## SIPS File-based Delivery

SIPS File-based delivery relies upon standard file delivery protocols such as S/FTP and SCP to retrieve or receive files containing imagery, metadata, or other required information. Files provided to GIBS utilize the existing interface that is used to transfer data and metadata between Science Investigator-Led Processing Systems and the ECS DAACs. Specifically, this means the usage of Product Delivery Record (PDR), Product Acceptance Notification (PAN), and Product Delivery Record Discrepancy (PDRD) files shown below[[1]](#footnote-1).



In this workflow, the SIPS transmit, or make available for retrieval, a PDR file and associated imagery and metadata files. GIBS reads the PDR file and processes the imagery and metadata files referenced within. If GIBS successfully processes the PDR, a PAN is transmitted back to the SIPS. The PAN may contain information regarding any errors that occurred during imagery processing. If GIBS is unable to process the PDR, a PDRD is transmitted back to the SIPS with information regarding the error.

GIBS, as the recipient in the SIPS delivery workflow, provides the SIPS with a Metadata Configuration File (MCF). The MCF provides a template outlining the fields, structure, and default values for metadata that will be provided along with the data or image file. Within this SIPS interface, metadata for a data file, or image in the case of GIBS, is provided as a part of the PDR delivery as an ODL-formatted text file. This file typically has an extension of *.met*.

It is also possible to include metadata in text “chunks” within a PNG file. If a provider wishes to do so, they may include metadata values using this mechanism. The name of the text “chunk” should match the identifier utilized within the MCF file.

The file delivery mechanism described in this section supports the tiled imagery coverages described in the previous section. Imagery providers may choose to transmit PDRs and associated files in a TAR file to reduce the likelihood of transmission errors. The archive file contains all PDR, imagery, metadata, and ancillary files, as required for ingest. In the event that the archive file is corrupted during transmission, the GIBS system returns a short PAN file designating the error. A separate PDR for the TAR file is not required.

Sample PDR, PAN, PDRD, and MCF files are included below. Full descriptions regarding the SIPS interface files are not included, but can be found in the official SIPS ICD (423-41-57).

PDR

At the top level, the PDR specifies the originating system, number of files, and an optional expiration date. The PDR then provides repeatable FILE\_GROUP elements. The FILE\_GROUP may be repeated to facilitate delivery of multiple images within a single PDR. Within each FILE\_GROUP, a FILE\_SPEC element exists for each file. The parameters included within the FILE\_SPEC element are included in the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Description** | **Type** | **Value(s)** |
| DIRECTORY\_ID | File directory location (i.e., a path name) | Variable String | directory/path |
| FILE\_ID | File Name | Variable String | filename.extension |
| FILE\_TYPE | File Type | Variable String | ‘PNG’, ‘PGW’, ‘JPG’, ‘JGW’, MRF, or ‘METADATA’ |
| FILE\_SIZE | Length of file in bytes | Unsigned 32bit Integer | < 2 GB |
| FILE\_CKSUM\_TYPE | Type of checksum, presently either 32-bit unsigned value (type CKSUM) or 128-bit hash value (type MD5). Required for all files with a FILE\_TYPE value that is not ‘METADATA.’ | Variable String | ‘MD5’ or ‘CKSUM’ |
| FILE\_CKSUM\_VALUE | Checksum value. Required if the FILE\_CKSUM\_TYPE parameter is present. | Variable String | For CKSUM, an‘<unsigned numeric string>’ or, for MD5, a ‘<32- character hexadecimal string>’ (with alpha characters all lower case) |

When delivering a JPG image, three files are referenced in the PDR: the JPG imagery file, the JGW jpeg world file, and the METADATA metadata file. See the following example:

ORIGINATING\_SYSTEM = MODAPS\_TERRA\_FPROC;

TOTAL\_FILE\_COUNT = 3;

EXPIRATION\_TIME = 2015-12-31T23:59:59Z;

OBJECT = FILE\_GROUP;

DATA\_TYPE = MOD07\_L2;

DATA\_VERSION = 005;

NODE\_NAME = f4eil01;

OBJECT = FILE\_SPEC;

DIRECTORY\_ID = GIBS\_Imagery/MOD07\_L2/;

FILE\_ID = MOD07\_L2.0000.005.123412341324.jpg;

FILE\_TYPE = PNG;

FILE\_SIZE = 3842406;

FILE\_CKSUM\_TYPE = CKSUM;

FILE\_CKSUM\_VALUE = 2211838816;

END\_OBJECT = FILE\_SPEC;

OBJECT = FILE\_SPEC;

DIRECTORY\_ID = GIBS\_Imagery/MOD07\_L2/;

FILE\_ID = MOD07\_L2.0000.005.123412341324.jgw;

FILE\_TYPE = JGW;

FILE\_SIZE = 3842406;

FILE\_CKSUM\_TYPE = CKSUM;

FILE\_CKSUM\_VALUE = 2211838816;

END\_OBJECT = FILE\_SPEC;

OBJECT = FILE\_SPEC;

DIRECTORY\_ID = GIBS\_Imagery/MOD07\_L2/;

FILE\_ID = MOD07\_L2.0000.005.123412341324.jpg.met;

FILE\_TYPE = METADATA;

FILE\_SIZE = 18792;

END\_OBJECT = FILE\_SPEC;

END\_OBJECT = FILE\_GROUP;

When delivering a PNG image, three files are referenced in the PDR: the PNG imagery file, the PGW PNG world file, and the METADATA metadata file. See the following example:

ORIGINATING\_SYSTEM = MODAPS\_TERRA\_FPROC;

TOTAL\_FILE\_COUNT = 3;

EXPIRATION\_TIME = 2015-12-31T23:59:59Z;

OBJECT = FILE\_GROUP;

DATA\_TYPE = MOD07\_L2;

DATA\_VERSION = 005;

NODE\_NAME = f4eil01;

OBJECT = FILE\_SPEC;

DIRECTORY\_ID = GIBS\_Imagery/MOD07\_L2/;

FILE\_ID = MOD07\_L2.0000.005.123412341324.png;

FILE\_TYPE = PNG;

FILE\_SIZE = 3842406;

FILE\_CKSUM\_TYPE = CKSUM;

FILE\_CKSUM\_VALUE = 2211838816;

END\_OBJECT = FILE\_SPEC;

OBJECT = FILE\_SPEC;

DIRECTORY\_ID = GIBS\_Imagery/MOD07\_L2/;

FILE\_ID = MOD07\_L2.0000.005.123412341324.pgw;

FILE\_TYPE = PGW;

FILE\_SIZE = 3842406;

FILE\_CKSUM\_TYPE = CKSUM;

FILE\_CKSUM\_VALUE = 2211838816;

END\_OBJECT = FILE\_SPEC;

OBJECT = FILE\_SPEC;

DIRECTORY\_ID = GIBS\_Imagery/MOD07\_L2/;

FILE\_ID = MOD07\_L2.0000.005.123412341324.png.met;

FILE\_TYPE = METADATA;

FILE\_SIZE = 18792;

END\_OBJECT = FILE\_SPEC;

END\_OBJECT = FILE\_GROUP;

When delivering a MRF archive file, two files are referenced in the PDR: the MRF archive file, and the METADATA metadata file. See the following example:

ORIGINATING\_SYSTEM = MODAPS\_TERRA\_FPROC;

TOTAL\_FILE\_COUNT = 2;

EXPIRATION\_TIME = 2015-12-31T23:59:59Z;

OBJECT = FILE\_GROUP;

DATA\_TYPE = MOD07\_L2;

DATA\_VERSION = 005;

NODE\_NAME = f4eil01;

OBJECT = FILE\_SPEC;

DIRECTORY\_ID = GIBS\_Imagery/MOD07\_L2/;

FILE\_ID = MOD07\_L2.0000.005.2013013.mrf;

FILE\_TYPE = MFC;

FILE\_SIZE = 384240236;

FILE\_CKSUM\_TYPE = CKSUM;

FILE\_CKSUM\_VALUE = 2211838816;

END\_OBJECT = FILE\_SPEC;

OBJECT = FILE\_SPEC;

DIRECTORY\_ID = GIBS\_Imagery/MOD07\_L2/;

FILE\_ID = MOD07\_L2.0000.005.2013013.mrf.met;

FILE\_TYPE = METADATA;

FILE\_SIZE = 18792;

END\_OBJECT = FILE\_SPEC;

END\_OBJECT = FILE\_GROUP;

PAN

The PAN file announces the completion of data transfer and archival, and identifies any errors or problems that have been encountered. There are two forms of the PAN, a short and a long form. The short form of the PAN is sent to acknowledge that all files have been successfully transferred, or to report errors that are not specific to individual files but which have precluded processing of any and all files (e.g., ftp failure). If all files in a request do not have the same disposition, the long form of this message is employed. A sample Short and Long PAN are included below:

MESSAGE\_TYPE = SHORTPAN;

DISPOSITION = “POST-TRANSFER FILE SIZE CHECK FAILURE”;

TIME\_STAMP = ;

MESSAGE\_TYPE = LONGPAN;

NO\_OF\_FILES = 3;

FILE\_DIRECTORY = /SIPS1/CAL1;

FILE\_NAME =7SIPSCALP.01A;

DISPOSITION = “UNABLE TO ESTABLISH FTP/KFTP CONNECTION”;

TIME\_STAMP = ;

FILE\_DIRECTORY = /SIPS1/CAL2;

FILE\_NAME =7SIPSCALP.02A;

DISPOSITION = “ECS INTERNAL ERROR”;

TIME\_STAMP = ;

FILE\_DIRECTORY = /SIPS1/CAL2;

FILE\_NAME =7SIPSCALP.03A;

DISPOSITION = “SUCCESSFUL”;

TIME\_STAMP = 1996-04-28T23:59:59Z;

PDRD

The Product Delivery Record Discrepancy (PDRD) is sent by GIBS to the SIPS in the event that the PDR cannot be successfully validated or if the provided TAR file cannot be opened. The same file-naming convention is used for the PDRD as for the PDR, except that the file name extension is ‘.PDRD’ instead of the ‘.PDR’. There are two forms of PDRD, a short form and long form. The short form is used when the first error encountered in each file group within the PDR is the same or the first error found applies to each group. The long form is used when one or more file groups in the PDR have invalid parameters; some file groups may be error-free.

For each file group, if an error is encountered when the PDR is processed, GIBS halts processing and reports the error that it just encountered for that file group. None of the remaining conditions in that file group are validated. GIBS processing then continues on with the next file group in the PDR. The dispositions in the Long PDRD will be reported for all file groups in the order listed in the PDR. In the event that a PDRD is returned to the imagery provider, none of the files are transferred to GIBS for processing, and the imagery provider must correct the errors and resubmit the entire PDR for processing. The possible disposition values are referenced in tables 4.5-5 and 4.5-6 in the ECS/SIPS ICD (423-41-57).

Sample Short and Long PDRDs are included below:

MESSAGE TYPE = SHORTPDRD;

DISPOSITION = “DATABASE FAILURES”;

MESSAGE\_TYPE = LONGPDRD;

NO\_FILE\_GRPS = 3;

DATA\_TYPE = SIPS\_DATA1;

DISPOSITION = “INVALID DATA TYPE”;

DATA\_TYPE = SIPS\_DATA2;

DISPOSITION = “INVALID FILE ID”;

DATA\_TYPE = SIPS\_DATA3;

DISPOSITION = “SUCCESSFUL”;

1. Interface Control Document between the EOSDIS Core System (ECS) and the Science Investigator-led Processing Systems (SIPS) Volume 0, Interface Mechanisms (423-41-57) [↑](#footnote-ref-1)