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Gravity Probe B Relativity Mission

Event Display in the Non-Real-Time System

GP-B Procedure
P0832 Rev –
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1. Revision History

Rev Level	Comments/notes	Date	Revised By
-	First release of this operational procedure	7-May-01	J Mullins

2. Scope

2.1. This operational procedure details the steps required to view or export spacecraft Event data (APID 301) recorded from the satellite and processed by TDP (Telemetry Data Processing software) into the Sybase Level 0 database (described in S0331, the Data Management Plan).

3. Operational Personnel Responsibilities and Qualifications

3.1. Operators must be competent working in a Unix environment and must understand such concepts as naming files and changing directories. Operators should be familiar with the general nature of Event data and should have an idea of the spacecraft time span in which their desired data may be found.

3.2. Operator familiarity with basic commands in UNIX is recommended.

3.3. If there are anomalies while performing this operation, these anomalies must be recorded by the operator in the MOC using a Test Anomaly Report form (TAR).

4. Requirements

4.1. Hardware and Software Requirements

Operations are performed on the Sun server machine known as "moc-server". Sybase server must be running and IDL software must be currently licensed. The user must have an account on moc-server.

4.2. Configuration Requirements

The operator may be in any directory after logging in. No specific configuration is required.

4.3. Verification and Success Criteria

Success criteria for Event viewing and exporting is defined as creating a complete text file of APID 301 data from the Level 0 database for the user-specified cycle and times using the event_view script "EVENTget.pl". An example of the program's output is shown and explained in detail in section 10.

5. Reference Documents

5.1. Data Management Plan, S0331

5.2. Lockheed Martin's SCSE-16, Section 9

5.3. Event_view Version Description Document, S0515

6. Test Facilities

6.1. Mission Operations Center at Gravity Probe B, Stanford University.

7. QA Provisions

7.1. QA notification of use of this procedure is not required. Its purpose is to explain how to extract, query and view satellite event data telemetry from the Level 0 database using event_view.

8. Test Personnel

This operational procedure is for use by anyone with an account on moc-server.

9. General Instructions

9.1. Test operators shall read this procedure in its entirety and resolve any apparent ambiguities prior to beginning any tests that reference this procedure.

9.2. Any nonconformance or operational anomaly should be reported by a TAR, as appropriate. Refer to the Software Quality Plan, P0630, for guidance. Do not alter or break operational configuration if a failure occurs; notify the database administrator and/or quality assurance.

10. Software Operational Procedure

This section describes how to: log on to the workstation; verify Sybase server's presence; enter a proper cycle number and time; write a file to the user's home directory; view the file; and end the session.

10.1. Logging on to the moc-server. If you are already logged on, then skip to step 10.2

Enter moc-server console login:

Enter password:

10.2. Looking for Sybase.

Open a terminal (window) and look for your moc-server prompt: {username@moc-server}

Type "showserver" at the prompt. Expect to see four (4) instances of Sybase server, one of which is a backup server.

```
{username@moc-server:4} showserver
UID   PID  PPID  C    STIME TTY      TIME CMD
root  4696  4695  0   Apr 10 ?        1:07 /apps/licensed/sybase11.9.2/bin/dataserver -smoc_server -
d/dev/rdsk/c1t2d0s3 -e
root  4693  4692  0   Apr 10 pts/7    0:00 /apps/licensed/sybase11.9.2/bin/backupserver -Smoc_server_back -
e/apps/licensed
root  4805  4696  0   Apr 10 ?        0:01 /apps/licensed/sybase11.9.2/bin/dataserver -
ONLINE:1,0,0x101a92e,0xdfc00000,0x1
root  4806  4696  0   Apr 10 ?        0:01 /apps/licensed/sybase11.9.2/bin/dataserver -
ONLINE:2,0,0x101a92e,0xdfc00000,0x1
```

If only one line of all-caps data is returned:

```
UID   PID  PPID  C    STIME TTY      TIME CMD
```

that means that the Sybase server is not running and needs to be restarted. Present working directory is irrelevant to the expected output from Sybase and all users can issue the showserver command. The only reason the user might see the above line when in actuality Sybase is running is the user is logged into a client machine and not into moc-server proper. Make sure you're actually on the machine moc-server and not one of its clients before becoming concerned. Call the database administrator or the systems administrator for assistance if Sybase is down: this is not a cause for filing a discrepancy. If the Sybase server is running, proceed to the next step.

10.3. Start the Event viewing and exporting program EVENTget.pl.

You may be in any directory on moc-server.

Run the script "EVENTget.pl" at the prompt by simply typing "EVENTget.pl" and hitting return.

10.4. You should see information such as the following on the monitor (the rest of the document uses as an example cycle number -99, a pre-flight test cycle):

```
{username@moc-server:7} EVENTget.pl
drop table tempdb..getcycle, tempdb..L0event, tempdb..OrderedEvent, tempdb..FullEvent

(393 rows affected)

Starting copy...

393 rows copied.
Clock Time (ms.): total = 1  Avg = 0 (393000.00 rows per sec.)


  INTERACTIVE:  VTCW Cycle verification ?
                  -99  ( 2000:001:12:00:00 - 2001:065:10:33:09 )
                    0  ( 2000:001:12:00:00 - 2001:249:10:41:09 )
```

10.5. At this point, type in the cycle number containing the data you'd like returned. The times corresponding to the cycle number are listed to the left of the number. Cycle numbers in this example are -99 and 0, and the times are January 1, 2000 12:00:00 noon - March 6, 2001 10:22:09 AM UTC and January 1, 2000 12:00:00 noon - September 7, 2001 10:41:09 AM UTC, respectively. Type in a cycle number choice and hit return:

```
-99
```

10.6. Afterwards, you will be prompted to choose a minimum time and a maximum time for the cycle number you chose in 10.5. **Please note** that the times listed next to the prompt are for the last six hours of today's date and are *not* the minimum and maximum times in the cycle you requested. These are the default choices of the program and if the user doesn't type in a time, the program will use these times as inputs instead. The request might look something like:

```
INTERACTIVE:  MIN TIME ( 2001:127:18:40:36 )
2000:001:12:00:00


INTERACTIVE:  MAX TIME ( 2001:128:00:40:36 )
2001:065:10:33:09
```

The above sample answer times are in bold-face, larger font for clarity.

10.7. Next, you will be prompted to enter the name of the output file that the program will create. This file will contain all the data you requested from the min time to the max time for your cycle number. The format of this data file is discussed in the next step. You should see the following prompt:

```
INTERACTIVE:  Output filename ?
       to be deposited in /home/username/
    myevents.out
```

Again, the above sample answer times are in bold-face, larger font for clarity, and "username" refers to the operator's account name. In the future, creating event data files for shared operations use will probably be an automated task and the storage and naming of these files will be established at the time of automation.

10.8. Finally, you will be prompted as to whether you wish your timestamps to be in the format of (YYYY:DOY:HH:MM:SS) or to keep them in their native format of Vehicle Time Clock Word times 10 (the VTCW is the number of seconds since January 1, 2000 at 12 noon). This prompt looks like:

```
CONVERT:  VTCW time to timestamp (YYYY:DOY:HH:MM:SS)   (Y or N)?
     Y
```

10.9. The program will then inform you of what it's done:

```
DONE:  /home/username/test.out

DONE:    89 events were found
```

10.10. The contents of myevents.out are in tab-delimited columns in the order of: (time in "polite" format - e. g. YYYY:DOY:HH:MM:SS instead of number of seconds since spacecraft clock 0 - if requested in section 10.8), SCT_Cycle, SCT_VTCW, App_Number, App_Name, Event_Number, Event_Name.

SCT_Cycle is the Cycle number of the data you exported.

10.11. View the file using any text editor or the "more" command (e.g. "more myevents.out"). Export is accomplished by copying this file to the desired directory or floppy disk. Event data hopefully has been successfully exported from the Level 0 database as per your request. The data should look something like:

```
-99   371374050   106   CCCA_Check  1     CCCA_Self_Check_Test_Enabled
-99   371374050   106   CCCA_Check  16    Memory_Scrub_Test_Enabled
-99   371374050   115   CDHS_Check  1     CRC_Error_Test_Enabled
-99   371374050   115   CDHS_Check  4     EDAC_Error_Test_Enabled
-99   371374050   115   CDHS_Check  7     CCCA_B_CR_Monitor_Test_Enabled
-99   371374050   115   CDHS_Check  10    CDH_Built_In_Test_Enabled
-99   371374050   115   CDHS_Check  13   CDH_Telemetry_Check_Test_Enabled
```

OR:

```
2001:065:07:56:45 -99   371374050   106   CCCA_Check  1     CCCA_Self_Check_Test_Enabled
2001:065:07:56:45 -99   371374050   106   CCCA_Check  16    Memory_Scrub_Test_Enabled
2001:065:07:56:45 -99   371374050   115   CDHS_Check  1     CRC_Error_Test_Enabled
2001:065:07:56:45 -99   371374050   115   CDHS_Check  4     EDAC_Error_Test_Enabled
2001:065:07:56:45 -99   371374050   115   CDHS_Check  7     CCCA_B_CR_Monitor_Test_Enabled
2001:065:07:56:45 -99   371374050   115   CDHS_Check  10    CDH_Built_In_Test_Enabled
2001:065:07:56:45 -99   371374050   115   CDHS_Check  13   CDH_Telemetry_Check_Test_Enabled
```

If you opted to put in YYYY:DOY:HH:MM:SS time stamps in section 10.8, the new first column will appear.

10.12. If your export was not successful, double check your desired time entries and try again. A typical failed export would include an empty data file, the apparent inability for the program to stop looping through the min/max time query, or no cycle numbers and associated times being listed to choose from in step 10.4. In the first two cases, there may be no data for the times you specified, in which case you would be continually sent through a loop of being asked to enter a max and min time, or you could receive a file with no data (if no data is found for the time specified). The program will not easily allow the user to select a time for which there is no data, but in certain instances it can happen. In the third case, the program may be having trouble reading from the Sybase database. Check to see whether Sybase is up and running (step 10.2), but you may need to speak with the database administrator about this type of problem. Report a successful export or resolve an unsuccessful export of data. Call for help if necessary or file a TAR if required.

10.13. Log out of the moc-server if no further work is to be done.