Mars2020 Rover PLACES Product Label Keyword Definitions, Values - PDS Sort

Dictionary:**PDS4 Keyword**	General Definition	XPath	
*VICAR Property.***VICAR Keyword**	*Mars 2020-Specific Information*	Valid Values (attribute) *Children (class)*	Data Type *Units*
cart:**a_axis_radius** *IMAGE_MAP_PROJECTION.* **A_AXIS_RADIUS**	The a_axis_radius attribute provides the radius of the equatorial axis of the ellipsoid. The IAU calls this "Subplanetary equatorial radius" and mapping applications generally call this "semi_major_axis".	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Geodetic_Model**/**a_axis_radius**	ASCII_Real *Units_of_Length*
Alias	The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.	**1)**/**Product_Observational**/**Identification_Area**/**Alias_List**/**Alias** 1) *alternate_id* 2) *alternate_title* 3) *comment*	
Alias_List	The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.	**1)**/**Product_Observational**/**Identification_Area**/**Alias_List** 1) *Alias*	
alternate_id *IDENTIFICATION.* **PRODUCT_ID**	The alternate_id attribute provides an additional identifier supplied by the data provider. **Mars 2020 Specific:** *For M2020, it is the filename minus the extension.*	**1)**/**Product_Observational**/**Identification_Area**/**Alias_List**/**Alias**/**alternate_id**	ASCII_Short_String_Collapsed
Array_2D_Image	The Array 2D Image class is an extension of the Array 2D class and defines a two dimensional image.	**1)**/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image** 1) *Array_2D* 2) *offset* 3) *axes* 4) *name* 5) *local_identifier* 6) *axis_index_order* 7) md5_checksum 8) *description* 9) Display_2D_Image 10) *Axis_Array* 11) *Element_Array* 12) Special_Constants 13) Object_Statistics 14) Digital_Object 15) *Local_Internal_Reference*	
author_list	The author_list attribute contains a semi-colon-separated list of names of people to be cited as authors of the associated product. The general format for individual names is: SURNAME, GIVEN NAME(s). Initials may be used in lieu of given name(s). If the name contains a suffix ("Jr.", "Sr.", "III", etc.) it should be placed before the comma (,). Do not include the word "and" before the final author. All authors should be listed explicitly - do not elide the list using "et al.".	**1)**/**Product_Bundle**/**Identification_Area**/**Citation_Information**/**author_list** **2)**/**Product_Document**/**Identification_Area**/**Citation_Information**/**author_list** **3)**/**Product_Collection**/**Identification_Area**/**Citation_Information**/**author_list**	UTF8_Text_Preserved
axes *SYSTEM.* **NB**	The axes attribute provides a count of the axes.	**1)**/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**axes** 1) "2"	ASCII_NonNegative_Integer
Axis_Array	The Axis Array class is used as a component of the array class and defines an axis of the array.	**1)**/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**Axis_Array[*]** 1) *axis_name* 2) *local_identifier* 3) *elements* 4) *unit* 5) *sequence_number* 6) Band_Bin_Set	

axis_index_order	The axis_index_order attribute provides the axis index that varies fastest with respect to storage order.	1)**/Product_Observational/File_Area_Observational/Array_2D_Image/axis_index_order**	
		1) "Last Index Fastest"	ASCII_Short_String_Collapsed
axis_name	The axis_name attribute provides a word or combination of words by which the axis is known.	1)**/Product_Observational/File_Area_Observational/Array_2D_Image/Axis_Array[*]/axis_name**	
			ASCII_Short_String_Collapsed
cart:**b_axis_radius** *IMAGE_MAP_PROJECTION.* ***B_AXIS_RADIUS***	The b_axis_radius attribute provides the value of the intermediate axis of the ellipsoid that defines the approximate shape of a target body. The b_axis_radius is usually in the equatorial plane. The IAU calls this axis "along orbit equatorial radius". Mapping applications, which generally only define a sphere or an ellipse, do not support this radius parameter.	1)**/Product_Observational/Observation_Area/Discipline_Area/Cartography[1]/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Geodetic_Model/b_axis_radius**	
			ASCII_Real *Units_of_Length*
cart:**Bounding_Coordinates**	The Bounding_Coordinates class defines the limits of coverage of a set of data expressed by latitude and longitude values in the order western-most, eastern-most, northern-most, and southern-most.	1)**/Product_Observational/Observation_Area/Discipline_Area/Cartography[1]/Spatial_Domain/Bounding_Coordinates**	
		1) *cart:west_bounding_coordinate* 2) *cart:east_bounding_coordinate* 3) *cart:north_bounding_coordinate* 4) *cart:south_bounding_coordinate*	
Bundle	The Bundle class describes a collection of collections.	1)**/Product_Bundle/Bundle**	
		1) *bundle_type* 2) *description* 3) *Conceptual_Object*	
Bundle_Member_Entry	The Bundle Member Entry class provides a member reference to a collection.	1)**/Product_Bundle/Bundle_Member_Entry[*]**	
		1) *lid_reference* 2) *lidvid_reference* 3) *member_status* 4) *reference_type*	
bundle_type	The bundle_type attribute provides a classification for the bundle.	1)**/Product_Bundle/Bundle/bundle_type**	
		1) "Archive" 2) "Supplemental"	ASCII_Short_String_Collapsed
cart:**c_axis_radius** *IMAGE_MAP_PROJECTION.* ***C_AXIS_RADIUS***	The c_axis_radius attribute provides the value of the polar axis of the ellipsoid that defines the approximate shape of a target body. The c_axis_radius is normal to the plane defined by the a_axis_radius and b_axis_radius. The IAU calls this "polar radius". Mapping applications generally call this "semi_minor_axis"	1)**/Product_Observational/Observation_Area/Discipline_Area/Cartography[1]/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Geodetic_Model/c_axis_radius**	
			ASCII_Real *Units_of_Length*
cart:**Cartography**	The Cartography class provides a description of how a 3D sphere, spheroid, or elliptical spheroid or the celestial sphere is mapped onto a plane.	1)**/Product_Observational/Observation_Area/Discipline_Area/Cartography[*]**	
		1) *Local_Internal_Reference* 2) *cart:Spatial_Domain* 3) *cart:Secondary_Spatial_Domain* 4) *cart:Spatial_Reference_Information*	
Citation_Information	The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.	1)**/Product_Bundle/Identification_Area/Citation_Information** 2)**/Product_Document/Identification_Area/Citation_Information** 3)**/Product_File_Text/Identification_Area/Citation_Information** 4)**/Product_Collection/Identification_Area/Citation_Information**	
		1) *author_list* 2) *editor_list* 3) *publication_year* 4) *doi* 5) *keyword* 6) *description*	
Collection	The Collection class provides a description of a set of products.	1)**/Product_Collection/Collection**	

		1) *collection_type* 2) *description*	
collection_type	The collection_type attribute provides a classification for the collection.	**1)**/**Product_Collection**/**Collection**/**collection_type**	
		1) "Browse" 2) "Calibration" 3) "Context" 4) "Data" 5) "Document" 6) "Geometry" 7) "Miscellaneous" 8) "SPICE Kernel" 9) "XML Schema"	ASCII_Short_String_Collapsed
img:**Commanded_Parameters**	The Commanded_Parameters class contains attributes used to identify or describe the commands sent to a spacecraft to perform one or more actions resulting in the acquisition of the current data product. These are distinct from similar values in the root Imaging class which indicate the state of the image as acquired.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Commanded_Parameters**	
		1) *description* 2) *img:Brightness_Correction* 3) *img:Col_Sum* 4) *img:Color_Filter_Array* 5) *img:Color_Processing* 6) *img:Dark_Current_Correction* 7) *img:Detector* 8) *img:Downsampling* 9) *img:Exposure* 10) *img:Flat_Field_Correction* 11) *img:Focus* 12) *img:Focus_Stack* 13) *img:Frame* 14) *img:High_Dynamic_Range* 15) *img:Histogram* 16) *img:Illumination* 17) *img:Image_Filter* 18) *img:Image_Mask* 19) *img:Onboard_Compression* 20) *img:Optical_Filter* 21) *img:Optical_Properties* 22) *img:Pointing_Correction* 23) *img:Radiometric_Correction* 24) *img:Reference_Pixel* 25) *img:Row_Sum* 26) *img:Sampling* 27) *img:Shutter_Subtraction* 28) *img:Spatial_Filter* 29) *img:Subframe* 30) *img:Thumbnail* 31) *img:Tiling* 32) *img:Video*	
comment	The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.	**1)**/**Product_Bundle**/**Context_Area**/**comment** **2)**/**Product_Browse**/**Reference_List**/**Internal_Reference**/**comment** **3)**/**Product_Observational**/**Identification_Area**/**Alias_List**/**Alias**/**comment** **4)**/**Product_Observational**/**Observation_Area**/**comment** **5)**/**Product_Observational**/**Observation_Area**/**Investigation_Area**/**Internal_Reference**/**comment** **6)**/**Product_Observational**/**Observation_Area**/**Observing_System**/**Observing_System_Component**/**Internal_Reference**/**comment** **7)**/**Product_Observational**/**Observation_Area**/**Target_Identification**/**Internal_Reference**/**comment** **8)**/**Product_Observational**/**Reference_List**/**Internal_Reference**/**comment** **9)**/**Product_Collection**/**Context_Area**/**comment**	
			ASCII_Text_Preserved
img:**Companding**	The Companding class describes whether or not data is or	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Sampling**/**Companding**	

	has had its bit depth reduced (for example conversion from 12 to 8 bits via a lookup table or bit scaling), the venue where it occurred (Software or Hardware), and the method used to complete the companding. The processing_algorithm attribute specifies how data was companded. Generally this will either be via a lookup table (such as a square root encoding), or by shifting bits to preserve the high order bits and discard the low order bits. The value of this keyword is mission specific but there are recommended values that should apply across missions when possible: NONE - no scaling. LUTn - use the numbered lookup table. Lookup tables are defined in the mission SIS. It is preferred for "n" to be a number but it could be a name, for example LUT_MMM_3 to indicate LUT 3 for the MMM instruments (on MSL). MSB_BITn - Shift to make bit "n" the most significant. Bits start numbering at 0 so MSB_BIT7 means no shift for a 12->8 bit companding, while MSB_BIT11 means to shift right 4 bits for a 12->8 bit companding. AUTOSHIFT - Data should be shifted to preserve the highest value. This value should only appear in a command echo; one of the MSB_BITn values should be used in downlinked data to specify what the actual shift was.	**2)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Commanded_Parameters**/**Sampling**/**Companding** **3)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Commanded_Parameters**/**Thumbnail**/**Sampling**/**Companding** 1) img:Data_Processing 2) *img:companding_state* 3) img:active_flag 4) img:early_scaling 5) img:processing_venue 6) *img:processing_algorithm* 7) img:sequence_number 8) img:Companding_File 9) img:Companding_Table	
img:**companding_state** *INSTRUMENT_STATE_PARMS.* ***SAMPLE_BIT_METHOD***	The companding_state attribute specifies whether the data is or has had its bit depth reduced, for example conversion from 12 to 8 bits via a lookup table or bit scaling. Valid values: None - values have not been companded. Companded - values are currently companded. Expanded - values have been companded but are now expanded back to original size. **Mars 2020 Specific:** *For M2020, the bit scaling is a 12-bit to 8-bit scaling and can be performed onboard via hardware and/or software , or on the ground in an inverse operation.*	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Sampling**/**Companding**/**companding_state** **2)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Commanded_Parameters**/**Sampling**/**Companding**/**companding_state** **3)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Commanded_Parameters**/**Thumbnail**/**Sampling**/**Companding**/**companding_state** 1) "Companded" 2) "Expanded" 3) "None"	ASCII_Short_String_Collapsed
Context_Area	The Context Area provides context information for a product.	**1)**/**Product_Bundle**/**Context_Area** **2)**/**Product_Document**/**Context_Area** **3)**/**Product_Collection**/**Context_Area** 1) *comment* 2) *Time_Coordinates* 3) *Primary_Result_Summary* 4) *Investigation_Area* 5) *Observing_System* 6) *Target_Identification* 7) *Mission_Area* 8) *Discipline_Area*	
cart:**Coordinate_Representation**	The Coordinate_Representation class provides the method of encoding the position of a point by measuring its distance from perpendicular reference axes (the "coordinate pair" and "row and column" methods).	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Planar_Coordinate_Information**/**Coordinate_Representation** 1) *cart:pixel_resolution_x* 2) *cart:pixel_resolution_y* 3) *cart:pixel_scale_x* 4) *cart:pixel_scale_y*	
geom:**coordinate_space_frame_type** *. ***COORDINATE_SYSTEM_NAME***	The coordinate_space_frame_type attribute identifies the type of frame being described, such as SITE, LOCAL_LEVEL, LANDER, ROVER, ARM, etc. When combined with Coordinate_Space_Index and the optional solution_id in the Coordinate_Space_Indexed class, this serves to fully name an instance of a coordinate space.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Coordinate_Space_Reference**/**Coordinate_Space_Indexed**/**coordinate_space_frame_type** 1) "SITE_FRAME" 2) "ROVER_NAV_FRAME" 3) "ROVER_MECH_FRAME" 4) "LOCAL_LEVEL_FRAME" 5) "RSM_HEAD_FRAME" 6) "ARM_TURRET_FRAME" 7) "ARM_DRILL_FRAME" 8) "ARM_DOCKING_POST_FRAME" 9) "ARM_PIXL_FRAME" 10) "ARM_GDRT_FRAME" 11) "ARM_FCS_FRAME"	ASCII_Short_String_Collapsed

		12) "ARM_WATSON_FRAME" 13) "ARM_SHERLOC_FRAME" 14) "ARM_CUSTOM_TCP_FRAME" 15) "PIXL_BASE_FRAME" 16) "PIXL_SENSOR_FRAME" 17) "HELI_G_FRAME" 18) "HELI_M_FRAME" 19) "HELI_S1_FRAME" 20) "HELI_S2_FRAME" 21) "CINT_FRAME" 22) "MCMF_FRAME" 23) "MCZ_CAL_PRIMARY" 24) "DRILL_BIT_TIP" 25) "MEDA_RDS"	
geom:**Coordinate_Space_Index** *. *REFERENCE_COORD_SYSTEM_INDEX*	Identifies a coordinate space using an index value given in an identified list.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Coordinate_Space_Reference**/**Coordinate_Space_Indexed**/**Coordinate_Space_Index**	
		1) *geom:List_Index_No_Units* 2) *geom:index_sequence_number* 3) *geom:index_name* 4) *geom:index_id* 5) *geom:index_value_number*	
geom:**Coordinate_Space_Indexed**	The Coordinate_Space_Indexed class contains the attributes and classes identifying the indexed coordinate space.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Coordinate_Space_Reference**/**Coordinate_Space_Indexed**	
		1) *geom:coordinate_space_frame_type* 2) *geom:solution_id* 3) *geom:Coordinate_Space_Index*	
geom:**Coordinate_Space_Reference**	The Coordinate_Space_Reference class includes the attributes that identify the coordinate space being used to express coordinates in the class in which it appears.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Coordinate_Space_Reference**	
		1) *geom:Coordinate_Space_Identification* 2) *geom:Coordinate_Space_Indexed* 3) *geom:Coordinate_Space_SPICE* 4) *Local_Internal_Reference*	
cart:**coordinate_system_type** *IMAGE_MAP_PROJECTION.* **COORDINATE_SYSTEM_TYPE**	There are three basic types of coordinate systems: body-fixed rotating, body-fixed non-rotating, and inertial. A body-fixed coordinate system is one associated with the body (e.g., a planet or satellite). The body-fixed system is centered on the body and rotates with the body (unless it is a non-rotating type), whereas an inertial coordinate system is fixed at some point in space. Currently, the PDS has specifically defined two types of body-fixed rotating coordinate systems: planetocentric and planetographic. However, the set of related data elements are modeled such that definitions for other body-fixed rotating coordinate systems, body-fixed non-rotating and inertial coordinate systems can be added as the need arises. Contact a PDS data engineer for assistance in defining a specific coordinate system.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Geodetic_Model**/**coordinate_system_type**	
		1) "Body-fixed Non-rotating" 2) "Body-fixed Rotating" 3) "Inertial"	ASCII_Short_String_Collapsed
copyright	The copyright attribute is a character string giving information about the exclusive right to make copies, license, and otherwise exploit an object, whether physical or digital.	**1)**/**Product_Document**/**Document**/**copyright**	
			ASCII_Text_Preserved
creation_date_time *IDENTIFICATION.* **PRODUCT_CREATION_TIME**	The creation_date_time attribute provides a date and time when the object was created.	**1)**/**Product_Browse**/**File_Area_Browse**/**File**/**creation_date_time** **2)**/**Product_Observational**/**File_Area_Observational**/**File**/**creation_date_time**	
			ASCII_Date_Time_YMD
data_type	The data_type attribute provides the hardware representation used to store a value in Field_Delimited (see PDS Standards Reference section "Character Data Types").	**1)**/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**Record_Delimited**/**Field_Delimited[*]**/**data_type** **2)**/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**Element_Array**/**data_type** **3)**/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**Field_Delimited[*]**/**data_type**	

			ASCII_Short_String_Collapsed
		1) "ASCII_AnyURI" 2) "ASCII_BibCode" 3) "ASCII_Boolean" 4) "ASCII_DOI" 5) "ASCII_Date_DOY" 6) "ASCII_Date_Time_DOY" 7) "ASCII_Date_Time_DOY_UTC" 8) "ASCII_Date_Time_YMD" 9) "ASCII_Date_Time_YMD_UTC" 10) "ASCII_Date_YMD" 11) "ASCII_Directory_Path_Name" 12) "ASCII_File_Name" 13) "ASCII_File_Specification_Name" 14) "ASCII_Integer" 15) "ASCII_LID" 16) "ASCII_LIDVID" 17) "ASCII_LIDVID_LID" 18) "ASCII_MD5_Checksum" 19) "ASCII_NonNegative_Integer" 20) "ASCII_Numeric_Base16" 21) "ASCII_Numeric_Base2" 22) "ASCII_Numeric_Base8" 23) "ASCII_Real" 24) "ASCII_String" 25) "ASCII_Time" 26) "ASCII_VID" 27) "UTF8_String"	
description	The description attribute provides a short (5KB or less) description of the product as a whole.	1)/**Product_Bundle**/**Identification_Area**/**Citation_Information**/**description** 2)/**Product_Bundle**/**Bundle**/**description** 3)/**Product_Document**/**Identification_Area**/**Citation_Information**/**description** 4)/**Product_File_Text**/**Identification_Area**/**Citation_Information**/**description** 5)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**Record_Delimited**/**Field_Delimited[*]**/**description** 6)/**Product_Observational**/**File_Area_Observational**/**Header[*]**/**description** 7)/**Product_Collection**/**Identification_Area**/**Citation_Information**/**description** 8)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**Field_Delimited[*]**/**description**	
			UTF8_Text_Preserved
Discipline_Area	The Discipline area allows the insertion of discipline specific metadata.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**	
		1) *Cartography* 2) *Display_Settings* 3) *Imaging* 4) *Mission_Information* 5) *Processing_Information* 6) *Geometry*	
disp:**Display_Direction**	The Display_Direction class specifies how two of the dimensions of an Array object should be displayed in the vertical (line) and horizontal (sample) dimensions of a display device.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**/**Display_Direction**	
		1) *comment* 2) *disp:horizontal_display_axis* 3) *disp:horizontal_display_direction* 4) *disp:vertical_display_axis* 5) *disp:vertical_display_direction*	
disp:**Display_Settings**	The Display_Settings class contains one or more classes describing how data should be displayed on a display device.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**	
		1) *Local_Internal_Reference* 2) *disp:Display_Direction* 3) disp:Color_Display_Settings 4) disp:Movie_Display_Settings	
Document	The Document class describes a document.	1)/**Product_Document**/**Document**	

		1) *revision_id* 2) *document_name* 3) *doi* 4) *author_list* 5) *editor_list* 6) *acknowledgement_text* 7) *copyright* 8) *publication_date* 9) *document_editions* 10) *description* 11) *Document_Edition* 12) *Digital_Object*	
Document_Edition	A Document Edition is one complete version of the document in a set of files that is distinguished by language, a unique assemblage of file formats, or some other criteria.	**1)/Product_Document/Document/Document_Edition**	
		1) *edition_name* 2) *starting_point_identifier* 3) *language* 4) *files* 5) *description* 6) *Document_File*	
Document_File	The Document File class describes a file which is a part of a document.	**1)/Product_Document/Document/Document_Edition/Document_File**	
		1) *File* 2) *directory_path_name* 3) *file_name* 4) *document_standard_id* 5) *local_identifier* 6) *creation_date_time* 7) *file_size* 8) *records* 9) *md5_checksum* 10) *comment* 11) *Digital_Object*	
document_standard_id	The document_standard_id attribute provides the formal name of a standard used for the structure of a document file.	**1)/Product_Document/Document/Document_Edition/Document_File/document_standard_id**	
		1) "7-Bit ASCII Text" 2) "Encapsulated Postscript" 3) "GIF" 4) "HTML" 5) "HTML 2.0" 6) "HTML 3.2" 7) "HTML 4.0" 8) "HTML 4.01" 9) "JPEG" 10) "LaTEX" 11) "MPEG-4" 12) "Microsoft Excel" 13) "Microsoft Word" 14) "PDF" 15) "PDF/A" 16) "PNG" 17) "Postscript" 18) "Rich Text" 19) "TIFF" 20) "UTF-8 Text"	ASCII_Short_String_Collapsed
domain	The radial "zone" or "shell" of the target for which the observations were collected or which are represented in the product(s). The value may depend on wavelength_range and size of the target.	**1)/Product_Bundle/Context_Area/Primary_Result_Summary/Science_Facets/domain** **2)/Product_Observational/Observation_Area/Primary_Result_Summary/Science_Facets/domain** **3)/Product_Collection/Context_Area/Primary_Result_Summary/Science_Facets/domain**	
		1) "Atmosphere" 2) "Dynamics" 3) "Heliosheath" 4) "Heliosphere" 5) "Interior" 6) "Interstellar"	ASCII_Short_String_Collapsed

		7) "Ionosphere" 8) "Magnetosphere" 9) "Rings" 10) "Surface"	
cart:**east_bounding_coordinate** *IMAGE_MAP_PROJECTION.* ***EASTERNMOST_LONGITUDE***	The east_bounding_coordinate attribute provides the eastern-most coordinate of the limit of coverage expressed in longitude.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Domain**/**Bounding_Coordinates**/**east_bounding_coordinate**	
			ASCII_Real *Units_of_Angle*
edition_name	The edition name attribute provides a name by which the edition is known.	**1)**/**Product_Document**/**Document**/**Document_Edition**/**edition_name**	
			UTF8_Short_String_Collapsed
editor_list	The editor_list attribute contains a semi-colon-separated list of names of people to be cited as editors of the associated product. The general format for individual names is: SURNAME, GIVEN NAME(s). Initials may be used in lieu of given name(s). If the name contains a suffix ("Jr.", "Sr.", "III", etc.) it should be placed before the comma (,). Do not include the word "and" before the final editor. All editors should be listed explicitly - do not elide the list using "et al.".	**1)**/**Product_Bundle**/**Identification_Area**/**Citation_Information**/**editor_list** **2)**/**Product_Collection**/**Identification_Area**/**Citation_Information**/**editor_list**	
			UTF8_Text_Preserved
Element_Array	The Element Array class is used as a component of the array class and defines an element of the array.	**1)**/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**Element_Array**	
		1) *data_type* 2) *unit* 3) scaling_factor 4) value_offset	
elements *SYSTEM.* ***NB***	The elements attribute provides the count of the number of elements along an array axis.	**1)**/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**Axis_Array[*]**/**elements**	
			ASCII_NonNegative_Integer
Encoded_Image	The Encoded Image class is used for ancillary images in standard formats, such as JPEG.	**1)**/**Product_Browse**/**File_Area_Browse**/**Encoded_Image**	
		1) *Encoded_Byte_Stream* 2) *name* 3) *offset* 4) *encoding_standard_id* 5) *local_identifier* 6) *object_length* 7) md5_checksum 8) *description* 9) Digital_Object	
encoding_standard_id	The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.	**1)**/**Product_Browse**/**File_Area_Browse**/**Encoded_Image**/**encoding_standard_id**	
		1) "GIF" 2) "J2C" 3) "JPEG" 4) "PDF" 5) "PDF/A" 6) "PNG" 7) "TIFF"	ASCII_Short_String_Collapsed
cart:**Equirectangular**	The Equirectangular class contains parameters for the Equirectangular map projection. Synder 1987, DOI:10.3133/pp1395, page 90: https://pubs.usgs.gov/pp/1395/report.pdf#page=102 PROJ: https://proj.org/operations/projections/eqc.html forward: x = R * (lambda - lambda_0) * cos(phi_1) y = R * (phi - phi_1) and reverse: lambda = (x / R cos(phi_1)) + lambda_0 phi = (y / R) + phi_1 where: lambda is the longitude of the location to project on the body; phi is the latitude of the location to project on the body; phi_1 is the standard parallel (north and south of the equator) where the scale of the projection is true; lambda_0 is the central meridian of the map; x is the horizontal coordinate of the projected location on the map; y is the vertical coordinate of the projected location on the map; R	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Map_Projection**/**Equirectangular**	
		1) *cart:latitude_of_projection_origin* 2) *cart:standard_parallel_1* 3) *cart:longitude_of_central_meridian*	

	is the radius of the body.		
Field_Delimited	The Field_Delimited class defines a field of a delimited record or a field of a delimited group.	1)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**Record_Delimited**/**Field_Delimited[*]** 2)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**Field_Delimited[*]**	
		1) *name* 2) *field_number* 3) *data_type* 4) *maximum_field_length* 5) field_format 6) *unit* 7) scaling_factor 8) value_offset 9) *description* 10) Special_Constants 11) Field_Statistics	
field_delimiter	The field_delimiter attribute provides the character that marks the boundary between two fields in a delimited table.	1)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**field_delimiter** 2)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**field_delimiter**	
		1) "Comma" 2) "Horizontal Tab" 3) "Semicolon" 4) "Vertical Bar" 5) "comma" 6) "horizontal tab" 7) "semicolon" 8) "vertical bar"	ASCII_Short_String_Collapsed
field_number	The field_number attribute provides the position of a field, within a series of fields, counting from 1. If two fields within a record are physically separated by one or more groups, they have consecutive field numbers; the fields within the intervening group(s) are numbered separately. Fields within a group separated by one or more (sub)groups, will also have consecutive field numbers.	1)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**Record_Delimited**/**Field_Delimited[*]**/**field_number** 2)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**Field_Delimited[*]**/**field_number**	
			ASCII_NonNegative_Integer
fields	The fields attribute provides a count of the total number of scalar fields directly associated with a table record. Fields within groups within the record are not included in this count.	1)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**Record_Delimited**/**fields** 2)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**fields**	
			ASCII_NonNegative_Integer
File	The File class consists of attributes that describe a file in a data store.	1)/**Product_File_Text**/**File_Area_Text**/**File** 2)/**Product_Browse**/**File_Area_Browse**/**File** 3)/**Product_Observational**/**File_Area_Observational**/**File** 4)/**Product_Collection**/**File_Area_Inventory**/**File**	
		1) *file_name* 2) *local_identifier* 3) *creation_date_time* 4) file_size 5) *records* 6) md5_checksum 7) *comment* 8) Digital_Object	
File_Area_Browse	The File Area Browse class describes a file and one or more tagged_data_objects contained within the file.	1)/**Product_Browse**/**File_Area_Browse**	
		1) File_Area 2) *File* 3) Array 4) Array_1D 5) Array_2D 6) *Array_2D_Image* 7) Array_2D_Map	

		8) *Array_2D_Spectrum* 9) *Array_3D* 10) *Array_3D_Image* 11) *Array_3D_Movie* 12) *Array_3D_Spectrum* 13) *Encoded_Audio* 14) *Encoded_Header* 15) *Encoded_Image* 16) *Header* 17) *Stream_Text* 18) *Table_Binary* 19) *Table_Character* 20) *Table_Delimited*	
File_Area_Inventory	The File Area Inventory class describes a file and an inventory consisting of references to members.	**1)**/**Product_Collection**/**File_Area_Inventory**	
		1) *File_Area* 2) *File* 3) *Inventory*	
File_Area_Observational	The File Area Observational class describes, for an observational product, a file and one or more tagged_data_objects contained within the file.	**1)**/**Product_Observational**/**File_Area_Observational**	
		1) *File_Area* 2) *File* 3) *Composite_Structure* 4) *Array* 5) *Array_1D* 6) *Array_2D* 7) *Array_2D_Image* 8) *Array_2D_Map* 9) *Array_2D_Spectrum* 10) *Array_3D* 11) *Array_3D_Image* 12) *Array_3D_Movie* 13) *Array_3D_Spectrum* 14) *Encoded_Header* 15) *Header* 16) *Stream_Text* 17) *Table_Binary* 18) *Table_Character* 19) *Table_Delimited*	
File_Area_Text	The File Area Text class describes a file that contains a text stream object.	**1)**/**Product_File_Text**/**File_Area_Text**	
		1) *File_Area* 2) *File* 3) *Stream_Text*	
file_name *IDENTIFICATION. **PRODUCT_ID***	The file_name attribute provides the name of a file.	**1)**/**Product_Document**/**Document**/**Document_Edition**/**Document_File**/**file_name** **2)**/**Product_File_Text**/**File_Area_Text**/**File**/**file_name** **3)**/**Product_Browse**/**File_Area_Browse**/**File**/**file_name** **4)**/**Product_Observational**/**File_Area_Observational**/**File**/**file_name** **5)**/**Product_Collection**/**File_Area_Inventory**/**File**/**file_name**	
			ASCII_Short_String_Collapsed
files	The files attribute provides the number of files in the edition.	**1)**/**Product_Document**/**Document**/**Document_Edition**/**files**	
			ASCII_NonNegative_Integer
cart:**Geo_Transformation**	The GEO_Transformation describes the relationship between raster positions (in pixel/line coordinates) and georeferenced coordinates. This is defined by an affine transform. The affine transform consists of six coefficients which map pixel/line coordinates into georeferenced space using the following relationship: Xgeo = GT(0) + Xpixel*GT(1) + Yline*GT(2) Ygeo = GT(3) + Xpixel*GT(4) + Yline*GT(5) or also defined as: GT[0] = Xmin; // upperleft_corner_y GT[1] = CellSize in X;	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Geo_Transformation**	
		1) *cart:upperleft_corner_x* 2) *cart:upperleft_corner_y*	

	// W-E pixel size, pixel_resolution_x GT[2] = 0; // rotation term, 0 if 'North Up' GT[3] = Ymax; // upperleft_corner_y GT[4] = 0; // shear term, 0 if 'North Up' GT[5] = CellSize in Y; // N-S pixel size, pixel_resolution_y In case of north up images, the GT(2) and GT(4) coefficients are zero, and the GT(1) is pixel width (pixel_resolution_x), and GT(5) is pixel height (pixel_resolution_y). The (GT(0),GT(3)) position is the top left corner of the top left pixel of the raster. Note that the pixel/line coordinates in the above are from (0.5,0.5) at the top left corner of the top left pixel to (width_in_pixels,height_in_pixels) at the bottom right corner of the bottom right pixel. The pixel/line location of the center of the top left pixel would therefore be (1.0,1.0).	

cart:**Geodetic_Model**	The Geodetic_Model class provides parameters describing the shape of the planet.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Geodetic_Model**
		1) *cart:latitude_type* 2) *cart:spheroid_name* 3) *cart:a_axis_radius* 4) *cart:b_axis_radius* 5) *cart:c_axis_radius* 6) *cart:longitude_direction* 7) *cart:coordinate_system_type* 8) cart:coordinate_system_name	

geom:**Geometry**	The Geometry class is a container for all geometric information in the label. The Image_Display_Geometry class should have one instance if the primary data object is an Array object for which two of the dimensions are suitable for display in the vertical (line) and horizontal (sample) dimensions of a display device. Multiple instances of the Image_Display_Geometry class are only appropriate if the data product contains multiple Array objects and the orientations of the various objects are not the same.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Geometry**
		1) *geom:SPICE_Kernel_Files* 2) *geom:Expanded_Geometry* 3) *geom:Image_Display_Geometry* 4) *geom:Geometry_Orbiter* 5) *geom:Geometry_Lander*	

geom:**Geometry_Lander**	The Geometry_Lander class is a container for all geometric information in the label relating to a landed spacecraft, including rovers.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Geometry**/**Geometry_Lander**
		1) *geom:geometry_state* 2) *description* 3) *local_identifier* 4) geom:Articulation_Device_Parameters 5) geom:Camera_Model_Parameters 6) geom:Coordinate_Space_Definition 7) geom:Derived_Geometry 8) geom:Motion_Counter	

geom:**geometry_state**	Specifies the state or configuration of this instance of Geometry_Lander applies. Use of this attribute enables multiple instances of Geometry_Lander, describing the geometry under different conditions. Note that it is legal for more than one instance to have the same geometry_state, in which case the local_identifier should be used to differentiate the instances, along with description. If not present, the semantics of "Telemetry" should be assumed. It is not required that instances be retained; a derived product may have an Adjusted instance but remove the Telemetry one, for example.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Geometry**/**Geometry_Lander**/**geometry_state**
		ASCII_Short_String_Collapsed

groups	The groups attribute provides a count of the total number of groups directly associated with a table record. Groups within groups within the record are not included in this count.	1)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**Record_Delimited**/**groups** 2)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**groups**
		ASCII_NonNegative_Integer

Header	The Header class describes a data object header.	1)/**Product_Observational**/**File_Area_Observational**/**Header[*]**
		1) *Parsable_Byte_Stream* 2) *name* 3) *object_length* 4) *offset* 5) *local_identifier*	

		6) *parsing_standard_id* 7) *md5_checksum* 8) *description* 9) *Digital_Object*	
cart:**Horizontal_Coordinate_System_Definition**	The Horizontal_Coordinate_System_Definition class provides the reference frame or system from which linear or angular quantities are measured and assigned to the position that a point occupies.	1)**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[*]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**	
		1) *cart:Geographic* 2) *cart:Planar* 3) *cart:Local* 4) *cart:Geodetic_Model*	
disp:**horizontal_display_axis**	The horizontal_display_axis attribute identifies, by name, the axis of an Array (or Array subclass) that is intended to be displayed in the horizontal or "sample" dimension on a display device. The value of this attribute must match the value of one, and only one, axis_name attribute in an Axis_Array class of the associated Array.	1)**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**/**Display_Direction**/**horizontal_display_axis**	
			ASCII_Short_String_Collapsed
disp:**horizontal_display_direction**	The horizontal_display_direction attribute specifies the direction across the screen of a display device that data along the horizontal axis of an Array is supposed to be displayed.	1)**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**/**Display_Direction**/**horizontal_display_direction**	
		1) "Left to Right" 2) "Right to Left"	ASCII_Short_String_Collapsed
Identification_Area	The identification area consists of attributes that identify and name an object.	1)**Product_Bundle**/**Identification_Area** 2)**Product_Document**/**Identification_Area** 3)**Product_File_Text**/**Identification_Area** 4)**Product_Browse**/**Identification_Area** 5)**Product_Observational**/**Identification_Area** 6)**Product_Collection**/**Identification_Area**	
		1) *logical_identifier* 2) *version_id* 3) *title* 4) *information_model_version* 5) *product_class* 6) *Alias_List* 7) *Citation_Information* 8) *Modification_History*	
img:**Imaging**	The Imaging class contains classes and attributes describing both the image product itself and the imaging instrument. Image product information can include exposure duration, filters, data correction, sampling, frame, sub-frames, and how the product was derived. For the imaging instrument, information can be provided describing the dynamic physical or operating characteristics of the imaging instrument.	1)**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**	
		1) *Local_Internal_Reference* 2) *img:Brightness_Correction* 3) *img:Col_Sum* 4) *img:Color_Filter_Array* 5) *img:Color_Processing* 6) *img:Dark_Current_Correction* 7) *img:Detector* 8) *img:Downsampling* 9) *img:Exposure* 10) *img:Flat_Field_Correction* 11) *img:Focus* 12) *img:Focus_Stack* 13) *img:Frame* 14) *img:High_Dynamic_Range* 15) *img:Histogram* 16) *img:Illumination* 17) *img:Image_Filter* 18) *img:Image_Mask* 19) *img:Onboard_Compression* 20) *img:Optical_Filter* 21) *img:Optical_Properties* 22) *img:Pointing_Correction* 23) *img:Radiometric_Correction*	

		24) *img:Reference_Pixel* 25) *img:Row_Sum* 26) *img:Sampling* 27) *img:Shutter_Subtraction* 28) *img:Spatial_Filter* 29) *img:Subframe* 30) *img:Tiling* 31) *img:Thumbnail* 32) *img:Video* 33) *img:Instrument_State* 34) *img:Commanded_Parameters*	
geom:**index_id** *IDENTIFICATION.* ***ROVER_MOTION_COUNTER_NAME***	The index_id attribute supplies a short name (identifier) for the associated value in a group of related values. **Mars 2020 Specific:** *For the M20 rover: SITE, DRIVE, POSE, ARM, CHIMRA, DRILL, RSM, HGA, DRT, IC.* *For the M20 helicopter: FLIGHT, POS* *For the M20 LVS camera: SET, INSTANCE*	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Coordinate_Space_Reference**/**Coordinate_Space_Indexed**/**Coordinate_Space_Index**/**index_id**	
		1) "SITE" 2) "DRIVE" 3) "POSE" 4) "ARM" 5) "SHA" 6) "DRILL" 7) "RSM" 8) "HGA" 9) "BITCAR" 10) "SEAL" 11) "RTT" 12) "PMC" 13) "FLIGHT" 14) "POS" 15) "SET" 16) "INSTANCE"	ASCII_Short_String_Collapsed
geom:**index_value_number** **_ARTICULATION_STATE.* ***ARTICULATION_DEVICE_TEMP_COUNT***	The index_value_number attribute provides the value with no applicable units as named by the associated index_id or index_name.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Coordinate_Space_Reference**/**Coordinate_Space_Indexed**/**Coordinate_Space_Index**/**index_value_number**	
			ASCII_Real
information_model_version	The information_model_version attribute provides the version identification of the PDS Information Model on which the label and schema are based.	**1)**/**Product_Bundle**/**Identification_Area**/**information_model_version** **2)**/**Product_Document**/**Identification_Area**/**information_model_version** **3)**/**Product_File_Text**/**Identification_Area**/**information_model_version** **4)**/**Product_Browse**/**Identification_Area**/**information_model_version** **5)**/**Product_Observational**/**Identification_Area**/**information_model_version** **6)**/**Product_Collection**/**Identification_Area**/**information_model_version**	
		1) "1.0.0.0" 2) "1.1.0.0" 3) "1.10.0.0" 4) "1.10.1.0" 5) "1.11.0.0" 6) "1.12.0.0" 7) "1.13.0.0" 8) "1.14.0.0" 9) "1.15.0.0" 10) "1.16.0.0" 11) "1.2.0.0" 12) "1.2.0.1" 13) "1.3.0.0" 14) "1.3.0.1" 15) "1.4.0.0" 16) "1.5.0.0" 17) "1.6.0.0" 18) "1.7.0.0" 19) "1.8.0.0" 20) "1.9.0.0"	ASCII_Short_String_Collapsed

		21) "1.9.1.0"	
Internal_Reference *DERIVED_IMAGE_PARMS.* ***FLAT_FIELD_FILE_NAME***	The Internal_Reference class is used to cross-reference other products in PDS4-compliant registries of PDS and its recognized international partners. **Mars 2020 Specific:** *Specifies the name of the flat field file used for radiometric correction. This file should be in the calibration collection.*	**1)/Product_Bundle/Context_Area/Investigation_Area/Internal_Reference** **2)/Product_Bundle/Context_Area/Observing_System/Observing_System_Component[*]/Internal_Reference** **3)/Product_Bundle/Context_Area/Target_Identification/Internal_Reference** **4)/Product_Document/Context_Area/Investigation_Area/Internal_Reference** **5)/Product_Document/Context_Area/Observing_System/Observing_System_Component/Internal_Reference** **6)/Product_Browse/Reference_List/Internal_Reference** **7)/Product_Observational/Observation_Area/Investigation_Area/Internal_Reference** **8)/Product_Observational/Observation_Area/Observing_System/Observing_System_Component/Internal_Reference** **9)/Product_Observational/Observation_Area/Target_Identification/Internal_Reference** **10)/Product_Observational/Reference_List/Internal_Reference** **11)/Product_Collection/Context_Area/Investigation_Area/Internal_Reference** **12)/Product_Collection/Context_Area/Observing_System/Observing_System_Component/Internal_Reference** **13)/Product_Collection/Context_Area/Target_Identification/Internal_Reference** **14)/Product_Collection/Reference_List/Internal_Reference**	
		1) *lid_reference* 2) *lidvid_reference* 3) *reference_type* 4) *comment*	
Inventory	The Inventory class defines the inventory for members of a collection.	**1)/Product_Collection/File_Area_Inventory/Inventory**	
		1) *Table_Delimited* 2) *name* 3) *reference_type* 4) *offset* 5) *records* 6) *local_identifier* 7) *object_length* 8) *record_delimiter* 9) *md5_checksum* 10) *parsing_standard_id* 11) *description* 12) *field_delimiter* 13) *Digital_Object* 14) *Uniformly_Sampled* 15) *Record_Delimited*	
Investigation_Area	The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).	**1)/Product_Bundle/Context_Area/Investigation_Area** **2)/Product_Document/Context_Area/Investigation_Area** **3)/Product_Observational/Observation_Area/Investigation_Area** **4)/Product_Collection/Context_Area/Investigation_Area**	
		1) *name* 2) *type* 3) *Internal_Reference*	
cart:**lander_map_projection_name**	The lander_map_projection_name attribute provides the name of the map projection.	**1)/Product_Observational/Observation_Area/Discipline_Area/Cartography[2]/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/lander_map_projection_name**	
		1) "Cylindrical"	ASCII_Short_String_Collapsed

		2) "Cylindrical_Perspective" 3) "Orthographic" 4) "Orthorectified" 5) "Perspective" 6) "Polar" 7) "Vertical"	
language	The language attribute provides the language used for definition and designation of the term.	1)/**Product_Document**/**Document**/**Document_Edition**/**language**	
		1) "English"	ASCII_Short_String_Collapsed
cart:**latitude_of_projection_origin** *IMAGE_MAP_PROJECTION.* ***LATITUDE_ORIGIN***	The latitude_of_projection_origin attribute defines the latitude chosen as the origin of rectangular coordinates for a map projection.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Map_Projection**/**Equirectangular**/**latitude_of_projection_origin**	
			ASCII_Real *Units_of_Angle*
cart:**latitude_type** *IMAGE_MAP_PROJECTION.* ***COORDINATE_SYSTEM_NAME***	The latitude_type attribute defines the type of latitude (planetographic, planetocentric) used within a cartographic product and as reflected in attribute values within associated PDS labels. For planets and satellites, latitude is measured north and south of the equator; north latitudes are designated as positive. The planetocentric latitude is the angle between the equatorial plane and a line from the center of the body. The planetographic latitude is the angle between the equatorial plane and a line that is normal to the body. In summary, both latitudes are equivalent on a sphere (i.e., equatorial radius equal to polar radius); however, they differ on an ellipsoid (e.g., Mars, Earth). For more on latitude_type, please see the IAU publication available here: http://astrogeology.usgs.gov/groups/IAU-WGCCRE	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Geodetic_Model**/**latitude_type**	
		1) "Planetocentric" 2) "Planetographic"	ASCII_Short_String_Collapsed
lid_reference *DERIVED_IMAGE.* ***INVERSE_LUT_FILE_NAME*** *DERIVED_IMAGE_PARMS.* ***FLAT_FIELD_FILE_NAME*** *DERIVED_IMAGE_PARMS.* ***STEREO_PRODUCT_ID*** *DERIVED_IMAGE_PARMS.* ***TARGET_INSTRUMENT*** *IDENTIFICATION.* ***TARGET_NAME*** *IDENTIFICATION.* ***TARGET_TYPE***	The lid_reference attribute provides the logical_identifier for a product.	1)/**Product_Bundle**/**Context_Area**/**Investigation_Area**/**Internal_Reference**/**lid_reference** 2)/**Product_Bundle**/**Context_Area**/**Observing_System**/**Observing_System_Component[*]**/**Internal_Reference**/**lid_reference** 3)/**Product_Bundle**/**Context_Area**/**Target_Identification**/**Internal_Reference**/**lid_reference** 4)/**Product_Bundle**/**Bundle_Member_Entry[*]**/**lid_reference** 5)/**Product_Document**/**Context_Area**/**Investigation_Area**/**Internal_Reference**/**lid_reference** 6)/**Product_Document**/**Context_Area**/**Observing_System**/**Observing_System_Component**/**Internal_Reference**/**lid_reference** 7)/**Product_Browse**/**Reference_List**/**Internal_Reference**/**lid_reference** 8)/**Product_Observational**/**Observation_Area**/**Investigation_Area**/**Internal_Reference**/**lid_reference** 9)/**Product_Observational**/**Observation_Area**/**Observing_System**/**Observing_System_Component**/**Internal_Reference**/**lid_reference** 10)/**Product_Observational**/**Observation_Area**/**Target_Identification**/**Internal_Reference**/**lid_reference** 11)/**Product_Collection**/**Context_Area**/**Investigation_Area**/**Internal_Reference**/**lid_reference** 12)/**Product_Collection**/**Context_Area**/**Observing_System**/**Observing_System_Component**/**Internal_Reference**/**lid_reference** 13)/**Product_Collection**/**Context_Area**/**Target_Identification**/**Internal_Reference**/**lid_reference** 14)/**Product_Collection**/**Reference_List**/**Internal_Reference**/**lid_reference**	
			ASCII_LID
lidvid_reference *DERIVED_IMAGE_PARMS.* ***INPUT_PRODUCT_ID*** *IDENTIFICATION.* ***PRODUCT_ID*** *IDENTIFICATION.* ***SOURCE_PRODUCT_ID***	The lidvid_reference attribute provides the logical_identifier plus version_id, which uniquely identifies a product. **Mars 2020 Specific:** *For M2020, this keyword indicates the PRODUCT_ID (filename minus extension) of the EDRs (not RDRs) that were*	1)/**Product_Observational**/**Reference_List**/**Internal_Reference**/**lidvid_reference**	
			ASCII_LIDVID

	used to create this product. In an EDR, this keyword exists and refers to itself; i.e. it is equivalent to PRODUCT_ID.	
cart:**Local**	The Local class provides a description of any coordinate system that is not aligned with the surface of the planet.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**
		1) *cart:local_description* 2) *cart:local_georeference_information* 3) *cart:Map_Projection_Lander* 4) *cart:Map_Projection_Rings* 5) *cart:Surface_Model_Parameters*	
cart:**local_description**	The local_description attribute provides a description of the coordinate system and its orientation to the surface of a planet.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**local_description**
		ASCII_Text_Preserved	
local_identifier	The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Geometry**/**Geometry_Lander**/**local_identifier** 2)/**Product_Observational**/**File_Area_Observational**/**File**/**local_identifier** 3)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**local_identifier** 4)/**Product_Browse**/**File_Area_Browse**/**File**/**local_identifier** 5)/**Product_Browse**/**File_Area_Browse**/**Encoded_Image**/**local_identifier** 6)/**Product_Observational**/**File_Area_Observational**/**Header[*]**/**local_identifier** 7)/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**local_identifier** 8)/**Product_Collection**/**File_Area_Inventory**/**File**/**local_identifier** 9)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**local_identifier**
		ASCII_Local_Identifier	
local_identifier_reference **_COORDINATE_SYSTEM.* **REFERENCE_COORD_SYSTEM_INDEX** **_COORDINATE_SYSTEM.* **REFERENCE_COORD_SYSTEM_NAME** **_DERIVED_GEOMETRY_PARMS.* **REFERENCE_COORD_SYSTEM_INDEX** **_DERIVED_GEOMETRY_PARMS.* **REFERENCE_COORD_SYSTEM_NAME** *DERIVED_IMAGE_PARMS.* **REFERENCE_COORD_SYSTEM_INDEX** *DERIVED_IMAGE_PARMS.* **REFERENCE_COORD_SYSTEM_NAME** *GEOMETRIC_CAMERA_MODEL.* **REFERENCE_COORD_SYSTEM_INDEX** *GEOMETRIC_CAMERA_MODEL.* **REFERENCE_COORD_SYSTEM_NAME** *IDENTIFICATION.* **PRODUCT_ID** *SURFACE_MODEL_PARMS.* **REFERENCE_COORD_SYSTEM_INDEX** *SURFACE_MODEL_PARMS.* **REFERENCE_COORD_SYSTEM_NAME**	The local_identifier_reference attribute provides the value of the local_identifier of the entity described by the referencing class. Note that a local_identifier attribute, with the same value as this local_identifier_reference, must be present within the label. **Mars 2020 Specific:** *For M2020, EDRs use a standard, predefined frame name for each occurrence. However, RDRs can use any value available in COORDINATE_SYSTEM_NAME. Despite that, only a few frame names are commonly used. "SITE_FRAME" is used for most SITE, ROVER, and LOCAL_LEVEL CS definitions, as well as for XYZ data and many mosaics. "ROVER_NAV_FRAME" is used for most other CS definitions, surface normals, camera models, and some mosaics. "LOCAL_LEVEL_FRAME" is used for some mosaics. PIXL_SENSOR_FRAME is defined in terms of PIXL_BASE_FRAME which is itself defined (as a constant) in terms of ARM_PIXL_FRAME.*	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[*]**/**Local_Internal_Reference**/**local_identifier_reference** 2)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**/**Local_Internal_Reference**/**local_identifier_reference** 3)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Local_Internal_Reference**/**local_identifier_reference** 4)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Processing_Information**/**Local_Internal_Reference**/**local_identifier_reference**
		1) "SITE_FRAME" 2) "SITE_FRAME" 3) "ROVER_NAV_FRAME" 4) "ROVER_NAV_FRAME" 5) "ROVER_NAV_FRAME" 6) "ROVER_NAV_FRAME" 7) "SITE_FRAME" 8) "ROVER_NAV_FRAME" 9) "ROVER_NAV_FRAME" 10) "PIXL_BASE_FRAME" 11) "ARM_PIXL_FRAME"	ASCII_Local_Identifier_Reference
Local_Internal_Reference	The Local Internal_Reference class is used to cross-reference other Description Objects in a PDS4 label.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[*]**/**Local_Internal_Reference** 2)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**/**Local_Internal_Reference** 3)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Local_Internal_Reference** 4)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Processing_Information**/**Local_Internal_Reference**
		1) *comment*	

		2) *local_identifier_reference* 3) *local_reference_type*	
local_reference_type	The local_reference_type attribute provides the name of an association between an entity identified by a local_identifier_reference and another corresponding entity identified by a local_identifier. The values for the local_reference_type are expected to be enumerated for appropriate contexts in the Schematron files of local (i.e., discipline and mission) data dictionaries.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[*]**/**Local_Internal_Reference**/**local_reference_type** 2)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**/**Local_Internal_Reference**/**local_reference_type** 3)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Local_Internal_Reference**/**local_reference_type** 4)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Processing_Information**/**Local_Internal_Reference**/**local_reference_type**	
			ASCII_Short_String_Collapsed
logical_identifier *IDENTIFICATION.* **PRODUCT_ID**	A logical identifier identifies the set of all versions of an object. It is an object identifier without a version.	1)/**Product_Bundle**/**Identification_Area**/**logical_identifier** 2)/**Product_Document**/**Identification_Area**/**logical_identifier** 3)/**Product_File_Text**/**Identification_Area**/**logical_identifier** 4)/**Product_Browse**/**Identification_Area**/**logical_identifier** 5)/**Product_Observational**/**Identification_Area**/**logical_identifier** 6)/**Product_Collection**/**Identification_Area**/**logical_identifier**	
			ASCII_LID
cart:**longitude_direction**	The longitude_direction attribute identifies the direction of longitude (e.g. POSITIVE_EAST or POSITIVE_WEST) for a planet. The IAU definition for direction of positive longitude should be adopted: http://astrogeology.usgs.gov/groups/IAU-WGCCRE. Typically, for planets with prograde (direct) rotations, positive longitude direction is to the west. For planets with retrograde rotations, positive longitude direction is to the east. Generally the Positive West longitude_direction is used for planetographic systems and Positive East is used for planetocentric systems. If the data is defined with Spatial_Domain in a manner not recommended by the IAU, there is an optional Secondary_Spatial_Domain section to define a second set of bounding coordinates.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Geodetic_Model**/**longitude_direction**	
		1) "Positive East" 2) "Positive West"	ASCII_Short_String_Collapsed
cart:**longitude_of_central_meridian** *IMAGE_MAP_PROJECTION.* **CENTER_LONGITUDE**	The longitude_of_central_meridian attribute defines the line of longitude at the center of a map projection generally used as the basis for constructing the projection.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Map_Projection**/**Equirectangular**/**longitude_of_central_meridian**	
			ASCII_Real *Units_of_Angle*
cart:**Map_Projection**	The Map_Projection class provides the systematic representation of all or part of the surface of a planet on a plane (or Cartesian system).	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Map_Projection**	
		1) *cart:map_projection_name* 2) *cart:Equirectangular* 3) cart:Lambert_Azimuthal_Equal_Area 4) cart:Lambert_Conformal_Conic 5) cart:Mercator 6) cart:Oblique_Cylindrical 7) cart:Oblique_Mercator 8) cart:Orthographic 9) cart:Point_Perspective 10) cart:Polar_Stereographic 11) cart:Polyconic 12) cart:Sinusoidal 13) cart:Transverse_Mercator	
cart:**Map_Projection_Lander**	The Map_Projection class provides the systematic representation of all or part of the surface of a planet on a plane or developable surface from the perspective of an in-situ spacecraft.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**	
		1) *cart:lander_map_projection_name*	

		2) *cart:Cylindrical* 3) *cart:Perspective* 4) *cart:Cylindrical_Perspective* 5) *cart:Polar* 6) *cart:Vertical* 7) *cart:Orthographic_Lander* 8) *cart:Orthorectified* 9) *geom:Coordinate_Space_Reference*	
cart:**map_projection_name** *IMAGE_MAP_PROJECTION.* ***MAP_PROJECTION_TYPE***	The map_projection_name attribute provides the name of the map projection. Definitions when available are from Synder, J.P., 1987, Map Projections: A Working Manual, USGS Numbered Series, Professional Paper 1395, URL: https://doi.org/10.3133/pp1395.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Map_Projection**/**map_projection_name**	
		1) "Albers Conical Equal Area" 2) "Azimuthal Equidistant" 3) "Equidistant Conic" 4) "Equirectangular" 5) "Gnomonic" 6) "Lambert Azimuthal Equal Area" 7) "Lambert Conformal Conic" 8) "Mercator" 9) "Miller Cylindrical" 10) "Oblique Cylindrical" 11) "Oblique Mercator" 12) "Orthographic" 13) "Point Perspective" 14) "Polar Stereographic" 15) "Polyconic" 16) "Robinson" 17) "Sinusoidal" 18) "Space Oblique Mercator" 19) "Stereographic" 20) "Transverse Mercator" 21) "van der Grinten"	ASCII_Short_String_Collapsed
mars2020:**Mars2020_Parameters**	The Mars2020_Parameters class is a superclass containing all Mars2020 mission classes.	**1)**/**Product_Observational**/**Observation_Area**/**Mission_Area**/**Mars2020_Parameters**	
		1) *mars2020:Observation_Information* 2) *mars2020:MOXIE_Parameters* 3) *mars2020:PIXL_Parameters* 4) *mars2020:RIMFAX_Parameters* 5) *mars2020:SHERLOC_Parameters* 6) *mars2020:SuperCam_Parameters*	
maximum_field_length	The maximum_field_length attribute sets an upper, inclusive bound on the number of bytes in the field.	**1)**/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**Field_Delimited[*]**/**maximum_field_length**	
			ASCII_NonNegative_Integer *Units_of_Storage*
maximum_record_length	The maximum_record_length attribute provides the maximum length of a record, including the record delimiter.	**1)**/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**maximum_record_length**	
			ASCII_NonNegative_Integer *Units_of_Storage*
member_status	The member_status attribute indicates whether the collection is primary and whether the file_specification_name has been provided for the product_collection label.	**1)**/**Product_Bundle**/**Bundle_Member_Entry[*]**/**member_status**	
		1) "Primary" 2) "Secondary"	ASCII_Short_String_Collapsed
Mission_Area	The mission area allows the insertion of mission specific metadata.	**1)**/**Product_Observational**/**Observation_Area**/**Mission_Area**	
		1) *Mars2020_Parameters*	
msn:**Mission_Information**	The Mission_Information class provides information about a mission.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Mission_Information**	
		1) *msn:mission_phase_name* 2) *msn:mission_phase_identifier* 3) *msn:release_number* 4) *msn:product_type_name* 5) *msn:spacecraft_clock_start* 6) *msn:spacecraft_clock_stop*	

		7) *msn:spacecraft_clock_partition* 8) *msn:instrument_clock_start* 9) *msn:instrument_start_time* 10) *msn:Orbital_Mission* 11) *msn:Surface_Mission* 12) *msn:Observation_Context*	
mars2020:**mission_phase_name**	The mission_phase_name identifies a time period within the mission.	1)/**Product_Observational**/**Observation_Area**/**Mission_Area**/**Mars2020_Parameters**/**Observation_Information**/**mission_phase_name**	
		1) "ATLO" 2) "Cruise" 3) "Development" 4) "Surface Mission" 5) "Test"	ASCII_Short_String_Preserved
msn:**mission_phase_name** *IDENTIFICATION. **MISSION_PHASE_NAME***	The mission_phase_name identifies a time period within the mission.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Mission_Information**/**mission_phase_name**	
		1) "DEVELOPMENT" 2) "LAUNCH" 3) "CRUISE AND APPROACH" 4) "ENTRY DESCENT AND LANDING" 5) "PRIMARY SURFACE MISSION" 6) "EXTENDED SURFACE MISSION" 7) "TEST"	ASCII_Short_String_Preserved
name	The name attribute provides a word or combination of words by which the object is known.	1)/**Product_Bundle**/**Context_Area**/**Investigation_Area**/**name** 2)/**Product_Bundle**/**Context_Area**/**Observing_System**/**Observing_System_Component[*]**/**name** 3)/**Product_Bundle**/**Context_Area**/**Target_Identification**/**name** 4)/**Product_Document**/**Context_Area**/**Investigation_Area**/**name** 5)/**Product_Document**/**Context_Area**/**Observing_System**/**name** 6)/**Product_Document**/**Context_Area**/**Observing_System**/**Observing_System_Component**/**name** 7)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**name** 8)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**Record_Delimited**/**Field_Delimited[*]**/**name** 9)/**Product_Observational**/**Observation_Area**/**Investigation_Area**/**name** 10)/**Product_Observational**/**Observation_Area**/**Observing_System**/**Observing_System_Component**/**name** 11)/**Product_Observational**/**Observation_Area**/**Target_Identification**/**name** 12)/**Product_Collection**/**Context_Area**/**Investigation_Area**/**name** 13)/**Product_Collection**/**Context_Area**/**Observing_System**/**Observing_System_Component**/**name** 14)/**Product_Collection**/**Context_Area**/**Target_Identification**/**name** 15)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**Record_Delimited**/**Field_Delimited[*]**/**name**	
			UTF8_Short_String_Collapsed
cart:**north_bounding_coordinate** *IMAGE_MAP_PROJECTION.* ***MAXIMUM_LATITUDE***	The north_bounding_coordinate attribute provides the northern-most coordinate of the limit of coverage expressed in latitude.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Domain**/**Bounding_Coordinates**/**north_bounding_coordinate**	
			ASCII_Real *Units_of_Angle*
object_length *SYSTEM. **LBLSIZE***	The object_length attribute provides the length of the digital object in bytes.	1)/**Product_Observational**/**File_Area_Observational**/**Header[*]**/**object_length**	
			ASCII_NonNegative_Integer

			Units_of_Storage
Observation_Area	The observation area consists of attributes that provide information about the circumstances under which the data were collected.	**1)**/**Product_Observational**/**Observation_Area**	
		1) *Context_Area* 2) *comment* 3) *Time_Coordinates* 4) *Investigation_Area* 5) *Primary_Result_Summary* 6) *Observing_System* 7) *Target_Identification* 8) *Mission_Area* 9) *Discipline_Area*	
mars2020:**Observation_Information**	The Observation_Information class provides information about a science observation.	**1)**/**Product_Observational**/**Observation_Area**/**Mission_Area**/**Mars2020_Parameters**/**Observation_Information**	
		1) *mars2020:release_number* 2) *mars2020:mission_phase_name* 3) *mars2020:product_type_name* 4) *mars2020:spacecraft_clock_start* 5) *mars2020:spacecraft_clock_stop* 6) *mars2020:spacecraft_clock_partition* 7) *mars2020:sol_number* 8) *mars2020:start_sol_number* 9) *mars2020:stop_sol_number* 10) *mars2020:start_local_mean_solar_time* 11) *mars2020:stop_local_mean_solar_time* 12) *mars2020:start_local_true_solar_time* 13) *mars2020:start_local_true_solar_time_sol* 14) *mars2020:stop_local_true_solar_time* 15) *mars2020:stop_local_true_solar_time_sol* 16) *mars2020:start_solar_longitude* 17) *mars2020:stop_solar_longitude* 18) *mars2020:active_flight_computer* 19) *mars2020:start_mars_year* 20) *mars2020:stop_mars_year*	
Observing_System	The Observing System class describes the entire suite used to collect the data.	**1)**/**Product_Bundle**/**Context_Area**/**Observing_System** **2)**/**Product_Document**/**Context_Area**/**Observing_System** **3)**/**Product_Observational**/**Observation_Area**/**Observing_System** **4)**/**Product_Collection**/**Context_Area**/**Observing_System**	
		1) *name* 2) *description* 3) *Observing_System_Component* 4) *Conceptual_Object* 5) *Physical_Object*	
Observing_System_Component *IDENTIFICATION.* **INSTRUMENT_ID**	The Observing System Component class describes one or more subsystems used to collect data.	**1)**/**Product_Bundle**/**Context_Area**/**Observing_System**/**Observing_System_Component[*]** **2)**/**Product_Document**/**Context_Area**/**Observing_System**/**Observing_System_Component** **3)**/**Product_Observational**/**Observation_Area**/**Observing_System**/**Observing_System_Component** **4)**/**Product_Collection**/**Context_Area**/**Observing_System**/**Observing_System_Component**	
		1) *FRONT_HAZCAM_LEFT_A* 2) *FRONT_HAZCAM_LEFT_B* 3) *FRONT_HAZCAM_RIGHT_A* 4) *FRONT_HAZCAM_RIGHT_B* 5) *REAR_HAZCAM_LEFT* 6) *REAR_HAZCAM_RIGHT* 7) *NAVCAM_LEFT* 8) *NAVCAM_RIGHT* 9) *CACHECAM* 10) *SUPERCAM_RMI* 11) *MCZ_LEFT* 12) *MCZ_RIGHT*	

		13) SHERLOC_WATSON 14) SHERLOC_ACI 15) PIXL_MCC 16) SKYCAM 17) LCAM 18) EDL_PUCAM1 19) EDL_PUCAM2 20) EDL_PUCAM3 21) EDL_DDCAM 22) EDL_RDCAM 23) EDL_RUCAM 24) EDL_MICROPHONE 25) HELI_NAV 26) HELI_RTE 27) MEDA_ENVIRONMENT 28) MOXIE 29) PIXL_ENGINEERING 30) PIXL_SPECTROMETER 31) SUPERCAM_NONIMAGE 32) SHERLOC_SPECTROMETER 33) RIMFAX_MOBILE 34) RIMFAX_STATIONARY	
offset SYSTEM. **LBLSIZE**	The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.	1)/**Product_File_Text**/**File_Area_Text**/**Stream_Text**/**offset** 2)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**offset** 3)/**Product_Browse**/**File_Area_Browse**/**Encoded_Image**/**offset** 4)/**Product_Observational**/**File_Area_Observational**/**Header[*]**/**offset** 5)/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**offset** 6)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**offset**	
		ASCII_NonNegative_Integer Units_of_Storage	
cart:**Orthorectified**	This is an in-situ projection that provides a true overhead view of the scene. Range data is required to create this projection, meaning there is no parallax distortion. It has a constant scale in meters/pixel.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Orthorectified**	
		1) *cart:pixel_resolution_x* 2) *cart:pixel_resolution_y* 3) *cart:x_axis_maximum* 4) *cart:x_axis_minimum* 5) *cart:y_axis_maximum* 6) *cart:y_axis_minimum* 7) cart:Pixel_Position_Origin 8) cart:Vector_Projection_Origin 9) cart:Vector_Projection_X_Axis 10) cart:Vector_Projection_Y_Axis 11) cart:Vector_Projection_Z_Axis	
parsing_standard_id	The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.	1)/**Product_File_Text**/**File_Area_Text**/**Stream_Text**/**parsing_standard_id** 2)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**parsing_standard_id** 3)/**Product_Observational**/**File_Area_Observational**/**Header[*]**/**parsing_standard_id** 4)/**Product_Collection**/**File_Area_Inventory**/**Inventory**/**parsing_standard_id**	
		1) "PDS DSV 1"	ASCII_Short_String_Collapsed
cart:**pixel_resolution_x** IMAGE_MAP_PROJECTION. **MAP_SCALE**	The pixel_resolution_x and pixel_resolution_y attributes indicate the image array pixel resolution (distance/pixel or degree/pixel) relative to the Cartesian (x,y) coordinate system as defined by the map projection. Due to varying properties across different map projections, actual surface distances for an individual pixel may be accurate only at specific location(s)	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Planar_Coordinate_Information**/**Coordinate_Representation**/**pixel_resolution_x** 2)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Orthorectified**/**pixel_resolution_x**	

	within the image array (e.g. reference latitude or longitude, standard parallels, etc). For most PDS products, x and y resolution values are equal ('square' pixels). The inclusion of both x and y attributes allows for anticipated products where resolution may differ for each axis ('rectangular' pixels). NOTE: Definition of this PDS4 attribute differs from how 'resolution' was defined within PDS3.	ASCII_Real *Units_of_Map_Scale*
cart:**pixel_resolution_y** *IMAGE_MAP_PROJECTION.* **MAP_SCALE**	The pixel_resolution_x and pixel_resolution_y attributes indicate the image array pixel resolution (distance/pixel or degree/pixel) relative to the Cartesian (x,y) coordinate system as defined by the map projection. Due to varying properties across different map projections, actual surface distances for an individual pixel may be accurate only at specific location(s) within the image array (e.g. reference latitude or longitude, standard parallels, etc). For most PDS products, x and y resolution values are equal ('square' pixels). The inclusion of both x and y attributes allows for anticipated products where resolution may differ for each axis ('rectangular' pixels). NOTE: Definition of this PDS4 attribute differs from how 'resolution' was defined within PDS3.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate** **_System_Definition**/**Planar**/**Planar_Coordinate_Information**/**Coordinate_Representation**/**pixel_resolution_y** **2)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate** **_System_Definition**/**Local**/**Map_Projection_Lander**/**Orthorectified**/**pixel_resolution_y**
		ASCII_Real *Units_of_Map_Scale*
cart:**pixel_scale_x** *IMAGE_MAP_PROJECTION.* **MAP_RESOLUTION**	The pixel_scale_x and pixel_scale_y attributes indicate the image array pixel scale (pixel/degree or pixel/distance) relative to the Cartesian (x,y) coordinate system as defined by the map projection. Due to varying properties across different map projections, actual surface distances for an individual pixel may be accurate only at specific location(s) within the image array (e.g. reference latitude or longitude, standard parallels, etc). For most PDS products, x and y scale values are equal ('square' pixels). The inclusion of both x and y attributes allows for anticipated products where scale may differ for each axis ('rectangular' pixels). NOTE1: For presentation of hard-copy maps, a map scale is traditionally expressed as a 'representative fraction' (the ratio of a hard-copy map to the actual subject surface (e.g. 1:250,000, where one unit of measure on the map equals 250,000 of the same unit on the body surface)). This usage is relevant when map/data are presented on hard-copy media (paper, computer screen,etc). When defining pixel scale within a stored image/array context here, we are expressing a ratio between the image array and the actual surface (thus, pixel/degree or pixel/distance units). NOTE2: Definition of this PDS4 attribute differs from how 'scale' was defined within PDS3	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate** **_System_Definition**/**Planar**/**Planar_Coordinate_Information**/**Coordinate_Representation**/**pixel_scale_x**
		ASCII_Real *Units_of_Map_Scale*
cart:**pixel_scale_y** *IMAGE_MAP_PROJECTION.* **MAP_RESOLUTION**	The pixel_scale_x and pixel_scale_y attributes indicate the image array pixel scale (pixel/degree or pixel/distance) relative to the Cartesian (x,y) coordinate system as defined by the map projection. Due to varying properties across different map projections, actual surface distances for an individual pixel may be accurate only at specific location(s) within the image array (e.g. reference latitude or longitude, standard parallels, etc). For most PDS products, x and y scale values are equal ('square' pixels). The inclusion of both x and y attributes allows for anticipated products where scale may differ for each axis ('rectangular' pixels). NOTE1: For presentation of hard-copy maps, a map scale is traditionally expressed as a 'representative fraction' (the ratio of a hard-copy map to the actual subject surface (e.g. 1:250,000, where one unit of measure on the map equals 250,000 of the same unit on the body surface)). This usage is relevant when map/data are presented on hard-copy media (paper, computer screen,etc). When defining pixel scale within a stored image/array context here, we are expressing a ratio between the image array and the actual surface (thus, pixel/degree or pixel/distance units). NOTE2: Definition of this PDS4 attribute differs from how 'scale' was defined within PDS3	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate** **_System_Definition**/**Planar**/**Planar_Coordinate_Information**/**Coordinate_Representation**/**pixel_scale_y**
		ASCII_Real *Units_of_Map_Scale*
cart:**Planar**	The Planar class provides the quantities of distances, or distances and angles, which define the position of a point on a reference plane to which the surface of a planet has been projected.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate** **_System_Definition**/**Planar**
		1) *cart:Map_Projection* 2) *cart:Grid_Coordinate_System*

		3) *cart:Local_Planar* 4) *cart:Planar_Coordinate_Information* 5) *cart:Geo_Transformation*	
cart:**planar_coordinate_encoding_method**	The planar_coordinate_encoding_method attribute indicates the means used to represent horizontal positions.	**1)/Product_Observational/Observation_Area/Discipline_Area/Cartography[1]/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Planar/Planar_Coordinate_Information/planar_coordinate_encoding_method**	
		1) "Coordinate Pair" 2) "Distance and Bearing" 3) "Row and Column"	ASCII_Short_String_Collapsed
cart:**Planar_Coordinate_Information**	The Planar_Coordinate_Information class provides information about the coordinate system developed on the planar surface.	**1)/Product_Observational/Observation_Area/Discipline_Area/Cartography[1]/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Planar/Planar_Coordinate_Information**	
		1) *cart:planar_coordinate_encoding_method* 2) *cart:Coordinate_Representation* 3) *cart:Distance_and_Bearing_Representation*	
Primary_Result_Summary	The Primary_Result_Summary class provides a high-level description of the types of products included in the collection or bundle	**1)/Product_Bundle/Context_Area/Primary_Result_Summary** **2)/Product_Observational/Observation_Area/Primary_Result_Summary** **3)/Product_Collection/Context_Area/Primary_Result_Summary**	
		1) *type* 2) *purpose* 3) *data_regime* 4) *processing_level* 5) *processing_level_id* 6) *description* 7) *Science_Facets*	
proc:**Process**	The Process class describes one of the software processes used to produce the data product referenced in the parent Processing_Information class. This class includes descriptions of the process owner as well as the data processing software used to create the data product.	**1)/Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Process**	
		1) *name* 2) *description* 3) proc:process_owner_name 4) proc:process_owner_institution_name 5) *proc:Software*	
img:**processing_algorithm**	The processing_algorithm attribute specifies the name of the algorithm used to perform the processing specified by the enclosing class. Algorithm names should be defined in the project documentation, and/or in the enclosing class definition. **Mars 2020 Specific:** *M2020 uses "Range_Filter_Deen_2020", which is described in the Camera SIS*	**1)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Sampling/Companding/processing_algorithm** **2)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Commanded_Parameters/Sampling/Companding/processing_algorithm** **3)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Commanded_Parameters/Thumbnail/Sampling/Companding/processing_algorithm**	
			ASCII_Short_String_Collapsed
proc:**Processing_Information**	The Processing_Information class contains detailed information regarding the history of processing of the data product(s) described in the label. Information that can be specified using this class includes input products used to create a specific data product and the software and processes used to produce that product.	**1)/Product_Observational/Observation_Area/Discipline_Area/Processing_Information**	
		1) *Local_Internal_Reference* 2) proc:Input_Product_List 3) *proc:Process*	
processing_level	The processing_level attribute provides a broad classification of data processing level.	**1)/Product_Bundle/Context_Area/Primary_Result_Summary/processing_level** **2)/Product_Observational/Observation_Area/Primary_Result_Summary/processing_level** **3)/Product_Collection/Context_Area/Primary_Result_Summary/processing_level**	
		1) "Calibrated" 2) "Derived" 3) "Partially Processed" 4) "Raw" 5) "Telemetry"	ASCII_Short_String_Collapsed
Product_Browse	The Product Browse class defines a product consisting of one	**1)/Product_Browse**	

	encoded byte stream digital object.	1) *Product* 2) *Context_Area* 3) *Identification_Area* 4) *Reference_List* 5) *File_Area_Browse*	
Product_Bundle	A Product_Bundle is an aggregate product and has a table of references to one or more collections.	**1)/Product_Bundle**	
		1) *Product* 2) *Context_Area* 3) *Identification_Area* 4) *Reference_List* 5) *Bundle* 6) *File_Area_Text* 7) *Bundle_Member_Entry*	
product_class	The product_class attribute provides the name of the product class.	**1)/Product_Bundle/Identification_Area/product_class** **2)/Product_Document/Identification_Area/product_class** **3)/Product_File_Text/Identification_Area/product_class** **4)/Product_Browse/Identification_Area/product_class** **5)/Product_Observational/Identification_Area/product_class** **6)/Product_Collection/Identification_Area/product_class**	
		1) "Product_AIP" 2) "Product_Ancillary" 3) "Product_Attribute_Definition" 4) "Product_Browse" 5) "Product_Bundle" 6) "Product_Class_Definition" 7) "Product_Collection" 8) "Product_Context" 9) "Product_DIP" 10) "Product_DIP_Deep_Archive" 11) "Product_Data_Set_PDS3" 12) "Product_Document" 13) "Product_File_Repository" 14) "Product_File_Text" 15) "Product_Instrument_Host_PDS3" 16) "Product_Instrument_PDS3" 17) "Product_Metadata_Supplemental" 18) "Product_Mission_PDS3" 19) "Product_Native" 20) "Product_Observational" 21) "Product_Proxy_PDS3" 22) "Product_SIP" 23) "Product_SIP_Deep_Archive" 24) "Product_SPICE_Kernel" 25) "Product_Service" 26) "Product_Software" 27) "Product_Subscription_PDS3" 28) "Product_Target_PDS3" 29) "Product_Thumbnail" 30) "Product_Update" 31) "Product_Volume_PDS3" 32) "Product_Volume_Set_PDS3" 33) "Product_XML_Schema" 34) "Product_Zipped"	ASCII_Short_String_Collapsed
Product_Collection	A Product_Collection has a table of references to one or more basic products. The references are stored in a table called the inventory.	**1)/Product_Collection**	
		1) *Product* 2) *Context_Area* 3) *Identification_Area* 4) *Reference_List* 5) *Collection*	

		6) *File_Area_Inventory*	
Product_Document	A Product Document is a product consisting of a single logical document that may comprise one or more document editions.	**1)/Product_Document**	
		1) *Product* 2) *Context_Area* 3) *Identification_Area* 4) *Reference_List* 5) *Document*	
Product_File_Text	The Product File Text consists of a single text file with ASCII character encoding.	**1)/Product_File_Text**	
		1) *Product* 2) *Identification_Area* 3) *Reference_List* 4) *File_Area_Text*	
Product_Observational	A Product_Observational is a set of one or more information objects produced by an observing system.	**1)/Product_Observational**	
		1) *Product* 2) *Identification_Area* 3) *Observation_Area* 4) *Reference_List* 5) *File_Area_Observational* 6) File_Area_Observational_Supplemental	
proc:**program_start_date_time** *. *DAT_TIM*	The program_start_date_time specifies the datetime for the start of the software program execution.	**1)/Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Process/Software/Software_Program[*]/program_start_date_time**	
			ASCII_Date_Time_YMD_UTC
proc:**program_type_name**	The program_type_name attribute specifies the type of software program used for this software processing. Some examples include: VICAR, ISIS, GDAL.	**1)/Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Process/Software/Software_Program[*]/program_type_name**	
			ASCII_Short_String_Collapsed
proc:**program_user** *. *USER*	The program_user attribute specifies the username of the person responsible for running the software prgoram.	**1)/Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Process/Software/Software_Program[*]/program_user**	
			ASCII_Short_String_Collapsed
publication_date	The publication_date attribute provides the date on which an item was published.	**1)/Product_Document/Document/publication_date**	
			ASCII_Date_YMD
publication_year	The publication_year attribute provides the year in which the product should be considered as published. Generally, this will be the year the data were declared "Certified" or "Archived".	**1)/Product_Bundle/Identification_Area/Citation_Information/publication_year** **2)/Product_Document/Identification_Area/Citation_Information/publication_year** **3)/Product_File_Text/Identification_Area/Citation_Information/publication_year** **4)/Product_Collection/Identification_Area/Citation_Information/publication_year**	
			ASCII_Date_YMD
purpose	The purpose attribute provides an indication of the primary purpose of the observations included.	**1)/Product_Bundle/Context_Area/Primary_Result_Summary/purpose** **2)/Product_Observational/Observation_Area/Primary_Result_Summary/purpose** **3)/Product_Collection/Context_Area/Primary_Result_Summary/purpose**	
		1) "Calibration" 2) "Checkout" 3) "Engineering" 4) "Navigation" 5) "Observation Geometry" 6) "Science" 7) "Supporting Observation"	ASCII_Short_String_Collapsed
Record_Delimited	The Record_Delimited class is a component of the delimited table (spreadsheet) class and defines a record of the	**1)/Product_Observational/File_Area_Observational/Table_Delimited/Record_Delimited**	

	delimited table.	**2)/Product_Collection/File_Area_Inventory/Inventory/Record_Delimited**
		1) *fields* 2) *maximum_record_length* 3) *groups* 4) *Field_Delimited* 5) *Group_Field_Delimited*	
record_delimiter	The record_delimiter attribute provides the character or characters used to indicate the end of a record.	**1)/Product_File_Text/File_Area_Text/Stream_Text/record_delimiter** **2)/Product_Observational/File_Area_Observational/Table_Delimited/record_delimiter** **3)/Product_Collection/File_Area_Inventory/Inventory/record_delimiter**
		1) "Carriage-Return Line-Feed" 2) "Line-Feed" 3) "carriage-return line-feed"	ASCII_Short_String_Collapsed
records	The records attribute provides a count of records.	**1)/Product_Observational/File_Area_Observational/Table_Delimited/records** **2)/Product_Collection/File_Area_Inventory/Inventory/records**
			ASCII_NonNegative_Integer
Reference_List	The Reference_List class provides general references, cross-references, and source products for the product. References cited elsewhere in the label need not be repeated here.	**1)/Product_Browse/Reference_List** **2)/Product_Observational/Reference_List** **3)/Product_Collection/Reference_List**
		1) *Internal_Reference* 2) *External_Reference* 3) *Source_Product_Internal* 4) *Source_Product_External*	
reference_type	The reference_type attribute provides the name of the association.	**1)/Product_Bundle/Context_Area/Investigation_Area/Internal_Reference/reference_type** **2)/Product_Bundle/Context_Area/Observing_System/Observing_System_Component[*]/Internal_Reference/reference_type** **3)/Product_Bundle/Context_Area/Target_Identification/Internal_Reference/reference_type** **4)/Product_Bundle/Bundle_Member_Entry[*]/reference_type** **5)/Product_Document/Context_Area/Investigation_Area/Internal_Reference/reference_type** **6)/Product_Document/Context_Area/Observing_System/Observing_System_Component/Internal_Reference/reference_type** **7)/Product_Browse/Reference_List/Internal_Reference/reference_type** **8)/Product_Observational/Observation_Area/Investigation_Area/Internal_Reference/reference_type** **9)/Product_Observational/Observation_Area/Observing_System/Observing_System_Component/Internal_Reference/reference_type** **10)/Product_Observational/Observation_Area/Target_Identification/Internal_Reference/reference_type** **11)/Product_Observational/Reference_List/Internal_Reference/reference_type** **12)/Product_Collection/Context_Area/Investigation_Area/Internal_Reference/reference_type** **13)/Product_Collection/Context_Area/Observing_System/Observing_System_Component/Internal_Reference/reference_type** **14)/Product_Collection/Context_Area/Target_Identification/Internal_Reference/reference_type** **15)/Product_Collection/Reference_List/Internal_Reference/reference_type** **16)/Product_Collection/File_Area_Inventory/Inventory/reference_type**

		ASCII_Short_String_Collapsed
img:**Sampling**	The Sampling class contains attributes and classes related to the sampling, scaling, companding, and compression or reduction in resolution of data.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Sampling** **2)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Commanded_Parameters**/**Sampling** **3)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Commanded_Parameters**/**Thumbnail**/**Sampling**
		1) *img:crosstrack_summing* 2) *img:downtrack_summing* 3) *img:missing_pixel_count* 4) *img:original_sample_bits* 5) *img:sample_bits* 6) *img:sample_bit_mask* 7) *img:sampling_factor* 8) *img:saturated_pixel_count* 9) *img:valid_pixel_count* 10) *img:Companding*
Science_Facets	The Science_Facets class contains the science-related search facets. It is optional and may be repeated if an product has facets related to, for example, two different disciplines (as defined by the discipline_name facet). Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.	**1)**/**Product_Bundle**/**Context_Area**/**Primary_Result_Summary**/**Science_Facets** **2)**/**Product_Observational**/**Observation_Area**/**Primary_Result_Summary**/**Science_Facets** **3)**/**Product_Collection**/**Context_Area**/**Primary_Result_Summary**/**Science_Facets**
		1) *wavelength_range* 2) *domain* 3) *Discipline_Facets* 4) *discipline_name*
sequence_number	The sequence_number attribute provides a number that is used to order axes in an array.	**1)**/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**Axis_Array[*]**/**sequence_number**
		ASCII_NonNegative_Integer
proc:**Software**	The Software class describes the data processing software used in order to produce the data product.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Processing_Information**/**Process**/**Software**
		1) *name* 2) *software_id* 3) *software_version_id* 4) *software_type* 5) *description* 6) *Internal_Reference* 7) *proc:Software_Program*
proc:**Software_Program**	The Software_Program class describes the specific components or tasks of the Software executed in producing the data product.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Processing_Information**/**Process**/**Software**/**Software_Program[*]**
		1) *name* 2) *proc:program_type_name* 3) *proc:program_user* 4) *proc:program_hostname* 5) *proc:program_path* 6) *proc:program_version* 7) *proc:program_start_date_time* 8) *proc:program_stop_date_time* 9) *description* 10) *proc:Software_Program_Parameters*
cart:**south_bounding_coordinate** *IMAGE_MAP_PROJECTION.* ***MINIMUM_LATITUDE***	The south_bounding_coordinate attribute provides the southern-most coordinate of the limit of coverage expressed in latitude.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Domain**/**Bounding_Coordinates**/**south_bounding_coordinate**
		ASCII_Real *Units_of_Angle*
mars2020:**spacecraft_clock_start**	The spacecraft_clock_start is the value of the spacecraft clock at the beginning of an observation, in seconds. Values are formed according to the pattern [p/]dddddddddd[.fffffffff], where p is an optional partition number, dddddddddd is a whole number of seconds up to 10 digits, and .fffffffff is an optional fraction of a second up to 9 digits. The whole number and fraction are separated by a period. If a partition number	**1)**/**Product_Observational**/**Observation_Area**/**Mission_Area**/**Mars2020_Parameters**/**Observation_Information**/**spacecraft_clock_start**
		ASCII_Short_String_Collapsed

	and slash are not present, then the attribute spacecraft_clock_partition must be used.	
msn:**spacecraft_clock_start** *IDENTIFICATION.* ***SPACECRAFT_CLOCK_START_COUNT***	The spacecraft_clock_start is the value of the spacecraft clock at the beginning of the observation. **Mars 2020 Specific:** *For M2020, the time period of interest is the beginning of data acquisition.* *The format is "sssssssss.mmm",where "sssssssss" = seconds converted from the clock's coarse counter and "mmm" = milliseconds converted from the clock's fine counter. The miliseconds for most instruments are conputed as: [(fine_counter shift right 12 bits) / 2**20] * 1000* *For ZCAM, this is taken from the mini-header* *For SkyCam, this is taken from the Timetag field in the header, but has no subseconds.* *SCLK is measured from an epoch time of January 1, 2000, 12:00:00 Ephemeris Time, commonly called J2000. This is the beginning of Julian Year 2000, and corresponds to a Julian date of 2451545.0. This is equivalent to January 1, 2000, 11:58:55.816 UTC. Ideally, the SCLK should equal the exact number of seconds since the epoch. Deviations from this ideal will occur due to clock drift and errors in setting the SCLK value.*	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Mission_Information**/**spacecraft_clock_start** ASCII_Short_String_Collapsed
mars2020:**spacecraft_clock_stop**	The spacecraft_clock_stop is the value of the spacecraft clock at the end of an observation, in seconds. Values are formed according to the pattern [p/]dddddddddd[.fffffffff], where p is an optional partition number, dddddddddd is a whole number of seconds up to 10 digits, and .fffffffff is an optional fraction of a second up to 9 digits. The whole number and fraction are separated by a period. If a partition number and slash are not present, then the attribute spacecraft_clock_partition must be used.	**1)**/**Product_Observational**/**Observation_Area**/**Mission_Area**/**Mars2020_Parameters**/**Observation_Information**/**spacecraft_clock_stop** ASCII_Short_String_Collapsed
msn:**spacecraft_clock_stop** *IDENTIFICATION.* ***SPACECRAFT_CLOCK_STOP_COUNT***	The spacecraft_clock_stop is the value of the spacecraft clock at the end of the observation. spacecraft_clock_stop should only be used if there's also a spacecraft_clock_start value. **Mars 2020 Specific:** *For M2020, the time period of interest is the end of data acquisition.* *The format is "sssssssss.mmm",where "sssssssss" = seconds converted from the clock's coarse counter and "mmm" = milliseconds converted from the clock's fine counter. The miliseconds are conputed as: [(fine_counter shift right 12 bits) / 2**20] * 1000*	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Mission_Information**/**spacecraft_clock_stop** ASCII_Short_String_Collapsed
cart:**Spatial_Domain**	The Spatial_Domain class describes the geographic areal domain of the data set.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Domain** 1) *cart:Bounding_Coordinates*
cart:**Spatial_Reference_Information**	The Spatial_Reference_Information class provides a description of the reference frame for, and the means to encode, coordinates in a data set.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[*]**/**Spatial_Reference_Information** 1) *cart:Horizontal_Coordinate_System_Definition*
cart:**spheroid_name**	The spheroid_name attribute provides the identification given to established representations of a planet's shape.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Geodetic_Model**/**spheroid_name** ASCII_Short_String_Collapsed
cart:**standard_parallel_1** *IMAGE_MAP_PROJECTION.* ***CENTER_LATITUDE***	The standard_parallel_1 attribute defines the first standard parallel (applicable only for specific projections), the first line of constant latitude at which the surface of the planet and the plane or developable surface intersect.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Map_Projection**/**Equirectangular**/**standard_parallel_1** ASCII_Real

			Units_of_Angle
start_date_time *IDENTIFICATION.* **START_TIME**	The start_date_time attribute provides the date and time appropriate to the beginning of the product being labeled. **Mars 2020 Specific:** *For M2020, the time period of interest is returned from SPICE suburoutines and based on the beginning of data acquisition.*	**1)**/**Product_Bundle**/**Context_Area**/**Time_Coordinates**/**start_date_time** **2)**/**Product_Observational**/**Observation_Area**/**Time_Coordinates**/**start_date_time** **3)**/**Product_Collection**/**Context_Area**/**Time_Coordinates**/**start_date_time**	
			ASCII_Date_Time_YMD_UTC
stop_date_time *IDENTIFICATION.* **STOP_TIME**	The stop_date_time attribute provides the date and time appropriate to the end of the product being labeled.	**1)**/**Product_Bundle**/**Context_Area**/**Time_Coordinates**/**stop_date_time** **2)**/**Product_Observational**/**Observation_Area**/**Time_Coordinates**/**stop_date_time** **3)**/**Product_Collection**/**Context_Area**/**Time_Coordinates**/**stop_date_time**	
			ASCII_Date_Time_YMD_UTC
Stream_Text	The Stream text class defines a text object.	**1)**/**Product_File_Text**/**File_Area_Text**/**Stream_Text**	
		1) *Parsable_Byte_Stream* 2) *name* 3) *offset* 4) *record_delimiter* 5) *local_identifier* 6) *object_length* 7) *md5_checksum* 8) *description* 9) *parsing_standard_id* 10) *Digital_Object*	
Table_Delimited	The Table_Delimited class defines a simple table (spreadsheet) with delimited fields and records.	**1)**/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**	
		1) *Parsable_Byte_Stream* 2) *name* 3) *offset* 4) *records* 5) *local_identifier* 6) *object_length* 7) *record_delimiter* 8) *md5_checksum* 9) *parsing_standard_id* 10) *description* 11) *field_delimiter* 12) *Digital_Object* 13) *Uniformly_Sampled* 14) *Record_Delimited*	
Target_Identification	The Target_Identification class provides detailed target identification information.	**1)**/**Product_Bundle**/**Context_Area**/**Target_Identification** **2)**/**Product_Observational**/**Observation_Area**/**Target_Identification** **3)**/**Product_Collection**/**Context_Area**/**Target_Identification**	
		1) *name* 2) *alternate_designation* 3) *type* 4) *description* 5) *Internal_Reference*	
img:**Thumbnail**	Describes a Thumbnail product, which is a greatly reduced resolution version of the image.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Imaging**/**Commanded_Parameters**/**Thumbnail**	
		1) *img:download_priority* 2) *img:frame_id* 3) *img:frame_type_name* 4) *img:product_flag* 5) *img:Onboard_Compression* 6) *img:Sampling* 7) *img:Subframe*	

Time_Coordinates	The Time_Coordinates class provides a list of time coordinates.	1)/**Product_Bundle**/**Context_Area**/**Time_Coordinates** 2)/**Product_Observational**/**Observation_Area**/**Time_Coordinates** 3)/**Product_Collection**/**Context_Area**/**Time_Coordinates**	
		1) *start_date_time* 2) *stop_date_time* 3) *local_mean_solar_time* 4) *local_true_solar_time* 5) *solar_longitude*	
title *IDENTIFICATION.* ***INSTRUMENT_ID***	The title attribute provides a short, descriptive text string suitable use as a title or brief description in display or listing of products.	1)/**Product_Bundle**/**Identification_Area**/**title** 2)/**Product_Document**/**Identification_Area**/**title** 3)/**Product_File_Text**/**Identification_Area**/**title** 4)/**Product_Browse**/**Identification_Area**/**title** 5)/**Product_Observational**/**Identification_Area**/**title** 6)/**Product_Collection**/**Identification_Area**/**title**	
			UTF8_Short_String_Collapsed
type	The type attribute classifies Investigation_Area according to the scope of the investigation..	1)/**Product_Bundle**/**Context_Area**/**Investigation_Area**/**type** 2)/**Product_Bundle**/**Context_Area**/**Observing_System**/**Observing_System_Component[*]**/**type** 3)/**Product_Bundle**/**Context_Area**/**Target_Identification**/**type** 4)/**Product_Document**/**Context_Area**/**Investigation_Area**/**type** 5)/**Product_Document**/**Context_Area**/**Observing_System**/**Observing_System_Component**/**type** 6)/**Product_Observational**/**Observation_Area**/**Investigation_Area**/**type** 7)/**Product_Observational**/**Observation_Area**/**Observing_System**/**Observing_System_Component**/**type** 8)/**Product_Observational**/**Observation_Area**/**Target_Identification**/**type** 9)/**Product_Collection**/**Context_Area**/**Investigation_Area**/**type** 10)/**Product_Collection**/**Context_Area**/**Observing_System**/**Observing_System_Component**/**type** 11)/**Product_Collection**/**Context_Area**/**Target_Identification**/**type**	
		1) "Field Campaign" 2) "Individual Investigation" 3) "Mission" 4) "Observing Campaign" 5) "Other Investigation"	ASCII_Short_String_Collapsed
unit *DERIVED_IMAGE_PARMS.* ***RADIANCE_OFFSET__UNIT*** *DERIVED_IMAGE_PARMS.* ***RADIANCE_SCALING_FACTOR__UNIT***	The unit attribute provides the unit of measurement.	1)/**Product_Observational**/**File_Area_Observational**/**Table_Delimited**/**Record_Delimited**/**Field_Delimited[*]**/**unit** 2)/**Product_Observational**/**File_Area_Observational**/**Array_2D_Image**/**Element_Array**/**unit**	
			UTF8_Short_String_Collapsed
cart:**upperleft_corner_x** *IMAGE_MAP_PROJECTION.* ***SAMPLE_PROJECTION_OFFSET***	The upperleft_corner_x and upperleft_corner_y attributes provide the projection x and y values, in meters, relative to the map projection origin, at sample 0.5 and line 0.5 (upper left corner of pixel 1,1 within image array). (0.5,0.5) - upper left corner (edge) of pixel 1,1 / #---+---+-> I where # is X,Y location in meters, I * I I relative to map projection origin. +---+---+ where * is pixel coordinate (1.0,1.0) I J pixel coordinate	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Geo_Transformation**/**upperleft_corner_x**	
			ASCII_Real *Units_of_Length*

	(2.5,1.5)		
cart:**upperleft_corner_y** *IMAGE_MAP_PROJECTION.* **LINE_PROJECTION_OFFSET**	The upperleft_corner_x and upperleft_corner_y attributes provide the projection x and y values, in meters, relative to the map projection origin, at sample 0.5 and line 0.5 (upper left corner of pixel 1,1 within image array). (0.5,0.5) - upper left corner (edge) of pixel 1,1 / #---+---+-> I where # is X,Y location in meters, I * I I relative to map projection origin. +---+---+ where * is pixel coordinate (1.0,1.0) I J pixel coordinate (2.5,1.5)	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Planar**/**Geo_Transformation**/**upperleft_corner_y**	
			ASCII_Real *Units_of_Length*
version_id *IDENTIFICATION.* **PRODUCT_ID**	The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.	1)/**Product_Bundle**/**Identification_Area**/**version_id** 2)/**Product_Document**/**Identification_Area**/**version_id** 3)/**Product_File_Text**/**Identification_Area**/**version_id** 4)/**Product_Browse**/**Identification_Area**/**version_id** 5)/**Product_Observational**/**Identification_Area**/**version_id** 6)/**Product_Collection**/**Identification_Area**/**version_id**	
			ASCII_Short_String_Collapsed
disp:**vertical_display_axis**	The vertical_display_axis attribute identifies, by name, the axis of an Array (or Array subclass) that is intended to be displayed in the vertical or "line" dimension on a display device. The value of this attribute must match the value of one, and only one, axis_name attribute in an Axis_Array class of the associated Array.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**/**Display_Direction**/**vertical_display_axis**	
			ASCII_Short_String_Collapsed
disp:**vertical_display_direction**	The vertical_display_direction attribute specifies the direction along the screen of a display device that data along the vertical axis of an Array is supposed to be displayed.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Display_Settings**/**Display_Direction**/**vertical_display_direction**	
		1) "Bottom to Top" 2) "Top to Bottom"	ASCII_Short_String_Collapsed
wavelength_range	The wavelength range attribute specifies the wavelength range over which the data were collected or which otherwise characterizes the observation(s). Boundaries are vague, and there is overlap.	1)/**Product_Bundle**/**Context_Area**/**Primary_Result_Summary**/**Science_Facets**/**wavelength_range** 2)/**Product_Observational**/**Observation_Area**/**Primary_Result_Summary**/**Science_Facets**/**wavelength_range** 3)/**Product_Collection**/**Context_Area**/**Primary_Result_Summary**/**Science_Facets**/**wavelength_range**	
		1) "Far Infrared" 2) "Gamma Ray" 3) "Infrared" 4) "Microwave" 5) "Millimeter" 6) "Near Infrared" 7) "Radio" 8) "Submillimeter" 9) "Ultraviolet" 10) "Visible" 11) "X-ray"	ASCII_Short_String_Collapsed
cart:**west_bounding_coordinate** *IMAGE_MAP_PROJECTION.* **WESTERNMOST_LONGITUDE**	The west_bounding_coordinate attribute provides the western-most coordinate of the limit of coverage expressed in longitude.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[1]**/**Spatial_Domain**/**Bounding_Coordinates**/**west_bounding_coordinate**	
			ASCII_Real *Units_of_Angle*
cart:**x_axis_maximum** *SURFACE_PROJECTION_PARMS.* **X_AXIS_MAXIMUM** *SURFACE_PROJECTION_PARMS.* **X_AXIS_MAXIMUM__UNIT**	The x_axis_maximum attribute specifies the value of the X coordinate (measured in the projection frame) of a Vertical, Orthographic or Orthorectified lander map projection at the top of the image. Note that +X is at the top of the image and +Y is at the right, so +X corresponds to North in the Vertical projection.	1)/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate_System_Definition**/**Local**/**Map_Projection_Lander**/**Orthorectified**/**x_axis_maximum**	
			ASCII_Real *Units_of_Length*

cart:**x_axis_minimum** *SURFACE_PROJECTION_PARMS.* **X_AXIS_MINIMUM** *SURFACE_PROJECTION_PARMS.* **X_AXIS_MINIMUM__UNIT**	The x_axis_minimum attribute specifies the value of the X coordinate (measured in the projection frame) of a Vertical, Orthographic or Orthorectified lander map projection at the bottom of the image.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate** **_System_Definition**/**Local**/**Map_Projection_Lander**/**Orthorectified**/**x_axis_minimum**
		~~ASCII_Real~~ *Units_of_Length*
cart:**y_axis_maximum** *SURFACE_PROJECTION_PARMS.* **Y_AXIS_MAXIMUM** *SURFACE_PROJECTION_PARMS.* **Y_AXIS_MAXIMUM__UNIT**	The y_axis_minimum attribute specifies the value of the Y coordinate (measured in the projection frame) of a Vertical, Orthographic or Orthorectified lander map projection at the right edge of the image.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate** **_System_Definition**/**Local**/**Map_Projection_Lander**/**Orthorectified**/**y_axis_maximum**
		ASCII_Real *Units_of_Length*
cart:**y_axis_minimum** *SURFACE_PROJECTION_PARMS.* **Y_AXIS_MINIMUM** *SURFACE_PROJECTION_PARMS.* **Y_AXIS_MINIMUM__UNIT**	The y_axis_minimum attribute specifies the value of the Y coordinate (measured in the projection frame) of a Vertical, Orthographic or Orthorectified lander map projection at the left edge of the image.	**1)**/**Product_Observational**/**Observation_Area**/**Discipline_Area**/**Cartography[2]**/**Spatial_Reference_Information**/**Horizontal_Coordinate** **_System_Definition**/**Local**/**Map_Projection_Lander**/**Orthorectified**/**y_axis_minimum**
		ASCII_Real *Units_of_Length*