

SIM2000

**SIM2000 Date and Time
Simulation Tool**

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Chapter 1 - Introduction

SIM2000 for z/OS and VSE

SIM2000 is a complete date and time testing product for z/OS and VSE users. SIM2000 will provide a non-disruptive testing environment for specific batch and CICS transactions that require date or time simulation. SIM2000 works in both testing and production environments to make it possible to tell all or part of your workload that the date or time is different from the date or time that the CPU thinks it is.

The need for date and time simulation for both production and testing did not stop with the run-up to Y2K: neither did it start there. Many data centers gave themselves the expensive luxury of a separate virtual or real machine or separate LPARs for Y2K testing but most of those have now disappeared.

Just some of the reasons for providing your organization with a date and time simulator include:-

- Testing for unusual dates – 29th February, month-end falling on a public holiday
- Year-end, month end and end of accounting cycle testing
- Testing for unusual times – CICS transactions and batch jobs that run over midnight
- Production re-runs – ensuring that a job re-run at 7 a.m. gives the same results as it would if it had run successfully at 9 p.m.
- Production consistency – ensuring that production that runs overnight doesn't suddenly change date in mid-stream
- Disaster recovery – being able to run last week's work at the same time as running this week's work
- Transaction synchronization for online systems – display the correct local date and time on terminals on the other side of the country or the other side of the world
- If you used "date windowing" as a way to circumvent putting 4 digit dates in your files, you can use SIM2000 to advance the date window and to test that your date window can be advanced when the time comes.
- Not wishing to start a panic but the hardware TOD clock will rollover to zero just before midnight on September 17th, 2042 – SIM2000 will help you handle it.

SIM2000 lets you test batch and CICS applications in your normal environment without disrupting critical production and development work. SIM2000 can be activated and deactivated at any time without a system IPL or recycling of CICS systems.

SIM2000 Batch

SIM2000 date and time simulation in a batch environment lets you set a date for a specific partition or region. All the programs running in that partition or region will see the SIM2000 date. SIM2000 batch lets you set the date for:

- The duration of the executing program (EXEC step)
- The duration of the entire job (JOB)
- The life of the partition
- All dynamic partitions within a dynamic class
- Jobs or programs that match a generic name that you have established

SIM2000 lets you manually disable any or all the date simulation currently activated by SIM2000. This can be accomplished via a batch execution or a CICS transaction. **For z/OS:** The SIM2000 batch facility lets you DEFINE,RESET and list all the SIM2000 date simulation information via batch or an ISPF dialog.

SIM2000 CICS

SIM2000 CICS allows date & time simulation in any active CICS at the program and transaction level. SIM2000 CICS's menu driven transaction lets you set up the SIM2000 CICS testing environment. SIM2000 CICS lets you simulate date & time changes at the:

- Program level (CICS PPT, CICS program)
- Transaction level (CICS PCT, CICS transaction/task)
- Terminal level (CICS TCT, CICS terminal)

SIM2000 CICS supports both command and macro level programs, and any programming language supported by CICS. It is very useful for presenting remote users with the local time on their terminals as well as using their local time to time-stamp transactions written to CICS data files. Your end user in Hong Kong wants to know that he placed his order at 10:00 a.m. Wednesday in Hong Kong, not at 7 p.m. Tuesday in Phoenix.

SIM2000/DB2

SIM2000/DB2 lets you test your z/OS DB2 programs with an advanced date to determine how these programs are going to react when year end etc actually occurs. SIM2000 will provide a non-disruptive testing environment for specific DB2 batch and CICS transactions that require date & time simulation.

The SIM2000/DB2 implementation uses the date and time exit facilities of DB2. After these exits have been enabled and DB2 has been restarted, SIM2000/DB2 date simulation can occur for specific DB2 plans and DBRM members. SIM2000/DB2 lets you define these plans and DBRM member names via the SIM2BAT utility, by generating SIM2DSI table entries in the SIM2SOT module or via the SIM2000 ISPF interface.

Using SIM2000/DB2 you can specify "fake" dates for DB2's use of the current date special register and time stamp data type columns. SIM2000/DB2 provides a simulated date for these fields if directed to do so by the user.

SIM2000 Program Analyzer

The SIM2000 Program Analyzer is a feature of SIM2000 that operates under z/OS and VSE. It lets you identify which executable programs contain date and time handling code.

The SIM2000 Program Analyzer is a batch program that analyzes executable programs contained in z/OS LOADLIBs and VSE libraries (PHASES). You may control the programs to be analyzed via the VSE LIBDEF chain or by pointing to a z/OS LOADLIB dataset via a SIM2FLE DD statement. Control statements may also be used to limit the number of programs to be analyzed or the names of the programs to be analyzed.

The SIM2000 Program Analyzer will identify the programs that use any or all of the following date and time facilities:

- Store Clock instruction – STCK / STCKE
- COBOL CURRENT-DATE usage
- VSE GETIME services
- z/OS TIME service

The SIM2000 Program Analyzer also lets you specify up to five additional scan functions specifying either character or hexadecimal scan data. These user scans provide additional program analysis for date and time sensitive code for your specific needs.

The SIM2000 Program Analyzer will also analyze CICS programs defined via the CICS processing program table (PPT) or the CICS System Definition dataset (DFHCSD). The SIMANALC batch program is provided which lets you analyze your CICS programs. This program will determine the CICS programs to be analyzed by reading the CICS CSD directly or by referencing a Processing Program Table (PPT).

SIM2000 Date Rollover

The SIM2000 Date Rollover Facility lets you test your programs with a simulated date that is changing. The Date Rollover Facility lets you specify a date to be simulated and when that date is to be incremented for the requesting program. You can also request that the simulated date and the rollover date be passed in alternating cycles to the user program.

SIM2000 STCK Instruction Simulation

The SIM2000 STCK instruction simulation feature allows programs that use the STCK or STCKE instruction to obtain the current date to participate in date simulation testing. The SIM2000 STCK instruction simulation feature requires that you specify the names of the programs that are to be handled by this feature. The SIM2000 STCK instruction simulation feature works in a batch and CICS environment.

Chapter 2 - Installation

Product Delivery Options

Internet

To simplify the delivery of the SIM2000 product, you may download needed components from the Cobbs Mill web site (<http://www.cobbsmill.com>). If this option is selected please note the following:

1. The needed files are downloaded in Zip format.
2. The files must be unzipped prior to uploading to your mainframe system. Once unzipped, the files are in binary format.
3. The file(s) may be uploaded to your mainframe system using the following options:
 - No carriage return or line feed.
 - The transfer *must* be in binary format.
 - The block size is 80.

Once the files are uploaded to your mainframe, you may edit them and change any data set names etc. to fit your installation. Once installed on your mainframe, follow the installation instructions for your operating system.

Email

If you would like us to email your SIM2000 installation, contact us at support@cobbsmill.com or your usual contact person and we'll send it to you straight away.

PC Diskette

If you received the SIM2000 product on a PC diskette or CD, the files are in unzipped binary format. The file(s) may be uploaded to your mainframe system using the following options:

- No carriage return or line feed.
- The transfer *must* be in binary format.
- The block size is 80.

Once the files are uploaded to your mainframe, you may edit them and change any data set names, etc. to fit your installation. Once installed on your mainframe, follow the installation instructions for your operating system.

Notes on Installation

1. Check to be sure that you have received a SIM2000 product password. This password is not required to install the software but is required to activate SIM2000 after the installation process. If you have downloaded SIM2000 via the internet, please contact Technical Support (support@cobbsmill.com) for your password.
2. The SIM2000 installation job stream contains a series of default data set names that will be used for the installation. If you wish to change the default data set names, please do the following:
 - A. If you have downloaded via the internet or email:
 - Upload the unzipped job stream to your system.
 - Edit the installation job stream and review the default data set names and change as needed.
 - B. If you have received a PC diskette or CD:
 - Upload the job stream to your system.
 - Edit the installation job stream and review the default data set names and change as needed.

Installation Steps for z/OS

Step 1. Library Requirements

- SIM2.LOADLIB members = 21-30, Total size < 300K
- Source members = 5-10, Total size < 20K
- Text members = 21-30, Total size < 200K (temporary data set)

Step 2. Create the SIM2000.LOADLIB

This step is required if:

1. You are installing SIM2000 for the first time, or
2. Re-installing SIM2000 and have deleted all of the SIM2000 data sets and files.

If you are re-installing SIM2000 and have not deleted this file, continue with Step 3.

Allocate space for and create a library with a name of "**SIM2000.LOADLIB**".

This library requires approximately 500K of space.

Step 3. Run the Installation Job Stream

Edit the installation jobstream to meet your installation naming and other standards and then submit it. The installation job stream will:

- A. Create “TEMP.TEXT” PDS and add SIM2000 text members,
- B. Link SIM2000 APF authorized modules to “SIM2000.LOADLIB”,
- C. Link SIM2000 AMODE (24) module to “SIM2000.LOADLIB”,
- D. Link SIM2000 CICS modules to “SIM2000.LOADLIB”,
- E. Link SIM2000 DB2 modules to “SIM2000.LOADLIB”,
- F. Link SIM2000 SMF EXIT module to “SIM2000.LOADLIB”,
- G. Apply system maintenance via AMASPZAP,
- H. Create the “TEMP.COPYLIB” PDS and add the SIM2000 macros.

Proceed with Step 4.

Install Using Your Data Set Names

If you have selected to change the default installation data set names, submit the installation job following your normal procedures. The installation job stream will:

1. Create “*yourname*.TEXT” PDS and add SIM2000 text members,
2. Link SIM2000 APF authorized modules to “*yourname*.LOADLIB”,
3. Link SIM2000 AMODE (24) module to “*yourname*.LOADLIB”,
4. Link SIM2000 CICS modules to “*yourname*.LOADLIB”,
5. Link SIM2000 DB2 modules to “*yourname*.LOADLIB”,
6. Link SIM2000 SMF EXIT module to “*yourname*.LOADLIB”,
7. Apply system maintenance via AMASPZAP,
8. Create the “*yourname*.COPYLIB” PDS and add the SIM2000 macros.

Note: The actual data set names will be those you have selected.

Proceed with Step 4.

Step 4. Review the SIM2000 “README” File

When SIM2000 is installed, it creates a file called README in the same library used to install the remainder of SIM2000/z/OS

This file is provided with any updated information that may be of interest to the user. It should be reviewed before proceeding with any further installation activities.

Step 5. Apply the Product Authorization Keys

You must apply your SIM2000/z/OS authorization keys after you have successfully installed the product. You must apply the keys within two weeks of receiving the installation jobstream.

The following example illustrates the z/OS/ESA job stream required to apply your SIM2000 authorization keys:

```
//APPLY JOB (accounting information)
//STEP EXEC PGM=DPEPWDA
//STEPLIB DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSIN DD *
PWD=XXXX-XXXX-XXXX-XXXX
PWD=XXXX-XXXX-XXXX-XXXX
/*
/ &
```

A console message will be displayed if the SIM2000 product authorization keys have been applied to the system correctly:

```
DPEPWDA-04 password applied successfully
```

Step 6. APF Authorization Requirements

You must APF authorize the following SIM2000/z/OS program before it is used:

SIM2SINT

The basic installation of SIM2000/z/OS is now complete. If you will be using the SIM2000/CICS support, proceed to **Installing SIM2000/CICS** on page 24.

z/OS Installation notes

Depending on which SIM2000 facilities you intend to use, there may be some extra considerations and actions required to make full use of SIM2000. These are described below...

CA90'S users

Computer Associates provides apar L01449 (solution 105) that allows many of their products to coexist with date simulation tools. Contact your Computer Associates technical support group for this apar.

SIM2000 Language support

You must assemble the SIM2000 system options table with the LANGSUPT specification if you are planning on performing date simulation for the following languages:

LANGSUPT specification Programming language

```
-----  
LANGSUPT=1  
LANGSUPT=2  
LANGSUPT=3
```

```
-----  
COBOL/370  
AD Cycle PL/1  
Language Environment (LE)
```

SIM2000 ISPF support

ISPF clists and panels will be installed into TEMP.COPYLIB during SIM2000 installation. If you plan on moving these members to another library or you have used a different library name, you must update the TEMP.COPYLIB references in the clists. You must also update the clists if you do not use the SIM2.LOADLIB dataset.

1. SIM2CLS1
 - 1 reference to TEMP.COPYLIB
 - 4 references to SIM2.LOADLIB

SIM2000 IDMS Support

SIM2000/IDMS support provides date simulation at the program, terminal, and transaction level for IDMS application programs.

The following steps are required in order to implement this support:

1. Apply CA Apar which invokes Exit 24 for date requests:
 - TC02354 for version 12.0 users
 - TC02355 for version 14.0 users
2. Implement IDMS Exit 24:
 - S2IDMSX is the name of the exit 24 load module
3. Use SIM2BAT to define date simulation control information for IDMS application programs:

```
//SIM2BATJ JOB ACCOUNT, 'EWEN'  
//S1 EXEC PGM=SIM2BAT  
//STEPLIB DD DSN=SIM2.LOADLIB, DISP=SHR  
//SYSPRINT DD SYSOUT=*  
//SYSIN DD *  
DATE=01/01/2012, IK=TRANS1, IT=TERM1, IP=PGM1, IDMS=YES  
DATE=02/02/2021, IK=TRANS2, IDMS=YES  
DATE=03/03/2013, IT=TERM2, IDMS=YES  
DATE=04/04/2024, IP=PGM2, IDMS=YES  
/*
```

***NOTE - the following keywords are required to setup date simulation control info for IDMS:

IK= specifies the transaction id
IT= specifies the terminal id
IP= specifies the program name
IDMS=YES indicates IDMS support

SIM2000 SMF Logging support

SIM2000 SMF logging support allows date simulation information to be logged to the system console or SYSOUT dataset at the completion of a step or job.

SIM2000 provides an IEFACTRT SMF exit routine that can be implemented to provide the SMF logging. This exit is invoked during step and job termination automatically once the following steps have been completed:

1. Assemble the SIM2000 system options table with:
LOGGING=x,LOGTYPE=n
2. Copy the IEFACTRT load module from SIM2.LOADLIB to SYS1.LPALIB
3. Update your SYS1.PARMLIB SMFPRMxx member to include:
SYS(TYPE(4,5),EXITS(IEFACTRT)
4. Start the SIM2000/z/OS product. The following message will be displayed if SMF logging is to occur:
SIM2SINT-34 LOGGING SYSTEM INTERFACE ACTIVATED
5. Activate SMF if necessary.
6. The following message will be logged to the appropriate datasets when steps terminate:
SIM2LOG-01 JOB(XXX) STEP(XXX) SIMCOUNT=nnn
The following message will be logged to the appropriate datasets when jobs terminate:
SIM2LOG-02 JOB(XXX) SIMCOUNT=nnn
These messages only appear if the respective step or job invoked date simulation.

NOTE You may have to reipl z/OS if you are not able to update the LPA online

SIM2000 support for Software AG Natural/CICS

SIM2000/z/OS will perform date simulation for Natural batch and CICS programs. Natural is a program product from Software AG. The following steps must be followed if you wish to include this support:

1. Copy CMCOTIME to your Natural text library
CMCOTIME is a date and time exit for Natural. This exit is cataloged into TEMP.TEXT during SIM2000/z/OS installation. This exit must be linked with the appropriate Natural nucleus.
2. Relink Natural Nucleus

You must relink the Natural nucleus to pickup the CMCOTIME module provided by SIM2000. The module will be invoked by Natural to allow SIM2000 date simulation.

3. Natural parameter requirements

You must specify the Natural parameter TD=n for the SIM2000 date simulation to function properly. n represents the offset from GMT (-5 for EST, -8 for PST). You can update NATPARM or specify the parameter dynamically.

4. Defining Natural programs for date simulation

Batch: Use the normal method of establishing date simulation control information for Natural batch testing.

CICS: You must establish date simulation control information using a transaction id or a terminal id for Natural CICS testing. The program name facility will not work since the Natural programs are not defined to CICS.

SIM2000 TSO Date Simulation Support

SIM2000 lets you specify a simulated date for a TSO user. SIM2000 will ensure that the simulated date is returned every time the TSO user requests the current date.

You can define the TSO date simulation by:

- using the SIM2000 ISPF function 5 - TSO date simulation
- passing the following control statement to SIM2BAT:
DATE=2020/029,USERID=MIKE,TSO=YES

SIM2000 support for LE application programs

SIM2000 provides date simulation for LE application programs running in batch or CICS. Date simulation for LE programs requires the SIM2000 STCK support. The following steps illustrate how to implement SIM2000/z/OS LE support for batch and CICS:

1. Remove CEEYDTS from the LPA - CEEPLPKA version 1.5 or higher
2. Assemble the SIM2000 system options table with LANGSUP=3 and CICSSTCK=YES

```
SIM2SO . . . ,LANGSUP=3,CICSSTCK=YES, . . . . .
```

3. Add this statement via SIM2BAT: (LE version 1.5 or higher)

```
STCKPGM=
```

4. Specify STCK=YES for all date simulation definitions that invoke LE programs.

STCK date simulation for LE programs in CICS

SIM2000/z/OS supports STCK date simulation for LE programs running in a CICS region. The following steps must be followed in order to accomplish this:

1. Perform the previous steps 1-3
2. Run SIM2BAT with a special DATE= control statement to identify the name of the CICS job that requires the LE date simulation support:

```
//SIM2BAT JOB (xxxxxxx)
//STEP EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2.LOADLIB,DISP=SHR
//SYSIN DD *
        DATE=,JOB=CICSxxxx,STCK=YES
/*
```

3. Start the CICS job that is to participate in the SIM2000 STCK date simulation.
4. Activate SIM2000/CICS and specify STCK support for all date simulation definitions that invoke LE programs:
 - Specify Y in the STCK column for CICS transactions that utilize LE programs.
5. You can review the STCK date simulation statistics via:
 - SIM2BAT with the LIST=YES control statement
 - the SM2 transaction function 4

SIM2000 CICS Transaction Server Support

The SIM2000/CICS definitions for Transaction Server systems are:

1. EXECKEY=USER and DATALOC=BELOW for programs and mapset
2. TASKDATALOC=BELOW and TASKDATAKEY=USER for transactions

Start SIM2000/CICS first in the PLTPI in order to avoid conflicts with other 3rd party software.

SIM2000 DB2 Interface

SIM2000 dynamically interfaces with the specific DB2 module that obtains the date via a STCK instruction.

In order to establish the SIM2000/DB2 interface you must:

1. Activate SIM2000/z/OS with the DB2=YES user option
2. Run SIM2BAT with a special DATE= control statement to identify the name of the DB2 DBM1 region where the date simulation is to occur. The following example illustrates how to do this and establish date simulation for plan DB2PLAN1 and DB2 DB2PGM1:

```
//SIM2BAT JOB (xxxxxxx)
//STEP EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2.LOADLIB,DISP=SHR
//SYSIN DD *
DATE=,JOB=DSNDBM1,STCK=YES
DATE=2001/001,PLAN=DB2PLAN1,DB2=YES
DATE=2002/002,PROGRAM=DB2PGM1,DB2=YES
/*
```

3. Start the DB2 system that is to participate in the SIM2000 date simulation.
4. Test your DB2 applications

Date simulation by z/OS Job Class

The following example illustrates how to establish a simulated date for a specific job class:

```
//SIM2BAT JOB (xxxxxxx)
//STEP EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2.LOADLIB,DISP=SHR
//SYSIN DD *
DATE=2012/001,CLASS=F
/*
```

To reset this control information:

```
//SIM2BAT JOB (xxxxxxx)
//STEP EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2.LOADLIB,DISP=SHR
//SYSIN DD *
RESET,CLASS=F
/*
```

//S2cyyddd DD DUMMY date simulation support

You can establish date simulation for a z/OS job by using a //S2cyyddd DD DUMMY job control statement. The format of this special statement is:

```
//S2cyyddd DD DUMMY
  c      represents the century (0-1900,1-2000)
  yy     represents the year (00-99)
  ddd   represents the day (000-366)
```

The date you set remains in effect for the remainder of the job or until you change it with another //S2cyyddd command. The following example establishes a SIMdate of January 31, 2016 for all steps of the TEST job:

```
//TEST      JOB (xxxxxxx)
//STEP      EXEC PGM=TESTPGM
//STEPLIB   DD DSN=TEST.LOADLIB,DISP=SHR
//S2116031  DD DUMMY
//SYSIN     DD *
/*
```

//S2Thhmm DD DUMMY time simulation support

You can establish time simulation for a z/OS job by using a //S2Thhmm DD DUMMY job control statement. The format of this special statement is:

```
//S2Thhmm DD DUMMY
  hh     represents the hour (00-24)
  mm     represents the minute (00-59)
```

The time you set remains in effect for the remainder of the job or until you change it with another //S2Thhmm command. The following example establishes a SIMdate of January 31, 2021 and a SIMtime of 11:30 for all steps of job TEST:

```
//TEST      JOB (xxxxxxx)
//STEP      EXEC PGM=TESTPGM
//STEPLIB   DD DSN=TEST.LOADLIB,DISP=SHR
//S2121031  DD DUMMY
//S2T1130   DD DUMMY
//SYSIN     DD *
/*
```

SIM2000/CICS SIMTIME usage

You may assign a value to the SIMTIME column when you establish date simulation control information using function 3 of the SM2 transaction. This SIMTIME value will be plugged into the EIBTIME field when the respective transaction activates. SIMTIME activates an internal clock which is used by SIM2000/CICS to determine if a date rollover is to occur. If you specify a SIMTIME value of 23:59:55 then the date will rollover after the transaction has been running for 5 seconds.

You can verify this facility by setting up date simulation control information for CEMT, specifying SIMTIME of 23:59:55. Activate the CEMT I TAS transaction and keep hitting enter until the date on the bottom right corner rolls over to the next day.

The actual SIMTIME value you specified for the transaction may not be displayed/used unless the transaction uses the EIBTIME value to determine the current time of day.

Listing product codes & expiration dates

Run the following job to list the product codes and their respective expiration dates for your system:

```
//DPEPWDA JOB ACCOUNT,etc
//S1 EXEC PGM=DPEPWDA
//STEPLIB DD DSN=SIM2.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
LIST=YES
/*
```

Installation Steps for VSE

Step 1. Library Requirements

- Phase members = 15-25, Total size < 300K
- Source members = 5-10, Total size < 20K

Step 2. Run the Installation Job Stream

Running the installation jobstream

After making any changes you want to make to library names etc in the installation jobstream, submit it to VSE.

The installation job stream will:

- A. Load the SIM2000/VSE phases to the PRD2.CONFIG library,
- B. Load the SIM2000/VSE source to the PRD2.CONFIG library,
- C. Archive SIM2000/VSE via MSHP.

Proceed with Step 3.

Install Using Your Data Set Names

If you have selected to change the default installation data set names, submit the installation job following your normal procedures. The installation job stream will:

1. Load the SIM2000/VSE phases to the *yourname.lib* library,
2. Load the SIM2000/VSE source to the *yourname.lib* library,
3. Archive SIM2000/VSE via MSHP.

Note: The actual data set names will be those you have selected.

Proceed with Step 3.

Step 3. Review the SIM2000 “README” File

When SIM2000 is installed, it creates a file called README in the same library used to install the remainder of SIM2000.

This file is provided with any updated information that may be of interest to the user. It should be reviewed before proceeding with any further installation activities.

Step 4. Apply the Product Authorization Keys

You must apply your SIM2000/VSE authorization key(s) after you have successfully installed the product. Your authorization key(s) will be provided by the distributor. You must apply the key(s) within two weeks of the SIM2000/VSE installation date.

VSE/ESA

The following example illustrates the VSE/ESA job stream required to apply your SIM2000/VSE authorization key(s):

```
// JOB      APPLY AUTHKEY
// LIBDEF  PHASE,SEARCH=PRD2.CONFIG
// LIBDEF  PHASE,CATALOG=PRD2.CONFIG
// EXEC    DPEPWDA
PWD=XXXX-XXXX-XXXX-XXXX
LIST=YES
/*
/ &
```

A console message will be displayed if the SIM2000/VSE product authorization key(s) have been applied to the system correctly:

- DPEPWDA-04 password applied successfully

VSE/SP and MVT/VSE

The product password must be assembled into the SIM2SOT phase using the SIM2SO macro. The following example illustrates how to assemble and catalog the SIM2SOT phase:

```
// JOB      ASSEMBLE SIMTSOT
// LIBDEF  *,SEARCH=PRD2.CONFIG
// LIBDEF  PHASE,CATALOG=PRD2.CONFIG
// EXEC    ASSEMBLY
  COPY SIM2SO
  SIM2SO . . . . .,PWD=XXXX-XXXX-XXXX-XXXX
END
/*
// EXEC LNKEDT
/ &
```

The basic installation of SIM2000/VSE is now complete.

The remainder of this chapter is devoted to the installation of the different SIM2000 interfaces.

Step5. The SIM2000 \$JOBEXIT Interface

If you use the \$JOBEXIT table for multiple Job Control exits, SIM2000 requires a dummy \$JOBEX nn phase to be cataloged and an associated entry in the \$JOBEXIT table.

At batch activation, SIM2000 hooks into \$JOBEX nn (where nn is the JOBEXINT= nn startup specification).

After activation, you can query the job exits by issuing the

JCLEXIT

command from a partition. Depending on your environment and other products activated at ASI time, you may need to issue the:

JCLEXIT ENABLE, \$JOBEX nn

command to ensure the exit is established.

The **JCLEXIT ENABLE, \$JOBEXIT** command will enable all job exits.

If you are using a \$JOBEXIT module instead of the \$JOBEXIT table, specify

JOBEXINT=YES

in your SIM2000 system activation startup job.

For more information on \$JOBEXIT, refer to the **VSE/ESA Guide To System Functions** publication.

Installing SIM2000/CICS

Note: This procedure applies to z/OS and VSE.
SIM2000/CICS requires programs, mapsets, and transactions to be added to your CICS system.
SIM2000/CICS also utilizes the CICS user-exit interface.

Step 1. Add SIM2000/CICS Programs and Mapset to CICS

The following illustrates the process for adding programs and mapsets to your CICS:

```
DFHPPT TYPE=ENTRY, PGMLANG=ASSEMBLER, PROGRAM=SIM2CINT
DFHPPT TYPE=ENTRY, PGMLANG=ASSEMBLER, PROGRAM=SIM2CCT, RES=YES
DFHPPT TYPE=ENTRY, PGMLANG=ASSEMBLER, PROGRAM=SIM2CP1
DFHPPT TYPE=ENTRY, PGMLANG=ASSEMBLER, PROGRAM=SIM2CSTP
DFHPPT TYPE=ENTRY, PGMLANG=ASSEMBLER, PROGRAM=SIM2UXP, RES=YES           (VSE)
DFHPPT TYPE=ENTRY, PGMLANG=ASSEMBLER, PROGRAM=SIM2UXP1, RES=YES
(z/OS)
DFHPPT TYPE=ENTRY, PGMLANG=ASSEMBLER, PROGRAM=SIM2UXP2, RES=YES
(z/OS)
DFHPPT TYPE=ENTRY, PGMLAND=ASSEMBLER, PROGRAM=SIM2WTOM
(z/OS)
DFHPPT TYPE=ENTRY, MAPSET=SIM2MAP
```

Note: CICS/ESA 3.3 or later users must define all programs with EXECKEY=CICS and
DATALOC=ANY.

Step 2. Add SIM2000/CICS Transactions to CICS

The following illustrates the process for adding transactions to CICS:

```
DFHPCT TYPE=ENTRY, PROGRAM=SIM2CINT, TRANSID=SM2A
DFHPCT TYPE=ENTRY, PROGRAM=SIM2CSTP, TRANSID=SM2T
DFHPCT TYPE=ENTRY, PROGRAM=SIM2CP1, TRANSID=SM2
```

Note: CICS/ESA 3.3 or later users should define these transactions with TASKDATALOC=ANY and
TASKDATAKEY=USER

Step 3. Specify CICS User-exit Facility

Specifying the CICS User-exit facility is done as follows:

```
DFHSIT EXITS=YES
```

Step 4. Update the CICS Startup Jobstream

z/OS Users

Add the load library that contains the SIM2000 members to the **DFHRPL** and **STEPLIB** chains.

Step 2 requires the CICS ADFHMOD library. The name in the install refers to 'CICS.ADFHMOD', the name of your library may be different. Update this step to match your library name.

SIM2000/CICS loads some SIM2000 supplied modules using z/OS services. Because of this, you must add the SIM2.LOADLIB to your CICS startup job STEPLIB concatenation. You **MUST** add SIM2.LOADLIB to your SYS1.PARMLIB(IEAAPFxx) member to prevent DFHKE0101 CICS failures.

VSE Users

Add the library that contains the SIM2000 phases to the **LIBDEF PHASE** search chains. Refer to **Chapter 5 - SIM2000/CICS** on page 63 for additional information on activation and use of this interface.

Installing DB2 Date/Time Exit Implementation

Note: This procedure applies only to z/OS sites using DB2.

The following steps should be followed to ensure proper implementation of the DB2 date and time exits:

1. Copy DSNXVDTX and DSNXVTMX from the SIM2000.LOADLIB to the DB2.SDSNEXIT LOADLIB. These are the date and time exits respectively
2. Update DB2 to enable the DSNXVDTX and DSNXVTMS exits.
You must tell DB2 that the date and time values are LOCAL in order to activate the date and time exits. You can update these values by executing the DB2 installation CLIST and then updating the 'Application Programming Defaults' panel:
 - A. from ISPF command shell:
 - B. exec 'DB2.SDSNCLST(DSNTINST)'
 - C. enter 'update' to function type
 - D. select '14' for 'Applications Programming Defaults'
 - E. specify 'local' for date format
 - F. specify 'local' for time format
 - G. specify '10' for local date length
 - H. specify '8' for local time lengthPlease review the “**DB2 Administration Guide**” if you require further clarification on this procedure.
3. Restart DB2 for these changes to take affect

You may also implement the DB2 date and time exits by changing the specifications in the DSNHDECM macro that resides in the DSNTIJUZ job on the DB2.SDSNSAMP dataset:

- DATE=LOCAL,DATELEN=10,
- TIME=LOCAL,TIMELEN=8,

You must run the DSNTIJUZ job to successful completion after these changes have been made. DB2 must be restarted after DSNTIJUZ runs.

Refer to **Chapter 6 - SIM2000/DB2** on page 76 for additional information on the use of SIM2000/DB2.

Installing SIM2000 Support for Natural

Note: This procedure applies to z/OS and VSE.
SIM2000 will perform date & time simulation for Natural batch and CICS programs. Natural is a program product from Software AG. The following steps must be followed if you wish to include this support:.

Step 1. Copy the CMCOTIME Exit

Copy the CMCOTIME exit to your Natural text library.

The CMCOTIME is a date and time exit for Natural. This exit is cataloged into TEMP.TEXT during SIM2000/z/OS installation. This exit must be linked with the appropriate Natural nucleus.

Step 2. Re-link the Natural Nucleus.

You must re-link the Natural nucleus to pickup the CMCOTIME module provided by SIM2000. The module will be invoked by Natural to allow SIM2000 date & time simulation.

Step 3. Natural Parameter Requirements

You must specify the Natural parameter:

TD=0

for the SIM2000 simulation to function properly. You can update NATPARM or specify the parameter dynamically.

Installing the SIM2000 Program Analyzer

The SIM2000 Program Analyzer is installed during the normal SIM2000 installation.

Refer to **Chapter 8 - SIM2000 Program Analyzer** on page 86 for additional information on the use of the SIM2000 Program Analyzer.

Verifying Installation

VSE

To verify the installation of SIM2000/VSE, the following job may be run in batch:

```
* $$ JOB JNM=SIM2000,CLASS=0,DISP=D
* $$ LST CLASS=V,DEST=(*,DPE1)
// JOB SIM2000 --- SIM2BAT EXECUTION ---
// OPTION LOG
// LIBDEF *,SEARCH=(PRD2.CONFIG)
// SIM2000 DATE=2001/001
// EXEC SIM2BAT,SIZE=100K
  LIST=YES
/*
// EXEC LISTLOG
/&
* $$ EOJ
```

The report date in the retrace listing will reflect the simulated date.

CICS

Note: This procedure applies to z/OS and VSE.

To verify the installation of SIM2000/CICS, perform the following:

1. Start SIM2000/CICS via the SM2A transaction.
2. Setup the date simulation for the CEMT transaction using the TRANS field of the “DEFINE DATE SIMULATION CONTROL INFORMATION” Panel.
3. Perform a: **cemt i tas**

The SIM2000/CICS simulated date should appear on bottom right of the CEMT display.

Chapter 3 - SIM2000/MVS

Starting and Stopping SIM2000/z/OS

Starting the SIM2000 System Interface - SM2SINIT

Note: Any changes to the SIM2000 System Options Table should be made and the new table assembled prior to starting SIM2000/z/OS.

The SIM2000 System Interface must be activated prior to using any SIM2000 function. It is recommended that you add the SIM2000 System Interface activation to your system IPL procedures.

The following example illustrates the job stream required to activate the SIM2000 System Interface:

```
//ACTIVATE JOB (user information)
//STEP      EXEC PGM=SIM2SINT
//STEPLIB DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSIN    DD *
IMS=YES
DB2=YES
USERSVC=240
NOJCBS=1024
/*
```

SM2SINIT User Control Statements

You may specify SIM2000 system options via user control statements during the SIM2000 system activation. The following is a list of the valid control statements that can be specified:

DB2=YES This option requests that the SIM2000/DB2 system interface be activated. This is an optional feature of SIM2000/z/OS

USERSVC=nnn This option specifies the number of a type-3 user SVC that will be implemented during SIM2000 system interface activation. The user SVC is required for STCK instruction simulation.

NOJCBS=nnn This option overrides the system default of 256 date simulation control blocks that are allocated during the SIM2000 system interface activation.

Stopping the SIM2000/z/OS System Interface

You may terminate the SIM2000/z/OS system interface at any time using the following job example:

```
//TERMINATE JOB (user information)  
//STEP      EXEC PGM=SIM2SINT  
//STEPLIB DD DSN=SIM2000.LOADLIB,DISP=SHR  
//SYSIN    DD *  
STOP=YES  
/*
```

Defining SIM2000 Date Simulation Information

You may define SIM2000 date simulation information via any of the following:

- Assembling the SIM2000 system options table (SIM2SOT) using the SIM2SO and SIM2DSI macros
- Via control statements to the SIM2BAT batch program
- Using an ISPF dialog

The SIM2000 date simulation information defines the jobs and programs that are going to use a simulated date. This information is stored in control blocks that are monitored by the SIM2000 system interface. When a program or job starts on the system that has been defined to use a simulated date, the SIM2000 system interface will insure that program uses the simulated date.

The SIM2000 System Options Table - SIM2SOT

You can define SIM2000 date simulation information by assembling the SIM2SOT table. This table is loaded and used during the SIM2000/z/OS system interface activation.

The following example shows you how to generate the SIM2SOT table with date simulation information and specific SIM2000 system options:

```
SIM2SO  CICSOSIL=n, CICSOSUL=n, CICSSTCK=xxx
SIM2DSI JOB=S2JOB001, PROGRAM=applpgm1, DATE=2001/001
SIM2DSI PROGRAM=userpgm2, DATE=2000/366
SIM2DSI JOB=SPLJOB01, DATE=2009/200
SIM2DSI PROGRAM=testpgm1, STCK=YES, DATE=2001/032
SIM2DSI PROGRAM=SORT*, EXCLUDE=YES
END
```

Definitions for the SIM2SOT table are made using the SIM2SO and SIM2DSI macros.

Both of these macros are documented in **Chapter 10 - SIM2000 Systems Options Table Macros**.

SIM2BAT Batch Facility

You can specify SIM2000/z/OS date simulation information dynamically via the SIM2BAT utility.

Control statements or EXEC parameters provide input to SIM2BAT and specify the SIM2000/z/OS batch function to be performed. The following example illustrates the job control required to execute the SIM2BAT utility:

```
//SIM2BAT JOB (xxxxx)
//SIM2BAT EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
--- control statements here ---
/*
```

Specifying Date Information - DATE=

The SIM2BAT DATE statement is used to specify how SIM2000 date simulation is to be done.

The format of the DATE statement is:

```
DATE=date          [,CLASS=class]
                   [,JOB=jobname]
                   [,PROGRAM=stepname]
                   [,USERID=userid]
                   [,STCK=YES]
                   [,EXCLUDE=YES]
```

Operands/Options

DATE= <i>date</i>	Specifies the date to be used for SIM2000/z/OS testing. The date can be specified as: <i>yyyy/ddd</i> Julian format. <i>mm/dd/yyyy</i> Calendar date format. (+nn) Years to be added to the current date. (-nn) Years to be subtracted from the current date. This operand is required.
CLASS= <i>class</i>	Specifies the z/OS job class to be used for date simulation.

- JOB=*jobname*** Specifies the z/OS job name of the job that requires date simulation. Generic names are specified by using an '*' as the last character.
- PROGRAM=*stepname*** Specifies the z/OS step name of the program that requires date simulation or the actual name of a program that contains STCK instructions to be handled by SIM2000/z/OS. Generic names are specified by using an '*' as the last character.
- USERID=*xxxxxx*** Specifies the z/OS userid of the job/step that requires date simulation. Generic names are specified by using an '*' as the last character.
- STCK=YES** Specifies that this date simulation requires STCK instruction simulation support.
- EXCLUDE=YES** Specifies that this entry is to be excluded from SIM2000/z/OS processing.

You may specify up to 99 DATE= control statements via a single execution of SIM2BAT.

Resetting Date Simulation Information - RESET

You may use the RESET control statement to reset SIM2000/z/OS simulation information that you have previously defined.

RESET	[,JOB=<i>jobname</i>] [,PROGRAM=<i>stepname</i>] [,USERID=<i>userid</i>]
--------------	---

Operands/Options

RESET	Specifies that SIM2000/z/OS simulation control information is to be deleted.
JOB=<i>jobname</i>	Specifies the z/OS job name of the simulation control information defined. Generic names are specified by using an '*' as the last character.
PROGRAM=<i>stepname</i>	Specifies the z/OS step name or the name of the STCK program for the simulation control information defined. Generic names are specified by using an '*' as the last character.
USERID=<i>userid</i>	Specifies the z/OS userid of the simulation control information defined. Generic names are specified by using an '*' as the last character.

Specifying STCK Programs - STCKPGM

You may use the STCKPGM control statement to specify the names of the programs that contain STCK instructions that are to be handled:

```
STCKPGM=program1,program2,programm
```

Operands/Options

programm The name of the program that contains the STCK instruction(s).

Listing SIM2000/z/OS Date Simulation Information - LIST=

You may use the LIST control statement to print the SIM2000/z/OS simulation control information that you have previously defined:

```
LIST=YES
```

Using the SIM2000/z/OS ISPF Interface

You may use the SIM2000/z/OS ISPF interface to perform the SIM2BAT utility functions. To invoke the SIM2000 ISPF interface:

- Choose “6” from the ISPF Primary Option Menu.
- Enter the following command:

```
exec 'temp.copylib(SIM2CLS1)'
```

The SIM2000 main ISPF panel will be displayed, allowing you to perform the SIM2BAT functions interactively.

Note: You must substitute your dataset name if you are not using “temp.copylib”.

Sample ISPF Screens

MAIN MENU PANEL (SIM2PNL0)

```
      SIM2000 DATE SIMULATION TOOL - MAIN MENU PANEL (SIM2PNL0)
=> x          (ENTER FUNCTION)

1  => z/OS BATCH DATE SIMULATION
2  => DB2 DATE SIMULATION
3  => IMS BMP/MPP DATE SIMULATION
4  => EDIT STCK PROGRAM NAME LIST
5  => TSO DATE SIMULATION

T  => TERMINATE THIS SESSION
```

BATCH DATE SIMULATION PANEL (SIM2PNL1)

```
      SIM2000/z/OS BATCH DATE SIMULATION PANEL (SIM2PNL1)

=> xxxxxx (DEFINE, RESET, LST)

1  JOB NAME                ==>
2  PROGRAM NAME            ==>
3  USERID                  ==>
4  SIM2000 (yyyy/ddd,mm/dd/yyyy) ==>
5  STCK SUPPORT            ==>
6  EXCLUDE THIS ENTRY      ==>
7  DATE ROLLOVER SUPT      ==>
8  ALTERNATING DATES       ==>
9  DATE ROLLOVER COUNT     ==>
10 SIMTIME (hh.mm.ss)      ==>

PRESS:  ENTER to continue  END to exit
```

Note: Generic names are specified by using an '*' as the last character for JOB NAME (1), PROGRAM NAME (2) and USERID (3).

SIM2000/DB2 DATE SIMULATION PANEL (SIM2PNL2)

```

SIM2000/DB2 DATE SIMULATION PANEL (SIM2PNL2)

=> xxxxxx (DEFINE, RESET, LST)

1  z/OS JOB NAME           ===>
2  z/OS EXEC NAME          ===>
3  DB2 PROGRAM NAME        ===>
4  DB2 PLANID              ===>
5  SIM2000 (yyyy/ddd,mm/dd/yyyy) ===>
6  STCK SUPPORT            ===>
7  EXCLUDE THIS ENTRY      ===>

PRESS:  ENTER to continue  END to exit

```

Note: Generic names are specified by using an '*' as the last character for z/OS JOB NAME (1), z/OS EXEC NAME (2), DB2 PROGRAM NAME (3), and DB2 PLANID (4).

SIM2000/IMS DATE SIMULATION PANEL (SIM2PNL3)

```

SIM2000/IMS DATE SIMULATION PANEL (SIM2PNL3)

=> xxxxxx (DEFINE, RESET, LST)

1  BMP/MPP JOB NAME        ===>
2  TERMINAL ID             ===>
3  TRANSACTION ID         ===>
4  SIM2000 (yyyy/ddd,mm/dd/yyyy) ===>
5  STCK SUPPORT           ===>
6  EXCLUDE THIS ENTRY     ===>

PRESS:  ENTER to continue  END to exit

```

Note: Generic names are specified by using an '*' as the last character for TERMINAL ID (2) and TRANSACTION ID (3).

STCK PROGRAM NAME LIST PANEL (SIM2PNL4)

SIM2000 STCK PROGRAM NAME LIST PANEL (SIM2PNL4)

=> **xxxxxx** (DEFINE, RESET, LST)

1 PROGRAM NAME ===>
2 PROGRAM NAME ===>
3 PROGRAM NAME ===>
4 PROGRAM NAME ===>
5 PROGRAM NAME ===>

You must specify whole program names, generic names not allowed!

PRESS: ENTER to continue END to exit

TSO DATE SIMULATION PANEL (SIM2PNL5)

SIM2000/z/OS TSO DATE SIMULATION PANEL (SIM2PNL5)

=> **xxxxxx** (DEFINE, RESET, LST)

1 USERID ===>
2 SIM2000 (yyyy/ddd,mm/dd/yyyy) ===>
3 DATE ROLLOVER SUPT ===>
4 ALTERNATING DATES ===>
5 DATE ROLLOVER COUNT ===>

PRESS: ENTER to continue END to exit

Note: Generic names are specified by using an '*' as the last character for USERID (1).

SIM2000 STCK Instruction Simulation Operations

In order to perform date simulation for user programs that contain STCK instructions, the following steps are required:

1. Review the README file for specific STCK support

The README file will document specific requirements for STCK support of various IBM and vendor products. Special instructions on how to implement the support will be documented here. You may be required to reassemble the SIM2000 system options table for specific STCK support.

2. Specify `USERSVC=xxx` during the SIM2000/z/OS system interface activation:

SIM2000/z/OS requires a user SVC to perform STCK date simulation. A program name list will also be allocated during system interface activation. This system wide list contains the names of the programs that contain STCK instructions to be handled by SIM2000/z/OS.

3. Specify the names of the programs to be handled by this feature:

The names of the programs that contain STCK instructions can be specified via the SIM2BAT utility STCKPGM control statement, or via the SIM2000/z/OS ISPF function 4. You may use the SIM2BAT utility or the ISPF facility to list the program names currently in the list.

4. Specify STCK support in the date simulation definition:

The STCK support must be specified (STCK) when date simulation control information is defined. You may define date simulation control information via the SIM2BAT utility or the SIM2000/z/OS ISPF panels.

Examples of SIM2000/z/OS Use

Using JOB= and PROGRAM=

This example shows how to establish global date simulation for:

- All jobs when // JOB name begins with 'PAYT'
- All steps when EXEC names begin with 'TEST'
- All steps when // JOB name begins with 'DDA' and EXEC names begin with 'DDA'

```
//SIM2BAT      JOB (xxxxxx)
//SIM2BAT      EXEC PGM=SIM2BAT
//STEPLIB      DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSPRINT     DD SYSOUT=*
//SYSIN        DD *
DATE=2007/001, JOB=PAYT*, STCK=YES
DATE=2008/060, PROGRAM=TEST*, STCK=YES
DATE=2010/365, JOB=DDA*, PROGRAM=DDA*, STCK=YES
/*
```

Resetting Global Date Simulation

This example shows how to reset the global date simulation currently in use:

```
//SIM2BAT      JOB (xxxxxx)
//SIM2BAT      EXEC PGM=SIM2BAT
//STEPLIB      DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSPRINT     DD SYSOUT=*
//SYSID        DD *
RESET, JOB=PAYT*
RESET, PROGRAM=TEST*
RESET, JOB=DDA*, PROGRAM=DDA*
/*
```

SMF Logging Support

SIM2000 SMF logging support allows date simulation information to be logged to the system console or SYSOUT dataset at the completion of a step or job.

SIM2000 provides an IEFACTRT SMF exit routine that can be implemented to provide the SMF logging. This exit is invoked during step and job termination automatically once the following steps have been completed:

1. Assemble the SIM2000 system options table with:

LOGGING=*x*, LOGTYPE=*n*

2. Copy the IEFACTRT load module from SIM2000.LOADLIB to SYS1.LPALIB.
3. Update your SYS1.PARMLIB SMFPRM*xx* member to include:

SYS (TYPE (4, 5), EXITS (IEFACTRT)

4. Start the SIM2000/z/OS product. The following message will be displayed if SMF logging is to occur:

SIM2SINT-34 LOGGING SYSTEM INTERFACE ACTIVATED

5. Activate SMF if necessary.
6. The following message will be logged to the appropriate datasets when steps terminate:

SIM2LOG-01 JOB (*xxx*) STEP (*xxx*) SIMCOUNT=*nnn*

7. The following message will be logged to the appropriate datasets when jobs terminate:

SIM2LOG-02 JOB (*xxx*) SIMCOUNT=*nnn*

These messages only appear if the respective step or job invoked date simulation.

Note: You may have to re-IPL your system if you are not able to update the LPA online.

Chapter 4 - SIM2000/VSE

Starting and Stopping the SIM2000/VSE Interface

Starting the SIM2000 System Interface - SIM2SINIT

Note: Any changes to the SIM2000 System Options Table should be made and the new table assembled prior to starting SIM2000/VSE.

The SIM2000/VSE System Interface must be activated prior to using any SIM2000 function. We recommend that you add the SIM2000/VSE System Interface activation to your system IPL procedures.

SIM2000 Year 2000 Date Simulation Tool

The following example illustrates the job stream required to activate the SIM2000/VSE System Interface:

```
// JOB      ACTIVATE --- START THE SIM2000 SYSTEM INTERFACE ---
* Add required modules to the SVA:
// LIBDEF PHASE,SEARCH=PRD2.CONFIG
SET SDL
SIM2CTL,SVA      (this modules requires 1K of SVA storage)
/*
* Activate the SIM2000 System Interface:
// EXEC      SIM2SINT,SIZE=200K
----- user control statements -----
/*
/&
```

SIM2SINIT User Control Statements

You may specify SIM2000/VSE system options via user control statements during the SIM2000/VSE system activation.

The following is a list of the valid system options that can be specified:

- JOBEXINT=YES** This option requests that the SIM2000/VSE \$JOBEXIT interface be activated. You must activate the SIM2000/VSE \$JOBEXIT interface if you wish to use the //SIM2000 job control statement.
- JOBEXINT=nn** Use this option if you wish to activate the SIM2000/VSE \$JOBEXIT interface and you are using a \$JOBEXIT table. *nn* specifies the exit number for the SIM2000/VSE \$JOBEXIT interface.
- TRACE=nnn** This option activates the SIM2000/VSE internal trace facility. *nnn* specifies the size of the trace table in K-bytes.
- STCK=YES** This option generates the support for SIM2000/VSE STCK instruction date simulation. This support requires additional intercepts to be placed into the VSE system components during the SIM2000/VSE system activation.
- SVC=nnn** This option specifies the user SVC number that is to be used by the SIM2000/VSE STCK instruction date simulation feature. SIM2000 will find an available SVC number to use if you do not specify one.
- MAXPGMS=nnnnn** This option overrides the default of 256 program names that can be specified for SIM2000/VSE STCK instruction simulation.

Stopping the SIM2000/VSE System Interface

The following is an example of the JCL required to deactivate the SIM2000/VSE System Interface.

```
// JOB DEACTIVATE --- STOP SIM2000 ---  
// LIBDEF PHASE,SEARCH=PRD2.CONFIG  
// EXEC SIM2SINT,SIZE=200K  
   STOP=YES  
/*  
/&
```

SIM2000/VSE Batch Operations

You can create a year 2000 batch testing environment for a specific batch partition by using:

1. The // SIM2000 job control statement or
2. Executing the SIM2BAT utility in the respective batch partition.

You may use any static or dynamic partition for SIM2000 testing and any number of SIM2000/VSE testing partitions can be active simultaneously.

// SIM2000 Job Control Statement

The // SIM2000 Job Control statement is inserted in your JCL in specific instances where date simulation is to be provided by SIM2000 without using the SIM2BAT facility.

Note: In order to use the // SIM2000 Job Control statement for SIM2000/VSE batch testing, you must activate the SIM2000/VSE \$JOBEXIT interface during the SIM2000/VSE System Interface activation.

The format of the // SIM2000 Job Control statement is:

// SIM2000 DATE= <i>date</i>	[,DURATION={JOB STEP ALL}] [,SDU=YES] [,STCK=YES]
// SIM2000 DATE=RESET	

Operands/Options

DATE=RESET Use this statement format to reset date simulation in the respective partition

DATE=*date* Specifies the date to be used for SIM2000/VSE testing The date can be specified as:

yyyy/ddd Julian format.

mm/dd/yyyy Calendar date format.

(+nn) Years to be added to the current date.

(-nn) Years to be subtracted from the current date

This operand is required.

DURATION= Specifies the duration for this date testing environment. Valid options are:

JOB Retains the testing environment for the entire VSE job duration. This is the default if DURATION is omitted.

STEP retains the testing environment for the next EXEC step only.

ALL retains the testing environment until reset by the user.

STCK=YES Activates the STCK instruction simulation feature for this partition.

SDU=YES Specifies that the COMREG SYSDATE field is to be updated with the specified date. The default is SDU=NO and need not be coded.

To verify that the COMREG SYSDATE field is updated, use the following:

```
// JOB LIBR --- TEST FOR SIM2000 ---  
* STEP 1 - USE VSE DATE JCL STATEMENT  
// DATE 2007/001  
// EXEC LIBR  
LISTDIR S=PRD2.CONFIG  
/*  
* STEP 2 - USE SIM2000 DATE JCL STATEMENT  
// SIM2000 DATE=2007/001,SDU=YES  
// EXEC LIBR  
LISTDIR S=PRD2.CONFIG  
/*  
/&
```

The report date displayed in the output for step 1 will be the current date, while the report date displayed in the output for step 2 will be the simulated date.

SIM2BAT Utility

The SIM2BAT utility can be used to:

- Activate and deactivate date simulation in the respective partition
- Establish global date simulation by job name and/or program name
- Establish global date simulation for an entire dynamic class
- List all active date simulation information
- Reset global date simulation definitions

When executed, you may specify SIM2000 options via:

```
// EXEC SIM2BAT,SIZE=200K,PARM='LIST=YES'
```

1. Control statements as shown here,

```
// JOB SIM2BAT --- create SIM2000 testing environment ---  
// LIBDEF PHASE,SEARCH=PRD2.CONFIG  
// EXEC SIM2BAT,SIZE=200K  
---- control statements here ----  
/*  
/&
```

2. The PARM= operand of the EXEC statement.

```
// EXEC SIM2BAT,SIZE=200K,PARM='LIST=YES'
```

Specifying Date Information - DATE

The SIM2BAT DATE statement is used to specify how a specific date is to be specified for various operations.

The format of the SIM2BAT control statements is:

DATE= <i>date</i>	[,CLASS= <i>c</i>] [,DURATION={JOB STEP ALL SYS}] [,JOB= <i>jobname</i>] [,PROGRAM= <i>name</i>] [,SDU=YES] [,STCK=YES]
--------------------------	--

Operands/Options

DATE=*date* Specifies the date to be used for SIM2000/VSE testing. The date can be specified as:

yyyy/ddd Julian format.

mml/dd/yyyy Calendar date format.

(+nn) Years to be added to the current date.

(-nn) Years to be subtracted from the current date.

This operand is required.

DURATION= Specifies the duration for this date testing environment. Valid options are:

JOB Retains the testing environment for the entire VSE job duration. This is the default if DURATION is omitted.

STEP Retains the testing environment for the next EXEC step only.

ALL Retains the testing environment until reset by the user.

SYS Establishes SIM2000 date simulation for the entire system.

* See **Note 1** below

CLASS=*c* Date simulation is to be performed for this dynamic class only.

* See **Notes** below

JOB=*jobname* Specifies the name of the job(s) for which date simulation is to be performed. You may specify a generic job name with by coding an asterisk (*) as the last character of the job name (i.e., All jobs that begin with DDA would be coded as DDA*).

* See **Notes** below

PROGRAM=*name*

Specifies the name of the program(s) for which date simulation is to be performed. You may specify a generic program name with by coding an asterisk (*) as the last character of the program name (i.e., All programs that begin with DDA would be coded as DDA*).

* See **Notes** below

SDU=YES Specifies that the COMREG SYSDATE field is to be updated with the specified date. SDU=NO is the default and *does not* need to be coded.

STCK=YES Activates the STCK instruction simulation feature for this partition.

Notes

1. The SIM2000/VSE \$JOBEXIT interface must be active when using the DURATION= operand. You must manually reset the date simulation for the respective partition via the DATE=RESET statement, if you do not implement the SIM2000 \$JOBEXIT interface.
2. The CLASS=, JOB= and PROGRAM= operands require activation of the SIM2000/VSE \$JOBEXIT interface during the SIM2000/VSE System Interface activation.

Resetting Date Information - **DATE=RESET**

You may use the RESET control statement to reset SIM2000 date simulation information that you have previously defined.

The format of the DATE=RESET statement is:

DATE=RESET	[,CLASS=<i>c</i>] [,JOB=<i>jobname</i>] [,PROGRAM=<i>name</i>]
-------------------	---

Operands/Options

CLASS=*c* Date simulation is to be reset for this dynamic class only.

JOB=*jobname* Date simulation is to be reset for this JOB only. You may specify a generic job name with by coding an asterisk (*) as the last character of the job name (i.e., All jobs that begin with DDA would be coded as DDA*).

PROGRAM=*name*

Date simulation is to be reset for this program only. You may specify a generic program name with by coding an asterisk (*) as the last character of the program name (i.e., All programs that begin with DDA would be coded as DDA*).

Examples of DATE=

1. Global Date Simulation by Job Name/Program Name

NOTE: The use of the Global Date Simulation function requires that the JOBEXIT interface be active.

You can establish global date simulation by job name and/or program name by executing SIM2BAT with the following control statements:

```
DATE=2011/100 , JOB=DAILY1 , PROGRAM=PGM001 , STCK=YES
```

The JOB/PROGRAM name fields may be a generic name, simply specify an '*' as the last character on the name. For example:

```
DATE=2009/001 , JOB=DD80* , STCK=YES  
DATE=12/31/2009 , JOB=TEST* , PROGRAM=PGM001  
DATE=2006/031 , PROGRAM=SAV* , STCK=YES
```

You can deactivate the global date simulation by executing SIM2BAT with the following control statements:

```
DATE=RESET , JOB=DD80*  
DATE=RESET , PROGRAM=SAV*
```

1. Global Date Simulation by Dynamic Class

You can establish global date simulation for an entire dynamic class by executing SIM2BAT with the following control statements:

```
DATE=2009/030 , CLASS=C , STCK=YES
```

You can deactivate the global date simulation for a dynamic class by executing SIM2BAT with the following control statement:

```
DATE=RESET , CLASS=Z
```

1. Update the COMREG SYSDATE Field

```
DATE=2020/060 , CLASS=C , SDU=YES
```

Run the following job stream to verify the COMREG SYSDATE date simulation is working properly:

```
// JOB LIBR --- TEST FOR SIM2000 ---  
* STEP 1 - USE VSE DATE JCL STATEMENT  
// DATE 2021/001  
// EXEC LIBR  
LISTDIR S=PRD2.CONFIG
```

```
/*  
STEP 2 - USE SIM2000 DATE JCL STATEMENT  
// SIM2000 DATE=2021/001,SDU=YES  
// EXEC LIBR  
  LISTDIR S=PRD2.CONFIG  
/*  
/&
```

The date displayed in the output for Step 1 will be the current date, while the date displayed in the output for step 2 will be the simulated date.

Excluding Date Simulation - EXCLUDE

The EXCLUDE SIM2BAT statement is used to specify certain items that are to be excluded from SIM2000 date simulation.

You may code as many EXCLUDE statements as needed to complete your definitions.

You may only code one operand on each EXCLUDE statement.

If you will be excluding many programs from date simulation, refer to the SIM2000X statement.

The format of the EXCLUDE statement is:

EXCLUDE,	{ CLASS=<i>c</i> JOB=<i>jobname</i> PROGRAM=<i>name</i> PTN=<i>p</i> }
-----------------	---

Operands/Options

CLASS=*c* Specifies a specific dynamic class that is to be excluded from SIM2000 date simulation.

JOB=*jobname* Specifies a specific job name that is to be excluded from SIM2000 date simulation. You may specify a generic job name with by coding an asterisk (*) as the last character of the job name.

PROGRAM=*name*
Specifies a specific program name that is to be excluded from SIM2000 date simulation. You may specify a generic program name with by coding an asterisk (*) as the last character of the name.

PTN=*p* Specifies a specific partition that is to be excluded from SIM2000 date simulation.

Excluding Date Simulation - SIM2000X

The SIM2000X Control Statement is used to define one or more programs that are to be excluded from SIM2000 date simulation.

The format of the SIM2000X statement is:

```
SIM2000X=program1[,program2.....[,programn]]
```

Operands/Options

programx Specifies one or more programs that are to be excluded from SIM2000 date simulation.

You may use an asterisk (*) as the last character of the program name to indicate generic exclusion.

Listing SIM2000 Information - LIST

The LIST SIM2BAT statement I used to list information about the current SIM2000 options and settings.

The format of the LIST statement is:

```
LIST=YES
```

SIM2000/VSE STCK Instruction Simulation Operations

In order to perform date simulation for user programs that contain STCK instructions, the following steps are required:

1. Specify STCK=YES during the SIM2000/VSE system interface activation
2. Specify the names of the programs to be handled by this feature via SIM2BAT
3. Activate the STCK date simulation for the respective partition via:
 - // SIM2000 statement with STCK=YES
 - SIM2BAT DATE= control statement with STCK=YES

Specifying Names of Programs to be Handled by STCK Instruction Simulation

Use SIM2BAT to specify the names of the programs:

```
// JOB SIM2BAT --- SPECIFY STCK PROGRAMS ---  
// LIBDEF PHASE,SEARCH=  
// EXEC SIM2BAT  
STCKPGM=USERPGM1,USERPGM2,USERPGM3,PAYPGM*  
/*  
/&
```

You can use the SIM2BAT LIST=YES facility to review the names of the programs you have specified for the STCK instruction simulation feature.

Examples of SIM2000/VSE Use

Using JOB=, PROGRAM= and CLASS=

The following example shows how to establish global date simulation for:

- All jobs when // JOB name begins with 'PAYT'
- All steps when EXEC names begin with 'TEST'
- All steps when // JOB name begins with 'DDA' and EXEC names begin with 'DDA'
- Everything that runs in dynamic class 'P'

```
// JOB SIM2BAT --- Create SIM2000 testing environment ---  
// LIBDEF PHASE,SEARCH=PRD2.CONFIG  
// EXEC SIM2BAT,SIZE=200K  
DATE=2015/001,JOB=PAYT*,STCK=YES  
DATE=2017/301,PROGRAM=TEST*,STCK=YES  
DATE=2012/366,JOB=DDA*,PROGRAM=DDA*,STCK=YES  
DATE=2013/001,CLASS=P,STCK=YES  
/*  
/&
```

Note: Global date simulation requires the \$JOBEXIT interface. This interface is activated during the SIM2000/VSE system interface activation.

Test Job Stream Using \$JOBEXIT

This example shows how to establish a date simulation for all steps of a test job stream (\$JOBEXIT interface):

```
// JOB TESTJOB --- test job stream for SIM2000 ---  
// SIM2000 DATE=2016/061  
// EXEC PAYROLL1,SIZE=AUTO  
/*  
// EXEC PAYROLL2,SIZE=AUTO  
/*  
// EXEC PAYROLL3,SIZE=AUTO  
/*  
/&
```

Test Job Stream Using \$JOBEXIT

This example show how to establish a date simulation for the 1st step of a test job stream (\$JOBEXIT interface):

```
// JOB TESTJOB --- test job stream for SIM2000 ---  
// SIM2000 DATE=2018/031,DURATION=STEP  
// EXEC PAYROLL1,SIZE=AUTO  
/*  
// EXEC PAYROLL2,SIZE=AUTO  
/*  
// EXEC PAYROLL3,SIZE=AUTO  
/*  
/&
```

Test Job Stream Without \$JOBEXIT

This example show how to establish a date simulation for all steps of a test job stream (without \$JOBEXIT):

```
// JOB TESTJOB --- Test job stream for SIM2000 ---
// LIBDEF PHASE,SEARCH=PRD2.CONFIG
// EXEC SIM2BAT,SIZE=200K
DATE=2020/188,STCK=YES
/*
// EXEC PAYROLL1,SIZE=AUTO
/*
// EXEC PAYROLL2,SIZE=AUTO
/*
// EXEC PAYROLL3,SIZE=AUTO
/*
// EXEC SIM2BAT,SIZE=200K
DATE=RESET
/*
/ &
```

Resetting Global Date Simulation for a Dynamic Class

This example shows how to reset the global date simulation for dynamic class 'P':

```
// JOB SIM2BAT --- create SIM2000 testing environment ---
// LIBDEF PHASE,SEARCH=PRD2.CONFIG
// EXEC SIM2BAT,SIZE=200K
DATE=RESET,CLASS=P
/*
/ &
```

Chapter 5 - SIM2000/CICS

Starting and Stopping SIM2000/CICS

Starting SIM2000/CICS

You must activate the SIM2000/CICS system interface prior to actually defining and testing applications under SIM2000/CICS.

SIM2000 Year 2000 Date Simulation Tool

The SIM2000/CICS system interface can be started by entering the 'SM2A' transaction at any active CICS terminal or by adding an entry for program SIM2CINT to your PLTPI. Messages will be displayed at the initiating terminal when the product has been activated. Diagnostic and informational messages will also be displayed upon the system console during the SIM2000/CICS system interface activation.

Once the SIM2000/CICS system interface has activated, you may begin testing user applications with SIM2000/CICS.

Automating SIM2000/CICS Date Simulation - S2CICS Macro

Note: This macro applies to z/OS and VSE.

SIM2000/CICS lets you automate your CICS date simulation operations. This is done with the use of the S2CICS macro. When the macro is assembled, it creates the S2CICS module that is automatically loaded when SIM2000/CICS is started. The specified date simulation information is immediately active.

The format of the S2CICS macro is:

S2CICS	DATE= <i>date</i> [,PGM= <i>name</i>] [,TERM= <i>termid</i>] [,TRANS= <i>tranid</i>] [,STCK= YES]
---------------	--

Operands/Options

DATE=*date* Specifies the date to be used for SIM2000/VSE testing. The date can be specified as:

<i>yyyy/ddd</i>	Julian format.
<i>mm/dd/yyyy</i>	Calendar date format.
(+nn)	Years to be added to the current date.
(-nn)	Years to be subtracted from the current date.

This operand is required.

PGM=*name* Specifies a CICS program name.

TRANS=*tranid* Specifies a CICS transaction identification.

TERM=*termid* Specifies a CICS terminal identification.

STCK=YES Specifies STCK date simulation.

Example

```
S2CICS TRANS=APP1,DATE=12/31/2019  
S2CICS TERM=T*,DATE=2014/001,STCK=YES  
S2CICS PGM=TESTAP*,DATE=2013/001  
END
```

Stopping SIM2000/CICS

You may terminate the active SIM2000/CICS system interface by entering the transaction 'SM2T' from any active CICS terminal. SIM2000/CICS termination will ensure that all active date simulation sessions are stopped prior to shutting down the system interface.

Using SIM2000/CICS

The 'SM2' transaction provides the main menu that contains all of the SIM2000/CICS functions. Simply enter 'SM2' at any active CICS terminal and the main menu will appear. Select the appropriate number and the corresponding SIM2000/CICS function will be invoked:

Review System Information

This function will display various statistics about SIM2000 batch and CICS. Please review this information to ensure the proper processing options have been activated.

List Date Simulation Control Information

This function will display a list of the SIM2000/CICS date simulation control information that has been specified. If you have not specified any control information, the following message will be displayed at the bottom of the panel:

'SIM2CP1-08 NO CONTROL INFORMATION SPECIFIED'

A list of control information will be displayed if you have defined SIM2000/CICS date simulation control information (use function 3 to define SIM2000/CICS date simulation control information).

The function 2 list contains the following information:

CMD	(entered by the user to change this definition) S - stop this simulation R - restart this date simulation D - deactivate this date simulation
TASKNO	The CICS task number associated with this definition
PROGRAM	The CICS program name associated with this definition
TRANS	The CICS transaction id associated with this definition
TERM	The CICS terminal id associated with this definition
SIM2000	The date to be simulated for this definition. The date format is yyyy/ddd or mm/dd/yyyy.
STCK	The STCK indicator for this date simulation entry

COMMENTS The current status of this definition:

INACTIVE	The criteria for this date simulation has not been met
ACTIVE	The criteria for this date simulation has been met and is currently active
STOPPED	This date simulation definition has been stopped by the user
STOP SCHEDULED	A stop request is pending for this date simulation. In order to stop this date simulation activity, you must invoke a resource of this entry
DEACTIVATED	This date simulation definition has been deactivated

Define Date Simulation Control Information

This function lets you define SIM2000/CICS date simulation control information. A panel will be displayed that lets you enter information to control SIM2000/CICS date simulation.

The date simulation control information consists of:

TASKNO	CICS task number associated with this definition
PROGRAM	CICS program name associated with this definition
TRANS	CICS transaction id associated with this definition
TERM	CICS terminal id associated with this definition
SIM2000	The date to be simulated. The date format is <i>yyyy/dddd</i> or <i>mm/dd/yyyy</i> .
STCK	Activate the STCK instruction simulation

You must specify SIM2000 and at least one of the following fields for each date simulation entry to be defined:

TASKNO, PROGRAM, TRANS, TERM

The TASKNO field is used to identify an active CICS transaction for which date simulation is to occur. PROGRAM, TRANS, and TERM fields correspond to CICS resources that are defined to this CICS system. You may specify generic names for these fields by specifying an '*' as the last character of the name field.

Each field that you specify must be matched for date simulation to occur. If you specify an entry that contains TRANS=TCLI and TERM=DD20, then date simulation will only occur when transaction TCLI is started on terminal DD20. If you create an entry that specifies PROGRAM=TESTCOB1 and TERM=TT*, then date simulation will occur any time program TESTCOB1 is used by transactions started at terminals with a termid starting with "TT".

Display Simulation Statistics

This function will display a list of the SIM2000/CICS date simulation control information with associated statistics:

TASKNO	The CICS task number associated with this definition.
---------------	---

PROGRAM	The CICS program name associated with this definition. Generic names are specified by using an '*' as the last character.
TRANS	The CICS transaction id associated with this definition. Generic names are specified by using an '*' as the last character.
TERM	The CICS terminal id associated with this definition. Generic names are specified by using an '*' as the last character.
SIM2000	The date to be simulated for this definition. The date format is <i>yyyy/ddd</i> or <i>xx/xx/yyyy</i> .
SIMCNT	The number of times the simulated date has been provided.
STCKCNT	The number of times a STCK instruction has been simulated.

SIM2000/CICS STCK Instruction Simulation

The following steps must be followed if you wish to perform date simulation for CICS programs that contain STCK instructions:

z/OS

1. Generate the SIM2000/z/OS system options table (SIM2SOT) with CICSSTCK=YES
2. Activate the SIM2000/CICS system interface with the new SIM2SOT.

Message SIM2CINT-23 will confirm STCK support has activated.

3. Use SM2 function 3 to define date simulation for a CICS program:
 - A full CICS program name must be specified
 - Specify 'Y' for the STCK column

VSE

1. Activate the SIM2000/VSE system interface with the STCK=YES option
2. Activate the SIM2000/CICS system interface:

Message SIM2CINT-23 will confirm STCK support has activated

3. Use SM2 function 3 to define date simulation for a CICS program:
 - A full CICS program name must be specified
 - Specify 'Y' for the STCK column

SIM2000/CICS will update a counter each time the STCK date simulation is performed for a specific CICS program. You may review this counter (STCKCNT) via SM2 function 4.

Sample CICS Screen Layouts

SM2 - Main Menu

```
SIM2000 - Cobbs Mill Consulting
SIM2MMM
DBDCCICS  1996/171   18:18: 12
```

```
SIM2000 VERSION 01.08.nnn
```

```
SIM2000 MAIN MENU
```

- 1 - REVEIW SYSTEM INFORMATION
- 2 - LIST DATE SIMULATION CONTROL INFORMATION
- 3 - DEFINE DATE SIMULATION CONTROL INFORMATION
- 4 - DISPLAY SIMULATION STATISTICS
- 5 - RESET SIMULATION STATISTICS

```
ENTER FUNCTION: _
```

SM2 - Function 1 - Review System information

SIM2000 - Cobbs Mill Consulting
SIM2RSS
DBDCCICS 1996/171 18:18:12

REVIEW SYSTEM INFORMATION

SIZE OF SYSTEM RESIDENT CODE:	nnnK
SIZE OF CICS RESIDENT CODE:	nnnK
\$JOBEXIT INTERFACE ACTIVE:	xxx
TRACE TABLE SIZE:	nnnK
NUMBER OF ACTIVE BATCH USERS:	nnn
NUMBER OF ALLOCATED CTBS:	nnn
NUMBER OF ACTIVE CTBS:	nnn
CICSOSIL SPECIFICATION:	n
CICSCSUL SPECIFICATION	n
SVC NUMBER BEING USED	nnn
STCK SIMULATION SUPPORT	xxx

PF2-REFRESH PF3-EXIT

SM2 - Function 2 - List Date Simulation Control Information

SIM2000 - Cobbs Mill Consulting

SIM2RAU

DBDCCICS 1996/171 18:18:12

LIST DATE SIMULATION CONTROL INFORMATION

CMD	TASKNO	PROGRAM	TRANS	TERM	SIM2000	STCK	STATUS
—			XCIT		2001/001	N	ACTIVE
—			CEMT		2002/002	N	ACTIVE
—			PHOI		2009/365	N	
INACTIVE							
—				T001	2005/005	N	
INACTIVE							
—		USERPGM1			2004/004	Y	ACTIVE

PF2-REFRESH

PF3-EXIT

SM2 - Function 3 - Define Date Simulation Control Information

```
SIM2000 - Cobbs Mill Consulting
SIM2ADS
DBDCCICS 1996/171 18:18:12
          DEFINE DATE SIMULATION CONTROL INFORMATION

TASKNO   PROGRAM   TRANS   TERMID   SIM2000   STCK
          XCIT     2001/001 N        ENTRY
ACCEPTED
          CEMT     2002/002 N        ENTRY
ACCEPTED
          PHOI     2009/365 N        ENTRY
ACCEPTED
          T001     2005/005 N        ENTRY
ACCEPTED
          USERPGM1 2004/004 Y        ENTRY
ACCEPTED

          PF2-REFRESH   PF3-EXIT

          SIM2CP1-07 DATE SIMULATION SETUP COMPLETED
```

SM2 - Function 4 - Display Simulation Statistics

SIM2000 - Cobbs Mill Consulting

SIM2DSS

DBDCCICS 1996/171 18:18:12

DISPLAY SIMULATION STATISTICS

TASKNO	PROGRAM	TRANS	TERMID	SIM2000
SIMCNT	STCKCNT			
		XCIT		2001/001
4		CEMT		2002/002
8		PHOI		2009/365
			T001	2005/005
	USERPGM1			2004/004
24				

PF2-REFRESH

PF3-EXIT

Chapter 6 - SIM2000/DB2

SIM2000/DB2 allows z/OS DB2 users to test their DB2 application programs with an advanced date to determine how these programs are going to react when the year 2000 actually occurs. SIM2000/DB2 will provide a non-disruptive testing environment for specific DB2 batch and CICS transactions that require year 2000-date simulation.

The SIM2000/DB2 implementation utilizes the date and time exit facilities of DB2. After these exits have been enabled and DB2 has been restarted, SIM2000/DB2 date simulation can occur for specific DB2 plans and DBRM members. SIM2000/DB2 lets you define these plans and DBRM member names via the SIM2BAT utility, by generating SIM2DSI table entries in the SIM2SOT module, or via the SIM2000/z/OS ISPF interface.

SIM2000/DB2 will allow the user to specify year 2000 dates for DB2's use of the current date special register and time stamp data type columns. SIM2000/DB2 will provide a simulated date for these fields if directed to do so by the user.

Activating the SIM2000/DB2 System Interface

The SIM2000/DB2 system interface is activated during the SIM2000 system interface activation if the DB2=YES control statement is present. Please refer to the SIM2000 **“Activating the SIM2000 System Interface”** section of the documentation if you need further clarification.

Defining SIM2000/DB2 Date Simulation Information

In order to pass a simulated date or time stamp to a DB2 application program, you must define the DB2 plan that is to be used to SIM2000/DB2. You can also specify the DBRM member name (program) if you wish to further clarify when SIM2000/DB2 is going to pass the simulated date.

You may define SIM2000/DB2 date simulation information any of the following:

- Assembling the SIM2000 system options table (SIM2SOT)
- Via control statements to the SIM2BAT batch program
- Via the SIM2000 ISPF feature

The SIM2000 date simulation information defines the DB2 plans and DBRM members that are going to use a simulated date. This information is stored in control blocks that are monitored by the SIM2000/DB2 system interface. When a DB2 program requests the current date or accesses a timestamp data type column, the SIM2000/DB2 system interface will ensure that program uses the simulated date if directed to do so.

Assembling the SIM2000 System Options Table SIM2SOT

You can define SIM2000/DB2 date simulation information by assembling the SIM2SOT table. The following example shows you how to generate the SIM2SOT table with date simulation information:

```
SIM2SO
SIM2DSI PLAN=DSNPLANA, PROGRAM=APPLPGM1, DATE=2001/001
SIM2DSI PLAN=DSNPLANA, PROGRAM=APPLPGM2, DATE=2001/001
SIM2DSI PLAN=DSNPLANB, DATE=2000/366
END
```

The SIM2DSI MACRO Keywords:

PLAN= Specifies the DB2 plan id - required
PROGRAM= Specifies the DB2 DBRM member (program) - optional
DATE= specifies the date to be simulated in *yyyy/ddd* or *xx/xx/yyyy*

SIM2000 Batch Operations

You can specify SIM2000/DB2 date simulation information dynamically via the SIM2BAT utility. Control statements or EXEC parameters provide input to SIM2BAT and define the DB2 plans and DBRM members that are to use a simulated date. The following example illustrates the job control required to execute the SIM2BAT utility:

```
//SIM2BAT JOB (xxxxxx)
//SIM2BAT EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSIN DD *
--- control statements here ---
/*
```

Defining SIM2000/DB2 Date Simulation Information

The DATE= control statement to define SIM2000/DB2 date simulation information. The format of this statement is:

```
DATE=date,PLAN=planid[,PROGRAM=member]
```

Operands/Options

- DATE=** Specifies the date to be simulated using one of the following:
- yyyy/ddd* Julian format.
 - mm/dd/yyyy* Calendar date format.
 - (+nn)** Years to be added to the current date.
 - (-nn)** Years to be subtracted from the current date
- This is a required specification.
- PLAN=** Specifies the DB2 plan id that requires date simulation. This is a required specification. Generic names are specified by using an '*' as the last character.
- PROGRAM=** Specifies the DBRM member (program) that requires date simulation. This is an optional specification. Generic names are specified by using an '*' as the last character.

You may specify up to 99 DATE= control statements via a single execution of SIM2BAT.

Resetting SIM2000/DB2 Date Simulation Information

You use the RESET control statement to reset SIM2000/DB2 date simulation control information that you have previously defined. The format of the RESET statement is:

```
RESET,PLAN=planid[,PROGRAM=member]
```

Operands/Options

- PLAN=** Specifies the DB2 plan id of the SIM2000 date simulation information. This is a required specification. Generic names are specified by using an '*' as the last character.
- PROGRAM=** Specifies the DBRM member (program) of the SIM2000 date simulation information. This is an optional specification. Generic names are specified by using an '*' as the last character.

Example

```
//SIM2BAT JOB (xxxxx)
//S2STEP EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSIN DD *
RESET,PLAN=planid,PROGRAM=member
RESET,PLAN=planid*,PROGRAM=member*
RESET,PLAN=planid
/*
```

Using the SIM2000 ISPF Interface

You may use the SIM2000 ISPF interface to perform the SIM2BAT utility functions.

To invoke the SIM2000 ISPF interface:

1. Choose '6' from the ISPF Primary Option Menu
2. Enter the following command:

```
exec 'temp.copylib(SIM2CLS1)'
```

3. The SIM2000 main ISPF panel will be displayed, allowing you to perform the SIM2BAT functions interactively
4. Function '2' lets you specify DB2 data simulation control information.

Note: You must substitute your dataset name if you are not using "TEMP.COPYLIB".

Chapter 7 - SIM2000/IMS

Starting SIM2000/IMS

The SIM2000/IMS system interface is automatically started during the SIM2000 system interface activation if the IMS=YES control statement is present. Please refer to the SIM2000 “**Activating the SIM2000 System Interface**” section of the documentation if you need further clarification.

Defining SIM2000/IMS Date Simulation

In order to pass a simulated date to an IMS application program running in a BMP region you must define the following information to SIM2000/IMS:

1. z/OS Job name of the BMP region (required)
2. Any combination of the following:
 - Terminal id
 - Transaction id
 - Application program name

In order to pass a simulated date to an IMS application program running in a MPP region you must define the following information to SIM2000/IMS:

1. z/OS Job name of the MPP region (required)
2. Any combination of the following:
 - Terminal id
 - Transaction id
 - Application PSB name

You may define SIM2000/IMS date simulation information using the following:

- Via control statements to the SIM2BAT batch program
- Via the SIM2000 ISPF feature function 3

SIM2000 BATCH OPERATIONS

You can specify SIM2000/IMS date simulation information dynamically via the SIM2BAT utility. Control statements or EXEC parameters provide input to SIM2BAT and define the IMS transactions, terminals, and programs that are to use a simulated date.

The following example illustrates the job control required to execute the SIM2BAT utility:

```
//SIM2BAT JOB (xxxxxx)
//SIM2BAT EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSIN DD *
--- control statements here ---
/*
```

Defining SIM2000/IMS Date Simulation Information

The DATE= control statement is used to define SIM2000/IMS date simulation information:
The format of the DATE= statement is:

```
DATE={ yyyy/ddd | xx/xx/yyyy
}[,JOB=xxxxx[,IMS=YES[,IT=xxxx[,IK=xxxx[,PROGRAM=xxxx]]]]]
```

Operands/Options

- DATE=** Specifies the date to be simulated using one of the following:
yyyy/ddd Julian format.
mm/dd/yyyy Calendar date format.
(+nn) Years to be added to the current date.
(-nn) Years to be subtracted from the current date
This is a required specification.
- JOB=** Specifies the BMP/MPP job name. This is a required specification.
- IMS=YES** Indicates this is a SIM2000/IMS definition. This is a required specification.

Note: At least one of the following is required:

- IT=** Specifies the IMS terminal id. Generic names are specified by using an '*' as the last character.
- IK=** Specifies the IMS transaction id. Generic names are specified by using an '*' as the last character.
- PROGRAM=** Specifies the BMP application program name or the MPP PSB name. Generic names are specified by using an '*' as the last character.

Example

```
//SIM2BAT JOB (XXXXX)
//S2STEP EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2000.LOADLIB,DISP=SHR
//SYSIN DD *
DATE=2009/001, JOB=IVP41BMP, IT=USER*, IK=IVTC*, IMS=YES
DATE=12/31/2008, JOB=IVP41MPP, PROGRAM=DFS*, IMS=YES
DATE=01/01/2009, JOB=IVP41MPP, IT=USER2, IK=IVTC2, IMS=YES
/*
```

Resetting SIM2000/IMS Date Simulation Information

The RESET control statement is used to reset SIM2000/IMS date simulation control information that you have previously defined.

The format of the RESET control statement is:

```
RESET, JOB=xxxxx {, IT=xxxx | , IK=xxxx | , PROGRAM=xxxx }
```

Operands/Options

JOB= Specifies the BMP/MPP job name. This is a required specification

Note: At least one of the following is required:

IT= Specifies the IMS terminal id. Generic names are specified by using an '*' as the last character.

IK= Specifies the IMS transaction id. Generic names are specified by using an '*' as the last character.

PROGRAM= Specifies the BMP application program name or the MPP PSB name. Generic names are specified by using an '*' as the last character.

Example

```
//SIM2BAT JOB (xxxxxx)
//S2STEP EXEC PGM=SIM2BAT
//STEPLIB DD DSN=SIM2000.LOADLIB, DISP=SHR
//SYSIN DD *
RESET, JOB=IVP41MPP, IT=USER*, IK=IVT*
RESET, JOB=IVP41MPP, PROGRAM=DFSI*
/*
```

Using the SIM2000 ISPF Interface

You may use the SIM2000 ISPF interface to perform the SIM2BAT utility functions.

To invoke the SIM2000 ISPF interface:

1. Choose '6' from the ISPF Primary Option Menu
2. Enter the following command:

```
exec 'temp.copylib(SIM2CLS1)'
```

The SIM2000 main ISPF panel will be displayed.

Note: You must substitute your dataset name if you are not using 'temp.copylib'

3. Select function '3' to define IMS date simulation control information

Chapter 8 - SIM2000 Program Analyzer

Product Authorization

The SIM2000 Program Analyzer must be authorized to run full function. The unauthorized version that is shipped with the SIM2000 system will only analyze ten (10) programs. You cannot use the ANALYZE or IGNORE control statements when running the unauthorized version.

To authorize the SIM2000 Program Analyzer, you must apply the Program Analyzer password via the DPEPWDA batch utility.

Analyzing Batch Programs

z/OS

The SIM2000 Program Analyzer for z/OS will analyze all of the members of the LOADLIB pointed to via the SIM2FLE DD statement. Only one LOADLIB may be processed via a single execution.

The following example illustrates the z/OS job stream required to analyze batch programs:

```
//ANLBz/OS1 JOB (accounting information)
//STEP      EXEC PGM=SIM2ANLB
//SIM2FLE   DD DSN=USER1.LOADLIB,DISP=SHR
//STEPLIB   DD DSN=SIM2000.LOADLIB,DISP=SHR
//          DD DSN=USER1.LOADLIB,DISP=SHR
//SYSPRINT  DD SYSOUT=*
//SYSIN     DD *
( place input control statements here)
/*
```

VSE

The SIM2000 Program Analyzer for VSE will analyze all of the phases contained in the libraries listed in the LIBDEF phase search chain. Each library will be handled separately and the report sequence will be based upon the order of the libraries listed in the search chain.

The following example illustrates the VSE job stream required to analyze batch programs:

```
// JOB      ANLBVSE1
// LIBDEF
PHASE, SEARCH=(PRD2 . CONFIG,USR1 . BASE,USR2 . BASE,USR3 . BASE)
// EXEC     SIM2ANLB
( place input control statements here)
/*
/&
```

CICS

z/OS

The following example illustrates the z/OS job stream required to analyze CICS programs:

```
//ANLCz/OS1 JOB (accounting information)
//STEP EXEC PGM=SIM2ANLB
//STEPLIB DD DSN=CICS.LOADLIB,DISP=SHR
//          DD DSN=CICS.USER1.LOADLIB,DISP=SHR
//          DD DSN=CICS.USER2.LOADLIB,DISP=SHR
//          DD DSN=SIM2000.LOADLIB,DISP=SHR
//DFHCSD DD DSN=CICS.DFHCSD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
(place input control statements here)
/*
```

The STEPLIB chain must include the LOADLIBs that contain the CICS programs to be analyzed. The SIM2000 CICS Program Analyzer will use either the CSD (DFHCSD) or a specific PPT to determine which programs are to be analyzed. You must specify the input type via a control statement when you execute the SIM2000 CICS Program Analyzer.

VSE

The following example illustrates the VSE job stream required to analyze CICS programs:

```
// JOB      ANLCVSE1
// DLBL     DFHCSD, 'CICS.DFHCSD', ,VSAM,CAT=VSESPUC
// LIBDEF
PHASE,SEARCH=(PRD2.CONFIG,USR1.CICS,USR2.CICS,USR3.CICS)
// EXEC     SIM2ANLB
(place input control statements here)
/*
/&
```

The LIBDEF phase search string must include the libraries that contain the CICS programs to be analyzed.

Input Control Statements

The following control statements may be used as input to the SIM2000 Program Analyzer:

ANALYZE=xxxxxxx This statement can be used to specify names of programs that are to be analyzed. You may use an asterisk '*' as the last character to specify a generic name. The default is to analyze all programs.

Note: This operand is only valid when executing the full function version.

CSD=Y This statement should be used if you wish to use the CICS DFHCSD as input to the SIM2000 CICS Program Analyzer.

IGNORE=xxxxxxx This statement can be used to specify names of programs that are NOT to be analyzed. You may use an asterisk '*' as the last character to specify a generic name.

Note: This operand is only valid when executing the full function version.

PPT=xx This statement can be used to specify the suffix of the CICS Processing Program Table (DFHPPTxx) that is to be used as input to the SIM2000 CICS Program Analyzer.

USRSCN=xxxxxxx This statement can be used to specify hexadecimal scan data for a user scan. You may specify up to 16 hexadecimal bytes per single scan. You may specify up to 5 (five) user scans per single execution of the program analyzer.

USRSCN='xxxxxxx' This statement can be used to specify character string scan data for a user scan. The character string may not exceed 16 bytes. You may specify up to 5 (five) user scans per single execution of the program analyzer.

SIM2000 Program Analyzer Report Output

The SIM2000 Program Analyzer report output is described here. The actual report format may vary from the sample report described here.

```

Cobbs Mill Consulting, INC.                DATE xx/xx/yyyy                TIME hh:mm:ss  PAGE 1

INPUT STATEMENTS USED FOR THIS EXECUTION:

USRSCN=xxxxx
USRSCN='xxxxxx'
USRSCN='xxxxxxxxxxxxx'
USRSCN=xxxxx
    
```

```

Cobbs Mill Consulting, INC.                DATE xx/xx/yyyy                TIME hh:mm:ss  PAGE 1

SIM2000 PROGRAM ANALYZER REPORT FOR MEMBERS OF xxxxxx

PROGRAM  LANG  STCK   GTSU   CCDU   USR-1  USR-2  USR-3  USR-4  USR-5  COMMENTS
DUMMY1   A      1      2      2      2
DUMMY2   CF     1      1      5      2
DUMMY3   CV     3      3      1      1

REPORT TOTAL FOR xxxxxx

TOTAL PROGRAMS ANALYZED:      3
TOTAL PROGRAMS WITH STCK:    1
TOTAL PROGRAMS WITH GTSU:    3
TOTAL PROGRAMS WITH CCDU:    1
TOTAL PROGRAMS WITH USR-1:   1
TOTAL PROGRAMS WITH USR-2:   2
TOTAL PROGRAMS WITH USR-3:   1
TOTAL PROGRAMS WITH USR-4:   1
TOTAL PROGRAMS WITH USR-5:

GRAND TOTAL FOR THIS EXECUTION

TOTAL PROGRAMS ANALYZED:      3
TOTAL PROGRAMS WITH STCK:    1
TOTAL PROGRAMS WITH GTSU:    3
TOTAL PROGRAMS WITH CCDU:    1
TOTAL PROGRAMS WITH USR-1:   1
TOTAL PROGRAMS WITH USR-2:   2
TOTAL PROGRAMS WITH USR-3:   1
TOTAL PROGRAMS WITH USR-4:   1
TOTAL PROGRAMS WITH USR-5:
    
```

SIM2000 Program Analyzer Report Fields

This section describes the fields of the SIM2000 Program Analyzer report.

PROGRAM	This is the name of the program that was analyzed
LANG	The programming language which may be any of the following: <ul style="list-style-type: none">• A indicates Assembler• CF indicates FCOBOL• CV indicates COBOL/VSE• C2 indicates COBOL II• CL indicates COBOL/LE• R indicates RPG• P1 indicates PL/1
STCK	The number of STCK instructions
GTSU	The number of GETTIME (VSE) or TIME (z/OS) supervisor calls
CCDU	The number of current-date COBOL statements
USR-1	The number of hits for user scan 1
USR-2	The number of hits for user scan 2
USR-3	The number of hits for user scan 3
USR-4	The number of hits for user scan 4
USR-5	The number of hits for user scan 5
COMMENTS	Diagnostic messages appear here

Chapter 9 - SIM2000 Date Rollover Facility

The SIM2000 Date Rollover Facility is based upon the date that is specified for date simulation. When date rollover occurs, the simulated date will be incremented by one day and is then passed to the user in response to the user's date request.

These date rollover specifications can be used when defining date simulation via:

- SIM2BAT DATE= control statements
- // SIM2000 control statements
- ISPF panels

You can request date simulation rollover by using the following specifications when defining the simulation date.

DRS=YES	Specifies that date rollover is to occur for this definition
ALT=YES	Specifies that alternating dates are to be passed once date rollover occurs. The rollover date will be passed first and then the simulated date. The alternating dates will be passed until the program terminates.
CNT=nnn	Specifies the number of times the simulated date is to be passed to the user before date rollover occurs. This value represents the number of TIME/GETIME requests that are to be handled before the date rollover occurs.
TIME=hh.mm.ss	Specifies the simulated time that is to be set when date simulation starts for the requesting program. This time will be incremented normally during the application program execution and the date rollover will occur when this time reaches midnight (24.00.00).

Examples of SIM2000 Date Rollover Definition

1. Requesting date rollover to occur after 10 TIME/GETTIME requests have been issued by the application program TESTDATE:

```
DATE=2009/365, PROGRAM=TESTDATE, DRS=YES, CNT=10
```

The rollover date will be: 2010/001

2. Requesting date rollover to occur after 10 GETIME/TIME requests have been issued by the application program TESTDATE, and alternating dates to be passed from that point:

```
DATE=2009/365, PROGRAM=TESTDATE, DRS=YES, CNT=10, ALT=YES
```

The rollover date will be 2010/001, the next date passed to the program will be 2009/365 then 2010/001 and so on.

3. Requesting date rollover to occur when the simulated time reaches midnight:

```
DATE=2009/365, PROGRAM=TESTDATE, DRS=YES, TIME=23.59.50
```

The simulated time of 23.59.50 will be set when TESTDATE starts and the rollover date of 2010/001 will be presented to the application program after it runs for 10 seconds. The simulated time will be reset to 00.00.00 at clock rollover and date rollover will not occur again for another 24 hours, if this program continues to run that long.

Chapter 10 - SIM2000 Systems Options Table Macros

SIM2DSI Macro

The SIM2DSI MACRO is used to define date simulation control information via the SIM2SOT table.

The format of the macro is:

```
SIM2DSI      [JOB=jobname]  
              [,PROGRAM={stepname | programname}]  
              [,DATE={yyyy/ddd | xx/xx/yyyy}]  
              [,USERID=userid]  
              [,STCK=YES]  
              [EXCLUDE=YES]
```

Operands/Options

- JOB=***jobname* Specifies the z/OS job name. Generic names are specified by using an '*' as the last character.
- PROGRAM={***stepname* | *programname***}**
Specifies the z/OS step name or the name of a program that contains STCK instructions that are to be handled by SIM2000. Generic names are specified by using an '*' as the last character.
- DATE=***date* Specifies the date to be simulated in Julian (*yyyy/ddd*) or calendar (*xx/xx/yyyy*) format
- USERID=***userid* Specifies the z/OS userid for a job or a step. Generic names are specified by using an '*' as the last character.
- STCK=YES** Specifies that this date simulation requires STCK instruction simulation support
- EXCLUDE=YES** Specifies that this entry is to be excluded from SIM2000 processing

SIM2SO Macro

z/OS System Options Macro

You may tailor SIM2000/z/OS by assembling the SIM2SO macro with specific options. Assembling SIM2SO will generate the SIM2SOT load module, which is invoked during the SIM2000/z/OS system interface activation. You have to stop and restart the SIM2000/z/OS system interface for your new options to take affect.

The format of the SIM2SO Macro is:

SIM2SO	[CICSOSIL=<i>n</i>] [,CICSCSUL=<i>n</i>] [,CICSSTCK=YES] [,DB2DATE=<i>n</i>] [,LANGSUPT=<i>n</i>] [,LOGGING=<i>x</i>] [,LOGTYPE=<i>n</i>] [,TIMESUPT=<i>n</i>]
---------------	---

Operands/Options

- CICSOSIL=*n*** Specifies the SIM2000/CICS operating system interface level: “n” may be one of the following:
- 0** No operating system interface (default)
 - 1** z/OS/ESA standard interface
- CICSCSUL=*n*** Specifies the SIM2000/CICS CSA update level. “n” may be one of the following:
- 0** No CSA updating is to occur
 - 1** CSA standard updating is to occur
 - 2** CSA advanced updating is to occur
- CICSSTCK=YES** Specifies that SIM2000/CICS STCK support is required
- DB2DATE=*n*** Specifies the DB2 date format. “n” may be one of the following:
- 0** ISO (default)
 - 1** EUR
 - 2** JIS
 - 3** USA

- LANGSUPT=*n*** Specifies the languages to be supported for date simulation. “*n*” may be one of the following:
- 0** No special language support (default)
 - 1** COBOL/370
 - 2** PL/1 support
 - 3** LE support for all languages
- LOGGING=*x*** Specifies the date simulation information logging level. “*x*” may be one of the following:
- S** Step termination
 - J** Job termination
 - B** Both
- LOGTYPE=*n*** Specifies the logging type to be performed. “*n*” may be one of the following:
- 0** System console (default)
 - 1** SYSOUT
 - 2** Both
- TIMESUPT=*n*** Specifies the z/OS TIME simulation required. “*n*” may be one of the following:
- 0** Basic TIME SVC support (default)
 - 1** Batch TIME linkage=system support (program call)
 - 2** Batch and CICS support for TIME SVC and TIME PC

Assembling the z/OS SIM2SO Macro

```
//SIM2ASM JOB
//ASMH EXEC PGM=ASMA90, PARM=(OBJECT, NODECK)
//SYSLIB DD DSN=SIM2000.COPYLIB, DISP=SHR
.....
.....
.....
//SYSIN DD *
SIM2SO CICSOSIL=1, CICSCSUL=2, CICSSTCK=YES
END
/*
.....
.....
//LNKEDT EXEC PGM=IEWL
.....
.....
/*
```

VSE System Options Macro

You may tailor SIM2000/VSE by assembling the SIM2SO macro with specific options. Assembling SIM2SO will generate the SIM2SOT phase, which is invoked during the SIM2000/VSE system interface activation. You have to stop and restart the SIM2000/VSE system interface for your new options to take affect.

The format of the SIM2SO Macro is:

SIM2SO	[CICSOSI=<i>n</i>] [,CICSCSU=<i>n</i>] [,LANGSUP=<i>n</i>] [,LOGGING=<i>x</i>] [,LOGTYPE=<i>n</i>] [,NEWCOPY={Y N }] [,PWD=XXXX-XXXX-XXXX-XXXX]
---------------	---

Operands/Options

CICSOSI=<i>n</i>	Specifies the SIM2000/CICS operating system interface level. “n” may be one of the following: <ul style="list-style-type: none"> 0 No operating system interface (default) 1 VSE/ESA standard interface 2 VSE/ESA advanced support
CICSCSU=<i>n</i>	Specifies the SIM2000/CICS CSA update level. “n” may be one of the following: <ul style="list-style-type: none"> 0 No CSA updating is to occur (default) 1 CSA standard updating is to occur 2 CSA advanced updating is to occur
LANGSUP=<i>n</i>	Specified the languages to be supported for date simulation. “n” may be one of the following: <ul style="list-style-type: none"> 0 No special language support (default) 1 COBOL/370 2 PL/1 support 3 LE support for all languages
LOGGING=<i>x</i>	Specifies the logging level. “x” may be one of the following: <ul style="list-style-type: none"> S Step termination J Job termination B Step and job termination

LOGTYPE=*n* Specifies the type of logging to be performed. “n” may be one of the following:

- 0** Upon system console (default)
- 1** Upon SYSLST
- 2** Both

NEWCOPY={Y |N } Specifies if SIM2000 CEMT NEWCOPY is required for CICS programs modified for STCK simulation during SIM2000 CICS termination

- Y** NEWCOPY is required
- N** NEWCOPY is not required (default)

PWD=xxxx-xxxx-xxxx-xxxx Specifies the SIM2000 product password (VSE/SP,MVT only)

Assembling the VSE SIM2SO Macro

```
// JOB ASSEMBLE
// OPTION CATAL
// LIBDEF PHASE, CATALOG=PRD2 . CONFIG
// LIBDEF *, SEARCH=PRD2 . CONFIG
// EXEC ASSEMBLY
  COPY SIM2SO
  SIM2SO LOGTYPE=2, LOGGING=S, LANGSUP=3
  END
/*
// EXEC LNKEDT
/&
```

Chapter 11 - SIM2000 Messages

SIM2000 Program Analyzer Messages

SIM2000-01 LIBRM ERROR, RC=*rc* /FEEDBACK=*code*, CMD=*command*

REASON: An internal VSE LIBRM error occurred.
 ACTION: Contact your technical support group. You must provide them with all of the codes produced by this message.

SIM2000-02 NO LIBRARY SEARCH CHAIN ESTABLISHED

REASON: The VSE LIBDEF phase search statement is missing from this job.
 ACTION: Add the missing statement and rerun the job.

SIM2000-03 PROGRAM *program* NOT FOUND

REASON: A load request failed for the program named in the message
 ACTION: Insure the library containing the SIM2000 product is part of the LIBDEF/STEPLIB specification

SIM2000-04 DYNAMIC STORAGE REQUEST FAILED FOR *nK*

REASON: A request for dynamic storage failed (GETVIS/GETMAIN)
 ACTION: Increase the amount of dynamic storage allocated for this job

SIM2000-05 INVALID CONTROL STATEMENT - *statement*

REASON: This control statement is not valid for this execution
 ACTION: Correct the control statement and rerun the job

SIM2000-06 INVALID KEYWORD - *keyword* - CTL STMT *statement*

REASON: This control statement contains an invalid keyword or keyword value
 ACTION: Correct the control statement and rerun the job

SIM2000-07 USER SCAN LIMIT EXCEEDED

REASON: You have exceeded the user scan limit of 5 (five)
 ACTION: Remove the excess USRSCN control statements and rerun the job

SIM2000-08 PROCESSING MEMBERS IN *library*

REASON: Program analysis has begun

SIM2000-09 PRODUCT HAS NOT BEEN AUTHORIZED

REASON: The SIM2000 Program Analyzer product authorization code has not been applied

ACTION: Contact your technical support group

SIM2000-10 PRODUCT EXPIRED, CONTACT DISTRIBUTOR

REASON: You are trying to run the program analyzer beyond the expiration date

ACTION: Contact your technical support group

SIM2000-11 PRODUCT WILL EXPIRE IN *n* DAYS

REASON: You are very close to the program analyzer expiration date

ACTION: Contact your technical support group

SIM2000-12 PRODUCT RUNNING IN TRIAL MODE

REASON: You have not applied the program analyzer authorization code

ACTION: The product will not run full function

SIM2000-13 INPUT CAPACITY EXCEEDED

REASON: This program will handle 500 input control statements

ACTION: Remove the excess control statements and rerun the job

SIM2000-14 INTERNAL PROCESSING ERROR *a/b* OCCURRED

REASON: An internal program processing error occurred

ACTION: Contact your technical support group. Be sure and give them the codes displayed in this message.

SIM2000-15 MEMBER CAPACITY EXCEEDED

REASON: The program capacity of 5,000 members has been exceeded

ACTION: Rerun the job with the MAXPGMCT=*nnnnn* statement to override the maximum number of programs supported.

SIM2000-16 *a* OPEN ERROR *b* OCCURRED

REASON: An open error occurred for the dataset specified in the message

ACTION: Make sure the dataset exists. This is typically a JCL error.

SIM2000-17 *a* RETRIEVAL ERROR *b* OCCURRED

REASON: An error occurred while attempting to read the dataset specified in the message

ACTION: Contact your technical support group.

SIM2BAT Processing Messages

SIM2BAT-00 SIM2000 Vn BATCH PROCESSING STARTING

REASON: SIM2000 batch processing has begun

SIM2BAT-01 PRODUCT IS NOT ACTIVE

REASON: The SIM2000 system activation has not been run

SIM2BAT-02 NO AVAILABLE SIM2000 JOB CONTROL BLOCKS

REASON: An internal processing error has occurred

ACTION: Contact your SIM2000 technical support group

SIM2BAT-03 PROGRAM NOT FOUND - *program*

REASON: A load request failed for the program named in the message

ACTION: Insure the library containing the SIM2000 product is part of the LIBDEF/STEPLIB specification

SIM2BAT-04 DATE SIMULATION IS NOT ACTIVE

REASON: DATE=RESET request was issued and date simulation is not active for this partition, user, or DSI

SIM2BAT-05 SIM2000 BATCH PROCESSING COMPLETED

REASON: SIM2000 batch processing has finished

SIM2BAT-06 PRODUCT WILL EXPIRE IN *n* DAYS

REASON: The SIM2000 product expiration is near

ACTION: Contact your SIM2000 distributor

SIM2BAT-07 DATE SIMULATION HAS BEEN DISABLED

REASON: SIM2000 date simulation has been disabled for this partition or user

SIM2BAT-08 CAN'T GET *nK* OF SYSTEM STORAGE

REASON: A request for system storage failed (GETVIS/GETMAIN)

ACTION: Increase the system storage allocation by the amount displayed in the message

SIM2BAT-09 SIM2000 BATCH PROCESSING ERROR OCCURRED

REASON: An error occurred during SIM2000 batch processing

ACTION: See previous messages displayed on the system console for proper action

SIM2BAT-10 PRODUCT EXPIRED - CONTACT DISTRIBUTOR

REASON: The SIM2000 product has expired

ACTION: Contact your SIM2000 distributor

SIM2BAT-11 EXECUTION HAS BEEN SUPPRESSED

REASON: This is an internal processing error

ACTION: Contact your SIM2000 technical support group

SIM2BAT-12 NO LIBRARY SEARCH CHAIN

REASON: The library containing the SIM2000 product is not specified in the LIBDEF chain

ACTION: Add the library to the LIBDEF chain

SIM2BAT-13 LIBRM ERROR,RC=*rc*,FEEDBACK=*code*,CMD=*command*

REASON: An internal LIBR request error occurred

ACTION: Contact your SIM2000 technical support group

SIM2BAT-14 PRODUCT HAS NOT BEEN AUTHORIZED

REASON: A SIM2000 product password has not been applied

ACTION: Contact your SIM2000 technical support group

SIM2BAT-15 *module* IS NOT SVA RESIDENT

REASON: The module listed in the message must reside in the SVA

ACTION: Load this module into the SVA

SIM2BAT-16 INVALID INPUT STATEMENT - *statement*

REASON: This control statement is not valid for this execution

ACTION: Correct the control statement and rerun the job

SIM2BAT-17 NO INPUT STATEMENTS PROCESSED

REASON: No valid control statements were processed

SIM2BAT-18 INVALID KEYWORD - *keyword* - INPUT STMT *statement*

REASON: The control statement contains an invalid keyword value

ACTION: Correct the control statement and rerun the job

SIM2BAT-19 CDLOAD FAILURE *code* FOR *module*

REASON: A CDLOAD request failed. Refer to the CDLOAD macro in the VSE/ESA System Macros Reference for details on the failure code.

ACTION: Increase the size on the exec statement and rerun the job

SIM2BAT-20 MISSING OR INVALID DATE FIELD

REASON: The date field has not been specified or is invalid

ACTION: Correct the date field and rerun the job

SIM2BAT-21 INVALID DURATION SPECIFICATION

REASON: The DURATION= specification is not valid

ACTION: Correct this specification and rerun the job

SIM2BAT-22 DATE SIMULATION HAS BEEN ACTIVATED

REASON: Date simulation has been activated for this partition or user

SIM2BAT-23 *count* DSI ENTRIES HAVE BEEN BUILT

REASON: Informational message displaying the count of date simulation control blocks built

SIM2BAT-24 DUPLICATE ENTRY NOT ALLOWED

REASON: This date simulation control information has already been defined

ACTION: The definition is rejected

SIM2BAT-25 *count* JCB ENTRIES HAVE BEEN RESET

REASON: Informational message displaying the count of date simulation control blocks reset

SIM2BAT-26 LOGIC ERROR *error* OCCURRED

REASON: An internal programming logic error occurred

ACTION: Contact your SIM2000 technical support group

SIM2BAT-27 PROGRAM NAME LIST IS FULL

REASON: An attempt was made to add an entry to the SIM2000 program name list but the list is full.

ACTION: Normal processing continues without the additional entries being added. You must use the MAXPGMS control statement to increase the size of this list during the SIM2000 system activation (SIM2SINT)

SIM2BAT-28 STCK FEATURE IS NOT ACTIVE

REASON: An attempt was made to add an entry to the SIM2000 program name list but the list is full.

ACTION: Normal processing continues without the additional entries being added. You must use the MAXPGMS control statement to increase the size of this list during the SIM2000 system activation (SIM2SINT)

SIM2BAT-29 STCK PROGRAM NAMES TO BE INCLUDED: *count*

REASON: An information message displaying the count of STCK program names added to the SIM2000 program name list.

SIM2BAT-30 PROGRAM NAMES TO BE EXCLUDED: *count*

REASON: An information message displaying a count of program names that were not added to the SIM2000 program name list.

SIM2CINT Activation Messages

SIM2CINT-00 SIM2000 vvv.rr.ppp ACTIVATION STARTED

REASON: SIM2000/CICS system interface activation is starting

SIM2CINT-01 PRODUCT IS ALREADY ACTIVE

REASON: SIM2000/CICS system interface activation was attempted and the interface is currently active

SIM2CINT-02 INVEXITREQ FAILURE, FUNCTION=*function*

REASON: A CICS ENABLE EXIT request failed.

ACTION: Contact your SIM2000 technical support group

SIM2CINT-03 PROGRAM NOT FOUND - *program*

REASON: A load request failed for the program named in the message

ACTION: Insure all of the SIM2000/CICS programs have been defined to CICS and the STEPLIB/DFHRPL/LIBDEF chains point to the SIM2000 libraries.

SIM2CINT-04 SIM2000 ACTIVATION FAILED

REASON: The SIM2000/CICS system activation failed.

ACTION: Review the diagnostic messages displayed on the system console and take corrective action.

SIM2CINT-05 SIM2000 ACTIVATION COMPLETED SUCCESSFULLY

REASON: The SIM2000/CICS system interface has been activated

SIM2CINT-06 SIM2000 SYSTEM ACTIVATION HAS NOT BEEN DONE

REASON: The SIM2000 system interface is not active.

ACTION: Run SIM2SINT to activate the SIM2000 system interface, a batch execution that must be run prior to using SIM2000/CICS.

SIM2CINT-07 PFI X FAILURE *code* FOR nK (*a*)

REASON: A PFI X request failed. Refer to the PFI X macro in the VSE/ESA System Macros Reference for the meaning of the displayed code.

ACTION: Increase the SETPFI X limit in the CICS startup to include this amount ($nnnK$).

SIM2CINT-08 CAN'T GET nK OF SYSTEM STORAGE

REASON: A request for system storage failed (GETVIS/GETMAIN)

ACTION: Increase the system storage allocation by the amount displayed in the message

SIM2CINT-09 CODE SCAN ERROR *code* OCCURRED

REASON: An internal code scan error occurred

ACTION: Contact your SIM2000 technical support group

SIM2CINT-10 SIM2000 WILL EXPIRE IN n DAYS

REASON: The SIM2000 product expiration is near

ACTION: Contact your SIM2000 distributor

SIM2CINT-11 SIM2000 NOT AUTHORIZED FOR THIS CPU

REASON: The SIM2000 product CPU check failed

ACTION: Contact your SIM2000 distributor

SIM2CINT-12 nK OF DYNAMIC STRG ACQUIRED FOR TRACING

REASON: Informational message

SIM2CINT-13 nK OF DYNAMIC STRG ACQUIRED FOR RESCODE

REASON: Informational message

SIM2CINT-14 nK OF SYSTEM STORAGE ACQUIRED

REASON: Informational message

SIM2CINT-16 CAN'T GET nK OF CICS DYNAMIC STORAGE

REASON: A CICS GETMAIN request failed

ACTION: Rerun the transaction. If problem persists, increase the amount of CICS dynamic storage to accommodate this request.

SIM2CINT-18 PRODUCT IS NOT AUTHORIZED TO ACTIVATE

REASON: A SIM2000 product password has not been applied

ACTION: Contact your SIM2000 technical support group

SIM2CINT-19 ACTIVATION HAS BEEN SUPPRESSED

REASON: An internal processing error has occurred

ACTION: Contact your SIM2000 technical support group

SIM2CINT-20 NO LIBRARY SEARCH CHAIN

REASON: The library containing the SIM2000 product is not specified in the LIBDEF chain

ACTION: Add the library to the LIBDEF chain

SIM2CINT-21 LIBRM ERROR,RC=*rc* /FEEDBACK=*code*,CMD=*command*

REASON: An internal LIBR request error occurred

ACTION: Contact your SIM2000 technical support group

SIM2CINT-22 DYNAMIC STORAGE REQUEST FAILED FOR nK

REASON: An operating system GETVIS/GETMAIN request failed

ACTION: Increase the partition/region dynamic storage area

SIM2CINT-23 CICS STCK SUPPORT ACTIVATED

REASON: Informational message

SIM2CP1 Processing Messages

SIM2CP1-01 INVALID SELECTION - PLEASE RETRY

REASON: An invalid function code was entered
ACTION: Enter a valid function code from the main menu displayed

SIM2CP1-02 BMS MAP WAS NOT FOUND

REASON: The SIM2000/CICS mapset definition has not defined
ACTION: Add the SIM2000/CICS mapset definition and rerun the transaction.
See the SIM2000/CICS Implementation section.

SIM2CP1-03 BMS LOGIC ERROR HAS OCCURRED

REASON: A CICS BMS logic error occurred
ACTION: Rerun the transaction with CEDF to determine the BMS logic error that occurred. Missing BMS support in this CICS system typically causes this error. Add the missing CICS BMS support and rerun the transaction. Contact your SIM2000 technical support group if you cannot correct the error.

SIM2CP1-04 PROGRAM NOT FOUND - *program*

REASON: A load request failed for the program named in the message
ACTION: Insure the library containing the SIM2000 product is part of the LIBDEF/STEPLIB specification

SIM2CP1-05 SIM2000 CICS IS NOT ACTIVE

REASON: The SIM2000/CICS system interface is not active.
ACTION: Run the SIM2000/CICS system interface activation via the 'SM2A' transaction.

SIM2CP1-06 INVALID DATA ENTERED

REASON: Invalid data has been entered. These fields are marked with an asterisk (*)
ACTION: Correct the fields and reenter

SIM2CP1-07 DATE SIMULATION SETUP COMPLETED

REASON: SIM2000/CICS date simulation control information has been established

SIM2CP1-08 NO CONTROL INFORMATION SPECIFIED

REASON: No SIM2000/CICS date simulation control information is established

SIM2CP1-09 MAP CAPACITY EXCEEDED

REASON: You have exceeded the capacity of SIM2000/CICS
ACTION: Contact your SIM2000 technical support group

SIM2CP1-10 SIM2000 STATISTICS HAVE BEEN RESET

REASON: Informational message

SIM2CP1-11 NO CICS DYNAMIC STORAGE AVAILABLE

REASON: A CICS GETMAIN request failed
ACTION: Rerun the transaction. If problem persists, run the transaction with CEDF to determine the size of the GETMAIN.

SIM2CP1-12 SIM2000 TRANSACTION TERMINATED

REASON: This program has completed processing

SIM2SINT Activation Messages

SIM2SINT-00 SIM2000 Vn SYSTEM PROCESSING STARTING

REASON: SIM2000 system initialization has begun

SIM2SINT-01 PRODUCT IS ALREADY ACTIVE

REASON: SIM2000 activation was requested a subsequent time

ACTION: this activation will ABEND

SIM2SINT-02 CAN'T GET nK OF PTN GETVIS STRG

REASON: A GETVIS request failed

ACTION: Increase the size on the EXEC statement and rerun job.

SIM2SINT-03 PROGRAM NOT FOUND - *program*

REASON: A load request failed for the program named in the message

ACTION: Insure the library containing the SIM2000 product is part of the LIBDEF/STEPLIB specification

SIM2SINT-04 SIM2000 ACTIVATION FAILED

REASON: The SIM2000 system activation failed. See previous messages for further action.

SIM2SINT-05 SIM2000 ACTIVATION COMPLETED SUCCESSFULLY

REASON: The SIM2000 system activation completed without an error

SIM2SINT-06 PRODUCT WILL EXPIRE IN n DAYS

REASON: The SIM2000 product expiration is near

ACTION: Contact your SIM2000 distributor

SIM2SINT-07 PFX FAILURE *code* FOR nK (*b*)

REASON: A PFX request failed. Refer to the PFX macro in the VSE/ESA System Macros Reference for details on the failure code.

ACTION: Set the SETPFX limit to the size in the message (*nK*)

SIM2SINT-08 CAN'T GET nK OF SYSTEM STORAGE

REASON: A request for system storage failed (GETVIS/GETMAIN)

ACTION: Increase the system storage allocation by the amount displayed in the message

SIM2SINT-09 CODE SCAN ERROR *error* OCCURRED

REASON: An internal code scan error occurred

ACTION: Contact your SIM2000 technical support group

SIM2SINT-10 VSE EXTRACT ERROR *error*

REASON: A VSE EXTRACT request failed. Refer to the EXTRACT macro in the VSE/ESA System Macros Reference for details on the failure code.

ACTION: Contact your SIM2000 technical support group

SIM2SINT-11 nK OF SYSTEM STORAGE ACQUIRED

REASON: Informational message

SIM2SINT-12 PRODUCT EXPIRED - CONTACT DISTRIBUTOR

REASON: The SIM2000 product has expired

ACTION: Contact your SIM2000 distributor

SIM2SINT-13 ACTIVATION HAS BEEN SUPPRESSED

REASON: A SIM2000 system activation error occurred

ACTION: Review previous messages

SIM2SINT-14 NO LIBRARY SEARCH CHAIN

REASON: The library containing the SIM2000 product is not specified in the LIBDEF chain

ACTION: Add the library to the LIBDEF chain

SIM2SINT-15 LIBRM ERROR,RC=*rc*,FEEDBACK=*code* CMD=*command*

REASON: An internal LIBR request error occurred

ACTION: Contact your SIM2000 technical support group

SIM2SINT-16 PRODUCT HAS NOT BEEN AUTHORIZED

REASON: A SIM2000 product password has not been applied

ACTION: Contact your SIM2000 technical support group

SIM2SINT-17 *module* IS NOT SVA RESIDENT

REASON: The module listed in the message must reside in the SVA

ACTION: Load this module into the SVA

SIM2SINT-18 INVALID CONTROL STATEMENT - *statement*

REASON: This control statement is not valid for this execution

ACTION: Correct the control statement and rerun the job

SIM2SINT-19 NO INPUT STATEMENTS PROCESSED

REASON: No valid control statements were processed

SIM2SINT-20 INVALID KEYWORD - *keyword* - CTL STMT *statement*

REASON: The control statement contains an invalid keyword value

ACTION: Correct the control statement and rerun the job

SIM2SINT-21 NO ACTIVE \$JOBEXIT EXIT MODULE FOUND

REASON: There is no active \$JOBEX*nn* exit

ACTION: Activate a \$JOBEX*nn* exit and rerun the job

SIM2SINT-22 \$JOBEXIT EXIT ENTRY NOT ACTIVE

REASON: The specific \$JOBEX*nn* entry is not active

ACTION: Change the JOBEXINT=*nn* control statement to specify an active entry or activate the corresponding \$JOBEX*nn* exit

SIM2SINT-23 CDLOAD FAILURE *code* FOR *module*

REASON: A CDLOAD request failed to load the specified module into partition GETVIS. Refer to the CDLOAD macro in the VSE/ESA System Macros Reference for details on the failure code.

ACTION: Increase the size on the EXEC statement and rerun the job

SIM2SINT-24 SIM2000 SYSTEM RESIDENT CODE INITIALIZED

REASON: Information message

SIM2SINT-25 SIM2000 INTERNAL TRACE TABLE INITIALIZED

REASON: Information message

SIM2SINT-26 \$JOBEXIT INTERFACE ACTIVATED

REASON: Information message

SIM2SINT-27 STOP NOT POSSIBLE - SIM2000 NOT ACTIVE

REASON: A SIM2000 termination request was run and SIM2000 is not active

SIM2SINT-28 SIM2000 TERMINATION HAS STARTED

REASON: A SIM2000 termination request has started

SIM2SINT-29 SIM2000 TERMINATION HAS COMPLETED

REASON: SIM2000 termination completed successfully

SIM2SINT-32 SIM2SINT MUST BE APF-AUTHORIZED

REASON: The SIM2SINT module is not APF-authorized

ACTION: You must APF-authorize this module before SIM2000 activation runs

SIM2SINT-33 *count* DSI ENTRIES FOUND IN SIM2SOT

REASON: Informational message displaying the count of SIM2DSI entries found in the SIM2SOT module

SIM2SINT-34 DB2 SYSTEM INTERFACE ACTIVATED

REASON: Informational message indicating the DB2 support has been activated in response to the DB2=YES control statement

SIM2SINT-35 PROGRAM NAME LIST TABLE ALLOCATED

REASON: Informational message indicating the SIM2000 program name list table has been allocated

SIM2SINT-36 TIME PC INTERFACE ACTIVATED

REASON: Informational message indicating the optional interface to support the TIME LINKAGE=SYSTEM request has been activated

Occasionally asked questions

Just occasionally, SIM2000 will throw up one of the following problems – all easily circumvented...

MPR001 - OC4/AKEA abend in SIM2CINT during SIM2000/CICS startup

This problem will occur if you are using the CICS Storage Protection facility (STGPROT=YES). Change the SIM2CINT EXECKEY specification from USER to CICS to resolve this problem.

MPR002 - Incorrect loadlib dataset name displayed by SIM2ANLB

Make SIM2FLE DD the first statement after the EXEC SIM2ANLB:

```
//STEP      EXEC  SIM2ANLB
//SIM2FLE DD   DSN=.....
//STEPLIB DD   .....
```

MPR003 - AUPE transaction abends during SIM2000/CICS startup

To avoid these abends, ensure SIM2CINT is specified first in the PLTPI startup order.

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