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Gravity Probe B Relativity Mission

MSS to TDP/TCAD Database Population Process

GP-B   Procedure
P0908 Revision C

Aug 20, 2003

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Software Quality Assurance

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

Table of Contents:

1. Revision History

Rev Level	Comments/notes	Date	Revised By
-	First release of this operational procedure	4-Apr-2002	S Patterson
A	Include processes for moving MSS database to proper location and process for checking success of import. Includes new processes for what to do with the MSS before it reaches the science server and how to get it there and back it up (sections 10.1-10.18), and includes new QA notification procedures. New verbiage added to discuss special processing of GPS monitors and how changes in the MSS may affect it (section 4.3).	16-Oct-2002	J Mullins
B	Include redlines from last two as-run versions, incorporate changes made by MCRs 70 & 77. Gave more detailed instructions to run sybmigrate tool.	18-Mar-2003	J Spencer
C	Include redlines from last as-run version incorporate MCR 181. Removed manual "Formats" entry – it is now automated.	28-Aug-2003	J Spencer

2. Scope

2.1. This operational procedure details the steps required to import a new MSS database version from a GP-B POD. These databases are detailed in SCSE-16 Section 9, S0331 and S0401.

2.2 This document should be used when a new VDD from LM is delivered and a new MSS database has been delivered to an SU POD.

3. Operational Personnel Responsibilities and Qualifications

3.1. Operators must be competent working in a Unix environment and must understand such concepts as environment variables and working directories. Operators should be familiar with the Data Management Plan, S0331. If they are not familiar with this plan, they should read it before performing this operation. Operators should know the current MSS and LASP software version numbers, as well as the new MSS version number this process will create.

3.2. Operator familiarity with basic commands in UNIX, and Sybase is required. SA database privileges are required to create space for the latest MSS database and copy the database from a POD.

3.3. If there are anomalies while performing this operation, these anomalies must be logged by the operator in the MOC anomaly reporting system, and the databases may require verification against the LM VDD deliverable document (LMMS/P479910 SCSE-08, Volume V, Part 5a).

3.4 Send email notification to TDP/TCAD user community, Mission Planning group and QA once successful import is complete.

4. Requirements

4.1. Hardware and Software Requirements

Operations are performed on the Sun server machine known as "science" using either a database dump tape delivered from the Lockheed Martin Integrated Test Facility (ITF) or an FTP'd database dump file from the ITF or a database dump file from a POD. User must be logged in as "local".

4.2. Configuration Requirements

The operator must be logged into the server "science" as the user "tdp", must know the MSS Version they wish to create, and must have the database sizing information on the database to be imported (log and data size each in megabytes). The previous version number will be identified by the script described further in this document.

4.3. Verification and Success Criteria

On successful completion, the populate script will notify the user to verify the import results. The user should check the /apps/supported/lasp/src/db/load_MSS_VERSION/logs/ directory and manually interpret the logfiles, then spot check against the LM VDD deliverable document (LMMS/P479910 SCSE-08, Volume V, Part 5a). The user must also check the VDD to see whether any GPS monitors contained in the process_gps.pro TDP routine might be affected.

5. Reference Documents

5.1. Data Management Plan, S0331

5.2. Post-Processing Operations for Science Mission Data, S0401

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

5.4.　　TCAD/TDP Version Description Document, S0503

5.5.　　LM VDD deliverable document, LMMS/P479910 SCSE-08, Volume V, Part 5a.

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 required, but their presence is at QA discretion. 24 hour notification to QA is required. The document purpose is to explain the population process. Quality checks of the imported data will be performed manually by the user.

Notification given to: _____ on date: _____

8. Test Personnel

8.1.　　This operational procedure is to be run by one of the following personnel:

Jennifer Spencer

Samantha Patterson

Qualified QA Rep: Kelly Burlingham

9. General Instructions

9.1.　　Login to the science server, verify that the tape data has been loaded, and run the script /apps/supported/lasp/src/db/populate.sh with the MSS version you wish to create. Any logical numbering scheme is acceptable to the program. The previous MSS version and the current LASP load will be determined by the script. If the tape data has not been loaded, the MSS database will need to be dumped from a POD and imported to Sybase 12.5. See section 10 for specific instructions. How can you tell if it needs to be imported? Read section 10.

9.2.　　On completion of the script, check the /apps/supported/lasp/src/db/load_MSS_LOAD/logs/ directory and check all entries against the LM VDD deliverable document, LMMS/P479910 SCSE-08, Volume V, Part 5a. Specifically check the GPS monitors as detailed at the end of this procedure.

10. Run Environment

Lasp version: _____

MSS version to be installed: _____

11. Software Operational Procedure

This section describes how to check for the existence of the latest MSS database on the science Sybase server, create space for it and import it if it is not yet on the server, and then run the populate script.

Start Date & Time: _____

Executed By: _____ Signature: _____

Witnessed By: _____ Signature: _____

11.1.   Log in to Sybase on the science server using the isql client. Any user ID will do. Once in isql, run "sp_helpdb" and check to see if the latest MSS database (the one you wish to import) is in that output list. If so, proceed to step 10.18. If not, continue to the next step.

____Done

11.2.   Move over to a POD workstation and log in as user "analyst". As the "sa" user, you will need to log into Sybase on the POD via isql. Once in isql, run "sp_helpdb" and check to see if the latest MSS database (again, the one you wish to import) is on the list. If not, LM has not delivered the database to the PODs and you should exit this procedure, consult the Mission Operations manager and possibly contact LM.

____Done

11.3.   If your database is on the list, run "sp_helpdb *databasename*" where *databasename* is the name of the database you want (e.g. gpb_3_3_1). This will list out the specific data size and log size of the database in question. Write down the data and log size of this database for future reference:

Data: _____   Log: _____

____Done

11.4.   Still in isql, you'll need to "dump" this database to a file. Run the command "dump database *databasename* to "*dumpfilename*.dump". *databasename* is the name of the database you want and *dumpfilename* is the name of the database dump file you'll be saving to disk. Once complete, exit isql and cd to the directory where the dump occurred (listed in screen output during the dump).

____Done

11.5.   Run "scp" to moc-server to copy the .dump file over. Run this as youraccountname@moc-server:/home/youraccoutname/dumpfilename to get the file over properly in a way that allows you write privileges.

____Done

11.6.   Run "scp" to the science server again to copy the same .dump file over. Again, run this as youraccountname@science:/home/youraccountname/dumpfilename to get the file over properly.

____Done

11.7.   Exit your windows and leave the POD.

____Done

11.8.   Log into a science client under your account name.

____Done

11.9.   Change the permissions on the database dumpfilename file to be accessible by user and group Sybase (chmod 777 will work).   Otherwise you will given a "permission denied" error.

____Done

11.10. Log in, as "sa", to the Sybase database server named "tqsm_server" by using the –S parameter in isql (e.g. "isql –Usa –Stqsm_server".

____Done

11.11. Create a new database for the MSS. Issue the create database statement with the correct size of data and log segments as written down in step 10.3 (e.g. "create database *databasename* on moc_dev="80M" log on moc_dev="10" with override"). You will probably need to place the data

and log on the same logical device due to space constraints and will therefore need to issue the "with override" command in your "create database" statement.

_____Done

11.12. Once your database has been created successfully, load your database by issuing the "load database" command. See the Sybase online help for more information on this task if needed (e.g. "load database *databasename* from "*dumpfilename*"" where *dumpfilename* includes the full file path.

_____Done

11.13. When the load is complete, issue the "online database" statement and wait for it to complete. Use the database, run sp_changedbowner to change the owner to user "cmdops", then log out of Sybase.

_____Done

11.14. Use "isql" to log into the the science server Sybase database as the "sa" user. Create a new database there for your MSS import of the same size, placing the data segment on the logical device "dev_MSS_a" and the log on "dev_MSS_log_a". Exit Sybase once this is complete (without loading from the dump file).

_____Done

11.15. As user "sybase", use the "sybmigrate" utility found in $SYBASE/ASE_12-5/bin to move your database from the tqsm_server Sybase server to the science Sybase server. This utility prefers to run on the science server for unknown reasons; do so. Run it using ./sybmigrate and follow its instructions. It may be necessary to set some environment variables first as follows:

setenv DISPLAY currentmachine:0.0

source $SYBASE/SYBASE.csh

setenv SYBASE_JRE /usr/j2se [check this by using 'which java' and 'echo $SYBASE_JRE' until the beginning of the paths agree to the '/bin/java' suffix]

Remember to read all logs generated by the sybmigrate utility during the process for any possible errata or other problems.

_____Done

11.16. Now the MSS has been placed on the Sybase science server. You will now need to populate TDP/TCAD's data tables (following), change permissions on the MSS database. Make sure the personnel running parameter gen and command gen know you have completed the installation, and ask them to test their software to see the newest MSS database. Note than new versions of EDR and Timeline Tools need to accompany a new MSS database.

_____Done

11.17. On the science server, under /home/sybase/database/users, there are a number of .sql scripts granting various permissions to users of the MSS databases. Update these as necessary or run the permission changes at the isql prompt, as appropriate, for the new database. If this is not done, the routines DBROget, MROget and Eventget will not run, and parameter gen and command gen may not run correctly. There is a high likelihood that tables from the previous version of the MSS database will require their contents copied into tables in the new MSS database to support Parameter Gen. Make sure to discuss this with the Software Manager.

_____Done

11.18. Back up the existing data in GPB_L1 meta data tables. Run a bcp command to store "before" versions of TMnames, TMcals, TMlimits, TMstates and TMdecom in character format (use the –c option of bcp). Do the same for GPB_L0..Formats and GPB_L0..MSS. These "before" versions may be stored in a temporary directory, but the location must be recorded in case you need to revert to backup due to an unsuccessful install.

Location of backup files:_____   _____Done

11.19. Login to the "science" server as user "tdp", change to the /apps/supported/lasp/src/db directory and and type "populate.sh MSS_version_older MSS_version_old MSS_version_current" where MSS_version is the new MSS database version number (EX: type "populate.sh 3_3_2 3_3_3 3_4_0" where 3_4_0 is the MSS version being imported). CAUTION: Type the MSS_version number correctly or the script will not run properly.

_____Done

11.20. Manually enter the new MSS delivery dates into the Level 0 MSS database table. This can be done with an SQL "update" statement such as: "update MSS set Date_inITF='Aug 28 2003', Date_onSV='Aug 29 2003' where MSSID=13328" where the MSSID is the hex MSSID for this build (found in all the logs from the populate script if needed). In this example, the dates are supposed to be the exact dates that the MSS database was delivered to the ITF and the Space Vehicle. If you do not already have them, get these dates as soon as possible from QA at Lockheed Martin (Bill Jacobsen), and enter them into the MSS table, replacing the NULL values that are automatically put there by the import program.

_____Done

11.21. Verify that the populate script finished successfully. Manually check the log files in /apps/supported/lasp/src/db/load_MSS_LOAD/logs for any warning messages and check every new entry into the TMnames table against the LM VDD deliverable document, LMMS/P479910 SCSE-08, Volume V, Part 5a. Check the /apps/supported/lasp/src/tdp/process_gps.pro script for GPS mnemonics which may have changed in the TMnames table (select from the data table where the MSSID = max(MSSID) to get these mnemonics and TMIDs). If any GPS mnemonics have been updated which appear in process_gps.pro, determine whether to fill out an MCR and notify Mission Operations management and the Data Processing Lead. The process_gps.pro script will probably require code modification in this case. Please note that mnemonics should appear in the TMcals table which are not in the MSS Calibrations table, but which do appear in the MSS Display_Info table having Display_Units <>'none'. Read the populate_tmcals.sql script in the load_MSS_LOAD directory further information if required.

_____Done

12. See the VDD of TDP/TCAD for the latest version of the populate.sh script.

Successful Completion

RUN BY (signature)_____ Date: _____

Print Name: _____

LM VDD COMPARISON PASSED (CIRCLE ONE): YES – PASSED   NO – MCR FILED

QA Review of process _____ Date: _____