

Time is of the Essence !

US Energy Act changes
Daylight Saving Time



ON DEMAND BUSINESS™

WebSphere. software

SPEAKERS

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AGENDA

- What is Daylight Saving Time all about?
- What is Application Time Facility going to do?
- Potential Next Steps !



Daylight Saving Time Changes

- What is the Daylight Saving Time (DST) change?
- What is the potential impact within an enterprise?
- What is IBM doing?
- What should each enterprise do?



What is the Daylight Saving Time (DST) Change?

- U.S. Energy Act of 2005 extends Daylight Saving Time for 4 weeks
 - ▶ First change in 20 years
 - ▶ Intended to reduce energy consumption
 - ▶ Beginning in 2007, Daylight Saving Time starts second Sunday in March and ends first Sunday in November
- What locations are affected?
 - ▶ U.S.
 - ▶ Canada and Bermuda (conforming to U.S. DST change)
 - ▶ Other countries that have time/date dependent transactions, applications or support services with countries that are changing DST
- Industry-wide Issue
 - ▶ Required system changes may be widespread



What is the Potential Impact within an Enterprise?

- Impact exists in enterprises that
 - ▶ Use automated calendar or scheduling functions
 - ▶ Utilize date and time stamps
 - ▶ Process or manipulate dates or times
- Software, Operating Systems and Firmware may require changes to DST rules



What is the Potential Impact within an Enterprise?

- Examples of cases in which changes may be needed to apply the new DST rules
 - ▶ Enterprises that have systems anywhere in the world that support users, transactions or applications interacting with systems in countries changing DST may be impacted
 - ▶ Systems dependent on accurate sequencing of transactions
 - ▶ Systems/applications with built-in rules about DST
 - ▶ Custom applications that have imbedded DST rules
 - ▶ Standardized code libraries that keep DST rules
 - ▶ Calendar/mail applications that automatically change for DST rules
 - ▶ **Be in compliance with Sarbane Oxley federal regulations to make sure everything is time stamped correctly**



What is IBM Doing?

- Providing software for testing z/OS applications with simulated TIME to ensure correct results.
- Providing new DST support site for clients and partners (<http://www.ibm.com/support/alerts/us/>) which includes:
 - ▶ List of IBM supported products that are affected
 - ▶ Availability of product changes, with links to technical notes
 - ▶ Additional reference information (FAQs, Executive Presentation)
- Notifying U.S., Canada and Bermuda clients so that they are aware of the potential impact of the DST change



What Should Each Enterprise Do?

- Assess their environment for likelihood and potential impact
 - ▶ All IT systems may be impacted so assessment should include software, hardware and operating systems from any supplier
 - ▶ Determine which key business processes are time sensitive
- Develop enterprise-specific action plans
 - ▶ Determine where product changes need to be made
 - ▶ Match product change availability with maintenance windows to mitigate impact
 - ▶ **Test Systems and Applications, prior to actual date of Time change, to ensure correct results**





IBM Software Group

IBM's Application Time Facility (ATF)



ON DEMAND BUSINESS™

Table of Contents

- ***Overview***
 - ▶ *Who uses it?*
 - ▶ *What does it do?*
- ***How ATF Works***
- ***Using ATF***
- ***Additional Topics***



Overview



ATF Overview

- **Who would use ATF?**
 - ▶ **Testing/QA Personnel**
 - ▶ **Application Development**

ATF Functional Overview

- **Simulate new system date and/or **time****
- **Isolate simulation to individual application**
- **Allows easy repeat of test cases**
- **Negligible performance impact**
- **Does not affect system functions**
- **Tight Security**



ATF Supported Languages

- COBOL (COBOL/VS,COBOL/2,COBOL/370)
- LE/370 (PL/I-370, C/370, COBOL/370, Enterprise Cobol)
- ASSEMBLER
- PL/1
- FORTRAN
- C/C++



ATF Supported Operating Environments

ATF/z/OS (ISPF)

Supply virtual date and **time** through:

- Batch Jobs
- TSO Users
- CICS Started Tasks
- IMS applications
- DB2 applications



How ATF Works



How ATF Works

- **Simulate Past, present, or future dates and times**
 - ▶ January 1, 1900 through December 31, 2039
- **Specify Absolute date and time**
 - ▶ January 1, 2006 and 12:30
- **Specify Relative date and time**
 - ▶ +/- days and +/-hh:mm
- **Keep running time**
 - ▶ Independent Time Clock (ITC)
- **ATF will not affect the date for system-critical component dates:**
 - ▶ Supervisor state programs (e.g.: OPEN, CLOSE, SMF,etc,...)



How ATF Works

- **ATF mimics MVS for Date/Time requests**

- ▶ **If you code in a batch COBOL program:**

- MOVE CURRENT-DATE TO DATE-FIELD.**

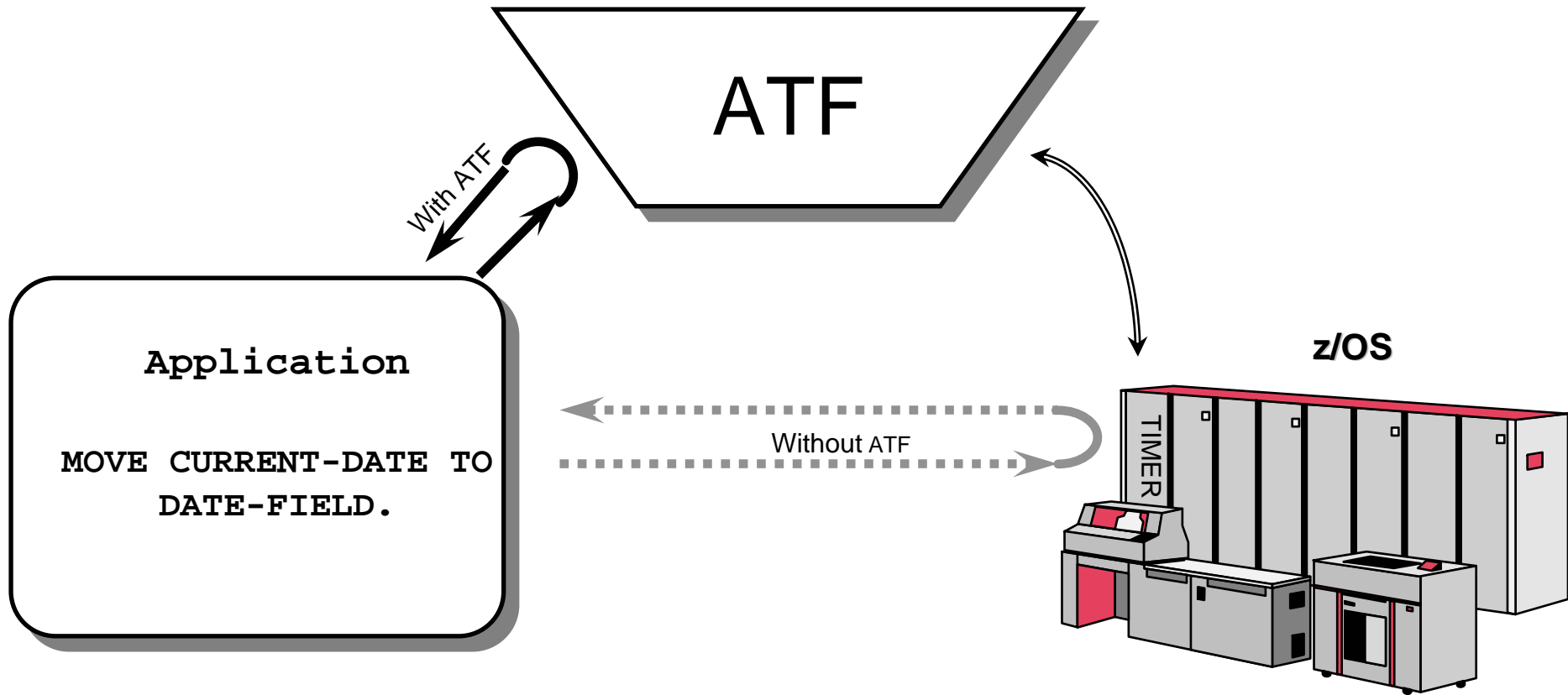
- ATF intercepts the MVS system time request between the programs (eg: COBOL) and the system.**

- **For ATF/CICS, the code would be:**

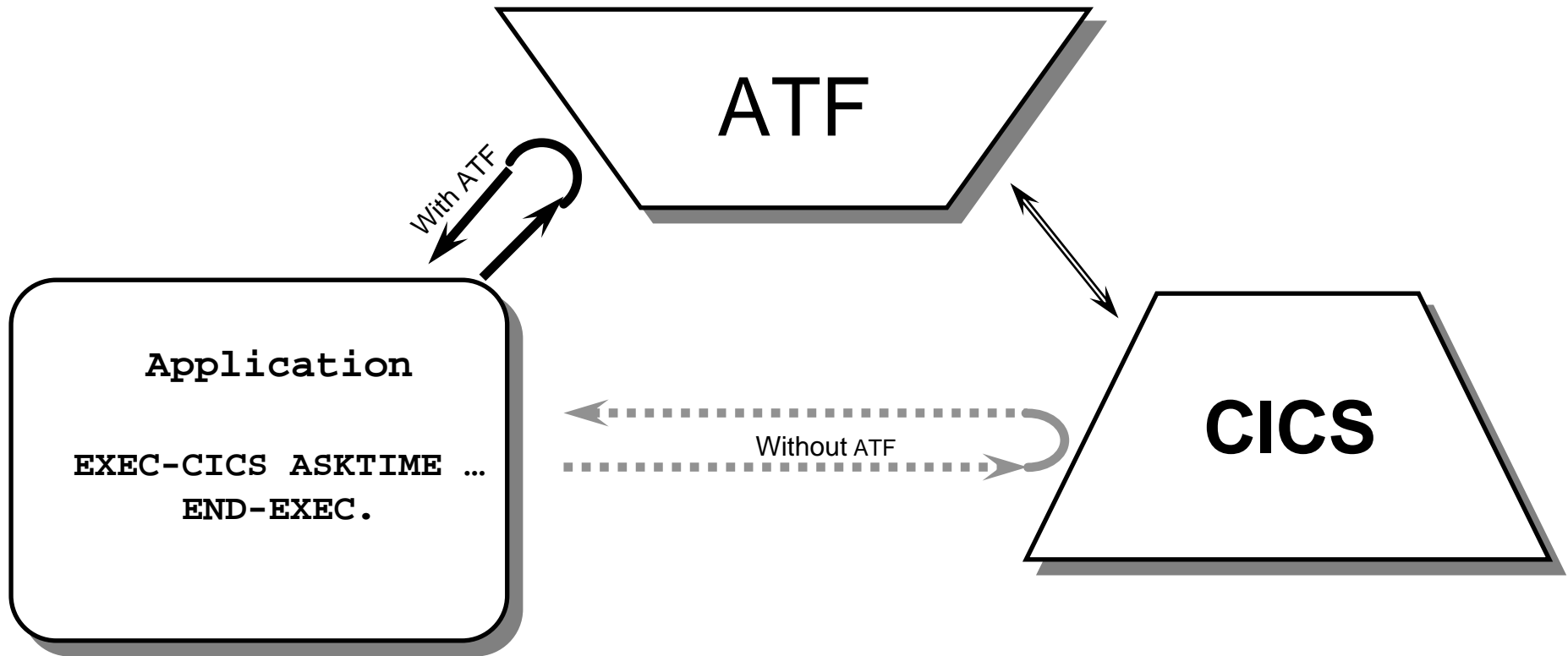
- EXEC-CICS ASKTIME END-EXEC**



ATF with MVS



ATF with CICS



What ATF Intercepts

ATF—Time/Date Requests

- z/OS SYSTEM TIME
 - ▶ LINKAGE=SVC (using SVC-11; Old method)
 - ▶ LINKAGE=SYSTEM (Newer method)
- STCK (Store Clock Instruction)
- STCKSYNC macro



Using ATF



Communicating with ATF

z/OS

- ▶ ISPF
- ▶ JCL

CICS

- ▶ Online interface

ISPF Interface

ISPF Primary Option Menu

Option ==>

0	Settings	Terminal and user parameters	User ID . : INTT009
1	Browse	Display source data or listings	Time. . . : 17:09
			Terminal. : 3278
2	Edit	Create or change source data	Screen. . : 1
3	Utilities	Perform utility functions	Language. : ENGLISH
4	Foreground	Interactive language processing	Appl ID . : ISR
5	Batch	Submit job for language processing	TSO logon : SPFE5V55
6	Command	Enter TSO or Workstation commands	TSO prefix: INTT009
7	Dialog Test	Perform dialog testing	System ID : ISGN
8	LM Facility	Library administrator functions	MVS acct. : ISOGON
			Release . : ISPF
S	SDSF	System Display and Search	
AT	ATF	Application Time Facility	

Enter X to Terminate using log/list defaults

ATF is usually installed as an option on the ISPF Primary Option Menu, as shown above

ATF ISPF Interface

```
TICTOC ----- TICTOC PRIMARY OPTION MENU ----- TICTOC 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
TTTTTTTTTT      II      CCCCCC      TTTTTTTTTT      OOOOOOO      CCCCCC
      TT      II      CC      CC      TT      OO      OO      CC      CC
      TT      TT      II      CC      TT      TT      OO      OO      CC
      TT      TT      II      CC      TT      TT      OO      OO      CC      CC
      TTT      II      CCCCC      TTT      OOOOO      CCCCC

```

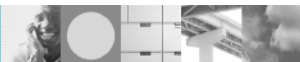
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ATF ISPF Interface

```

TICTOC ----- EDIT VIRTUAL CLOCK DATASET ----- RECORD ADDED
COMMAND ==> _                                SCROLL ==> CSR
NAME      TYPE  DATE      TIME      ENABLE?      LAST UPDATED BY
ACT20001  JOB   2007/03/10  03:00      YES          96/02/11 10:47  ACDB400
ADMN100   TSU   2007/02/01  *          YES          96/02/20 10:26  ADMN100
ADMN101   TSU   2000/01/01  *          YES          96/02/20 10:26  ADMN100
ADMN102   TSU   2000/01/01  *          YES          96/02/20 10:27  ADMN100
ADMN105   TSU   2000/01/01  *          YES          96/02/20 10:28  ADMN100
CICSPRT*  STC   1999/12/31  *          YES          96/02/28 12:34  CICS420
MN??TIC  JOB   2000/01/01  *          YES          96/02/16 14:52  SYDB007
MN*       JOB   2000/02/29  *          YES          96/04/11 10:41  SYDB011
IMSRGN    STC   1999/12/31  *          YES          96/02/28 12:34  SYDB014
ORDRTST?  JOB   2000/01/01  *          YES          96/02/06 11:23  USER330
PITRN008  IMS   *           *          YES          96/02/19 13:19  USER106
PITRN045  IMS   *           *          YES          96/02/19 13:19  USER106
PITRN2*   IMS   *           *          YES          96/02/22 08:57  SYSI420
PITRN*    IMS   1999/12/31  23:59      YES          96/02/19 13:21  USER106
SIMBKUPM  JOB   +31         23:59      YES          96/02/19 15:02  SYST093
SIMBKUPW  JOB   +7          23:59      YES          96/02/19 15:02  SYST093
SYTP*     JOB   *           *          YES          96/02/16 09:28  SYTP070
Z*        JOB   2004/02/29  *          YES          96/04/11 10:47  SYDB011

```



ATF ISPF Interface

TICTOC ----- VIRTUAL CLOCK ADDITION -----

COMMAND ==> _

Name	==> Z*	Job/application name or generic pattern
Type	==> JOB	'JOB', 'STC', 'TSU', 'IMS'
Date	==> 2007/02/29	Start date in YYYY/MM/DD format, a number from -9999 to 9999 days or '*' for actual current date
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)

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:



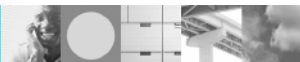
JCL Interface

```
//... JOB ...  
  
// EXEC PGM=TICON  
  
//STEPLIB DD DISP=SHR,DSN=ATF.V2R8M1.LOADLIB  
  
//TICLOG DD SYSOUT=*  
  
//TICIN DD *  
  
VIRTDAT=2007/01/01  
  
VIRTTIME=18:05  
  
/*  
  
 . . (OTHER JOB STEPS)
```



JCL to show a Date Format change

```
//EXEC PGM=TICON
//STEPLIB DD DISP=SHR,DSN=ATF.V2R8M1.LOADLIB
//TICLOG DD SYSOUT=*
//TICIN DD *
DATEFRMT=4
VIRTDAT=29JAN2007
VIRTTIME=+01:00
/*
.
. (OTHER JOB STEPS)
.
// EXEC PGM=TICOFF
//STEPLIB DD DISP=SHR,DSN=ATF.V2R8M1.LOADLIB
//TICLOG DD SYSOUT=*
.
. (OTHER JOB STEPS)
```



Date Formats

ATF can recognize any of five possible date formats:

- 1 YYYY/MM/DD (examples: 1999/12/31, 2007/01/15)
- 2 MM/DD/YYYY (examples: 12/31/1999, 01/15/2007)
- 3 DD/MM/YYYY (examples: 31/12/1999, 15/01/2007)
- 4 DDMONYYYYY (examples: 31DEC1999, 15JAN2007)
- 5 YYYY.DDD (examples: 1999.365, 2007.015)



CICS Support

Run CICS region under ATF control

- **Use ATF/CICS for finer transaction control**
- **Supports CICS Command-level ASKTIME function.**
 - ASKTIME sets EIBDATE and EIBTIME fields
 - CICS sets EIBDATE/EIBTIME on entry to application
- **ATF & CICS All Levels**
 - ATF sets EIBDATE/EIBTIME to virtual date/time upon entry.



ATF CICS Support

ATF/CICS

Selective control of virtual date by:

- **Transaction id**
- **Terminal id**
- **User id**

Defining Virtual date/time to ATF/CICS

- **TICT(default) transaction is almost identical to ATF/MVS ISPF interface**



Entry Panel for ATF CICS (TICT)

TICTOC/CICS ----- TICTOC PRIMARY OPTION MENU ----- TICTOC IS NOT 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
- X EXIT - Terminate and exit this TICTOC user session

```

      TT                TT
      TT                TT
TTTTTTTTTTT      II      CCCCCC      TTTTTTTTTTT      OOOOOOO      CCCCCC
      TT                II      CC      CC      TT                OO      OO      CC      CC
      TT  TT          II      CC                TT  TT          OO      OO      CC
      TT  TT          II      CC      CC      TT  TT          OO      OO      CC      CC
      TTT            II      CCCCC      TTT            OOOOOO      CCCCC
    
```

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Virtual Clock Dataset LISTING

```

TICTOC/CICS ----- EDIT VIRTUAL CLOCK DEFINITIONS ----- REQUEST PROCESSED
COMMAND ==>                                               SCROLL ==> CSR
CLOCK/TERM TRANSID  USERID  DATE          TIME  STATUS  SETTING/LAST UPDATED BY
>ALASKA                *          -04:00  ENA KEEP  98/01/28 07:03:11
>FAREAST                *          +13:00  ENA KEEP  98/01/29 00:03:11
>LONDON                2000/01/01 +05:00  ENA KEEP  00/01/01 16:03:11
>WSTCOST                *          -03:00  ENA KEEP  98/01/28 08:03:11
>LEAPYR                2000/02/28 23:59  ENA KEEP  98/01/28 23:59:11
-NOTERM- *          JOEUSER  >LONDON                DIS      98/01/28 10:31 C410ISGU
N2*      TE*      INT*      2009/12/31 23:59  ENA KEEP  98/01/28 10:33 C410ISGU
SFLA     *        *        >WSTCOST                ENA KEEP  98/01/28 11:03 C410ISGU
0004     TICT     C410ISGU 2001/11/15 *        ENA KEEP  98/01/27 16:55 C410ISGU
0005     *        C410ISGU 2000/01/01 05:30  ENA KEEP  97/05/02 12:35 C410ISGU
0009     TICT     *        2001/01/15 *        ENA KEEP  97/06/30 11:20 C410ISGU
0010     CEDF     INTT033 2002/02/18 18:00  ENA KEEP  97/06/30 11:14 C410ISGU
0010     *        C410ISGU 2000/01/01 05:30  ENA KEEP  97/05/06 16:08 C410ISGU
0010     *        INTT033 >LONDON                ENA KEEP  97/06/20 13:11 INTT033
0050     BLA*     INTT036 2000/01/01 00:00  ENA KEEP  98/01/28 10:18 C410ISGU
0051     *        *        >FAREAST                ENA KEEP  98/01/28 10:23 C410ISGU
*        TEST     INTT036 1999/12/31 23:59  DIS      98/01/28 10:32 C410ISGU
***** BOTTOM OF DATA *****

```



Adding a New VCD Entry

```

TICTOC/CICS ----- EDIT VIRTUAL CLOCK DEFINITIONS ----- REQUEST PROCESSED
COMMAND ==>                                     SCROLL ==> CSR
CLOCK/TERM TRANSID  USERID  DATE          TIME  STATUS  SETTING/LAST UPDATED BY
>ALASKA             *          -04:00  ENA KEEP  98/01/28 07:03:11
>FAREAST            *          +13:00  ENA KEEP  98/01/29 00:03:11
>LONDON             2000/01/01 +05:00  ENA KEEP  00/01/01 16:03:11
>WSTCOST            *          -03:00  ENA KEEP  98/01/28 08:03:11
-NOTERM- *          JOEUSER  >LONDON          DIS      98/01/28 10:31 C410ISGU
N2*      TE*      INT*      2009/12/31  23:59  ENA KEEP  98/01/28 10:33 C410ISGU
SFLA     *        *          >WSTCOST          ENA KEEP  98/01/28 11:03 C410ISGU
A 0004   TICT     C410ISGU 2001/11/15  *      ENA KEEP  98/01/27 16:55 C410ISGU
0005     *        C410ISGU 2000/01/01  05:30  ENA KEEP  97/05/02 12:35 C410ISGU
0009     TICT     *        2001/01/15  *      ENA KEEP  97/06/30 11:20 C410ISGU
0010     CEDF     INTT033 2002/02/18  18:00  ENA KEEP  97/06/30 11:14 C410ISGU
0010     *        C410ISGU 2000/01/01  05:30  ENA KEEP  97/05/06 16:08 C410ISGU
0010     *        INTT033 >LONDON          ENA KEEP  97/06/20 13:11 INTT033
0050     BLA*     INTT036 2000/01/01  00:00  ENA KEEP  98/01/28 10:18 C410ISGU
0051     *        *          >FAREAST          ENA KEEP  98/01/28 10:23 C410ISGU
*        TEST     INTT036 1999/12/31  23:59  DIS      98/01/28 10:32 C410ISGU
***** BOTTOM OF DATA *****

```



Adding a New VCD Entry

TICTOC/CICS ----- VIRTUAL CLOCK ADDITION -----

COMMAND ==>

Termid	==> 0050	Terminal name or generic pattern
Transid	==> BLA*	Transaction name or generic pattern
Userid	==> INTT036	User name or generic pattern
Date	==> 2007/01/01	Start date in YYYY/MM/DD format, a number from -9999 to +9999 days, an '*' for the actual current date or an Independent TOD Clock (ITC) name
Time	==> +01:00	Start time in HH:MM format, a number from -23:59 to +23:59 hours or '*' for the actual current time
Status	==> ENABLE	Specify ENABLE or DISABLE
Keep?	==> YES	Save this entry for future CICS startups? (YES or NO)

Press the END key to add the virtual clock definition.

Use the CANCEL command to cancel the request.



Adding a Independent Time of Day Clock (ITC) VCD Entry (Using ADD C)

```
TICTOC/CICS ----- INDEPENDENT TOD CLOCK ADDITION ----- INVALID TIME
COMMAND ===>
```

```
Clock      ===> >FAREAST      Independent TOD Clock (ITC) name
Date       ===> *              Start date in YYYY/MM/DD format,
                               a number from -9999 to +9999 days
                               or '*' for the actual current date
Time       ===> +01:00        Start time in HH:MM format,
                               a number from -23:59 to +23:59 hours
                               or '*' for the actual current time
Status     ===> ENABLE        Specify ENABLE or DISABLE
Keep?     ===> YES           Save this entry for future
                               CICS startups? (YES or NO)
```

Press the END key to add the Independent TOD Clock definition.

Use the CANCEL command to cancel the request.



VCD Entry Using ITC

TICTOC/CICS ----- VIRTUAL CLOCK ADDITION -----

COMMAND ===>

Termid	===> 0051	Terminal name or generic pattern
Transid	===> *	Transaction name or generic pattern
Userid	===> *	User name or generic pattern
Date	===> >FAREAST	Start date in YYYY/MM/DD format, a number from -9999 to +9999 days, an '*' for the actual current date or an Independent TOD Clock (ITC) name
Time	===> +01:00	Start time in HH:MM format, a number from -23:59 to +23:59 hours or '*' for the actual current time
Status	===> ENABLE	Specify ENABLE or DISABLE
Keep?	===> YES	Save this entry for future CICS startups? (YES or NO)

Press the END key to add the virtual clock definition.

Use the CANCEL command to cancel the request.



DB2 Support

DB2 Applications using ATF

- Can be done with an entry in the Virtual Clock Dataset (VCD) or by using the ATF JCL interface (EXEC PGM=TICON).



Additional Topics



Security Issues

ATF—Security

- **By job class or by jobname**
- **Use system security (RACF, etc.)**
- **Optional security restrictions (VCD access)**
- **Security table controls access to VCD**
- **User-written security exit**



Get more information about these tools at:

www.ibm.com/software/awdtools/deployment

Software > Software Development >

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Products	Solutions
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z/OS Problem Determination and Deployment Tools

- Library
- News
- How to buy
- Training and certification
- Services
- Support

Related software

- Application Monitor for z/OS
- DebugTool for z/OS
- Fault Analyzer for z/OS
- File Export for /OS
- File Manager for z/OS
- Workload Simulator for z/OS and OS/390

Related hardware

- zSeries servers
- Warranty info

Highlights

- File Manager: Latest PTF information
- Fault Analyzer: Latest PTF information
- Debug Tool: Latest PTF information
- WebSphere and zSeries AD tools help meet on demand

Summary



Will DayLight Saving Time be an issue?

QUESTIONS TO ASK YOURSELF...

Q1

DayLight Saving Time (DST) used to be on April 2nd, and now, in 2007 it will occur on March 11th at **2am**. (spring ahead) Will you be able to IPL and reset the systems clock, for all systems and subsystems?

Q2

Have you tested all the critical applications in advance that will be started or are running on March 11th between **2:00am - 3:00am** ?

Q3

Just so you know in advance, the DST change in Spring (March 11) is only the first step. In Fall DST used to be October 29th and will now be November 4th. This date will be even more critical to test for, since it overlaps an hour. Do you think you have tested for this already?



If ATF can help you...

- **Contact your zSSR or AD Sales Specialist for more information.**

PRODUCT	Acronym	Version	PID	S&S PID
IBM Application Time Facility for z/OS	ATF	V2.8.6	5697-N42	5697-N43

- Quickly test System z applications with IBM's Application Time Facility prior to March 11th
- http://aa.usno.navy.mil/faq/docs/daylight_time.html
- **If any further assistance is needed contact:**
 - **PJ Baron**
Business Unit Executive, AD Tools Americas
– pbaron@us.ibm.com
– office: 732.926.2072
 - **Brad O'Brien**
AD Tools Specialist Americas
brobrien@us.ibm.com
office: 732.926.2571



Polling Questions

- **Based on the information you heard today, do you think your company might**

Have an issue with DayLight Saving Time?

- ▶ 1 – Yes
- ▶ 2 – No

- **Would you like more information on Application Time Facility?**

- ▶ 1 – Yes
- ▶ 2 – No



Question and Answer

