

IBM Application Time Facility for z/OS



User's Guide

Version 2 Release 8 Modification 7

IBM Application Time Facility for z/OS



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Version 2 Release 8 Modification 7

Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 65.

Fourth Edition (May 2007)

This edition applies to Version 2 Release 8 Mod 7 of IBM Application Time Facility for z/OS (program number 5697-N42) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this document

This document is intended for people who use Application Time Facility for z/OS[®] (which, from here on, is now called “ATF”). For information about installing and customizing ATF, see the *Application Time Facility for z/OS Installation and Customization Guide* and the *Application Time Facility for z/OS Program Directory*.

Before now, this product was known as “TICTOC for z/OS”, and the product and this document retain a few references to TICTOC. These will be replaced in the next release.

This document consists of two parts:

- Part 1, “Concepts and facilities,” on page 1 provides a user’s introduction to ATF.
- Part 2, “User’s guide,” on page 9 is a user’s guide.

The appendix holds messages and codes.

Summary of changes

This Fourth edition of the document (SC31-6923-03) has changed from the previous edition, to correct an error:

- “z/OS/SP” was changed to “MVS/SP” in one message, and the message explanation has been clarified.

These changes are marked with a vertical change bar (|) in the left margin of the page.

Part 1. Concepts and facilities

Chapter 1. What is ATF?

ATF is the software product for z/OS that lets you run different jobs, users and applications under different “virtual” (fictitious) dates and times. On a per job, user and application basis, you can specify any date and time, from the year 1900 to 2040, that the system should return when the job requests this information. This lets you test how programs will run, for example, on January 1, 2000, and thereafter, without requiring that *every* job running concurrently use that same date.

This means that ATF lets you do your date testing without dedicating a separate system. ATF makes it possible to test your applications without affecting other jobs running at the same time and without requiring system operator intervention.

ATF has a convenient online ISPF interface and a batch utility program where you can tell it which jobs, started tasks, TSO users and IMS™ applications are eligible to run under a virtual date.

Using ATF to test a job is as easy as adding a few JCL statements to the job. Specifying the virtual date is as easy as entering VIRTDATE=2000/01/01. If you prefer, you can use the online interface to specify the virtual date, too. This means that you can test a job under ATF without any changes to JCL whatsoever.

ATF handles all normal requests for the date and time by application programs issuing the z/OS TIME LINKAGE=SYSTEM, TIME LINKAGE=SVC and the STCKSYNC macros. ATF also provides solutions for programs and vendor products that issue the STCK hardware instruction to obtain the current date and time.

This comprehensive support provides virtual timing for jobs, users and applications requesting date and time functions provided by the most popular application languages and products, including Assembler, COBOL, PL1, C, C++, TSO, ISPF, CICS®, IMS/DC, Language Environment®, DB2®, NATURAL, SAS and others.

ATF does not change the date or time obtained in other ways, such as through the z/OS CVT control block. Date and time requests issued by programs running in supervisor state or in storage protection keys 0 through 7 are also not affected by ATF.

This means that system-related date and time information, such as that recorded in SMF records, job accounting data and dataset catalog entries, is not affected by ATF and reflects the real date and time.

CICS support

ATF allows date testing of CICS regions. ATF treats CICS regions like any other job that can be tested under ATF. ATF's virtual date and time are reflected in every transaction's EIBDATE and EIBTIME fields.

For CICS testing at the transaction, terminal and user ID levels (or any combination of these), use ATF/CICS, which is installed and documented separately.

DB2 support

ATF can return the virtual date and time for DB2 SQL special registers CURRENT DATE, CURRENT TIME, and CURRENT TIMESTAMP. The virtual date and time are also returned for INSERT DATE, TIME and TIMESTAMP functions where the date and time columns are defined as "NOT NULL WITH DEFAULT".

Support for DB2 is an optional ATF customization enhancement. Check with your system administrator responsible for installing and customizing ATF to verify that support is available for the DB2 versions and subsystems you are using.

IMS/DC message processing region support

ATF provides special support for date testing of IMS/DC MPR and BMP message regions on a per-user ID and per-application name basis. This support includes having the local date and time fields in the IMS transaction's IOPCB control block reflect the virtual date and time. No changes whatsoever need to be made to any IMS components, definitions or applications.

COBOL, PL1, C, C++, and Language Environment support

Applications and languages that directly or internally call Language Environment to obtain local date and time values are supported by ATF. This includes COBOL, PL1, C, C++, and others.

Support for Language Environment is an optional ATF customization enhancement. Check with your system administrator responsible for installing and customizing ATF to verify that support is available for the Language Environment versions you are using.

Earlier versions of COBOL, PL1 and C that do not interact with Language Environment are also supported by ATF.

Comprehensive auditing of date and time usage

The ATF Time Services Auditing Facility allows you to monitor and report on date and time call usage on a per job, user and application basis.

The Auditing Facility can record summarized or highly detailed statistics for callers issuing date and time requests, including the names of the programs making the calls and the offsets within the programs from where the calls were made.

Auditing can be activated for both jobs that run under ATF's virtual time and those that only receive the real date and time from the operating system.

The Auditing Facility writes its information to the operating system's SMF dataset. A reporting program is provided by ATF to extract the information from SMF and produce the Time Services Auditing Report.

Virtual dates and virtual clocks

When a job, started task, TSO user, IMS user or IMS application that is eligible for ATF timing services asks for the date and time by issuing any supported date or time request, it gets a "virtual date" based on an ATF "virtual clock" definition instead of the real date and time settings of the operating system's clock.

In this document, the following terms are used:

- *Virtual date* refers to the date, time or both values when set by ATF and returned to the calling application.
- *Virtual clock* refers to an ATF definition consisting of a job, user or application name and the virtual date and time to be used when a job, user or application, whose name matches that of the definition, issues a supported current date/time request.
- A job, user or application that is eligible for ATF timing services is running *using* or *under* a virtual date. These expressions are synonymous.

When an eligible job, user or application begins execution, ATF starts running the virtual clock. The clock begins at the date and time specified in the virtual clock definition. The clock continues to run *for the life span of the execution*, that is, until the job, user or application terminates.

The Virtual Clock Dataset (VCD)

You indicate which jobs, users and applications are eligible to use a virtual date by specifying them in ATF's Virtual Clock Dataset (VCD). The default VCD that's created when the product is installed contains a single entry that enables all batch jobs (but not started tasks, TSO or IMS users or IMS applications) to use ATF via its JCL interface.

You can explicitly specify virtual dates and times in VCD entries for your jobs. In this case, every time a defined job is run, it runs under the virtual date specified for the job in the VCD.

If you sometimes want a job to run under a virtual clock and sometimes under the real date and time, you can set both the date and time fields to an asterisk ("*") in the job's VCD entry. In this case, the job runs under the real date and time unless you specify a virtual date or time in the JCL of the job itself using ATF's JCL interface.

Turning the virtual date on and off

For jobs that are eligible for virtual timing services that contain multiple job steps, you may want to run some steps using a virtual date and other steps using the real date. In this case, you can turn ATF virtual timing services on or off (as well as change the virtual date) between any two steps with a few simple JCL statements. (You can turn the virtual date off and on in any eligible job, but you can only *change* the virtual date if the date and time fields in the job's VCD entry are both set to asterisks ("*").

Virtual time

As mentioned earlier, in addition to being able to set a virtual date in the VCD or via JCL, you can also set a virtual time. The virtual time you specify is the fictitious time the job will *start* processing. The virtual clock runs normally from that starting time.

For example, if you set a job to start running with the virtual time of 10:00 and it requests the time after four minutes (elapsed), it is told that that the time is 10:04. As another example, if you set a job to start running with the virtual time of 23:59 and it requests the time after two minutes (elapsed), it is told that the time is 00:01 (of the following day).

Virtual time

This feature is useful to test such things as processing across midnight and communication between jobs running in different time zones.

If you don't specify a virtual time, the current time is used (with, of course, the virtual date you specify).

When you turn the virtual date off and on, you also turn off and on the virtual time. If no virtual date or time has been specified in the VCD entry that applies to the job, you can also change the virtual time when you turn it on again.

Absolute and relative dates and times

You can specify an *absolute* virtual date as any date from January 1, 1900 through December 31, 2039 (for example, 2000/01/01), or a virtual date *relative* to the current date in number of days (from -9999 to +9999). Relative dates can be useful, for example, to simulate a number of days elapsing between two steps in a single job.

As with the virtual date, you can specify the virtual time in absolute terms (for example, 23:59) or in relative terms (from -23:59 to +23:59).

The active VCD

ATF executes in its own address space and automatically provides its virtual clock-calendar services to jobs running in other address spaces.

When ATF is started, it reads the current VCD into memory. As explained earlier, the VCD specifies which jobs are eligible for ATF services, and under which virtual dates and times the jobs are to be run.

The VCD in memory is considered the "active" VCD. Changes you make to the VCD via the online interface or batch utility program don't take effect until you cause the new VCD to be read into memory again. This is called *refreshing* the VCD, and is a separate option on the ATF main menu.

Changes to the active VCD affect only jobs that are started after the VCD is refreshed. Jobs already running are unaffected (even if they turn the virtual date off and on again).

Job names and wildcards

Entries in the VCD can use wildcards to indicate all jobs matching a particular pattern. Question marks ("?") match any *single* character in the corresponding position, and an asterisk ("*") matches zero or more characters from the location of the asterisk to the end of the job name.

For example, an entry for "ACCT*" matches all jobs with names starting "ACCT". An entry for "A??T*" matches all jobs with an "A" in the first position and a "T" in the fourth position.

ATF permits the use of up to eight question marks, but only one asterisk. Note that "???????" matches only names that are seven characters long, but "*" matches all names of any length.

Security considerations

Depending on how ATF was set up when it was installed, it may be restricted to one or more job execution classes. If so, only jobs executing in specified job classes are eligible to use ATF services, even if their names match an entry in the VCD.

Also, your installation may have restricted your ability to add, change or delete entries in the VCD to one or more groups of job names. However, even if your ability to handle entries in the VCD is restricted, you'll be able to see the entire VCD. Also, restrictions on your use of the VCD do not affect your ability to submit jobs using ATF services.

Check with your system administrator responsible for installing and customizing ATF to see what restrictions, if any, apply to your use of ATF.

Concepts and facilities

Part 2. User's guide

Chapter 2. Overview

For your convenience and flexibility, ATF provides three ways for you to specify the virtual dates and times jobs are to use: the JCL interface, the online interface and the batch utility program.

The JCL interface lets you get started right away. You can just add a few JCL statements to a job to set the virtual date (or time) and submit it. (When it's first installed, ATF makes *all* jobs eligible to use the JCL interface.) The JCL interface also lets you start, stop, and restart the use of ATF services from job step to job step, even letting you *change* the virtual date or time from one step to another.

You can use the online interface to specify the virtual date and time a job, user or IMS application is to use. This way, you can do your testing without any changes to the job's JCL.

If you prefer, you can use the batch utility program, CIKUPVCD, to update virtual clock definitions in the VCD. CIKUPVCD provides the batch equivalent of functions that are available with the online interface.

You can use either the online interface or batch utility to define entries in the VCD that let you restrict the use of the JCL interface to one or more jobs or groups of jobs. If you want to use ATF to test TSO users, started tasks, or IMS user and applications, you can add entries via the online interface or the batch utility program, and thus eliminate the need to use the JCL interface.

You can use the JCL interface for some jobs and the online interface for others. Any virtual date or time you define for a given job in a VCD entry overrides a specification in the JCL.

Chapter 3. Using the JCL interface

As explained earlier, if a job's name matches an entry in the VCD that doesn't specify either a virtual date or a virtual time, the job can specify the virtual date or time in the JCL itself. (Also as explained earlier, when it's initially installed, ATF makes *all* jobs eligible to use the JCL interface.)

Note: You can specify a virtual date or time via JCL only if *both* the date and time are set to asterisks ("***") in the VCD.

Whether or not the VCD entry matching a job name specifies a date or time, you can use the JCL interface to turn the virtual date and time off and on again from job step to job step.

Specifying date or time

If the entry in the VCD that matches a job, user or application name specifies asterisks ("***") in both the VCD date and the time fields, you can set the virtual date and time in the JCL of that job by adding a job step at the beginning of the job (or before the first step in which you want to use ATF services). For example, assume that the corresponding entry in the VCD for this job specifies asterisks in the VCD date and time fields:

```
//...    JOB ...  
//      EXEC PGM=CIKTICON  
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD  
//TICLOG  DD SYSOUT=*  
//TICIN   DD *  
VIRTDAT=2000/01/01  
/*
```

:

Note: If the ATF load library is in the LINKLIST, or if the ATF load modules are in LPA, the STEPLIB statement (in this and all JCL examples) should be omitted. Otherwise, the STEPLIB statement must specify your ATF load library. Also, if your TICLOG is being dynamically allocated, the TICLOG statement (in this and all JCL examples) should be omitted. For guidance on the STEPLIB and TICLOG statements, check with your installation.

To specify a virtual time (assuming that the corresponding entry in the VCD specifies asterisks in both the date and time fields):

```
//...    JOB ...  
//      EXEC PGM=CIKTICON  
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD  
//TICLOG  DD SYSOUT=*  
//TICIN   DD *  
VIRTIME=23:59  
/*
```

:

You can also specify both at once. Assume that the corresponding entry in the VCD specifies asterisks in both the date and time fields:

Specifying date or time

```
//... JOB ...
//          EXEC PGM=CIKTICON
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG DD SYSOUT=*
//TICIN DD *
VIRTDAT=1999/12/31
VIRTTIME=23:59
/*

:
```

Note: As shown in these examples, the TICIN parameter statements must begin in column one and must contain no spaces.

As explained earlier, you can specify date and time in absolute terms, as just shown, or relative to the current date and time, like this:

```
//          EXEC PGM=CIKTICON
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG DD SYSOUT=*
//TICIN DD *
VIRTDAT=+365
VIRTTIME=+12:30
/*
```

Suspending and restarting ATF services

In some jobs, you may want to operate with a virtual date in some steps but not others. In this case, you can turn ATF virtual timing off or on between steps.

To turn the virtual date off, add JCL like the following before the step in which you want the real date (or time) to apply:

```
:
//          EXEC PGM=CIKICOFF
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG DD SYSOUT=*
:
```

The real system date and time apply to all subsequent job steps.

To resume using ATF virtual timing services, insert JCL like the following:

```
:
//          EXEC PGM=CIKTICON
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG DD SYSOUT=*
:
```

If you specified asterisks in both the date and time fields in the VCD, when you turn virtual timing on again, you can optionally *change* the virtual date or time from job step to job step using CIKTICON, like this:

```
//... JOB ...
//          EXEC PGM=CIKTICON
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG DD SYSOUT=*
//TICIN DD *
VIRTDAT=1999/12/31
VIRTTIME=23:59
```

```

/*
:
//          EXEC PGM=CIKTICON
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG  DD SYSOUT=*
//TICIN   DD *
VIRTDAT=2000/01/01
VIRTTIME=00:01
/*
:

```

Specifying a special date format

ATF can recognize any of five possible date formats:

- 1 YYYYY/MM/DD (examples: 1999/12/31, 2000/01/15)
- 2 MM/DD/YYYY (examples: 12/31/1999, 01/15/2000)
- 3 DD/MM/YYYY (examples: 31/12/1999, 15/01/2000)
- 4 DDMONYYYY (examples: 31DEC1999, 15JAN2000)
- 5 YYYYY.DDD (examples: 1999.365, 2000.015)

When ATF was installed, a default format was set. ATF expects the date you specify via the JCL interface to be in the format specified as your installation default. If you wish to use a different date format in your VIRTDAT statement, you must specify it here in a DATEFRMT statement before the VIRTDAT statement itself, like this:

```

//          EXEC PGM=CIKTICON
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG  DD SYSOUT=*
//TICIN DD *
DATEFRMT=4
VIRTDAT=01JAN2000
VIRTTIME=+12:00
/*

```

Adding comments

You can insert comments freely into your input to TICIN. Comments are indicated by an asterisk in column one. You can also add comments on a parameter card, separated from the parameter by a space. For example:

```

//...      JOB ...
//          EXEC PGM=CIKTICON
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICIN DD *
*
* This sets the job to just before New Year's Day, 2000.
*
VIRTDAT=1999/12/31 This sets the date to New Year's Eve, 1999.
*
VIRTTIME=23:59      This sets the time to a minute before midnight.
*
/*
:

```

Adding comments

Chapter 4. Using the online interface

ATF is usually installed as an option on the ISPF Primary Option Menu, as shown in this example:

```

Menu Utilities Compilers Options Status Help
-----
                                ISPF Primary Option Menu
Option ==>
0 Settings      Terminal and user parameters      User ID . . : TSYS01
1 View          Display source data or listings           Time. . . . : 15:44
2 Edit          Create or change source data             Terminal. . : 3278
3 Utilities     Perform utility functions              Screen. . . : 2
4 Foreground    Interactive language processing          Language. . : ENGLISH
5 Batch         Submit job for language processing        Appl ID . . : ISR
6 Command       Enter TSO or Workstation commands        TSO logon . : ISPFPROC
7 Dialog Test   Perform dialog testing                  TSO prefix:
9 IBM Products  IBM program development products        System ID . : SYS1
10 SCLM         SW Configuration Library Manager        MVS acct. . : ACCT#
11 Workplace   ISPF Object/Action Workplace           Release . . : ISPF 5.8
12 ATF          Application Time Facility
M More          Additional IBM Products

Enter X to Terminate using log/list defaults

```

If you don't see ATF on the Primary Option Menu, check with your installation to find out how you can invoke ATF.

To invoke the ATF online interface, type the indicated character or characters (normally "ATF") in the OPTION field and press ENTER. The ATF Primary Option Menu is displayed:

```

TICTOC ----- TICTOC PRIMARY OPTION MENU ----- ATF IS ACTIVE
OPTION ==> _

Specify one of the following options:

B BROWSE      - Browse virtual clock definitions
E EDIT        - Edit and update virtual clock definitions
O OPTIONS     - Update your online session execution options
P PRINT       - Print the VCD dataset's contents
R REFRESH     - Refresh currently active virtual clock definitions
X EXIT        - Terminate and exit this TICTOC user session

          TT          TT
          TT          TT
TTTTTTTTT  II  CCCCCC  TTTTTTTTTT  0000000  CCCCCC
          TT  II  CC  CC  TT  TT  00  00  CC  CC
          TT TT  II  CC  CC  TT  TT  00  00  CC  CC
          TT TT  II  CC  CC  TT  TT  00  00  CC  CC
          TTT  II  CCCCC  TTT  000000  CCCCC

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```

As you can see, you have several options:

B	BROWSE	This lets you look at entries in the Virtual Clock Dataset without changing them.
---	--------	---

Using the online interface

E	EDIT	This lets you add, change, and delete entries in the Virtual Clock Dataset.
O	OPTIONS	This lets you change your preferences for how dates are displayed and whether or not a confirmation panel should be displayed when you delete an entry in the VCD.
P	PRINT	This lets you print a listing of the VCD's contents to the system printer or another printer you specify.
R	REFRESH	This lets you replace the active VCD's entries in memory with the VCD's current contents, as edited.
X	EXIT	Return to the panel from which this panel was invoked.

We'll look at each of these options (except, of course, EXIT) in more detail.

Browsing the VCD

When you select **B** from the ATF main menu, you'll see your installation's current VCD. When ATF is initially installed, the VCD usually contains only the following entry:

```
TICTOC ----- BROWSE VIRTUAL CLOCK DATASET --- ROW 000001 OF 000001
COMMAND ==>                                     SCROLL ==> CSR
NAME      TYPE  DATE      TIME     STATUS      LAST UPDATED BY
*         JOB   *         *        ENA AUDN    98/02/05 09:17 TSYS01
```

This entry matches all job names. Because the date and time are also both specified as "*", the entry makes all jobs eligible to specify the virtual date or time, or both, in their JCL. (Note that this entry does not make TSO users, started tasks or IMS users or applications eligible for using ATF.)

As you can see, along with the NAME field, each VCD entry has the following additional fields:

TYPE Whether the entry applies to jobs (JOB), TSO user IDs (TSU), started tasks (STC), IMS user IDs (USR) or IMS message region applications (IMS).

DATE Specifies one of the following:

- The virtual date that matching regions, users or applications are to start running under. You can change the format in which DATE is displayed and entered by choosing **O** (Options) from the ATF main menu.
- An asterisk ("*") for the current system date. If both the date and time values in a virtual clock definition are set to asterisks, regions, users or applications associated with the virtual clock definition are eligible to use the ATF JCL Interface programs CIKTICON and CIKICOFF to control virtual timing. Refer to the section entitled "Using the JCL Interface" earlier in this document for instructions on using programs CIKTICON and CIKICOFF.
- The word "EXCLUDE" to explicitly exclude matching regions, users or applications from being eligible for ATF virtual timing services.

TIME Specifies one of the following:

- The virtual time that matching regions, users or applications are to start running under.

- An asterisk (“*”) for the current system time. If both the date and time values in a virtual clock definition are set to asterisks, regions, users or applications associated with the virtual clock definition are eligible to use the ATF JCL Interface programs CIKTICON and CIKICOFF to control virtual timing. Refer to the section entitled “Using the JCL Interface” earlier in this document for instructions on using programs CIKTICON and CIKICOFF.

STATUS

Indicates whether the entry is enabled (ENA) or disabled (DIS) and whether regions, users or applications that match the entry are to have their date and time calls monitored and audited by the ATF Time Services Auditing Facility.

By default, VCD entries are enabled for use by ATF. If you wish to define an entry but do not want it to have any effect on executing regions, users or applications at present, the entry can be disabled.

Three audit options are available. AUDN is displayed for entries not to be audited at all. AUDY means that standard auditing is to be in effect. AUDF indicates that full detailed auditing is to be in effect.

LAST UPDATE BY

These three fields display the job name or the TSO user ID who created or last changed this entry, as well as the real date and time it was created or last changed.

After ATF has been in use a while, a more typical VCD might look like this:

```
TICTOC ----- BROWSE VIRTUAL CLOCK DATASET --- ROW 000001 OF 000021
COMMAND =====>
NAME      TYPE  DATE      TIME  STATUS      LAST UPDATED BY
ACT19991  JOB  1999/07/01 00:00  ENA AUDN    98/02/05 13:19 ACDB425
ACT20001  JOB  2000/01/01 *      ENA AUDN    98/02/11 10:47 ACDB400
ADMN100   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN101   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN102   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN103   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN104   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN105   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:28 ADMN100
IMSPRT2   STC  EXCLUDE      ENA AUDN    98/02/28 12:32 SYSI420
IMSPRT*   STC  *             ENA AUDN    98/02/28 12:34 SYSI420
MN??TIC  JOB  2000/01/01 *      ENA AUDF    98/02/16 14:52 SYDB007
ORDRTST0  JOB  *             ENA AUDY    98/02/06 11:22 USER330
ORDRTST?  JOB  2000/01/01 *      ENA AUDY    98/02/06 11:23 USER330
PITRN008  IMS  *             ENA AUDN    98/02/19 13:19 USER106
PITRN045  IMS  *             ENA AUDN    98/02/19 13:19 USER106
PITRN2*   IMS  *             ENA AUDN    98/02/22 08:57 SYSI420
PITRN*    IMS  1999/12/31 23:59  ENA AUDN    98/02/19 13:21 USER106
SIMBKUPM  JOB  +31          23:59  ENA AUDF    98/02/19 15:02 SYST093
SIMBKUPW  JOB  +7           23:59  ENA AUDF    98/02/19 15:02 SYST093
SYTP01    JOB  *            -03:00  ENA AUDN    98/02/16 09:31 SYTP070
SYTP*     JOB  *             ENA AUDN    98/02/16 09:28 SYTP070
```

As you can see, some entries may have generic job names (STYP*), and some may have specific ones (SYTP01). More specific entries are applied before generic ones. For example, an entry for ABCDEFG takes precedence over an entry for ABCD*, which takes precedence over an entry for ABC*, which takes precedence over *.

In some entries, the date or time is specified in the entry itself, and in others, the entry simply enables jobs to specify a virtual date via JCL. Some entries give the date absolutely (for example, 2000/01/01), and some relatively (for example, +31).

Browsing the VCD

In a few entries, a virtual time is also specified. Again, some entries are absolute (for example, 23:59), and some are relative (for example, -03:00).

The display is scrollable backward and forward with the usual ISPF commands and PF keys.

Under the **B** option, you can look at the VCD but not change it. Several users can use the B option concurrently to look at the VCD at the same time, even if someone else is editing the VCD.

Editing the VCD

```
TICTOC ----- EDIT VIRTUAL CLOCK DATASET ---- ROW 000001 OF 000021
COMMAND ==>> SCROLL ==>> CSR
NAME      TYPE  DATE      TIME  STATUS      LAST UPDATED BY
ACT19991  JOB   1999/07/01 00:00  ENA AUDN    98/02/05 13:19 ACDB425
ACT20001  JOB   2000/01/01 *      ENA AUDN    98/02/11 10:47 ACDB400
ADMN100   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN101   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN102   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN103   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN104   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN105   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:28 ADMN100
IMSMPT2   STC   EXCLUDE          ENA AUDN    98/02/28 12:32 SYSI420
IMSMPT*   STC   *                ENA AUDN    98/02/28 12:34 SYSI420
MN??TIC  JOB   2000/01/01 *      ENA AUDF    98/02/16 14:52 SYDB007
ORDRTST0  JOB   *                ENA AUDY    98/02/06 11:22 USER330
ORDRTST?  JOB   2000/01/01 *      ENA AUDY    98/02/06 11:23 USER330
PITRN008  IMS   *                ENA AUDN    98/02/19 13:19 USER106
PITRN045  IMS   *                ENA AUDN    98/02/19 13:19 USER106
PITRN2*   IMS   *                ENA AUDN    98/02/22 08:57 SYSI420
PITRN*    IMS   1999/12/31 23:59  ENA AUDN    98/02/19 13:21 USER106
SIMBKUPM  JOB   +31             23:59  ENA AUDF    98/02/19 15:02 SYST093
SIMBKUPW  JOB   +7              23:59  ENA AUDF    98/02/19 15:02 SYST093
SYTP01    JOB   *                -03:00  ENA AUDN    98/02/16 09:31 SYTP070
SYTP*     JOB   *                *        ENA AUDN    98/02/16 09:28 SYTP070
```

When you select **E** from the ATF main menu, you'll see your installation's current VCD and, if you're authorized, be able to make changes. Only one person can edit the VCD at a time, although other users can browse the current saved version of the VCD. (Of course, they won't see the changes you make to the VCD until you finish editing it and they exit and browse it again.)

The panel to edit the VCD is very similar to the panel for browsing it:

The display is scrollable backward and forward with the usual ISPF commands and PF keys. You can use line commands on the edit panel to add (A), update (U), and delete (D) entries in the VCD. (In addition, you can use the primary command ADD to add an entry to the VCD.) You can enter more than one line command on the panel, and each is processed in turn.

Adding records to the VCD

To add a new record modeled on an existing record, use the A line command next to the record you want to copy, like this:

```

TICTOC ----- EDIT VIRTUAL CLOCK DATASET ---- ROW 000001 OF 000021
COMMAND ==>
NAME      TYPE   DATE       TIME   STATUS      LAST UPDATED BY
ACT19991  JOB   1999/07/01 00:00  ENA AUDN   98/02/05 13:19 ACDB425
ACT20001  JOB   2000/01/01 *      ENA AUDN   98/02/11 10:47 ACDB400
ADMN100   TSU   2000/01/01 *      ENA AUDN   98/02/20 10:26 ADMN100
ADMN101   TSU   2000/01/01 *      ENA AUDN   98/02/20 10:26 ADMN100
ADMN102   TSU   2000/01/01 *      ENA AUDN   98/02/20 10:27 ADMN100
ADMN103   TSU   2000/01/01 *      ENA AUDN   98/02/20 10:27 ADMN100
ADMN104   TSU   2000/01/01 *      ENA AUDN   98/02/20 10:27 ADMN100
ADMN105   TSU   2000/01/01 *      ENA AUDN   98/02/20 10:28 ADMN100
IMSMPT2   STC   EXCLUDE    ENA AUDN   98/02/28 12:32 SYSI420
IMSMPT*   STC   *          ENA AUDN   98/02/28 12:34 SYSI420
A MN??TIC JOB   2000/01/01 *      ENA AUDF   98/02/16 14:52 SYDB007
ORDRTST0 JOB   *          ENA AUDY   98/02/06 11:22 USER330
ORDRTST? JOB   2000/01/01 *      ENA AUDY   98/02/06 11:23 USER330
PITRN008  IMS   *          ENA AUDN   98/02/19 13:19 USER106
PITRN045  IMS   *          ENA AUDN   98/02/19 13:19 USER106
PITRN2*   IMS   *          ENA AUDN   98/02/22 08:57 SYSI420
PITRN*    IMS   1999/12/31 23:59  ENA AUDN   98/02/19 13:21 USER106
SIMBKUPM  JOB   +31        23:59  ENA AUDF   98/02/19 15:02 SYST093
SIMBKUPW  JOB   +7         23:59  ENA AUDF   98/02/19 15:02 SYST093
SYTP01    JOB   *          -03:00  ENA AUDN   98/02/16 09:31 SYTP070
SYTP*     JOB   *          *       ENA AUDN   98/02/16 09:28 SYTP070
    
```

When you press ENTER, a panel like this is displayed:

```

TICTOC ----- VIRTUAL CLOCK ADDITION -----
COMMAND ==> _

Name      ==> MN??TIC      Job/application name or generic pattern
Type      ==> JOB           'JOB', 'STC', 'TSU', 'USR', 'IMS'
Date      ==> 2000/01/01  Start date in YYYY/MM/DD format,
                        a number from -9999 to +9999 days,
                        '*' for actual current date
                        or 'X' to exclude entry from
                        TICTOC virtual timing services

Time      ==> *         Start time in HH:MM format,
                        a number from -23:59 to 23:59 hours
                        or '*' for actual current time

Enable?   ==> YES      Enable and activate entry? (YES or NO)
Audit?    ==> FULL    Enable Auditing? (YES, NO, or FULL)

Press the END key to add a new virtual clock definition.

Use the CANCEL command to cancel the request.
    
```

As you can see, this displays the fields in the VCD entry in full-panel mode. You can change the fields as you like.

Adding records to the VCD

```

TICTOC ----- VIRTUAL CLOCK ADDITION -----
COMMAND ==> _

Name  ==> MN*           Job/application name or generic pattern
Type  ==> JOB           'JOB', 'STC', 'TSU', 'USR', 'IMS'
Date  ==> 2000/02/29   Start date in YYYY/MM/DD format,
                        a number from -9999 to +9999 days,
                        '*' for actual current date
                        or 'X' to exclude entry from
                        TICTOC virtual timing services
Time   ==> *           Start time in HH:MM format,
                        a number from -23:59 to 23:59 hours
                        or '*' for actual current time
Enable? ==> YES       Enable and activate entry? (YES or NO)
Audit? ==> NO         Enable Auditing? (YES, NO, or FULL)

Press the END key to add a new virtual clock definition.

Use the CANCEL command to cancel the request.

```

To save the changes, press END. (To cancel, enter the CANCEL command.) In either case, you are returned to the VCD edit panel. If you haven't canceled the operation, the new VCD entry is added to the display in the proper order (according to job name):

```

TICTOC ----- EDIT VIRTUAL CLOCK DATASET ----- RECORD ADDED
COMMAND ==>                                     SCROLL ==> CSR
NAME      TYPE  DATE      TIME  STATUS      LAST UPDATED BY
ACT19991  JOB   1999/07/01 00:00  ENA AUDN    98/02/05 13:19 ACDB425
ACT20001  JOB   2000/01/01 *      ENA AUDN    98/02/11 10:47 ACDB400
ADMN100   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN101   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN102   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN103   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN104   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN105   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:28 ADMN100
IMSMPT2   STC   EXCLUDE      ENA AUDN    98/02/28 12:32 SYSI420
IMSMPT*   STC   *            ENA AUDN    98/02/28 12:34 SYSI420
MN??TIC  JOB   2000/01/01 *      ENA AUDF    98/02/16 14:52 SYDB007
MN*       JOB   2000/02/29 *      ENA AUDN    98/04/11 10:41 SYDB011
ORDRTST0 JOB   *            ENA AUDY    98/02/06 11:22 USER330
ORDRTST? JOB   2000/01/01 *      ENA AUDY    98/02/06 11:23 USER330
PITRN008 IMS   *            ENA AUDN    98/02/19 13:19 USER106
PITRN045 IMS   *            ENA AUDN    98/02/19 13:19 USER106
PITRN2*   IMS   *            ENA AUDN    98/02/22 08:57 SYSI420
PITRN*    IMS   1999/12/31 23:59  ENA AUDN    98/02/19 13:21 USER106
SIMBKUPM JOB   +31         23:59  ENA AUDF    98/02/19 15:02 SYST093
SIMBKUPW JOB   +7         23:59  ENA AUDF    98/02/19 15:02 SYST093
SYTP01    JOB   *           -03:00  ENA AUDN    98/02/16 09:31 SYTP070

```

To add a new record without modeling an existing record, use the ADD primary command, like this:

```

TICTOC ----- EDIT VIRTUAL CLOCK DATASET ---- ROW 000001 OF 000022
COMMAND ==> ADD
NAME      TYPE  DATE      TIME     STATUS      LAST UPDATED BY
ACT19991  JOB  1999/07/01 00:00   ENA AUDN    98/02/05 13:19 ACDB425
ACT20001  JOB  2000/01/01 *       ENA AUDN    98/02/11 10:47 ACDB400
ADMN100   TSU  2000/01/01 *       ENA AUDN    98/02/20 10:26 ADMN100
ADMN101   TSU  2000/01/01 *       ENA AUDN    98/02/20 10:26 ADMN100
ADMN102   TSU  2000/01/01 *       ENA AUDN    98/02/20 10:27 ADMN100
ADMN103   TSU  2000/01/01 *       ENA AUDN    98/02/20 10:27 ADMN100
ADMN104   TSU  2000/01/01 *       ENA AUDN    98/02/20 10:27 ADMN100
ADMN105   TSU  2000/01/01 *       ENA AUDN    98/02/20 10:28 ADMN100
IMSMPRT2  STC  EXCLUDE          ENA AUDN    98/02/28 12:32 SYSI420
IMSMPRT*  STC  *                ENA AUDN    98/02/28 12:34 SYSI420
MN??TIC  JOB  2000/01/01 *       ENA AUDF    98/02/16 14:52 SYDB007
MN*      JOB  2000/02/29 *       ENA AUDN    98/04/11 10:41 SYDB011
ORDRTST0 JOB  *                ENA AUDY    98/02/06 11:22 USER330
ORDRTST? JOB  2000/01/01 *       ENA AUDY    98/02/06 11:23 USER330
PITRN008 IMS  *                ENA AUDN    98/02/19 13:19 USER106
PITRN045 IMS  *                ENA AUDN    98/02/19 13:19 USER106
PITRN2*  IMS  *                ENA AUDN    98/02/22 08:57 SYSI420
PITRN*   IMS  1999/12/31 23:59  ENA AUDN    98/02/19 13:21 USER106
SIMBKUPM JOB  +31             23:59  ENA AUDF    98/02/19 15:02 SYST093
SIMBKUPW JOB  +7             23:59  ENA AUDF    98/02/19 15:02 SYST093
SYTP01   JOB  *                -03:00  ENA AUDN    98/02/16 09:31 SYTP070
    
```

When you press ENTER, the panel for adding a record is displayed with blank fields:

```

TICTOC ----- VIRTUAL CLOCK ADDITION -----
COMMAND ==> _

Name      ==>          Job/application name or generic pattern
Type      ==>          'JOB', 'STC', 'TSU', 'USR', 'IMS'
Date      ==>          Start date in YYYY/MM/DD format,
                        number from -9999 to +9999 days,
                        '*' for actual current date
                        or 'X' to exclude entry from
                        TICTOC virtual timing services
Time      ==>          Start time in HH:MM format,
                        a number from -23:59 to 23:59 hours
                        or '*' for actual current time
Enable?   ==>          Enable and activate entry? (YES or NO)
Audit?    ==>          Enable Auditing? (YES, NO, or FULL)
    
```

Press the END key to add a new virtual clock definition.

Use the CANCEL command to cancel the request.

Fill in the information you want:

Adding records to the VCD

```
TICTOC ----- VIRTUAL CLOCK ADDITION -----
COMMAND ==> _

Name   ==> Z*           Job/application name or generic pattern
Type   ==> JOB          'JOB', 'STC', 'TSU', 'USR', 'IMS'
Date   ==> 2004/02/29  Start date in YYYY/MM/DD format,
                        number from -9999 to +9999 days,
                        '*' for actual current date
                        or 'X' to exclude entry from
                        TICTOC virtual timing services
Time   ==> *           Start time in HH:MM format,
                        a number from -23:59 to 23:59 hours
                        or '*' for actual current time
Enable? ==> YES        Enable and activate entry? (YES or NO)
Audit? ==> NO         Enable Auditing? (YES, NO, or FULL)

Press the END key to add a new virtual clock definition.

Use the CANCEL command to cancel the request.
```

Then press ENTER. The VCD edit panel is again displayed, with the new entry added in the correct location:

```
TICTOC ----- EDIT VIRTUAL CLOCK DATASET ----- RECORD ADDED
COMMAND
==> _
CSR
SCROLL ==>
NAME      TYPE  DATE      TIME  STATUS      LAST UPDATED BY
ACT20001  JOB   2000/01/01 *     ENA AUDN    98/02/11 10:47 ACDB400
ADMN100   TSU   2000/01/01 *     ENA AUDN    98/02/20 10:26 ADMN100
ADMN101   TSU   2000/01/01 *     ENA AUDN    98/02/20 10:26 ADMN100
ADMN102   TSU   2000/01/01 *     ENA AUDN    98/02/20 10:27 ADMN100
ADMN103   TSU   2000/01/01 *     ENA AUDN    98/02/20 10:27 ADMN100
ADMN104   TSU   2000/01/01 *     ENA AUDN    98/02/20 10:27 ADMN100
ADMN105   TSU   2000/01/01 *     ENA AUDN    98/02/20 10:28 ADMN100
IMSPRT2   STC   EXCLUDE          ENA AUDN    98/02/28 12:32 SYSI420
IMSPRT*   STC   *                ENA AUDN    98/02/28 12:34 SYSI420
MN??TIC  JOB   2000/01/01 *     ENA AUDF    98/02/16 14:52 SYDB007
MN*       JOB   2000/02/29 *     ENA AUDN    98/04/11 10:41 SYDB011
ORDRTST0  JOB   *                ENA AUDY    98/02/06 11:22 USER330
ORDRTST?  JOB   2000/01/01 *     ENA AUDY    98/02/06 11:23 USER330
PITRN008  IMS   *                ENA AUDN    98/02/19 13:19 USER106
PITRN045  IMS   *                ENA AUDN    98/02/19 13:19 USER106
PITRN2*   IMS   *                ENA AUDN    98/02/22 08:57 SYSI420
PITRN*    IMS   1999/12/31 23:59 ENA AUDN    98/02/19 13:21 USER106
SIMBKUPM  JOB   +31              23:59 ENA AUDF    98/02/19 15:02 SYST093
SIMBKUPW  JOB   +7               23:59 ENA AUDF    98/02/19 15:02 SYST093
SYTP01    JOB   *                -03:00 ENA AUDN    98/02/16 09:31 SYTP070
Z*        JOB   2004/02/29 *     ENA AUDN    98/04/11 10:47 SYDB011
```

Changing records in the VCD

If you want to change the processing specifications for a particular entry in the VCD, use the U line command next to the entry you want to change, like this:

```

TICTOC ----- EDIT VIRTUAL CLOCK DATASET ---- ROW 000001 OF 000022
COMMAND ==> ADD
NAME      TYPE  DATE      TIME  STATUS      LAST UPDATED BY
U ACT19991 JOB   1999/07/01 00:00  ENA AUDN    98/02/05 13:19 ACDB425
ACT20001  JOB   2000/01/01 *      ENA AUDN    98/02/11 10:47 ACDB400
ADMN100   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN101   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN102   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN103   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN104   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN105   TSU   2000/01/01 *      ENA AUDN    98/02/20 10:28 ADMN100
IMSMPT2   STC   EXCLUDE    ENA AUDN    98/02/28 12:32 SYSI420
IMSMPT*   STC   *          ENA AUDN    98/02/28 12:34 SYSI420
MN??TIC  JOB   2000/01/01 *      ENA AUDF    98/02/16 14:52 SYDB007
MN*       JOB   2000/02/29 *      ENA AUDN    98/04/11 10:41 SYDB011
ORDRTST0  JOB   *          ENA AUDY    98/02/06 11:22 USER330
ORDRTST?  JOB   2000/01/01 *      ENA AUDY    98/02/06 11:23 USER330
PITRN008  IMS   *          ENA AUDN    98/02/19 13:19 USER106
PITRN045  IMS   *          ENA AUDN    98/02/19 13:19 USER106
PITRN2*   IMS   *          ENA AUDN    98/02/22 08:57 SYSI420
PITRN*    IMS   1999/12/31 23:59  ENA AUDN    98/02/19 13:21 USER106
SIMBKUPM  JOB   +31        ENA AUDF    98/02/19 15:02 SYST093
SIMBKUPW  JOB   +7         ENA AUDF    98/02/19 15:02 SYST093
SYTP01    JOB   *          ENA AUDN    98/02/16 09:31 SYTP070
    
```

The entry is displayed in full-panel mode, like this:

```

TICTOC ----- VIRTUAL CLOCK UPDATE -----
COMMAND ==> _

Name      : ACT19991      Job/application name or generic pattern
Type      : JOB          'JOB', 'STC', 'TSU', 'USR', 'IMS'
Date      ==> 1999/07/01 Start date in YYYY/MM/DD format,
                        a number from -9999 to +9999 days,
                        '*' for actual current date
                        or 'X' to exclude entry from
                        TICTOC virtual timing services
Time      ==> 00:00      Start time in HH:MM format,
                        a number from -23:59 to 23:59 hours
                        or '*' for actual current time
Enable?   ==> YES       Enable and activate entry? (YES or NO)
Audit?    ==> NO        Enable Auditing? (YES, NO, or FULL)

Press the END key to update the virtual clock definition.

Use the CANCEL command to cancel the request.
    
```

You can change the date, the time, whether or not the entry is to be enabled and whether auditing is to be in effect (you can't change the name or the entry type).

In this example, an entry is being updated to exclude the named job from being eligible to execute under virtual time. This is done by typing the word "EXCLUDE", or just the letter "X", into the date field, as follows:

Changing records in the VCD

```
TICTOC ----- VIRTUAL CLOCK UPDATE -----  
COMMAND ==> _
```

```
Name      : ACT19991      Job/application name or generic pattern  
Type      : JOB          'JOB', 'STC', 'TSU', 'USR', 'IMS'  
Date      ==> X         Start date in YYYY/MM/DD format,  
                        a number from -9999 to +9999 days,  
                        '*' for actual current date  
                        or 'X' to exclude entry from  
                        TICTOC virtual timing services  
Time      ==> *         Start time in HH:MM format,  
                        a number from -23:59 to 23:59 hours  
                        or '*' for actual current time  
Enable?   ==> YES       Enable and activate entry? (YES or NO)  
Audit?    ==> FULL      Enable Auditing? (YES, NO, or FULL)
```

Press the END key to update the virtual clock definition.

Use the CANCEL command to cancel the request.

When you press END, the changes are reflected in the VCD list:

```
TICTOC ----- EDIT VIRTUAL CLOCK DATASET ---- ROW 000001 OF 000022  
COMMAND ==> ADD  
NAME      TYPE  DATE      TIME  STATUS      LAST UPDATED BY  
ACT19991  JOB  EXCLUDE          *  ENA AUDF    98/04/11 10:52 SYDB011  
ACT20001  JOB  2000/01/01 *  ENA AUDN    98/02/11 10:47 ACDB400  
ADMN100   TSU  2000/01/01 *  ENA AUDN    98/02/20 10:26 ADMN100  
ADMN101   TSU  2000/01/01 *  ENA AUDN    98/02/20 10:26 ADMN100  
ADMN102   TSU  2000/01/01 *  ENA AUDN    98/02/20 10:27 ADMN100  
ADMN103   TSU  2000/01/01 *  ENA AUDN    98/02/20 10:27 ADMN100  
ADMN104   TSU  2000/01/01 *  ENA AUDN    98/02/20 10:27 ADMN100  
ADMN105   TSU  2000/01/01 *  ENA AUDN    98/02/20 10:28 ADMN100  
IMSMPT2   STC  EXCLUDE          *  ENA AUDN    98/02/28 12:32 SYSI420  
IMSMPT*   STC  *                *  ENA AUDN    98/02/28 12:34 SYSI420  
MN??TIC  JOB  2000/01/01 *  ENA AUDF    98/02/16 14:52 SYDB007  
MN*       JOB  2000/02/29 *  ENA AUDN    98/04/11 10:41 SYDB011  
ORDRTST0  JOB  *                *  ENA AUDY    98/02/06 11:22 USER330  
ORDRTST?  JOB  2000/01/01 *  ENA AUDY    98/02/06 11:23 USER330  
PITRN008  IMS  *                *  ENA AUDN    98/02/19 13:19 USER106  
PITRN045  IMS  *                *  ENA AUDN    98/02/19 13:19 USER106  
PITRN2*   IMS  *                *  ENA AUDN    98/02/22 08:57 SYSI420  
PITRN*    IMS  1999/12/31 23:59 ENA AUDN    98/02/19 13:21 USER106  
SIMBKUPM  JOB  +31             23:59 ENA AUDF    98/02/19 15:02 SYST093  
SIMBKUPW  JOB  +7              23:59 ENA AUDF    98/02/19 15:02 SYST093  
SYTP01    JOB  *              -03:00 ENA AUDN    98/02/16 09:31 SYTP070
```

Deleting records from the VCD

To remove an existing entry, use the D line command next to the entry you want to delete, like this:

Deleting records from the VCD

```
TICTOC ----- EDIT VIRTUAL CLOCK DATASET ---- ROW 000001 OF 000022
COMMAND ==> ADD
NAME      TYPE  DATE      TIME  STATUS      LAST UPDATED BY
ACT19991  JOB  1999/07/01 00:00  ENA AUDN    98/02/05 13:19 ACDB425
ACT20001  JOB  2000/01/01 *      ENA AUDN    98/02/11 10:47 ACDB400
ADMN100   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN101   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN102   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN103   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN104   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN105   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:28 ADMN100
IMSMPT2   STC  EXCLUDE    ENA AUDN    98/02/28 12:32 SYSI420
IMSMPT*   STC  *          ENA AUDN    98/02/28 12:34 SYSI420
D MN???TIC JOB  2000/01/01 *      ENA AUDF    98/02/16 14:52 SYDB007
MN*       JOB  2000/02/29 *      ENA AUDN    98/04/11 10:41 SYDB011
ORDRTST0  JOB  *          ENA AUDY    98/02/06 11:22 USER330
ORDRTST?  JOB  2000/01/01 *      ENA AUDY    98/02/06 11:23 USER330
PITRN008  IMS  *          ENA AUDN    98/02/19 13:19 USER106
PITRN045  IMS  *          ENA AUDN    98/02/19 13:19 USER106
PITRN2*   IMS  *          ENA AUDN    98/02/22 08:57 SYSI420
PITRN*    IMS  1999/12/31 23:59  ENA AUDN    98/02/19 13:21 USER106
SIMBKUPM  JOB  +31       23:59  ENA AUDF    98/02/19 15:02 SYST093
SIMBKUPW  JOB  +7        23:59  ENA AUDF    98/02/19 15:02 SYST093
SYTP01    JOB  *         -03:00  ENA AUDN    98/02/16 09:31 SYTP070
```

By default, a confirmation panel is displayed, like this:

```
TICTOC ----- VIRTUAL CLOCK DELETE CONFIRMATION -----
COMMAND ==> _

Name      : MN???TIC
Type      : JOB
Date      : 2000/01/01
Time      : *
Enable?   : YES
Audit     : FULL

Press the END key to delete the virtual clock definition.
Use the CANCEL command to cancel the request.
```

Press END to confirm the deletion (or enter the CANCEL command to cancel the deletion).

The VCD is updated:

Deleting records from the VCD

```
TICTOC ----- EDIT VIRTUAL CLOCK DATASET ---- ROW 000001 OF 000022
COMMAND ==> ADD
NAME      TYPE  DATE      TIME  STATUS      LAST UPDATED BY
ACT19991  JOB  1999/07/01 00:00  ENA AUDN    98/02/05 13:19 ACDB425
ACT20001  JOB  2000/01/01 *      ENA AUDN    98/02/11 10:47 ACDB400
ADMN100   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN101   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:26 ADMN100
ADMN102   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN103   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN104   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:27 ADMN100
ADMN105   TSU  2000/01/01 *      ENA AUDN    98/02/20 10:28 ADMN100
IMSMPT2   STC  EXCLUDE    ENA AUDN    98/02/28 12:32 SYSI420
IMSMPT*   STC  *          ENA AUDN    98/02/28 12:34 SYSI420
MN*       JOB  2000/02/29 *      ENA AUDN    98/04/11 10:41 SYDB011
ORDRTST0  JOB  *          ENA AUDY    98/02/06 11:22 USER330
ORDRTST?  JOB  2000/01/01 *      ENA AUDY    98/02/06 11:23 USER330
PITRN008  IMS  *          ENA AUDN    98/02/19 13:19 USER106
PITRN045  IMS  *          ENA AUDN    98/02/19 13:19 USER106
PITRN2*   IMS  *          ENA AUDN    98/02/22 08:57 SYSI420
PITRN*    IMS  1999/12/31 23:59  ENA AUDN    98/02/19 13:21 USER106
SIMBKUPM  JOB  +31       23:59  ENA AUDF    98/02/19 15:02 SYST093
SIMBKUPW  JOB  +7        23:59  ENA AUDF    98/02/19 15:02 SYST093
SYTP01    JOB  *         -03:00  ENA AUDN    98/02/16 09:31 SYTP070
Z*        JOB  2004/02/29 *      ENA AUDF    98/04/11 10:47 SYDB011
```

Note: You can control whether or not a confirmation panel is displayed when deleting VCD entries by choosing O (Options) from the ATF main menu.

Printing the VCD

Printing the VCD is an option on the ATF main menu. To print, select the **P** option. A panel is displayed, like this:

```
TICTOC ----- PRINT VIRTUAL CLOCK DATASET -----
COMMAND ==> _

Output Class ==> ('A'-'Z', '1'-'9' or '*')
Destination ID ==>
Hold? ==> ('YES' or 'NO')

Job Statement 1 ==>
                2 ==>
                3 ==>
                4 ==>

Fill in the above information and press the END key to submit the print job.

Use the CANCEL command to cancel the request.
```

As you can see, you can set the output class, the destination, whether or not the print job is to be held, and the JCL to use to submit it. (These settings are retained across ISPF sessions.)

```
TICTOC ----- PRINT VIRTUAL CLOCK DATASET -----
COMMAND ==> _
```

```
Output Class ==> * ('A'-'Z', '1'-'9' or '*')
Destination ID ==> U245
Hold? ==> N ('YES' or 'NO')
```

```
Job Statement 1 ==> //SYDB011A JOB (245,B33,0197),'PRINT VCD'
                2 ==> // CLASS=S,MSGCLASS=A
                3 ==> //*
                4 ==> /*
```

Fill in the above information and press the END key to submit the print job.

Use the CANCEL command to cancel the request.

To submit the print job, press END. A confirmation message is displayed, like this:

```
TICTOC ----- TICTOC PRIMARY OPTION MENU -- PRINT REQUEST SUBMITTED
OPTION ==> _
```

Specify one of the following options:

- B BROWSE - Browse virtual clock definitions
- E EDIT - Edit and update virtual clock definitions
- O OPTIONS - Update your online session execution options
- P PRINT - Print the VCD dataset's contents
- R REFRESH - Refresh currently active virtual clock definitions
- X EXIT - Terminate and exit this TICTOC user session

```

          TT                      TT
          TT                      TT
TTTTTTTTT  II  CCCCCC  TTTTTTTTTT  0000000  CCCCCC
          TT  II  CC  CC  TT          00  00  CC  CC
          TT TT  II  CC  CC  TT TT    00  00  CC
          TT TT  II  CC  CC  TT TT    00  00  CC  CC
          TTT  II  CCCCC  TTT        000000  CCCCC

```

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Refreshing the VCD

As explained earlier, the VCD in memory is considered the “active” VCD. Changes you make to the VCD don’t take effect until you cause the new VCD to be read into memory again. This is called *refreshing* the VCD.

To refresh the VCD, select the **R** option from the ATF main menu. A confirmation message is displayed, like this:

Refreshing the VCD

```
TICTOC ----- TICTOC PRIMARY OPTION MENU -- REFRESH COMMAND ISSUED
OPTION ==> _

Specify one of the following options:

B BROWSE - Browse virtual clock definitions
E EDIT - Edit and update virtual clock definitions
O OPTIONS - Update your online session execution options
P PRINT - Print the VCD dataset's contents
R REFRESH - Refresh currently active virtual clock definitions
X EXIT - Terminate and exit this TICTOC user session

      TT          TT
      TT          TT
TTTTTTTTTT  II  CCCCCC  TTTTTTTTTT  000000  CCCCCC
      TT  TT  II  CC  CC  TT  TT  00  00  CC  CC
      TT  TT  II  CC  CC  TT  TT  00  00  CC  CC
      TTT  II  CCCCC  TTT  000000  CCCCC

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```

Changes to the active VCD affect only jobs that are started after the VCD is refreshed. Jobs already running are unaffected (even if they turn the virtual date off and on again).

Changing user options

To change the way the date is displayed on your panels and whether or not a confirmation is displayed on deletion, select **O** from the ATF main menu. A panel like this is displayed:

```
TICTOC ----- ONLINE OPTION SETTINGS -----
COMMAND ==> _

Online Date Display Format ==> 1 ('1'-'5')
  Formats available (using January 25th, 1993 as an example):
  1 - 1993/01/25 2 - 01/25/1993 3 - 25/01/1993 4 - 25JAN1993 5 - 1993.025

Confirm Virtual Clock Deletions? ==> YES ('YES' or 'NO')

Press the END key to save online option settings.
Use the CANCEL command to cancel the request.
```

Date formats

As you can see, you can choose one of five different date formats for date display and entry on the ATF online interface panels. (Real dates are displayed using a two-digit year; virtual dates are entered and displayed using the corresponding four-digit-year format.)

Note: The format you specify here has nothing to do with the date format ATF expects when you specify a virtual date via the JCL interface or batch utility program.

Confirmation of deletion

As mentioned earlier, ATF by default displays a confirmation panel when you ask to delete a VCD entry. If you prefer, you can tell ATF to process such deletions without confirming by changing the appropriate setting on the User Options panel.

After you have set the user options, as you like them, press END. A confirmation message is displayed, like this:

```
TICTOC ----- TICTOC PRIMARY OPTION MENU ----- OPTIONS UPDATED
OPTION ==>
```

Specify one of the following options:

```
B BROWSE - Browse virtual clock definitions
E EDIT - Edit and update virtual clock definitions
O OPTIONS - Update your online session execution options
P PRINT - Print the VCD dataset's contents
R REFRESH - Refresh currently active virtual clock definitions
X EXIT - Terminate and exit this TICTOC user session
```

```

      TT
      TT
TTTTTTTTT  II  CCCCCC  TTTTTTTTTT  0000000  CCCCCC
      TT      II  CC  CC      TT      00  00  CC  CC
      TT TT  II  CC  CC      TT TT  00  00  CC  CC
      TT TT  II  CC  CC      TT TT  00  00  CC  CC
      TTT   II  CCCCCC  TTT          000000  CCCCCC
```

```
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```

Confirmation of deletion

Chapter 5. Using the batch utility program

The batch utility program, CIKUPVCD, allows you to add, delete and update virtual clock definitions in the VCD using batch job submission. The batch functions are similar to those available with the ATF online interface.

The Virtual Clock Record (VCRECORD) transaction statements, read by the batch utility program, identify the function to be performed and virtual clock definition's settings.

VCRECORD transaction statements offer additional flexibility over the online interface's Edit option. You can use VCRECORD statements to specify VCD entries by pattern, for update and delete processing. This allows, for example, all virtual clocks with similar job names to be updated or deleted through the use of a single transaction statement.

JCL requirements

Use the sample JCL below or member CIKUPVCD, supplied in the ATF sample library, to create and submit a job that executes CIKUPVCD:

```
//UPVCD   EXEC PGM=CIKUPVCD
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG  DD SYSOUT=*
//TICIN   DD *
          [DATEFRMT={1|2|3|4|5}]

          VCRECORD=function,jobname,jobtype,date,time,status,match,audit
          .
          . (Additional VCRECORD transaction statements)
          .
          [REFRESH={YES|NO}]
/*
```

Note: If your ATF load library is in the LINKLIST or if the ATF load modules are in the LPA, the STEPLIB statement (in this and all JCL examples) should be omitted. Otherwise, the STEPLIB statement must specify the dataset name of the ATF load library. Also, if your TICLOG is being dynamically allocated, the TICLOG statement (in this and all JCL examples that follow) should be omitted. For guidance on including or excluding the STEPLIB and TICLOG statements, check with your ATF installation administrator.

VCRECORD transaction statement parameters

VCRECORD transaction statements have the following format:

```
VCRECORD=function,name,type,date,time,status,match,audit
```

where:

FUNCTION

This required parameter indicates the type of VCD processing the transaction performs, ADD, UPDATE, and DELETE entries in the VCD.

NAME

This required parameter specifies the job, started task, TSO user, IMS user

VCRECORD transaction statement parameters

or IMS application name or the generic name pattern associated with the virtual clock definitions that are to be affected by the VCRECORD transaction.

The name in virtual clock definitions in the VCD dataset can contain wildcard characters to indicate that the definition applies to all jobs matching a particular pattern. A question mark (“?”) matches any single character in the corresponding position. An asterisk (“*”) matches zero or more characters from the location of the asterisk to the end of the name. For example, an entry for “ACCT*” matches all jobs with names starting with “ACCT”. An entry of “A??T*” matches all jobs with an “A” in the first position and a “T” in the fourth position. ATF permits the use of up to eight question marks but only one asterisk. Note that a pattern of “???????” matches only names that are seven characters long but “*” matches all names of any length.

TYPE Defines whether the entry applies to jobs (JOB), TSO user IDs (TSU), started tasks (STC), IMS user IDs (USR) or IMS message region applications (IMS).

DATE Specifies one of the following:

- The virtual date that matching regions, users or applications are to start running under. The date can be specified as an absolute date from January 1, 1990 through December 31, 2039 or as a number of days relative to the current date, from -9999 to +9999. See the following description of the DATEFRMT statement to determine the format to use when specifying an absolute date.
- An asterisk (“*”) for the current system date. If both the date and time values in a virtual clock definition are set to asterisks, regions, users or applications associated with the virtual clock definition are eligible to use the ATF JCL Interface programs CIKTICON and CIKICOFF to control virtual timing. Refer to the section entitled “Using the JCL Interface” earlier in this document for instructions on using programs CIKTICON and CIKICOFF.
- The word “EXCLUDE” to explicitly exclude matching regions, users or applications from being eligible for ATF virtual timing services.

The date parameter is required for ADD transactions and must not be specified for DELETE transactions. For UPDATE transactions, the date parameter is optional, unless the time and status parameters were both not specified. When date is not specified, the existing date in updated virtual clock records remains unchanged.

TIME Specifies the virtual time as an absolute time from 00:00 through 23:59 or as a number of hours and minutes relative to the current time, from -23:59 to +23:59. An asterisk (“*”) can be specified instead of a time to indicate that the current time, during a job’s execution under virtual timing, is to be associated with the virtual clock definition.

If both the date and time values in a virtual clock definition are set to asterisks, jobs associated with the virtual clock definition are eligible to use the ATF JCL Interface programs CIKTICON and CIKICOFF to control virtual timing. Refer to the section entitled “Using the JCL Interface” earlier in this document for instructions on using programs CIKTICON and CIKICOFF.

The time parameter is required for ADD transactions and must not be specified for DELETE transactions. For UPDATE transactions, the time

VCRECORD transaction statement parameters

parameter is optional, unless the date and status parameters were both not specified. When time is not specified, the existing time in updated virtual clock records remains unchanged.

STATUS

Activates (ENABLE) or deactivates (DISABLE) the virtual clock definition's use by ATF.

The status parameter defaults to ENABLE for ADD transactions and must not be specified for DELETE transactions.

For UPDATE transactions, the status parameter is optional, unless the date and time parameters were both not specified. When status is not specified, the existing status of updated virtual clock records remains unchanged.

MATCH

Specifying EXACT causes the transaction to process a virtual clock definition whose name and type exactly match those specified by the transaction. Specifying PATTERN causes the transaction to affect all virtual clock definitions matching the transaction's name pattern and type.

For example, to disable all virtual clock definition records for jobs, TSO users and started tasks beginning with the letters "ACCT", you would specify the following VCRECORD transaction statements:

```
VCRECORD=UPDATE,ACCT*,JOB,,DISABLE,PATTERN
VCRECORD=UPDATE,ACCT*,TSU,,DISABLE,PATTERN
VCRECORD=UPDATE,ACCT*,STC,,DISABLE,PATTERN
```

In contrast, in order to disable only the virtual clocks defined with the specific job name pattern of "ACCT*", without affecting any other definitions, execute the following:

```
VCRECORD=UPDATE,ACCT*,JOB,,DISABLE
VCRECORD=UPDATE,ACCT*,TSU,,DISABLE
VCRECORD=UPDATE,ACCT*,STC,,DISABLE
```

If not specified, the match parameter defaults to EXACT, as is the case in the example above.

AUDIT

Three audit options are available. NO is for entries not to be audited at all. YES means that standard auditing is to be in effect. FULL indicates that full detailed auditing is to be in effect.

The audit parameter defaults to NO for ADD transactions and must not be specified for DELETE transactions.

For UPDATE transactions, the audit parameter is optional. When audit is not specified, the existing audit settings of updated virtual clock records remains unchanged.

Refreshing the VCD

As explained earlier, the VCD in memory is considered the "active" VCD. Changes you make to the VCD don't take effect until you cause the new VCD to be read into memory again. This is called *refreshing* the VCD.

To refresh the VCD using the batch program, specify the REFRESH statement after the VCRECORD statements, like this:

Refreshing the VCD

```
//          EXEC PGM=CIKUPVCD
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG DD SYSOUT=*
//TICIN DD *
VCRECORD=ADD,PROJ47*,JOB,*,16:00,ENABLE,YES
REFRESH=YES
/*
```

Specifying a special date format

ATF can recognize any of five possible date formats:

- 1 YYYY/MM/DD (examples: 1999/12/31, 2000/01/15)
- 2 MM/DD/YYYY (examples: 12/31/1999, 01/15/2000)
- 3 DD/MM/YYYY (examples: 31/12/1999, 15/01/2000)
- 4 DDMONYYYY (examples: 31DEC1999, 15JAN2000)
- 5 YYYY.DDD (examples: 1999.365, 2000.015)

Note: Real dates are displayed in the corresponding two-digit-year format, such as YY/MM/DD.

When ATF was installed, a default format was set. ATF expects the date you specify via the JCL interface to be in the format specified as your installation default. If you wish to use a different date format in your VCRECORD statement, you must specify it here in a DATEFRMT statement before the VCRECORD statement itself, like this:

```
//          EXEC PGM=CIKUPVCD
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICLOG DD SYSOUT=*
//TICIN DD *
DATEFRMT=4
VCRECORD=ADD,SY2K*,JOB,31DEC1999,23:55,ENABLE,FULL
/*
```

Adding comments

You can insert comments freely into your input to TICIN. Comments are indicated by an asterisk in column one. You can also add comments on a parameter card, separated from the parameter by a space. For example:

```
//          EXEC PGM=CIKUPVCD
//STEPLIB DD DISP=SHR,DSN=ATF.V287.ACIKLOAD
//TICIN DD *
*
* This sets the job to just before New Year's Day, 2000.
*
VCRECORD=ADD,S80Y2KMN,JOB,1999/12/31,23:59,ENABLE This adds an entry
*                                           for new year's eve, 1999
*                                           and sets the time to a
*                                           minute before midnight.
/*
```

Chapter 6. Making IMS users and applications eligible for virtual timing

ATF provides special support for date testing of IMS/DC MPR and BMP message regions on a per user and application basis. This support includes having the local date and time fields in the IMS transaction's IOPCB control block reflect the virtual date and time. No changes need to be made to any IMS system components, definitions or applications.

Defining IMS message regions to ATF

Participating IMS/DC MPR and BMP message regions must be defined to ATF as jobs or started tasks, whichever they execute as, with both the date and time fields set to an asterisk ("*"), as in the following example using the online interface:

```
TICTOC ----- VIRTUAL CLOCK ADDITION -----  
COMMAND ==> _
```

```
Name   ==> IMSMPRT*      Job/application name or generic pattern  
Type   ==> STC          'JOB', 'STC', 'TSU', 'USR', 'IMS'  
Date   ==> *           Start date in YYYY/MM/DD format,  
                        a number from -9999 to +9999 days,  
                        '*' for actual current date  
                        or 'X' to exclude entry from  
                        TICTOC virtual timing services  
Time    ==> *           Start time in HH:MM format,  
                        a number from -23:59 to 23:59 hours  
                        or '*' for actual current time  
Enable? ==> YES        Enable and activate entry? (YES or NO)  
Audit?  ==> NO         Enable Auditing? (YES, NO, or FULL)
```

Press the END key to add a new virtual clock definition.

Use the CANCEL command to cancel the request.

Note that specifying an asterisk in both the date and time fields normally indicates that a matching job is eligible to use JCL Interface programs CIKTICON and CIKICOFF. However, when ATF determines that an executing region with such a VCD entry is an IMS/DC MPR or BMP message region, the region becomes eligible for ATF's IMS application support. CIKTICON and CIKICOFF are not available for the region.

Defining IMS users and applications to ATF

IMS user IDs and IMS application names (not IMS transaction names) are defined in the VCD the same way as jobs, started tasks, and TSO user ID entries are defined.

For IMS user IDs, the TYPE field must be set to "USR", as in the following example using the online interface:

Defining IMS users and applications to ATF

```
TICTOC ----- VIRTUAL CLOCK ADDITION -----
COMMAND ==> _

Name   ==> UW49*      Job/application name or generic pattern
Type   ==> USR        'JOB', 'STC', 'TSU', 'USR', 'IMS'
Date   ==> 2020/01/01 Start date in YYYY/MM/DD format,
                        a number from -9999 to +9999 days,
                        '*' for actual current date
                        or 'X' to exclude entry from
                        TICTOC virtual timing services
Time    ==> 00:00     Start time in HH:MM format,
                        a number from -23:59 to 23:59 hours
                        or '*' for actual current time
Enable? ==> YES       Enable and activate entry? (YES or NO)
Audit? ==> YES       Enable Auditing? (YES, NO, or FULL)

Press the END key to add a new virtual clock definition.
Use the CANCEL command to cancel the request.
```

For IMS application names, the TYPE field must be set to "IMS", as in the following example using the online interface:

```
TICTOC ----- VIRTUAL CLOCK ADDITION -----
COMMAND ==> _

Name   ==> INVC*      Job/application name or generic pattern
Type   ==> IMS        'JOB', 'STC', 'TSU', 'USR', 'IMS'
Date   ==> 2000/02/28 Start date in YYYY/MM/DD format,
                        a number from -9999 to +9999 days,
                        '*' for actual current date
                        or 'X' to exclude entry from
                        TICTOC virtual timing services
Time    ==> 23:59     Start time in HH:MM format,
                        a number from -23:59 to 23:59 hours
                        or '*' for actual current time
Enable? ==> YES       Enable and activate entry? (YES or NO)
Audit? ==> FULL       Enable Auditing? (YES, NO, or FULL)

Press the END key to add a new virtual clock definition.
Use the CANCEL command to cancel the request.
```

IMS type VCD entries must specify the name or pattern of the first application (program load module name) executed at the start of an IMS transaction.

Note: A USR type VCD entry takes precedence over an IMS type entry for IMS transactions whose user ID and application name both have matching USR and IMS type VCD entries.

Chapter 7. Making DB2 applications eligible for virtual timing

DB2 batch applications

For DB2/SQL programs running as batch jobs, define the jobs to ATF as you would any standard batch job. This can be done with an entry in the Virtual Clock Dataset or by using ATF JCL interface program CIKTICON to set the virtual date or time, or both, prior to executing the SQL application.

DB2 CICS applications

One way to test DB2/SQL applications running under CICS is to run the entire CICS region under ATF. This is done by defining the CICS region name and type in the ATF VCD or by using the ATF JCL interface program CIKTICON to set the virtual date or time, or both, prior to executing the CICS job step.

Running the entire CICS region under ATF virtual timing results in all CICS transactions, including SQL applications, receiving the virtual date and time that was set for the CICS region in the VCD.

For CICS testing at the transaction, terminal and user ID levels (or any combination of these), use ATF/CICS, which is installed and documented separately.

For additional information, refer to "Using ATF with CICS" in the *Application Time Facility for z/OS Installation and Customization Guide*.

Chapter 8. Time Services Auditing Facility

The ATF Time Services Auditing Facility records date and time call usage statistics for jobs, users and applications with matching VCD entries whose audit options are set to either YES or FULL.

The Auditing Facility writes its information to the operating system's SMF dataset. The SMF record number designated for the Auditing Facility's use was defined by the system administrator in charge of installing and customizing ATF.

A reporting program, CIKLSSMF, is provided by ATF to produce the Time Services Auditing Report. Sample JCL to extract the Auditing Facility's SMF records from the SMF dataset, sort them and produce the Time Services Auditing Report can be found in ATF sample library member CIKLSSMF.

For fully audited jobs, the Time Services Auditing Report displays detailed information, as in the following report example:

```
JOB NAME: N90Y2K  NO.: JOB07473 SYSID: OS25  ACCOUNTING: 0001,N90,5
STEP NAME: DATETEST  PROC STEP NAME:  STEP PGM: DATETST1  STEP NO.: 1
REAL: 1998/07/30 10:18:24 VIRT: 2001/01/01 00:01:03
PROGRAM: DATETST1 + 000204 ISSUED 1 TIME LINKAGE=SVC REQUESTS
PROGRAM: DATETST1 + 000212 ISSUED 1 TIME LINKAGE=SVC REQUESTS
PROGRAM: DATETST2 + 0003BA ISSUED 4 TIME LINKAGE=SYSTEM REQUESTS
PROGRAM: DATETST3 + 0003F8 ISSUED 2 TIME LINKAGE=SYSTEM REQUESTS
PROGRAM: DATETST4 + 000184 ISSUED 10 STCKSYNC REQUESTS
```

The above example shows detailed (matching VCD entry's audit parameter set to FULL) information for one job with one step. This includes job and step names, accounting data, real and virtual times, program names and offsets from where time service calls were made and how many and what type of calls were made.

When standard auditing is specified for a job (matching VCD entry's audit parameter set to YES), more concise and summarized information is displayed in the Time Services Auditing, as in the following report example:

```
JOB NAME: N90Y2K  NO.: JOB07548 SYSID: OS25  ACCOUNTING: 0001,N90,5
STEP NAME: DATETEST  PROC STEP NAME:  STEP PGM: DATETST1  STEP NO.: 1
REAL: 1998/07/30 10:53:46 VIRT: 2001/01/01 00:01:03
TOTAL LINKAGE=SVC REQUESTS: 2
TOTAL LINKAGE=SYSTEM REQUESTS: 6
TOTAL STCKSYNC REQUESTS: 10
```

Time Services Auditing Facility

Chapter 9. Testing your programs: suggestions

Your installation will probably want to establish its own standards and procedures for testing how programs handle dates and times. The following is a general discussion of some approaches that might prove useful.

In general, you can think of date and time testing as falling into two categories: standard testing and specialized testing. You'll want to apply some date tests to *all* programs, without any knowledge or consideration of what the program is for or how it uses dates. This can be thought of as *standard* testing. In some cases, analysis of a program will reveal that it might be sensitive to particular date or time conditions. The creation and execution of jobs to test those conditions can be thought of as *specialized* testing. ATF lets you perform both of these types of date and time testing.

Standard testing

Most installations have procedures for testing programs before they are placed in production libraries. For changes to programs already in production (as a result of enhancements or bug-fixing), this is usually called *regression* testing. Newly developed programs usually have a series of tests culminating in *acceptance* testing.

In both cases, it is recommended that testing with virtual dates be incorporated into these standard test procedures. Every program, whether new or changed, should undergo testing using ATF before being placed into the production environment. At minimum, tests with the following dates should be performed. (Naturally, the output of the test jobs should be reviewed to see if the results are as expected.)

- 1999/12/31—This should provoke all errors involving *adding* a period of time across the century boundary.
- 2000/01/01—This should provoke all errors involving *subtracting* a date (perhaps previously stored in a file) across the century boundary.
- 1998/02/29, 2000/02/29, and 2004/02/29—This should provoke all errors involving leap year processing.

Specialized testing

By its very nature, the particulars of specialized testing depend on the nature of the application being tested and the date or time conditions it may be sensitive to. In analyzing a program to decide what specialized tests should be applied, here are some conditions to consider, and the dates or times you might use to test those conditions:

- Midnight (set time to 23:59 and 00:00).
- Starting times of shifts (application-dependent).
- Start of week (set date to 1999/12/27 and 2000/01/03, both of which are Mondays).
- End of week (set date to 1999/12/31 and 2000/01/07, both of which are Fridays).
- End of month (set date to 1999/01/31 and 2000/01/31).
- End of quarter (set date to 1999/03/31 and 2000/03/31).

Specialized testing

- End of half (set date to 1999/06/30 and 2000/06/30).
- End of year (set date to 1999/12/31 and 2000/12/31).
- End of fiscal year (application-dependent).
- Processing across time zones (set the time of one of two or more applications to +01:00, +02:00, and so on).

Part 3. Appendixes

Appendix. Messages and codes

This appendix contains a listing and explanation of the messages and codes issued by ATF. ISPF messages issued by the ATF online interface are not included.

The ATF activity log

The ATF batch programs (CIKTICON, CIKICOFF, CIKICMVS and others) require a TICLOG DD allocation, which defines the SYSOUT data set used by ATF to produce the ATF Activity Log. This report contains a copy of every message issued by ATF during program execution. (When appropriate, messages written to the ATF Activity Log are written to the system operator console as well.)

Messages logged to the ATF Activity Log are formatted as follows:

TICnnnnl-pppppppp: text.....

Where:

TIC Is the fixed three-character constant prefixing all TICLOG messages.

nnnn Is the identification number assigned to the message.

L Is one of the following characters describing the severity level attributed to the detected event:

I The message is of informational value only.

W The message warns of possible impending problems.

E S severe error occurred.

PPPPPPPP

Is the name of the ATF program that issued the message.

text Is the text of the message.

TIC0001I copyright notice

Explanation: ATF product copyright notice.

Programmer response: None.

TIC0006I CPUID FOR CPU number IS id

Explanation: Program TICCPUID is reporting on the current system's existing CPU's and their associated serial id numbers.

Programmer response: None.

TIC0009I SITE: site PSWD: pswd CPUID: cpuid
MODEL: model EXPDT: date

Explanation: An informative message regarding the license of ATF.

Programmer response: None required.

TIC0010I ENVIRONMENT - z/OS=release,
FMID=fmid, JES=version, CPU
MODEL=number

Explanation: An ATF program has begun execution and is reporting on the processing environment it has detected.

Programmer response: None.

TIC0020E TICLIB DATASET NOT DEFINED

Explanation: The TICLIB load library data set name has not been defined to ATF.

Programmer response: Processing terminates. The TICLIB data set must be defined to ATF through the online TICTOC Customization Program.

TIC0021E TICLIB DATASET NOT UPDATED -
R15=code

Explanation: An attempt to update the ATF

The ATF activity log

customization options member in the TICLIB load library data set failed.

Programmer response: Processing terminates. Contact your ATF customer representative to report the return code shown in the message.

TIC0030E TICTOC WAS NOT CONVERTED FROM VERSION `version.release`

Explanation: An attempt was made to convert ATF customization options from settings originating from a TICTOC `version.release` prior to Version 2.1.000.

Programmer response: Processing terminates. ATF customization option settings must be defined to ATF through the online ATF Customization Program.

TIC0031E TICTOC ALREADY CONVERTED TO VERSION `version.release`

Explanation: An attempt was made to convert ATF customization options from settings originating from the current ATF `version.release`.

Programmer response: Processing terminates. ATF customization option settings must be defined to ATF through the online ATF Customization Program.

TIC0032E OLD TICTOC VERSION NUMBER `version.release` UNDEFINED

Explanation: An attempt was made to convert ATF customization options from settings originating from an unidentified ATF version.

Programmer response: Processing terminates. ATF customization option settings must be defined to ATF through the online ATF Customization Program.

TIC0035I CONVERSION TO `version.release` COMPLETED SUCCESSFULLY

Explanation: Customization option settings originating from a prior TICTOC version were successfully converted to `version.release`.

Programmer response: None.

TIC0040W TICTOC CUSTOMIZATION OPTIONS SET TO SUPPORT LOCAL SYSPLEX ONLY BUT SYSTEM IS COUPLED

Explanation: The z/OS system under which ATF is executing is coupled to other systems in a SYSPLEX configuration and ATF's customization options have been set to disable ATF's ESA timing services support unless z/OS is locally coupled to XCF.

Programmer response: Processing continues. However, message TIC0041W is issued and ATF's virtual timing support for ESA timing services is disabled.

TIC0041W TICTOC CUSTOMIZATION OPTIONS SET TO DISABLE ESA SYSPLEX TIMING SERVICES SUPPORT

Explanation: The current z/OS operating system environment supports the STCKCONV macro and the TIME macro with LINKAGE=SYSTEM specified but ATF support for these services has been disabled.

Programmer response: Processing continues. Requests for TIME LINKAGE=SVC calls continue to be processed by ATF.

TIC0042E STCKSYNC ENTRY POINT ADDRESSES NOT FOUND IN module

Explanation: The ATF System Program, CIKICMVS, was unable to complete virtual timing initialization processing for STCKSYNC macro support because the indicated z/OS module did not contain anticipated references to STCKSYNC service entry point addresses.

Programmer response: Processing terminates. Contact your ATF customer representative for assistance in resolving the problem.

TIC0043W TICTOC CUSTOMIZATION OPTIONS SET TO DISABLE ESA STCKSYNC MACRO SERVICE SUPPORT

Explanation: The current z/OS operating system environment supports the STCKSYNC macro but ATF support for this service has been disabled.

Programmer response: Processing continues. Other than STCKSYNC macro calls, ATF continues to provide virtual timing support for TIME SVC and TIME LINKAGE=SYSTEM requests.

TIC0044I TICTOC WAITING FOR z/OS IPL TO COMPLETE

Explanation: ATF was started during IPL via entry in SYS1.PARMLIB(COMMND00).

Programmer response: During IPL processing ATF checks its accessibility to relevant z/OS control blocks. When the control blocks are not yet available, ATF issues message TIC0044I and waits for 5 seconds before retrying access.

TIC0045I IMS APPLICATION SUPPORT IS ENABLED/DISABLED.

Explanation: An informative message issued during ATF startup regarding IMS support.

Programmer response: None required.

**TIC0046I USER STCK SVC SUPPORT IS
 ENABLED/DISABLED.**

Explanation: An informative message issued during ATF startup regarding USER STCK SVC support.

Programmer response: None required.

**TIC0047I LOADING USER STCK SVC SUPPORT
 AS SVC NO. number**

Explanation: An informative message issued during ATF startup regarding the SVC number used in ATF USER STCK SVC support.

Programmer response: None required,

**TIC0048W USER STCK SVC NO. number WAS
 PREVIOUSLY INSTALLED
 EXTERNALLY - NO CHANGES MADE**

Explanation: During ATF installation of the SVC number used in ATF USER STCK SVC support., ATF found this SVC number to be in use.

Programmer response: ATF disables support for the USER STCK SVC option. Assign a unique SVC number for ATF USER STCK SVC usage.

**TIC0049W _ COMMAND IGNORED - TICTOC
 V2.8.7 IS CURRENTLY _**

Explanation: During COMMAND processing, ATF could not complete the command due to the state of ATF.

Programmer response: If the ATF command required ATF to be active, then START ATF. If the command requires ATF to be inactive, then shut ATF.

TIC0050I TICTOC V2.8.7 STARTED

Explanation: The execution of the ATF System Program, CIKICMVS, has begun.

Programmer response: None.

TIC0051I TICTOC V2.8.7 STOPPED

Explanation: The ATF System Program, CIKICMVS, has terminated normally by operator request.

Programmer response: None.

TIC0052E TICTOC V2.8.7 ABENDED

Explanation: A nonrecoverable error has caused the ATF System Program, CIKICMVS, to abend.

Programmer response: Processing terminates. Review the ATF Activity Log and other diagnostic information produced by the terminated program. Determine the cause of the problem, correct it and reexecute the program.

**TIC0053I ESTAE RECOVERY EXIT ROUTINES
 ENABLED**

Explanation: The ATF System Program, CIKICMVS, has established a recovery environment to insure system integrity in the event of abnormal termination, including cancellation by operator.

Programmer response: None.

**TIC0054I TICTOC V2.8.7 ACCEPTING
 OPERATOR COMMANDS**

Explanation: The ATF System Program, CIKICMVS, has completed startup initialization, is active and is enabled to receive ATF operator commands.

Programmer response: None.

TIC0055E TICTOC ALREADY ACTIVE

Explanation: An attempt has been made to concurrently execute more than one copy of the ATF System Program, CIKICMVS, on the same z/OS system.

Programmer response: Processing terminates. The original executing copy of the ATF System Program is not affected.

TIC0056I FROM user : command

Explanation: An operator command was issued by the operator or by the indicated job or user and passed to the executing ATF program.

Programmer response: Review the ATF Activity Log for the response to the command.

TIC0057E COMMAND INVALID

Explanation: The previously issued operator command, recorded in message TIC0056, is invalid.

Programmer response: Review the operator command's syntax, correct it and reissue the command.

TIC0058I SHUT DOWN IN PROGRESS

Explanation: The ATF SHUTDOWN or KILL operator command requesting program termination has been issued.

Programmer response: None.

**TIC0059E COMMAND REJECTED - TICTOC
 ALREADY status**

Explanation: The previously issued operator command, recorded in message TIC0056, is redundant because the ATF System Program, CIKICMVS, is currently in the status shown.

Programmer response: Review the operator request

The ATF activity log

and reissue the appropriate command.

TIC0061E SVC TABLE UPDATE FAILED - R15=code

Explanation: The ATF System Program, CIKICMVS, was unable to update the z/OS SVC table.

Programmer response: Processing terminates. Refer to IBM documentation of the SVCUPDTE macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0062W FREEMAINING TICTOC SVC MODULES FROM PREVIOUS EXECUTION

Explanation: During startup initialization, the ATF System Program, CIKICMVS, detected a copy of ATF CSA resident modules from a previous execution. After loading new copies, ATF deletes the older ones from storage.

Programmer response: Processing continues. ATF SVC modules always remain in CSA storage unless the ATF KILL operator command was issued during the previous execution of the ATF System Program, CIKICMVS.

TIC0063I SVC MODULES LOADED TO CSA

Explanation: During startup initialization, the ATF System Program, CIKICMVS, successfully obtained CSA storage and loaded ATF SVC modules into it.

Programmer response: None.

TIC0064I SVC MODULES DELETED FROM CSA

Explanation: If issued during startup initialization of the ATF System Program, CIKICMVS, ATF modules from a previous execution were found in Common System Area storage and deleted. If issued during ATF System Program termination processing, termination was invoked with the ATF KILL operator command which frees all previously acquired system storage and resources.

Programmer response: None. Refer to the description of the ATF KILL operator command for an understanding of the implications of its use when terminating ATF.

TIC0065E SVC MODULES NOT FOUND IN CSA

Explanation: The ATF System Program, CIKICMVS, attempted to delete the ATF SVC modules from CSA storage but could not locate them.

Programmer response: Processing terminates. Contact your ATF customer representative for assistance.

TIC0066I MODULE mod LOADED TO STORAGE SUBPOOL pool - ADDRESS=adrs ; LENGTH=len

Explanation: ATF successfully loaded a system-critical program at the specified storage location.

Programmer response: None.

TIC0067E STORAGE SUBPOOL pool GETMAIN OF len BYTES FAILED - R15=code

Explanation: ATF issued an z/OS GETMAIN macro which failed to complete successfully.

Programmer response: Processing terminates. Refer to IBM documentation of the GETMAIN macro for an explanation of the failing return code. If the problem cannot be resolved and corrected, contact your ATF customer representative for assistance.

TIC0068E STORAGE SUBPOOL pool FREEMAIN OF len BYTES AT ADDRESS adrsFAILED - R15=code

Explanation: ATF issued an z/OS FREEMAIN macro which failed to complete successfully.

Programmer response: Processing terminates. Refer to IBM documentation of the FREEMAIN macro for an explanation of the failing return code. If the problem cannot be resolved and corrected, contact your ATF customer representative for assistance.

TIC0070E QEDIT MACRO (function REQUEST) FAILED - R15=code

Explanation: A function controlling operator command processing, requested via the IBM QEDIT macro, failed with the specified return code.

Programmer response: Processing terminates. Refer to IBM documentation of the QEDIT macro for an explanation of the failing return code. If the problem cannot be resolved and corrected, contact your ATF customer representative for assistance.

TIC0071E OPERATOR COMMUNICATIONS PROCESSING FAILED

Explanation: ATF is no longer able to receive and process operator commands because of an error previously described in message TIC0070.

Programmer response: Processing terminates. See message TIC0070.

TIC0072E UNABLE TO CLOSE AND REOPEN TICLOG

Explanation: An ATF CLOSELOG operator command failed to complete.

Programmer response: Processing continues. If the TICLOG DD allocation is no longer usable after this error, all additional messages are routed to the operator console. This error usually occurs because the TICLOG DD was allocated via a JCL statement rather than through dynamic allocation. To enable the ATF CLOSELOG operator command to function correctly, remove the TICLOG DD statement from the JCL and define TICLOG allocation attributes in the ATF Report Options Parameters Screen.

TIC0073I TICLOG REOPENED SUCCESSFULLY

Explanation: An ATF CLOSELOG operator command completed successfully.

Programmer response: Processing continues. The ATF Activity Log produced up to the CLOSELOG request is available on the system spool data set for browsing and printing.

TIC0079E OPERATOR COMMAND FAILED - SEE TICLOG FOR MORE INFORMATION

Explanation: An invalid operator command was issued. See the TICLOG for an accompanying message.

Programmer response: Reissue the ATF operator command with the correct syntax.

TIC0081E UNABLE TO DETERMINE TICTOC EXECUTION STATUS

Explanation: An executing program detected invalid status indicators in an ATF system control block.

Programmer response: Processing terminates. Contact your ATF customer representative.

TIC0082E CROSS MEMORY SERVICES macro REQUEST FAILED - R15=code

Explanation: ATF received an error return code in response to issuing an z/OS cross memory macro request.

Programmer response: Processing terminates. Refer to IBM documentation of the macro for an explanation of the failing return code. If the problem remains unresolved, contact your ATF customer representative.

TIC0083I CROSS MEMORY SERVICES ENVIRONMENT ESTABLISHED

Explanation: The ATF System Program, CIKICMVS, has successfully installed ATF cross memory routines within its address space.

Programmer response: None.

TIC0084I CROSS MEMORY SERVICES ENVIRONMENT REVOKED

Explanation: The ATF System Program, CIKICMVS, has successfully disabled and removed ATF cross memory routines within its address space.

Programmer response: None.

TIC0085I AUDITING SUPPORT IS ENABLED/DISABLED.

Explanation: An informative message issued during ATF startup regarding auditing support.

Programmer response: None.

TIC0088E TICTOC AUDITING DISABLED. R15=code

Explanation: ATF attempted to start its auditing facility and encountered an error. Auditing is disabled.

Programmer response: Note the contents of R15. If the problem persists, contact your ATF customer support representative.

TIC0092I PREVIOUS AUDIT BLOCK NOT DELETED. R15=code

Explanation: ATF attempted to delete its auditing facility and encountered an error.

Programmer response: Note the contents of R15. If the problem persists, contact your ATF customer support representative.

TIC0097E SVC 99 REQUEST FAILED - DDNAME=dd ; dsn

Explanation: An ATF dynamic allocation/unallocation request for the indicated data set dsn and its associated dd name was unsuccessful.

Programmer response: Messages TIC0098 and TIC0099 follow this message. Refer to these messages and to their explanations for additional diagnostic information.

TIC0098E R15=code ; ERROR CODE=X'ecode' ; INFO CODE=X'icode'

Explanation: This message is a continuation of message TIC0097. The message displays the z/OS DYNALLOC macro's return code, error code ecode and information code icode.

Programmer response: Message TIC0099 follows this message. Refer to its explanation and response for additional diagnostic information.

The ATF activity log

TIC0099E description

Explanation: This message is a continuation of messages TIC0097 and TIC0098. The message displays a textual description of the dynamic allocation error.

Programmer response: Refer to IBM documentation of the DYNALLOC macro for an explanation of the failing return code. If the problem remains unresolved, contact your ATF customer representative.

TIC0100E VCD I/O PROCESSING ERROR - VCD=dsn

Explanation: An I/O request issued by ATF programs for the indicated ATF Virtual Clock Data Set Dan failed.

Programmer response: Messages TIC0101 and TIC0102 follow this message. Refer to these messages and their explanations below for additional diagnostic information.

TIC0101E REQUEST=request ; REASON CODE=code-rcode

Explanation: This message is a continuation of message TIC0100. The message displays the type of VCD I/O request and the return code and reason code rcode that resulted from the requests failure.

Programmer response: Message TIC0102 follows this message. Refer to its explanation and response for additional diagnostic information.

TIC0102E description

Explanation: This message is a continuation of messages TIC0100 and TIC0101. The message displays a textual description of the VCD I/O request error.

Programmer response: Determine the cause of the error, correct the problem described in the message and reexecute the program. If the problem remains unresolved, contact your ATF customer representative.

TIC0105E VCD DATASET NOT DEFINED

Explanation: The Virtual Clock Data Set (VCD) has not been defined to ATF.

Programmer response: Processing terminates. The VCD must be allocated and defined to ATF through the online ATF Customization Program.

TIC0110I ACCESSING VCD DATASET dsn

Explanation: An ATF program has been requested to process ATF Virtual Clock Data Set dsn.

Programmer response: None.

TIC0111W VCD DATASET CONTAINS NO ACTIVE RECORDS

Explanation: An ATF program accessing an ATF Virtual Clock Data Set has determined that the data set is empty.

Programmer response: None. Insure that the correct VCD data set was specified for processing.

TIC0112I VCD RECORD TABLE - jobname jobtype date time status

Explanation: The message displays a VCD data set record's contents loaded into a storage resident table by the ATF System Program, CIKICMVS. The VCD record table is displayed during ATF System Program initialization and in response to ATF operator commands such as LIST, LOG and REFRESH. Information on the last user who updated the record is displayed in message TIC0113, whose description follows.

Programmer response: None.

TIC0113I LAST UPDATED BY - jobname jobid date time

Explanation: This message is a continuation of message TIC0112. The message displays the jobname and the jobid (job number) of the last user who updated the VCD data set record's contents and the date and time when the update occurred.

Programmer response: None.

TIC0114I vcd_dsname CREATED ON VOLSER volume - UNIT unit

Explanation: A VCD was allocated on the specified VOLSER which is of the specified UNIT and was formatted for use.

Programmer response: None.

TIC0115I vcd_dsname ALLOCATED IN space_units

Explanation: A VCD was allocated in tracks, cylinders, or blocks and was formatted for use.

Programmer response: None.

TIC0117I vcd_dsname CONTAINS number LOGICAL RECORDS

Explanation: A VCD was allocated to hold the indicated number of virtual clock records and was formatted for use.

Programmer response: None.

TIC0118I vcd_dsname USED SPACE IS number space_units

Explanation: A VCD was allocated to occupy the indicated amount of DASD space and was formatted for use.

Programmer response: None.

TIC0119I vcd_dsname CONTAINS number RECORDS IN USE

Explanation: A VCD was allocated and formatted for use and contains the indicated number of records in use.

Programmer response: None.

TIC0120W PAGE SERVICE ERROR - description

Explanation: A request by ATF for an z/OS virtual storage management function has failed for the reason given in the description of the error.

Programmer response: ATF attempts to continue processing.

TIC0121I vcd_dsname EXPIRES ON date

Explanation: A VCD was allocated with the indicated dataset expiration date and was formatted for use.

Programmer response: None.

TIC0122I VCD FORMAT FOR vcd_dsname COMPLETED SUCCESSFULLY

Explanation: A VCD was successfully formatted for use.

Programmer response: None.

TIC0125I SMF RECORD LENGTH ERROR (RDW). RECORD NOT WRITTEN

Explanation: The ATF Time Services Audit Facility was unable to write an audit record to SMF.

Programmer response: Verify that SMF is active. If the problem persists, contact your ATF customer support representative for assistance.

TIC0126I SMF NOT ACTIVE. RECORD NOT WRITTEN

Explanation: The ATF Time Services Audit Facility was unable to write an audit record to SMF.

Programmer response: SMF must be active in order for the ATF Time Services Audit Facility to record its records to SMF.

TIC0127I IEFU83 EXIT ROUTINE SUPPRESSED THE SMF RECORD.

Explanation: The SMF user exit, IEFU83, suppressed the writing of an SMF record produced by the ATF Time Services Audit Facility.

Programmer response: Contact your system administrator to determine why the ATF Time Services Audit Facility is being prevented from writing records to the system SMF dataset.

TIC0128I INSTALLATION NOT RECORDING SMF TYPE. RECORD LOST

Explanation: The ATF Time Services Audit Facility was unsuccessful in writing an SMF record.

Programmer response: Check that the installation parameters allow writing the ATF SMF record type.

TIC0129I No SMF recovery. RECORD not written.

Explanation: The ATF Audit Facility was unsuccessful in writing an SMF record.

Programmer response: Check the SMF documentation for details

TIC0130I SMF BUFFER SHORTAGE PROBLEM - RECORD LOST.

Explanation: The ATF Time Services Audit Facility was unsuccessful in writing an SMF record.

Programmer response: Check the SMF documentation for details

TIC0131I SMF RECORD LOST.

Explanation: The ATF Time Services Audit Facility was unsuccessful in writing an SMF record.

Programmer response: Check the SMF documentation for details. If the problem persists call your systems programmer or IBM for support.

TIC0150I SNAP DUMP IN PROGRESS

Explanation: An ATF SNAP operator command was issued to print an z/OS SNAP dump of the executing job's relevant ATF storage areas.

Programmer response: None.

TIC0151I SNAP DUMP COMPLETED

Explanation: An ATF SNAP operator command request completed successfully.

Programmer response: None. The SNAP dump output is available on the system spool data set for browsing and printing.

The ATF activity log

TIC0152E ERRORS OCCURRED DURING SNAP DUMP PROCESSING

Explanation: An ATF SNAP operator command request failed.

Programmer response: Browse the ATF Activity Log for other ATF issued messages relating to the failure of the SNAP command. Correct the problem and reissue the command. If the problem remains unresolved, contact your ATF customer representative.

TIC0153E TICSNAP DD DYNAMICALLY ALLOCATED TO SYSTEM DEFAULT OUTPUT CLASS

Explanation: An ATF SNAP operator command was issued for an executing ATF program that had no TICSNAP DD statement associated with it. ATF printed the SNAP dump to the executing job's default output class.

Programmer response: Add a TICSNAP SYSOUT DD statement to the ATF job's JCL to specify the printout destination and attributes desired for ATF SNAP dump output.

TIC0154I VCD RECORD TABLE REFRESHED BY job/user

Explanation: An ATF REFRESH operator command was issued by the indicated user or job and successfully updated the ATF System Program's storage resident VCD record table.

Programmer response: None. The ATF System Program's memory-resident copy of virtual clock definition records was updated. Processing continues.

TIC0200I VOLSER UPDATED FOR EXISTING APF DATASET ENTRY

Explanation: The data set name specified on the TICLIB DD JCL statement already exists in the z/OS APF authorization table but with a different DASD volume serial number. The dataset's APF authorization table entry has been updated with the new volume serial number.

Programmer response: None. The data set is now APF authorized.

TIC0201I APF AUTHORIZATION TABLE UPDATED

Explanation: The data set name specified on the TICLIB DD JCL statement has been added to the z/OS APF authorization table.

Programmer response: None. The data set is now APF authorized.

TIC0205E UNABLE TO DETERMINE APF AUTHORIZATION TABLE'S ADDRESS

Explanation: The z/OS address pointer to the APF authorization table was zero.

Programmer response: Processing terminates. This can only occur if there are no existing entries in the APF authorization table. In this case, the data set name must be added to the appropriate member of the SYS1.PARMLIB data set and an IPL must be performed.

TIC0206E UNABLE TO DETERMINE APF AUTHORIZATION TABLE'S STORAGE STATUS

Explanation: ATF is unable to determine the current APF authorization table's address, length or storage subpool number.

Programmer response: Processing terminates. This may occur if another vendor utility program previously changed the APF authorization table and relocated the updated copy in other than SQA or CSA storage subpools, in nonconformance with z/OS standards. Use the same vendor utility again to perform the update or contact the vendor for support.

TIC0207E ENTRY ALREADY EXISTS IN APF AUTHORIZATION TABLE

Explanation: The data set name specified on the TICLIB DD JCL statement was found in the existing APF authorization table.

Programmer response: Processing terminates. Since an entry exists for the data set in the APF authorization table, the data set is already APF authorized.

TIC0208E APF LIST FORMAT IS STATIC - NO UPDATE PERFORMED

Explanation: The APF authorization table is defined to the system as static. This prevents ATF from dynamically updating the table.

Programmer response: Processing terminates. Issue the z/OS STEPROG APF,FORMAT=DYNAMIC operator command and execute the program again.

TIC0209E CSVAPF ADD REQUEST FAILED - R15=X'return', R0=X'reason'

Explanation: ATF was unable to update the APF authorization table due to an unexpected error.

Programmer response: Processing terminates. Save the message output from the failing job and contact your ATF customer support representative for assistance.

TIC0220E **exitname EXIT MODULE modname**
MUST BE REENTRANT

Explanation: The ATF exitname user exit's load module, modname, is required to be but was not created with the reentrant linkage editor attribute.

Programmer response: If the exit source statements are not coded reentrantly, make appropriate changes to the source code to comply with reentrancy rules. In any case, make sure to linkedit program modname with the RENT linkage editor parameter.

TIC0221E **exitname EXIT MODULE modname**
MUST BE LINKEDITED WITH
ATTRIBUTES
AMODE(31),RMODE(ANY)

Explanation: The ATF exitname user exit's load module, modname, is required to be but was not created with the 31 bit address mode and the extended storage residence mode linkage editor attribute

Programmer response: If the exit source statements are not coded to support 31 bit addresses, make appropriate changes to the source code to comply with 31 bit address ability support. In any case, make sure to linkedit program modname with the AMODE(31) and RMODE(ANY) linkage editor parameters.

TIC0225I **exitname EXIT MODULE modname**
ENABLED

Explanation: The ATF exitname user exit's load module, modname, has been loaded and activated by the currently executing ATF program.

Programmer response: None. Control is passed to the exit at appropriate exit processing points.

TIC0226W **exitname EXIT MODULE modname**
DISABLED - reason

Explanation: The ATF exitname user exit's load module, modname, was not activated by the currently executing ATF program for the reason given.

Programmer response: Verify whether the exit's disablement is intentional or is the result of an error. If the latter and if ATF allows program execution to proceed, consider whether the executing program should be manually terminated, as determined by your data center's system administration guidelines.

TIC0250I **jobtype job - TICTOC TIMING**
FORCED OFF

Explanation: Program CIKICOFF determined that ATF timing was in effect for the executing job and forced ATF timing off.

Programmer response: None.

TIC0251I **jobtype job - TICTOC TIMING RESET**
ON

Explanation: Program CIKTICON determined that ATF timing was previously forced off for the executing job by program CIKICOFF and reactivated ATF timing.

Programmer response: None.

TIC0252W **jobtype job - TICTOC TIMING NEVER**
ACTIVE

Explanation: Program CIKICOFF or program CIKTICON determined that ATF timing was never in effect for the executing job.

Programmer response: Verify the relevancy of using programs CIKICOFF and CIKTICON in the executing job. Also review definitions in the ATF Virtual Clock Data Set to insure their compatibility with this job and others that use programs CIKICOFF and CIKTICON.

TIC0253W **jobtype job - TICTOC TIMING NEVER**
FORCED OFF

Explanation: Program CIKTICON determined that ATF timing was not previously forced off for the executing job.

Programmer response: Program CIKICOFF must be executed prior to program CIKTICON in order for program CIKTICON to have any effect. Otherwise program CIKTICON serves no purpose. Check the output of the executing job to determine whether program CIKICOFF failed to execute successfully or whether it was not executed at all.

TIC0254E **jobtype job - TICIN INPUT**
PARAMETERS NOT PERMITTED

Explanation: The TICIN DD input parameter data set was allocated to program CIKTICON but the executing job is not defined in the VCD as being eligible for date/time setting via TICIN input parameters.

Programmer response: Processing terminates with a return code of 8. Only jobs defined in the VCD with both generic date and time values (DATE=*,TIME=*) can have their date or time (or both) set by TICIN input parameters VIRTDATE and VIRTTIME. Either make the job eligible by changing its VCD entry or remove the TICIN DD allocation for standard execution of program CIKTICON.

TIC0255E **jobtype job - TICTOC TIMING**
PROCESSING ERROR OCCURRED

Explanation: Program CIKTICON encountered an error while attempting to initiate virtual timing for the job. The job's date or time (or both) remains unchanged.

Programmer response: Processing terminates with a

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return code of 12. This error may occur if the ATF System Program, CIKICMVS, was terminated with the ATF HALT or KILL operator command at the same time that program CIKTICON began executing. If unable to determine the cause of the error, contact your ATF customer support representative for support.

TIC0256I **jobtype job - TICTOC TIMING FORCED ON**

Explanation: Program CIKTICON determined that ATF timing was not previously on for the executing job. ATF timing was now activated and set through the parameter settings in the TICIN input parameters data set..

Programmer response: None.

TIC0257W **jobtype job - TICTOC TIMING NOT AVAILABLE FOR JOB'S EXECUTION CLASS**

Explanation: Program CIKTICON has determined that the job is not executing in a JES job class defined as being eligible for ATF virtual timing services.

Programmer response: Processing terminates with a return code of 4. Change the job's execution class to one already defined to ATF as being eligible for ATF virtual timing services and resubmit the job.

TIC0259I **jobtype job - TICTOC TIMING DATE: date, TIME: time**

Explanation: Program CIKTICON has just forced or reset ATF timing on. The message displays the executing job's current date and time as returned by z/OS.

Programmer response: None.

TIC0300I **PROCESSING TICIN INPUT PARAMETER STATEMENTS**

Explanation: The executing ATF program is beginning to read and validate the input parameters contained in the data set allocated to the TICIN DD statement.

Programmer response: None.

TIC0301I **INPUT PARAMETER parameter SET TO value**

Explanation: An ATF program has validated and processed the parameter TICIN input statement which set parameter to value.

Programmer response: None.

TIC0302I **TICIN INPUT PARAMETER STATEMENT PROCESSING COMPLETED SUCCESSFULLY**

Explanation: The executing ATF program has completed processing the input parameters data set allocated to the TICIN DD statement. No warnings or errors were issued.

Programmer response: None.

TIC0303W **TICIN INPUT PARAMETER DATASET CONTAINS NO PARAMETER STATEMENTS**

Explanation: The executing ATF program has completed processing the input parameters data set allocated to the TICIN DD statement. The data set is empty or contains comment statements only.

Programmer response: Processing continues if TICIN parameters statements are optional for the executing ATF program. If they are required, processing terminates immediately.

TIC0310E **ERROR IN INPUT PARAMETER STATEMENT number**

Explanation: See explanation for message TIC0313E.

TIC0311E **-----1-----2-----3---...-5-----6-----7--**

Explanation: See explanation for message TIC0313E.

TIC0312E **statement**

Explanation: See explanation for message TIC0313E.

TIC0313E **EXPLANATION: description**

Explanation: The executing ATF program encountered a syntax error in the TICIN input parameters data set. Messages TIC0310 through TIC0313 display the input statement number where the error was found, a copy of the input statement in error and a description of the error.

Programmer response: Processing terminates. Correct the invalid TICIN input parameter statement and reexecute the program.

TIC0315E **TICIN INPUT PARAMETER DATASET FORMAT IS INVALID**

Explanation: The DCB information for the TICIN data set is invalid. The LRECL or RECFM is invalid.

Programmer response: Processing terminates immediately. Fix these parameters and resubmit.

TIC0350I VCD RECORD function: name type

Explanation: A VCD record for the name and type shown was successfully added, updated or deleted, as indicated.

Programmer response: None.

TIC0550W REPORT LINE VARIABLES MISSING - LINEID=X'id'

Explanation: Information may be missing from a print line in the TICRPT DD report printout.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0551W REPORT LINE VARIABLES EXCEED MAXIMUM FOR LINE - LINEID=X'id'

Explanation: Information may be missing from a print line in the TICRPT DD report printout.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0552W REPORT LINE NOT DEFINED - LINEID=X'id'

Explanation: An ATF program failed to print a line to the TICRPT DD report printout because the line's internal id number is unknown to ATF.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0553W REPORT LINE TRUNCATED - LINEID=X'id', FIELDID=X'num'

Explanation: The length of a TICRPT DD report print line was greater than the maximum line length allowed by ATF causing the line to be truncated.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0640W MESSAGE VARIABLE DATA INCOMPLETE

Explanation: A message printed to the ATF Activity Log or sent to the operator console may contain incomplete information.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0641W MESSAGE VARIABLE DATA DISCARDED

Explanation: A message printed to the ATF Activity Log or sent to the operator console may contain incomplete information.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0642W UNDEFINED MESSAGE - ID=id

Explanation: An ATF program attempted to issue a message whose id number is unknown to ATF.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0643W MESSAGE LENGTH ERROR - TRUNCATED

Explanation: The length of an ATF message was greater than the maximum message length allowed by ATF causing the message to be truncated.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0800E INVALID EDIT FUNCTION CODE - X'id'

Explanation: ATF field editing routines received an unidentified edit request.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0801E INVALID EDIT FUNCTION/TYPE CODE COMBINATION - X'id', X'id'

Explanation: ATF field editing routines received an unidentified edit request.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

TIC0802E INVALID EDIT DATE/TIME FORMAT CODES - X'id', X'id'

Explanation: ATF field editing routines received an unidentified edit request.

Programmer response: Processing continues. Contact your ATF customer representative to report the problem.

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TIC0850W NO SECURITY TABLE AVAILABLE - ACCESS IS UNLIMITED

Explanation: The CIKSECTB security table module is not in the STEPLIB, LPA or link list load libraries associated with the executing ATF program.

Programmer response: Processing continues. This should only occur if the ATF security interface is not in use or has been disabled. If the security interface is in use, insure that the CIKSECTB security table module is in the correct load library data set.

TIC0851W ACCESS DENIED - RESOURCE=type ; NAME=name

Explanation: The ATF security interface or the user security exit (or both) determined that the USERID associated with the executing ATF batch program or the ATF online session was not authorized to access the resource type named name.

Programmer response: Processing terminates for ATF batch programs. Processing continues for ATF online sessions but the attempt to access the requested resource fails. If you should be authorized to access the indicated resource, refer the problem to your system security administrator.

TIC0853E LOAD FAILED FOR REQUIRED USER SECURITY EXIT

Explanation: The ATF security table contains one or more profiles with the CALLEXIT option specified as PASS, FAIL or ALWAYS but the CIKEXSEC user security exit module could not be loaded.

Programmer response: Processing terminates. Message TIC0910 follows describing the z/OS LOAD macro failure. If the LOAD register 15 error code is equal to 0806, the CIKEXSEC user security exit module is not in the STEPLIB, LPA or link list load libraries associated with the executing ATF program. In this case, insure that the CIKEXSEC security table module is in the correct load library data set. For other error codes, refer to IBM documentation of the LOAD macro for a description of the return code shown in message TIC0910. If unable to resolve the problem, contact your ATF customer representative.

TIC0854E SECURITY ACCESS PARAMETER LIST INVALID

Explanation: The ATF security interface received an incorrectly formatted security access request from another ATF program.

Programmer response: Processing terminates for ATF batch programs, while ATF online users are denied access to the requested resource. Contact your ATF customer representative for support.

TIC0855E INVALID SECURITY ROUTINE CALL TYPE

Explanation: The ATF security interface received an incorrectly formatted security access request from another ATF program.

Programmer response: Processing terminates for ATF batch programs, while ATF online users are denied access to the requested resource. Contact your ATF customer representative for support.

TIC0910E LOAD FAILED - MODULE=mod ; R15=code ; R1=rcode

Explanation: ATF was unable to load the required execution load module mod.

Programmer response: Processing terminates. Refer to IBM documentation of the LOAD macro for a description of the return code and reason code rcode shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0911E LINK FAILED - MODULE=mod R15=code ; R1=rcode

Explanation: ATF was unable to link to a required execution load module mod.

Programmer response: Processing terminates. Refer to IBM documentation of the LINK macro for a description of the return code and reason code rcode shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0912E ATTACH FAILED - MODULE=mod R15=code

Explanation: ATF was unable to attach the indicated execution load module mod.

Programmer response: Processing terminates. Refer to IBM documentation of the ATTACH macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0913E BLDL FAILED - MODULE=mod ; R15=code ; R0=rcode

Explanation: ATF was unable to obtain a BLDL list for the indicated load module mod.

Programmer response: Processing terminates. Refer to IBM documentation of the BLDL macro for a description of the return code and reason code rcode shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0914E SNAP FAILED - MODULE=mod ; R15=code

Explanation: An attempt by ATF program mod to produce a SNAP diagnostic dump failed.

Programmer response: No SNAP dump is produced. Refer to IBM documentation of the SNAP macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0915E function OF lockname LOCK FAILED - R15=code

Explanation: An attempt by ATF to obtain or release system lock lockname through use of the z/OS SETLOCK macro failed.

Programmer response: Processing terminates. Refer to IBM documentation of the SETLOCK macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0916E ESTAE FAILED - MODULE=mod ; R15=code

Explanation: An attempt by ATF to establish or revoke an abend recovery routine through use of the z/OS ESTAE macro failed.

Programmer response: Processing terminates. Refer to IBM documentation of the ESTAE macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0917E ATTACHED SUBTASK MODULE mod ABENDED - SYSTEM=scode USER=ucode

Explanation: A subtask module, mod, attached by ATF, failed to successfully complete execution and abended with system or user completion code scode or ucode.

Programmer response: If the failing module is a user exit program, ATF recovers from the abend and handles the event as a severe error. If a SYSUDUMP, SYSDUMP or SYSABEND DD statement is present, a dump is produced to assist in diagnosing the user program error. If the failing module is a ATF program, processing terminates. In this case, obtain a dump and contact your ATF customer representative for support.

TIC0918E NUCLKUP FAILED - CSECT=mod ; R15=code

Explanation: An attempt by ATF to retrieve the address of a csect in z/OS nucleus storage through use of the z/OS NUCLKUP macro failed.

Programmer response: Processing terminates. Refer to IBM documentation of the NUCLKUP macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0950E dd DD STATEMENT MISSING

Explanation: The specified dd name, required by the executing ATF program, is not associated with any of the program's current data set allocations.

Programmer response: Processing terminates. For ATF batch programs, add the DD statement to the execution JCL deck. For ATF online users, either add the statement to the execution JCL deck or dynamically allocate the DD statement using the TSO ALLOCATE command.

TIC0951E LOCATE FAILED - DSN=dsn ; R15=code

Explanation: An attempt by ATF to locate data set dsn in the system catalog failed.

Programmer response: Processing terminates. Refer to IBM documentation of the LOCATE macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0952E OPEN FAILED - DDNAME=dd ; R15=code

Explanation: An attempt by ATF to open the data set associated with the indicated dd name failed.

Programmer response: Processing terminates. Refer to IBM documentation of the OPEN macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0953E CLOSE FAILED - DDNAME=dd ; R15=code

Explanation: An attempt by ATF to close the data set associated with the indicated dd name failed.

Programmer response: Processing terminates. Refer to IBM documentation of the CLOSE macro for a description of the return code shown in the message. If unable to resolve the problem, contact your ATF customer representative.

TIC0960E PROGRAM NOT AUTHORIZED FOR SUPERVISOR OR PRIVILEGED OPERATIONS

Explanation: An ATF batch program determined that it was not executing as an z/OS APF authorized program.

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Programmer response: Processing terminates. Insure that the ATF execution load library is included and correctly specified in the current z/OS APF authorization table list, usually located in the z/OS SYS1.PARMLIB system initialization data set. Use ATF program CIKICAPF to dynamically APF authorize the ATF load library without performing an IPL. This message also issued even when the ATF load library data set is APF authorized but is concatenated with other non-APF authorized load libraries in the STEPLIB DD statement.

TIC0961E INTERNAL LINKAGE STACK AREA EXHAUSTED

Explanation: An ATF program encountered a severe internal processing error.

Programmer response: Processing terminates. Contact your ATF customer representative for support.

TIC0962E RECURSIVE PROCESSING ERROR DETECTED

Explanation: An ATF program encountered a severe internal processing error.

Programmer response: Processing terminates. Contact your ATF customer representative for support.

TIC0965E TICTOC V2.8.7 DOES NOT CURRENTLY SUPPORT MVS/SP

Explanation: An attempt was made to execute ATF under a non-supported operating system environment. ATF is currently designed for z/OS systems only.

Programmer response: Upgrade to a supported z/OS release before attempting to use ATF.

TIC0999E TICTOC ABENDING DUE TO PREVIOUS ERROR - CODE=U0999

Explanation: An unrecoverable error occurred which has caused an ATF program to terminate processing with user abend code 999.

Programmer response: The cause of the abend is indicated in previously issued messages written to the ATF Activity Log or to the operator console. Refer to those messages for an explanation of the error and additional diagnostic information.

TIC2000I jobtype job - TIME SET BY TICTOC

Explanation: The ATF System Program, CIKICMVS, is active and the indicated job, started task or TSO user has been defined to execute under a date or time, or both, other than the actual system date and time.

Programmer response: None.

TIC2002E GETMAIN FOR TICTOC JOB CONTROL BLOCK FAILED

Explanation: The ATF SVC routine's GETMAIN request for private ELSQA storage in the executing address space failed. The ATF SVC routine terminates processing with user abend code 2999.

Programmer response: Processing of the executing program terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2003E TICTOC JOB CONTROL BLOCK CORRUPTED

Explanation: The ATF SVC routine detected invalid settings in the executing address space's ATF Job Control Block. The ATF SVC routine terminates processing with user abend code 2999.

Programmer response: Processing of the executing program terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2004E INVALID INTERNAL SERVICE REQUEST

Explanation: The ATF SVC routine received an invalid internal service request. The ATF SVC routine terminates processing with user abend code 2999.

Programmer response: Processing of the executing program terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2005E UNEXPECTED ERROR CONDITION RETURNED BY TICTOC - R15=X're', REASON=X're'

Explanation: The ATF SVC routine received an invalid response from the ATF System Program's cross memory services task. The ATF SVC routine terminates processing with user abend code 2999.

Programmer response: Processing of the executing program terminates. Obtain a storage dump for the failing address space, issue the ATF SNAP operator command to obtain a SNAP dump of the ATF System Program's storage areas and contact your ATF customer representative for support.

TIC2006E ZERO ENTRY POINT ADDRESS FOUND IN SVCTABLE

Explanation: The ATF SVC routine could not determine the original entry point address of the z/OS TIME SVC 11 routine. The ATF SVC routine terminates processing with user abend code 2999.

Programmer response: Processing of the executing

program terminates. Obtain a storage dump for the failing address space, issue the ATF SNAP operator command to obtain a SNAP dump of the ATF System Program's storage areas and contact your ATF customer representative for support.

TIC2007W TIME USER EXIT FORCED VIRTUAL TIMING OFF - ELIGIBILITY REVOKED

Explanation: The ATF SVC routine received a return code of 16 from the ATF TIME User Exit routine for a job whose eligibility for Virtual Timing services was established during the current execution of the SVC. Because the exit's return code of 16 coincided with the establishment of the job's Virtual Timing eligibility, ATF revoked the eligibility and returned the real system date and time to the calling program.

Programmer response: Processing of the executing program continues. Only the real system date and time are returned to the program.

TIC2010I IMS USER=userid, APPLICATION=program - TIME SET BY TICTOC

Explanation: The ATF System Program, CIKICMVS, is active and the indicated IMS userid or application program has been defined to execute under a date or time (or both) other than the actual system date and time.

Programmer response: None.

TIC2015E TICTOC JOB CONTROL BLOCK NOT FOUND

Explanation: The ATF IMS support interface routine was unable to find the ATF job control block for the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2016E IMS MODULE DFSRFX0 NOT FOUND

Explanation: The ATF IMS support interface routine was unable to find the IMS PARMBLK control block module for the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2017E IMS REGION CONTROL PARAMETER AREA NOT FOUND

Explanation: The ATF IMS support interface routine encountered an unrecoverable internal error in the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2018E IMS USER APPLICATION PROGRAM NAME NOT FOUND

Explanation: The ATF IMS support interface routine encountered an unrecoverable internal error in the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2019E CDE ADDRESS FOR MODULE DFSRFX0 IS ZERO

Explanation: The ATF IMS support interface routine encountered an unrecoverable internal error in the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2020E FAILED TO SET IOPCB DATE

Explanation: The ATF IMS support interface routine encountered an unrecoverable internal error in the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2021E FAILED TO SET IOPCB TIME

Explanation: The ATF IMS support interface routine encountered an unrecoverable internal error in the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

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Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2022E FAILED TO SET LI EP ADDRESS

Explanation: The ATF IMS support interface routine encountered an unrecoverable internal error in the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2023E FAILED TO SET IMS USERID

Explanation: The ATF IMS support interface routine encountered an unrecoverable internal error in the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2025E A LANGUAGE INTERFACE ERROR OCCURRED

Explanation: The ATF IMS support interface routine encountered an unrecoverable internal error in the current IMS region. The ATF IMS support interface routine terminates processing with user abend code 2099.

Programmer response: Processing of the executing IMS transaction terminates. Obtain a storage dump for the failing address space and contact your ATF customer representative for support.

TIC2099E TICTOC IMS SUPPORT INTERFACE ABENDING DUE TO PREVIOUS ERROR

Explanation: An unrecoverable error occurred which has caused the ATF IMS support interface routine to terminate processing with user abend code 2099.

Programmer response: The cause of the abend is indicated in previously issued messages written to the operator console. Refer to those messages for an explanation of the error and additional diagnostic information.

TIC2999E TICTOC TIME SVC ABENDING DUE TO PREVIOUS ERROR

Explanation: An unrecoverable error occurred which has caused the ATF SVC routine to terminate processing with user abend code 2999.

Programmer response: The cause of the abend is indicated in previously issued messages written to the operator console. Refer to those messages for an explanation of the error and additional diagnostic information.

Abend codes

Under rare error conditions, ATF may issue one of the followingabend codes.

U0999 [XXXX: Must have message text]

Explanation: Abend code U0999 is issued by ATF programs whenever an unrecoverable error has occurred. This ABEND code is rarely issued.

Programmer response: Refer to documentation for message TIC0999 and other messages issued, for an explanation of the error and additional diagnostic information.

Programmer response: Refer to documentation for message TIC2099 and other messages issued, for an explanation of the error and additional diagnostic information.

U2999 [XXXX: Must have message text]

Explanation: The ATF TIME SVC routine has detected an unrecoverable error in the abending job's address space.

Programmer response: Refer to documentation for message TIC2999 and other messages issued, for an explanation of the error and additional diagnostic information.

U2099 [XXXX: Must have message text]

Explanation: The ATF IMS support interface routine has detected an unrecoverable error in the abending IMS transaction.

System operator console messages

Messages are sent by ATF programs to the system operator console via the z/OS WTO macro. These messages are in the same format as messages in the ATF Activity Log except for the absence of the issuing program's name:

TICnnnn1: text.....

For an explanation of messages appearing on the system operator console, see the documentation of the messages in the ATF Activity Log.

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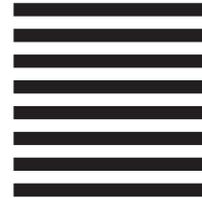
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