W. W. Hansen Experimental Physics Laboratory

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Gravity Probe B Relativity Mission

P1073
Revision -

Sybase 12.5.0.3 Patch Test Procedure

October 28, 2003

Rodney Torii — Date SU, Author	Ron Sharbaugh — Date Software Manager
Jennifer Spencer — Date Data Processing Lead	Carin Kahn — Date Database Development
Kelly Burlingham — Date Software Quality Engineer	Marcie Smith — Date Mission Operations Manager

Tom Langenstein ITAR Assessment Performed, ITAR Control Req'd? □ Yes □ No

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1. CHANGE HISTORY

REV	DATE	AUTHOR	COMMENTS
initial	Oct 28, 2003	RHT	Initial release

2. REFERENCE DOCUMENTS

Document No.	Document
P0949	Operational Procedure for Baseline and Regression Testing of TDP
P0826	Telemetry Data Processing in the Non-Real Time System

S0477	MOC Configuration Control, Science LAN
S0476	MOC Configuration Control, IONET LAN
P480571D	Non-Real Time Ground Software

3. SCOPE

The test is not conducted on the production database. The test uses the backup database attached to the Science-Crunch server.

This test plan document describes the test procedure used to verify:
1. Patch fixes a known bug (occurs after cmdgen call); and
2. Patch does not affect the data copied to the database.

4. OPERATIONAL PERSONNEL

This procedure is to be conducted only by the following personnel:

1. Jennifer Spencer (SYBASE, TCAD)
2. Carin Kahn (SYBASE)
3. Ron Sharbaugh (CMDGEN, PARAMGEN)
4. Tim Walsh (OD)
5. Vladimir Solomonik or Michael Heifetzz (SCIENCE)

5. RISKS & CONSTRAINTS

This is not a system test but rather relies on a thorough unit testing of a known bug and unit testing of the database affected by the patch.

6. QUALITY ASSURANCE PROVISIONS

6.1 This procedure shall be conducted on a formal basis to its latest approved and released version. Software QA (K. Burlingham) shall be notified 24 hours prior to the start of this procedure. QA may monitor the execution of all or part of this procedure should they elect to do so.

6.2 QA notification time/date:

Date/time:_____
GP-B QA (K. Burlingham)

6.3 Upon completion of this procedure, GP-B QA shall certify her/his concurrence that the procedure was performed and accomplished in accordance with the prescribed instructions by signing and dating his approval at the end of this procedure.

6.4 QA may redline this procedure.

7. GENERAL INSTRUCTIONS

7.1 Redlines can be initiated by the personnel listed in Section 4 and must be approved by QA.
7.2 Operators shall read this procedure in its entirety and resolve any apparent ambiguities before beginning this procedure.

7.3 Any nonconformance or anomaly is to be reported by a DLOG. Refer to the Software Quality Assurance Plan, P0630, for guidance. Do not alter or break configuration if a failure occurs; notify Software Quality Assurance.
7.4 Only the following persons have the authority to exit/terminate this test or perform a retest: Certified operators listed in Section 4 and GP-B QA.

8. TEST ENVIRONMENT

The test environment is comprised of the following platforms and modules.

Software Configurations	Version Number
Solaris	5.6 (CGEN, PGEN)
Solaris	5.8 (BCP, OD]
Command Generation	1.6
Paramenter Generation	1.6
TCAD	LASP-2.0
OD	OD-1.2

9. TEST CASES AND FILE VERSION MATRIX

The files listed below are the tested configuration of the CSCI and the test cases that test each module:

File Name	File version	Test Name	Test Section
Sybase	12.5.0.3	CGEN1	11.1
“	“	BCP1	11.2
“	“	CGEN2	11.3
“	“	PGEN1	11.4
“	“	TCAD1	11.5
“	“	OD1	11.6
“	“	SCI1	11.7

10. CSCI UNDER TEST

Sybase	Version	
Test Operator: (SYBASE)	Name:	
Test Operator: (GCEN/PGEN)	Name:	
Test Operator: (TCAD)	Name:	

Test Operator: (OD)	Name:	
Test Operator: (Science)	Name:	
Start of Testing	Date: Time:	

11. TEST CASES

Notes:
1. Test cases need not be performed in the order provided below except where specified.
2. Various test cases may/will be performed by various CSCI experts.

11.1. CGEN1: Command Generation

Test Case Verification Number: CGEN1

INTRODUCTION
This test case will show that Command Generation call does not cause Sybase to hang forcing a Sybase reset.

APPROACH

Run cmdgen continuously (minimum of 6 hours). Verify Sybase functioning properly by executing sp.who in Sybase. After cmdgen is terminated, check user “cmdops” jobs to verify user is no longer present.

FEATURES TO BE TESTED
Command generation does not hang.

FEATURES NOT TO BE TESTED
Command Generation output files are same as with 12.5.0.1 (see CGEN2 test)

PASS/FAIL
Pass/Fail Conditions: Sybase does not hang.

Activity	**Pass / Fail**
11.1.1 Initiate continuous cmdgen call. Start Time: _____	
11.1.2 Verify normal Sybase operation using sp_who in Sybase. See Attachment:	
11.1.3 Terminate cmdgen call. Stop Time: _____ # Times Executed: _____	

11.1.4 Verify user cmdops is no longer present on server. See Attachment:	
11.1.5 Check Sybase error log for new messages regarding “time to live expired on”. See Attachement:	

11.2. BCP1: Verify Data

Test Case Verification Number: BCP1

INTRODUCTION
This test verifies that Sybase patch has not changed the data copied to the database.

APPROACH

Process SRE test file (framex file in /home/tdp/functionals/…) using auto_import.exp with check only flag. Bulk copy tmanalog. tmp file in binary to database(source environment variables file and reference –S science_pc in bcp line). Create view, then bcp view out. Unix “diff” bcp “out” and “in” to show data has not changed.

FEATURES TO BE TESTED
Use a dataset that has been BCP’d into the 12.5.0.1 database for the TCAD1 test below.

FEATURES NOT TO BE TESTED
N/A

PASS/FAIL
Pass/Fail Conditions: No difference between data “in” and data “out”.

Activity	**Pass / Fail**
11.2.1 Process data file and BCP to backup database.	
11.2.2 BCP data from backup database to binary file.	
11.2.3 Use Unix “diff” to compare database data “in” and “out”	

11.3. COMMAND GEN Regression Test

Test Case Verification Number: CGEN2

INTRODUCTION
This regression test shows that command generation outputs the same files under 12.5.0.1 as it does under 12.5.0.3. Command generation only runs on moc1, which has the sybase 11.9.2 API.

APPROACH

Use command generation to compile a “mission timeline file” that was used in sim7. Do a diff between the output files just created vs. the equivalent ones in sim7, and the only allowable differences are:

- Run date

- Run directory

FEATURES TO BE TESTED
The load file shall contain “D” tasks which were populated with PARAMGEN1.

FEATURES NOT TO BE TESTED
N/A

PASS/FAIL
Pass/Fail Conditions: Only differences are those detailed above

Activity	Pass / Fail
Copy sim7 mission timeline file Enter source path: Enter destination path:	
Run command generation, using science_pc sybase server (DSQUERY)	
Diff files show regression test passes See attachment:	

11.4. PARAMGEN Regression Test

Test Case Verification Number: PGEN1

INTRODUCTION
This regression test shows that parameter generation outputs the same files under 12.5.0.1 as it does under 12.5.0.3. Paramgen only runs on moc1, which has the sybase 11.9.2 API.

APPROACH

Use parameter generation to populate the database, and create a report file. Do a diff between the report file just created vs. the equivalent one in sim7, and the only allowable differences are:

- Run date
- Run directory

FEATURES TO BE TESTED
Data in/out of Sybase same as with 12.5.0.1.

FEATURES NOT TO BE TESTED
Not all paramgen types will be tested – they all use the same 3 tables in Sybase.

PASS/FAIL
Pass/Fail Conditions: Only differences are those detailed above

Activity	Pass / Fail
Copy sim7 paramgen input data file(s) Enter source path: Enter destination path:	
Run param generation, using science_pc sybase server (DSQUERY)	

Diff files show regression test passes See attachment:	

11.5. TCAD Regression Test

Test Case Verification Number: TCAD1

INTRODUCTION
This regression test shows that TCAD extracts the same data under 12.5.0.1 as is does under 12.5.0.3.

APPROACH

This test follows BCP1.

Use TCAD to both display and extract to file data from the BCP1 test on both servers.

FEATURES TO BE TESTED
Data out of Sybase same as with 12.5.0.1

FEATURES NOT TO BE TESTED
N/A

PASS/FAIL
Pass/Fail Conditions: TCAD plots shall visually look identical. Data files shall “diff” the same.

Activity	**Pass / Fail**
Cycle#, start time, end time:	
Plot & File created on 12.5.0.1 system. Plot is attachment: Data File full path:	
Change Interfaces file to access 12.5.0.3 database	
Plot & File created on 12.5.0.3 system. Plot is attachment: Data File full path:	
Plots are visually identical	
Diff shows files the same. Attachment:	
Revert Interfaces files back to 12.5.0.1 database	

11.6. OD Regression Test

Test Case Verification Number: OD1

INTRODUCTION
OD resides on the science network, and it utilizes the 12.5 API.

APPROACH

On both the 12.5.0.1 and the 12.5.0.3 databases:
- use micrcosm to ingest a orbit into the database.
- Extract the orbit from the database.
- Create a STK 'e' file from the extracted orbit.

The "e" files shall be compared.

FEATURES TO BE TESTED
Data in/out of Sybase same as with 12.5.0.1.

FEATURES NOT TO BE TESTED
N/A

PASS/FAIL
Pass/Fail Conditions: "e" files results shall have the same ephemeris.

Activity	**Pass / Fail**
Using a microcosm generated orbit, tingest a orbit into the database on 12.5.0.1 server. Enter full path to data:	
Extract the orbit from the 12.5.0.1database Enter full path to data:	
Create an "e' file for the 12.5.0.1 data. Attachment:	
Using a microcosm generated orbit, tingest a orbit into the database on 12.5.0.3 server. Enter full path to data:	
Extract the orbit from the 12.5.0.3 database Enter full path to data:	
Create an "e' file for the 12.5.0.3 database. Attachment:	
Verify the "e" files have the same ephemeris	

11.7. SCIENCE Regression Test

Test Case Verification Number: SCI1

INTRODUCTION
The science group reads from "L1" , writes to "L2", and reads from "L2". This test checks these database accesses.

APPROACH

Define a regression test that shows 12.5.0.1 and 12.5.0.3 databases process a data set identically.

FEATURES TO BE TESTED
Data in/out of Sybase same as with 12.5.0.1.

FEATURES NOT TO BE TESTED
Only a subset of the

PASS/FAIL
Pass/Fail Conditions: “e” files results shall have the same ephemeris.

Activity	**Pass / Fail**
Read from “L1” on sybase 12.5.0.1 database. Attachment:	
Write to “L2” on sybase 12.5.0.1 database. . Attachment:	
Read from “L2” on 12.5.0.1 datbase. Attachment:	
Read from “L1” on sybase 12.5.0.3 database. Attachment:	
Write to “L2” on sybase 12.5.0.3 database. . Attachment:	
Read from “L2” on 12.5.0.3 datbase. Attachment:	
Show that the 12.5.0.1 results match the 12.5.0.3 results Attachment:	

12. CERTIFICATION

I certify that this procedure was performed in whole and that the data recorded above is complete and accurate.

Test Engineer		Date	

This is to certify that the information obtained under this test procedure is as represented and the documentation is completed and correct.

Quality Assurance		Date	

13. GLOSSARY

This section contains an alphabetic list and definitions of all acronyms used in the document, all proper nouns, and any words used in a non-standard way.

Word	Detail
BCP	Sybase bulk copy utility
LASP	Laboratory for Atmospheric and Space Physics, University of Colorado
moc-server	Host name of the SUN computer that is the primary server for the MOC.
science server	Host name of the SUN computer which is the primary server for science LAN
science crunch	Host name of the SUN computer which is the backup server for science LAN
MOC	Mission Operations Center
MCR	MOC Change Request