWED DELETE SCREEN RECOGNITION; THEN RE-SELECT MODEL SCREEN
4158	INVALID RULENAME RULENAME LOGGING IS INVALID WHEN RECOGNITION CRITERIA EXISTS
4159	INVALID OPTION ONLY OPTIONS 20 - 22 ARE VALID FOR LOGGING RULE
4160	NOT NUMERIC ENTRY MUST BE NUMERIC
4161	NOT ZERO ENTRY CANNOT BE ZERO
4162	REQUIRED FIELD THIS IS A REQUIRED FIELD
4170	INVALID SELECTION CHAR VALID SELECTION CHARACTERS ARE LISTED ON THE MENU
4171	RULENAME NOT FOUND THE SPECIFIED RULENAME DOES NOT EXIST IN THIS RULESET
4172	NOT SELECTABLE THIS ITEM IS NOT SELECTABLE
4173	INVALID FUNCTION AN INVALID 'BROWSE' FUNCTION WAS SPECIFIED
4174	REPLICATE RESTRICTION REPLICATE IS NOT ALLOWED FOR THIS TYPE OF OBJECT

4175	DEL SUCCESSFUL DELETE SUCCESSFUL
4176	SELECT INVALID PREVIEW ONLY ALLOWED FOR 'RULE' OBJECTS
4177	NO MODEL SCREEN RULE TO BE PREVIEWED DOES NOT HAVE A MODEL SCREEN
4179	FUTURE USE THIS MESSAGE NUMBER RESERVED FOR FUTURE USE
4180	INVALID CHARACTERS INVALID CHARACTES IN DATE-AGING FORMAT MASK
4181	INVALID AGING AGING OPERATOR IS INVALID; MUST BE 'D' OR 'Y'
4182	INVALID CHARACTERS INVALID CHARACTES IN VALUE FIELD
4183	INVALID MASK MONTH, DAY, OR YEAR SPECIFIED MORE THAN ONCE IN MASK
4184	INVALID FORMAT MONTH, DAY, OR YEAR POSITION CONTAIN NON-NUMERIC DATA
4185	INVALID CHARACTERS INVALID CHARACTERS IN OPERATOR VALUE FIELD
4186	INVALID VALUE OPERATOR VALUE CANNOT BE '0'
4187	No short form COMPLETE DATA; THEN PRESS ENTER TO ADD/UPDATE THE RULE ACTION
4188	INVALID OPERATOR OPERATOR MUST BE '+', '-', '*', OR '/'
4189	INVALID ACCUMULATOR ACCUMULATOR MUST BE 'Y' OR 'N'
4190	INVALID OPTION THIS PANEL DOES NOT ACCEPT OPTIONS. JUST FILL IN AND PRESS ENTER
4191	ROW INVALID

	ROW MUST BE NUMERIC
4192	ROW INVALID
	ROW MUST BE NON-ZERO
4193	COLUMN INVALID
	COLUMN MUST BE NUMERIC
4194	COLUMN INVALID
	COLUMN MUST BE NON-ZERO
4195	LENGTH INVALID
	LENGTH MUST BE NUMERIC
4196	LENGTH INVALID
	LENGTH MUST BE NON-ZERO
4197	VARIABLES INCOMPLETE
	THE ROW, COLUMN, AND LENGTH MUST BE SPECIFIED TOGETHER
4198	FUTURE USE
	THIS MESSAGE NUMBER RESERVED FOR FUTURE USE

4200 - 4299

4201	ROW INVALID
	ROW MUST BE NUMERIC
4202	ROW INVALID
	ROW MUST BE NON-ZERO
4203	COLUMN INVALID
	COLUMN MUST BE NUMERIC
4204	COLUMN INVALID
	COLUMN MUST BE NON-ZERO
4205	LENGTH INVALID
	LENGTH MUST BE NUMERIC
4206	LENGTH INVALID
	LENGTH MUST BE NON-ZERO
4207	MOVE INFO INCOMPLETE
	ROW, COLUMN, AND LENGTH MUST BE SPECIFIED FOR BOTH FROM AND TO

4208	JUSTIF. INVALID JUSTIFICATION MUST BE L OR R OR LEFT BLANK
4209	TRUNC INVALID TRUNCATION MUST BE Y OR N OR LEFT BLANK
4211	ROW INVALID ROW MUST BE NUMERIC
4212	ROW INVALID ROW MUST BE NON-ZERO
4213	COLUMN INVALID COLUMN MUST BE NUMERIC
4214	COLUMN INVALID COLUMN MUST BE NON-ZERO
4215	LENGTH INVALID LENGTH MUST BE NUMERIC
4216	LENGTH INVALID LENGTH MUST BE NON-ZERO
4217	ATTR INVALID ATTR MUST BE U, UM, UH, UHM, UN, UNM, UNH, UNHM; P, PM, PH, PHM, PS, PSM, PSH, PSHM
4218	INFO INCOMPLETE ROW, COLUMN, LENGTH, ATTR, AND VALUE REQUIRED TOGETHER
4219	No short form COMPLETE DATA; THEN PRESS ENTER TO ADD/UPDATE RULE ACTION
4230	INVALID AID THE AID KEY MUST BE A PF KEY, PA KEY, ENTER OR CLEAR
4231	ENTER CHANGES ENTER CHANGES
4241	ROW INVALID ROW MUST BE NUMERIC
4242	ROW INVALID ROW MUST BE NON-ZERO

4243	COLUMN INVALID
	COLUMN MUST BE NUMERIC
4244	COLUMN INVALID
	COLUMN MUST BE NON-ZERO
4245	ADD SUCCESSFUL
	ADD SUCCESSFUL
4246	UPD SUCCESSFUL
	UPDATE SUCCESSFUL
4247	ROW/COL INCOMPLETE
	THE ROW AND COLUMN MUST BE SPECIFIED TOGETHER
4249	FUTURE USE
	THIS MESSAGE NUMBER RESERVED FOR FUTURE USE
4251	ONLY Y/N
	CAN ONLY SPECIFY Y OR N IN THIS FIELD
4254	INVALID ENTRY
	ENTRY NOT ALLOWED WHEN COMPARE=N
4255	DATA REQUIRED
	WCC CHANGE DATA REQUIRED WHEN COMPARE=Y
4256	CHANGE REQUIRED
	WCC CHANGE DATA MUST HAVE CHANGES WHEN COMPARE=Y
4259	FUTURE USE
	THIS MESSAGE NUMBER RESERVED FOR FUTURE USE
4270	CUTID REQUIRED
	CUTID REQUIRED
4271	INVALID 1ST CHAR
	FIRST CHARACTER OF CUTID MUST BE 'C'
4272	INVALID CUTID
	LAST 5 CHARACTERS OF CUTID MUST BE NUMERIC
4273	INVALID CUTID
	LAST 5 CHARACTERS OF CUTID MUST BE NUMERIC BUT NOT ALL ZEROES
4274	No short form

COMPLETE DATA; THEN PRESS ENTER TO ADD/UPDATE THE
RULE ACTION

4275 CUTID NOT FOUND

THE SPECIFIED CUTID WAS NOT FOUND IN THE RULESET

4281 INC/EXC INVALID

INCLUDE/EXCLUDE VALUE MUST BE I OR E

4284 USERID REQUIRED

AT LEAST 1 USERID IS REQUIRED

4291 INC/EXC INVALID

INCLUDE/EXCLUDE VALUE MUST BE I OR E

4294 TRANID REQUIRED

AT LEAST 1 TRANSACTION IS REQUIRED

4300 - 4399

4303 TERMID REQUIRED

AT LEAST 1 TERMINAL ID IS REQUIRED

4331 ROW INVALID

ROW MUST BE NUMERIC

4332 ROW INVALID

ROW MUST BE NON-ZERO

4333 COLUMN INVALID

COLUMN MUST BE NUMERIC

4334 COLUMN INVALID

COLUMN MUST BE NON-ZERO

4335 LENGTH INVALID

LENGTH MUST BE NUMERIC

4336 LENGTH INVALID

LENGTH MUST BE NON-ZERO

4341 ROW INVALID

ROW MUST BE NUMERIC

4342 ROW INVALID

ROW MUST BE NON-ZERO

4343 COLUMN INVALID

	COLUMN MUST BE NUMERIC
4344	COLUMN INVALID
	COLUMN MUST BE NON-ZERO
4345	LENGTH INVALID
	LENGTH MUST BE NUMERIC
4346	LENGTH INVALID
	LENGTH MUST BE NON-ZERO
4347	ATTR INVALID
	ATTR MUST BE U, UM, UH, UHM, UN, UNM, UNH, UNHM; P, PM, PH, PHM, PS, PSM, PSH, PSHM
4348	ATTR INVALID
	ATTR IS IN CONFLICT WITH LOCATION OF FIELD CHANGE
4349	INFO INCOMPLETE
	ROW, COLUMN, LENGTH, AND VALUE REQUIRED. ATTR IS OPTIONAL
4350	INVALID OPTION
	THIS PANEL DOES NOT ACCEPT OPTIONS. JUST FILL IN AND PRESS ENTER
4351	MISSING RULETYPE
	RULE TYPE MUST BE R(ECOGNITION), S(SCREEN), OR G(LOBAL)
4352	INVALID RULETYPE
	RULE TYPE MUST BE R(ECOGNITION), S(SCREEN), OR G(LOBAL)
4353	MISSING RULE NAME
	RULE NAME IS REQUIRED
4354	MISSING DESC
	DESCRIPTION IS REQUIRED
4355	INVALID MOVEMENT
	IF RULETYPE=SCREEN, PRESS PF9 AND SELECT A MODEL SCREEN FIRST
4356	DUPLICATE NAME
	THE SPECIFIED RULE NAME IS ALREADY IN THE RULESET
4357	ADD FAILED
	INTERNAL ERROR - PROGRAM xxxxxxxx RETURNED REASON CODE nn

4358 ADD SUCCESSFUL
THE RULE WAS SUCCESSFULLY ADDED TO THE RULESET

4900 - 4999

4900 ADD SUCCESSFUL
ADD SUCCESSFUL

4901 UPD SUCCESSFUL
UPD SUCCESSFUL

4902 ROW INVALID
ROW INVALID

4903 ROW INVALID
ROW MUST BE NON-ZERO

4904 COLUMN INVALID
COLUMN INVALID

4905 COLUMN INVALID
COLUMN MUST BE NON-ZERO

4906 LENGTH INVALID
LENGTH INVALID

4907 LENGTH INVALID
LENGTH MUST BE NON-ZERO

4908 ROW REQUIRED
ROW REQUIRED

4909 COL REQUIRED
COLUMN REQUIRED

4910 LEN REQUIRED
LENGTH REQUIRED

4911 NO TEST STREAM
CANNOT SELECT MODEL SCREEN BECAUSE THERE IS NO TEST
STREAM

4913 NO MODEL SCREEN
PREVIEW REQUIRES A MODEL SCREEN

4913 NO MODEL SCREEN
PREVIEW REQUIRES A MODEL SCREEN

- 4914** NO TEST STREAM
CANNOT PREVIEW MODEL SCREEN BECAUSE THERE IS NO TEST STREAM
- 4915** I/O FLD INVALID
INPUT/OUTPUT FIELD MUST BE I OR O

5100 - 5199

- 5142** DEL SUCCESSFUL
DELETE SUCCESSFUL
- 5143** LEN/VAL CONFLICT
LENGTH FIELD AND THE LENGTH OF THE VALUE ENTERED ARE UNEQUAL
- 5150** INVALID OPTION
SCREEN RECOGNITION RULE ACTION ALREADY PRESENT IN THIS RULE
- 5151** INVALID OPTION
RULE CONTAINS THE MAXIMUM NUMBER OF RULE ACTIONS OF THIS TYPE
- 5152** INVALID OPTION
RULE CONTAINS THE MAX NUMBER OF INPUT AND OUTPUT RULE ACTIONS OF THIS TYPE
- 5153** No short form
RULE IS NOT YET COMPLETE – MUST SELECT MODEL SCREEN
- 5154** INVALID RULENAME
LOGGING RULENAME IS INVALID WHEN FIELD CHANGE RULE ACTIONS EXIST
- 5155** No short form
RULE IS NOT YET COMPLETE – MUST ADD RULE ACTION
- 5156** MUST ADD RULE
CANNOT PREVIEW UNTIL THE RULE HAS BEEN ADDED
- 5157** DUPLICATE NAME
THE SPECIFIED RULE NAME IS ALREADY IN THE RULESET
- 5158** INVALID ACTION

	PREVIEW/SELECT NOT VALID FOR RULE NAME 'LOGGING'
5159	INVALID RULENAME ONLY ONE RULENAME LOGGING ALLOWED PER RULESET
5160	INVALID RULENAME RULENAME IS INVALID WHEN LOGGING RULE ACTIONS EXIST
5180	INVALID OVERFLOW OVERFLOW MUST BE 'Y' OR 'N'
5181	FORMAT INVALID LENGTH OF AGING FORMAT IS GREATER THAN SCREEN LOCATION LENGTH
5182	ENTRY MISSING INITIAL VALUE MUST BE A 'Y' OR 'N'
5183	INVALID ENTRY INITIAL VALUE MUST BE A 'Y' OR 'N'
5184	VALUE REQUIRED VALUE IS REQUIRED WHEN INITIAL VLUE IS 'Y'
5185	SCOPE INVALID SCOPE MUST BE 'S', 'T', OR 'U'
5186	ENTRY INVALID ENTRY NOT ALLOWED WHEN ACCUMULATE='N'
5187	VALUE INVALID 286198 EMSG, 'VALUE MUST BE NUMERIC'
5188	OPERATOR MISSING OPERATOR IS REQUIRED
5189	OPERATOR VALUE MISSING OPERATOR VALUE IS REQUIRED
5190	ADD SUCCESSFUL ADD SUCCESSFUL
5191	UPD SUCCESSFUL UPDATE SUCCESSFUL
5192	DEL SUCCESSFUL DELETE SUCCESSFUL

5200 - 5299

5200	FILL INVALID FILL MUST BE HEX VALUE, CHAR VALUE, BLANK OR NULL
5201	FILL INVALID INVALID HEX VALUE IN FILL
5202	ADD SUCCESSFUL ADD SUCCESSFUL
5203	UPD SUCCESSFUL UPDATE SUCCESSFUL
5204	DEL SUCCESSFUL DELETE SUCCESSFUL
5210	ADD SUCCESSFUL ADD SUCCESSFUL
5211	UPD SUCCESSFUL UPDATE SUCCESSFUL
5212	DEL SUCCESSFUL DELETE SUCCESSFUL
5213	LEN/VAL CONFLICT LENGTH FIELD AND THE LENGTH OF THE VALUE ENTERED ARE UNEQUAL
5230	ADD SUCCESSFUL ADD SUCCESSFUL
5231	UPD SUCCESSFUL UPDATE SUCCESSFUL
5232	DEJ SUCCESSFUL DELETE SUCCESSFUL
5240	ADD SUCCESSFUL ADD SUCCESSFUL
5241	UPD SUCCESSFUL UPDATE SUCCESSFUL
5242	DEL SUCCESSFUL DELETE SUCCESSFUL

5300 - 5399

5330	ADD SUCCESSFUL
	ADD SUCCESSFUL
5331	UPD SUCCESSFUL
	UPDATE SUCCESSFUL
5332	DEL SUCCESSFUL
	DELETE SUCCESSFUL
5340	ADD SUCCESSFUL
	ADD SUCCESSFUL
5341	UPD SUCCESSFUL
	UPDATE SUCCESSFUL
5342	DEL SUCCESSFUL
	DELETE SUCCESSFUL
5343	LEN/VAL CONFLICT
	LENGTH FIELD AND THE LENGTH OF THE VALUE ENTERED ARE UNEQUAL
5350	UPD SUCCESSFUL
	UPDATE SUCCESSFUL

6000 - 6199

6040	INVALID SELECTION CHAR
	VALID SELECTION CHARACTERS ARE LISTED ON THE MENU
6041	NOT SELECTABLE
	THIS ITEM IS NOT SELECTABLE
6042	CANNOT USE D HERE
	CANNOT DELETE A RULESET WHILE DOING A RUN
6043	ONLY 1 AT A TIME
	CAN ONLY SPECIFY ONE S OR ONE D AT A TIME
6009	FUTURE USE
	THIS MESSAGE NUMBER RESERVED FOR FUTURE USE
6111	INTERNAL ERROR
	AN INVALID TCALL WAS MADE. CONTACT CUSTOMER SUPPORT.

6112	TARGET RS EXISTS RULESET EXISTS WITH SAME NAME AS THE COPY TO OR RENAME TO TESTSTREAM.
6150	INVALID OPTION OPTION NOT VALID FOR RULES CONTAINING SCREEN RECOGNITION
6180	ACCUMULATE MISSING ACCUMULATE MUST BE 'Y' OR 'N'
6181	OVERFLOW MISSING OVERFLOW MUST BE 'Y' OR 'N'
6182	SCOPE MISSING SCOPE IS REQUIRED WHEN ACCUMULATE='Y'
6183	FORMAT INVALID YEAR MUST BE REPRESENTED IN DATE AGING FORMAT
6184	FORMAT INVALID DAYS MUST BE REPRESENTED IN DATE AGING FORMAT
6185	FORMAT INVALID MONTH NOT VALID IN JULIAN DATE AGING FORMAT
6186	FORMAT INVALIDE MONTH MUST BE REPRESENTED IN GREGORIAN DATE AGING FORMAT
6187	AGING TYPE MISSING AGING TYPE 'D' OR 'Y' REQUIRED FOR DATE AGING
6188	TYPE INVALID AGING TYPE NOT PRESENT IN DATE AGING FORMAT
6189	LEN INCORRECT LENGTH SPECIFIED IS NOT EQUAL TO THE DATE AGING FORMAT LENGTH

7000 - 7199

7180	DD INVALID VALUE OF DD MUST BE 01 THROUGH 31
7181	DDD INVALID VALUE OF DDD MUST BE 001 THROUGH 366

7182	MM INVALID VALUE OF MM MUST BE 01 THROUGH 12
7183	ENTRY INVALID AGING TYPE NOT ALLOWED WHEN NOT DATE AGING
7184	OVERFLOW INVALID OVERFLOW NOT VALID WHEN DATE AGING
7185	LENGTH INCORRECT LENGTH SPECIFIED IS NOT EQUAL TO THE VALUE LENGTH

9000 - 9999

9990	FUNCTION CANCELLED PF3 WAS PRESSED; THEREFORE NOTHING WAS ADDED OR UPDATED
9998	NO SUCH SCREEN NO DEVELOPMENT SCREEN WITH THAT NAME
9999	No short form FUNCTION CURRENTLY NOT AVAILABLE

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