

IBM Application Time Facility for CICS



Installation and Customization Guide

Version 2 Release 8 Modification 7

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Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 17.

Four Edition (May 2007)

This edition applies to Version 2 Release 8 Mod 7 of IBM Application Time Facility for CICS (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 install Application Time Facility for CICS® (which, from here on, is now called “ATF/CICS”), and customize it for use at an installation. For information about using ATF/CICS, see the *Application Time Facility for CICS User’s Guide*.

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

Part 1, “Installation and maintenance,” on page 1 of this document explains how to install and maintain ATF/CICS.

Summary of changes

This Fourth edition of the document (SC31-6924-03) has changed from the previous edition, to correct minor naming error:

- “ACIKINST library” was changed to “SCIKINST library”.

This change is marked with a vertical change bar (|) in the left margin of the page.

Part 1. Installation and maintenance

Chapter 1. Installation steps

Before undertaking the following installation steps, make sure that the SMP/E install is complete, as outlined in *Application Time Facility for CICS Program Directory*, GI11-6457.

The installation process consists of these steps:

- “Step 1: Customize ATF/CICS program TTCOPTS”
- “Step 2: Assemble and linkedit ATF/CICS program TTCOPTS” on page 5
- “Step 3: Assemble and linkedit ATF/CICS program TTCCIVER” on page 5
- “Step 4: Allocate the Virtual Clock Data Set (VCD)” on page 6
- “Step 5: Define ATF/CICS resources to CICS” on page 7
- “Step 6: Enable the ATF/CICS interface to ATF” on page 8
- “Step 7: Modify the CICS region JCL” on page 9
- “Step 8: Start ATF/CICS” on page 9

Step 1: Customize ATF/CICS program TTCOPTS

ATF/CICS program TTCOPTS contains default and customized settings that affect several aspects of ATF/CICS’s execution.

Select the date format

As distributed, ATF/CICS displays all dates in YYYY/MM/DD format. ATF/CICS also assumes this format is in effect for all dates specified in the online interface date input fields or in the DATE parameter of virtual clock ADD, DELETE and UPDATE commands.

To change the default date format to be used by the ATF/CICS online and command interfaces, specify the TTCOPTS keyword DATEFRMT=?, where ‘?’ should be replaced with one of the following date format indicators:

Date format indicator	Resulting date format example
1 (default)	1993/01/25 (YYYY/MM/DD)
2	01/25/1993 (MM/DD/YYYY)
3	25/01/1993 (DD/MM/YYYY)
4	25JAN1993 (DDMMMYYYY)
5	1993.025 (YYYY.DDD)

In the following example, the non-default MM/DD/YYYY has been selected:

```
TTCOPTS TC#OPTS DATEFRMT=2
```

Note: After the DATEFRMT keyword has been set when ATF/CICS is installed, it must NOT be modified to another value. Failure to adhere to this restriction will corrupt the contents of the ATF/CICS VCD VSAM KSDS dataset.

Similarly, if you are upgrading from a previous version of ATF/CICS and are continuing to use the prior version’s VCD dataset, DATEFRMT must be set to the same value used for that version.

Support for TRANSIDs beginning with the letter “C”

As distributed, ATF/CICS excludes from its virtual timing support all TRANSIDs beginning with the letter “C”. This is done to exclude IBM supplied CICS transactions.

If you need to enable virtual timing for TRANSIDs beginning with the letter “C”, specify the TTCOPTS keyword EXCLUDEC=NO (default is YES), as in the following example:

```
TTCOPTS TC#OPTS DATEFRMT=2, *
          EXCLUDEC=NO
```

ATF/CICS message logging

As distributed, ATF/CICS writes execution status messages to the operating system log. If you prefer, you can define the name of an existing CICS transient data (TD) queue where ATF/CICS should log its messages instead. This is done by specifying the TD queue name through the TTCOPTS keyword LOGTDQUE, as in the following example:

```
TTCOPTS TC#OPTS DATEFRMT=2, *
          EXCLUDEC=NO, *
          LOGTDQUE=TTCI
```

Normally, screen messages displayed by ATF/CICS to users at a terminal executing an ATF/CICS supplied transaction are not logged to the system log or to the specified TD queue, if one was designated. If screen messages are required to be logged for diagnostic or auditing purposes, specify the TTCOPTS keyword LOGALL=YES, as follows:

```
TTCOPTS TC#OPTS DATEFRMT=2, *
          EXCLUDEC=NO, *
          LOGALL=YES
```

Disabling the ATF/CICS interface to ATF

ATF/CICS normally interfaces with ATF, if the latter is activated before the CICS region and ATF/CICS are started up. This interface provides maximum support for CICS applications that obtain the date and time through services other than the CICS ASKTIME command.

If the need arises to disable this interface, specify the TTCOPTS keyword TICMVS=NO, as in the following example:

```
TTCOPTS TC#OPTS TICMVS=NO
```

Support for lowercase terminal IDs

By default, ATF/CICS converts the TERMID field in virtual clock definitions to uppercase characters.

If your CICS installation uses TERMIDs that contain lowercase characters, specify the TTCOPTS keyword TERMIDCASE=LOWER, as in the following example:

```
TTCOPTS TC#OPTS TERMIDCASE=LOWER
```

Discontinued TTCOPTS keywords

For users of prior versions of ATF/CICS, the following TTCOPTS keywords are no longer valid or in use by ATF/CICS:

```
TIMEEXIT USIDEXIT XPCFTCH XEIANY PASSWORD
```

Step 2: Assemble and linkedit ATF/CICS program TTCOPTS

1. After saving any changes made to *SCIKINST* library member TTCOPTS, edit *SCIKINST* library member CIKCASM. This member is used to assemble and linkedit ATF/CICS programs. Modify the job statement in CIKCASM to conform to your installation's standards.
2. If necessary, modify the IDX (first level qualifier) procedure variable to change the first level qualifier of the ATF/CICS data sets. The default value is ATFCICS.
3. If necessary, modify the VER (version) procedure variable. The default value is V287.
4. Set the MEMBER procedure variable to TTCOPTS, indicating the *SCIKINST* library member name that will be assembled.
5. If necessary, modify the WORKUNIT (temporary data set work unit name) procedure variable. The default value is SYSDA, which in most installations need not be modified.
6. Set the CICS MAC (CICS macro library name) procedure variable to the full data set name of the CICS macro library.
7. Submit the CIKCASM job stream. All steps should complete with a condition code of zero.

Step 3: Assemble and linkedit ATF/CICS program TTCCIVER

ATF/CICS program TTCCIVER contains CICS version related data that is required for ATF/CICS to execute under the CICS version(s) in use at your installation.

Program TTCCIVER must be assembled and linkedited separately for each CICS version with which ATF/CICS will execute.

The object module produced by assembling TTCCIVER is automatically linkedited and named according to the CICS version, release and modification level of the CICS macro and source libraries used to assemble TTCCIVER.

For example, assembling TTCCIVER with the macro and source libraries of CICS/TS 2.3 produces a load module named TTCC0630. Assembling TTCCIVER with the macro and source libraries of CICS/TS 3.2 produces a load module named TTCC0650.

If ATF/CICS will be used with more than one version of CICS, simply assemble TTCCIVER with each CICS version's supplied macro and source libraries to produce separate TTCCIVER load modules for each CICS version.

To assemble and linkedit ATF/CICS program TTCCIVER, perform the following steps:

1. Edit *SCIKINST* library member CIKCASM. This member is used to assemble and linkedit ATF/CICS programs. Modify the job statement in CIKCASM to conform to your installation's standards.
2. If necessary, modify the IDX (first level qualifier) procedure variable to change the first level qualifier of the ATF/CICS data sets. The default value is ATFCICS.
3. If necessary, modify the VER (version) procedure variable. The default value is V287.

Step 3: Assemble and linkedit ATF/CICS program TTCCIVER

4. Set the MEMBER procedure variable to TTCCIVER, indicating the *SCIKINST* library member name that will be assembled.
5. If necessary, modify the WORKUNIT (temporary data set work unit name) procedure variable. The default value is SYSDA, which in most installations need not be modified.
6. Set the CICS MAC (CICS macro library name) procedure variable to the full data set name of the CICS macro library.
7. Submit the CIKCASM job stream. All steps should complete with a condition code of zero.
8. If ATF/CICS is to be used with several CICS versions, change the CICS MAC procedure variable and submit the CIKCASM job stream again for each CICS version.
9. When assembling TTCCIVER for older versions of CICS, the assembler step may end with condition code 8 along with the following error message in the assembler step's SYSPRINT report output:

```
IEV057 *** ERROR *** UNDEFINED OP-CODE -- TC#CI/DFHSNTTE
```

If this error does not occur, skip to the next installation step.

Otherwise, to resolve this error, edit *SCIKINST* library member TTCCIVER. Find the following line:

```
TTCCIVER TC#CIVER CSECT ATF/CICS CICS DATA CSECT
```

Modify the above line by appending to the word CSECT a comma, immediately followed by SIGNON=SNT, as follows:

```
TTCCIVER TC#CIVER CSECT,SIGNON=SNT ATF/CICS CICS DATA CSECT
```

Save the changes made and resubmit the CIKCASM job stream. All steps should now complete with a condition code of zero.

Step 4: Allocate the Virtual Clock Data Set (VCD)

SCIKINST library member CIKCJCLV contains JCL, similar to the following, to create and initialize the ATF/CICS Virtual Clock Data Set (VCD). Boxed letters refer to the notes that follow.

```
//DEFINVCD JOB << FILL IN THE APPROPRIATE JOBCARD PARAMETERS >> A
//*
//IEBDG EXEC PGM=IEBDG,REGION=2048K
//VCDRCDO DD DISP=(,PASS),DSN=&&VCDRCDO,
// UNIT=SYSDA, B
// SPACE=(TRK,(1)),
// DCB=(BLKSIZE=300,LRECL=300,RECFM=FB)
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DSD OUTPUT=(VCDRCDO)
CREATE QUANTITY=1,FILL=X'00'
END
//*
//IDCAMS EXEC PGM=IDCAMS,REGION=2048K
//VCDRCDO DD DISP=(OLD,DELETE),DSN=&&VCDRCDO
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DELETE ATFCICS.V287.VCD C
DEFINE CLUSTER (NAME(ATFCICS.V287.VCD) C -
INDEXED -
VOLUMES (?????) D -
KEYS (80 0) -
RECSZ (300 300) -
RECORDS (100 100) E -
SHAREOPTIONS (3,3) -
FREESPACE (20 10) -
```

Step 4: Allocate the Virtual Clock Data Set (VCD)

```
REPRO INFILE (UNIQUE)
          (VCDRCDO)
          OUTDATA SET(ATFCICS.V287.VCD) D
/*
```

- A** Change the JOB card to meet your installation requirements.
- B** If necessary, modify the UNIT name used for allocating a temporary work file. The supplied value is SYSDA, which in most installations need not be modified.
- C** Statements containing the name of the ATF/CICS Virtual Clock Data Set VSAM KSDS file assume the following:
 - The first level qualifier you selected was ATFCICS. You may use another first level qualifier. Whatever first level qualifier you use, be sure it is defined in the system catalog.
 - The middle level qualifier is V287, indicating that you are installing Version 2, Release 8 and Modification Level 7 of ATF/CICS.
 - The data set type qualifier is VCD.
- D** Specify the volume serial number of the disk on which you want the ATF/CICS Virtual Clock Data Set to reside.
- E** Specify the primary and secondary record capacity of the ATF/CICS Virtual Clock Data Set. The values supplied are 100 records for the primary extent and an additional 100 records for every secondary extent. If necessary, modify these amounts to suit your installation's anticipated capacity requirements.

Step 5: Define ATF/CICS resources to CICS

SCIKINST library member CIKCDEFS contains a complete sample CEDA command stream that can be used to define all ATF/CICS resource definitions to CICS in conjunction with the instructions below.

To define ATF/CICS resources using CICS RDO transaction CEDA, perform the following steps:

1. Add the group name TICTOC to a new list named TICTOC using the following CEDA command:

```
ADD GROUP(TICTOC) LIST(TICTOC)
```

In this document, TICTOC is the assumed group and list names used. However, any names can be substituted in its place.

2. Define ATF/CICS transaction TICT using the following CEDA command:

```
DEFINE TRANSACTION(TICT)
  GROUP(TICTOC)
  PROGRAM(TTCCICS)
  TASKDATALOC(ANY)
  TASKDATAKEY(CICS)
  ISOLATE(NO)
```

In this document, TICT is the assumed transaction ID used. However, any name can be substituted in place of TICT.

Command keywords TASKDATALOC, TASKDATAKEY and ISOLATE are not available for all CICS releases. However, they must be set as described if they are available in the CICS version for which ATF/CICS is being installed.

3. Define ATF/CICS mapset TTCMPUS using the following CEDA command:

Step 5: Define ATF/CICS resources to CICS

```
DEFINE MAPSET(TTCTMPUS)
GROUP(TICTOC)
```

4. Define ATF/CICS programs using the following CEDA command:

```
DEFINE PROGRAM(program_name)
GROUP(TICTOC)
LANGUAGE(ASSEMBLER)
DATALOCATION(ANY)
EXECKEY(CICS)
```

Command keywords DATALOCATION and EXECKEY are not available for all CICS releases. However, they must be set as described if they are available in the CICS version for which ATF/CICS is being installed.

The following list of programs must be defined to CICS, using the above DEFINE PROGRAM command for each one:

```
TTCASK      TTCCDIO   TTCCICS    TTCC????   TTCEDIT    TTCEIOUT
TTCERROR    TTCGLUE   TTCHELP    TTCINIT    TTCINI2    TTCLTOR
TTCMSG      TTCMSGTB  TTCOFST    TTCOPTS    TTCRTRN    TTCTMIC
TTCUEDC     TTCUED0   TTCUE00    TTCUE1C    TTCUE10    TTCU000
TTCU000     TTCVCTR
```

Change the entry with a program name of TTCC???? to the name of the TTCCIVER load module created earlier (“Step 3: Assemble and linkedit ATF/CICS program TTCCIVER” on page 5).

5. Define the ATF/CICS Virtual Clock Data Set (VCD) VSAM KSDS file using the following CEDA command. Modify the VCD data set name in the command’s DSNAME parameter below to correspond to the cataloged VCD data set name.

```
DEFINE FILE(TTCVCD)
GROUP(TICTOC)
DESCRIPTION
(ATF/CICS V2.8.700 VCD)
DSNAME(ATFCICS.V287.VCD)
STRINGS(4)
RECORDFORMAT(F)
ADD(YES)
BROWSE(YES)
DELETE(YES)
READ(YES)
UPDATE(YES)
```

6. Install ATF/CICS group TICTOC by using the following CEDA command:

```
INSTALL GROUP(TICTOC)
```

The INSTALL command dynamically makes the ATF/CICS resource definitions in group TICTOC available to CICS.

Step 6: Enable the ATF/CICS interface to ATF

In addition to standard support for the CICS ASKTIME command, ATF/CICS can interface with ATF to provide comprehensive virtual timing support for transactions requesting date and time functions provided by the most popular application languages and products. This includes Assembler, COBOL, PL1, C, C++, Language Environment, DB2, NATURAL, and others.

In order to provide this functionality, the following changes need to be made to CICS definitions and components:

Linkedit CICS module DFHAPIN

If the CICS System Initialization Table (SIT) specifies RENTPGM=PROTECT or LPA=YES, then CICS supplied program DFHAPIN must be linkedited as non-reentrant.

Use the following linkage edit example to relink DFHAPIN:

```
//LINKAPIN JOB << FILL IN THE APPROPRIATE JOBCARD PARAMETERS >> A
//*
//LINKEDIT EXEC PGM=IEWL,PARM='LET,LIST,MAP,NCAL,REUS'
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD UNIT=SYSDA,SPACE=(TRK,(19,10), B
//SYSLIB DD DISP=SHR,DSN=CICSnnn.SDFHLOAD C
//SYSLMOD DD DISP=SHR,DSN=usermod.loadlib D
//SYSLIN DD *
INCLUDE SYSLIB(DFHAPIN)
ORDER DFHAPIN
ENTRY DFHAPINA
MODE AMODE(31),RMODE(ANY)
NAME DFHAPIN(R)
/*
```

- A** Change the JOB card to meet your installation requirements.
- B** If necessary, modify the UNIT name used for allocating a temporary work file. The supplied value is SYSDA, which in most installations need not be modified.
- C** Change the dataset name to the actual name used for the CICS supplied SDFHLOAD library.
- D** Specify the name of the load library, other than the CICS supplied SDFHLOAD library, where the non-reentrant copy of program module DFHAPIN is to be linkedited into. This load library must be concatenated to the CICS region's DFHRPL DD statement prior to the CICS supplied SDFHLOAD library, if present there.

Inspect SIT parameters for LPA=YES

If the CICS System Initialization Table (SIT) specifies LPA=YES, then the SIT override parameter PRVMOD must also be specified as PRVMOD=DFHEIP for CICS Version 2, PRVMOD=DFHAIP for CICS Version 3 and PRVMOD=DFHAPIN for CICS Version 4.1 and for all versions of CICS/TS.

Step 7: Modify the CICS region JCL

Add the ATF/CICS LOADLIB data set name to the DFHRPL DD statement concatenation in the CICS region's JCL. This change takes effect when CICS is restarted.

If CICS program DFHAPIN was relinked, as described in the previous installation step, the load library containing the linkedited non-reentrant copy of the module must be concatenated to the CICS region's DFHRPL DD statement prior to the CICS supplied SDFHLOAD library, if present there.

Step 8: Start ATF/CICS

After restarting the CICS region, logon to CICS and issue the following command from your terminal:

```
TICT START
```

If you defined another transaction ID for ATF/CICS, substitute it in place of TICT.

ATF/CICS should initialize and display the following message at the terminal:

```
TTC0026I: ATF/CICS STARTED SUCCESSFULLY
```

Step 8: Start ATF/CICS

If another ATF message appears on the screen, refer to the Appendix “Messages and codes” in the *Application Time Facility for CICS User’s Guide* for an explanation of the message and the appropriate response to be taken.

Chapter 2. Verifying the installation

Verifying that the installation was successful involves checking to make sure that the ATF/CICS online interface is accessible and that ATF/CICS successfully provides its virtual date services.

Verifying the ATF/CICS online interface

To verify that the ATF/CICS online interface is operational, perform the following steps:

1. Logon to CICS.
2. From a cleared screen, enter the ATF/CICS transaction ID, TICT. The ATF/CICS main menu panel should appear. If ATF/CICS is active, a message to that effect is displayed in the screen's upper right hand corner. Refer to the *Application Time Facility for CICS User's Guide* for information on using the ATF/CICS online interface.

Verifying ATF/CICS virtual date service operation

To verify that ATF/CICS virtual date services are operating correctly, perform the following steps:

1. Ensure that ATF/CICS has been started and is currently active.
2. From a cleared screen, enter the following command:

```
TICT ADD DATE=2006/01/01 TIME=05:30 KEEP=YES
```

This defines to ATF/CICS that all transactions executed at the current terminal should begin with a virtual date of January 1st 2006 and a virtual time of 5:30 AM. The definition is kept permanently in the Virtual Clock Data Set (VCD) for use in future CICS executions or until it is manually deleted.

3. Clear the screen and enter the following command:

```
TICT ?
```

This displays the ATF/CICS Command Syntax Help screen. The screen's title line should look similar to the following:

```
< ATF/CICS Version 2.8.700 Command Syntax Help - D=2006/01/01 ,T=05:30:00 >
```

The date on the right hand side of the title line should be 2006/01/01. The time shown after the date should be 05:30 or a few seconds later.

4. Clear the screen and enter the following command:

```
TICT DEL
```

This deletes the test virtual clock definition previously defined.

Verifying ATF/CICS virtual date service operation

Chapter 3. Controlling ATF/CICS operation

Adding, deleting and updating virtual clock definitions

Whether ATF/CICS is active or not, virtual clock definitions can always be added, updated or deleted using the ATF/CICS online and command interfaces.

Refer to the *Application Time Facility for CICS User's Guide* for information on using the ATF/CICS online and command interfaces.

Starting ATF/CICS

To start and activate the ATF/CICS virtual timing service, issue the following command:

```
TICT START
```

This initializes ATF/CICS resident storage areas and activates existing ATF/CICS virtual clock definitions.

Stopping ATF/CICS

To stop ATF/CICS without deleting virtual clock definitions located in memory, issue the following command:

```
TICT STOP
```

This stops ATF/CICS virtual timing services but does not release ATF/CICS resident storage areas.

Shutting down ATF/CICS

To stop ATF/CICS and free all resident storage areas, including virtual clock definitions located in memory, issue the following command:

```
TICT SHUT
```

This terminates ATF/CICS virtual timing services and releases all ATF/CICS resident storage areas.

Automatic startup of ATF/CICS

To have ATF/CICS automatically startup during CICS initialization, perform the following steps:

1. Add the CEDA defined ATF/CICS group name to the list of other group names automatically installed during CICS initialization.
2. Define program TTCCICS in the CICS PLTPI table. For CICS 3.1.0 and above, the PLT entry for program TTCCICS must be specified *after* the PROGRAM=DFHDELIM statement.

Part 2. Appendixes

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