

# Mars2020 SuperCam Instrument Product Label Keyword Definitions, Values - PDS Sort

Dictionary:PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>Mars 2020-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
<b>mars2020:active_flight_computer</b>	The active_flight_computer indicates which flight computer "string" (separate sets of electronics) was active when a product was acquired. For Mars 2020 there are two redundant flight computers called "strings", also known as Rover Compute Elements (RCEs). Either string, A or B, may be active at any given time.	<a href="#">1)/Product_Observational/Observation_Area/Mission_Area/Mars2020_Parameters/Observation_Information/active_flight_computer</a>	
		1) "A" 2) "B"	ASCII_Short_String_Collapsed
<b>msn_surface:activity_id</b> <i>IDENTIFICATION. ACTIVITY_ID</i>	Identifier specifying the activity this observation is a part of.  <b>Mars 2020 Specific:</b> <i>The general operational usage of this field is to group related datasets together by science or engineering applicaiton or theme, such as frames in a mosaic.</i>	<a href="#">1)/Product_Observational/Observation_Area/Discipline_Area/Surface_Mission_Information/Observational_Intent/activity_id</a>	
			ASCII_Short_String_Collapsed
<b>Alias</b>	The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.	<a href="#">1)/Product_Observational/Identification_Area/Alias_List/Alias</a>	
		1) <a href="#">alternate_id</a> 2) <a href="#">alternate_title</a> 3) <a href="#">comment</a>	
<b>Alias_List</b>	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.	<a href="#">1)/Product_Observational/Identification_Area/Alias_List</a>	
		1) <a href="#">Alias</a>	
<b>alternate_id</b> <i>IDENTIFICATION. PRODUCT_ID</i>	The alternate_id attribute provides an additional identifier supplied by the data provider.  <b>Mars 2020 Specific:</b> <i>For M2020, it is the filename minus the extension.</i>	<a href="#">1)/Product_Observational/Identification_Area/Alias_List/Alias/alternate_id</a>	
			ASCII_Short_String_Collapsed
<b>msn_surface:application_id</b> <i>TELEMETRY. APPLICATION_PROCESS_ID</i>	The application_id (often abbreviated APID) attribute identifies the process, or source, which created the data. This can include information such as an identification of the instrument which generated the telemetry stream, its operating mode at the time of data acquisition, and any onboard compression of the data.  <b>Mars 2020 Specific:</b> <i>For M2020, the Application Process Identifier (APID) identifies the data type encapsulated in the packet, including whether the packet is a data product packet or a non-data product packet. M2020 shall implement the following APID assignments (all numbers below are in decimal, all ranges are inclusive):</i>  a) APID 2047 is used for Idle Packets. b) APID 2040-2046 will not be produced by M2020 as these APIDs are reserved by the CCSDS standard. c) APID 0 will not be produced by M2020. d) APID 1 is reserved for X-band time correlation packets. e) APIDs 2-99 are assigned to non-data product packets. Individual values will be assigned to particular packet types as they are identified. Definitions of these packet formats are defined in this document. Definition of APID assignments is included in the Rover Flight Software APID XML. f) APIDs 100-2039 are assigned to RCE Flight Software data product packets. Definition of APID assignments is included in the Rover Flight Software APID XML. g) APIDs 1500-2039 are reserved for SSE (Simulation and Support Equipment) product types.  <i>(Above text from M2020 FGICD Volume 1, Rev A)</i>  <i>For M2020, only APID Names uniquely identify Data Product types across all FSW versions. For this reason, the integer APIDs are not documented here.</i>  <i>See also APPLICATION_PROCESS_NAME and Appendix A.</i>	<a href="#">1)/Product_Observational/Observation_Area/Discipline_Area/Surface_Mission_Information/Telemetry/application_id</a>	
			ASCII_NonNegative_Integer
<b>msn_surface:application_name</b>	The application_name attribute provides the name associated	<a href="#">1)/Product_Observational/Observation_Area/Discipline_Area/Surface_Mission_Information/Telemetry/application_name</a>	

<p>TELEMETRY. APPLICATION_PROCESS_NAME</p>	<p>with the source or process which created the data.</p> <p><b>Mars 2020 Specific:</b> For M2020, only APID Names uniquely identify Data Product types across all FSW versions.</p> <p>See also APPLICATION_PROCESS_ID and Appendix A.</p>		<p>ASCII_Short_String_Collapsed</p>
<p>Array_2D</p>	<p>The Array 2D class is the parent class for all two dimensional array based classes.</p>	<p>1)/<a href="#">Product Observational/File Area Observational/Array 2D[*]</a></p> <p>1) <a href="#">Array</a> 2) <a href="#">offset</a> 3) <a href="#">axes</a> 4) <a href="#">name</a> 5) <a href="#">local_identifier</a> 6) <a href="#">axis_index_order</a> 7) <a href="#">md5_checksum</a> 8) <a href="#">description</a> 9) <a href="#">Axis_Array</a> 10) <a href="#">Element_Array</a> 11) <a href="#">Special_Constants</a> 12) <a href="#">Object_Statistics</a> 13) <a href="#">Digital_Object</a> 14) <a href="#">Local_Internal_Reference</a></p>	
<p>geom:Articulation_Device_Parameters</p>	<p>The Articulation_Device_Parameters class contains those attributes and sub-classes that describe an articulation device. An articulation device is anything that can move independently of the spacecraft to which it is attached. Examples include mast heads, wheel bogies, arms, filter wheel, scan platforms.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]</a></p> <p>1) <a href="#">local_identifier</a> 2) <a href="#">geom:device_id</a> 3) <a href="#">geom:device_name</a> 4) <a href="#">geom:device_mode</a> 5) <a href="#">geom:device_phase</a> 6) <a href="#">geom:selected_instrument_id</a> 7) <a href="#">geom:Device_Angle</a> 8) <a href="#">geom:Device_Component_State</a> 9) <a href="#">geom:Device_Motor_Counts</a> 10) <a href="#">geom:Device_Pose</a> 11) <a href="#">geom:Vector_Device_Gravity</a> 12) <a href="#">geom:Vector_Device_Gravity_Magnitude</a> 13) <a href="#">geom:Device_Temperature</a> 14) <a href="#">geom:Coordinate_Space_Present</a> 15) <a href="#">geom:Coordinate_Space_Reference</a> 16) <a href="#">geom:Commanded_Geometry</a></p>	
<p>author_list</p>	<p>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."</p>	<p>1)/<a href="#">Product Document/Identification Area/Citation Information/author_list</a></p> <p>2)/<a href="#">Product Bundle/Identification Area/Citation Information/author_list</a></p> <p>3)/<a href="#">Product Collection/Identification Area/Citation Information/author_list</a></p>	<p>UTF8_Text_Preserved</p>
<p>msn_surface:auto_delete_flag TELEMETRY. AUTO_DELETE_FLAG</p>	<p>Indicates if the product was to be automatically deleted onboard after it is transmitted.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/auto_delete_flag</a></p>	<p>ASCII_Boolean</p>
<p>axes SYSTEM. NB</p>	<p>The axes attribute provides a count of the axes.</p>	<p>1)/<a href="#">Product Observational/File Area Observational/Array 2D[*]/axes</a></p> <p>1) "2"</p>	<p>ASCII_NonNegative_Integer</p>
<p>Axis_Array</p>	<p>The Axis Array class is used as a component of the array class and defines an axis of the array.</p>	<p>1)/<a href="#">Product Observational/File Area Observational/Array 2D[*]/Axis Array[*]</a></p> <p>1) <a href="#">axis_name</a> 2) <a href="#">local_identifier</a> 3) <a href="#">elements</a> 4) <a href="#">unit</a> 5) <a href="#">sequence_number</a> 6) <a href="#">Band_Bin_Set</a></p>	
<p>axis_index_order</p>	<p>The axis_index_order attribute provides the axis index that varies fastest with respect to storage order.</p>	<p>1)/<a href="#">Product Observational/File Area Observational/Array 2D[*]/axis_index_order</a></p> <p>1) "Last Index Fastest"</p>	<p>ASCII_Short_String_Collapsed</p>
<p>axis_name</p>	<p>The axis_name attribute provides a word or combination of words by which the axis is known.</p>	<p>1)/<a href="#">Product Observational/File Area Observational/Array 2D[*]/Axis Array[*]/axis_name</a></p>	<p>ASCII_Short_String_Collapsed</p>

msn_surface:boot_counter TELEMETRY. BOOT_COUNT	Counter indicating the number of times the spacecraft flight software has been booted. The intent is that this is a global counter that can uniquely identify the current FSW boot, so other counters that reset at boot time can be disambiguated.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/boot_counter</a> ASCII_Short_String_Collapsed
mars2020:bu_hardware_identifier GENERIC_PACKET_HEADER_DATA_ELEMENTS.BU_HARDWARE_IDENTIFIER	Hardware identifier for a specific BU CNDH board. Used to know which SOH engineering unit conversion factors to apply to the data.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/bu_hardware_identifier</a> ASCII_Integer
mars2020:bu_software_version GENERIC_PACKET_HEADER_DATA_ELEMENTS.BU_SOFTWARE_VERSION	Unique identifier for the software version. Is a unix timestamp of when the software was built.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/bu_software_version</a> ASCII_Integer
Bundle	The Bundle class describes a collection of collections.	1)/ <a href="#">Product Bundle/Bundle</a> 1) <a href="#">bundle_type</a> 2) <a href="#">description</a> 3) <a href="#">Conceptual_Object</a>
Bundle_Member_Entry	The Bundle Member Entry class provides a member reference to a collection.	1)/ <a href="#">Product Bundle/Bundle Member Entry[*]</a> 1) <a href="#">lid_reference</a> 2) <a href="#">lidvid_reference</a> 3) <a href="#">member_status</a> 4) <a href="#">reference_type</a>
bundle_type	The bundle_type attribute provides a classification for the bundle.	1)/ <a href="#">Product Bundle/Bundle/bundle_type</a> 1) "Archive" 2) "Supplemental" ASCII_Short_String_Collapsed
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)/ <a href="#">Product Document/Identification Area/Citation_Information</a> 2)/ <a href="#">Product Bundle/Identification Area/Citation_Information</a> 3)/ <a href="#">Product Collection/Identification Area/Citation_Information</a> 1) <a href="#">author_list</a> 2) <a href="#">editor_list</a> 3) <a href="#">publication_year</a> 4) <a href="#">doi</a> 5) <a href="#">keyword</a> 6) <a href="#">description</a>
mars2020:cndh_firmware_version GENERIC_PACKET_HEADER_DATA_ELEMENTS.CNDH_FIRMWARE_VERSION	Unique identifier for the CNDH firmware version. Is a unix timestamp of when the firmware was built.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/cndh_firmware_version</a> ASCII_Integer
Collection	The Collection class provides a description of a set of products.	1)/ <a href="#">Product Collection/Collection</a> 1) <a href="#">collection_type</a> 2) <a href="#">description</a>
collection_type	The collection_type attribute provides a classification for the collection.	1)/ <a href="#">Product Collection/Collection/collection_type</a> 1) "Browse" 2) "Calibration" 3) "Context" 4) "Data" 5) "Document" 6) "Geometry" 7) "Miscellaneous" 8) "SPICE Kernel" 9) "XML Schema" ASCII_Short_String_Collapsed
msn_surface:command_dispatch_sclk TELEMETRY. COMMAND_DISPATCH_SCLK	Specifies the spacecraft clock time at which the command execution was started. <b>Mars 2020 Specific:</b> <i>The subseconds for this SCLK are expressed not in milliseconds but rather in counts, where each count is 1/65536 of a second. This is indicated in the PDS4 label (but not the VICAR/ODL label) by a "." rather than a "," separating the integer and subsecond components of the SCLK.</i>	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/command_dispatch_sclk</a> ASCII_Short_String_Collapsed

msn_surface:Command_Execution	The Command_Execution class contains information about how the command that acquired this data was executed, such as sequence or activity.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution</a> 1) <a href="#">msn_surface:sequence_id</a> 2) <a href="#">msn_surface:sequence_version_id</a> 3) <a href="#">msn_surface:sequence_execution_count</a> 4) <a href="#">msn_surface:command_sequence_number</a> 5) <a href="#">msn_surface:command_source_id</a> 6) <a href="#">msn_surface:command_dispatch_sclk</a> 7) <a href="#">msn_surface:observation_id</a> 8) <a href="#">msn_surface:request_id</a> 9) <a href="#">msn_surface:boot_counter</a> 10) <a href="#">msn_surface:rtt_version</a>	
msn_surface:command_sequence_number  IDENTIFICATION. COMMAND_SEQUENCE_NUMBER	The command_sequence_number attribute provides a numeric identifier for a sequence of commands sent to a spacecraft or instrument.  <b>Mars 2020 Specific:</b> <i>For M2020, this is the command number which identifies the specific generating command within the specified sequence.</i>	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/command sequence number</a>	ASCII_NonNegative_Integer
msn_surface:command_source_id  OBSERVATION_REQUEST_PARMs. SOURCE_ID	Specifies where the command that triggered acquisition of this data came from. This may be "GROUND" for ground commanding, or the name of a flight software module that initiated the request.  <b>Mars 2020 Specific:</b> <i>For M2020, it identifies the FSW element that requested the image, i.e. what was the source of the command. The field is based on the value for IMAGE_ID and the mappings are per convention; there is no guarantee that the mappings are used in this way during operations.</i>	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/command_source_id</a> 1) "GND" 2) "NAVF" 3) "NAVR" 4) "NAVS" 5) "HAFIQ" 6) "SUN" 7) "FAULT" 8) "VTT" 9) "ARMC" 10) "ARMF" 11) "WATCH" 12) "VISODOM" 13) "SPARE1" 14) "SPARE2" 15) "SPARE3" 16) "SPARE4"	ASCII_Short_String_Collapsed
comment	The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.	1)/ <a href="#">Product Collection/Context Area/comment</a> 2)/ <a href="#">Product Collection/Context Area/Investigation Area/Internal Reference/comment</a> 3)/ <a href="#">Product Collection/Context Area/Observing System/Observing System Component[*]/Internal Reference/comment</a> 4)/ <a href="#">Product Collection/Context Area/Target Identification/Internal Reference/comment</a> 5)/ <a href="#">Product Bundle/Context Area/Target Identification/Internal Reference/comment</a> 6)/ <a href="#">Product Observational/Identification Area/Alias List/Alias/comment</a> 7)/ <a href="#">Product Observational/Observation Area/Investigation Area/Internal Reference/comment</a> 8)/ <a href="#">Product Observational/Observation Area/Observing System/Observing System Component/Internal Reference/comment</a> 9)/ <a href="#">Product Observational/Observation Area/Target Identification/Internal Reference/comment</a> 10)/ <a href="#">Product Observational/Reference List/Source Product Internal/comment</a>	ASCII_Text_Preserved
msn_surface:communication_session_id  TELEMETRY. COMMUNICATION_SESSION_ID	Identifies the communication session used to acquire this data.  <b>Mars 2020 Specific:</b> <i>For M2020, this is the active communication session ID at the time of MPDU (Metadata Protocol Data Unit) creation. The MPDU is the first PDU (Protocol Data Unit) produced for a data product, and contains general and M2020 specific metadata. It is wholly contained in a single packet. A value of 0 means the value is not set.</i>	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/communication_session_id</a>	ASCII_Short_String_Collapsed

Context_Area	The Context Area provides context information for a product.	<p>1)/<a href="#">Product Document/Context Area</a></p> <p>2)/<a href="#">Product Bundle/Context Area</a></p> <p>3)/<a href="#">Product Collection/Context Area</a></p>	
geom:Coordinate_Space_Definition	The Coordinate_Space classes are typically used for lander/rover geometry while the Coordinate_System construction is used for orbiter/flyby geometry.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition</a></p>	<p>1) <a href="#">comment</a></p> <p>2) <a href="#">Time Coordinates</a></p> <p>3) <a href="#">Primary Result Summary</a></p> <p>4) <a href="#">Investigation Area</a></p> <p>5) <a href="#">Observing System</a></p> <p>6) <a href="#">Target Identification</a></p> <p>7) <a href="#">Mission Area</a></p> <p>8) <a href="#">Discipline Area</a></p>
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.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Present/Coordinate Space Indexed/coordinate space frame type</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Reference/Coordinate Space Indexed/coordinate space frame type</a></p> <p>3)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference/Coordinate Space Indexed/coordinate space frame type</a></p> <p>4)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Present/Coordinate Space Indexed/coordinate space frame type</a></p> <p>5)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Reference/Coordinate Space Indexed/coordinate space frame type</a></p>	<p>1) "SITE_FRAME"</p> <p>2) "ROVER_NAV_FRAME"</p> <p>3) "ROVER_MECH_FRAME"</p> <p>4) "LOCAL_LEVEL_FRAME"</p> <p>5) "RSM_HEAD_FRAME"</p> <p>6) "ARM_TURRET_FRAME"</p> <p>7) "ARM_DRILL_FRAME"</p> <p>8) "ARM_DOCKING_POST_FRAME"</p> <p>9) "ARM_PIXL_FRAME"</p> <p>10) "ARM_GDRT_FRAME"</p> <p>11) "ARM_FCS_FRAME"</p> <p>12) "ARM_WATSON_FRAME"</p> <p>13) "ARM_SHERLOC_FRAME"</p> <p>14) "ARM_CUSTOM_TCP_FRAME"</p> <p>15) "PIXL_BASE_FRAME"</p> <p>16) "PIXL_SENSOR_FRAME"</p> <p>17) "HELI_G_FRAME"</p> <p>18) "HELI_M_FRAME"</p> <p>19) "HELI_S1_FRAME"</p> <p>20) "HELI_S2_FRAME"</p> <p>21) "CINT_FRAME"</p> <p>22) "MCMF_FRAME"</p> <p>23) "MCZ_CAL_PRIMARY"</p> <p>24) "DRILL_BIT_TIP"</p> <p>25) "MEDA_RDS"</p>

ASCII\_Short\_String\_Collapsed

<p>geom:Coordinate_Space_Index</p> <p>*. REFERENCE_COORD_SYSTEM_INDEX</p>	<p>Identifies a coordinate space using an index value given in an identified list.</p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]</p> <p>2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]</p> <p>3)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Present/Coordinate Space Indexed/Coordinate Space Index[*]</p> <p>4)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index</p> <p>1) <i>geom:List_Index_No_Units</i>  2) <i>geom:index_sequence_number</i>  3) <i>geom:index_name</i>  4) <i>geom:index_id</i>  5) <i>geom:index_value_number</i></p>
<p>geom:Coordinate_Space_Indexed</p>	<p>The Coordinate_Space_Indexed class contains the attributes and classes identifying the indexed coordinate space.</p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Present/Coordinate Space Indexed</p> <p>2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Reference/Coordinate Space Indexed</p> <p>3)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference/Coordinate Space Indexed</p> <p>4)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Present/Coordinate Space Indexed</p> <p>5)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Reference/Coordinate Space Indexed</p> <p>1) <i>geom:coordinate_space_frame_type</i>  2) <i>geom:solution_id</i>  3) <i>geom:Coordinate_Space_Index</i></p>
<p>geom:Coordinate_Space_Present</p>	<p>The Coordinate_Space_Present class includes the attributes that identifies the coordinate space presently being defined.</p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Present</p> <p>2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Present</p> <p>1) <i>geom:Coordinate_Space_Identification</i>  2) <i>geom:Coordinate_Space_Indexed</i>  3) <i>geom:Coordinate_Space_SPICE</i>  4) <i>Local Internal Reference</i></p>
<p>geom:Coordinate_Space_Quality</p>	<p>Parameters that indicate the quality of the coordinate space knowledge.</p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[1]/Coordinate Space Quality</p> <p>1) <i>geom:quaternion_measurement_method</i>  2) <i>geom:attitude_propagation_counter</i>  3) <i>geom:attitude_propagation_duration</i></p>
<p>geom:Coordinate_Space_Reference</p>	<p>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.</p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Reference</p> <p>2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference</p> <p>3)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Reference</p> <p>1) <i>geom:Coordinate_Space_Identification</i>  2) <i>geom:Coordinate_Space_Indexed</i>  3) <i>geom:Coordinate_Space_SPICE</i>  4) <i>Local Internal Reference</i></p>
<p>copyright</p>	<p>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.</p>	<p>1)/Product Document/Document/copyright</p> <p>ASCII_Text_Preserved</p>
<p>creation_date_time</p>	<p>The creation_date_time attribute provides a date and time</p>	<p>1)/Product Observational/File Area Observational/File/creation_date_time</p>

<p>IDENTIFICATION. <b>PRODUCT_CREATION_TIME</b></p>	<p>when the object was created.</p>		<p>ASCII_Date_Time_YMD</p>
<p>mars2020:<b>data_definition_version</b>   <b>GENERIC_PACKET_HEADER_DATA_ELEMENTS.  DATA_DEFINITION_VERSION</b></p>	<p>Version number of the instrument command dictionary, which defines specifics of each command parameter, and the structure of individual data products like SOH.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/data_definition_version</a></p>	<p>ASCII_Integer</p>
<p>msn_surface:<b>data_size</b>   <b>TELEMETRY. IMAGE_DATA_SIZE</b></p>	<p>The data_size specifies number of bytes in the compressed data stream, not including headers.</p> <p><b>Mars 2020 Specific:</b>  For Mastcam-Z, Watson, and ACI, specifies the size of the image data product on the camera DEA.</p> <p>For SkyCam, reports the size of the telemetered image data in bytes, i.e. the sum of the Image Data fields of all the segments of the image.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/data_size</a></p>	<p>ASCII_NonNegative_Integer</p>
<p><b>data_type</b></p>	<p>The data_type attribute provides the hardware representation used to store a value in Field_Binary (see PDS Standards Reference section "Binary Data Types").</p>	<p>1)/<a href="#">Product Observational/File Area Observational/Array 2D[*]/Element Array/data_type</a></p> <p>2)/<a href="#">Product Collection/File Area Inventory/Inventory/Record Delimited/Field Delimited[*]/data_type</a></p> <p>3)/<a href="#">Product Observational/File Area Observational/Table Binary[*]/Record Binary/Field Binary/data_type</a></p> <ol style="list-style-type: none"> <li>1) "ASCII_AnyURI"</li> <li>2) "ASCII_BibCode"</li> <li>3) "ASCII_Boolean"</li> <li>4) "ASCII_DOI"</li> <li>5) "ASCII_Date_DOY"</li> <li>6) "ASCII_Date_Time_DOY"</li> <li>7) "ASCII_Date_Time_DOY_UTC"</li> <li>8) "ASCII_Date_Time_YMD"</li> <li>9) "ASCII_Date_Time_YMD_UTC"</li> <li>10) "ASCII_Date_YMD"</li> <li>11) "ASCII_Directory_Path_Name"</li> <li>12) "ASCII_File_Name"</li> <li>13) "ASCII_File_Specification_Name"</li> <li>14) "ASCII_Integer"</li> <li>15) "ASCII_LID"</li> <li>16) "ASCII_LIDVID"</li> <li>17) "ASCII_LIDVID_LID"</li> <li>18) "ASCII_MD5_Checksum"</li> <li>19) "ASCII_NonNegative_Integer"</li> <li>20) "ASCII_Numeric_Base16"</li> <li>21) "ASCII_Numeric_Base2"</li> <li>22) "ASCII_Numeric_Base8"</li> <li>23) "ASCII_Real"</li> <li>24) "ASCII_String"</li> <li>25) "ASCII_Time"</li> <li>26) "ASCII_VID"</li> <li>27) "ComplexLSB16"</li> <li>28) "ComplexLSB8"</li> <li>29) "ComplexMSB16"</li> <li>30) "ComplexMSB8"</li> <li>31) "IEEE754LSBDouble"</li> <li>32) "IEEE754LSBSingle"</li> <li>33) "IEEE754MSBDouble"</li> <li>34) "IEEE754MSBSingle"</li> <li>35) "SignedBitString"</li> <li>36) "SignedByte"</li> <li>37) "SignedLSB2"</li> <li>38) "SignedLSB4"</li> <li>39) "SignedLSB8"</li> <li>40) "SignedMSB2"</li> <li>41) "SignedMSB4"</li> <li>42) "SignedMSB8"</li> <li>43) "UTF8_String"</li> <li>44) "UnsignedBitString"</li> <li>45) "UnsignedByte"</li> <li>46) "UnsignedLSB2"</li> <li>47) "UnsignedLSB4"</li> <li>48) "UnsignedLSB8"</li> <li>49) "UnsignedMSB2"</li> <li>50) "UnsignedMSB4"</li> <li>51) "UnsignedMSB8"</li> </ol>	<p>ASCII_Short_String_Collapsed</p>

<p>geom:<b>Derived_Geometry</b></p>	<p>The Derived_Geometry class is a container for surface based observations (lander or rover). It is used to provide some geometric quantities relative to a specific Reference Coordinate Space.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]</a>  2)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry</a></p> <p>1) <a href="#">geom:target_name</a>  2) <a href="#">geom:incidence_angle</a>  3) <a href="#">geom:emission_angle</a>  4) <a href="#">geom:phase_angle</a>  5) <a href="#">geom:instrument_azimuth</a>  6) <a href="#">geom:instrument_elevation</a>  7) <a href="#">geom:solar_azimuth</a>  8) <a href="#">geom:solar_elevation</a>  9) <a href="#">geom:start_azimuth</a>  10) <a href="#">geom:stop_azimuth</a>  11) <a href="#">geom:target_heliocentric_distance</a>  12) <a href="#">geom:solar_image_clock_angle</a>  13) <a href="#">geom:Vector_Solar_Direction</a>  14) <a href="#">geom:Coordinate_Space_Reference</a></p>
<p><b>description</b></p>	<p>The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.</p>	<p>1)/<a href="#">Product Document/Identification Area/Citation Information/description</a>  2)/<a href="#">Product Bundle/Identification Area/Citation Information/description</a>  3)/<a href="#">Product Bundle/Identification Area/Modification History/Modification Detail/description</a>  4)/<a href="#">Product Bundle/Bundle/description</a>  5)/<a href="#">Product Observational/File Area Observational/Array_2D[*]/description</a>  6)/<a href="#">Product Collection/Identification Area/Citation Information/description</a>  7)/<a href="#">Product Collection/Identification Area/Modification History/Modification Detail/description</a>  8)/<a href="#">Product Collection/File Area Inventory/Inventory/Record_Delimited/Field_Delimited[*]/description</a>  9)/<a href="#">Product Observational/Identification Area/Modification History/Modification Detail/description</a>  10)/<a href="#">Product Observational/File Area Observational/Stream_Text/description</a>  11)/<a href="#">Product Observational/File Area Observational/Header[*]/description</a>  12)/<a href="#">Product Observational/File Area Observational/Table_Binary[*]/description</a>  13)/<a href="#">Product Observational/File Area Observational/Table_Binary[*]/Record_Binary/Field_Binary/description</a></p> <p>UTF8_Text_Preserved</p>
<p>geom:<b>Device_Angle</b></p> <p><i>OBSERVATION_REQUEST_PARMS.  INSTRUMENT_COORDINATE  OBSERVATION_REQUEST_PARMS.  INSTRUMENT_COORDINATE_NAME</i></p>	<p>The Device_Angle class is a container for the set of angles between the various components or devices of the spacecraft.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Angle</a></p> <p>1) <a href="#">local_identifier</a>  2) <a href="#">geom:Device_Angle_Index</a></p>
<p>geom:<b>Device_Angle_Index</b></p>	<p>The Device_Angle class is a container for the set of angles the spacecraft device specified in the parent Articulation_Device_Parameters class.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Angle/Device Angle Index[*]</a></p> <p>1) <a href="#">geom:List_Index_Angle</a>  2) <a href="#">geom:index_value_angle</a>  3) <a href="#">geom:index_sequence_number</a>  4) <a href="#">geom:index_name</a>  5) <a href="#">geom:index_id</a></p>
<p>geom:<b>Device_Component_State</b></p>	<p>The Device_Component_State class is a container for the states of the various components of the articulation device.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Component State[*]</a></p> <p>1) <a href="#">local_identifier</a>  2) <a href="#">geom:Device_Component_State_Index</a></p>
<p>geom:<b>Device_Component_State_Index</b></p>	<p>The Device_Component_State_Index class is a container for one state of a component of the articulation device.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Component State[*]/Device Component State Index[*]</a></p>



		<ul style="list-style-type: none"> <li>1) <a href="#">geom:List_Index_Text</a></li> <li>2) <a href="#">geom:index_sequence_number</a></li> <li>3) <a href="#">geom:index_name</a></li> <li>4) <a href="#">geom:index_id</a></li> <li>5) <a href="#">geom:index_value_string</a></li> </ul>	
<p>geom:device_id</p> <p>*_ARTICULATION_STATE. ARTICULATION_DEVICE_ID</p>	<p>The device_id attribute specifies the abbreviated identification of an articulation device.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/device_id</a></p> <ul style="list-style-type: none"> <li>1) "CHASSIS"</li> <li>2) "HGA"</li> <li>3) "RSM"</li> <li>4) "ARM"</li> <li>5) "SHA"</li> <li>6) "SCS"</li> <li>7) "DRILL"</li> </ul>	ASCII_Short_String_Collapsed
<p>geom:device_mode</p> <p>CHASSIS_ARTICULATION_STATE. ARTICULATION_DEVICE_MODE DRILL_ARTICULATION_STATE. ARTICULATION_DEVICE_MODE GRAPPLE_ARTICULATION_STATE. ARTICULATION_DEVICE_MODE HGA_ARTICULATION_STATE. ARTICULATION_DEVICE_MODE RSM_ARTICULATION_STATE. ARTICULATION_DEVICE_MODE SCS_ARTICULATION_STATE. ARTICULATION_DEVICE_MODE</p>	<p>The device_mode attribute specifies the deployment state (i.e., physical configuration) of an articulation device at the time of data acquisition. Examples include 'Arm Vibe', 'Deployed', 'Free Space', 'Stowed'. Note: the value set for this attribute is mission-specific and should be declared in a mission-specific dictionary.</p> <p><b>Mars 2020 Specific:</b> The SCS tube states are defined as follows: a) "EMPTY" - tube has not been used to collect a sample. b) "FILLED" - tube has been used to collect a sample (regardless of volume). c) "SEAL DISPENSED" - seal has been inserted into the tube, but not sealed. d) "SEAL ACTIVATED" - tube is sealed.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/device_mode</a></p> <ul style="list-style-type: none"> <li>1) "EMPTY"</li> <li>2) "FILLED"</li> <li>3) "SEAL DISPENSED"</li> <li>4) "SEAL ACTIVATED"</li> </ul>	ASCII_Short_String_Collapsed
<p>geom:device_name</p> <p>*_ARTICULATION_STATE. ARTICULATION_DEVICE_NAME ARM_ARTICULATION_STATE. ARTICULATION_DEVICE_NAME</p>	<p>The device_name attribute specifies the common name of an articulation device.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/device_name</a></p> <ul style="list-style-type: none"> <li>1) "MOBILITY CHASSIS"</li> <li>2) "HIGH GAIN ANTENNA"</li> <li>3) "REMOTE SENSING MAST"</li> <li>4) "SAMPLE ARM"</li> <li>5) "SAMPLE HANDLING ARM"</li> <li>6) "SAMPLE CACHE SYSTEM"</li> <li>7) "DRILL"</li> </ul>	ASCII_Short_String_Collapsed
<p>img:device_name</p> <p>MINI_HEADER_INSTRUMENT_MODE_NAME MINI_HEADER_INSTRUMENT_STATE_NAME</p>	<p>The device_name attribute supplies the formal name for an imaging instrument, an imaging instrument device, or some point on the instrument or device.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Instrument State/Device Temperatures/Device Temperature[*]/device_name</a></p> <ul style="list-style-type: none"> <li>1) "Cover_Hall_Sensor"</li> <li>2) "Filter_Hall_Sensor"</li> <li>3) "Focus_Hall_Sensor"</li> </ul>	ASCII_Short_String_Collapsed
<p>geom:Device_Temperature</p>	<p>The Device_Temperature class is a container for all available device temperatures of an articulated device and/or part(s) of a device.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Temperature</a></p> <ul style="list-style-type: none"> <li>1) <a href="#">local Identifier</a></li> <li>2) <a href="#">geom:Device_Temperature_Index</a></li> </ul>	
<p>img:Device_Temperature</p>	<p>The Device_Temperature class provides a container for the temperature of some point on an imaging instrument or other imaging device.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Instrument State/Device Temperatures/Device Temperature[*]</a></p> <ul style="list-style-type: none"> <li>1) <a href="#">img:Device_Parameters</a></li> <li>2) <a href="#">img:raw_count</a></li> <li>3) <a href="#">img:device_name</a></li> <li>4) <a href="#">img:device_id</a></li> <li>5) <a href="#">img:sequence_number</a></li> <li>6) <a href="#">img:temperature_value</a></li> <li>7) <a href="#">img:temperature_status</a></li> </ul>	
<p>geom:Device_Temperature_Index</p>	<p>The Device_Temperature_Index class specifies the attributes describing the temperature of one device or some part of a device.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Temperature/Device_Temperature_Index[*]</a></p> <ul style="list-style-type: none"> <li>1) <a href="#">geom:List_Index_Temperature</a></li> <li>2) <a href="#">geom:index_sequence_number</a></li> <li>3) <a href="#">geom:index_name</a></li> <li>4) <a href="#">geom:index_id</a></li> <li>5) <a href="#">geom:index_value_temperature</a></li> <li>6) <a href="#">geom:index_value_number</a></li> </ul>	
<p>img:Device_Temperatures</p>	<p>The Device_Temperatures class provides a container for the</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Instrument State/Device Temperatures</a></p>	

	set of temperatures of an imaging instrument or other imaging device.	1) <a href="#">img:Device_Temperature</a>	
<b>Discipline_Area</b>	The Discipline area allows the insertion of discipline specific metadata.	1) <a href="#">Product Observational/Observation Area/Discipline Area</a>	
		1) <a href="#">Geometry</a> 2) <a href="#">Surface_Mission_Information</a> 3) <a href="#">Processing_Information</a> 4) <a href="#">Imaging</a> 5) <a href="#">Display_Settings</a>	
disp: <b>Display_Direction</b>	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) <a href="#">Product Observational/Observation Area/Discipline Area/Display_Settings[*]/Display_Direction</a>	
		1) <a href="#">comment</a> 2) <a href="#">disp:horizontal_display_axis</a> 3) <a href="#">disp:horizontal_display_direction</a> 4) <a href="#">disp:vertical_display_axis</a> 5) <a href="#">disp:vertical_display_direction</a>	
disp: <b>Display_Settings</b>	The Display_Settings class contains one or more classes describing how data should be displayed on a display device.	1) <a href="#">Product Observational/Observation Area/Discipline Area/Display_Settings[*]</a>	
		1) <a href="#">Local_Internal_Reference</a> 2) <a href="#">disp:Display_Direction</a> 3) <a href="#">disp:Color_Display_Settings</a> 4) <a href="#">disp:Movie_Display_Settings</a>	
<b>Document</b>	The Document class describes a document.	1) <a href="#">Product Document/Document</a>	
		1) <a href="#">revision_id</a> 2) <a href="#">document_name</a> 3) <a href="#">doi</a> 4) <a href="#">author_list</a> 5) <a href="#">editor_list</a> 6) <a href="#">acknowledgement_text</a> 7) <a href="#">copyright</a> 8) <a href="#">publication_date</a> 9) <a href="#">document_editions</a> 10) <a href="#">description</a> 11) <a href="#">Document_Edition</a> 12) <a href="#">Digital_Object</a>	
<b>Document_Edition</b>	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) <a href="#">Product Document/Document/Document_Edition</a>	
		1) <a href="#">edition_name</a> 2) <a href="#">starting_point_identifier</a> 3) <a href="#">language</a> 4) <a href="#">files</a> 5) <a href="#">description</a> 6) <a href="#">Document_File</a>	
<b>Document_File</b>	The Document File class describes a file which is a part of a document.	1) <a href="#">Product Document/Document/Document_Edition/Document_File</a>	
		1) <a href="#">File</a> 2) <a href="#">directory_path_name</a> 3) <a href="#">file_name</a> 4) <a href="#">document_standard_id</a> 5) <a href="#">local_identifier</a> 6) <a href="#">creation_date_time</a> 7) <a href="#">file_size</a> 8) <a href="#">records</a> 9) <a href="#">md5_checksum</a> 10) <a href="#">comment</a> 11) <a href="#">Digital_Object</a>	
<b>document_standard_id</b>	The document_standard_id attribute provides the formal name of a standard used for the structure of a document file.	1) <a href="#">Product Document/Document/Document_Edition/Document_File/document_standard_id</a>	

		<ol style="list-style-type: none"> <li>1) "7-Bit ASCII Text"</li> <li>2) "Encapsulated Postscript"</li> <li>3) "GIF"</li> <li>4) "HTML"</li> <li>5) "HTML 2.0"</li> <li>6) "HTML 3.2"</li> <li>7) "HTML 4.0"</li> <li>8) "HTML 4.01"</li> <li>9) "JPEG"</li> <li>10) "LaTeX"</li> <li>11) "MPEG-4"</li> <li>12) "Microsoft Excel"</li> <li>13) "Microsoft Word"</li> <li>14) "PDF"</li> <li>15) "PDF/A"</li> <li>16) "PNG"</li> <li>17) "Postscript"</li> <li>18) "Rich Text"</li> <li>19) "TIFF"</li> <li>20) "UTF-8 Text"</li> </ol>	ASCII_Short_String_Collapsed
<b>doi</b>	The doi attribute provides the Digital Object Identifier for an object, assigned by the appropriate DOI System Registration Agency.	<ol style="list-style-type: none"> <li>1)/<a href="#">Product Bundle/Identification Area/Citation Information/doi</a></li> <li>2)/<a href="#">Product Bundle/Reference List/External Reference[*]/doi</a></li> </ol>	ASCII_Doi
<b>domain</b>	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.	<ol style="list-style-type: none"> <li>1)/<a href="#">Product Bundle/Context Area/Primary Result Summary/Science Facets/domain</a></li> <li>2)/<a href="#">Product Collection/Context Area/Primary Result Summary/Science Facets/domain</a></li> </ol> <ol style="list-style-type: none"> <li>1) "Atmosphere"</li> <li>2) "Dynamics"</li> <li>3) "Heliosheath"</li> <li>4) "Heliosphere"</li> <li>5) "Interior"</li> <li>6) "Interstellar"</li> <li>7) "Ionosphere"</li> <li>8) "Magnetosphere"</li> <li>9) "Rings"</li> <li>10) "Surface"</li> </ol>	ASCII_Short_String_Collapsed
msn_surface: <b>download_priority</b> <b>TELEMETRY. DOWNLOAD_PRIORITY</b>	<p>The download_priority attribute specifies which data to downlink/transmit, based on order of importance. The ranking and meaning of specific values will vary depending on the mission, and should be defined in the mission software interface specification (SIS).</p> <p><b>Mars 2020 Specific:</b> <i>Lower numerical values have the higher priority. For example, a product with a priority of 25 will be transmitted before one with a priority of 50. Values are 0-101 for M2020.</i></p>	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/download_priority</a>	ASCII_NonNegative_Integer
msn_surface: <b>earth_received_start_date_time</b> <b>TELEMETRY. EARTH_RECEIVED_START_TIME</b>	The earth_received_start_date_time attribute provides the earliest time at which any component telemetry data for a particular product was received.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/earth received start date time</a>	ASCII_Date_Time_YMD_UTC
msn_surface: <b>earth_received_stop_date_time</b> <b>TELEMETRY. EARTH_RECEIVED_STOP_TIME</b>	The earth_received_stop_date_time attribute provides the latest time at which any component telemetry data for a particular product was received.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/earth received stop date time</a>	ASCII_Date_Time_YMD_UTC
<b>edition_name</b>	The edition name attribute provides a name by which the edition is known.	1)/ <a href="#">Product Document/Document/Document Edition/edition_name</a>	UTF8_Short_String_Collapsed
<b>editor_list</b>	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."	<ol style="list-style-type: none"> <li>1)/<a href="#">Product Bundle/Identification Area/Citation Information/editor_list</a></li> <li>2)/<a href="#">Product Collection/Identification Area/Citation Information/editor_list</a></li> </ol>	UTF8_Text_Preserved
<b>Element_Array</b>	The Element Array class is used as a component of the array class and defines an element of the array.	1)/ <a href="#">Product Observational/File Area Observational/Array 2D[*]/Element Array</a>	

		<ul style="list-style-type: none"> <li>1) <a href="#">data_type</a></li> <li>2) <a href="#">unit</a></li> <li>3) <a href="#">scaling_factor</a></li> <li>4) <a href="#">value_offset</a></li> </ul>	
<b>elements</b> <i>SYSTEM. NB</i>	The elements attribute provides the count of the number of elements along an array axis.	1)/ <a href="#">Product Observational/File Area Observational/Array 2D*/Axis Array*/elements</a>	ASCII_NonNegative_Integer
msn_surface: <b>expected_packets</b> <i>TELEMETRY. EXPECTED_PACKETS</i>	The expected_packets attribute provides the total number of telemetry packets which constitute a complete data product, i.e., a data product without missing data.  <b>Mars 2020 Specific:</b> <i>For M2020, telemetry data processing does not track "packets", but instead data product "parts"</i>	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/expected_packets</a>	ASCII_NonNegative_Integer
msn_surface: <b>expected_transmission_path</b> <i>TELEMETRY. EXPECTED_TRANSMISSION_PATH</i>	Specifies the planned transmission path (route) for the telemetry data. See also transmission_path and communication_session_id.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/expected_transmission_path</a>	ASCII_Short_String_Collapsed
<b>External_Reference</b>	The External_Reference class is used to reference a source outside the PDS registry system.	1)/ <a href="#">Product Bundle/Reference List/External Reference*</a>	
		<ul style="list-style-type: none"> <li>1) <a href="#">doi</a></li> <li>2) <a href="#">reference_text</a></li> <li>3) <a href="#">description</a></li> </ul>	
<b>Field_Binary</b>	The Field_Binary class defines a field of a binary record or a field of a binary group.	1)/ <a href="#">Product Observational/File Area Observational/Table Binary*/Record Binary/Field Binary</a>	
		<ul style="list-style-type: none"> <li>1) <a href="#">name</a></li> <li>2) <a href="#">field_number</a></li> <li>3) <a href="#">field_location</a></li> <li>4) <a href="#">data_type</a></li> <li>5) <a href="#">field_length</a></li> <li>6) <a href="#">field_format</a></li> <li>7) <a href="#">unit</a></li> <li>8) <a href="#">scaling_factor</a></li> <li>9) <a href="#">value_offset</a></li> <li>10) <a href="#">description</a></li> <li>11) <a href="#">Special_Constants</a></li> <li>12) <a href="#">Field_Statistics</a></li> <li>13) <a href="#">Packed_Data_Fields</a></li> </ul>	
<b>Field_Delimited</b>	The Field_Delimited class defines a field of a delimited record or a field of a delimited group.	1)/ <a href="#">Product Collection/File Area Inventory/Inventory/Record Delimited/Field Delimited*</a>	
		<ul style="list-style-type: none"> <li>1) <a href="#">name</a></li> <li>2) <a href="#">field_number</a></li> <li>3) <a href="#">data_type</a></li> <li>4) <a href="#">maximum_field_length</a></li> <li>5) <a href="#">field_format</a></li> <li>6) <a href="#">unit</a></li> <li>7) <a href="#">scaling_factor</a></li> <li>8) <a href="#">value_offset</a></li> <li>9) <a href="#">description</a></li> <li>10) <a href="#">Special_Constants</a></li> <li>11) <a href="#">Field_Statistics</a></li> </ul>	
<b>field_delimiter</b>	The field_delimiter attribute provides the character that marks the boundary between two fields in a delimited table.	1)/ <a href="#">Product Collection/File Area Inventory/Inventory/field_delimiter</a>	ASCII_Short_String_Collapsed
		<ul style="list-style-type: none"> <li>1) "Comma"</li> <li>2) "Horizontal Tab"</li> <li>3) "Semicolon"</li> <li>4) "Vertical Bar"</li> <li>5) "comma"</li> <li>6) "horizontal tab"</li> <li>7) "semicolon"</li> <li>8) "vertical bar"</li> </ul>	
<b>field_length</b>	The field_length attribute provides the number of bytes in the field.	1)/ <a href="#">Product Observational/File Area Observational/Table Binary*/Record Binary/Field Binary/field_length</a>	ASCII_NonNegative_Integer
			<i>Units_of_Storage</i>
<b>field_location</b>	The field_location attribute provides the starting byte for a field within a record or group, counting from '1'.	1)/ <a href="#">Product Observational/File Area Observational/Table Binary*/Record Binary/Field Binary/field_location</a>	

			ASCII_NonNegative_Integer <i>Units_of_Storage</i>
<b>field_number</b>	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)/ <a href="#">Product Collection/File Area Inventory/Inventory/Record_Delimited/Field_Delimited[*]/field_number</a> 2)/ <a href="#">Product Observational/File Area Observational/Table Binary[*]/Record Binary/Field Binary[*]/field_number</a>	ASCII_NonNegative_Integer
<b>fields</b>	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)/ <a href="#">Product Collection/File Area Inventory/Inventory/Record_Delimited/fields</a> 2)/ <a href="#">Product Observational/File Area Observational/Table Binary[*]/Record Binary/fields</a>	ASCII_NonNegative_Integer
<b>File</b>	The File class consists of attributes that describe a file in a data store.	1)/ <a href="#">Product Collection/File Area Inventory/File</a> 2)/ <a href="#">Product Observational/File Area Observational/File</a> 1) <a href="#">file_name</a> 2) <a href="#">local_identifier</a> 3) <a href="#">creation_date_time</a> 4) <a href="#">file_size</a> 5) <a href="#">records</a> 6) <a href="#">md5_checksum</a> 7) <a href="#">comment</a> 8) <a href="#">Digital_Object</a>	
<b>File_Area_Inventory</b>	The File Area Inventory class describes a file and an inventory consisting of references to members.	1)/ <a href="#">Product Collection/File Area Inventory</a> 1) <a href="#">File_Area</a> 2) <a href="#">File</a> 3) <a href="#">Inventory</a>	
<b>File_Area_Observational</b>	The File Area Observational class describes, for an observational product, a file and one or more tagged_data_objects contained within the file.	1)/ <a href="#">Product Observational/File Area Observational</a> 1) <a href="#">File_Area</a> 2) <a href="#">File</a> 3) <a href="#">Composite_Structure</a> 4) <a href="#">Array</a> 5) <a href="#">Array_1D</a> 6) <a href="#">Array_2D</a> 7) <a href="#">Array_2D_Image</a> 8) <a href="#">Array_2D_Map</a> 9) <a href="#">Array_2D_Spectrum</a> 10) <a href="#">Array_3D</a> 11) <a href="#">Array_3D_Image</a> 12) <a href="#">Array_3D_Movie</a> 13) <a href="#">Array_3D_Spectrum</a> 14) <a href="#">Encoded_Header</a> 15) <a href="#">Header</a> 16) <a href="#">Stream_Text</a> 17) <a href="#">Table_Binary</a> 18) <a href="#">Table_Character</a> 19) <a href="#">Table_Delimited</a>	
<b>file_name</b> <i>IDENTIFICATION. PRODUCT_ID</i>	The file_name attribute provides the name of a file.	1)/ <a href="#">Product Document/Document/Document_Edition/Document_File/file_name</a> 2)/ <a href="#">Product Collection/File Area Inventory/File/file_name</a> 3)/ <a href="#">Product Observational/File Area Observational/File/file_name</a>	ASCII_Short_String_Collapsed
<b>files</b>	The files attribute provides the number of files in the edition.	1)/ <a href="#">Product Document/Document/Document_Edition/files</a>	ASCII_NonNegative_Integer
<b>msn_surface:flight_software_mode</b> <i>TELEMETRY. FLIGHT_SOFTWARE_MODE</i>	Specifies the active flight software mode at the time of data product creation. Interpretation of specific modes is mission-dependent.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface_Mission_Information/Telemetry/flight_software_mode</a>	

		<ol style="list-style-type: none"> <li>1) "UNKNOWN"</li> <li>2) "TEST"</li> <li>3) "PRELAUNCH"</li> <li>4) "LAUNCH"</li> <li>5) "ECLIPSE"</li> <li>6) "CRUISE"</li> <li>7) "EDL_APPROACH"</li> <li>8) "EDL_MAIN"</li> <li>9) "SURFACE_NOMINAL"</li> <li>10) "SURFACE_STANDBY"</li> <li>11) "NONPRIME_TEST"</li> <li>12) "NONPRIME_PRELAUNCH"</li> <li>13) "NONPRIME_LAUNCH"</li> <li>14) "NONPRIME_ECLIPSE"</li> <li>15) "NONPRIME_CRUISE"</li> <li>16) "NONPRIME_EDL_APPROACH"</li> <li>17) "NONPRIME_EDL_MAIN"</li> <li>18) "NONPRIME_SURFACE_NOMINAL"</li> <li>19) "NONPRIME_SURFACE_STANDBY"</li> </ol>	ASCII_Short_String_Collapsed
msn_surface:flight_software_version_id  TELEMETRY. FLIGHT_SOFTWARE_VERSION_ID	The flight_software_version_id attribute identifies the version of the instrument flight software used to acquire the image.  <b>Mars 2020 Specific:</b> The version is defined as the time of the FSW build, in seconds since 12:00:00, Jan. 1, 2000.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/flight_software_version_id</a>	ASCII_Short_String_Collapsed
mars2020:generic_data_buffer_size  GENERIC_PACKET_HEADER_DATA_ELEMENTS. GENERIC_DATA_BUFFER_SIZE	The number of bytes of the entire generic buffer. Includes commands, data, header, and trailer, every byte from the packet header marker through the Fletcher checksum.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/generic_data_buffer_size</a>	ASCII_Integer
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)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry</a>  <ol style="list-style-type: none"> <li>1) <a href="#">geom:SPICE Kernel Files</a></li> <li>2) <a href="#">geom:Expanded_Geometry</a></li> <li>3) <a href="#">geom:Image_Display_Geometry</a></li> <li>4) <a href="#">geom:Geometry_Orbiter</a></li> <li>5) <a href="#">geom:Geometry_Lander</a></li> </ol>	
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)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry_Lander</a>  <ol style="list-style-type: none"> <li>1) <a href="#">geom:geometry_state</a></li> <li>2) <a href="#">description</a></li> <li>3) <a href="#">local_identifier</a></li> <li>4) <a href="#">geom:Articulation_Device_Parameters</a></li> <li>5) <a href="#">geom:Camera_Model_Parameters</a></li> <li>6) <a href="#">geom:Coordinate_Space_Definition</a></li> <li>7) <a href="#">geom:Derived_Geometry</a></li> <li>8) <a href="#">geom:Motion_Counter</a></li> </ol>	
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)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry_Lander/geometry_state</a>	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)/ <a href="#">Product Collection/File Area Inventory/Inventory/Record_Delimited/groups</a>  2)/ <a href="#">Product Observational/File Area Observational/Table Binary[*]/Record Binary/groups</a>	ASCII_NonNegative_Integer
Header	The Header class describes a data object header.	1)/ <a href="#">Product Observational/File Area Observational/Header[*]</a>	

		<ul style="list-style-type: none"> <li>1) <a href="#">Parsable_Byte_Stream</a></li> <li>2) <a href="#">name</a></li> <li>3) <a href="#">object_length</a></li> <li>4) <a href="#">offset</a></li> <li>5) <a href="#">local_identifier</a></li> <li>6) <a href="#">parsing_standard_id</a></li> <li>7) <a href="#">md5_checksum</a></li> <li>8) <a href="#">description</a></li> <li>9) <a href="#">Digital_Object</a></li> </ul>	
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.	<ul style="list-style-type: none"> <li>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Display Settings*/Display_Direction/horizontal_display_axis</a></li> </ul>	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.	<ul style="list-style-type: none"> <li>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Display Settings*/Display_Direction/horizontal_display_direction</a></li> </ul> <ul style="list-style-type: none"> <li>1) "Left to Right"</li> <li>2) "Right to Left"</li> </ul>	ASCII_Short_String_Collapsed
Identification_Area	The identification area consists of attributes that identify and name an object.	<ul style="list-style-type: none"> <li>1)/<a href="#">Product Document/Identification_Area</a></li> <li>2)/<a href="#">Product Bundle/Identification_Area</a></li> <li>3)/<a href="#">Product Collection/Identification_Area</a></li> <li>4)/<a href="#">Product Observational/Identification_Area</a></li> </ul> <ul style="list-style-type: none"> <li>1) <a href="#">logical_identifier</a></li> <li>2) <a href="#">version_id</a></li> <li>3) <a href="#">title</a></li> <li>4) <a href="#">information_model_version</a></li> <li>5) <a href="#">product_class</a></li> <li>6) <a href="#">Alias_List</a></li> <li>7) <a href="#">Citation_Information</a></li> <li>8) <a href="#">Modification_History</a></li> </ul>	
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.	<ul style="list-style-type: none"> <li>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Imaging</a></li> </ul> <ul style="list-style-type: none"> <li>1) <a href="#">Local_Internal_Reference</a></li> <li>2) <a href="#">img: Brightness_Correction</a></li> <li>3) <a href="#">img: Col_Sum</a></li> <li>4) <a href="#">img: Color_Filter_Array</a></li> <li>5) <a href="#">img: Color_Processing</a></li> <li>6) <a href="#">img: Dark_Current_Correction</a></li> <li>7) <a href="#">img: Detector</a></li> <li>8) <a href="#">img: Downsampling</a></li> <li>9) <a href="#">img: Exposure</a></li> <li>10) <a href="#">img: Flat_Field_Correction</a></li> <li>11) <a href="#">img: Focus</a></li> <li>12) <a href="#">img: Focus_Stack</a></li> <li>13) <a href="#">img: Frame</a></li> <li>14) <a href="#">img: High_Dynamic_Range</a></li> <li>15) <a href="#">img: Histogram</a></li> <li>16) <a href="#">img: Illumination</a></li> <li>17) <a href="#">img: Image_Filter</a></li> <li>18) <a href="#">img: Image_Mask</a></li> <li>19) <a href="#">img: Onboard_Compression</a></li> <li>20) <a href="#">img: Optical_Filter</a></li> <li>21) <a href="#">img: Optical_Properties</a></li> <li>22) <a href="#">img: Pointing_Correction</a></li> <li>23) <a href="#">img: Radiometric_Correction</a></li> <li>24) <a href="#">img: Reference_Pixel</a></li> <li>25) <a href="#">img: Row_Sum</a></li> <li>26) <a href="#">img: Sampling</a></li> <li>27) <a href="#">img: Shutter_Subtraction</a></li> <li>28) <a href="#">img: Spatial_Filter</a></li> <li>29) <a href="#">img: Subframe</a></li> <li>30) <a href="#">img: Tiling</a></li> <li>31) <a href="#">img: Thumbnail</a></li> <li>32) <a href="#">img: Video</a></li> <li>33) <a href="#">img: Instrument_State</a></li> <li>34) <a href="#">img: Commanded_Parameters</a></li> </ul>	
geom:incidence_angle	The incidence_angle element provides a measure of the lighting condition at the intercept point. Incidence angle is the	<ul style="list-style-type: none"> <li>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry_Lander/Derived_Geometry[2]/incidence_angle</a></li> </ul>	

<p>IDENTIFICATION. <b>SOLAR_INCIDENCE_TARGET_ANG</b></p>	<p>angle between the local vertical at the intercept point (surface) and a vector from the intercept point to the sun. The incidence_angle varies from 0 degrees when the intercept point coincides with the subsolar point to 90 degrees when the intercept point is at the terminator (i.e., in the shadowed or dark portion of the target body).</p> <p><b>Mars 2020 Specific:</b> Solar incidence target angle with respect to the SuperCam Calibration Target normal vector. SuperCam RMI only.</p>		<p>ASCII_Real</p> <p>Units_of_Angle</p>
<p>geom:index_id</p> <p>IDENTIFICATION. <b>ROVER_MOTION_COUNTER_NAME</b></p>	<p>The index_id attribute supplies a short name (identifier) for the associated value in a group of related values.</p> <p><b>Mars 2020 Specific:</b> For the M20 rover: SITE, DRIVE, POSE, ARM, CHIMRA, DRILL, RSM, HGA, DRT, IC.</p> <p>For the M20 helicopter: FLIGHT, POS</p> <p>For the M20 LVS camera: SET, INSTANCE</p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Component State[*]/Device Component State Index[*]/index_id</p> <p>2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Temperature/Device Temperature Index[*]/index_id</p> <p>3)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Angle/Device Angle Index[*]/index_id</p> <p>4)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_id</p> <p>5)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_id</p> <p>6)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Present/Coordinate Space Indexed/Coordinate Space Index[*]/index_id</p> <p>7)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_id</p> <p>8)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Motion Counter/Motion Counter Index[*]/index_id</p>	
<p>geom:index_value_angle</p> <p>* ARTICULATION_STATE. <b>ARTICULATION_DEVICE_ANGLE</b></p> <p>* ARTICULATION_STATE. <b>ARTICULATION_DEVICE_ANGLE_UNIT</b></p>	<p>The index_value_angle attribute provides the value of an angle as named by the associated index_id, index_name, or index_sequence_number.</p> <p><b>Mars 2020 Specific:</b> Values are in radians.</p>	<p>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"</p>	<p>ASCII_Short_String_Collapsed</p>
<p>geom:index_value_number</p> <p>* ARTICULATION_STATE. <b>ARTICULATION_DEVICE_TEMP_COUNT</b></p>	<p>The index_value_number attribute provides the value with no applicable units as named by the associated index_id or index_name.</p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Angle/Device Angle Index[*]/index_value_angle</p>	<p>ASCII_Real</p> <p>Units_of_Angle</p>
		<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_value_number</p> <p>2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_value_number</p> <p>3)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Present/Coordinate Space Indexed/Coordinate Space Index[*]/index_value_number</p> <p>4)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_value_number</p> <p>5)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Motion Counter/Motion Counter Index[*]/index_value_number</p>	



			ASCII_Real
<p>geom:index_value_string</p> <p>ARM_ARTICULATION_STATE. ART_DEV_COMPONENT_STATE_NAME ARM_ARTICULATION_STATE. CONTACT_SENSOR_STATE INSTRUMENT_STATE_PARMS. DEVICE_COMPONENT_STATE</p>	<p>The index_value attribute provides the string value as named by the associated index_id or index_name.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Component State[*]/Device Component State Index[*]/index_value_string</a></p> <p>1) "NO CONTACT" 2) "CONTACT"</p>	<p>ASCII_Short_String_Collapsed</p>
<p>geom:index_value_temperature</p> <p>*_ARTICULATION_STATE. ARTICULATION_DEVICE_TEMP *_ARTICULATION_STATE. ARTICULATION_DEVICE_TEMP_UNIT</p>	<p>The index_value_temperature attribute provides the value of a temperature as named by the associated index_id or index_name.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Temperature/Device Temperature Index[*]/index_value_temperature</a></p>	<p>ASCII_Real</p> <p>Units_of_Temperature</p>
<p>information_model_version</p>	<p>The information_model_version attribute provides the version identification of the PDS Information Model on which the label and schema are based.</p>	<p>1)/<a href="#">Product Document/Identification Area/information_model_version</a></p> <p>2)/<a href="#">Product Bundle/Identification Area/information_model_version</a></p> <p>3)/<a href="#">Product Collection/Identification Area/information_model_version</a></p> <p>4)/<a href="#">Product Observational/Identification Area/information_model_version</a></p> <p>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" 21) "1.9.1.0"</p>	<p>ASCII_Short_String_Collapsed</p>
<p>geom:instrument_azimuth</p> <p>*_DERIVED_GEOMETRY_PARMS. INSTRUMENT_AZIMUTH *_DERIVED_GEOMETRY_PARMS. INSTRUMENT_AZIMUTH_UNIT</p>	<p>The instrument_azimuth attribute specifies the value for an instrument's rotation in the horizontal direction. It may be measured from a low hard stop, or relative to a coordinate frame. Although it may be used for any instrument where it makes sense, it is primarily intended for use in surface-based instruments that measure pointing in terms of azimuth and elevation. If this value is expressed using a coordinate system, the coordinate system is specified by the Coordinate_Space_Reference class. The interpretation of exactly what part of the instrument is being pointed is mission-specific. It could be the boresight, the camera head direction, the CAHV camera model A vector direction, or any of a number of other things. As such, for multimission use this value should be used mostly as an approximation, e.g. identifying scenes which might contain a given object.</p> <p><b>Mars 2020 Specific:</b> For M2020, the interpretation is the boresight of the camera, defined as projecting the center of the nominal image (before downsampling or subframing) through the camera model.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/instrument_azimuth</a></p>	<p>ASCII_Real</p> <p>Units_of_Angle</p>
<p>geom:instrument_elevation</p> <p>*_DERIVED_GEOMETRY_PARMS. INSTRUMENT_ELEVATION *_DERIVED_GEOMETRY_PARMS. INSTRUMENT_ELEVATION_UNIT</p>	<p>The instrument_elevation attribute specifies the value for an instrument's rotation in the vertical direction. It may be usually measured from a low hard stop, or relative to a coordinate frame. Although it may be used for any instrument where it makes sense, it is primarily intended for use in surface-based instruments that measure pointing in terms of azimuth and elevation. If this value is expressed using a coordinate system, the coordinate system is specified by the Coordinate_Space_Reference class. The interpretation of</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/instrument_elevation</a></p>	

	<p>exactly what part of the instrument is being pointed is mission-specific. It could be the boresight, the camera head direction, the CAHV camera model A vector direction, or any of a number of other things. As such, for multimission use this value should be used mostly as an approximation, e.g. identifying scenes that might contain a given object.</p> <p><b>Mars 2020 Specific:</b>  <i>For M2020, the interpretation is the boresight of the camera, defined as projecting the center of the nominal image (before downsampling or subframing) through the camera model.</i></p>		<p>ASCII_Real</p> <p>Units_of_Angle</p>
img:Instrument_State	<p>The Instrument_State class contains classes providing the values of any dynamic physical or operating characteristics of the imaging instruments.</p>	<p>1)<a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Instrument State</a></p> <p>1) <a href="#">img:Device_Component_States</a>  2) <a href="#">img:Device_Currents</a>  3) <a href="#">img:Device_Motor_Counts</a>  4) <a href="#">img:Device_Temperatures</a>  5) <a href="#">img:Device_Voltages</a></p>	
<p><b>Internal_Reference</b></p> <p><i>DERIVED_IMAGE_PARAMS.</i>  <i>FLAT_FIELD_FILE_NAME</i></p>	<p>The Internal_Reference class is used to cross-reference other products in PDS4-compliant registries of PDS and its recognized international partners.</p> <p><b>Mars 2020 Specific:</b>  <i>Specifies the name of the flat field file used for radiometric correction. This file should be in the calibration collection.</i></p>	<p>1)<a href="#">Product Collection/Reference List/Internal Reference[*]</a></p> <p>2)<a href="#">Product Document/Context Area/Investigation Area/Internal Reference</a></p> <p>3)<a href="#">Product Document/Context Area/Observing System/Observing System Component/Internal Reference</a></p> <p>4)<a href="#">Product Bundle/Context Area/Investigation Area/Internal Reference</a></p> <p>5)<a href="#">Product Bundle/Context Area/Observing System/Observing System Component[*]/Internal Reference</a></p> <p>6)<a href="#">Product Bundle/Context Area/Target Identification/Internal Reference</a></p> <p>7)<a href="#">Product Bundle/Reference List/Internal Reference[*]</a></p> <p>8)<a href="#">Product Collection/Context Area/Investigation Area/Internal Reference</a></p> <p>9)<a href="#">Product Collection/Context Area/Observing System/Observing System Component[*]/Internal Reference</a></p> <p>10)<a href="#">Product Collection/Context Area/Target Identification/Internal Reference</a></p> <p>11)<a href="#">Product Observational/Observation Area/Investigation Area/Internal Reference</a></p> <p>12)<a href="#">Product Observational/Observation Area/Observing System/Observing System Component/Internal Reference</a></p> <p>13)<a href="#">Product Observational/Observation Area/Target Identification/Internal Reference</a></p> <p>14)<a href="#">Product Observational/Reference List/Internal Reference[*]</a></p> <p>1) <a href="#">lid_reference</a>  2) <a href="#">lidvid_reference</a>  3) <a href="#">reference_type</a>  4) <a href="#">comment</a></p>	
Inventory	<p>The Inventory class defines the inventory for members of a collection.</p>	<p>1)<a href="#">Product Collection/File Area Inventory/Inventory</a></p>	

		<ul style="list-style-type: none"> <li>1) <a href="#">Table_Delimited</a></li> <li>2) <a href="#">name</a></li> <li>3) <a href="#">reference_type</a></li> <li>4) <a href="#">offset</a></li> <li>5) <a href="#">records</a></li> <li>6) <a href="#">local_identifier</a></li> <li>7) <a href="#">object_length</a></li> <li>8) <a href="#">record_delimiter</a></li> <li>9) <a href="#">md5_checksum</a></li> <li>10) <a href="#">parsing_standard_id</a></li> <li>11) <a href="#">description</a></li> <li>12) <a href="#">field_delimiter</a></li> <li>13) <a href="#">Digital_Object</a></li> <li>14) <a href="#">Uniformly_Sampled</a></li> <li>15) <a href="#">Record_Delimited</a></li> </ul>	
<b>Investigation_Area</b>	The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).	<ul style="list-style-type: none"> <li>1) <a href="#">Product Document/Context Area/Investigation Area</a></li> <li>2) <a href="#">Product Bundle/Context Area/Investigation Area</a></li> <li>3) <a href="#">Product Collection/Context Area/Investigation Area</a></li> <li>4) <a href="#">Product Observational/Observation Area/Investigation Area</a></li> </ul>	
		<ul style="list-style-type: none"> <li>1) <a href="#">name</a></li> <li>2) <a href="#">type</a></li> <li>3) <a href="#">Internal Reference</a></li> </ul>	
<b>keyword</b>	The keyword attribute provides one or more words to be used for keyword search.	1) <a href="#">Product Collection/Identification Area/Citation Information/keyword[*]</a>	
			UTF8_Short_String_Collapsed
<b>language</b>	The language attribute provides the language used for definition and designation of the term.	1) <a href="#">Product Document/Document/Document Edition/language</a>	
		1) "English"	ASCII_Short_String_Collapsed
<b>lid_reference</b> <i>DERIVED_IMAGE_INVERSE_LUT_FILE_NAME</i> <i>DERIVED_IMAGE_PARAMS</i> <i>FLAT_FIELD_FILE_NAME</i> <i>DERIVED_IMAGE_PARAMS</i> <i>STEREO_PRODUCT_ID</i> <i>DERIVED_IMAGE_PARAMS</i> <i>TARGET_INSTRUMENT</i> <i>IDENTIFICATION.TARGET_NAME</i> <i>IDENTIFICATION.TARGET_TYPE</i>	The lid_reference attribute provides the logical_identifier for a product.	<ul style="list-style-type: none"> <li>1) <a href="#">Product Collection/Reference List/Internal Reference[*]/lid_reference</a></li> <li>2) <a href="#">Product Document/Context Area/Investigation Area/Internal Reference/lid_reference</a></li> <li>3) <a href="#">Product Document/Context Area/Observing System/Observing System Component/Internal Reference/lid_reference</a></li> <li>4) <a href="#">Product Bundle/Context Area/Investigation Area/Internal Reference/lid_reference</a></li> <li>5) <a href="#">Product Bundle/Context Area/Observing System/Observing System Component[*]/Internal Reference/lid_reference</a></li> <li>6) <a href="#">Product Bundle/Context Area/Target Identification/Internal Reference/lid_reference</a></li> <li>7) <a href="#">Product Bundle/Reference List/Internal Reference[*]/lid_reference</a></li> <li>8) <a href="#">Product Bundle/Bundle Member Entry[*]/lid_reference</a></li> <li>9) <a href="#">Product Collection/Context Area/Investigation Area/Internal Reference/lid_reference</a></li> <li>10) <a href="#">Product Collection/Context Area/Observing System/Observing System Component[*]/Internal Reference/lid_reference</a></li> <li>11) <a href="#">Product Collection/Context Area/Target Identification/Internal Reference/lid_reference</a></li> <li>12) <a href="#">Product Observational/Observation Area/Investigation Area/Internal Reference/lid_reference</a></li> <li>13) <a href="#">Product Observational/Observation Area/Observing System/Observing System Component/Internal Reference/lid_reference</a></li> <li>14) <a href="#">Product Observational/Observation Area/Target Identification/Internal Reference/lid_reference</a></li> <li>15) <a href="#">Product Observational/Reference List/Internal Reference[*]/lid_reference</a></li> </ul>	
			ASCII_LID
<b>lidvid_reference</b> <i>IDENTIFICATION.PRODUCT_ID</i>	The lidvid_reference attribute provides the logical_identifier plus version_id, which uniquely identifies a product. <b>Mars 2020 Specific:</b>	1) <a href="#">Product Observational/Reference List/Source Product Internal/lidvid_reference</a>	

<p>IDENTIFICATION. <b>SOURCE_PRODUCT_ID</b></p>	<p>For M2020, this keyword indicates the <b>PRODUCT_ID</b> (filename minus extension) of the EDRs (not RDRs) that were used to create this product. In an EDR, this keyword exists and refers to itself; i.e. it is equivalent to <b>PRODUCT_ID</b>.</p>		<p>ASCII_Short_String_Collapsed</p>
<p><b>local_identifier</b></p>	<p>The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.</p>	<p>1)/<a href="#">Product Collection/File Area Inventory/File/local_identifier</a></p> <p>2)/<a href="#">Product Observational/File Area Observational/Array 2D*/local_identifier</a></p> <p>3)/<a href="#">Product Collection/File Area Inventory/Inventory/local_identifier</a></p> <p>4)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition*/local_identifier</a></p> <p>5)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/local_identifier</a></p> <p>6)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/local_identifier</a></p> <p>7)/<a href="#">Product Observational/File Area Observational/File/local_identifier</a></p> <p>8)/<a href="#">Product Observational/File Area Observational/Stream Text/local_identifier</a></p> <p>9)/<a href="#">Product Observational/File Area Observational/Header*/local_identifier</a></p> <p>10)/<a href="#">Product Observational/File Area Observational/Table Binary*/local_identifier</a></p>	<p>ASCII_Local_Identifier</p>
<p><b>local_identifier_reference</b></p> <p>* <b>COORDINATE_SYSTEM.</b>  <b>REFERENCE_COORD_SYSTEM_INDEX</b>  * <b>COORDINATE_SYSTEM.</b>  <b>REFERENCE_COORD_SYSTEM_NAME</b>  * <b>DERIVED_GEOMETRY_PARAMS.</b>  <b>REFERENCE_COORD_SYSTEM_INDEX</b>  * <b>DERIVED_GEOMETRY_PARAMS.</b>  <b>REFERENCE_COORD_SYSTEM_NAME</b>  <b>DERIVED_IMAGE_PARAMS.</b>  <b>REFERENCE_COORD_SYSTEM_INDEX</b>  <b>DERIVED_IMAGE_PARAMS.</b>  <b>REFERENCE_COORD_SYSTEM_NAME</b>  <b>GEOMETRIC_CAMERA_MODEL.</b>  <b>REFERENCE_COORD_SYSTEM_INDEX</b>  <b>GEOMETRIC_CAMERA_MODEL.</b>  <b>REFERENCE_COORD_SYSTEM_NAME</b>  <b>IDENTIFICATION.PRODUCT_ID</b>  <b>SURFACE_MODEL_PARAMS.</b>  <b>REFERENCE_COORD_SYSTEM_INDEX</b>  <b>SURFACE_MODEL_PARAMS.</b>  <b>REFERENCE_COORD_SYSTEM_NAME</b></p>	<p>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.</p> <p><b>Mars 2020 Specific:</b>  For M2020, EDRs use a standard, predefined frame name for each occurrence. However, RDRs can use any value available in <b>COORDINATE_SYSTEM_NAME</b>. 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.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Display Settings*/Local Internal Reference/local_identifier_reference</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Local Internal Reference/local_identifier_reference</a></p> <p>3)/<a href="#">Product Observational/Observation Area/Discipline Area/Processing Information/Local Internal Reference/local_identifier_reference</a></p> <p>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"</p>	<p>ASCII_Local_Identifier_Reference</p>
<p><b>Local_Internal_Reference</b></p>	<p>The Local Internal Reference class is used to cross-reference other Description Objects in a PDS4 label.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Display Settings*/Local Internal Reference</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Local Internal Reference</a></p> <p>3)/<a href="#">Product Observational/Observation Area/Discipline Area/Processing Information/Local Internal Reference</a></p> <p>1) <a href="#">comment</a>  2) <a href="#">local_identifier_reference</a>  3) <a href="#">local_reference_type</a></p>	
<p><b>local_mean_solar_time</b></p> <p>IDENTIFICATION.  <b>LOCAL_MEAN_SOLAR_TIME</b></p>	<p>The local_mean_solar_time attribute provides the hour angle of the fictitious mean Sun at a fixed point on a rotating solar system body.</p> <p><b>Mars 2020 Specific:</b>  For M2020, the valid value is embedded with a Sol value that can be different than the Sol (see PLANET_DAY_NUMBER) associated with LTST (see LOCAL_TRUE_SOLAR_TIME). The time portion of the valid value is expressed in terms of a</p>	<p>1)/<a href="#">Product Observational/Observation Area/Time Coordinates/local_mean_solar_time</a></p>	

	24-hour clock. So, in an example using Sol 27, the valid value range for the 24-hour clock would be represented as "Sol-00027M00:00:00.000" to "Sol-00027M23:59:59.999".		ASCII_Short_String_Collapsed
<b>local_reference_type</b>	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)/ <a href="#">Product Observational/Observation Area/Discipline Area/Display Settings[*]/Local Internal Reference/local_reference_type</a> 2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Local Internal Reference/local_reference_type</a> 3)/ <a href="#">Product Observational/Observation Area/Discipline Area/Processing Information/Local Internal Reference/local_reference_type</a>	ASCII_Short_String_Collapsed
<b>local_true_solar_time</b> <i>IDENTIFICATION. LOCAL_TRUE_SOLAR_TIME</i>	The local_true_solar_time (LTST) attribute provides the local time on a rotating solar system body where LTST is 12 h at the sub-solar point (SSP) and increases 1 h for each 15 degree increase in east longitude away from the SSP for prograde rotation.	1)/ <a href="#">Product Observational/Observation Area/Time Coordinates/local_true_solar_time</a>	ASCII_Short_String_Collapsed
<b>logical_identifier</b> <i>IDENTIFICATION. PRODUCT_ID</i>	A logical identifier identifies the set of all versions of an object. It is an object identifier without a version.	1)/ <a href="#">Product Document/Identification Area/logical_identifier</a> 2)/ <a href="#">Product Bundle/Identification Area/logical_identifier</a> 3)/ <a href="#">Product Collection/Identification Area/logical_identifier</a> 4)/ <a href="#">Product Observational/Identification Area/logical_identifier</a>	ASCII_LID
<b>mars2020:Mars2020_Parameters</b>	The Mars2020_Parameters class is a superclass containing all Mars2020 mission classes.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020_Parameters</a> 1) <a href="#">mars2020:Observation Information</a> 2) <a href="#">mars2020:MOXIE_Parameters</a> 3) <a href="#">mars2020:PIXL_Parameters</a> 4) <a href="#">mars2020:RIMFAX_Parameters</a> 5) <a href="#">mars2020:SHERLOC_Parameters</a> 6) <a href="#">mars2020:SuperCam_Parameters</a>	
<b>maximum_field_length</b>	The maximum_field_length attribute sets an upper, inclusive bound on the number of bytes in the field.	1)/ <a href="#">Product Collection/File Area Inventory/Inventory/Record Delimited/Field Delimited[*]/maximum field length</a>	ASCII_NonNegative_Integer <i>Units_of_Storage</i>
<b>maximum_record_length</b>	The maximum_record_length attribute provides the maximum length of a record, including the record delimiter.	1)/ <a href="#">Product Collection/File Area Inventory/Inventory/Record Delimited/maximum record length</a>	ASCII_NonNegative_Integer <i>Units_of_Storage</i>
<b>member_status</b>	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)/ <a href="#">Product Bundle/Bundle Member Entry[*]/member_status</a> 1) "Primary" 2) "Secondary"	ASCII_Short_String_Collapsed
<b>Mission_Area</b>	The mission area allows the insertion of mission specific metadata.	1)/ <a href="#">Product Observational/Observation Area/Mission Area</a> 1) <a href="#">Mars2020_Parameters</a>	
<b>mars2020:mission_phase_name</b>	The mission_phase_name identifies a time period within the mission.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020_Parameters/Observation Information/mission_phase_name</a> 1) "ATLO" 2) "Cruise" 3) "Development" 4) "Surface Mission" 5) "Test"	ASCII_Short_String_Preserved

<b>modification_date</b>	The modification_date attribute provides date the modifications were completed	1)/ <a href="#">Product Bundle/Identification Area/Modification History/Modification Detail/modification_date</a> 2)/ <a href="#">Product Collection/Identification Area/Modification History/Modification Detail/modification_date</a> 3)/ <a href="#">Product Observational/Identification Area/Modification History/Modification Detail/modification_date</a>  ASCII_Date_YMD
<b>Modification_Detail</b>	The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.	1)/ <a href="#">Product Bundle/Identification Area/Modification History/Modification Detail</a> 2)/ <a href="#">Product Collection/Identification Area/Modification History/Modification Detail</a> 3)/ <a href="#">Product Observational/Identification Area/Modification History/Modification Detail</a>  1) <a href="#">modification_date</a> 2) <a href="#">version_id</a> 3) <a href="#">description</a>
<b>Modification_History</b>	The Modification_History class tracks the history of changes made to the product once it enters the registry system.	1)/ <a href="#">Product Bundle/Identification Area/Modification History</a> 2)/ <a href="#">Product Collection/Identification Area/Modification History</a> 3)/ <a href="#">Product Observational/Identification Area/Modification History</a>  1) <a href="#">Modification_Detail</a>
<b>geom:Motion_Counter</b>	The Motion_Counter class provides a set of integers that describe a (potentially) unique location (position / orientation) for a rover or other movable object. Each time an event occurs that results in a movement, a new motion counter value is created. This includes intentional motion due to drive commands, as well as potential motion due to other articulating devices, such as arms or antennae. This motion counter (or part of it) is used as a reference to define instances of coordinate systems that can move such as SITE or ROVER frames. The motion counter is defined in a mission-specific manner. Although the original intent was to have incrementing indices (e.g., MER), the motion counter could also contain any integer values that conform to the above definition, such as time or spacecraft clock values.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Motion Counter</a>  1) <a href="#">name</a> 2) <a href="#">local_identifier</a> 3) <a href="#">geom:Motion_Counter_Index</a>
<b>geom:Motion_Counter_Index</b>	The Motion_Counter_Index class identifies and populates one element of a Motion_Counter list. The class should be repeated for each element of the list.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Motion Counter/Motion_Counter_Index*1</a>  1) <a href="#">geom:List_Index_No_Units</a> 2) <a href="#">geom:index_sequence_number</a> 3) <a href="#">geom:index_name</a> 4) <a href="#">geom:index_id</a> 5) <a href="#">geom:index_value_number</a>
<b>mars2020:mu_hardware_identifier</b>  <i>GENERIC_PACKET_HEADER_DATA_ELEMENT.S MU_HARDWARE_IDENTIFIER</i>	Hardware identifier for a specific MU board. Used to know which housekeeping engineering unit conversion factors to apply to the data.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020_Parameters/SuperCam_Parameters/SuperCam_Generic_Packet_Header/mu_hardware_identifier</a>  ASCII_Integer
<b>mars2020:mu_version_identifier</b>  <i>GENERIC_PACKET_HEADER_DATA_ELEMENT.S MU_VERSION_IDENTIFIER</i>	Version of the MU, response from the MU send version command.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020_Parameters/SuperCam_Parameters/SuperCam_Generic_Packet_Header/mu_version_identifier</a>  ASCII_Integer

<b>name</b>	The name attribute provides a word or combination of words by which the object is known.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Document/Context Area/Investigation Area/name</a></li> <li>2) <a href="#">Product Document/Context Area/Observing System/name</a></li> <li>3) <a href="#">Product Document/Context Area/Observing System/Observing System Component/name</a></li> <li>4) <a href="#">Product Bundle/Context Area/Investigation Area/name</a></li> <li>5) <a href="#">Product Bundle/Context Area/Observing System/Observing System Component[*]/name</a></li> <li>6) <a href="#">Product Bundle/Context Area/Target Identification/name</a></li> <li>7) <a href="#">Product Observational/File Area Observational/Array 2D[*]/name</a></li> <li>8) <a href="#">Product Collection/Context Area/Investigation Area/name</a></li> <li>9) <a href="#">Product Collection/Context Area/Observing System/Observing System Component[*]/name</a></li> <li>10) <a href="#">Product Collection/Context Area/Target Identification/name</a></li> <li>11) <a href="#">Product Collection/File Area Inventory/Inventory/Record Delimited/Field Delimited[*]/name</a></li> <li>12) <a href="#">Product Observational/Observation Area/Investigation Area/name</a></li> <li>13) <a href="#">Product Observational/Observation Area/Observing System/Observing System Component/name</a></li> <li>14) <a href="#">Product Observational/Observation Area/Target Identification/name</a></li> <li>15) <a href="#">Product Observational/File Area Observational/Stream Text/name</a></li> <li>16) <a href="#">Product Observational/File Area Observational/Header[*]/name</a></li> <li>17) <a href="#">Product Observational/File Area Observational/Table Binary[*]/name</a></li> <li>18) <a href="#">Product Observational/File Area Observational/Table Binary[*]/Record Binary/Field Binary/name</a></li> </ol>
mars2020: <b>number_of_sections</b>  <i>GENERIC_PACKET_HEADER_DATA_ELEMENT</i> <b>TS. NUMBER_OF_SECTIONS</b>	Number of command or data sections contained in this buffer. Does not include the header section or the trailer section.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/number of sections</a></li> </ol>
mars2020: <b>nv_xmit_buffer_count</b>  <i>GENERIC_PACKET_HEADER_DATA_ELEMENT</i> <b>TS. NV_XMIT_BUFFER_COUNT</b>	Non-volatile count of the number of times the generic buffer has been transmitted to the RCE. Acts as a unique identifier for the buffer.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/nv_xmit_buffer_count</a></li> </ol>
<b>object_length</b>  <i>SYSTEM. LBLSIZE</i>	The object_length attribute provides the length of the digital object in bytes.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Observational/File Area Observational/Header[*]/object_length</a></li> </ol>
<b>Observation_Area</b>	The observation area consists of attributes that provide information about the circumstances under which the data were collected.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area</a></li> </ol> <ol style="list-style-type: none"> <li>1) <a href="#">Context Area</a></li> <li>2) <a href="#">comment</a></li> <li>3) <a href="#">Time Coordinates</a></li> <li>4) <a href="#">Investigation Area</a></li> <li>5) <a href="#">Primary Result Summary</a></li> <li>6) <a href="#">Observing System</a></li> <li>7) <a href="#">Target Identification</a></li> <li>8) <a href="#">Mission Area</a></li> <li>9) <a href="#">Discipline Area</a></li> </ol>
mars2020: <b>Observation_Information</b>	The Observation_Information class provides information about a science observation.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/Observation Information</a></li> </ol>

		<ol style="list-style-type: none"> <li>1) <a href="#">mars2020:release_number</a></li> <li>2) <a href="#">mars2020:mission_phase_name</a></li> <li>3) <a href="#">mars2020:product_type_name</a></li> <li>4) <a href="#">mars2020:spacecraft_clock_start</a></li> <li>5) <a href="#">mars2020:spacecraft_clock_stop</a></li> <li>6) <a href="#">mars2020:spacecraft_clock_partition</a></li> <li>7) <a href="#">mars2020:sol_number</a></li> <li>8) <a href="#">mars2020:start_sol_number</a></li> <li>9) <a href="#">mars2020:stop_sol_number</a></li> <li>10) <a href="#">mars2020:start_local_mean_solar_time</a></li> <li>11) <a href="#">mars2020:stop_local_mean_solar_time</a></li> <li>12) <a href="#">mars2020:start_local_true_solar_time</a></li> <li>13) <a href="#">mars2020:start_local_true_solar_time_sol</a></li> <li>14) <a href="#">mars2020:stop_local_true_solar_time</a></li> <li>15) <a href="#">mars2020:stop_local_true_solar_time_sol</a></li> <li>16) <a href="#">mars2020:start_solar_longitude</a></li> <li>17) <a href="#">mars2020:stop_solar_longitude</a></li> <li>18) <a href="#">mars2020:active_flight_computer</a></li> <li>19) <a href="#">mars2020:start_mars_year</a></li> <li>20) <a href="#">mars2020:stop_mars_year</a></li> </ol>	
msn_surface:Observational_Intent	Describes the intent and context of the observation.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Observational Intent</a></li> <li>1) <a href="#">msn_surface:campaign</a></li> <li>2) <a href="#">msn_surface:goal</a></li> <li>3) <a href="#">msn_surface:task</a></li> <li>4) <a href="#">msn_surface:activity_notes</a></li> <li>5) <a href="#">msn_surface:keyword</a></li> <li>6) <a href="#">msn_surface:activity_id</a></li> <li>7) <a href="#">msn_surface:target_id</a></li> </ol>	
Observing_System	The Observing System class describes the entire suite used to collect the data.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Document/Context Area/Observing System</a></li> <li>2) <a href="#">Product Bundle/Context Area/Observing System</a></li> <li>3) <a href="#">Product Collection/Context Area/Observing System</a></li> <li>4) <a href="#">Product Observational/Observation Area/Observing System</a></li> <li>1) <a href="#">name</a></li> <li>2) <a href="#">description</a></li> <li>3) <a href="#">Observing_System_Component</a></li> <li>4) <a href="#">Conceptual_Object</a></li> <li>5) <a href="#">Physical_Object</a></li> </ol>	
Observing_System_Component <i>IDENTIFICATION. INSTRUMENT_ID</i>	The Observing System Component class describes one or more subsystems used to collect data.	<ol style="list-style-type: none"> <li>1) <a href="#">Product Document/Context Area/Observing System/Observing System Component</a></li> <li>2) <a href="#">Product Bundle/Context Area/Observing System/Observing System Component[*]</a></li> <li>3) <a href="#">Product Collection/Context Area/Observing System/Observing System Component[*]</a></li> <li>4) <a href="#">Product Observational/Observation Area/Observing System/Observing System Component</a></li> </ol>	



		<ol style="list-style-type: none"> <li>1) FRONT_HAZCAM_LEFT_A</li> <li>2) FRONT_HAZCAM_LEFT_B</li> <li>3) FRONT_HAZCAM_RIGHT_A</li> <li>4) FRONT_HAZCAM_RIGHT_B</li> <li>5) REAR_HAZCAM_LEFT</li> <li>6) REAR_HAZCAM_RIGHT</li> <li>7) NAVCAM_LEFT</li> <li>8) NAVCAM_RIGHT</li> <li>9) CACHECAM</li> <li>10) SUPERCAM_RMI</li> <li>11) MCZ_LEFT</li> <li>12) MCZ_RIGHT</li> <li>13) SHERLOC_WATSON</li> <li>14) SHERLOC_ACI</li> <li>15) PIXL_MCC</li> <li>16) SKYCAM</li> <li>17) LCAM</li> <li>18) EDL_PUCAM1</li> <li>19) EDL_PUCAM2</li> <li>20) EDL_PUCAM3</li> <li>21) EDL_DDCAM</li> <li>22) EDL_RDCAM</li> <li>23) EDL_RUCAM</li> <li>24) EDL_MICROPHONE</li> <li>25) HELI_NAV</li> <li>26) HELI RTE</li> <li>27) MEDA_ENVIRONMENT</li> <li>28) MOXIE</li> <li>29) PIXL_ENGINEERING</li> <li>30) PIXL_SPECTROMETER</li> <li>31) SUPERCAM_NONIMAGE</li> <li>32) SHERLOC_SPECTROMETER</li> <li>33) RIMFAX_MOBILE</li> <li>34) RIMFAX_STATIONARY</li> </ol>	
<p><b>offset</b></p> <p>SYSTEM. <i>LBLSIZE</i></p>	<p>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.</p>	<ol style="list-style-type: none"> <li>1) <a href="#">Product Observational/File Area Observational/Array 2D[*]/offset</a></li> <li>2) <a href="#">Product Collection/File Area Inventory/Inventory/offset</a></li> <li>3) <a href="#">Product Observational/File Area Observational/Stream Text/offset</a></li> <li>4) <a href="#">Product Observational/File Area Observational/Header[*]/offset</a></li> <li>5) <a href="#">Product Observational/File Area Observational/Table Binary[*]/offset</a></li> </ol>	<p>ASCII_NonNegative_Integer</p> <p>Units_of_Storage</p>
<p><b>parsing_standard_id</b></p>	<p>The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.</p>	<ol style="list-style-type: none"> <li>1) <a href="#">Product Collection/File Area Inventory/Inventory/parsing_standard_id</a></li> <li>2) <a href="#">Product Observational/File Area Observational/Stream Text/parsing_standard_id</a></li> <li>3) <a href="#">Product Observational/File Area Observational/Header[*]/parsing_standard_id</a></li> </ol> <ol style="list-style-type: none"> <li>1) "7-Bit ASCII Text"</li> <li>2) "CDF 3.4 ISTEP/ACG"</li> <li>3) "FITS 3.0"</li> <li>4) "FITS 4.0"</li> <li>5) "ISIS2"</li> <li>6) "ISIS2 History Label"</li> <li>7) "ISIS3"</li> <li>8) "PDS DSV 1"</li> <li>9) "PDS ODL 2"</li> <li>10) "PDS3"</li> <li>11) "Pre-PDS3"</li> <li>12) "TIFF 6.0"</li> <li>13) "UTF-8 Text"</li> <li>14) "VICAR1"</li> <li>15) "VICAR2"</li> </ol>	<p>ASCII_Short_String_Collapsed</p>
<p>geom:<b>phase_angle</b></p> <p>IDENTIFICATION. <i>PHASE_ANGLE</i></p>	<p>The phase_angle element provides a measure of the relationship between the instrument viewing position and incident illumination (such as solar light). Phase angle is measured at the target; it is the angle between a vector to the illumination source and a vector to the instrument. If</p>	<ol style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[2]/phase_angle</a></li> </ol>	

	illumination is from behind the instrument, phase_angle will be small.  <b>Mars 2020 Specific:</b> <i>The instrument viewing position is constructed using the central pixel of the image and the camera C point. SuperCam RMI only.</i>		ASCII_Real  Units_of_Angle
geom:positive_azimuth_direction  * COORDINATE_SYSTEM. POSITIVE_AZIMUTH_DIRECTION	The positive_azimuth_direction attribute specifies the direction in which azimuth is measured in positive degrees for an observer on the surface of a body. The azimuth is measured with respect to the elevation reference plane. A value of 'clockwise' indicates that azimuth is measured positively clockwise, and 'counterclockwise' indicates that azimuth increases positively counter-clockwise.  <b>Mars 2020 Specific:</b> <i>For the M2020 operational coordinate frames, which follow the Mars Pathfinder convention, increasing azimuth moves in a clockwise ("CLOCKWISE") direction as viewed from above.</i>	1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/positive_azimuth_direction  2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/positive azimuth_direction  1) "CLOCKWISE"	ASCII_Short_String_Collapsed
geom:positive_elevation_direction  * COORDINATE_SYSTEM. POSITIVE_ELEVATION_DIRECTION	The positive_elevation_direction attribute provides the direction in which elevation is measured in positive degrees for an observer on the surface of a body. The elevation is measured with respect to the azimuthal reference plane. A value of UP or ZENITH indicates that elevation is measured positively upwards, i.e., the zenith point would be at +90 degrees and the nadir point at -90 degrees. DOWN or NADIR indicates that the elevation is measured positively downwards; the zenith point would be at -90 degrees and the nadir point at +90 degrees.  <b>Mars 2020 Specific:</b> <i>For the M2020 operational coordinate frames, which follow the Mars Pathfinder convention, increasing elevation ("UP") moves towards the negative Z axis.</i>	1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/positive_elevation_direction  2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/positive elevation_direction  1) "UP"	ASCII_Short_String_Collapsed
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 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	
proc:process_owner_institution_name  IDENTIFICATION. PRODUCER_INSTITUTION_NAME	The pprocess_owner_institution_name attribute specifies the name of the institution that owns the software process.	1)/Product Observational/Observation Area/Discipline Area/Processing Information/Process/process_owner_institution_name  1) "MULTIMISSIION INSTRUMENT PROCESSING LAB 2) JET PROPULSION LAB"	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 Collection/Context Area/Primary Result Summary/processing_level[*]  2)/Product Bundle/Context Area/Primary Result Summary/processing_level[*]  3)/Product Collection/Context Area/Primary Result Summary/processing_level	

		<ul style="list-style-type: none"> <li>1) "Calibrated"</li> <li>2) "Derived"</li> <li>3) "Partially Processed"</li> <li>4) "Raw"</li> <li>5) "Telemetry"</li> </ul>	ASCII_Short_String_Collapsed
<b>Product_Bundle</b>	A Product_Bundle is an aggregate product and has a table of references to one or more collections.	<ul style="list-style-type: none"> <li>1) <a href="#">Product_Bundle</a></li> <li>1) <i>Product</i></li> <li>2) <a href="#">Context Area</a></li> <li>3) <a href="#">Identification Area</a></li> <li>4) <a href="#">Reference List</a></li> <li>5) <a href="#">Bundle</a></li> <li>6) <a href="#">File Area_Text</a></li> <li>7) <a href="#">Bundle Member Entry</a></li> </ul>	
<b>product_class</b>	The product_class attribute provides the name of the product class.	<ul style="list-style-type: none"> <li>1) <a href="#">Product Document/Identification Area/product class</a></li> <li>2) <a href="#">Product Bundle/Identification Area/product class</a></li> <li>3) <a href="#">Product Collection/Identification Area/product class</a></li> <li>4) <a href="#">Product Observational/Identification Area/product class</a></li> </ul>	
		<ul style="list-style-type: none"> <li>1) "Product_AIP"</li> <li>2) "Product_Ancillary"</li> <li>3) "Product_Attribute_Definition"</li> <li>4) "Product_Browse"</li> <li>5) "Product_Bundle"</li> <li>6) "Product_Class_Definition"</li> <li>7) "Product_Collection"</li> <li>8) "Product_Context"</li> <li>9) "Product_DIP"</li> <li>10) "Product_DIP_Deep_Archive"</li> <li>11) "Product_Data_Set_PDS3"</li> <li>12) "Product_Document"</li> <li>13) "Product_File_Repository"</li> <li>14) "Product_File_Text"</li> <li>15) "Product_Instrument_Host_PDS3"</li> <li>16) "Product_Instrument_PDS3"</li> <li>17) "Product_Metadata_Supplemental"</li> <li>18) "Product_Mission_PDS3"</li> <li>19) "Product_Native"</li> <li>20) "Product_Observational"</li> <li>21) "Product_Proxy_PDS3"</li> <li>22) "Product_SIP"</li> <li>23) "Product_SIP_Deep_Archive"</li> <li>24) "Product_SPICE_Kernel"</li> <li>25) "Product_Service"</li> <li>26) "Product_Software"</li> <li>27) "Product_Subscription_PDS3"</li> <li>28) "Product_Target_PDS3"</li> <li>29) "Product_Thumbnail"</li> <li>30) "Product_Update"</li> <li>31) "Product_Volume_PDS3"</li> <li>32) "Product_Volume_Set_PDS3"</li> <li>33) "Product_XML_Schema"</li> <li>34) "Product_Zipped"</li> </ul>	ASCII_Short_String_Collapsed
<b>Product_Collection</b>	A Product_Collection has a table of references to one or more basic products. The references are stored in a table called the inventory.	<ul style="list-style-type: none"> <li>1) <a href="#">Product_Collection</a></li> <li>1) <i>Product</i></li> <li>2) <a href="#">Context Area</a></li> <li>3) <a href="#">Identification Area</a></li> <li>4) <a href="#">Reference List</a></li> <li>5) <a href="#">Collection</a></li> <li>6) <a href="#">File Area Inventory</a></li> </ul>	
msn_surface: <b>product_completion_status</b>  <i>TELEMETRY.</i> <b>PRODUCT_COMPLETION_STATUS</b>	<p>The product_completion_status attribute indicates whether or not a product is complete or is in one of a number of incomplete states. Sample values might indicate that all portions of the product have been downlinked and received correctly, that all portions have not yet been received, or that the product contains transmission errors. The specific values are mission-dependent.</p> <p><b>Mars 2020 Specific:</b> For M2020, the valid values indicate whether it was a complete or partial product as it came out of MPCs, and</p>	<ul style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/product completion status</a></li> </ul>	

	whether the checksum passed, failed, or was missing.	1) "PARTIAL" 2) "PARTIAL_CHECKSUM_FAIL" 3) "COMPLETE_CHECKSUM_PASS" 4) "COMPLETE_NO_CHECKSUM" 5) "COMPLETE_CHECKSUM_FAIL"	ASCII_Short_String_Collapsed
Product_Document	A Product Document is a product consisting of a single logical document that may comprise one or more document editions.	1)/ <a href="#">Product Document</a>	
		1) <a href="#">Product</a> 2) <a href="#">Context Area</a> 3) <a href="#">Identification Area</a> 4) <a href="#">Reference List</a> 5) <a href="#">Document</a>	
Product_Observational	A Product_Observational is a set of one or more information objects produced by an observing system.	1)/ <a href="#">Product Observational</a>	
		1) <a href="#">Product</a> 2) <a href="#">Identification Area</a> 3) <a href="#">Observation Area</a> 4) <a href="#">Reference List</a> 5) <a href="#">File Area Observational</a> 6) <a href="#">File Area Observational Supplemental</a>	
proc:program_version	The program_version attribute specifies the version of the software program.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program/program_version</a>	
			ASCII_Short_String_Collapsed
msn_surface:provider_id <i>TELEMETRY. TELEMETRY_PROVIDER_ID</i>	The provider_id attribute identifies the organization or subsystem that supplied the telemetry data product to the producer of the raw (EDR) PDS data product. This is typically (but not always) the organization responsible for reassembling packetized data into a single product. These may vary by mission so the permissible values should be set by the mission dictionaries.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/provider_id</a>	
		1) "MPCS_M2020_DP"	ASCII_Short_String_Collapsed
publication_date	The publication_date attribute provides the date on which an item was published.	1)/ <a href="#">Product Document/Document/publication_date</a>	
			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)/ <a href="#">Product Document/Identification Area/Citation Information/publication_year</a>	
		2)/ <a href="#">Product Bundle/Identification Area/Citation Information/publication_year</a>	
		3)/ <a href="#">Product Collection/Identification Area/Citation Information/publication_year</a>	
			ASCII_Date_YMD
purpose	The purpose attribute provides an indication of the primary purpose of the observations included.	1)/ <a href="#">Product Bundle/Context Area/Primary Result Summary/purpose</a>	
		2)/ <a href="#">Product Collection/Context Area/Primary Result Summary/purpose</a>	
		1) "Calibration" 2) "Checkout" 3) "Engineering" 4) "Navigation" 5) "Observation Geometry" 6) "Science" 7) "Supporting Observation"	ASCII_Short_String_Collapsed
geom:qcos	qcos is the scalar component of a quaternion. qcos = $\cos(\theta/2)$ , where $\theta$ is the angle of rotation.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/qcos</a>	
		2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Quaternion Plus Direction/qcos</a>	
			ASCII_Real

geom:qsin1	qsin1 is the first element of the vector component of a quaternion. $qsin1 = x \cdot \sin(\theta/2)$ where $\theta$ is the angle of rotation and $(x,y,z)$ is the unit vector around which the rotation occurs.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/qsin1</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Quaternion Plus Direction/qsin1</a></p> <p>ASCII_Real</p>
geom:qsin2	qsin2 is the second element of the vector component of a quaternion. $qsin2 = y \cdot \sin(\theta/2)$ where $\theta$ is the angle of rotation and $(x,y,z)$ is the unit vector around which the rotation occurs.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/qsin2</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Quaternion Plus Direction/qsin2</a></p> <p>ASCII_Real</p>
geom:qsin3	qsin3 is the third element of the vector component of a quaternion. $qsin3 = z \cdot \sin(\theta/2)$ where $\theta$ is the angle of rotation and $(x,y,z)$ is the unit vector around which the rotation occurs.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/qsin3</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Quaternion Plus Direction/qsin3</a></p> <p>ASCII_Real</p>
geom:quaternion_measurement_method	Specifies the method by which the coordinate space was measured. This provides an indication of the quality of the definition.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[1]/Coordinate Space Quality/quaternion measurement method</a></p> <p>1) "Bundle_Adjustment" 2) "Coarse" 3) "Fine" 4) "Sun_Find" 5) "Tilt_Only" 6) "Unknown"</p> <p>ASCII_Short_String_Collapsed</p>
geom:Quaternion_Plus_Direction	Quaternion_Plus_Direction provides the four elements of a quaternion and its direction of rotation. The two end point frames must be identified in the enclosing class. See the definition of Quaternion_Base for more details on the quaternion classes in this dictionary.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Quaternion Plus Direction</a></p> <p>1) <a href="#">geom:qcos</a> 2) <a href="#">geom:qsin1</a> 3) <a href="#">geom:rotation_direction</a> 4) <a href="#">geom:qsin2</a> 5) <a href="#">geom:qsin3</a></p>
mars2020:rce_time_sync	Last time sync value received from RCE by SuperCam RMI	<p>1)/<a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/rce_time_sync</a></p> <p>ASCII_Integer</p>
msn_surface:received_packets	<p>The received_packets attribute provides the total number of telemetry packets actually used to construct this data product. cf. expected_packets.</p> <p><b>Mars 2020 Specific:</b> For M2020, telemetry data processing does not track "packets", but instead data product "parts".</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/received_packets</a></p> <p>ASCII_NonNegative_Integer</p>
Record_Binary	The Record_Binary class is a component of the table class and defines a record of the table.	<p>1)/<a href="#">Product Observational/File Area Observational/Table Binary[*]/Record Binary</a></p> <p>1) <a href="#">fields</a> 2) <a href="#">record_length</a> 3) <a href="#">groups</a> 4) <a href="#">Field Binary</a> 5) <a href="#">Group_Field_Binary</a></p>
Record_Delimited	The Record_Delimited class is a component of the delimited table (spreadsheet) class and defines a record of the delimited table.	<p>1)/<a href="#">Product Collection/File Area Inventory/Inventory/Record_Delimited</a></p> <p>1) <a href="#">fields</a> 2) <a href="#">maximum_record_length</a> 3) <a href="#">groups</a> 4) <a href="#">Field_Delimited</a> 5) <a href="#">Group_Field_Delimited</a></p>

record_delimiter	The record_delimiter attribute provides the character or characters used to indicate the end of a record.	1)/ <a href="#">Product Collection/File Area Inventory/Inventory/record_delimiter</a>	
		2)/ <a href="#">Product Observational/File Area Observational/Stream Text/record_delimiter</a>	
record_length	The record_length attribute provides the length of a record, including a record delimiter, if present.	1) "Carriage-Return Line-Feed"	ASCII_Short_String_Collapsed
		2) "Line-Feed"	ASCII_NonNegative_Integer
records	The records attribute provides a count of records.	1)/ <a href="#">Product Observational/File Area Observational/Table Binary*/Record Binary/record_length</a>	
		2)/ <a href="#">Product Observational/File Area Observational/Stream Text/record_length</a>	
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)/ <a href="#">Product Observational/Stream Text/record_length</a>	
		2)/ <a href="#">Product Observational/Stream Text/record_length</a>	
reference_text	The reference_text attribute provides a complete bibliographic citation for a published work.	1)/ <a href="#">Product Observational/Stream Text/record_length</a>	
		2)/ <a href="#">Product Observational/Stream Text/record_length</a>	
reference_type	The reference_type attribute provides the name of the association.	1)/ <a href="#">Product Observational/Stream Text/record_length</a>	
		2)/ <a href="#">Product Observational/Stream Text/record_length</a>	

			ASCII_Short_String_Collapsed
<b>mars2020:release_number</b>	release_number is the identifier of a scheduled release of Mars 2020 data from PDS. The first Mars 2020 data release has release_number "01". The release_number for a given product is always the first release in which it appears, and does not change if the product is revised later.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/Observation Information/release_number</a>	ASCII_Short_String_Collapsed
<b>msn_surface:request_id</b> <i>IDENTIFICATION.REQUEST_ID</i>	The request_id is used to group related datasets together by science or engineering application or theme, such as frames in a mosaic.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/request_id</a>	ASCII_Short_String_Collapsed
<b>mars2020:reserved_1</b> <i>GENERIC_PACKET_HEADER_DATA_ELEMENTS.RESERVED</i>	Reserved field for SuperCam RMI mini-header	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/reserved_1</a>	ASCII_Integer
<b>geom:rotation_direction</b>	The rotation_direction attribute identifies the direction of the rotation for a specific quaternion. This is used when the two frames involved are unambiguously identified in the enclosing classes.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/rotation_direction</a> 2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Quaternion Plus Direction/rotation_direction</a>	ASCII_Short_String_Collapsed
<b>mars2020:scam_lastats_flag</b> <i>SCAM Ancillary Header Data Element S.LASTATS</i>	Logical to indicate if LIBS active are statistics	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_lastats_flag</a>	ASCII_Boolean
<b>mars2020:scam_ldark</b> <i>SCAM Ancillary Header Data Element S.LDARK</i>	Indicates whether darks were collected after LIBS active, before LIBS active, or both	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_ldark</a> 1) "0" 2) "1" 3) "2" 4) "3"	ASCII_Integer
<b>mars2020:scam_ldstats_flag</b> <i>SCAM Ancillary Header Data Element S.LDSTATS</i>	Logical to indicate if LIBS dark are statistics	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_ldstats_flag</a>	ASCII_Boolean
<b>mars2020:scam_point_number</b> <i>SCAM Ancillary Header Data Element S.POINT_NUMBER</i>	Point number in the raster	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_point_number</a>	ASCII_Integer
<b>mars2020:scam_rastats_flag</b> <i>SCAM Ancillary Header Data Element S.RASTATS</i>	Logical to indicate if Raman active are statistics	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_rastats_flag</a>	ASCII_Boolean
<b>mars2020:scam_rdark</b> <i>SCAM Ancillary Header Data Element S.RDARK</i>	Indicates whether darks were collected after Raman active, before Raman active, or both	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_rdark</a> 1) "0" 2) "1" 3) "2" 4) "3"	ASCII_Integer
<b>mars2020:scam_rdstats_flag</b> <i>SCAM Ancillary Header Data Element S.RDSTATS</i>	Logical to indicate if Raman darks are statistics	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_rdstats_flag</a>	ASCII_Boolean
<b>mars2020:scam_two_d_flag</b> <i>SCAM Ancillary Header Data Element S.TWO_D</i>	Flag indicating a 2D collect	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_two_d_flag</a>	ASCII_Boolean

mars2020:scam_type	Bit mask indicating technique type	<a href="#">1)/Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header/scam_type</a> 1) "0" 2) "1" 3) "16" 4) "18" 5) "2" 6) "36" 7) "4" 8) "48" 9) "8" 10) "9"	ASCII_Integer
<b>Science_Facets</b>	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.	<a href="#">1)/Product Bundle/Context Area/Primary Result Summary/Science Facets</a> <a href="#">2)/Product Collection/Context Area/Primary Result Summary/Science Facets</a> 1) <a href="#">wavelength_range</a> 2) <a href="#">domain</a> 3) <a href="#">Discipline_Facets</a> 4) <a href="#">discipline_name</a>	
mars2020:se_firmware_version  GENERIC_PACKET_HEADER_DATA_ELEMENT.SE_FIRMWARE_VERSION	Unique identifier for the SE firmware version. Is a unix timestamp of when the firmware was built.	<a href="#">1)/Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/se_firmware_version</a>	ASCII_Integer
mars2020:se_hardware_identifier  GENERIC_PACKET_HEADER_DATA_ELEMENT.SE_HARDWARE_IDENTIFIER	Hardware identifier for a specific SE board. Used to know which SOH engineering unit conversion factors to apply to the data.	<a href="#">1)/Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/se_hardware_identifier</a>	ASCII_Integer
geom:selected_instrument_id  ARM_ARTICULATION_STATE. ARTICULATION_DEV_INSTRUMENT_ID	The selected_instrument_id attribute specifies an abbreviated name or acronym that identifies the selected instrument mounted on the articulation device.	<a href="#">1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/selected_instrument_id</a> 1) "TURRET" 2) "DRILL" 3) "DOCKING POST" 4) "PIXL" 5) "GDRT" 6) "FCS" 7) "WATSON" 8) "SHERLOC" 9) "CUSTOM TCP"	ASCII_Short_String_Collapsed
msn_surface:sequence_execution_count  TELEMETRY. SEQUENCE_EXECUTION_COUNT	The sequence_execution_count specifies how many times this sequence has executed since the last reset of the flight computer.  <b>Mars 2020 Specific:</b> For M2020, this means RCE (Rover Compute Element) start-up or boot, which happens every time the rover wakes up (generally daily).	<a href="#">1)/Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/sequence_execution_count</a>	ASCII_NonNegative_Integer
msn_surface:sequence_id  IDENTIFICATION. SEQUENCE_ID	The sequence_id identifies the command sequence used to acquire this product.  <b>Mars 2020 Specific:</b> For M20, this consists of two components. First, a 4-letter "category" which typically corresponds to the relevant FSW subsystem (e.g. "eng_" for surface engineering sequences) or payload (e.g. "zcam" for Mastcam-Z sequences). Second, a 5-digit unique number for the sequence.	<a href="#">1)/Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/sequence_id</a>	ASCII_Short_String_Collapsed
<b>sequence_number</b>	The sequence_number attribute provides a number that is used to order axes in an array.	<a href="#">1)/Product Observational/File Area Observational/Array 2D[*]/Axis Array[*]/sequence_number</a>	ASCII_NonNegative_Integer
msn_surface:sequence_version_id  IDENTIFICATION. SEQUENCE_VERSION_ID	The sequence_version_id identifies which of potentially several versions of a sequence_id were used to acquire this product.  <b>Mars 2020 Specific:</b> Note that sequence versions start at 1, so a value of 0 indicates there was no sequence involved in the acquisition	<a href="#">1)/Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/sequence_version_id</a>	ASCII_Short_String_Collapsed



proc:Software	The Software class describes the data processing software used in order to produce the data product.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software</a></p> <p>1) <a href="#">name</a>  2) <a href="#">software_id</a>  3) <a href="#">software_version_id</a>  4) <a href="#">software_type</a>  5) <a href="#">description</a>  6) <a href="#">Internal_Reference</a>  7) <a href="#">proc:Software_Program</a></p>
proc:Software_Program	The Software_Program class describes the specific components or tasks of the Software executed in producing the data product.	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software_Program</a></p> <p>1) <a href="#">name</a>  2) <a href="#">proc:program_type_name</a>  3) <a href="#">proc:program_user</a>  4) <a href="#">proc:program_hostname</a>  5) <a href="#">proc:program_path</a>  6) <a href="#">proc:program_version</a>  7) <a href="#">proc:program_start_date_time</a>  8) <a href="#">proc:program_stop_date_time</a>  9) <a href="#">description</a>  10) <a href="#">proc:Software_Program_Parameters</a></p>
mars2020:sol_number	Sol_number is the number of the Mars day on which an observation was acquired. Landing day is Sol 0.	<p>1)/<a href="#">Product Observational/Observation Area/Mission Area/Mars2020_Parameters/Observation Information/sol_number</a></p> <p>ASCII_Integer</p>
geom:solar_azimuth  * <a href="#">DERIVED_GEOMETRY_PARMS.SOLAR_AZIMUTH</a> * <a href="#">DERIVED_GEOMETRY_PARMS.SOLAR_AZIMUTH__UNIT</a>	<p>The solar_azimuth attribute specifies one of two angular measurements indicating the direction to the Sun as measured from a specific point on the surface of a planet (eg., from a lander or rover). The positive direction of azimuth is set by the positive_azimuth_direction attribute in the reference coordinate space. The azimuth is measured in the clockwise or counterclockwise direction (as viewed from above) with the meridian passing through the positive spin axis of the planet (i.e., the north pole) defining the zero reference.</p> <p><b>Mars 2020 Specific:</b>  For M2020, the value in the SITE_DERIVED_GEOMETRY group is calculated using SPICE based on the time of the observation. The value in the ROVER_DERIVED_GEOMETRY group reflects what was sent in telemetry (as az/el, converted from the telemetered unit vector). Thus, even after they are converted to a common frame, the values will likely differ by a small amount, representing the difference between the rover's knowledge and the (more accurate) SPICE computation.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/solar azimuth</a></p> <p>ASCII_Real  Units_of_Angle</p>
geom:solar_elevation  * <a href="#">DERIVED_GEOMETRY_PARMS.SOLAR_ELEVATION</a> * <a href="#">DERIVED_GEOMETRY_PARMS.SOLAR_ELEVATION__UNIT</a>	<p>The solar_elevation attribute specifies one of two angular measurements indicating the direction to the Sun as measured from a specific point on the surface of a planet (eg., from a lander or rover). The positive direction of the elevation is set by the positive_elevation_direction attribute in the reference coordinate space. The elevation is measured from the plane which is normal to the line passing between the surface point and the planet's center of mass, and that intersects the surface point.</p> <p><b>Mars 2020 Specific:</b>  For M2020, the value in the SITE_DERIVED_GEOMETRY group is calculated using SPICE based on the time of the observation. The value in the ROVER_DERIVED_GEOMETRY group reflects what was sent in telemetry (as az/el, converted from the telemetered unit vector). Thus, even after they are converted to a common frame, the values will likely differ by a small amount, representing the difference between the rover's knowledge and the (more accurate) SPICE computation.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/solar elevation</a></p> <p>ASCII_Real  Units_of_Angle</p>
solar_longitude  IDENTIFICATION. SOLAR_LONGITUDE	The solar_longitude attribute provides the angle between the body-Sun line at the time of interest and the body-Sun line at its vernal equinox.	<p>1)/<a href="#">Product Observational/Observation Area/Time Coordinates/solar_longitude</a></p> <p>ASCII_Real  Units_of_Angle</p>
Source_Product_Internal	The Source_Product_Internal class is used to reference one or more source products in the PDS4 registry system. A source product contains input data for the creation of this product.	<p>1)/<a href="#">Product Observational/Reference_List/Source_Product_Internal</a></p> <p>1) <a href="#">lidvid_reference</a>  2) <a href="#">reference_type</a>  3) <a href="#">comment</a></p>

<b>mars2020:spacecraft_clock_partition</b>	The spacecraft_clock_partition provides the clock partition active for the spacecraft_clock_start and spacecraft_clock_stop attributes. This attribute may be used when the spacecraft_clock values do not include a partition number.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/Observation Information/spacecraft_clock_partition</a> ASCII_Integer
<b>mars2020:spacecraft_clock_start</b>	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]ddddddddd[.ffffff], where p is an optional partition number, dddddddd is a whole number of seconds up to 10 digits, and .ffffff 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)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/Observation Information/spacecraft_clock_start</a> ASCII_Short_String_Collapsed
<b>geom:spice_kernel_file_name</b> <i>TELEMETRY. SPICE_FILE_NAME</i>	The spice_kernel_file_name attribute provides the file name of a SPICE kernel file used to process the data or to produce geometric quantities given in the label.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/SPICE Kernel Files/SPICE Kernel Identification/spice_kernel_file_name</a> ASCII_File_Name
<b>geom:SPICE_Kernel_Files</b>	The SPICE_Kernel_Files class provides references to the SPICE files used when calculating geometric values.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/SPICE Kernel Files</a> 1) <i>comment</i> 2) <i>geom:SPICE Kernel Identification</i>
<b>geom:SPICE_Kernel_Identification</b>	The SPICE_Kernel_Identification class optionally includes the SPICE kernel type and provides two alternatives for identifying the product: LIDVID using Internal_Reference, and the file name of the kernel file. Although optional, LIDVID should be given if one is available. The optional kernel_provenance attribute indicates whether the kernel is a predict or reconstructed kernel, or some combination of the two, or if it is a kernel type for which such distinctions do not apply.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/SPICE Kernel Files/SPICE Kernel Identification</a> 1) <i>kernel_type</i> 2) <i>geom:spice_kernel_file_name</i> 3) <i>geom:kernel_provenance</i> 4) <i>Internal_Reference</i>
<b>start_date_time</b> <i>IDENTIFICATION. START_TIME</i>	The start_date_time attribute provides the date and time appropriate to the beginning of the product being labeled.  <b>Mars 2020 Specific:</b> <i>For M2020, the time period of interest is returned from SPICE subroutines and based on the beginning of data acquisition.</i>	1)/ <a href="#">Product Bundle/Context Area/Time Coordinates/start_date_time</a> 2)/ <a href="#">Product Collection/Context Area/Time Coordinates/start_date_time</a> 3)/ <a href="#">Product Observational/Observation Area/Time Coordinates/start_date_time</a> ASCII_Date_Time_YMD_UTC
<b>mars2020:start_local_mean_solar_time</b>	Start_local_mean_solar_time is the local mean solar time, as defined in the main PDS4 data dictionary, at the beginning of an observation.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/Observation Information/start_local_mean_solar_time</a> ASCII_Short_String_Collapsed
<b>mars2020:start_local_true_solar_time</b>	Start_local_true_solar_time is the local true solar time, as defined in the main PDS4 data dictionary, at the beginning of an observation.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/Observation Information/start_local_true_solar_time</a> ASCII_Short_String_Collapsed
<b>mars2020:start_solar_longitude</b>	Start_solar_longitude is the solar longitude, as defined in the main PDS4 data dictionary, at the beginning of an observation.	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/Observation Information/start_solar_longitude</a> ASCII_Real <i>Units_of_Angle</i>
<b>stop_date_time</b> <i>IDENTIFICATION. STOP_TIME</i>	The stop_date_time attribute provides the date and time appropriate to the end of the product being labeled.	1)/ <a href="#">Product Bundle/Context Area/Time Coordinates/stop_date_time</a> 2)/ <a href="#">Product Collection/Context Area/Time Coordinates/stop_date_time</a> 3)/ <a href="#">Product Observational/Observation Area/Time Coordinates/stop_date_time</a> ASCII_Date_Time_YMD_UTC
<b>Stream_Text</b>	The Stream text class defines a text object.	1)/ <a href="#">Product Observational/File Area Observational/Stream Text</a>

		<ul style="list-style-type: none"> <li>1) <a href="#">Parsable_Byte_Stream</a></li> <li>2) <a href="#">name</a></li> <li>3) <a href="#">offset</a></li> <li>4) <a href="#">record_delimiter</a></li> <li>5) <a href="#">local_identifier</a></li> <li>6) <a href="#">object_length</a></li> <li>7) <a href="#">md5_checksum</a></li> <li>8) <a href="#">description</a></li> <li>9) <a href="#">parsing_standard_id</a></li> <li>10) <a href="#">Digital_Object</a></li> </ul>	
<b>mars2020:SuperCam_Ancillary_Header</b>	The SuperCam_Ancillary_Header class provides ancillary metadata specific to SuperCam observations.	<ul style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Ancillary Header</a></li> <li>2) <a href="#">mars2020:scam_point_number</a></li> <li>3) <a href="#">mars2020:scam_type</a></li> <li>4) <a href="#">mars2020:scam_two_d_flag</a></li> <li>5) <a href="#">mars2020:scam_ldark</a></li> <li>6) <a href="#">mars2020:scam_rdark</a></li> <li>7) <a href="#">mars2020:scam_rdstats_flag</a></li> <li>8) <a href="#">mars2020:scam_rdstats_flag</a></li> <li>9) <a href="#">mars2020:scam_ldstats_flag</a></li> <li>10) <a href="#">mars2020:scam_ldstats_flag</a></li> </ul>	
<b>mars2020:SuperCam_Generic_Packet_Header</b>	The SuperCam Generic_Packet_Header class provides metadata from the SuperCam product generic packet header.	<ul style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header</a></li> <li>2) <a href="#">mars2020:rce_time_sync</a></li> <li>3) <a href="#">mars2020:data_definition_version</a></li> <li>4) <a href="#">mars2020:nv_xmit_buffer_count</a></li> <li>5) <a href="#">mars2020:bu_software_version</a></li> <li>6) <a href="#">mars2020:cnhd_firmware_version</a></li> <li>7) <a href="#">mars2020:bu_hardware_identifier</a></li> <li>8) <a href="#">mars2020:se_firmware_version</a></li> <li>9) <a href="#">mars2020:se_hardware_identifier</a></li> <li>10) <a href="#">mars2020:mu_version_identifier</a></li> <li>11) <a href="#">mars2020:mu_hardware_identifier</a></li> <li>12) <a href="#">mars2020:xmit_data_id</a></li> <li>13) <a href="#">mars2020:reserved_1</a></li> <li>14) <a href="#">mars2020:number_of_sections</a></li> <li>15) <a href="#">mars2020:generic_data_buffer_size</a></li> </ul>	
<b>mars2020:SuperCam_Parameters</b>	The SuperCam_Parameters class provides metadata specific to SuperCam observations.	<ul style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters</a></li> <li>2) <a href="#">mars2020:SuperCam_RMI_Mini_Header</a></li> <li>3) <a href="#">mars2020:SuperCam_Ancillary_Header</a></li> <li>4) <a href="#">mars2020:SuperCam_Generic_Packet_Header</a></li> </ul>	
<b>msn_surface:Surface_Mission_Information</b>	The Surface_Mission_Information class contains attributes specific to surface missions which apply across instrument types.	<ul style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information</a></li> <li>2) <a href="#">msn_surface:surface_gravity</a></li> <li>3) <a href="#">msn_surface:Command_Execution</a></li> <li>4) <a href="#">msn_surface:Telemetry</a></li> <li>5) <a href="#">msn_surface:Observational_Intent</a></li> <li>6) <a href="#">msn_surface:Commanded_Parameters</a></li> </ul>	
<b>Table_Binary</b>	The Table Binary class is an extension of table base and defines a simple binary table.	<ul style="list-style-type: none"> <li>1) <a href="#">Product Observational/File Area Observational/Table Binary[*]</a></li> <li>2) <a href="#">name</a></li> <li>3) <a href="#">offset</a></li> <li>4) <a href="#">record_delimiter</a></li> <li>5) <a href="#">local_identifier</a></li> <li>6) <a href="#">records</a></li> <li>7) <a href="#">md5_checksum</a></li> <li>8) <a href="#">description</a></li> <li>9) <a href="#">Uniformly_Sampled</a></li> <li>10) <a href="#">Record_Binary</a></li> <li>11) <a href="#">Digital_Object</a></li> </ul>	
<b>geom:target_heliocentric_distance</b>	The target_heliocentric_distance attribute provides the scalar distance between the center of the target and the center of the Sun.	<ul style="list-style-type: none"> <li>1) <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/target_heliocentric_distance</a></li> <li>2) <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry/target_heliocentric_distance</a></li> </ul>	<p>ASCII_Real</p> <p>Units_of_Length</p>

<b>Target_Identification</b>	The Target_Identification class provides detailed target identification information.	1)/ <a href="#">Product Bundle/Context Area/Target Identification</a> 2)/ <a href="#">Product Collection/Context Area/Target Identification</a> 3)/ <a href="#">Product Observational/Observation Area/Target Identification</a> 4) <a href="#">name</a> 5) <a href="#">alternate_designation</a> 6) <a href="#">type</a> 7) <a href="#">description</a> 8) <a href="#">Internal_Reference</a>	
<b>geom:target_name</b>	Specifies the name of the target location for items in this class.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/target_name</a> 2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry/target_name</a>	ASCII_Short_String_Collapsed
<b>msn_surface:Telemetry</b>	The Telemetry class contains downlink-related attributes used primarily during mission operations.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry</a> 2) <a href="#">msn_surface:application_id</a> 3) <a href="#">msn_surface:application_subtype_id</a> 4) <a href="#">msn_surface:application_name</a> 5) <a href="#">msn_surface:provider_id</a> 6) <a href="#">msn_surface:flight_software_version_id</a> 7) <a href="#">msn_surface:telemetry_source_name</a> 8) <a href="#">msn_surface:telemetry_alternate_name</a> 9) <a href="#">msn_surface:transport_protocol</a> 10) <a href="#">msn_surface:communication_session_id</a> 11) <a href="#">msn_surface:telemetry_source_start_time</a> 12) <a href="#">msn_surface:telemetry_source_sclk_start</a> 13) <a href="#">msn_surface:product_completion_status</a> 14) <a href="#">msn_surface:earth_received_start_date_time</a> 15) <a href="#">msn_surface:earth_received_stop_date_time</a> 16) <a href="#">msn_surface:download_priority</a> 17) <a href="#">msn_surface:data_size</a> 18) <a href="#">msn_surface:expected_packets</a> 19) <a href="#">msn_surface:received_packets</a> 20) <a href="#">msn_surface:telemetry_source_host_name</a> 21) <a href="#">msn_surface:expected_transmission_path</a> 22) <a href="#">msn_surface:transmission_path</a> 23) <a href="#">msn_surface:flight_software_mode</a> 24) <a href="#">msn_surface:telemetry_source_size</a> 25) <a href="#">msn_surface:telemetry_source_checksum</a> 26) <a href="#">msn_surface:auto_delete_flag</a> 27) <a href="#">msn_surface:virtual_channel_id</a>	
<b>msn_surface:telemetry_source_checksum</b>  <b>TELEMETRY:</b> <b>TELEMETRY_SOURCE_CHECKSUM</b>	Specifies the checksum for the telemetry stream from which this product was derived.  <b>Mars 2020 Specific:</b> For M2020, it is the sum of each (unsigned) byte in the data areas of all DPOs. It does not include the DPO headers. For M20 LVS, it is instead just the sum of all pixel values in the image.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/telemetry_source_checksum</a>	ASCII_Integer
<b>msn_surface:telemetry_source_host_name</b>  <b>TELEMETRY:</b> <b>TELEMETRY_SOURCE_HOST_NAME</b>	Specifies the name of the host venue that provided the telemetry source data used in the creation of this data set.  <b>Mars 2020 Specific:</b> For M2020, example is "M2020mstbgds1".	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/telemetry_source_host_name</a>	ASCII_Short_String_Collapsed
<b>msn_surface:telemetry_source_name</b>  <b>TELEMETRY:</b> <b>TELEMETRY_SOURCE_NAME</b>	The telemetry_source_name specifies the name source of the telemetry data described in the parent class.  <b>Mars 2020 Specific:</b> For M2020, in most cases this is the name of the data product, for example "MczRScidata_0123456789-00000-1.dat". For helicopter and LVS images, this is the name of the image supplied by the respective team after their preprocessing.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/telemetry_source_name</a>	ASCII_Short_String_Collapsed
<b>msn_surface:telemetry_source_sclk_start</b>  <b>TELEMETRY:</b> <b>TELEMETRY_SOURCE_SCLK_START</b>	The telemetry_source_sclk_start attribute specifies the value of the spacecraft clock (in seconds) at the creation time of the source product from which this product was derived.  <b>Mars 2020 Specific:</b> For M2020, it refers to the creation time (DVT) of the onboard DPO and comes from the secondary packet header. Note that	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/telemetry_source_sclk_start</a>	

	<i>this is the SCLK used by Data Management operationally to identify data products.</i>		ASCII_Short_String_Collapsed
msn_surface:telemetry_source_size <i>TELEMETRY. TELEMETRY_SOURCE_SIZE</i>	Specifies the length in bytes of the telemetry stream from which this product was derived.  <b>Mars 2020 Specific:</b> <i>For M2020, it is the length of the user portion of the Data Product Object (DPO).</i>	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/telemetry_source_size</a>	ASCII_Integer
msn_surface:telemetry_source_start_time <i>IDENTIFICATION. TELEMETRY_SOURCE_START_TIME</i>	The telemetry_source_start_time specifies the creation time of the source product from which this product was derived. It is the same as the telemetry_source_sclk_start converted to Spacecraft Event Time (SCET).	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/telemetry_source_start_time</a>	ASCII_Date_Time_DOY_UTC
img:temperature_status <i>INSTRUMENT_STATE_PARMS. INSTRUMENT_TEMPERATURE_STATUS</i>	The temperature_status attribute defines the status of the associated temperature measurement. The status is interpreted in a device-specific way, but generally 0 indicates a successful measurement.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Instrument State/Device Temperatures/Device Temperature*/temperature_status</a>	ASCII_Integer
img:temperature_value <i>INSTRUMENT_STATE_PARMS. INSTRUMENT_TEMPERATURE INSTRUMENT_STATE_PARMS. INSTRUMENT_TEMPERATURE_UNIT</i>	The temperature_value attribute provides the temperature, in the specified units, of some point on an imaging instrument or other imaging instrument device.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Imaging/Instrument State/Device Temperatures/Device Temperature*/temperature_value</a>	ASCII_Real  <i>Units_of_Temperature</i>
<b>Time_Coordinates</b>	The Time_Coordinates class provides a list of time coordinates.	1)/ <a href="#">Product Bundle/Context Area/Time Coordinates</a> 2)/ <a href="#">Product Collection/Context Area/Time Coordinates</a> 3)/ <a href="#">Product Observational/Observation Area/Time Coordinates</a> 1) <a href="#">start_date_time</a> 2) <a href="#">stop_date_time</a> 3) <a href="#">local_mean_solar_time</a> 4) <a href="#">local_true_solar_time</a> 5) <a href="#">solar_longitude</a>	
<b>title</b> <i>IDENTIFICATION. INSTRUMENT_ID</i>	The title attribute provides a short, descriptive text string suitable use as a title or brief description in display or listing of products.	1)/ <a href="#">Product Document/Identification Area/title</a> 2)/ <a href="#">Product Bundle/Identification Area/title</a> 3)/ <a href="#">Product Collection/Identification Area/title</a> 4)/ <a href="#">Product Observational/Identification Area/title</a>	UTF8_Short_String_Collapsed
msn_surface:transmission_path <i>TELEMETRY. TRANSMISSION_PATH</i>	Indicates the actual transmission path (route) for the telemetry data. See also expected_transmission_path and communication_session_id.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/transmission_path</a>	ASCII_Short_String_Collapsed
msn_surface:transport_protocol <i>TELEMETRY. TELEMETRY_SOURCE_TYPE</i>	The transport_protocol attribute specifies the protocol used in the creation of the telemetry data products by the subsystem which generates the telemetry stream.  <b>Mars 2020 Specific:</b> <i>For most products, this is "DATA PRODUCT", since that's what comes down for the spacecraft. For Heli and LVS images, the value is "TEAM-GENERATED IMAGE", indicating that the "telemetry" source from the IDS perspective is an image that was pre-processed by the helicopter or LVS teams.</i>	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/transport_protocol</a> 1) "DATA PRODUCT" 2) "TEAM-GENERATED IMAGE"	ASCII_Short_String_Collapsed

<p><b>type</b></p>	<p>The type attribute classifies Investigation_Area according to the scope of the investigation..</p>	<p>1)/<a href="#">Product Document/Context Area/Investigation Area/type</a></p> <p>2)/<a href="#">Product Document/Context Area/Observing System/Observing System Component/type</a></p> <p>3)/<a href="#">Product Bundle/Context Area/Investigation Area/type</a></p> <p>4)/<a href="#">Product Bundle/Context Area/Observing System/Observing System Component[*]/type</a></p> <p>5)/<a href="#">Product Bundle/Context Area/Target Identification/type</a></p> <p>6)/<a href="#">Product Collection/Context Area/Investigation Area/type</a></p> <p>7)/<a href="#">Product Collection/Context Area/Observing System/Observing System Component[*]/type</a></p> <p>8)/<a href="#">Product Collection/Context Area/Target Identification/type</a></p> <p>9)/<a href="#">Product Observational/Observation Area/Investigation Area/type</a></p> <p>10)/<a href="#">Product Observational/Observation Area/Observing System/Observing System Component/type</a></p> <p>11)/<a href="#">Product Observational/Observation Area/Target Identification/type</a></p> <table border="1" data-bbox="1023 550 2141 655"> <tr> <td data-bbox="1023 550 1585 655"> <p>1) "Field Campaign"</p> <p>2) "Individual Investigation"</p> <p>3) "Mission"</p> <p>4) "Observing Campaign"</p> <p>5) "Other Investigation"</p> </td> <td data-bbox="1585 550 2141 655"> <p>ASCII_Short_String_Collapsed</p> </td> </tr> </table>	<p>1) "Field Campaign"</p> <p>2) "Individual Investigation"</p> <p>3) "Mission"</p> <p>4) "Observing Campaign"</p> <p>5) "Other Investigation"</p>	<p>ASCII_Short_String_Collapsed</p>
<p>1) "Field Campaign"</p> <p>2) "Individual Investigation"</p> <p>3) "Mission"</p> <p>4) "Observing Campaign"</p> <p>5) "Other Investigation"</p>	<p>ASCII_Short_String_Collapsed</p>			
<p><b>unit</b></p> <p><i>DERIVED_IMAGE_PARMS. RADIANCE_OFFSET_UNIT DERIVED_IMAGE_PARMS. RADIANCE_SCALING_FACTOR_UNIT</i></p>	<p>The unit attribute provides the unit of measurement.</p>	<p>1)/<a href="#">Product Observational/File Area Observational/Array 2D[*]/Element Array/unit</a></p> <table border="1" data-bbox="1023 691 2141 788"> <tr> <td data-bbox="1023 691 1585 788"></td> <td data-bbox="1585 691 2141 788"> <p>UTF8_Short_String_Collapsed</p> </td> </tr> </table>		<p>UTF8_Short_String_Collapsed</p>
	<p>UTF8_Short_String_Collapsed</p>			
<p><b>value_offset</b></p>	<p>The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: <math>Ov = (Sv * scaling\_factor) + value\_offset</math>. The default value is 0.</p>	<p>1)/<a href="#">Product Observational/File Area Observational/Table Binary[*]/Record Binary/Field Binary/value_offset</a></p> <table border="1" data-bbox="1023 823 2141 895"> <tr> <td data-bbox="1023 823 1585 895"></td> <td data-bbox="1585 823 2141 895"> <p>ASCII_Real</p> </td> </tr> </table>		<p>ASCII_Real</p>
	<p>ASCII_Real</p>			
<p>geom:Vector_Device_Gravity</p> <p><i>ARM_ARTICULATION_STATE. ARTICULATION_DEV_VECTOR ARM_ARTICULATION_STATE. ARTICULATION_DEV_VECTOR_NAME CHASSIS_ARTICULATION_STATE. ARTICULATION_DEV_VECTOR</i></p>	<p>The Vector_Device_Gravity class is a unit vector that specifies the direction of an external force acting on the articulation device, in the spacecraft's coordinate system, at the time the pose was computed.</p> <p><b>Mars 2020 Specific:</b> <i>For M2020 the raw gravity value comes from getting a measured delta velocity vector in m/s, scaling by the rti rate to get m/s/s, scaling by -1 to get the gravity vector, rotating from the RIMU frame to the RNAV frame, and including a parameterized correction bias. In earth testbed the values recorded were an accurate reading of Earth gravity: 9.8m/s/s. On the surface of Mars the expected values are 3.71 m/s/s</i></p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Vector Device Gravity</a></p> <table border="1" data-bbox="1023 946 2141 1161"> <tr> <td data-bbox="1023 946 1585 1161"> <p>1) GRAVITY</p> </td> <td data-bbox="1585 946 2141 1161"></td> </tr> </table>	<p>1) GRAVITY</p>	
<p>1) GRAVITY</p>				
<p>geom:Vector_Device_Gravity_Magnitude</p>	<p>The Vector_Device_Gravity_Magnitude class is a vector (with magnitude) that specifies the direction of an external force acting on the articulation device, in the spacecraft's coordinate system, at the time the pose was computed.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Vector Device Gravity Magnitude</a></p> <table border="1" data-bbox="1023 1212 2141 1300"> <tr> <td data-bbox="1023 1212 1585 1300"> <p>1) <i>geom:Vector_Cartesian_Acceleration_Base</i></p> <p>2) <a href="#">geom:x_acceleration</a></p> <p>3) <a href="#">geom:y_acceleration</a></p> <p>4) <a href="#">geom:z_acceleration</a></p> </td> <td data-bbox="1585 1212 2141 1300"></td> </tr> </table>	<p>1) <i>geom:Vector_Cartesian_Acceleration_Base</i></p> <p>2) <a href="#">geom:x_acceleration</a></p> <p>3) <a href="#">geom:y_acceleration</a></p> <p>4) <a href="#">geom:z_acceleration</a></p>	
<p>1) <i>geom:Vector_Cartesian_Acceleration_Base</i></p> <p>2) <a href="#">geom:x_acceleration</a></p> <p>3) <a href="#">geom:y_acceleration</a></p> <p>4) <a href="#">geom:z_acceleration</a></p>				
<p>geom:Vector_Origin_Offset</p> <p><i>*_COORDINATE_SYSTEM. ORIGIN_OFFSET_VECTOR ARM_COORDINATE_SYSTEM. ORIGIN_OFFSET_VECTOR LANDER_COORDINATE_SYSTEM. ORIGIN_OFFSET_VECTOR</i></p>	<p>The Vector_Origin_Offset class contains attributes that specify the offset from the reference coordinate system's origin to the origin of the coordinate system. It is the location of the current system's origin as measured in the reference system.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Vector Origin Offset</a></p> <p>2)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Vector Origin Offset</a></p> <table border="1" data-bbox="1023 1415 2141 1505"> <tr> <td data-bbox="1023 1415 1585 1505"> <p>1) <i>geom:Vector_Cartesian_Position_Base</i></p> <p>2) <a href="#">geom:x_position</a></p> <p>3) <a href="#">geom:y_position</a></p> <p>4) <a href="#">geom:z_position</a></p> </td> <td data-bbox="1585 1415 2141 1505"></td> </tr> </table>	<p>1) <i>geom:Vector_Cartesian_Position_Base</i></p> <p>2) <a href="#">geom:x_position</a></p> <p>3) <a href="#">geom:y_position</a></p> <p>4) <a href="#">geom:z_position</a></p>	
<p>1) <i>geom:Vector_Cartesian_Position_Base</i></p> <p>2) <a href="#">geom:x_position</a></p> <p>3) <a href="#">geom:y_position</a></p> <p>4) <a href="#">geom:z_position</a></p>				

<p>geom:Vector_Solar_Direction</p> <p>ROVER_DERIVED_GEOMETRY_PARAMS. SUN_VIEW_DIRECTION ROVER_DERIVED_GEOMETRY_PARAMS. SUN_VIEW_TIME</p>	<p>Unit vector pointing in the direction of the Sun at the time of the observation.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[1]/Vector Solar Direction</a></p> <p>1) <i>geom:Vector_Cartesian_Unit</i> 2) <i>geom:x_unit</i> 3) <i>geom:y_unit</i> 4) <i>geom:z_unit</i></p>
<p>version_id</p> <p>IDENTIFICATION.PRODUCT_ID</p>	<p>The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.</p>	<p>1)/<a href="#">Product Document/Identification Area/version_id</a></p> <p>2)/<a href="#">Product Bundle/Identification Area/version_id</a></p> <p>3)/<a href="#">Product Bundle/Identification Area/Modification History/Modification Detail/version_id</a></p> <p>4)/<a href="#">Product Collection/Identification Area/version_id</a></p> <p>5)/<a href="#">Product Collection/Identification Area/Modification History/Modification Detail/version_id</a></p> <p>6)/<a href="#">Product Observational/Identification Area/version_id</a></p> <p>7)/<a href="#">Product Observational/Identification Area/Modification History/Modification Detail/version_id</a></p> <p>ASCII_Short_String_Collapsed</p>
<p>disp.vertical_display_axis</p>	<p>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.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Display Settings[*]/Display Direction/vertical_display_axis</a></p> <p>ASCII_Short_String_Collapsed</p>
<p>disp.vertical_display_direction</p>	<p>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.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Display Settings[*]/Display Direction/vertical_display_direction</a></p> <p>1) "Bottom to Top" 2) "Top to Bottom"</p> <p>ASCII_Short_String_Collapsed</p>
<p>msn_surface:virtual_channel_id</p> <p>TELEMETRY.VIRTUAL_CHANNEL_ID</p>	<p>Specifies the type of data flowing in the telemetry virtual channel.</p> <p><b>Mars 2020 Specific:</b></p> <p><i>The Virtual Channel Identifier is used by M2020 to identify the RCE string generating the Transfer Frame, and to indicate the type of data flowing in the telemetry virtual channel. RCE String A is indicated by all Virtual Channel Identifier values having a '0' as the high bit (e.g., virtual channels 0 to 31); RCE String B is indicated by all Virtual Channel Identifier values having a '1' for the high bit (e.g., virtual channels 32 to 63).</i></p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/virtual_channel_id</a></p> <p>ASCII_Integer</p>
<p>wavelength_range</p>	<p>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.</p>	<p>1)/<a href="#">Product Collection/Context Area/Primary Result Summary/Science Facets/wavelength_range</a></p> <p>2)/<a href="#">Product Bundle/Context Area/Primary Result Summary/Science Facets/wavelength_range[*]</a></p> <p>3)/<a href="#">Product Collection/Context Area/Primary Result Summary/Science Facets/wavelength_range[*]</a></p> <p>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"</p> <p>ASCII_Short_String_Collapsed</p>
<p>geom:x_acceleration</p>	<p>The x component of a Cartesian acceleration vector.</p>	<p>1)/<a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Vector Device Gravity Magnitude/x_acceleration</a></p> <p>ASCII_Real</p> <p>Units_of_Acceleration</p>

geom:x_position	The x component of a Cartesian position vector.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Vector Origin Offset/x_position</a>	
		2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Vector Origin Offset/x_position</a>	ASCII_Real <i>Units_of_Length</i>
geom:x_unit	The x component of a unit Cartesian vector.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Vector Device Gravity/x_unit</a>	
		2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[1]/Vector Solar Direction/x_unit</a>	ASCII_Real
mars2020:xmit_data_id <i>GENERIC_PACKET_HEADER_DATA_ELEMENTS.XMIT_DATA_ID</i>	The data_id parameter sent with the XMIT_DATA command	1)/ <a href="#">Product Observational/Observation Area/Mission Area/Mars2020 Parameters/SuperCam Parameters/SuperCam Generic Packet Header/xmit_data_id</a>	
			ASCII_Integer
geom:y_acceleration	The y component of a Cartesian acceleration vector.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Vector Device Gravity Magnitude/y_acceleration</a>	
			ASCII_Real <i>Units_of_Acceleration</i>
geom:y_position	The y component of a Cartesian position vector.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Vector Origin Offset/y_position</a>	
		2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Vector Origin Offset/y_position</a>	ASCII_Real <i>Units_of_Length</i>
geom:y_unit	The y component of a unit Cartesian vector.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Vector Device Gravity/y_unit</a>	
		2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[1]/Vector Solar Direction/y_unit</a>	ASCII_Real
geom:z_acceleration	The z component of a Cartesian acceleration vector.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Vector Device Gravity Magnitude/z_acceleration</a>	
			ASCII_Real <i>Units_of_Acceleration</i>
geom:z_position	The z component of a Cartesian position vector.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Vector Origin Offset/z_position</a>	
		2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition/Vector Origin Offset/z_position</a>	ASCII_Real <i>Units_of_Length</i>
geom:z_unit	The z component of a unit Cartesian vector.	1)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Vector Device Gravity/z_unit</a>	
		2)/ <a href="#">Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[1]/Vector Solar Direction/z_unit</a>	ASCII_Real



