Planetary Data System

NSSDC MPGA
Installation Guide

March 16, 2007

Version 1.0

PDS

Planetary Data System
National Aeronautics and Space Administration

JPL
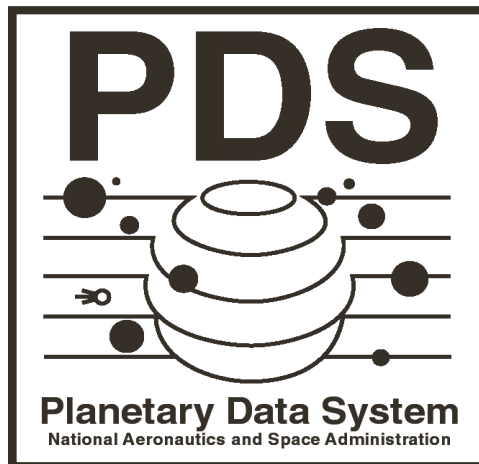
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CHANGE LOG

Revision	Date	Description	Author
0.20070315	March 15, 2007	Initial draft.	J. Wang
1.0	March 16, 2007	Cleaned up a little and adjusted some formatting.	S. Hardman

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1.0   INTRODUCTION

The National Space Science Data Center (NSSDC) has defined an Archival Information Package (AIP) and is in the process of tailoring it to support the packaging and transfer of a Planetary Data System (PDS) volume. The NSSDC has provided the Multi-File Package Generator and Analyzer (MPGA) software, which is to be run at PDS Nodes for generating AIPs using the Consultative Committee for Space Data Systems (CCSDS) Standard Formatted Data Unit (SFDU) container.

1.1   Purpose

The purpose of this document is to provide installation procedures for beta testing the PDS-NSSDC interface at the Nodes.

1.2   Scope

The scope is limited to installing and configuring the MPGA software in a Linux environment.

1.3   Audience

This document is written primarily for the Node Staff who will participate in the beta testing of the PDS-NSSDC interface. The expected audience includes:

- ATMOS Node staff
- IMG Node staff
- SBN Node staff

1.4   Controlling Documents

[1] Planetary Data System (PDS) Level 1, 2 and 3 Requirements, August, 2006.

[2] PDS-NSSDC Memorandum of Understanding (MOU).

1.5   Applicable Documents

[3] Planetary Data System (PDS) PDS-NSSDC Interface Beta Test Plan/Procedure, Version 1.0, March 13, 2007.

2.0 INSTALLATION

The procedures for installing the MPGA software are detailed in this section.

2.1 System Requirements

The current version of MPGA software requires the following system environment:

- Linux-based operating system. (Tested with Red Hat and Fedora)
- 500 megabytes of disk space to hold the software
- At least twice the size of the test data volume of disk space to support AIP packaging.
- At least twice the size of the test data volume of disk space to support AIP unpacking.

2.2 Software Requirement

The MPGA software is self-contained, which means all required executables, run scripts and configuration files are available within the software package.

An FTP client on the test system is required to perform the file transfer to and from NSSDC.

2.3 Installation & Verification

Perform the following steps to unpack, install and verify the MPGA software.

1) Download the beta MPGA software package. The location will be provided in an e-mail.

2) Extract the downloaded package with *tar* command:

```
# tar –zxvf MPGA-pack_n_verify_utils.tar.gz
```

The .gz file is extracted and the directory *MPGA-pack_n_verify_utils* is generated as a result of the *tar* command.

3) Verify the installation by examining the *MPGA-pack_n_verify_utils* directory structure.

```
# ls –R1 MPGA-pack_n_verify_utils
```

The directory listing for the software package can be found in Appendix A.

3.0   CONFIGURE AND RUN MPGA UTILITIES

The two MPGA utilities (packager and splitter) and associating configuration are introduced in this section.

3.1   MPGA Packager

3.1.1   Packager Configuration

The MPGA packager enables packaging of a volume directory into an Archive Information Package (AIP). The executable is named *START-JOB--MPGA-package_generator_v6_0alpha.com* and its configuration file is *stage_in_directory_v6_0.lst.* Both files are located in the *MPGA-pack_n_verify_utils/run/* directory.

The normal usage is to run the packager from the *MPGA-pack_n_verify_utils/run/* directory. The *stage_in_directory_v6_0.lst* file contains two lines, with a single <tab> as the delimiter between the fields, and both lines are terminated with a newline character. The file format is:

        <line 1 do not edit><cr/lf>
        <INPUT_DIRECTORY_PATH><tab><OUTPUT_AIP_FILENAME><tab>< PRIMARY_COLLECTION_ID><tab><GROUPING_RECOMMENDED_N AME><tab>< GROUP_DATA_BEGIN_DATE_TIME><tab><GROUP_DATA_END_DAT E_TIME><tab><VOLUME_ID><tab><VOLUME_VERSION_ID><cr/lf>

The first line must not be edited. The second line contains fields described as below:

1. INPUT_DIRECTORY_PATH: the data directory where the data resides. This can be relative from *sys/* or an absolute directory from root "/", such as */data/volume_name/*. The "/" at the end is required.

   Alternatively, as seen in the downloaded distribution, preset it to a soft link "dataset.dir". The value of this field stays the same as it is, but the "dataset.dir" soft link is redefined to point to an actual data volume directory:

```
# cd MPGA-pack_n_verify_utils/run
# rm dataset.dir
# ln –s <volume directory> dataset.dir
```

2. OUTPUT_AIP_FILENAME: the directory and AIP package name. It is recommended to alter this definition to be a unique name, instead of using the default name.

3. PRIMARY_COLLECTION_ID: NSSDC supplied archive attribute value

4. GROUPING_RECOMMENDED_NAME: currently, use the VOLUME_ID

5. GROUP_DATA_BEGIN_DATE_TIME: this will be automatically calculated in the operational system, for now you can select "none" or "n/a" (Note: do note include quotation marks anywhere in the input list file)

6. GROUP_DATA_END_DATE_TIME: same as above

7. VOLUME_ID: this will be collected automatically later, but for now you can enter the value.

8. VOLUME_VERSION_ID: same as above

Both VOLUME_ID and VOLUME_VERSION_ID are retrieved from the VOLDESC.CAT file in the data volume to be packaged.

The original *stage_in_directory_v6_0.lst* file is as follows:

```
PDS_RUN Maintain directory structure / view    DIRECTORY_CONTENT
../run/dataset.dir/     ../stage_out/output_AIP0001.aip PSPG-00729
DMGSC_1047  <BEGIN_DATE_TIME>        n/a     <VOLUME_ID>
<VOLUME_VERSION_ID>
```

A sample configuration is:

PDS_RUN Maintain directory structure / view   DIRECTORY_CONTENT /data/dmgsc_1018/   ../stage_out/output_AIP_dmgsc_1018.aip   PSPG-00730   DMGSC_1018   n/a   n/a   DMGSC_1018   VERSION 1

3.1.2   Run Packager

Packaging of AIPs is executed by running the script *START-JOB--MPGA-package_generator_v6_0alpha.com*. It must be run from inside the *MPGA-pack_n_verify_utils/run/* directory as follows:

```
# cd MPGA-pack_n_verify_utils/run
# ./ START-JOB--MPGA-package_generator_v6_0alpha.com
```

The packager runs as a background process. The elapse time varies depending on the size of a data volume. Three output files are generated by this script:

- AIP file - located at *MPGA-pack_n_verify_utils/stage_out* as defined in *MPGA-pack_n_verify_utils/run/stage_in_directory_v6_0.lst*

- Diagnosis file - located at *MPGA-pack_n_verify_utils/stage_out* as defined in *MPGA-pack_n_verify_utils/run/START-JOB--MPGA-*

package_generator_v6_0alpha.com as –output

- Log file located at *MPGA-pack_n_verify_utils/stage_out* as defined in *MPGA-pack_n_verify_utils/run/START-JOB--MPGA-package_generator_v6_0alpha.com* as -log

3.2 MPGA Splitter

3.2.1 Run Splitter

The MPGA splitter, *START-JOB--MPGA-reconstitute_packages_v6_0alpha.com* unpacks AIPs. It is also executed from the *MPGA-pack_n_verify_utils/run/* directory as follows:

```
# cd MPGA-pack_n_verify_utils/run
# ./START-JOB--MPGA-reconstitute_packages_v6_0alpha.com
```

No configuration file is required to run the splitter. The splitter can unpack multiple AIPs as long as they are at the same location.

Note: It's recommended to examine the splitter script *START-JOB--MPGA-reconstitute_packages_v6_0alpha.com* prior to the execution to ensure the definition of the *–aip_wildcard* option points to the correct source location of AIP files to be unpacked.

Two outputs are generated as a result of running the splitter:

- An unpacked directory with the same content of the data volume before it was packaged into an AIP. The name of the directory is a randomly created string, such as *TEST0000000037.dat.dir.*

- An attribute file that corresponds with the unpacked data volume. It has the same name as the above directory, with ".att" as the extension.

APPENDIX A   MPGA SOFTWARE DIRECTORY LISTING

```
# ls -R1 MPGA-pack_n_verify_utils

MPGA-pack_n_verify_utils:
bvers
data
run
stage_in
stage_out
sys

MPGA-pack_n_verify_utils/bvers:
aip_generator_AllUnix-MPGA_v5_7
filesget_AllUnix-MPGA_v5_7
launch_AllUnix-MPGA_v5_7
maplist_AllUnix-MPGA_v6_0
splitter_AllUnix-MPGA_v5_7
splitterlist_AllUnix-MPGA_v6_0

MPGA-pack_n_verify_utils/data:
asid_uniqueness_filename.dat
PDS-fileformats_v6_0.xls
PDS-filetypes_v6_0.xls

MPGA-pack_n_verify_utils/run:
dataset.dir
stage_in_directory_v6_0.lst
START-JOB--MPGA-package_generator_v6_0alpha.com
START-JOB--MPGA-reconstitute_packages_v6_0alpha.com

MPGA-pack_n_verify_utils/stage_in:

MPGA-pack_n_verify_utils/stage_out:

MPGA-pack_n_verify_utils/sys:
MPGA-aip_generator
MPGA-filesget
MPGA-launch
MPGA-maplist
MPGA-splitter
MPGA-splitterlist
MPGA_WORKING_DIR
PDS-packager.v6_0.in_development.2.setup
TEMPLATE_SPEC
verify-splitterlist.setup

MPGA-pack_n_verify_utils/sys/MPGA_WORKING_DIR:

MPGA-pack_n_verify_utils/sys/TEMPLATE_SPEC:
PDS-aipgen.v6_0.in_development.2.tspec
PDS-aipgen.v6_0.in_development.2.xml
PDS-maplist.v6_0.in_development.2.tspec
PDS-maplist.v6_0.in_development.2.xml
```