

Notes on the Migration of Mars Science Laboratory (MSL) ChemCam (CCAM) Derived Data from PDS3 to PDS4

PDS Geosciences Node

March 15, 2024

These notes apply to the transition of Mars Science Laboratory (MSL) ChemCam (CCAM) derived data from PDS3- to PDS4- compliant data deliveries beginning with MSL PDS data release #35, and the migration of earlier CCAM PDS data from PDS3 to PDS4.

Notes on New Releases

Beginning with MSL PDS Release 35, March 15, 2024, new CCAM browse, MOC, and TEC data products are archived under the PDS4 standard. It is anticipated that the ChemCam team will begin delivering new CCS and RDR data products in PDS4 format with MSL PDS Release 36. Most previously-delivered data products have also been migrated to PDS4 with Release 35, with some exceptions (see “Notes on Migrated Data” below).

No files have been removed from the PDS3 archive volume. The only change will be addition of PDS4 labels and documentation files. New CCAM data products will include both PDS3 and PDS4 labels.

Instead of the data sets and archive volumes in PDS3, products in PDS4 are organized into collections and bundles. A collection is a set of related products, which may be data products, document products, browse products, miscellaneous products, etc. A bundle is a set of related collections.

One PDS4 bundle has been defined for the two datasets on the ChemCam PDS3 RDR volume. The ChemCam derived bundle has two data collections, two document collections, one browse collection, one calibration collection and two miscellaneous collections. The tables below show the correspondence between the PDS3 volume and PDS4 bundle and PDS3 product types and PDS4 collections, respectively.

MSL ChemCam Derived PDS4 Bundle and Corresponding PDS3 Volume and Data Sets

Archive	PDS4 Bundle	PDS3 Volume	PDS3 Data Set ID
MSL ChemCam Derived Data	urn:nasa:pds: msl_chemcam_derived	mslccm_1xxx	MSL-M-CHEMCAM-LIBS-4/5-RDR-V1.0 MSL-M-CHEMCAM-RMI-5-RDR-V1.0

MSL ChemCam PDS4 Data Collections and Corresponding PDS3 Product Types

PDS4 Collection	PDS4 Collection ID	PDS3 Product Type
LIBS Spectrum	data_libs	CHEMCAM-CCS CHEMCAM-RDR CHEMCAM-PSV CHEMCAM-MOC CHEMCAM-TEC
RMI (PRC)	data_rmi	CHEMCAM_RMI

A bundle is identified by a file named **bundle_*.xml** in the root directory of a bundle; it describes the bundle and

lists the collections that belong to it. A collection is identified by a file named **collection_*.xml** in a subdirectory. The file **collection_*_inventory.csv** is a list of the products that belong to the collection.

Every product, collection, and bundle in PDS4 has a Logical Identifier (LID) which is guaranteed to be unique throughout PDS. The LID is defined in the PDS4 label using the tag **<logical_identifier>**. For data products, the LID is analogous to PRODUCT_ID in a PDS3 label.

No PDS4 labels have been provided for **aareadme.txt**, **voldesc.cat**, and **errata.txt** in the volume root directories. Errata.txt has been replaced by a “release notes” file (in the document collection), which will be updated with each release. Note that the SIS documents in the document directory refer to the PDS3 datasets.

Notes on Migrated Data

Data products in PDS3 ChemCam archives at the PDS Geosciences Node are already PDS4-compliant, so there will be no need to alter the data when the older files are migrated. In the data directories, the metadata in PDS3 labels will be copied to PDS4 labels, so that each data product will have both a PDS3 and a PDS4 label.

PDS4 XML labels will be prepared for previously archived ChemCam data from MSL data deliveries #1 to #34 (February 2013 to July 2023). All PDS4 labels will be delivered to PDS with the release 35 delivery except the calibration data collection and the CCS and RDR data collection. These will be delivered in future releases.