W. W. Hansen Experimental Physics Laboratory

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Gravity Probe B Relativity Mission

P1087
Revision -

Sybase Database Regression Test Procedure

November 5, 2004

Approvals

NAME	SIGNATURE	DATE
Carin Kahn Author		
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Tom Langenstein ITAR Assessment Performed, ITAR Control Req'd? □ Yes □ No

Table of Contents

1. CHANGE HISTORY

REV	DATE	AUTHOR	COMMENTS
initial	Nov 5, 2004	C Kahn	Initial release

2. REFERENCE DOCUMENTS

Document No.	Document
P1073	Sybase 12.5.0.3 Patch Test Procedure
P0949	Operational Procedure for Baseline and Regression Testing of TDP
P0950	Operational Procedure for Regression Testing of TCAD
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

This testing procedure verifies that applications using the Science Sybase dataserver behave exactly the same when run on the dataserver of record and on the dataserver that is being tested and that the data is not affected.

The applications tested are
1. TDP
2. TCAD
3. CMDGEN
4. PARAMGEN
5. OD
6. SCIENCE

4. OPERATIONAL PERSONNEL

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

1. Carin Kahn (SYBASE)
2. Jennifer Spencer or Samantha Patterson (TDP, TCAD)
3. Ron Sharbaugh (CMDGEN, PARAMGEN)
4. Ken Galal or Gregor Hanuschak (OD)
5. Vladimir Solomonik or Michael Heifetzz (SCIENCE)

5. RISKS & CONSTRAINTS

This is not a complete system test but rather a set of thorough unit tests of the applications running on both servers.

6. QUALITY ASSURANCE PROVISIONS

6.1 This procedure shall be conducted on a formal basis to its latest approved and released version. Software QA (D. Ross) 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 (D. Ross)

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. SYSTEMS TESTED

The following identifies the Sybase baseline and test systems. Matrix to be filled in by dba.

Systems	Sybase Version/ebf	Sun Host	Dataserver
Baseline System			
Test System			

9. TEST CASES AND SOFTWARE VERSION MATRIX

The following modules are tested. The software name and version is filled in by the test operator.

Test	Test Name	Test Section	Software Name & Version
TCAD	TCAD1	11.1	
TDP – Data Processing	TDP1	11.2	
Command Generation	CGEN1	11.3	
Parameter Generation	PGEN1	11.4	
Orbit Determination	OD1	11.5	
Science	SCI1	11.6	

10. CSCI UNDER TEST

Test Operator: (TDP)	Signature: Start (dt&time): Stop (dt&time):	
Test Operator: (TCAD)	Signature: Start (dt&time): Stop (dt&time):	
Test Operator: (CGEN)	Signature: Start (dt&time): Stop (dt&time):	
Test Operator: (PGEN)	Signature: Start (dt&time): Stop (dt&time):	
Test Operator: (OD)	Signature: Start (dt&time): Stop (dt&time):	
Test Operator: (Science)	Signature: Start (dt&time): Stop (dt&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. TDP Regression Test

Test Case Verification Number: TDP1

INTRODUCTION
This regression test verifies that the data stored in the database by the data processing application is the same on both the baseline and tested dataservers and that any other output from the TDP program is the same.

APPROACH

The test is performed according to document P1049 Operational Procedure for Baseline and Regression Testing of TDP.

PASS/FAIL
Pass/Fail Conditions: See attachment

Activity	Pass / Fail
11.1.1 TDP Regression Test See Attachment:	

11.2. TCAD Regression Test

Test Case Verification Number: TCAD1

INTRODUCTION
This regression test shows that TCAD extracts the same data from the baseline and tested systems.

APPROACH

This test follows TDP1. The data to extract and/or display should be data entered in test TDP1. The test is performed according to document P1050 Operational Procedure for Regression Testing of TCAD.

PASS/FAIL
Pass/Fail Conditions: See attachment

Activity	Pass / Fail
11.2.1 TCAD Regression Test See Attachment:	

11.3. COMMAND GEN Regression Test

Test Case Verification Number: CGEN1

INTRODUCTION
This regression test shows that command generation outputs the same files under the "Test System" as it does under the "Baseline System". Command generation runs on any Solaris 5.8 moc-client.

APPROACH
Use command generation to compile three mission timeline files: a ping; a pong; and a GPScoeff that have been successfully loaded on the SV. Do a diff between the output files just created vs. the equivalent ones that were loaded onto the S. The only allowable differences are:

- Run date
- Run directory
- Userid

FEATURES TO BE TESTED
One load file shall contain "D" tasks which were populated with PARAMGEN1.

FEATURES NOT TO BE TESTED
N/A

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

Activity	Pass / Fail
11.3.1.1 Copy ping mission timeline file Enter source path: Enter destination path:	
11.3.1.2 Run command generation, using "Test system" sybase server (DSQUERY)	
11.3.1.3 Diff files show regression test passes See attachment:	
11.3.2.1 Copy pong mission timeline file Enter source path: Enter destination path:	
11.3.2.2 Run command generation, using "Test system" sybase server (DSQUERY)	
11.3.2.3 Diff files show regression test passes See attachment:	
11.3.3.1 Copy pong mission timeline file Enter source path: Enter destination path:	
11.3.3.2 Run command generation, using "Test system" sybase server (DSQUERY)	
11.3.3.3 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 “Test system” as it does under “Baseline system”.

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
- User Id

FEATURES TO BE TESTED
For new data in, report out of Sybase same as a report for a SV load.

FEATURES NOT TO BE TESTED
Only Ephemeris and GPS Coeff types will be tested – they all use the same 3 tables in Sybase.

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

Activity	**Pass / Fail**
11.4.1.1 Ephemeris test – source data from OD Enter source path	
11.4.1.2 Run param generation, using “Test system” sybase server (DSQUERY) Enter report file fullpath name:	
11.4.1.3 Diff files show regression test passes See attachment:	
11.4.2.1 GPS Coeffs test: Enter source path	
11.4.2.2 Run param generation, using “Test system” sybase server (DSQUERY) Enter report file fullpath name:	
11.4.2.3 Diff files show regression test passes See attachment:	

11.5. 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 baseline and the test 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 the test system is the same as with the baseline system.

FEATURES NOT TO BE TESTED
N/A

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

Activity	**Pass / Fail**
11.5.1 Connectivity: verify $DSQUERY is set to the baseline server. Ensure access is made to the baseline server by locking the cmdops userid on the test server. Optionally run sp_who on baseline server to monitor activitiy.	
11.5.2 Using a microcosm generated orbit, tingest a orbit into the db on the baseline server. Enter full path to data:	
11.5.3 Extract the orbit from the baseline database Enter full path to data:	
11.5.4 Create an "e' file for the baseline data. Attachment:	
11.5.5 Connectivity: set $DSQUERY to the test server. Ensure access is made to the test server by unlocking the cmdops userid on the test server and locking it on the baseline server. Optionally run sp_who on test server to monitor activity.	
11.5.6 Using a microcosm generated orbit, tingest a orbit into the db on the test server. Enter full path to data:	
11.5.7 Extract the orbit from the test database Enter full path to data:	
11.5.8 Create an "e' file for the test database. Attachment:	
11.5.9 Verify the "e" files have the same ephemeris	
11.5.10 Connectivity: lock cmdops userid on the test server, close window where $DSQUERY is set to the testserver.	

11.6. 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 the two dataservers process a data set identically.

FEATURES TO BE TESTED
Data in/out of the science database (L2) is the same on the baseline and the testserver.

FEATURES NOT TO BE TESTED
Only a subset is tested

PASS/FAIL
Pass/Fail Conditions: The output from read from L2 should be the same for both systems

Activity	**Pass / Fail**
11.6.1 Connectivity: verify $DSQUERY is set to the baseline server. Ensure access is made to the baseline server by locking the autosci/vova userids on the test server. Optionally run sp_who on baseline server to monitor activitiy.	.
11.6.2 Read from “L1” on sybase baseline system Attachment:	
11.6.3 Write to “L2” on sybase baseline system . Attachment:	
11.6.4 Read from “L2” on baseline system. Attachment:	
11.6.5 Connectivity: set $DSQUERY to the test server. Ensure access is made to the test server by unlocking the autosci/vova userids on the test server and locking them on the baseline server. Optionally run sp_who on baseline server to monitor activitiy.	
11.6.6 Read from “L1” on sybase test system. Attachment:	
11.6.7 Write to “L2” on sybase test system . Attachment:	
11.6.8 Read from “L2” on sybase test system. Attachment:	
11.6.9 Show that the results from the baseline and the test systems are the same Attachment:	
11.6.10 Connectivity: lock autosci/vova userids on the test server, close window where $DSQUERY is set to the testserver.	

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
Dba	Database Administrator
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