

APPENDIX C Product Label Keyword Definitions, Values - PDS Sort

Dictionary:PDS4 Keyword VICAR Property.VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img:active_flag OBSERVATION_REQUEST_PARMS. SHUTTER_CORRECTION_MODE	The active_flag attribute indicates whether or not the data processing described by the parent class is active. In general, the presence of the parent class implies it is active and thus active_flag is optional. The primary purpose for active_flag is to either explicitly indicate a correction is not active (for example, if it normally is but was explicitly turned off), or to be able to provide parameters for historical reasons that may no longer be relevant to a current correction.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Radiometric Correction/active_flag 2)/ Product Observational/Observation Area/Discipline Area/Imaging/Shutter Subtraction/active_flag 3)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Shutter Subtraction/active_flag	ASCII_Boolean
Alias	The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.	1)/ Product Observational/Identification Area/Alias List/Alias 1) alternate_id 2) alternate_title 3) comment	
Alias_List	The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.	1)/ Product Observational/Identification Area/Alias List 1) Alias	
alternate_id IDENTIFICATION.PRODUCT_ID	The alternate_id attribute provides an additional identifier supplied by the data provider. InSight Specific: <i>For InSight this contains the VICAR PRODUCT_ID, which is the filename minus the extension.</i>	1)/ Product Observational/Identification Area/Alias List/Alias/alternate_id	ASCII_Short_String_Collapsed
img:analog_offset INSTRUMENT_STATE_PARMS.OFFSET_MODE_ID	The analog_offset attribute identifies the analog value that is subtracted from the signal prior to the analog/digital conversion. InSight Specific: <i>This value is the video offset, and has a range 0-4095.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Detector/analog_offset	ASCII_Integer
msn_surface:application_id TELEMETRY.APPLICATION_PROCESS_ID	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. InSight Specific: <i>Indicates the Application ID (APID) number for this product. APID's are used to distinguish types of telemetry products. In general the APID Name should be used rather than the numeric value (see APPLICATION_PROCESS_NAME).</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/application_id	ASCII_NonNegative_Integer
		1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/application_name	

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msn_surface:application_name TELEMETRY. APPLICATION_PROCESS_NAME	The application_name attribute provides the name associated with the source or process which created the data. InSight Specific: <i>Indicates the Application ID (APID) name for this product. APID's are used to distinguish types of telemetry products. See the main body of the SIS for a list of APIDs.</i>		ASCII_Short_String_Collapsed
Array_2D_Image	The Array 2D Image class is an extension of the Array 2D class and defines a two dimensional image.	1)/ Product Observational/File Area Observational/Array_2D Image 1) Array_2D 2) offset 3) axes 4) name 5) local_identifier 6) axis_index_order 7) md5_checksum 8) description 9) Display_2D_Image 10) Axis_Array 11) Element_Array 12) Special_Constants 13) Object_Statistics 14) Digital_Object 15) Local_Internal_Reference	
Array_3D_Image	The Array 3D Image class is an extension of the Array 3D class and defines a three dimensional image.	1)/ Product Observational/File Area Observational/Array_3D Image 1) Array_3D 2) offset 3) axes 4) name 5) local_identifier 6) axis_index_order 7) md5_checksum 8) description 9) Axis_Array 10) Element_Array 11) Special_Constants 12) Object_Statistics 13) Digital_Object 14) Local_Internal_Reference	
geom:Articulation_Device_Parameters		1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]	

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	<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>InSight Specific: For InSight the articulation devices are ARM and GRAPPLE.</p>	<ol style="list-style-type: none"> 1) geom:device_id 2) geom:device_name 3) geom:device_mode 4) geom:device_phase 5) geom:selected_instrument_id 6) geom:Coordinate_Space_Present 7) geom:Coordinate_Space_Reference 8) geom:Device_Angle 9) geom:Device_Component_State 10) geom:Device_Motor_Counts 11) geom:Device_Temperature 12) geom:Vector_Device_Gravity 	
author_list	<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>	<ol style="list-style-type: none"> 1)/Product_Collection/Identification_Area/Citation_Information/author_list 2)/Product_Document/Identification_Area/Citation_Information/author_list 	UTF8_Text_Preserved
img:auto_exposure_data_cut <i>OBSERVATION_REQUEST_PARM.</i> AUTO_EXPOSURE_DATA_CUT	<p>The auto_exposure_data_cut attribute specifies the DN value which a specified fraction of pixels is permitted to exceed. The fraction is specified using the auto_exposure_data_fraction attribute.</p>	<ol style="list-style-type: none"> 1)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Commanded_Parameters/Exposure/Autoexposure/auto_exposure_data_cut 	ASCII_Integer
img:auto_exposure_percent <i>OBSERVATION_REQUEST_PARM.</i> AUTO_EXPOSURE_PERCENT	<p>The auto_exposure_percent attribute specifies the auto-exposure early-termination percent. If the desired DN (auto_exposure_data_cut) is within this percentage of the measured DN (the DN at which the percentage of pixels above that DN equals or exceeds the auto_exposure_pixel_fraction), then the auto exposure algorithm is terminated and the calculated time is accepted.</p>	<ol style="list-style-type: none"> 1)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Commanded_Parameters/Exposure/Autoexposure/auto_exposure_percent 	ASCII_Real
img:auto_exposure_pixel_fraction <i>OBSERVATION_REQUEST_PARM.</i> AUTO_EXPOSURE_PIXEL_FRACTION	<p>The auto_exposure_pixel_fraction attribute specifies the percentage of pixels whose DN values may exceed the auto_exposure_data_cut.</p>	<ol style="list-style-type: none"> 1)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Commanded_Parameters/Exposure/Autoexposure/auto_exposure_pixel_fraction 	ASCII_Real
img:Autoexposure	<p>The Autoexposure class contains attributes used to identify or describe the algorithm used to automatically calculate the proper exposure time. This is generally based on some kind of histogram analysis. The specific autoexposure algorithm used is defined in the processing_algorithm attribute, and the specific set of attributes needed to describe it will vary based on the algorithm. Examples of autoexposure algorithms include "Maki 2003" used on MER, MSL ECAMS, M2020 ECAMS; "Maurice 2012" used on MSL ChemCam; "Smith 1997" used on Mars Pathfinder Imager.</p>	<ol style="list-style-type: none"> 1)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Commanded_Parameters/Exposure/Autoexposure 	<ol style="list-style-type: none"> 1) img:auto_exposure_data_cut 2) img:active_flag 3) img:auto_exposure_percent 4) img:processing_venue 5) img:auto_exposure_pixel_fraction 6) img:processing_algorithm 7) img:max_auto_exposure_iteration_count 8) img:sequence_number 9) img>Data_Processing

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axes <i>SYSTEM. NB</i>	The axes attribute provides a count of the axes.	1)/ Product Observational/File Area Observational/Array 2D Image/axes 2)/ Product Observational/File Area Observational/Array 3D Image/axes	
		1) 3	ASCII_NonNegative_Integer
Axis_Array	The Axis Array class is used as a component of the array class and defines an axis of the array.	1)/ Product Observational/File Area Observational/Array 2D Image/Axis Array[*] 2)/ Product Observational/File Area Observational/Array 3D Image/Axis Array[*]	
		1) axis_name 2) local_identifier 3) elements 4) unit 5) sequence_number 6) Band_Bin_Set	
axis_index_order	The axis_index_order attribute provides the axis index that varies fastest with respect to storage order.	1)/ Product Observational/File Area Observational/Array 2D Image/axis_index_order 2)/ Product Observational/File Area Observational/Array 3D Image/axis_index_order	
		1) Last Index Fastest	ASCII_Short_String_Collapsed
axis_name	The axis_name attribute provides a word or combination of words by which the axis is known.	1)/ Product Observational/File Area Observational/Array 2D Image/Axis Array[*]/axis_name 2)/ Product Observational/File Area Observational/Array 3D Image/Axis Array[*]/axis_name	
			ASCII_Short_String_Collapsed
disp:blue_channel_band	The blue_channel_band attribute identifies the number of the band, along the band axis, that should be loaded, by default, into the blue channel of a display device. The first band along the band axis has band number 1.	1)/ Product Observational/Observation Area/Discipline Area/Display Settings/Color Display Settings/blue_channel_band	
			ASCII_Integer
img: Brightness_Correction	The Brightness_Correction class describes brightness corrections that were applied to an image or mosaic. Brightness correction is the process of adjusting the DN values of adjacent frames in a mosaic so they match visually. It may also involve contrast or vignetting adjustments. The result may no longer be radiometrically calibrated due to the adjustments. The processing_algorithm child of Brightness_Correction describes the type of brightness correction, and should correspond to the classes within Brightness_Correction_Image. If the algorithm is "MIXED", multiple algorithms were used, in which case the specific information in each Brightness_Correction_Image must be used.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Brightness_Correction 1) img:active_flag 2) img:processing_venue 3) img:processing_algorithm 4) img:sequence_number 5) img:Data_Processing 6) img: Brightness_Correction_File 7) img: Brightness_Correction_Image	
img: Brightness_Correction_HSI_Linear	The Brightness_Correction_HSI_Linear class works just like Brightness_Correction_Linear, except that	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Brightness_Correction/Brightness_Correction_Image[*]/Brightness_Correction_HSI_Linear	

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	the color image is first converted to HSI (Hue, Saturation, Intensity) space, the correction is applied only to Intensity, and then the result is converted back to RGB space.	1) img:brightness_scale 2) img:brightness_offset	
img: Brightness_Correction_Image	The Brightness_Correction_Image class describes the brightness correction that was applied to a single image, whether alone or part of a mosaic. The image this correction applies to may be identified via the enclosed Internal_Reference, or via the order in which the Brightness_Correction_Image objects appear (which matches the order given in Input_Product_List).	1) /Product_Observational/Observation_Area/Discipline_Area/Imaging/Brightness_Correction/Brightness_Correction_Image*	
		1) Internal_Reference 2) img: Brightness_Correction_HSI_Linear 3) img: Brightness_Correction_Linear	
img: brightness_offset	The brightness_offset attribute defines the additive factor used for a linear brightness correction.	1) /Product_Observational/Observation_Area/Discipline_Area/Imaging/Brightness_Correction/Brightness_Correction_Image*/Brightness_Correction_HSI_Linear/brightness_offset	
			ASCII_Real
img: brightness_scale	The brightness_scale attribute defines the multiplicative factor used for a linear brightness correction.	1) /Product_Observational/Observation_Area/Discipline_Area/Imaging/Brightness_Correction/Brightness_Correction_Image*/Brightness_Correction_HSI_Linear/brightness_scale	
			ASCII_Real
geom: c0	The first coefficient of a polynomial.	1) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Radial_Terms/c0 2) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Entrance_Terms/c0 3) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model/Radial_Terms/c0	
			ASCII_Real
geom: c1	The second coefficient of a polynomial.	1) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Radial_Terms/c1 2) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Entrance_Terms/c1 3) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model/Radial_Terms/c1	
			ASCII_Real

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geom:c2	The third coefficient of a polynomial.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Radial_Terms/c2 2)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Entrance_Terms/c2 3)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model/Radial_Terms/c2	ASCII_Real
geom:CAHV_Model	The CAHV model is a linear, perspective-projection camera model (equivalent to a pinhole camera). It consists of four 3-vectors (C,A,H,V) that describe the internal and external camera model parameters needed to translate between 2D image coordinates and 3D world coordinates. C (Vector_Center) is the 3D position of the pinhole (center of the entrance pupil). A (Vector_Axis) is a unit vector normal to the image plane pointing outward. H (Vector_Horizontal) is a composite vector encoding three quantities: H' (a vector in the image plane perpendicular to the vertical columns), Hs (the distance between the lens center and image plane, measured in horizontal pixels), and Hc (the horizontal image coordinate directly under C when moving parallel to A). V (Vector_Vertical) similarly composites the analogous V', Vs, and Vc in the vertical direction.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHV_Model 1) geom:Vector_Center 2) geom:Vector_Axis 3) geom:Vector_Horizontal 4) geom:Vector_Vertical	
geom:CAHVOR_Model	The CAHVOR model is built upon CAHV (see CAHV_Model), adding radial (barrel or pincushion) distortion to the linear model. It adds two more 3-vectors to CAHV. O (Vector_Optical) is a unit vector representing the axis of symmetry for the radial distortion. R (Radial_Terms) contains the coefficients of a polynomial function that describes the radial distortion.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model 1) geom:CAHV_Model 2) geom:Vector_Optical 3) geom:Vector_Center 4) geom:Radial_Terms 5) geom:Vector_Axis 6) geom:Vector_Horizontal 7) geom:Vector_Vertical	
geom:CAHVORE_Model	The CAHVORE model is built upon CAHVOR (see CAHVOR_Model), adding support for fisheye lenses. It adds one more 3-vector and two scalars to CAHVOR. E (Entrance_Terms) contains the coefficients of a polynomial function used to model movement of the entrance pupil. The two scalars, cahvore_model_type and cahvore_model_parameter, together specify the type of lens being modeled.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model 1) geom:cahvore_model_type 2) geom:cahvore_model_parameter 3) geom:CAHVOR_Model 4) geom:Entrance_Terms 5) geom:Vector_Optical 6) geom:Vector_Center 7) geom:Radial_Terms 8) geom:Vector_Axis 9) geom:Vector_Horizontal 10) geom:Vector_Vertical	
geom:cahvore_model_parameter	The cahvore_parameter_type attribute is a scalar floating-point number used for CAHVORE Type 3	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/cahvore_model_parameter	

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	models (see <code>cahvore_model_type</code>). If the parameter is 1.0, the model is identical to type 1; if 0.0, it is identical to type 2. Most fish-eye lenses use a value in between.		ASCII_Real
<code>geom:cahvore_model_type</code>	The <code>cahvore_model_type</code> attribute indicates which variant of the CAHVORE model to use. Type 1 is a perspective-projection model, similar to CAHV and CAHVOR except for the moving entrance pupil. Type 2 is a fish-eye lens model reflecting fundamentally different geometry. Type 3 is a generalization that includes the first two, and is used for most fisheye-type lenses (see <code>cahvore_model_parameter</code>).	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/cahvore_model_type 1) 1 2) 2 3) 3	ASCII_Integer
<code>cart:Camera_Model_Offset</code>	The <code>Camera_Model_Offset</code> class specifies the location of the image origin with respect to the camera model's origin. For CAHV/CAHVOR models, this origin is not the center of the camera, but is the upper-left corner of the "standard"-size image, which is encoded in the CAHV vectors. Applies to the Perspective lander map projection.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Perspective/Camera Model Offset 1) cart:line 2) cart:sample	
<code>geom:Camera_Model_Parameters</code>	A camera model describes the mathematical relationship between the coordinates of a point in 3-dimensional space and its projection onto a 2-dimensional image plane. There are numerous types of camera models.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters 1) geom:model_type 2) geom:calibration_source_id 3) geom:solution_id 4) Internal Reference 5) geom:CAHVORE_Model 6) geom:CAHVOR_Model 7) geom:CAHV_Model 8) geom:Coordinate_Space_Reference 9) geom:Reference_Frame_Identification 10) geom:Quaternion_Model_Transform 11) geom:Vector_Model_Transform	
<code>cart:Cartography</code>	The <code>Cartography</code> class provides a description of how a 3D sphere, spheroid, or elliptical spheroid or the celestial sphere is mapped onto a plane.	1)/ Product Observational/Observation Area/Discipline Area/Cartography 1) cart:Spatial_Domain 2) cart:Spatial_Reference_Information 3) Local_Internal_Reference	
<code>Citation_Information</code>	The <code>Citation_Information</code> class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.	1)/ Product Collection/Identification Area/Citation Information 2)/ Product File Text/Identification Area/Citation Information 3)/ Product Document/Identification Area/Citation Information 1) author_list 2) editor_list 3) publication_year 4) doi 5) keyword 6) description	
<code>Collection</code>		1)/ Product Collection/Collection	

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	The Collection class provides a description of a set of products.	1) collection_type 2) description	
collection_type	The collection_type attribute provides a classification for the collection.	1) Product_Collection/Collection/collection_type 1) Browse 2) Calibration 3) Context 4) Data 5) Document 6) Geometry 7) Miscellaneous 8) SPICE Kernel 9) XML Schema	ASCII_Short_String_Collapsed
disp:color_display_axis	The color_display_axis attribute identifies, by name, the axis of an Array (or Array subclass) that is intended to be displayed in the color dimension of a display device. I.e., bands from this dimension will be loaded into the red, green, and blue bands of the display device. The value of this attribute must match the value of one, and only one, axis_name attribute in an Axis_Array class of the associated Array.	1) Product_Observational/Observation_Area/Discipline_Area/Display_Settings/Color_Display_Settings/color_display_axis	ASCII_Short_String_Collapsed
disp:Color_Display_Settings	The Color_Display_Settings class provides guidance to data users on how to display a multi-banded Array object on a color-capable display device.	1) Product_Observational/Observation_Area/Discipline_Area/Display_Settings/Color_Display_Settings 1) disp:color_display_axis 2) comment 3) disp:red_channel_band 4) disp:green_channel_band 5) disp:blue_channel_band	
img:Color_Filter_Array	The Color_Filter_Array class describes whether or not an image was acquired using a Color Filter Array (CFA) and if so, whether and how the CFA pattern was removed. A CFA is a method for making color images using one exposure on a single sensor plane, where microfilters of different wavelengths are put in front of pixels in a specific pattern. The most common pattern is the Bayer pattern, which has a red, blue, and two green pixels in every 2x2 pixel square. Although generally used for RGB color, CFA filters can be of any number and wavelength (see color_filter_array_type).	1) Product_Observational/Observation_Area/Discipline_Area/Imaging/Color_Filter_Array 1) img:color_filter_array_type 2) img:active_flag 3) img:color_filter_array_state 4) img:processing_venue 5) img:processing_algorithm 6) img:sequence_number 7) img>Data_Processing	
img:color_filter_array_state <i>INSTRUMENT_STATE_PARMs. BAYER_METHOD</i>	Specifies whether the image still has a CFA pattern ("Encoded"), the CFA pattern has been removed ("Decoded") or it never had a pattern ("No CFA"). InSight Specific: <i>InSight uses only Malvar or Raw Bayer in pipeline processing.</i>	1) Product_Observational/Observation_Area/Discipline_Area/Imaging/Color_Filter_Array/color_filter_array_state 1) Encoded 2) Decoded 3) No CFA	ASCII_Short_String_Collapsed
		1) Product_Observational/Observation_Area/Discipline_Area/Imaging/Color_Filter_Array/color_filter_array_type	

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img:color_filter_array_type <i>INSTRUMENT_STATE_PARM.S. CFA_TYPE</i>	Defines the type of Color Filter Array (CFA) used to encode multiple colors in a single exposure. The most common example of this is the Bayer pattern. This is optional if there is no CFA. Additional attributes, specific to each CFA type, define whether or not the CFA pattern has been removed, and if so, how (e.g. bayer_algorithm).	1) Bayer RGGB	ASCII_Short_String_Collapsed
img:Color_Processing	The Color_Processing class contains parameters describing color correction or processing and how the image is represented in color.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing	
		1) img:color_space 2) img:active_flag 3) img:color_component 4) img:processing_venue 5) img:illuminant 6) img:processing_algorithm 7) img:encoded_display_gamma 8) img:sequence_number 9) img:color_dn_scaling_method 10) img:color_dn_scaling_factor 11) img:Data_Processing 12) img:Onboard_Responsivity 13) img:Onboard_Color_Matrix	
img:color_space <i>DERIVED_IMAGE_PARM.S. COLOR_SPACE</i>	Defines the color space in which this product is expressed. Some color spaces (e.g. XYZ or xyY) are independent of illuminant, while for others (e.g. sRGB or pRGB) the illuminant matters. It is expected that the defined color spaces will increase over time.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/color_space	
		1) iRGB 2) sRGB 3) pRGB 4) wRGB 5) CIE_XYZ 6) CIE_xyY 7) HSI	ASCII_Short_String_Collapsed
img:color_subsampling_mode <i>COMPRESSION_PARM.S. INST_CMPRS_COLOR_MODE</i>	The color_subsampling_mode attribute specifies the JPEG color subsampling mode used during compression. Valid values: '4:2:2' - 4:2:2 chroma subsampling, which is the typical case, '4:4:4' - 4:4:4 chroma sampling, which indicates no subsampling, 'Grayscale' - indicates a grayscale image InSight Specific: <i>Note that the VICAR valid values are different from PDS 4 but mean the same: COLOR_MODE_GRAY, COLOR_MODE_422, COLOR_MODE_444</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Onboard Compression/JPEG Parameters/color_subsampling_mode	
		1) 4:4:4 2) 4:2:2 3) Grayscale	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)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution	
		1) msn_surface:sequence_id 2) msn_surface:sequence_version_id 3) msn_surface:sequence_execution_count 4) msn_surface:command_sequence_number 5) msn_surface:command_source_id 6) msn_surface:observation_id 7) msn_surface:request_id	
img:Commanded_Parameters		1)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded_Parameters	

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	<p>The Commanded_Parameters class contains attributes used to identify or describe the commands sent to a spacecraft to perform one or more actions resulting in the acquisition of the current data product. These are distinct from similar values in the root Imaging class which indicate the state of the image as acquired.</p>	<ol style="list-style-type: none"> 1) <u>description</u> 2) <u>img:Brightness_Correction</u> 3) <u>img:Color_Filter_Array</u> 4) <u>img:Color_Processing</u> 5) <u>img:Detector</u> 6) <u>img:Downsampling</u> 7) <u>img:Exposure</u> 8) <u>img:Flat_Field_Correction</u> 9) <u>img:Focus</u> 10) <u>img:Focus_Stack</u> 11) <u>img:Frame</u> 12) <u>img:Onboard_Compression</u> 13) <u>img:Optical_Filter</u> 14) <u>img:Pointing_Correction</u> 15) <u>img:Radiometric_Correction</u> 16) <u>img:Sampling</u> 17) <u>img:Shutter_Subtraction</u> 18) <u>img:Subframe</u> 	

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		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
comment <i>IDENTIFICATION. TARGET_TYPE</i>	The comment attribute provides one or more remarks or thoughts relevant to the object.	1) /Product_Collection/Context_Area/comment 2) /Product_Collection/Context_Area/Observing_System/Observing_System_Component[*]/Internal_Reference/comment 3) /Product_Collection/Context_Area/Target_Identification/Internal_Reference/comment 4) /Product_File_Text/Reference_List/Source_Product_Internal*/comment 5) /Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Input_Product_List/Input_Product[*]/Internal_Reference/comment 6) /Product_Observational/Reference_List/Source_Product_Internal*/comment 7) /Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Input_Product_List/Input_Product/Internal_Reference/comment 8) /Product_Observational/Identification_Area/Alias_List/Alias/comment 9) /Product_Observational/Observation_Area/comment 10) /Product_Observational/Observation_Area/Investigation_Area/Internal_Reference/comment 11) /Product_Observational/Observation_Area/Observing_System/Observing_System_Component[*]/Internal_Reference/comment 12) /Product_Observational/Observation_Area/Target_Identification/Internal_Reference/comment 13) /Product_Observational/Reference_List/Internal_Reference/comment 14) /Product_Observational/Reference_List/Source_Product_Internal/comment 15) /Product_Browse/Reference_List/Internal_Reference/comment	
			ASCII_Text_Preserved
img:Companding		/Product_Observational/Observation_Area/Discipline_Area/Imaging/Sampling/Companding	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The Companding class describes whether or not data is or has had its bit depth reduced (for example conversion from 12 to 8 bits via a lookup table or bit scaling), the venue where it occurred (Software or Hardware), and the method used to complete the companding. The processing_algorithm attribute specifies how data was companded. Generally this will either be via a lookup table (such as a square root encoding), or by shifting bits to preserve the high order bits and discard the low order bits. The value of this keyword is mission specific but there are recommended values that should apply across missions when possible: NONE - no scaling. LUTn - use the numbered lookup table. Lookup tables are defined in the mission SIS. It is preferred for "n" to be a number but it could be a name, for example LUT_MMM_3 to indicate LUT 3 for the MMM instruments (on MSL). MSB_BITn - Shift to make bit "n" the most significant. Bits start numbering at 0 so MSB_BIT7 means no shift for a 12->8 bit companding, while MSB_BIT11 means to shift right 4 bits for a 12->8 bit companding. AUTOSHIFT - Data should be shifted to preserve the highest value. This value should only appear in a command echo; one of the MSB_BITn values should be used in downlinked data to specify what the actual shift was.	<ul style="list-style-type: none"> 1) img:companding_state 2) img:active_flag 3) img:processing_venue 4) img:processing_algorithm 5) img:sequence_number 6) img:Data_Processing 7) img:Companding_File 	
img:companding_state <i>INSTRUMENT_STATE_PARMS.</i> <i>SAMPLE_BIT_METHOD</i>	The companding_state attribute specifies whether the data is or has had its bit depth reduced, for example conversion from 12 to 8 bits via a lookup table or bit scaling. Valid values: None - values have not been companded. Companded - values are currently companded. Expanded - values have been companded but are now expanded back to original size.	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Imaging/Sampling/Companding/companding_state 1) None 2) Companded 3) Expanded 	ASCII_Short_String_Collapsed
Context_Area	The Context Area provides context information for a product.	<ul style="list-style-type: none"> 1)/Product Collection/Context Area 2)/Product Document/Context Area 1) comment 2) Time Coordinates 3) Primary Result Summary 4) Investigation Area 5) Observing System 6) Target Identification 7) Mission Area 8) Discipline Area 	
geom:Coordinate_Space_Definition		1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]	

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		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	<p>The Coordinate_Space classes are typically used for lander/rover geometry while the Coordinate_System construction is used for orbiter/flyby geometry.</p> <p>InSight Specific: <i>This class defines the coordinate system in terms of another, reference, coordinate system, providing the offset and rotation between the two.</i></p>	<ol style="list-style-type: none"> 1) local_identifier 2) geom:positive_azimuth_direction 3) geom:positive_elevation_direction 4) geom:Coordinate_Space_Present 5) geom:Vector_Origin_Offset 6) geom:Quaternion_Plus_Direction 7) geom:Coordinate_Space_Reference 	
<p>geom:coordinate_space_frame_type</p> <p>*. COORDINATE_SYSTEM_NAME</p>	<p>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> <p>InSight Specific: <i>Coordinate systems used by the InSight pipeline are Site, Lander, and Arm.</i></p>	<ol style="list-style-type: none"> 1) /Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Derived_Product_Parameters/Coordinate_Space_Reference/Coordinate_Space_Indexed/coordinate_space_frame_type 2) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/Coordinate_Space_Reference/Coordinate_Space_Indexed/coordinate_space_frame_type 3) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Surface_Model_Parameters/Coordinate_Space_Reference/Coordinate_Space_Indexed/coordinate_space_frame_type 4) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/Coordinate_Space_Reference/Coordinate_Space_Indexed/coordinate_space_frame_type 5) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Derived_Geometry/Coordinate_Space_Reference/Coordinate_Space_Indexed/coordinate_space_frame_type 6) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Coordinate_Space_Definition[1]/Coordinate_Space_Reference/Coordinate_Space_Indexed/coordinate_space_frame_type 7) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Coordinate_Space_Definition[*]/Coordinate_Space_Present/Coordinate_Space_Indexed/coordinate_space_frame_type 8) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Derived_Geometry[*]/Coordinate_Space_Reference/Coordinate_Space_Indexed/coordinate_space_frame_type 	
			ASCII_Short_String_Collapsed

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
<p>geom:Coordinate_Space_Index</p> <p>* <i>COORDINATE_SYSTEM.</i> <i>COORDINATE_SYSTEM_INDEX</i> * <i>COORDINATE_SYSTEM.</i> <i>COORDINATE_SYSTEM_INDEX_NAME</i> * <i>REFERENCE_COORD_SYSTEM_INDEX</i></p>	<p>Identifies a coordinate space using an index value given in an identified list. InSight Specific: <i>InSight uses coordinate space indices of 'SITE' and 'DRIVE'. Although InSight is not supposed to move once landed, these are included for compatibility with other Mars surface missions.</i></p>	<p>1) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]</p> <p>2) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index</p> <p>3) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index</p> <p>4) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index</p> <p>5) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index</p> <p>6) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]</p> <p>7) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]</p> <p>8) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]</p> <p>9) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index</p> <p>10) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[1]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index</p> <p>11) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Present/Coordinate Space Indexed/Coordinate Space Index[*]</p> <p>12) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index</p>	<p>1) <i>geom:index_value_number</i></p> <p>2) <i>geom:index_id</i></p> <p>3) <i>geom:index_name</i></p> <p>4) <i>geom:index_sequence_number</i></p> <p>5) <i>geom:List_Index_No_Units</i></p>

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:Coordinate_Space_Indexed	The Coordinate_Space_Indexed class contains the attributes and classes identifying the indexed coordinate space.	<ul style="list-style-type: none"> 1) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Coordinate Space Indexed 2) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Coordinate Space Reference/Coordinate Space Indexed 3) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Coordinate Space Reference/Coordinate Space Indexed 4) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Coordinate Space Indexed 5) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry/Coordinate Space Reference/Coordinate Space Indexed 6) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[1]/Coordinate Space Reference/Coordinate Space Indexed 7) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Present/Coordinate Space Indexed 8) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference/Coordinate Space Indexed 	
		<ul style="list-style-type: none"> 1) geom:coordinate space frame type 2) geom:solution id 3) geom:Coordinate Space Index 	
geom:Coordinate_Space_Present	The Coordinate_Space_Present class includes the attributes that identifies the coordinate space presently being defined.	<ul style="list-style-type: none"> 1) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Present 	
		<ul style="list-style-type: none"> 1) geom:Coordinate_Space_Identification 2) geom:Coordinate_Space_Indexed 3) geom:Coordinate_Space_SPICE 4) Local Internal Reference 	

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:Coordinate_Space_Reference	<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>InSight Specific: The occurrence in Derived_Product_Parameters specifies the coordinate space used to express pixel values in the file itself (e.g. XYZ values).</p>	<p>1) /Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Derived_Product_Parameters/Coordinate_Space_Reference</p> <p>2) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/Coordinate_Space_Reference</p> <p>3) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Surface_Model_Parameters/Coordinate_Space_Reference</p> <p>4) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Derived_Geometry/Coordinate_Space_Reference</p> <p>5) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/Coordinate_Space_Reference</p> <p>6) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Coordinate_Space_Definition[*]/Coordinate_Space_Reference</p> <p>7) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Derived_Geometry[*]/Coordinate_Space_Reference</p>	
		<p>1) geom:Coordinate_Space_Identification</p> <p>2) geom:Coordinate_Space_Indexed</p> <p>3) geom:Coordinate_Space_SPICE</p> <p>4) Local_Internal_Reference</p>	
copyright	The copyright attribute is a character string giving information about the exclusive right to make copies, license, and otherwise exploit an object, whether physical or digital.	1) /Product_Document/Document/copyright	ASCII_Text_Preserved
creation_date_time <i>IDENTIFICATION. PRODUCT_CREATION_TIME</i>	<p>The creation_date_time attribute provides a date and time when the object was created.</p> <p>InSight Specific: This represents the Earth time when the product was created, not the time the spacecraft acquired the data.</p>	<p>1) /Product_Collection/File_Area_Inventory/File/creation_date_time</p> <p>2) /Product_XML_Schema/File_Area_XML_Schema[*]/File/creation_date_time</p> <p>3) /Product_Observational/File_Area_Observational/File/creation_date_time</p> <p>4) /Product_Browse/File_Area_Browse/File/creation_date_time</p>	ASCII_Date_Time_YMD
cart:Cylindrical	This is an in-situ projection used for (non-stereo) panoramas. Each image row represents a constant elevation and each image column represents a constant azimuth, from a given point of view. The image scale in degrees per pixel is constant across the image.	1) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/Cylindrical	
		<p>1) cart:pixel_scale_x</p> <p>2) cart:pixel_scale_y</p> <p>3) cart:maximum_elevation</p> <p>4) cart:minimum_elevation</p> <p>5) cart:start_azimuth</p> <p>6) cart:stop_azimuth</p> <p>7) cart:zero_elevation_line</p> <p>8) cart:Vector_Projection_Origin</p>	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
cart:Cylindrical_Perspective	This is an in-situ projection that is a hybrid. Each column is a vertical slice from a pinhole camera (Perspective projection), while the columns are spaced evenly in azimuth (Cylindrical projection). It is most useful for viewing panoramas in stereo.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection_Lander/Cylindrical_Perspective	
		1) cart:pixel_scale_x 2) cart:pixel_scale_y 3) cart:maximum_elevation 4) cart:minimum_elevation 5) cart:projection_azimuth 6) cart:projection_elevation 7) cart:projection_elevation_line 8) cart:start_azimuth 9) cart:stop_azimuth 10) cart:projection_axis_offset 11) cart:Vector_Projection_Origin 12) cart:Vector_Projection_Z_Axis	
msn_surface:data_size <i>TELEMETRY. IMAGE_DATA_SIZE</i>	The data_size specifies number of bytes in the compressed data stream, not including headers.	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/data_size	
			ASCII_NonNegative_Integer
data_type <i>SYSTEM. FORMAT</i>	The data_type attribute provides the hardware representation used to store a value in Element_Array.	1)/ Product Collection/File Area Inventory/Inventory/Record Delimited/Field Delimited[*]/data_type 2)/ Product Observational/File Area Observational/Table Delimited[*]/Record Delimited/Field Delimited[*]/data_type 3)/ Product Observational/File Area Observational/Array 2D Image/Element Array/data_type 4)/ Product Observational/File Area Observational/Array 3D Image/Element Array/data_type	
		1) ComplexLSB16 2) ComplexLSB8 3) ComplexMSB16 4) ComplexMSB8 5) IEEE754LSBDouble 6) IEEE754LSBSingle 7) IEEE754MSBDouble 8) IEEE754MSBSingle 9) SignedBitString 10) SignedByte 11) SignedLSB2 12) SignedLSB4 13) SignedLSB8 14) SignedMSB2 15) SignedMSB4 16) SignedMSB8 17) UnsignedBitString 18) UnsignedByte 19) UnsignedLSB2 20) UnsignedLSB4 21) UnsignedLSB8 22) UnsignedMSB2 23) UnsignedMSB4 24) UnsignedMSB8	ASCII_Short_String_Collapsed

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom: Derived_Geometry	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. InSight Specific: <i>On InSight, a Derived_Geometry class exists for both Site and Lander frame.</i>	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]	
		1) geom:emission_angle 2) geom:incidence_angle 3) geom:instrument_azimuth 4) geom:instrument_elevation 5) geom:phase_angle 6) geom:solar_azimuth 7) geom:solar_elevation 8) geom:start_azimuth 9) geom:stop_azimuth 10) geom:Coordinate_Space_Reference	
img_surface: derived_image_type_name <i>DERIVED_IMAGE_PARMS. DERIVED_IMAGE_TYPE</i>	The derived_image_type_name attribute specifies how to interpret the pixel values in a derived image (or colloquially, the type of the derived image itself). Valid values vary per mission depending on the products produced. InSight Specific: <i>Additional types may be added throughout the mission. See the SIS for a table of current valid values.</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/derived_image_type_name	
			ASCII_Short_String_Collapsed
img_surface: Derived_Product_Parameters	The Derived_Product_Parameters class contains attributes used to identify and describe processing performed on products in order to produce a higher level product.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters	
		1) img_surface:derived_image_type_name 2) img_surface:horizon_mask_elevation 3) img_surface:Placement_Target_Instrument 4) img_surface:Vector_Range_Origin 5) geom:Coordinate_Space_Reference	

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		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
description	The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.	<ul style="list-style-type: none"> 1) /Product_Collection/Identification_Area/Citation_Information/description 2) /Product_Collection/Identification_Area/Modification_History/Modification_Detail/description 3) /Product_Collection/File_Area_Inventory/Inventory/Record_Delimited/Field_Delimited[*]/description 4) /Product_Observational/File_Area_Observational/Table_Delimited[*]/description 5) /Product_Observational/File_Area_Observational/Table_Delimited[*]/Record_Delimited/Field_Delimited[*]/description 6) /Product_XML_Schema/Identification_Area/Modification_History/Modification_Detail/description 7) /Product_XML_Schema/File_Area_XML_Schema[*]/XML_Schema/description 8) /Product_Document/Identification_Area/Modification_History/Modification_Detail/description 9) /Product_Document/Document/description 10) /Product_File_Text/Identification_Area/Citation_Information/description 11) /Product_Document/Identification_Area/Citation_Information/description 12) /Product_Observational/File_Area_Observational/Header/description 	UTF8_Text_Preserved
img:Detector	The Detectorclass contains attributes describing the state of the instrument detector. These are values directly read from the detector and do not necessarily reflect the state of the image after onboard processing. For example, the entire image may be read into memory and then subframed in software, in which case the subframe attributes in this class reflect the entire image (as read from the detector), whereas those in the Subframe class represent the final subframe results.	<ul style="list-style-type: none"> 1) /Product_Observational/Observation_Area/Discipline_Area/Imaging/Detector 2) /Product_Observational/Observation_Area/Discipline_Area/Imaging/Commanded_Parameters/Detector 	<ul style="list-style-type: none"> 1) img:first_line 2) img:first_sample 3) img:lines 4) img:samples 5) img:detector_to_image_rotation 6) img:erase_count 7) img:readout_rate 8) img:gain_mode_id 9) img:gain_number 10) img:analog_offset
img:detector_to_image_rotation <i>INSTRUMENT_STATE_PARMs.</i> DETECTOR_TO_IMAGE_ROTATION	The detector_to_image_rotation attribute specifies the clockwise rotation, in degrees, that was applied to an image along its optical path through an instrument, from detector to final image orientation. InSight Specific: <i>The IDC EDR is rotated 270 degrees, so the arm/grapple is at the top of the image. The ICC requires no rotation.</i>	1) /Product_Observational/Observation_Area/Discipline_Area/Imaging/Detector/detector_to_image_rotation	ASCII_Real Units_of_Angle

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		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:Device_Angle	The Device_Angle class is a container for the set of angles between the various components or devices of the spacecraft.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[1]/Device Angle	
		1) local identifier 2) geom:Device Angle Index	
geom:Device_Angle_Index	The Device_Angle class is a container for the set of angles the spacecraft device specified in the parent Articulation_Device_Parameters class.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Angle/Device Angle Index[*]	
		1) geom:index value angle 2) geom:index id 3) geom:index name 4) geom:index sequence number 5) geom:List_Index_Angle	
geom:device_id *_ARTICULATION_STATE. ARTICULATION_DEVICE_ID	The device_id attribute specifies the abbreviated identification of an articulation device. InSight Specific: <i>On InSight the ids are "IDA" for the arm and "GRAPPLE" for the grapple.</i>	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/device id	
			ASCII_Short_String_Collapsed
img:device_id INSTRUMENT_STATE_PARMS. INSTRUMENT_TEMPERATURE_NAME	The device_id attribute supplies the identifier of an imaging instrument, an imaging instrument device, or some point on the instrument or device. InSight Specific: <i>On InSight this is used to describe camera temperatures. Values are 'IDC_CCD', 'IDC_ELECTRONICS', 'ICC_CCD', and 'ICC_ELECTRONICS'.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Instrument State/Device Temperatures/Device Temperature[*]/device id	
			ASCII_Short_String_Collapsed
geom:device_mode GRAPPLE_ARTICULATION_STATE. ARTICULATION_DEVICE_MODE	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. InSight Specific: <i>State of the grapple fingers. The value is determined by the IDA FSW by reading the state of the two limit switches on the grapple. It affects when the grapple opening algorithm completes. Bit 0 is the "fingers closed" switch, with 0=fingers-not-closed and 1=fingers-closed. Bit 1 is the "fingers open" switch, with 0=fingers-open and 1=fingers-not-open. This translates to the 4 states in the valid values list: OPEN, BROKEN, IN_BETWEEN, CLOSED. There is no mode for the IDA (arm) articulation device.</i>	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/device mode	
			ASCII_Short_String_Collapsed
geom:device_name GRAPPLE_ARTICULATION_STATE. ARTICULATION_DEVICE_NAME	The device_name attribute specifies the common name of an articulation device. InSight Specific: <i>On InSight the names are 'INSTRUMENT_DEPLOYMENT_ARM' and 'GRAPPLE'.</i>	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/device name	
			ASCII_Short_String_Collapsed
	The device_phase attribute specifies the current phase of the mission, from an articulation-device-	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/device phase	

Dictionary:PDS4 Keyword VICAR Property.VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) Children (class)	Data Type Units
geom:device_phase GRAPPLE_ARTICULATION_STATE. ARTICULATION_DEVICE_PHASE	centric point of view. InSight Specific: Current mission phase from a grapple-centric perspective. This affects whether the IDA_OPEN_GRAPPLE command is accepted (only in OK_TO_OPEN phase), and the assumed force on the end of the arm (based on which instrument the phase says is grappled) during arm deflection computation. Only human operators (via spacecraft command) can change this value. Valid values are LAUNCH_LOCKED, STOWED, OK_TO_OPEN, SEIS_GRAPPLED, WTS_GRAPPLED, HP3_GRAPPLED.		ASCII_Short_String_Collapsed
geom:Device_Temperature	The Device_Temperature class is a container for all available device temperatures of an articulated device and/or part(s) of a device.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Articulation_Device_Parameters[*]/Device_Temperature 1) local_identifier 2) geom:Device_Temperature_Index	
img:Device_Temperature	The Device_Temperature class provides a container for the temperature of some point on an imaging instrument or other imaging device. InSight Specific: For InSight the arm temperatures are 'AZIMUTH JOINT', 'ELEVATION JOINT', 'ELBOW JOINT', and 'WRIST JOINT'. The grapple temperature is 'GRAPPLE'.	1)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Instrument_State/Device_Temperatures/Device_Temperature[*] 1) img:raw_count 2) img:temperature_value 3) img:device_id 4) img:device_name 5) img:sequence_number 6) img:temperature_status 7) img:Device_Parameters	
geom:Device_Temperature_Index	The Device_Temperature_Index class specifies the attributes describing the temperature of one device or some part of a device. InSight Specific: For InSight the arm temperatures are "AZIMUTH JOINT", "ELEVATION JOINT", "ELBOW JOINT", and "WRIST JOINT". The grapple temperature is "GRAPPLE".	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Articulation_Device_Parameters[*]/Device_Temperature/Device_Temperature_Index 1) geom:index_value_temperature 2) geom:index_value_number 3) geom:index_id 4) geom:index_name 5) geom:index_sequence_number 6) geom:List_Index_Temperature	
img:Device_Temperatures	The Device_Temperatures class provides a container for the set of temperatures of an imaging instrument or other imaging device.	1)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Instrument_State/Device_Temperatures 1) img:Device_Temperature	
Discipline_Area	The Discipline area allows the insertion of discipline specific metadata.	1)/Product_Observational/Observation_Area/Discipline_Area 1) Display_Settings 2) Geometry 3) Imaging 4) Surface_Imaging 5) Mission_Information 6) Surface_Mission_Information 7) Processing_Information 8) Cartography	
disp:Display_Direction		1)/Product_Observational/Observation_Area/Discipline_Area/Display_Settings/Display_Direction	

Dictionary:PDS4 Keyword VICAR Property.VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	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) comment 2) disp:horizontal_display_axis 3) disp:horizontal_display_direction 4) disp:vertical_display_axis 5) disp:vertical_display_direction	
disp:Display_Settings	The Display_Settings class contains one or more classes describing how data should be displayed on a display device.	1)/ Product Observational/Observation Area/Discipline Area/Display_Settings 1) Local Internal Reference 2) disp:Display_Direction 3) disp:Color_Display_Settings 4) disp:Movie_Display_Settings	
Document	The Document class describes a document.	1)/ Product Document/Document 1) revision_id 2) document_name 3) doi 4) author_list 5) editor_list 6) acknowledgement_text 7) copyright 8) publication_date 9) document_editions 10) description 11) Document_Edition 12) Digital_Object	
Document_Edition	A Document Edition is one complete version of the document in a set of files that is distinguished by language, a unique assemblage of file formats, or some other criteria.	1)/ Product Document/Document/Document_Edition 1) edition_name 2) starting_point_identifier 3) language 4) files 5) description 6) Document_File	
Document_File	The Document File class describes a file which is a part of a document.	1)/ Product Document/Document/Document_Edition/Document_File 1) File 2) directory_path_name 3) file_name 4) document_standard_id 5) local_identifier 6) creation_date_time 7) file_size 8) records 9) md5_checksum 10) comment 11) Digital_Object	
document_standard_id		1)/ Product Document/Document/Document_Edition/Document_File/document_standard_id	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The document_standard_jd attribute provides the formal name of a standard used for the structure of a document file.	1) 7-Bit ASCII Text 2) Encapsulated Postscript 3) GIF 4) HTML 5) HTML 2.0 6) HTML 3.2 7) HTML 4.0 8) HTML 4.01 9) JPEG 10) LaTeX 11) MPEG-4 12) Microsoft Excel 13) Microsoft Word 14) PDF 15) PDF/A 16) PNG 17) Postscript 18) Rich Text 19) TIFF 20) UTF-8 Text	ASCII_Short_String_Collapsed
domain	The radial "zone" or "shell" of the target for which the observations were collected or which are represented in the product(s). The value may depend on wavelength_range and size of the target. InSight Specific: <i>For InSight camera data, only Surface is used.</i>	1)/ Product Collection/Context Area/Primary Result Summary/Science Facets/domain 2)/ Product Observational/Observation Area/Primary Result Summary/Science Facets/domain 1) Atmosphere 2) Dynamics 3) Heliosheath 4) Heliosphere 5) Interior 6) Interstellar 7) Ionosphere 8) Magnetosphere 9) Rings 10) Surface	ASCII_Short_String_Collapsed
msn_surface: download_priority <i>TELEMETRY. DOWNLOAD_PRIORITY</i>	The download_priority attribute specifies which data to downlink/transmit, based on order of importance. The lower numerical priority (higher-ranked number) data products are transmitted before higher numerical priority (lower-ranked number) data products. For example, an image with a downlink priority of 1 will be transmitted before an image with a downlink priority of 6. Value of 0 specifies use of on-board default. InSight Specific: <i>Values are 1-6 for InSight.</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/download_priority	ASCII_NonNegative_Integer
img:Downsampling		1)/ Product Observational/Observation Area/Discipline Area/Imaging/Downsampling	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The Downsampling class describes whether or not downsampling occurred, the venue where it occurred (Software or Hardware), the method used to downsample, and the pixel averaging dimensions. A downsampled image is a smaller version of the image, resulting in reduced resolution of the same coverage area. The processing_algorithm attribute specifies the pixel resolution downsample method used. This varies by mission, but examples from MSL include: 'Mean' - Downsampling done in software by calculation of the mean., 'Conditional' - Use hardware binning if downsampling (by mean calculation) and subframe arguments are consistent.	1) img:active_flag 2) img:processing_venue 3) img:processing_algorithm 4) img:sequence_number 5) img:Data_Processing 6) img:Pixel_Averaging_Dimensions	
msn_surface:earth_received_start_date_time <i>TELEMETRY. EARTH_RECEIVED_START_TIME</i>	The earth_received_start_date_time attribute provides the earliest time at which any component telemetry data for a particular product was received.	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/earth_received_start_date_time	ASCII_Date_Time_YMD_UTC
msn_surface:earth_received_stop_date_time <i>TELEMETRY. EARTH_RECEIVED_STOP_TIME</i>	The earth_received_stop_date_time attribute provides the latest time at which any component telemetry data for a particular product was received.	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/earth_received_stop_date_time	ASCII_Date_Time_YMD_UTC
edition_name	The edition name attribute provides a name by which the edition is known.	1)/ Product Document/Document/Document Edition/edition_name	UTF8_Short_String_Collapsed
Element_Array	The Element Array class is used as a component of the array class and defines an element of the array.	1)/ Product Observational/File Area Observational/Array 2D Image/Element Array 2)/ Product Observational/File Area Observational/Array 3D Image/Element Array	
elements <i>SYSTEM. NS</i> <i>SYSTEM. NL</i> <i>SYSTEM. NB</i>	The elements attribute provides the count of the number of elements along an array axis.	1)/ Product Observational/File Area Observational/Array 2D Image/Axis Array[*]/elements 2)/ Product Observational/File Area Observational/Array 3D Image/Axis Array[*]/elements	ASCII_NonNegative_Integer
img:encoded_display_gamma <i>DERIVED_IMAGE_PARMS.</i> <i>ENCODED_DISPLAY_GAMMA</i>	Defines the gamma value encoded in this image. Gamma correction is used to nonlinearly compress the intensities in an image, and most display systems assume that images are encoded with an sRGB gamma. Note that this is a string value because the most common gamma correction ("sRGB") is not precisely expressible as a gamma exponent. A numeric value indicates a gamma exponent.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/encoded_display_gamma	ASCII_Short_String_Collapsed

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
Encoded_Image	The Encoded Image class is used for ancillary images in standard formats, such as JPEG.	1)/ Product Observational/File Area Observational Supplemental[*]/Encoded_Image 2)/ Product Observational/File Area Observational Supplemental/Encoded_Image 3)/ Product Browse/File Area Browse/Encoded_Image	
		1) Encoded_Byte_Stream 2) name 3) offset 4) encoding_standard_id 5) local_identifier 6) object_length 7) md5_checksum 8) description 9) Digital_Object	
encoding_standard_id	The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.	1)/ Product Observational/File Area Observational Supplemental[*]/Encoded_Image/encoding_standard_id 2)/ Product Observational/File Area Observational Supplemental/Encoded_Image/encoding_standard_id 3)/ Product Browse/File Area Browse/Encoded_Image/encoding_standard_id	
		1) GIF 2) J2C 3) JPEG 4) PDF 5) PDF/A 6) PNG 7) TIFF	ASCII_Short_String_Collapsed
geom:Entrance_Terms <i>GEOMETRIC_CAMERA_MODEL. MODEL_COMPONENT_7</i>	The Entrance_Terms contains the coefficients of a polynomial function used to model movement of the entrance pupil.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Entrance_Terms 1) geom:c0 2) geom:c1 3) geom:c2 4) geom:Polynomial_Coefficients_3	
img:erase_count <i>OBSERVATION_REQUEST_PARMS. DETECTOR_ERASE_COUNT</i>	The erase_count specifies the number of times a detector has been or will be flushed of data in raw counts, dependent on the parent class for the attribute. InSight Specific: <i>Number of fast flushes</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded_Parameters/Detector/erase_count	ASCII_NonNegative_Integer
img_surface:Error_Model <i>DERIVED_IMAGE_PARMS. ERROR_MODEL_DESC_PTR</i>	The Error_Model class specifies the name of the error model used, a reference to the algorithm descriptions, and the parameters needed for that algorithm. The specific set of values is determined by each individual missions.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Error_Model 1) img_surface:error_model_name 2) img_surface:Error_Model_Parameter 3) Internal Reference	
		1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Error_Model/error_model_name	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img_surface:error_model_name <i>DERIVED_IMAGE_PARMS. ERROR_MODEL_NAME</i>	The error_model_name attribute specifies the method or algorithm used to create the error estimate. Each mission will define their own set of possible values. Algorithms will be added over time. The initial value is MIPL_CONST_DISPARITY_PROJECTED_V1, which means an arbitrary constant disparity error is assumed (in ERROR_MODEL_PARMS), which is projected through the camera models to approximate an error ellipse, which is then projected to the XYZ or range/crossrange axes depending on the file type. InSight Specific: <i>The only error model used by the InSight pipeline is MIPL_CONST_DISPARITY_PROJECTED_V1, which projects a constant disparity into XYZ space to determine the error.</i>		ASCII_Short_String_Collapsed
img_surface:Error_Model_Parameter	The Error_Model_Parameter class specifies name and value for a parameter defined by the error model described by the parent class. InSight Specific: <i>For MIPL_CONST_DISPARITY_PROJECTED_V1, DELTA_REF_LINE and DELTA_REF_SAMP define how much the reference image was perturbed while DELTA_DISP_LINE and DELTA_DISP_SAMPLE define how much the disparity was perturbed.</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Error Model/Error Model Parameter[*] 1) name 2) value	
msn_surface:expected_packets <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.	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/expected_packets	ASCII_NonNegative_Integer
img:Exposure	The Exposure class contains attributes identifying the image instrument exposure configuration and image exposure values. As a child of the Imaging class, these attribute values identify the actual exposure values when the image was taken. As a child of the Commanded_Parameters class, these attribute values are those that were commanded to the spacecraft at the time the image was taken.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Exposure 2)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Exposure 1) img:exposure_count 2) img:exposure_duration 3) img:exposure_duration_count 4) img:exposure_type 5) img:Autoexposure	
img:exposure_count <i>INSTRUMENT_STATE_PARMS. EXPOSURE_COUNT</i>	The exposure_count attribute provides the number of exposures taken during a certain interval, such as the duration of one command. For example, this may include the number of exposures needed by an autoexpose algorithm. InSight Specific: <i>Actual number of auto exposure iterations</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Exposure/exposure_count	ASCII_NonNegative_Integer
		1)/ Product Observational/Observation Area/Discipline Area/Imaging/Exposure/exposure_duration	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img:exposure_duration <i>INSTRUMENT_STATE_PARMS. EXPOSURE_DURATION INSTRUMENT_STATE_PARMS. EXPOSURE_DURATION_UNIT</i>	The exposure_duration attribute provides the amount of time the instrument sensor was gathering light from the scene, such as between opening and closing of a shutter, or between flushing and readout of a CCD.		ASCII_Real <i>Units_of_Time</i>
img:exposure_duration_count <i>OBSERVATION_REQUEST_PARMS. EXPOSURE_DURATION_COUNT</i>	The exposure_duration_count attribute specifies the value, in raw counts, for the amount of time the instrument sensor was gathering light from the scene, such as between opening and closing of a shutter, or between flushing and readout of a CCD. This is the raw count either commanded or taken directly from telemetry as reported by the spacecraft. This attribute is the same as the exposure_duration but in DN counts instead of time, and the translation of exposure_duration_count to exposure_duration will differ by mission. InSight Specific: <i>For InSight, the factor is 6.21 msec/DN.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Exposure/exposure_duration_count 2)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Exposure/exposure_duration_count	ASCII_NonNegative_Integer
img:exposure_type <i>OBSERVATION_REQUEST_PARMS. EXPOSURE_TYPE</i>	The exposure_type attribute indicates the exposure setting on a camera. Valid values: 'Manual' - manual exposure setting, 'Auto' - autoexposure is applied by the camera, 'Test' - test exposure setting telling the camera to return a fixed-pattern test image.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Exposure/exposure_type 1) Manual 2) Auto 3) Test	ASCII_Short_String_Collapsed
Field_Delimited	The Field_Delimited class defines a field of a delimited record or a field of a delimited group.	1)/ Product Collection/File Area Inventory/Inventory/Record Delimited/Field Delimited[*] 2)/ Product Observational/File Area Observational/Table Delimited[*]/Record Delimited/Field Delimited[*] 1) name 2) field_number 3) data_type 4) maximum_field_length 5) field_format 6) unit 7) scaling_factor 8) value_offset 9) description 10) Special_Constants 11) Field_Statistics	
field_delimiter	The field_delimiter attribute provides the character that marks the boundary between two fields in a delimited table.	1)/ Product Collection/File Area Inventory/Inventory/field_delimiter 2)/ Product Observational/File Area Observational/Table Delimited[*]/field_delimiter 1) Comma 2) Horizontal Tab 3) Semicolon 4) Vertical Bar 5) comma 6) horizontal tab 7) semicolon 8) vertical bar	ASCII_Short_String_Collapsed

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
field_number	The field_number attribute provides the position of a field, within a series of fields, counting from 1. If two fields within a record are physically separated by one or more groups, they have consecutive field numbers; the fields within the intervening group(s) are numbered separately. Fields within a group separated by one or more (sub)groups, will also have consecutive field numbers.	1) /Product_Collection/File_Area_Inventory/Inventory/Record_Delimited/Field_Delimited[*]/field_number	
		2) /Product_Observational/File_Area_Observational/Table_Delimited[*]/Record_Delimited/Field_Delimited[*]/field_number	ASCII_NonNegative_Integer
fields	The fields attribute provides a count of the total number of scalar fields directly associated with a table record. Fields within groups within the record are not included in this count.	1) /Product_Collection/File_Area_Inventory/Inventory/Record_Delimited/fields	
		2) /Product_Observational/File_Area_Observational/Table_Delimited[*]/Record_Delimited/fields	ASCII_NonNegative_Integer
File	The File class consists of attributes that describe a file in a data store.	1) /Product_Collection/File_Area_Inventory/File	
		2) /Product_Observational/File_Area_Observational_Supplemental*/File	
		3) /Product_XML_Schema/File_Area_XML_Schema*/File	
		4) /Product_File_Text/File_Area_Text/File	
		5) /Product_Observational/File_Area_Observational/File	
		6) /Product_Observational/File_Area_Observational_Supplemental/File	
		7) /Product_Browse/File_Area_Browse/File	
		1) file_name	
		2) local_identifier	
		3) creation_date_time	
		4) file_size	
		5) records	
		6) md5_checksum	
		7) comment	
		8) Digital_Object	
File_Area_Browse		1) /Product_Browse/File_Area_Browse	

Dictionary: PDS4 Keyword	General Definition	XPath	
<i>VICAR Property.VICAR Keyword</i>	<i>InSight-Specific Information</i>	Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The File Area Browse class describes a file and one or more tagged_data_objects contained within the file.	1) File_Area 2) File 3) Array 4) Array_1D 5) Array_2D 6) Array_2D_Image 7) Array_2D_Map 8) Array_2D_Spectrum 9) Array_3D 10) Array_3D_Image 11) Array_3D_Movie 12) Array_3D_Spectrum 13) Encoded_Header 14) Encoded_Image 15) Header 16) Stream_Text 17) Table_Binary 18) Table_Character 19) Table_Delimited	
File_Area_Inventory	The File Area Inventory class describes a file and an inventory consisting of references to members.	1)/ Product_Collection/File_Area_Inventory 1) File_Area 2) File 3) Inventory	
File_Area_Observational	The File Area Observational class describes, for an observational product, a file and one or more tagged_data_objects contained within the file.	1)/ Product_Observational/File_Area_Observational 1) File_Area 2) File 3) Composite_Structure 4) Array 5) Array_1D 6) Array_2D 7) Array_2D_Image 8) Array_2D_Map 9) Array_2D_Spectrum 10) Array_3D 11) Array_3D_Image 12) Array_3D_Movie 13) Array_3D_Spectrum 14) Encoded_Header 15) Header 16) Stream_Text 17) Table_Binary 18) Table_Character 19) Table_Delimited	
File_Area_Observational_Supplemental	The File Area Observational Supplemental class describes, for an observational product, additional	1)/ Product_Observational/File_Area_Observational_Supplemental* 2)/ Product_Observational/File_Area_Observational_Supplemental	

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	files and tagged_data_objects contained within the file.	1) File_Area 2) File 3) Composite_Structure 4) Array 5) Array_1D 6) Array_2D 7) Array_2D_Image 8) Array_2D_Map 9) Array_2D_Spectrum 10) Array_3D 11) Array_3D_Image 12) Array_3D_Movie 13) Array_3D_Spectrum 14) Encoded_Binary 15) Encoded_Byte_Stream 16) Encoded_Header 17) Encoded_Image 18) Header 19) Parsable_Byte_Stream 20) Stream_Text 21) Table_Binary 22) Table_Character 23) Table_Delimited	
File_Area_Text	The File Area Text class describes a file that contains a text stream object.	1) Product File Text/File Area Text	
		1) File_Area 2) File 3) Stream_Text	
File_Area_XML_Schema	The File Area XML Schema class describes a file that contains a resource used for the PDS4 implementation into XML.	1) Product XML Schema/File Area XML Schema[*]	
		1) File_Area 2) File 3) XML_Schema	
file_name <i>IDENTIFICATION. PRODUCT_ID</i>	The file_name attribute provides the name of a file. InSight Specific: <i>For InSight this contains the VICAR PRODUCT_ID, which is the filename minus the extension.</i>	1) Product Collection/File Area Inventory/File/file_name 2) Product Observational/File Area Observational Supplemental[*]/File/file_name 3) Product XML Schema/File Area XML Schema[*]/File/file_name 4) Product File Text/File Area Text/File/file_name 5) Product Document/Document/Document Edition/Document File/file_name 6) Product Observational/File Area Observational/File/file_name 7) Product Observational/File Area Observational Supplemental/File/file_name 8) Product Browse/File Area Browse/File/file_name	
			ASCII_Short_String_Collapsed

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
file_size	The file_size attribute provides the size of the file.	1)/ Product Collection/File Area Inventory/File/file_size 2)/ Product XML Schema/File Area XML Schemal*/File/file_size	ASCII_NonNegative_Integer <i>Units_of_Storage</i>
files	The files attribute provides the number of files in the edition.	1)/ Product Document/Document/Document Edition/files	ASCII_NonNegative_Integer
img:first_line <i>IMAGE_DATA. FIRST_LINE</i>	The first_line attribute indicates the line within a source image that corresponds to the first line in a sub-image. InSight Specific: <i>InSight does not support subframing, so this value is always 1.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Subframe/first_line	ASCII_NonNegative_Integer
img:first_sample <i>IMAGE_DATA. FIRST_LINE_SAMPLE</i>	The first_sample attribute indicates the sample within a source image that corresponds to the first sample in a sub-image. InSight Specific: <i>InSight does not support subframing, so this value is always 1.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Subframe/first_sample	ASCII_NonNegative_Integer
img:Flat_Field_Correction	The Flat_Field_Correction class specifies how flat-field correction was performed on this image. This can be done either algorithmically, using a Radial_Flat_Field_Correction, or using a Flat_Field_File.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Flat Field Correction 1) img:active_flag 2) img:processing_venue 3) img:processing_algorithm 4) img:sequence_number 5) img:Data_Processing 6) img:Radial_Flat_Field_Function 7) img:Flat_Field_File	
img:Flat_Field_File	The Flat_Field_File class specifies the image used for flat field correction. The image is divided by this flat field image in order to apply the flat field correction (which is the opposite of Radial_Flat_Field_Function).	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Flat Field Correction/Flat Field File 1) description 2) name 3) img:Data_Processing_File 4) External_Reference 5) Internal_Reference	
msn_surface:flight_software_version_id <i>TELEMETRY. FLIGHT_SOFTWARE_VERSION_ID</i>	The flight_software_version_id attribute identifies the version of the instrument flight software used to acquire the image.	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/flight_software_version_id	ASCII_Short_String_Collapsed
img:Frame	The Frame class contains attributes providing information specific to an image frame. A frame consists of a sequence of measurements made over a specified time interval, and may include measurements from different instrument modes.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Frame 1) img:frame_id 2) img:frame_type_name	
		1)/ Product Observational/Observation Area/Discipline Area/Imaging/Frame/frame_id	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img:frame_id <i>IDENTIFICATION. FRAME_ID</i>	The frame_id attribute specifies an identification for a particular instrument measurement frame. A frame consists of a sequence of measurements made over a specified time interval, and may include measurements from different instrument modes. These sequences repeat from cycle to cycle and sometimes within a cycle. InSight Specific: <i>Used to denote the commanded camera eye for stereo. InSight has no stereo camera but the IDC is commanded with some images marked "left" and "right" for ease of stereo processing. Note that any given image can be used either as a left or right eye image in special processing; this value reflects only the commanded intent (via IMAGE_ID).</i>		ASCII_Short_String_Collapsed
img:frame_type_name <i>IDENTIFICATION. FRAME_TYPE</i>	The frame_type_name attribute specifies whether the image was commanded as part of a stereo pair or as a single left or right monoscopic image. If frame_type = 'Stereo', a left and a right image should be present.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Frame/frame_type_name	ASCII_Short_String_Collapsed
geom:Geometry	The Geometry class is a container for all geometric information in the label. The Image_Display_Geometry class should have one instance if the primary data object is an Array object for which two of the dimensions are suitable for display in the vertical (line) and horizontal (sample) dimensions of a display device. Multiple instances of the Image_Display_Geometry class are only appropriate if the data product contains multiple Array objects and the orientations of the various objects are not the same.	1)/ Product Observational/Observation Area/Discipline Area/Geometry 1) geom:SPICE Kernel Files 2) geom:Expanded_Geometry 3) geom:Image_Display_Geometry 4) geom:Geometry_Orbiter 5) geom:Geometry_Lander	
geom:Geometry_Lander	The Geometry_Lander class is a container for all geometric information in the label relating to a landed spacecraft, including rovers.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry_Lander 1) geom:Articulation_Device_Parameters 2) geom:Camera_Model_Parameters 3) geom:Coordinate_Space_Definition 4) geom:Derived_Geometry 5) geom:Motion_Counter	
img_surface:Geometry_Projection	The Geometry_Projection describes the geometric projection or warping the image has undergone. It is not the intent of this class to describe map projections, but rather image warps such as linearization (stereo epipolar alignment), geometric sensor correction, or rubber-sheeting. If present, a linearization partner image can be referenced using either an Internal_Reference or External_Reference.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Geometry Projection 1) img_surface:linearization_mode 2) img_surface:linearization_mode_fov 3) img_surface:geometry_projection_type 4) External_Reference 5) Internal_Reference	
		1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Geometry Projection/geometry_projection_type	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img_surface:geometry_projection_type <i>IDENTIFICATION. GEOMETRY_PROJECTION_TYPE</i>	The geometry_projection_type attribute specifies how pixels in a file have been reprojected to correct for camera distortion, linearization, or rubber-sheeting (it is not the intent of this field to capture map projections). "Raw" indicates no projection has been done. InSight Specific: <i>RAW means the image uses a CAHVOR or CAHVORE camera model. LINEARIZED means that reprojection has been performed to linearize the camera model (thus removing things like lens distortion). This means the image uses a CAHV camera model.</i>	1) Raw 2) Linearized	ASCII_Short_String_Collapsed
disp:green_channel_band	The green_channel_band attribute identifies the number of the band, along the band axis, that should be loaded, by default, into the green channel of a display device. The first band along the band axis has band number 1.	1)/ Product Observational/Observation Area/Discipline Area/Display Settings/Color Display Settings/green_channel_band	ASCII_Integer
groups	The groups attribute provides a count of the total number of groups directly associated with a table record. Groups within groups within the record are not included in this count.	1)/ Product Collection/File Area Inventory/Inventory/Record Delimited/groups 2)/ Product Observational/File Area Observational/Table Delimited[*]/Record Delimited/groups	ASCII_NonNegative_Integer
Header	The Header class describes a data object header. InSight Specific: <i>For InSight this identifies the attached VICAR label for images and specifies its length.</i>	1)/ Product Observational/File Area Observational/Header 1) Parsable_Byte_Stream 2) name 3) object_length 4) offset 5) local_identifier 6) parsing_standard_id 7) md5_checksum 8) description 9) Digital_Object	
img:height_pixels <i>INSTRUMENT_STATE_PARMS. PIXEL_AVERAGING_HEIGHT</i>	The height_pixels attribute provides the vertical dimension, in pixels. InSight Specific: <i>InSight does not support downsampling, so this value is always 1.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Downsampling/Pixel Averaging Dimensions/height_pixels	ASCII_NonNegative_Integer <i>Units_of_Misc</i>
cart:Horizontal_Coordinate_System_Definition	The Horizontal_Coordinate_System_Definition class provides the reference frame or system from which linear or angular quantities are measured and assigned to the position that a point occupies.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition 1) <i>cart:Geographic</i> 2) <i>cart:Local</i> 3) <i>cart:Planar</i> 4) <i>cart:Geodetic_Model</i>	
disp:horizontal_display_axis		1)/ Product Observational/Observation Area/Discipline Area/Display Settings/Display Direction/horizontal_display_axis	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	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.		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. InSight Specific: <i>InSight data is always Left to Right.</i>	1)/ Product Observational/Observation Area/Discipline Area/Display Settings/Display Direction/horizontal display direction 1) Left to Right 2) Right to Left	ASCII_Short_String_Collapsed
Identification_Area	The identification area consists of attributes that identify and name an object.	1)/ Product Collection/Identification Area 2)/ Product XML Schema/Identification Area 3)/ Product File Text/Identification Area 4)/ Product Document/Identification Area 5)/ Product Observational/Identification Area 6)/ Product Browse/Identification Area 1) logical identifier 2) version id 3) title 4) information model version 5) product class 6) Alias List 7) Citation Information 8) Modification History	
img:illuminant <i>DERIVED_IMAGE_PARMS. ILLUMINANT</i>	Defines the illuminant that was used in order to process this image. The valid values are open-ended but examples of valid values include: None, D65, 3000K, 5000K.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/illuminant	ASCII_Short_String_Collapsed
		1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Image Identifiers/image id	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img_surface:image_id <i>IDENTIFICATION. IMAGE_ID</i>	The image_id is an arbitrary string identifier that is associated with this image. The specific interpretation of it is mission-dependent, and it need not be unique to this image. For example, missions may use it as an image counter, a round-trip token indicating how to process the image, or a FSW-assigned value identifying the image. InSight Specific: <i>The image_id is a 32-bit integer token set in the command sent from the ground, and returned in the image telemetry. It contains five subfields, each of which has its own label attributes: sequence_id, mesh_id, mosaic_id, stereo_id, and camera eye (frame_id). See each attribute for its usage. Note that image_id values are not unique (multiple images may share the same ID).</i>		ASCII_Short_String_Collapsed
img_surface:Image_Identifiers	The Image_Identifiers class contains items that help to identify the image or guide how processing should be done to the image.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Image Identifiers	
img_surface:image_type <i>IDENTIFICATION. IMAGE_TYPE</i>	The image_type attribute specifies the type of image acquired. The intent is to distinguish between different kinds of image-related data that may differ in how they are interpreted. Some types are not standard images, but they are stored in an image structure. Examples include Regular, Thumbnail, Reference Pixels, Histogram, Row Sum, and Column Sum.	1) img_surface:image_id 2) img_surface:mosaic_id 3) img_surface:mesh_id 4) img_surface:stereo_match_id	ASCII_Short_String_Collapsed
img:Imaging		1)/ Product Observational/Observation Area/Discipline Area/Imaging	

Dictionary: PDS4 Keyword	General Definition	XPath	
VICAR Property. VICAR Keyword	<i>InSight-Specific Information</i>	Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	<p>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.</p>	<ol style="list-style-type: none"> 1) Local Internal Reference 2) img:Brightness_Correction 3) img:Color_Filter_Array 4) img:Color_Processing 5) img:Detector 6) img:Downsampling 7) img:Exposure 8) img:Flat_Field_Correction 9) img:Focus 10) img:Focus_Stack 11) img:Frame 12) img:Onboard_Compression 13) img:Optical_Filter 14) img:Pointing_Correction 15) img:Radiometric_Correction 16) img:Sampling 17) img:Shutter_Subtraction 18) img:Subframe 19) img:Video 20) img:Instrument_State 21) img:Commanded_Parameters 	

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition InSight-Specific Information	XPath	
		Valid Values (attribute) Children (class)	Data Type Units
<p>geom:index_id</p> <p>*. COORDINATE_SYSTEM_INDEX_NAME</p>	<p>The index_id attribute supplies a short name (identifier) for the associated value in a group of related values.</p>	<p>1) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_id</p> <p>2) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_id</p> <p>3) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_id</p> <p>4) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_id</p> <p>5) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_id</p> <p>6) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_id</p> <p>7) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_id</p> <p>8) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_id</p> <p>9) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_id</p> <p>10) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Angle/Device Angle Index[*]/index_id</p> <p>11) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Temperature/Device Temperature Index/index_id</p> <p>12) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[1]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_id</p> <p>13) /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>14) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_id</p> <p>15) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Motion Counter/Motion Counter Index[*]/index_id</p>	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
			ASCII_Short_String_Collapsed
geom:index_value_angle ARM_ARTICULATION_STATE. ARTICULATION_DEVICE_ANGLE ARM_ARTICULATION_STATE. ARTICULATION_DEVICE_ANGLE__UNIT	The index_value_angle attribute provides the value of an angle as named by the associated index_id, index_name, or index_sequence_number. InSight Specific: <i>Values are in radians.</i>	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Articulation_Device_Parameters[*]/Device_Angle/Device_Angle_Index[*]/index_value_angle	ASCII_Real Units_of_Angle

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
<p>geom:index_value_number</p> <p>*. REFERENCE_COORD_SYSTEM_INDEX *_COORDINATE_SYSTEM. COORDINATE_SYSTEM_INDEX IDENTIFICATION. ROVER_MOTION_COUNTER *_ARTICULATION_STATE. ARTICULATION_DEVICE_TEMP_COUNT</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>InSight Specific: <i>For InSight, the Device_Temperature instance contains raw temperature counts. The rest of the instances contain coordinate space indices.</i></p>	<p>1) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_value_number</p> <p>2) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_value_number</p> <p>3) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_value_number</p> <p>4) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_value_number</p> <p>5) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_value_number</p> <p>6) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_value_number</p> <p>7) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_value_number</p> <p>8) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index[*]/index_value_number</p> <p>9) /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>10) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[2]/Device Temperature/Device Temperature Index/index_value_number</p> <p>11) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[1]/Coordinate Space Reference/Coordinate Space Indexed/Coordinate Space Index/index_value_number</p> <p>12) /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>13) /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>14) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Motion Counter/Motion Counter Index[*]/index_value_number</p>	<p>ASCII_Real</p>

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:index_value_temperature *_ARTICULATION_STATE. ARTICULATION_DEVICE_TEMP *_ARTICULATION_STATE. ARTICULATION_DEVICE_TEMP_UNIT	The index_value_temperature attribute provides the value of a temperature as named by the associated index_id or index_name.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[*]/Device Temperature/Device Temperature Index/index_value_temperature	ASCII_Real <i>Units_of_Temperature</i>
information_model_version	The information_model_version attribute provides the version identification of the PDS Information Model on which the label and schema are based.	1)/ Product Collection/Identification Area/information_model_version 2)/ Product XML Schema/Identification Area/information_model_version 3)/ Product File Text/Identification Area/information_model_version 4)/ Product Document/Identification Area/information_model_version 5)/ Product Observational/Identification Area/information_model_version 6)/ Product Browse/Identification Area/information_model_version	ASCII_Short_String_Collapsed
proc:Input_Product <i>DERIVED_IMAGE_PARMS. INPUT_PRODUCT_ID</i>	The Input_Product class describes one of the product most directly used as input to software for product creation, including raw, partially-processed, calibrated, or derived products.	1)/ Product Observational/Observation Area/Discipline Area/Processing Information/Input Product List/Input Product[*] 2)/ Product Observational/Observation Area/Discipline Area/Processing Information/Input Product List/Input Product	1) local identifier 2) External Reference 3) Internal Reference 4) Local Internal Reference
proc:Input_Product_List	The Input_Product_List class describes all of the product(s) most directly used as input to software for product creation, including raw, partially-processed, calibrated, or derived products. These Input Products can be explicitly described in this label using the Input_Product class, and/or a list of products can be specified in another product referenced by the Internal_Reference or Local_Internal_Reference.	1)/ Product Observational/Observation Area/Discipline Area/Processing Information/Input Product List	1) proc:Input_Product 2) Internal Reference 3) Local Internal Reference

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:instrument_azimuth * <i>DERIVED_GEOMETRY_PARAMS. INSTRUMENT_AZIMUTH__UNIT</i>	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.	1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/instrument_azimuth	ASCII_Real <i>Units_of_Angle</i>
geom:instrument_elevation * <i>DERIVED_GEOMETRY_PARAMS. INSTRUMENT_ELEVATION__UNIT</i>	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 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.	1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/instrument_elevation	ASCII_Real <i>Units_of_Angle</i>
img_surface:Instrument_Information	The Instrument_Information class specifies information about the configuration of the instrument as it acquired this observation.	1)/Product Observational/Observation Area/Discipline Area/Surface Imaging/Instrument Information 1) img_surface:image_type 2) img_surface:image_acquire_mode 3) img_surface:instrument_type 4) img_surface:instrument_mode_id 5) img_surface:instrument_serial_number 6) img_surface:instrument_version_number 7) img_surface:ops_instrument_key 8) img_surface:camera_product_id 9) img_surface:camera_product_id_count	
		1)/Product Observational/Observation Area/Discipline Area/Surface Imaging/Instrument Information/instrument_mode_id	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img_surface:instrument_mode_id <i>INSTRUMENT_STATE_PARAMS. INSTRUMENT_MODE_ID</i>	The instrument_mode_id attribute provides an instrument-dependent designation of operating mode. This may be simply a number, letter or code, or a word such as 'normal', 'full resolution', 'near encounter', or 'fixed grating'. These types may vary by mission so the permissible values should be set by the mission dictionaries. InSight Specific: <i>For InSight the value is always 'FULL_FRAME'.</i>		ASCII_Short_String_Collapsed
img_surface:instrument_serial_number <i>IDENTIFICATION. INSTRUMENT_SERIAL_NUMBER</i>	The instrument serial number element provides the manufacturer's serial number assigned to an instrument. This number may be used to uniquely identify a particular instrument for tracing its components or determining its calibration history, for example.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Instrument Information/instrument serial number	ASCII_Short_String_Collapsed
img:Instrument_State	The Instrument_State class contains classes providing the values of any dynamic physical or operating characteristics of the imaging instruments.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Instrument State 1) <i>img:Device_Component_States</i> 2) <i>img:Device_Currents</i> 3) <i>img:Device_Motor_Counts</i> 4) img:Device_Temperatures 5) <i>img:Device_Voltages</i>	
img_surface:instrument_type <i>IDENTIFICATION. INSTRUMENT_TYPE</i>	The instrument_type attribute specifies the type of an instrument, for example IMAGING CAMERA, SPECTROMETER, IMAGING SPECTROMETER, RADIOMETER, etc. InSight Specific: <i>For InSight cameras, the value is always 'IMAGING CAMERA'</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Instrument Information/instrument type	ASCII_Short_String_Collapsed
img_surface:instrument_version_number <i>IDENTIFICATION. INSTRUMENT_VERSION_ID</i>	The instrument_version_number element identifies the specific model of an instrument used to obtain data. For example, this keyword could be used to distinguish between an engineering model of a camera used to acquire test data, and a flight model of a camera used to acquire science data during a mission. InSight Specific: <i>For InSight the value is 'EMC' for engineering model, 'FMC' for flight model, or 'SIM' for the simulator.</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Instrument Information/instrument version number	ASCII_Short_String_Collapsed

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
Internal_Reference	The Internal_Reference class is used to cross-reference other products in the PDS registry system.	<ol style="list-style-type: none"> 1) /Product_Collection/Context_Area/Investigation_Area/Internal_Reference 2) /Product_Collection/Context_Area/Observing_System/Observing_System_Component[*]/Internal_Reference 3) /Product_Collection/Context_Area/Target_Identification/Internal_Reference 4) /Product_Collection/Reference_List/Internal_Reference[*] 5) /Product_Document/Reference_List/Internal_Reference[*] 6) /Product_Document/Context_Area/Investigation_Area/Internal_Reference 7) /Product_Document/Context_Area/Observing_System/Observing_System_Component/Internal_Reference 8) /Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Geometry_Projection/Internal_Reference 9) /Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Stereo_Product_Parameters/Internal_Reference 10) /Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Input_Product_List/Input_Product[*]/Internal_Reference 11) /Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Derived_Product_Parameters/Placement_Target_Instrument/Internal_Reference 12) /Product_Observational/Observation_Area/Discipline_Area/Imaging/Flat_Field_Correction/Flat_Field_File/Internal_Reference 13) /Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Input_Product_List/Input_Product/Internal_Reference 14) /Product_Observational/Observation_Area/Investigation_Area/Internal_Reference 15) /Product_Observational/Observation_Area/Observing_System/Observing_System_Component[*]/Internal_Reference 16) /Product_Observational/Observation_Area/Target_Identification/Internal_Reference 17) /Product_Observational/Reference_List/Internal_Reference 18) /Product_Browse/Reference_List/Internal_Reference 	
		<ol style="list-style-type: none"> 1) lid_reference 2) lidvid_reference 3) reference_type 4) comment 	

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
invalid_constant <i>IMAGE_DATA. INVALID_CONSTANT</i>	The invalid_constant attribute provides a value that indicates the original value was outside the valid range for the parameter. InSight Specific: <i>The value should be 0.0 for most MIPL-generated products. No distinction is generally made between invalid and missing data.</i>	1)/ Product Observational/File Area Observational/Array 2D Image/Special Constants/invalid_constant 2)/ Product Observational/File Area Observational/Array 3D Image/Special Constants/invalid_constant	ASCII_Short_String_Collapsed
Inventory	The Inventory class defines the inventory for members of a collection.	1)/ Product Collection/File Area Inventory/Inventory 1) Table_Delimited 2) name 3) reference_type 4) offset 5) records 6) local_identifier 7) object_length 8) record_delimiter 9) md5_checksum 10) parsing_standard_id 11) description 12) field_delimiter 13) Digital_Object 14) Uniformly_Sampled 15) Record_Delimited	
Investigation_Area	The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).	1)/ Product Collection/Context Area/Investigation Area 2)/ Product Document/Context Area/Investigation Area 3)/ Product Observational/Observation Area/Investigation Area 1) name 2) type 3) Internal Reference	
img:JPEG_Parameters	The JPEG_Parameters class contains attributes describing onboard compression parameters specific to Joint Photographic Experts Group (JPEG) image compression.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Onboard Compression/JPEG Parameters 1) img:color_subsampling_mode 2) img:jpeg_quality 3) img:jpeg_parameter	
img:jpeg_quality <i>COMPRESSION_PARMS. INST_CMPRS_QUALITY</i>	The jpeg_quality attribute is a JPEG specific variable which identifies the resultant or targeted image quality index for on-board data compression.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Onboard Compression/JPEG Parameters/jpeg_quality	ASCII_NonNegative_Integer
keyword	The keyword attribute provides one or more words to be used for keyword search.	1)/ Product Collection/Identification Area/Citation Information/keyword[*]	UTF8_Short_String_Collapsed
	The map_projection_name attribute provides the name of the map projection.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/lander_map_projection_name	

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
cart:lander_map_projection_name <i>SURFACE_PROJECTION_PARS. MAP_PROJECTION_TYPE</i>		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
language	The language attribute provides the language used for definition and designation of the term.	1)/ Product Document/Document/Document Edition/language	
lid_reference <i>DERIVED_IMAGE_PARS. FLAT_FIELD_FILE_NAME</i>	The lid_reference attribute provides the logical_identifier for a product.	1)/ Product Collection/Context Area/Investigation Area/Internal Reference/lid_reference 2)/ Product Collection/Context Area/Observing System/Observing System Component[*]/Internal Reference/lid_reference 3)/ Product Collection/Context Area/Target Identification/Internal Reference/lid_reference 4)/ Product Collection/Reference List/Internal Reference[*]/lid_reference 5)/ Product Document/Reference List/Internal Reference[*]/lid_reference 6)/ Product Document/Context Area/Investigation Area/Internal Reference/lid_reference 7)/ Product Document/Context Area/Observing System/Observing System Component/Internal Reference/lid_reference 8)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Geometry Projection/Internal Reference/lid_reference 9)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Stereo Product Parameters/Internal Reference/lid_reference 10)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Placement Target Instrument/Internal Reference/lid_reference 11)/ Product Observational/Observation Area/Discipline Area/Imaging/Flat Field Correction/Flat Field File/Internal Reference/lid_reference 12)/ Product Observational/Observation Area/Investigation Area/Internal Reference/lid_reference 13)/ Product Observational/Observation Area/Observing System/Observing System Component[*]/Internal Reference/lid_reference 14)/ Product Observational/Observation Area/Target Identification/Internal Reference/lid_reference 15)/ Product Browse/Reference List/Internal Reference/lid_reference	ASCII_Short_String_Collapsed
			ASCII_LID

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
lidvid_reference <i>DERIVED_IMAGE_PARS. INPUT_PRODUCT_ID</i>	The lidvid_reference attribute provides the logical_identifier plus version_id, which uniquely identifies a product.	1)/ Product File Text/Reference List/Source Product Internal*/lidvid_reference 2)/ Product Observational/Observation Area/Discipline Area/Processing Information/Input Product List/Input Product*/Internal Reference/lidvid_reference 3)/ Product Observational/Reference List/Source Product Internal*/lidvid_reference 4)/ Product Observational/Observation Area/Discipline Area/Processing Information/Input Product List/Input Product/Internal Reference/lidvid_reference 5)/ Product Observational/Reference List/Internal Reference/lidvid_reference 6)/ Product Observational/Reference List/Source Product Internal/lidvid_reference	ASCII_LIDVID
cart:line	The line attribute specifies the line number in the image.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Vertical/Pixel Position Origin/line 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Orthorectified/Pixel Position Origin/line 3)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Perspective/Camera Model Offset/line	ASCII_Real
img:line_fov <i>INSTRUMENT_STATE_PARS. ELEVATION_FOV</i> <i>INSTRUMENT_STATE_PARS. ELEVATION_FOV__UNIT</i>	The line_fov attribute specifies the angular measure of the field of view of an imaged scene, as measured in the image line direction (generally vertical). InSight Specific: <i>Computed by projecting rays from the top and bottom edges of the image at the center through the camera model, and computing the angle subtended by those rays.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Subframe/line_fov	ASCII_Real <i>Units_of_Angle</i>
img_surface:linearization_mode <i>DERIVED_IMAGE_PARS. LINEARIZATION_MODE</i>	The linearization_mode attribute specifies what kind of stereo partner was used to linearize the image (the process requires two camera models). InSight Specific: <i>On InSight, Nominal mode is not available.</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Geometry Projection/linearization_mode 1) Nominal 2) Actual 3) None	ASCII_Short_String_Collapsed
img_surface:linearization_mode_fov <i>DERIVED_IMAGE_PARS. LINEARIZATION_MODE</i>	The linearization_mode_fov attribute specifies how the linearized camera model's field of view (FOV) as constructed (corresponding to the "cahv_fov" parameter in MIPL software). InSight Specific: <i>On InSight, Nominal mode is not available.</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Geometry Projection/linearization_mode_fov 1) Min 2) Max 3) Linear 4) None	ASCII_Short_String_Collapsed
img:lines <i>IMAGE_DATA. LINES</i>	The lines attribute indicates the total number of data instances along the vertical axis of an image or sub-image.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Subframe/lines	ASCII_NonNegative_Integer

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
cart:Local	The Local class provides a description of any coordinate system that is not aligned with the surface of the planet.	1) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local	
		1) cart:local_description 2) cart:local_georeference_information 3) Map_Projection_Lander 4) Surface_Model_Parameters	
cart:local_description	The local_description attribute provides a description of the coordinate system and its orientation to the surface of a planet.	1) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/local_description	
			ASCII_Text_Preserved
local_identifier	The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.	1) /Product_Collection/File_Area_Inventory/File/local_identifier 2) /Product_Collection/File_Area_Inventory/Inventory/local_identifier 3) /Product_Observational/File_Area_Observational/Array_2D_Image/local_identifier 4) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Coordinate_Space_Definition[*]/local_identifier[*] 5) /Product_Observational/File_Area_Observational/Header/local_identifier 6) /Product_Observational/File_Area_Observational/Array_3D_Image/local_identifier 7) /Product_Browse/File_Area_Browse/File/local_identifier 8) /Product_Browse/File_Area_Browse/Encoded_Image/local_identifier	
			ASCII_Local_Identifier

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
local_identifier_reference <i>IDENTIFICATION. PRODUCT_ID</i>	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.	1) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Local Internal Reference/local_identifier_reference 2) /Product Observational/Observation Area/Discipline Area/Cartography/Local Internal Reference/local_identifier_reference 3) /Product Observational/Observation Area/Discipline Area/Display Settings/Local Internal Reference/local_identifier_reference 4) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Local Internal Reference/local_identifier_reference 5) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[2]/Coordinate Space Reference/Local Internal Reference/local_identifier_reference 6) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[1]/Coordinate Space Reference/Local Internal Reference/local_identifier_reference 7) /Product Observational/Observation Area/Discipline Area/Imaging/Local Internal Reference/local_identifier_reference 8) /Product Observational/Observation Area/Discipline Area/Processing Information/Local Internal Reference/local_identifier_reference	
			ASCII_Local_Identifier_Reference
Local_Internal_Reference	The Local Internal_Reference class is used to cross-reference other Description Objects in a PDS4 label.	1) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Local Internal Reference 2) /Product Observational/Observation Area/Discipline Area/Cartography/Local Internal Reference 3) /Product Observational/Observation Area/Discipline Area/Display Settings/Local Internal Reference 4) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Local Internal Reference 5) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[2]/Coordinate Space Reference/Local Internal Reference 6) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[1]/Coordinate Space Reference/Local Internal Reference 7) /Product Observational/Observation Area/Discipline Area/Imaging/Local Internal Reference 8) /Product Observational/Observation Area/Discipline Area/Processing Information/Local Internal Reference	
		1) comment 2) local_identifier_reference 3) local_reference_type	
		1) /Product Observational/Observation Area/Time Coordinates/local mean solar time	

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
local_mean_solar_time <i>IDENTIFICATION. LOCAL_MEAN_SOLAR_TIME</i>	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.		ASCII_Short_String_Collapsed
local_reference_type	The local_reference_type attribute provides the name of an association between an entity identified by a local_identifier_reference and another corresponding entity identified by a local_identifier. The values for the local_reference_type are expected to be enumerated for appropriate contexts in the Schematron files of local (i.e., discipline and mission) data dictionaries. InSight Specific: <i>Values used for InSight include cartography_parameters_to_image_object, imaging_parameters_to_image_object, processing_information_to_data_object, to_reference_coordinate_space, display_settings_to_array.</i>	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Coordinate Space Reference/Local Internal Reference/local_reference_type 2)/Product Observational/Observation Area/Discipline Area/Cartography/Local Internal Reference/local_reference_type 3)/Product Observational/Observation Area/Discipline Area/Display Settings/Local Internal Reference/local_reference_type 4)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Coordinate Space Reference/Local Internal Reference/local_reference_type 5)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[2]/Coordinate Space Reference/Local Internal Reference/local_reference_type 6)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[1]/Coordinate Space Reference/Local Internal Reference/local_reference_type 7)/Product Observational/Observation Area/Discipline Area/Imaging/Local Internal Reference/local_reference_type 8)/Product Observational/Observation Area/Discipline Area/Processing Information/Local Internal Reference/local_reference_type 	ASCII_Short_String_Collapsed
local_true_solar_time <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. InSight Specific: <i>The valid value is expressed in terms of a 24-hour clock, so the acceptable range is 00:00:00.000 to 23:59:59.999. See also LOCAL_TRUE_SOLAR_TIME_SOL for the sol number.</i>	1)/ Product Observational/Observation Area/Time Coordinates/local true solar time	ASCII_Short_String_Collapsed
logical_identifier <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.	<ul style="list-style-type: none"> 1)/Product Collection/Identification Area/logical_identifier 2)/Product XML Schema/Identification Area/logical_identifier 3)/Product File Text/Identification Area/logical_identifier 4)/Product Document/Identification Area/logical_identifier 5)/Product Observational/Identification Area/logical_identifier 6)/Product Browse/Identification Area/logical_identifier 	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
			ASCII_Short_String_Collapsed
cart:Map_Projection_Lander	The Map_Projection class provides the systematic representation of all or part of the surface of a planet on a plane or developable surface from the perspective of an in-situ spacecraft.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander 1) cart:lander_map_projection_name 2) cart:Cylindrical 3) cart:Cylindrical_Perspective 4) cart:Orthographic_Lander 5) cart:Orthorectified 6) cart:Perspective 7) cart:Polar 8) cart:Vertical 9) geom:Coordinate Space Reference	
img:max_auto_exposure_iteration_count <i>OBSERVATION_REQUEST_PARMs. MAX_AUTO_EXPOS_ITERATION_COUNT</i>	The max_auto_exposure_iteration_count attribute specifies the maximum number of exposure iterations the instrument will perform in order to obtain the requested exposure.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Exposure/Autoexposure/max auto exposure iteration count	ASCII_Integer
cart:maximum_elevation <i>SURFACE_PROJECTION_PARMs. MAXIMUM_ELEVATION SURFACE_PROJECTION_PARMs. MAXIMUM_ELEVATION_UNIT</i>	The maximum_elevation attribute specifies the elevation (as defined by the coordinate system) of the first line of the image. For the Polar projection, specifies the highest elevation used, i.e. the elevation of the outermost circle of pixels. Applies to lander map projections Cylindrical, Polar, Sinusoidal, Perspective and Cylindrical-Perspective.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/maximum elevation	ASCII_Real <i>Units_of_Angle</i>
maximum_field_length	The maximum_field_length attribute sets an upper, inclusive bound on the number of bytes in the field.	1)/ Product Collection/File Area Inventory/Inventory/Record Delimited/Field Delimited[*]/maximum field length	ASCII_NonNegative_Integer <i>Units_of_Storage</i>
maximum_record_length	The maximum_record_length attribute provides the maximum length of a record, including the record delimiter.	1)/ Product Collection/File Area Inventory/Inventory/Record Delimited/maximum record length	ASCII_NonNegative_Integer <i>Units_of_Storage</i>
md5_checksum	The md5_checksum attribute is the 32-character hexadecimal number computed using the MD5 algorithm for the contiguous bytes of single digital object (as stored) or for an entire file.	1)/ Product Collection/File Area Inventory/File/md5_checksum	ASCII_MD5_Checksum
		1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Image Identifiers/mesh id	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img_surface:mesh_id <i>IDENTIFICATION. MESH_ID</i>	The mesh_id attribute specifies which terrain mesh this image should be automatically included in. This does not constrain which mesh(es) the image may be included in outside a pipeline environment. InSight Specific: <i>Value is extracted from the image_id attributes value. Meshes combine images with matching mesh_id, sequence_id, and Epoch values. A mesh_id of 0 means do not include in a mesh. Values 1-9 mean to match within the same Sol only. Values 10-63 match globally across the entire mission. For non-raw products, any two characters, including non-numeric characters, may be used.</i>		ASCII_Short_String_Collapsed
cart:minimum_elevation <i>SURFACE_PROJECTION_PARMS. MINIMUM_ELEVATION SURFACE_PROJECTION_PARMS. MINIMUM_ELEVATION__UNIT</i>	The minimum_elevation attribute specifies the elevation (as defined by the coordinate system) of the last line of the image for Cylindrical map projections. Applies to Cylindrical, Perspective and Cylindrical-Perspective lander map projections.	1)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/minimum_elevation	ASCII_Real <i>Units_of_Angle</i>
missing_constant <i>IMAGE_DATA. MISSING_CONSTANT</i>	The missing_constant attribute provides a value that indicates the original value was missing, such as due to a gap in coverage. InSight Specific: <i>The value should be 0,0 for most MIPL-generated products. No distinction is generally made between invalid and missing data.</i>	1)/Product Observational/File Area Observational/Array 2D Image/Special Constants/missing_constant 2)/Product Observational/File Area Observational/Array 3D Image/Special Constants/missing_constant	ASCII_Short_String_Collapsed
Mission_Area	The mission area allows the insertion of mission specific metadata.	1)/Product Observational/Observation Area/Mission Area	
msn:Mission_Information	The Mission Information class provides a set of optional attributes that have their value sets defined by the mission.	1)/Product Observational/Observation Area/Discipline Area/Mission Information 1) msn:mission_phase_name 2) msn:mission_phase_identifier 3) msn:start_orbit_number 4) msn:stop_orbit_number 5) msn:spacecraft_clock_start_count 6) msn:spacecraft_clock_stop_count 7) product_type_name 8) spacecraft_clock_partition 9) Surface Mission	
msn:mission_phase_name <i>IDENTIFICATION. MISSION_PHASE_NAME</i>	The mission_phase_name attribute provides the commonly recognized name for a mission phase. InSight Specific: <i>For InSight the valid values are DEVELOPMENT, ATLO, CRUISE, SURFACE MISSION, and TEST.</i>	1)/Product Observational/Observation Area/Discipline Area/Mission Information/mission_phase_name	ASCII_Short_String_Collapsed
	The model_type attribute specifies an identifier for the type or kind of model. The value should be one of	1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/model_type	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom: model_type <i>GEOMETRIC_CAMERA_MODEL. MODEL_TYPE</i>	a well defined set, providing an application program with sufficient information to know how to handle the rest of the parameters within the model. This value will correlate directly with the specific camera model class that is a subclass of the Camera_Model_Parameters class. InSight Specific: <i>For InSight the camera model types are CAHV, CAHVOR, and CAHVORE.</i>		ASCII_Short_String_Collapsed
modification_date	The modification_date attribute provides date the modifications were completed	1)/ Product_Collection/Identification_Area/Modification_History/Modification_Detail/modification_date 2)/ Product_XML_Schema/Identification_Area/Modification_History/Modification_Detail/modification_date 3)/ Product_Document/Identification_Area/Modification_History/Modification_Detail/modification_date	ASCII_Date_YMD
Modification_Detail	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)/ Product_Collection/Identification_Area/Modification_History/Modification_Detail 2)/ Product_XML_Schema/Identification_Area/Modification_History/Modification_Detail 3)/ Product_Document/Identification_Area/Modification_History/Modification_Detail	
Modification_History	The Modification_History class tracks the history of changes made to the product once it enters the registry system.	1)/ Product_Collection/Identification_Area/Modification_History 2)/ Product_XML_Schema/Identification_Area/Modification_History 3)/ Product_Document/Identification_Area/Modification_History	
img_surface: mosaic_id <i>IDENTIFICATION. MOSAIC_ID</i>	The mosaic_id attribute specifies which mosaic this image should be automatically included in. This does not constrain which mosaic(s) the image may be included in outside a pipeline environment. InSight Specific: <i>For InSight, value is extracted from the image_id value. Mosaics combine images with matching mosaic_id, sequence_id, and Epoch values. A mosaic_id of 0 means do not include in a mesh. Values 1-9 mean to match within the same Sol only. Values 10-63 match globally across the entire mission. For non-raw products, any two characters, including non-numeric characters, may be used.</i>	1)/ Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Image_Identifiers/mosaic_id	ASCII_Short_String_Collapsed
geom: Motion_Counter		1)/ Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Motion_Counter	

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	<p>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.</p>	<ol style="list-style-type: none"> 1) name 2) local_identifier 3) geom:Motion_Counter_Index 	
geom:Motion_Counter_Index	<p>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.</p> <p>InSight Specific: <i>InSight supports only two motion counter indices: SITE and DRIVE. Although the lander is not supposed to move, these are included for legacy software reasons.</i></p>	<ol style="list-style-type: none"> 1) /Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Motion_Counter/Motion_Counter_Index[*] 2) geom:index_value_number 3) geom:index_id 4) geom:index_name 5) geom:index_sequence_number 6) geom:List_Index_No_Units 	

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
name	The name attribute provides a word or combination of words by which the object is known.	1) /Product_Collection/Context_Area/Investigation_Area/name 2) /Product_Collection/Context_Area/Observing_System/Observing_System_Component[*]/name 3) /Product_Collection/Context_Area/Target_Identification/name 4) /Product_Collection/File_Area_Inventory/Inventory/Record_Delimited/Field_Delimited[*]/name 5) /Product_Observational/Observation_Area/Observing_System/name 6) /Product_Observational/File_Area_Observational/Table_Delimited[*]/name 7) /Product_Observational/File_Area_Observational/Table_Delimited[*]/Record_Delimited/Field_Delimited[*]/name 8) /Product_XML_Schema/File_Area_XML_Schema[*]/XML_Schema/name 9) /Product_Document/Context_Area/Investigation_Area/name 10) /Product_Document/Context_Area/Observing_System/name 11) /Product_Document/Context_Area/Observing_System/Observing_System_Component/name 12) /Product_Observational/Observation_Area/Investigation_Area/name 13) /Product_Observational/Observation_Area/Observing_System/Observing_System_Component[*]/name 14) /Product_Observational/Observation_Area/Target_Identification/name	UTF8_Short_String_Collapsed
object_length <i>SYSTEM. LBLSIZE</i>	The object_length attribute provides the length of the digital object in bytes.	1) /Product_Observational/File_Area_Observational/Header/object_length	ASCII_NonNegative_Integer <i>Units_of_Storage</i>
Observation_Area	The observation area consists of attributes that provide information about the circumstances under which the data were collected.	1) /Product_Observational/Observation_Area 2) Context_Area 3) comment 4) Time_Coordinates 5) Investigation_Area 6) Primary_Result_Summary 7) Observing_System 8) Target_Identification 9) Mission_Area 10) Discipline_Area	

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
Observing_System	The Observing System class describes the entire suite used to collect the data.	1) /Product_Collection/Context_Area/Observing_System	
		2) /Product_Document/Context_Area/Observing_System	
		3) /Product_Observational/Observation_Area/Observing_System	
		1) name 2) description 3) Observing_System_Component 4) Conceptual_Object 5) Physical_Object	
Observing_System_Component	The Observing System Component class describes one or more subsystems used to collect data.	1) /Product_Collection/Context_Area/Observing_System/Observing_System_Component[*]	
		2) /Product_Document/Context_Area/Observing_System/Observing_System_Component	
		3) /Product_Observational/Observation_Area/Observing_System/Observing_System_Component[*]	
		1) name 2) type 3) description 4) Internal_Reference 5) External_Reference	
offset SYSTEM. LBLSIZE	The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.	1) /Product_Collection/File_Area_Inventory/Inventory/offset	
		2) /Product_Observational/File_Area_Observational/Table_Delimited[*]/offset	
		3) /Product_Observational/File_Area_Observational_Supplemental[1]/Stream_Text/offset	
		4) /Product_Observational/File_Area_Observational_Supplemental[*]/Encoded_Image/offset	
		5) /Product_XML_Schema/File_Area_XML_Schema[*]/XML_Schema/offset	
		6) /Product_File_Text/File_Area_Text/Stream_Text/offset	
		7) /Product_Observational/File_Area_Observational/Array_2D_Image/offset	
		8) /Product_Observational/File_Area_Observational/Header/offset	
		9) /Product_Observational/File_Area_Observational/Array_3D_Image/offset	
		10) /Product_Observational/File_Area_Observational_Supplemental/Encoded_Image/offset	
		11) /Product_Browse/File_Area_Browse/Encoded_Image/offset	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
			ASCII_NonNegative_Integer <i>Units_of_Storage</i>
img:onboard_B_b <i>INSTRUMENT_STATE_PARMs.</i> ONBOARD_COLOR_MATRIX	Specifies the factor that has been multiplied by the B pixel value after de-Bayering (demosacking) takes place. This value is summed with the multiplied R and G pixel values to produce the output Blue value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard B_b	ASCII_Real
img:onboard_B_g <i>INSTRUMENT_STATE_PARMs.</i> ONBOARD_COLOR_MATRIX	Specifies the factor that has been multiplied by the G pixel value after de-Bayering (demosacking) takes place. This value is summed with the multiplied R and B pixel values to produce the output Blue value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard B_g	ASCII_Real
img:onboard_B_r <i>INSTRUMENT_STATE_PARMs.</i> ONBOARD_COLOR_MATRIX	Specifies the factor that has been multiplied by the R pixel value after de-Bayering (demosacking) takes place. This value is summed with the multiplied G and B pixel values to produce the output Blue value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard B_r	ASCII_Real
img:Onboard_Color_Matrix <i>INSTRUMENT_STATE_PARMs.</i> ONBOARD_COLOR_MATRIX	The Onboard_Color_Matrix class represents a 3x3 matrix that is used onboard to perform color correction. It is done after de-Bayering, as all three color bands are needed for each pixel. The first three elements are multiplied by the R,G,B (respectively) pixel values and summed to get the output Red pixel value. Similarly, the second three create the output Green, and the last three the output Blue. If the label is not present, no correction was performed. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix	1) img:onboard_R_r 2) img:onboard_R_g 3) img:onboard_R_b 4) img:onboard_G_r 5) img:onboard_G_g 6) img:onboard_G_b 7) img:onboard_B_r 8) img:onboard_B_g 9) img:onboard_B_b
img:Onboard_Compression		1)/ Product Observational/Observation Area/Discipline Area/Imaging/Onboard Compression	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The Onboard_Compression class contains attributes describing the compression performed onboard a spacecraft or instrument for data storage and transmission.	<ul style="list-style-type: none"> 1) img:onboard_compression_class 2) img:onboard_compression_mode 3) img:onboard_compression_type 4) img:onboard_compression_rate 5) img:onboard_compression_ratio 6) img:onboard_compression_quality 7) img:deferred_flag 8) img:error_pixel_count 9) img:ICER_Parameters 10) img:JPEG_Parameters 11) img:JPEG_Progressive_Parameters 12) img:LOCO_Parameters 	
img:onboard_compression_class	The onboard_compression_class attribute identifies the type of on-board compression used for data storage and transmission. Note that the onboard_compression_type identifies the specific compression algorithm used (for example, ICER), whereas the onboard_compression_class gives a simple indicator of the type of compression mode. Valid values: 'Lossless', 'Lossy', 'Uncompressed'	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Imaging/Onboard Compression/onboard_compression_class 	ASCII_Short_String_Collapsed
img:onboard_compression_rate <i>COMPRESSION_PARMS. INST_CMPRS_RATE</i>	The onboard_compression_rate attribute provides the average number of bits needed to represent a pixel for image that was compressed on-board for data storage and transmission. InSight Specific: <i>Represents actual results (not commanded value)</i>	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Imaging/Onboard Compression/onboard_compression_rate 	ASCII_Real
img:onboard_compression_ratio <i>COMPRESSION_PARMS. INST_CMPRS_RATIO</i>	The onboard_compression_ratio attribute provides the ratio of the size, in bytes, of the original uncompressed data object to its compressed form (original size / compressed size). Onboard compression is performed for data storage and transmission. InSight Specific: <i>Represents actual results (not commanded value)</i>	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Imaging/Onboard Compression/onboard_compression_ratio 	ASCII_Real
img:onboard_compression_type <i>COMPRESSION_PARMS. INST_CMPRS_NAME</i>	The onboard_compression_type attribute identifies the type of on-board compression used for data storage and transmission. Valid Values: 'ICER', 'LOCO', 'JPEG', 'JPEG Progressive', 'MSSS Lossless', 'None'. InSight Specific: <i>Almost all images will be JPEG. The only other option is None, which is unlikely to be used outside of instrument calibration and checkout.</i>	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Imaging/Onboard Compression/onboard_compression_type 	ASCII_Short_String_Collapsed
img:onboard_G_b <i>INSTRUMENT_STATE_PARMS. ONBOARD_COLOR_MATRIX</i>	Specifies the factor that has been multiplied by the B pixel value after de-Bayering (demaosaicking) takes place. This value is summed with the multiplied R and G pixel values to produce the output Green value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard_G_b 	ASCII_Real

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img:onboard_G_g <i>INSTRUMENT_STATE_PARMS. ONBOARD_COLOR_MATRIX</i>	Specifies the factor that has been multiplied by the G pixel value after de-Bayering (demosaicking) takes place. This value is summed with the multiplied R and B pixel values to produce the output Green value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard_G_g	ASCII_Real
img:onboard_G_r <i>INSTRUMENT_STATE_PARMS. ONBOARD_COLOR_MATRIX</i>	Specifies the factor that has been multiplied by the R pixel value after de-Bayering (demosaicking) takes place. This value is summed with the multiplied G and B pixel values to produce the output Green value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard_G_r	ASCII_Real
img:onboard_R_b <i>INSTRUMENT_STATE_PARMS. ONBOARD_COLOR_MATRIX</i>	Specifies the factor that has been multiplied by the B pixel value after de-Bayering (demosaicking) takes place. This value is summed with the multiplied R and G pixel values to produce the output Red value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard_R_b	ASCII_Real
img:onboard_R_g <i>INSTRUMENT_STATE_PARMS. ONBOARD_COLOR_MATRIX</i>	Specifies the factor that has been multiplied by the G pixel value after de-Bayering (demosaicking) takes place. This value is summed with the multiplied R and B pixel values to produce the output Red value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard_R_g	ASCII_Real
img:onboard_R_r <i>INSTRUMENT_STATE_PARMS. ONBOARD_COLOR_MATRIX</i>	Specifies the factor that has been multiplied by the R pixel value after de-Bayering (demosaicking) takes place. This value is summed with the multiplied G and B pixel values to produce the output Red value. InSight Specific: <i>It was decided before landing not to use this capability for InSight, because the effects of applying the matrix are not reversible on the ground. Thus this should be the identity matrix (1,0,0,0,1,0,0,0,1).</i>	1)/Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Color Matrix/onboard_R_r	ASCII_Real
img:Onboard_Responsivity		1)/Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Responsivity	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The Onboard_Responsivity class specifies factors that have been applied to the R, G, and B cells (respectively) of the Bayer pattern, before de-Bayering (demosaicking) takes place. The intent of these is to approximately balance the filters so the de-Bayering process is not skewed, and EDR/ILT products look reasonable before full radiometric or color correction is done on the ground. If these factors are not present, no correction was performed.	<ol style="list-style-type: none"> 1) img:responsivity_factor_r 2) img:responsivity_factor_g 3) img:responsivity_factor_b 	
img_surface:ops_instrument_key <i>IDENTIFICATION. INSTRUMENT_ID</i>	The ops_instrument_key attribute specifies the identifier or key for the instrument that was used during operations to look up instrument parameters or calibration.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Instrument Information/ops_instrument_key	ASCII_Short_String_Preserved
cart:Orthorectified	This is an in-situ projection that provides a true overhead view of the scene. Range data is required to create this projection, meaning there is no parallax distortion. It has a constant scale in meters/pixel.	<ol style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection_Lander/Orthorectified 1) cart:pixel_resolution_x 2) cart:pixel_resolution_y 3) cart:x_axis_maximum 4) cart:x_axis_minimum 5) cart:y_axis_maximum 6) cart:y_axis_minimum 7) cart:Pixel_Position_Origin 8) cart:Vector_Projection_Origin 9) cart:Vector_Projection_X_Axis 10) cart:Vector_Projection_Y_Axis 11) cart:Vector_Projection_Z_Axis 	
proc:Parameter	<p>The Parameter class describes any information about software program execution. Examples of information that can be captured here are software input arguments, software output arguments, log information, and references to specific data products. This class is intended to be freeform to allow data providers the ability to specify information they determine applicable and useful for their data processing software and data products.</p> <p>InSight Specific: <i>This is used primarily to indicate the actual parameters that were passed to the VICAR programs that created the image. Although it's likely any directory names specified do not exist in PDS, the filenames are more likely to be available. Primarily, the history label is preserved to document the processing parameters used.</i></p>	<ol style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program/Software Program Parameters/Parameter[*] 1) name 2) proc:parameter_type 3) value 4) External_Reference 5) Internal_Reference 6) Local_Internal_Reference 	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
parsing_standard_id	The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.	1)/ Product Collection/File Area Inventory/Inventory/parsing_standard_id 2)/ Product Observational/File Area Observational/Table Delimited[*]/parsing_standard_id 3)/ Product Observational/File Area Observational Supplemental[1]/Stream Text/parsing_standard_id 4)/ Product XML Schema/File Area XML Schema[*]/XML Schema/parsing_standard_id 5)/ Product File Text/File Area Text/Stream Text/parsing_standard_id 6)/ Product Observational/File Area Observational/Header/parsing_standard_id	ASCII_Short_String_Collapsed
cart:Perspective	This is an in-situ projection that models a pinhole camera.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Perspective 1) cart:pixel_scale_x 2) cart:pixel_scale_y 3) cart:maximum_elevation 4) cart:minimum_elevation 5) cart:start_azimuth 6) cart:stop_azimuth 7) cart:projection_azimuth 8) cart:projection_elevation 9) cart:Camera_Model_Offset	
img:Pixel_Averaging_Dimensions	The Pixel_Averaging_Dimensions class provides the height and width, in pixels, of the area over which pixels were averaged prior to image compression.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Downsampling/Pixel_Averaging_Dimensions 1) img:height_pixels 2) img:width_pixels	
cart:Pixel_Position_Origin	The Pixel_Position_Origin class specifies the sample coordinate of the location in the image of the "special" point of the mosaic. For Vertical, Orthographic and Orthorectified projections, this is the origin of the projected coordinate system, corresponding to the Vector_Projection_Origin. In PDS3, this information was specified using the LINE_PROJECTION_OFFSET and SAMPLE_PROJECTION_OFFSET keywords.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Vertical/Pixel_Position_Origin 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Orthorectified/Pixel_Position_Origin 1) cart:line 2) cart:sample	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
cart:pixel_resolution_x <i>SURFACE_PROJECTION_PARMS. MAP_SCALE</i> <i>SURFACE_PROJECTION_PARMS. MAP_SCALE__UNIT</i>	The pixel_resolution_x and pixel_resolution_y attributes indicate the image array pixel resolution (distance/pixel or degree/pixel) relative to the Cartesian (x,y) coordinate system as defined by the map projection. Due to varying properties across different map projections, actual surface distances for an individual pixel may be accurate only at specific location(s) within the image array (e.g. reference latitude or longitude, standard parallels, etc). For most PDS products, x and y resolution values are equal ('square' pixels). The inclusion of both x and y attributes allows for anticipated products where resolution may differ for each axis ('rectangular' pixels). NOTE: Definition of this PDS4 attribute differs from how 'resolution' was defined within PDS3. InSight Specific: <i>Meters/pixel, corresponds to MAP_SCALE in VICAR/PDS 3</i>	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Vertical/pixel_resolution_x 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Orthorectified/pixel_resolution_x	ASCII_Real <i>Units_of_Map_Scale</i>
cart:pixel_resolution_y <i>SURFACE_PROJECTION_PARMS. MAP_SCALE</i> <i>SURFACE_PROJECTION_PARMS. MAP_SCALE__UNIT</i>	The pixel_resolution_x and pixel_resolution_y attributes indicate the image array pixel resolution (distance/pixel or degree/pixel) relative to the Cartesian (x,y) coordinate system as defined by the map projection. Due to varying properties across different map projections, actual surface distances for an individual pixel may be accurate only at specific location(s) within the image array (e.g. reference latitude or longitude, standard parallels, etc). For most PDS products, x and y resolution values are equal ('square' pixels). The inclusion of both x and y attributes allows for anticipated products where resolution may differ for each axis ('rectangular' pixels). NOTE: Definition of this PDS4 attribute differs from how 'resolution' was defined within PDS3. InSight Specific: <i>Meters/pixel, corresponds to MAP_SCALE in VICAR/PDS 3</i>	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Vertical/pixel_resolution_y 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Orthorectified/pixel_resolution_y	ASCII_Real <i>Units_of_Map_Scale</i>
cart:pixel_scale_x	The pixel_scale_x and pixel_scale_y attributes indicate the image array pixel scale (pixel/degree or pixel/distance) relative to the Cartesian (x,y) coordinate system as defined by the map projection. Due to varying properties across different map projections, actual surface distances for an individual pixel may be accurate only at specific location(s) within the image array (e.g. reference latitude or longitude, standard parallels, etc). For most PDS	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/pixel_scale_x 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Perspective/pixel_scale_x 3)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical Perspective/pixel_scale_x	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	products, x and y scale values are equal ('square' pixels). The inclusion of both x and y attributes allows for anticipated products where scale may differ for each axis ('rectangular' pixels). NOTE1: For presentation of hard-copy maps, a map scale is traditionally expressed as a 'representative fraction' (the ratio of a hard-copy map to the actual subject surface (e.g. 1:250,000, where one unit of measure on the map equals 250,000 of the same unit on the body surface)). This usage is relevant when map/data are presented on hard-copy media (paper, computer screen,etc). When defining pixel scale within a stored image/array context here, we are expressing a ratio between the image array and the actual surface (thus, pixel/degree or pixel/distance units). NOTE2: Definition of this PDS4 attribute differs from how 'scale' was defined within PDS3		ASCII_Real <i>Units_of_Map_Scale</i>
cart:pixel_scale_y	The pixel_scale_x and pixel_scale_y attributes indicate the image array pixel scale (pixel/degree or pixel/distance) relative to the Cartesian (x,y) coordinate system as defined by the map projection. Due to varying properties across different map projections, actual surface distances for an individual pixel may be accurate only at specific location(s) within the image array (e.g. reference latitude or longitude, standard parallels, etc). For most PDS products, x and y scale values are equal ('square' pixels). The inclusion of both x and y attributes allows for anticipated products where scale may differ for each axis ('rectangular' pixels). NOTE1: For presentation of hard-copy maps, a map scale is traditionally expressed as a 'representative fraction' (the ratio of a hard-copy map to the actual subject surface (e.g. 1:250,000, where one unit of measure on the map equals 250,000 of the same unit on the body surface)). This usage is relevant when map/data are presented on hard-copy media (paper, computer screen,etc). When defining pixel scale within a stored image/array context here, we are expressing a ratio between the image array and the actual surface (thus, pixel/degree or pixel/distance units). NOTE2: Definition of this PDS4 attribute differs from how 'scale' was defined within PDS3	<p>1)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/pixel_scale_y</p> <p>2)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Perspective/pixel_scale_y</p> <p>3)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical Perspective/pixel_scale_y</p>	ASCII_Real <i>Units_of_Map_Scale</i>
img_surface:Placement_Target_Instrument <i>DERIVED_IMAGE_PARMS. TARGET_INSTRUMENT</i>	Indicates the instrument that is referred to by the product. This is not the same as the instrument that acquired the product. For example, on InSight instrument placement products, it defines which instrument is being placed.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Placement Target Instrument 1) name 2) Internal Reference	
img:Pointing_Correction	The Pointing_Correction class contains attributes used to identify and describe the camera model transformations completed in order to update pointing information of an image or mosaic.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Pointing Correction 1) img:Pointing_Correction_File 2) img:Pointing_Correction_Image	
img:Pointing_Correction_Image		1)/ Product Observational/Observation Area/Discipline Area/Imaging/Pointing Correction/Pointing Correction Image	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The Pointing_Correction_Image class contains attributes used to identify and describe the camera model transformations completed in order to update pointing information of a single image, whether alone or part of a mosaic.	1) img:pointing_model_name 2) img:pointing_model_solution_id 3) img:Pointing_Model_Parameter	
img:pointing_model_name <i>DERIVED_IMAGE_PARAMS. POINTING_MODEL_NAME</i>	The pointing_model_name attribute specifies which of several "pointing models" were used to transform the camera model based on updated pointing information. These updates are typically derived from mosaic seam corrections. This attribute and the associated Pointing_Model_Index classes define what the updated pointing information is, providing enough information to re-create the camera model from calibration data. If present, this attribute overrides the default pointing based on telemetry. The special value "NONE" shall be interpreted the same as if the attribute is absent (i.e. the default pointing model should be used). New model names can be created at any time; the models themselves should be described in a mission-specific ancillary file. See also the geom:solution_id attribute within the geom:Camera_Model_Parameters class.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Pointing Correction/Pointing Correction Image/pointing model name	ASCII_Short_String_Collapsed
img:Pointing_Model_Parameter <i>DERIVED_IMAGE_PARAMS. POINTING_MODEL_PARAMS</i>	The Pointing_Model_Parameter class specifies the name and value (numeric) parameters needed by the pointing model identified by the pointing_model_name attribute in the Pointing_Correction parent class. The meaning of any given parameter is defined by the pointing model.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Pointing Correction/Pointing Correction Image/Pointing Model Parameter[*] 1) name 2) value	
geom:positive_azimuth_direction <i>LANDER_COORDINATE_SYSTEM. POSITIVE_AZIMUTH_DIRECTION</i>	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. InSight Specific: <i>For 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 1) Clockwise 2) Counterclockwise 3) CW 4) CCW	ASCII_Short_String_Collapsed
	The positive_elevation_direction attribute provides the direction in which elevation is measured in	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/positive elevation direction	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom: positive_elevation_direction <i>LANDER_COORDINATE_SYSTEM. POSITIVE_ELEVATION_DIRECTION</i>	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. InSight Specific: <i>For operational coordinate frames, which follow the Mars Pathfinder convention, the positive elevation direction is UP.</i>	1) Up 2) Zenith 3) Down 4) Nadir	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 Collection/Context Area/Primary Result Summary	
		2)/ Product Observational/Observation 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 <i>IDENTIFICATION. PRODUCER_INSTITUTION_NAME</i>	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	
			ASCII_Short_String_Collapsed
img: processing_algorithm <i>INSTRUMENT_STATE_PARS. DOWNSAMPLE_METHOD</i>	The processing_algorithm attribute specifies the name of the algorithm used to perform the processing specified by the enclosing class. Algorithm names should be defined in the project documentation, and/or in the enclosing class definition.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Brightness Correction/processing_algorithm	
		2)/ Product Observational/Observation Area/Discipline Area/Imaging/Radiometric Correction/processing_algorithm	
		3)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Filter Array/processing_algorithm	
		4)/ Product Observational/Observation Area/Discipline Area/Imaging/Sampling/Companding/processing_algorithm	
		5)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Exposure/Autoexposure/processing_algorithm	
			ASCII_Short_String_Collapsed
proc: Processing_Information		1)/ Product Observational/Observation Area/Discipline Area/Processing Information	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	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.	<ol style="list-style-type: none"> 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. InSight Specific: <i>A processing level of 'Raw' indicates an EDR; the others indicate an RDR.</i>	<ol style="list-style-type: none"> 1)/Product Collection/Context Area/Primary Result Summary/processing_level 2)/Product Observational/Observation Area/Primary Result Summary/processing_level <ol style="list-style-type: none"> 1) Calibrated 2) Derived 3) Partially Processed 4) Raw 5) Telemetry 	ASCII_Short_String_Collapsed
img:processing_venue <i>INSTRUMENT_STATE_PARMs.</i> <i>PIXEL_DOWNSAMPLE_OPTION</i>	The processing_venue attribute specifies where the processing described by the parent class was performed.	<ol style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Imaging/Radiometric Correction/processing_venue 2)/Product Observational/Observation Area/Discipline Area/Imaging/Color Filter Array/processing_venue 3)/Product Observational/Observation Area/Discipline Area/Imaging/Sampling/Companding/processing_venue 4)/Product Observational/Observation Area/Discipline Area/Imaging/Shutter Subtraction/processing_venue 5)/Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Shutter Subtraction/processing_venue <ol style="list-style-type: none"> 1) Onboard Hardware 2) Onboard Software 3) Onboard Both 4) Onboard 5) Ground 6) Ground Refined 7) None 	ASCII_Short_String_Collapsed
Product_Browse	The Product Browse class defines a product consisting of one encoded byte stream digital object. InSight Specific: <i>On InSight, browse images are made for all products whose derived_image_type_name is 'IMAGE' (except for product type CNF, which are floating-point images not suitable for browse image creation).</i>	<ol style="list-style-type: none"> 1)/Product Browse <ol style="list-style-type: none"> 1) Product 2) Context Area 3) Identification Area 4) Reference List 5) File Area Browse 	

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
product_class	The product_class attribute provides the name of the product class.	<ul style="list-style-type: none"> 1) /Product_Collection/Identification_Area/product_class 2) /Product_XML_Schema/Identification_Area/product_class 3) /Product_File_Text/Identification_Area/product_class 4) /Product_Document/Identification_Area/product_class 5) /Product_Observational/Identification_Area/product_class 6) /Product_Browse/Identification_Area/product_class 	
		<ul style="list-style-type: none"> 1) Product_AIP 2) Product_Ancillary 3) Product_Attribute_Definition 4) Product_Browse 5) Product_Bundle 6) Product_Class_Definition 7) Product_Collection 8) Product_Context 9) Product_DIP 10) Product_DIP_Deep_Archive 11) Product_Data_Set_PDS3 12) Product_Document 13) Product_File_Repository 14) Product_File_Text 15) Product_Instrument_Host_PDS3 16) Product_Instrument_PDS3 17) Product_Metadata_Supplemental 18) Product_Mission_PDS3 19) Product_Native 20) Product_Observational 21) Product_Proxy_PDS3 22) Product_SIP 23) Product_SIP_Deep_Archive 24) Product_SPICE_Kernel 25) Product_Service 26) Product_Software 27) Product_Subscription_PDS3 28) Product_Target_PDS3 29) Product_Thumbnail 30) Product_Update 31) Product_Volume_PDS3 32) Product_Volume_Set_PDS3 33) Product_XML_Schema 34) Product_Zipped 	ASCII_Short_String_Collapsed
Product_Collection	A Product_Collection has a table of references to one or more basic products. The references are stored in a table called the inventory.	1) /Product_Collection	
		<ul style="list-style-type: none"> 1) <i>Product</i> 2) Context_Area 3) Identification_Area 4) Reference_List 5) Collection 6) File_Area_Inventory 	

Dictionary:PDS4 Keyword VICAR Property.VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
msn_surface:product_completion_status <i>TELEMETRY. PRODUCT_COMPLETION_STATUS</i>	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.	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/product_completion_status	
		1) PARTIAL 2) COMPLETE	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)/ Product Document	
		1) <i>Product</i> 2) Context Area 3) Identification Area 4) Reference List 5) Document	
Product_File_Text	The Product File Text consists of a single text file with ASCII character encoding.	1)/ Product File Text	
		1) <i>Product</i> 2) Identification Area 3) Reference List 4) File Area Text	
Product_Observational	A Product_Observational is a set of one or more information objects produced by an observing system.	1)/ Product Observational	
		1) <i>Product</i> 2) Identification Area 3) Observation Area 4) Reference List 5) File Area Observational 6) File Area Observational Supplemental	
msn:product_type_name	The product_type_name identifies a group of data products within a collection that have some property in common, such as processing level, resolution, or instrument-specific setting. InSight Specific: <i>This corresponds to the EDR/RDR Product Types defined in Table 4-4 in the SIS and used as identifiers throughout.</i>	1)/ Product Observational/Observation Area/Discipline Area/Mission Information/product_type_name	
			ASCII_Short_String_Collapsed
Product_XML_Schema	The Product_XML_Schema describes a resource used for the PDS4 implementation into XML.	1)/ Product XML Schema	
		1) <i>Product</i> 2) Context Area 3) Identification Area 4) Reference List 5) File Area XML Schema	
proc:program_start_date_time *. DAT_TIM	The program_start_date_time specifies the datetime for the start of the software program execution.	1)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program[*]/program_start_date_time	
		2)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program/program_start_date_time	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
			ASCII_Date_Time_YMD_UTC
proc:program_type_name	The program_type_name attribute specifies the type of software program used for this software processing. Some examples include: VICAR, ISIS, GDAL.	1)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program[*]/program_type_name 2)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program/program_type_name	ASCII_Short_String_Collapsed
proc:program_user *. USER	The program_user attribute specifies the username of the person responsible for running the software program.	1)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program[*]/program_user 2)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program/program_user	ASCII_Short_String_Collapsed
cart:projection_azimuth <i>SURFACE_PROJECTION_PARAMS. PROJECTION_AZIMUTH</i>	The projection_azimuth attribute specifies the azimuth of the horizontal center of projection for the Perspective lander map projection (loosely, where the camera model is pointing).	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Perspective/projection_azimuth	ASCII_Real <i>Units_of_Angle</i>
cart:projection_elevation <i>SURFACE_PROJECTION_PARAMS. PROJECTION_ELEVATION</i>	The projection_elevation attribute specifies the elevation of the vertical center of projection (loosely, where the camera is pointing). For Perspective lander map projection, this applies to the single output camera model; for Cylindrical-Perspective it applies to each column output camera model, before the rotation specified by Vector_Projection_Z_Axis.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Perspective/projection_elevation 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical Perspective/projection_elevation	ASCII_Real <i>Units_of_Angle</i>
cart:projection_elevation_line <i>SURFACE_PROJECTION_PARAMS. PROJECTION_ELEVATION_LINE</i>	The projection_elevation_line attribute specifies the image line which corresponds to the projection_elevation attribute for each column of the Cylindrical-Perspective projection, before the rotation specified by Vector_Projection_Z_Axis.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical Perspective/projection_elevation_line	ASCII_Real
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. InSight Specific: <i>For InSight the subsystem is TTACS</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/provider_id	ASCII_Short_String_Collapsed
publication_date		1)/ Product Document/Document/publication_date	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The publication_date attribute provides the date on which an item was published.		ASCII_Date_YMD
publication_year	The publication_year attribute provides the year in which the product should be considered as published. Generally, this will be the year the data were declared "Certified" or "Archived".	1)/ Product Collection/Identification Area/Citation Information/publication_year 2)/ Product File Text/Identification Area/Citation Information/publication_year 3)/ Product Document/Identification Area/Citation Information/publication_year	ASCII_Date_YMD
purpose	The purpose attribute provides an indication of the primary purpose of the observations included. InSight Specific: <i>Products coming from the InSight pipeline are always marked as Science.</i>	1)/ Product Collection/Context Area/Primary Result Summary/purpose 2)/ Product Observational/Observation Area/Primary Result Summary/purpose 1) Calibration 2) Checkout 3) Engineering 4) Navigation 5) Observation Geometry 6) Science	ASCII_Short_String_Collapsed
geom:qcos <i>GEOMETRIC_CAMERA_MODEL. MODEL_TRANSFORM_QUATERNION</i>	qcos is the scalar component of a quaternion. qcos = cos(theta/2), where theta is the angle of rotation.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Quaternion Model Transform/qcos 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/qcos	ASCII_Real
geom:qsin1 <i>GEOMETRIC_CAMERA_MODEL. MODEL_TRANSFORM_QUATERNION</i>	qsin1 is the first element of the vector component of a quaternion. qsin1 = x*sin(theta/2) where theta is the angle of rotation and (x,y,z) is the unit vector around which the rotation occurs.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Quaternion Model Transform/qsin1 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/qsin1	ASCII_Real
geom:qsin2 <i>GEOMETRIC_CAMERA_MODEL. MODEL_TRANSFORM_QUATERNION</i>	qsin2 is the second element of the vector component of a quaternion. qsin2 = y*sin(theta/2) where theta is the angle of rotation and (x,y,z) is the unit vector around which the rotation occurs.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Quaternion Model Transform/qsin2 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/qsin2	ASCII_Real
geom:qsin3 <i>GEOMETRIC_CAMERA_MODEL. MODEL_TRANSFORM_QUATERNION</i>	qsin3 is the third element of the vector component of a quaternion. qsin3 = z*sin(theta/2) where theta is the angle of rotation and (x,y,z) is the unit vector around which the rotation occurs.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Quaternion Model Transform/qsin3 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction/qsin3	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
			ASCII_Real
geom:Quaternion_Model_Transform	<p>The Quaternion_Model_Transform class specifies, along with Vector_Model_Transform class, the transform used for the camera model in an image. Camera models created by the calibration process have associated with them a pose, comprised of the position (offset) and orientation (quaternion) of the camera at the time it was calibrated. The model is transformed ("pointed") for a specific image by computing, generally using articulation device kinematics, a final pose for the image. The camera model is then translated and rotated from the calibration to final pose. This class specifies the quaternion portion of the final pose.</p> <p>InSight Specific: <i>The calibration pose is in NSYT_idc.point in the calibration collection.</i></p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Quaternion Model Transform</p> <p>1) geom:qcos 2) geom:qsin1 3) geom:qsin2 4) geom:qsin3</p>	
geom:Quaternion_Plus_Direction <i>LANDER_COORDINATE_SYSTEM. ORIGIN_ROTATION_QUATERNION</i>	<p>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> <p>InSight Specific: <i>Note that quaternions have different component order conventions between flight and ground software. They are received in the order (v1, v2, v3, s). However, the ground order convention is (s, v1, v2, v3), and all values are converted to the ground order before being stored in the label. For InSight, the value for ORIGIN_ROTATION_QUATERNION that defines a coordinate frame like Lander frame is computed with respect to only the orientations of the frame's axes regardless of whether POSITIVE_ELEVATION_DIRECTION is declared to be UP or DOWN.</i></p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Quaternion Plus Direction</p> <p>1) geom:qcos 2) geom:qsin1 3) geom:rotation direction 4) geom:qsin2 5) geom:qsin3</p>	
geom:Radial_Terms <i>GEOMETRIC_CAMERA_MODEL. MODEL_COMPONENT_6</i>	<p>Radial_Terms contains the coefficients of a polynomial function used to describe the radial distortion of the camera.</p>	<p>1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Radial Terms</p> <p>2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Radial Terms</p> <p>1) geom:c0 2) geom:c1 3) geom:c2 4) geom:Polynomial_Coefficients_3</p>	
img:Radiometric_Correction		1)/ Product Observational/Observation Area/Discipline Area/Imaging/Radiometric Correction	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The Radiometric_Correction class is a container for the type and details of the radiometric calibration performed on the product.	1) img:active_flag 2) img:radiometric_type 3) img:processing_venue 4) img:radiometric_zenith_scaling_factor 5) img:processing_algorithm 6) img:responsivity_r 7) img:sequence_number 8) img:responsivity_g 9) img:responsivity_b 10) img:responsivity_pan 11) comment 12) img:Data_Processing	
img:radiometric_type <i>DERIVED_IMAGE_PARMS.</i> RADIOMETRIC_CORRECTION_TYPE	The radiometric_type defines the specific type of radiance measurement. Possible values include "Radiance", "Spectral Radiance", "Scaled Spectral Radiance". Note: There are many more possible values, and this definition can be updated to include more examples over time. InSight Specific: <i>The InSight pipeline uses 'MIPLRAD' (see description in main body of SIS).</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Radiometric Correction/radiometric_type	ASCII_Short_String_Collapsed
img:radiometric_zenith_scaling_factor <i>DERIVED_IMAGE_PARMS.</i> RAD_ZENITH_SCALING_FACTOR	Defines the scaling factor used for Scaled Radiance or Scaled Spectral Radiance. Scaled radiance is created by dividing radiance by this factor, which scales the radiance to what it would be if the sun were at the zenith with a clear atmosphere.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Radiometric Correction/radiometric_zenith_scaling_factor	ASCII_Real
msn_surface:received_packets <i>TELEMETRY. RECEIVED_PACKETS</i>	The received_packets attribute provides the total number of telemetry packets actually used to construct this data product. cf. expected_packets.	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/received_packets	ASCII_NonNegative_Integer
Record_Delimited	The Record_Delimited class is a component of the delimited table (spreadsheet) class and defines a record of the delimited table.	1)/ Product Collection/File Area Inventory/Inventory/Record_Delimited 2)/ Product Observational/File Area Observational/Table_Delimited[*]/Record_Delimited 1) fields 2) maximum_record_length 3) groups 4) Field_Delimited 5) Group_Field_Delimited	
record_delimiter	The record_delimiter attribute provides the character or characters used to indicate the end of a record.	1)/ Product Collection/File Area Inventory/Inventory/record_delimiter 2)/ Product Observational/File Area Observational/Table_Delimited[*]/record_delimiter 3)/ Product Observational/File Area Observational Supplemental1/Stream Text/record_delimiter 4)/ Product File Text/File Area Text/Stream Text/record_delimiter 1) Carriage-Return Line-Feed 2) carriage-return line-feed	ASCII_Short_String_Collapsed

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
records	The records attribute provides a count of records.	1)/ Product_Collection/File_Area_Inventory/File/records 2)/ Product_Collection/File_Area_Inventory/Inventory/records 3)/ Product_Observational/File_Area_Observational/Table_Delimited[*]/records 4)/ Product_XML_Schema/File_Area_XML_Schema[*]/File/records	
			ASCII_NonNegative_Integer
disp:red_channel_band	The red_channel_band attribute identifies the number of the band, along the band axis, that should be loaded, by default, into the red channel of a display device. The first band along the band axis has band number 1.	1)/ Product_Observational/Observation_Area/Discipline_Area/Display_Settings/Color_Display_Settings/red_channel_band	
			ASCII_Integer
Reference_List	<p>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.</p> <p>InSight Specific: <i>This is used to point to the browse image (if it exists), as well as the source products (EDRs or Raw products) that were used to make this derived product. Note that EDRs refer to themselves as a source product.</i></p>	1)/ Product_Collection/Reference_List 2)/ Product_File_Text/Reference_List 3)/ Product_Document/Reference_List 4)/ Product_Observational/Reference_List 5)/ Product_Browse/Reference_List	
		1) Internal_Reference 2) External_Reference 3) Source_Product_Internal 4) Source_Product_External	

<p>reference_type</p>	<p>The reference_type attribute provides the name of the association.</p>	<ol style="list-style-type: none"> 1)/Product_Collection/Context_Area/Investigation_Area/Internal_Reference/reference_type 2)/Product_Collection/Context_Area/Observing_System/Observing_System_Component[*]/Internal_Reference/reference_type 3)/Product_Collection/Context_Area/Target_Identification/Internal_Reference/reference_type 4)/Product_Collection/Reference_List/Internal_Reference[*]/reference_type 5)/Product_Collection/File_Area_Inventory/Inventory/reference_type 6)/Product_File_Text/Reference_List/Source_Product_Internal[*]/reference_type 7)/Product_Document/Reference_List/Internal_Reference[*]/reference_type 8)/Product_Document/Context_Area/Investigation_Area/Internal_Reference/reference_type 9)/Product_Document/Context_Area/Observing_System/Observing_System_Component/Internal_Reference/reference_type 10)/Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Geometry_Projection/Internal_Reference/reference_type 11)/Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Stereo_Product_Parameters/Internal_Reference/reference_type 12)/Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Input_Product_List/Input_Product[*]/Internal_Reference/reference_type 13)/Product_Observational/Observation_Area/Discipline_Area/Surface_Imaging/Derived_Product_Parameters/Placement_Target_Instrument/Internal_Reference/reference_type 14)/Product_Observational/Reference_List/Source_Product_Internal[*]/reference_type 15)/Product_Observational/Observation_Area/Discipline_Area/Imaging/Flat_Field_Correction/Flat_Field_File/Internal_Reference/reference_type 16)/Product_Observational/Observation_Area/Discipline_Area/Processing_Information/Input_Product_List/Input_Product/Internal_Reference/reference_type 17)/Product_Observational/Observation_Area/Investigation_Area/Internal_Reference/reference_type 18)/Product_Observational/Observation_Area/Observing_System/Observing_System_Component[*]/Internal_Reference/reference_type 19)/Product_Observational/Observation_Area/Target_Identification/Internal_Reference/reference_type 20)/Product_Observational/Reference_List/Internal_Reference/reference_type 21)/Product_Observational/Reference_List/Source_Product_Internal/reference_type 22)/Product_Browse/Reference_List/Internal_Reference/reference_type
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Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
			ASCII_Short_String_Collapsed
img:responsivity_factor_b <i>INSTRUMENT_STATE_PARM.S. ONBOARD_RESPONSIVITY</i>	Specifies the factor that has been applied to the B cell of the Bayer pattern, before de-Bayering (demosaicking) takes place. InSight Specific: <i>On InSight, this is used to boost the blue in order to compensate for markedly less responsivity in the blue sensors, providing a better approximation of the color of the scene in the EDR/ILT.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Responsivity/responsivity_factor_b	ASCII_Real
img:responsivity_factor_g <i>INSTRUMENT_STATE_PARM.S. ONBOARD_RESPONSIVITY</i>	Specifies the factor that has been applied to the G cell of the Bayer pattern, before de-Bayering (demosaicking) takes place. InSight Specific: <i>On InSight, this is used to boost the blue in order to compensate for markedly less responsivity in the blue sensors, providing a better approximation of the color of the scene in the EDR/ILT.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Responsivity/responsivity_factor_g	ASCII_Real
img:responsivity_factor_r <i>INSTRUMENT_STATE_PARM.S. ONBOARD_RESPONSIVITY</i>	Specifies the factor that has been applied to the R cell of the Bayer pattern, before de-Bayering (demosaicking) takes place. InSight Specific: <i>On InSight, this is used to boost the blue in order to compensate for markedly less responsivity in the blue sensors, providing a better approximation of the color of the scene in the EDR/ILT.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Color Processing/Onboard Responsivity/responsivity_factor_r	ASCII_Real
geom:rotation_direction	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. InSight Specific: <i>In the context of a coordinate frame definition, 'Forward' means that given a vector expressed in the current ('present') frame, multiplication by the quaternion will give the same vector as expressed in the reference frame.</i>	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition*/Quaternion Plus Direction/rotation_direction 1) Present to Reference 2) Reference to Present 3) Forward 4) Reverse 5) From Base 6) Toward Base	ASCII_Short_String_Collapsed
cart:sample	The sample attribute specifies the sample number.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Vertical/Pixel Position Origin/sample 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Orthorectified/Pixel Position Origin/sample 3)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Perspective/Camera Model Offset/sample	ASCII_Real
		1)/ Product Observational/Observation Area/Discipline Area/Imaging/Sampling/sample_bits	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img:sample_bits <i>IMAGE_DATA. SAMPLE_BIT_MASK</i>	The sample_bits attribute specifies the logical or active number of bits in the data, which is distinct from the physical number of bits (for example, encoding 12-bit data within 16-bit words). These logical bits are stored in the low order (least significant) bits, with unused bits filled with 0 (or 1 for negative integers to preserve a two's complement representation). This is distinct from the valid data range (specified by valid_minimum and valid_maximum in Special_Constants class) because all values, including missing/invalid flag values, must fit within the sample_bits. The intent is that the data should be able to be sent through a communication channel that passes only sample_bits with no loss in fidelity. InSight Specific: <i>In VICAR this quantity is maintained as a bit mask; this is converted to a number of bits for PDS4.</i>		ASCII_Short_String_Collapsed
img:sample_fov <i>INSTRUMENT_STATE_PARMs. AZIMUTH_FOV</i> <i>INSTRUMENT_STATE_PARMs. AZIMUTH_FOV_UNIT</i>	The sample_fov attribute specifies the angular measure of the field of view of an imaged scene, as measured in the image sample direction (generally horizontal). InSight Specific: <i>Computed by projecting rays from the left and right edges of the image at the center through the camera model, and computing the angle subtended by those rays.</i>	1)/Product Observational/Observation Area/Discipline Area/Imaging/Subframe/sample_fov	ASCII_Real <i>Units_of_Angle</i>
img:samples <i>IMAGE_DATA. LINE_SAMPLES</i>	The samples attribute indicates the total number of data instances along the horizontal axis of an image or sub-image.	1)/Product Observational/Observation Area/Discipline Area/Imaging/Subframe/samples	ASCII_NonNegative_Integer
img:Sampling	The Sampling class contains attributes and classes related to the sampling, scaling, companding, and compression or reduction in resolution of data.	1)/Product Observational/Observation Area/Discipline Area/Imaging/Sampling 1) <i>img:crosstrack_summing</i> 2) <i>img:downtrack_summing</i> 3) img:sample_bits 4) <i>img:sample_bit_mask</i> 5) <i>img:sampling_factor</i> 6) img:Companding	
scaling_factor <i>DERIVED_IMAGE_PARMs. RADIANCE_SCALING_FACTOR</i>	The scaling_factor attribute is the scaling factor 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: $Ov = (Sv * scaling_factor) + value_offset$. The default value is 1.	1)/Product Observational/File Area Observational/Array 2D Image/Element Array/scaling_factor 2)/Product Observational/File Area Observational/Array 3D Image/Element Array/scaling_factor	ASCII_Real
Science_Facets	The Science_Facets class contains the science-related search facets. It is optional and may be repeated if an product has facets related to, for example, two	1)/Product Collection/Context Area/Primary Result Summary/Science_Facets 2)/Product Observational/Observation Area/Primary Result Summary/Science_Facets	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	different disciplines (as defined by the discipline_name facet). Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.	1) wavelength_range 2) domain 3) Discipline_Facets 4) discipline_name	
geom:selected_instrument_id <i>ARM_ARTICULATION_STATE. ARTICULATION_DEV_INSTRUMENT_ID</i>	The selected_instrument_id attribute specifies an abbreviated name or acronym that identifies the selected instrument mounted on the articulation device. InSight Specific: <i>The values for InSight are BLADE_1, BLADE_2, SCOOP, IDC, WRIST, GRAPPLE, GRAPPLE_ATTACH, SEIS, WTS, HP3, and NOTOOL.</i>	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[1]/selected_instrument_id	ASCII_Short_String_Collapsed
msn_surface:sequence_id	The sequence_id identifies the command sequence used to acquire this product.	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Command Execution/sequence_id	ASCII_Short_String_Collapsed
sequence_number	The sequence_number attribute provides a number that is used to order axes in an array.	1)/ Product Observational/File Area Observational/Array 2D Image/Axis Array[*]/sequence_number 2)/ Product Observational/File Area Observational/Array 3D Image/Axis Array[*]/sequence_number	ASCII_NonNegative_Integer
img:Shutter_Subtraction	The Shutter_Subtraction class specifies attributes describing the removal from the image of the shutter, or fixed-pattern.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Shutter Subtraction 2)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Shutter Subtraction	1) img:active_flag 2) img:shutter_subtraction_mode 3) img:processing_venue 4) img:exposure_duration_threshold_count 5) img:processing_algorithm 6) img:sequence_number 7) img:Data_Processing
img:shutter_subtraction_mode <i>OBSERVATION_REQUEST_PARMS. SHUTTER_CORRECTION_MODE</i>	The shutter_subtraction_mode specifies whether shutter subtraction will be performed, or if it is dependent on the exposure_duration_threshold_count.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Shutter Subtraction/shutter_subtraction_mode 2)/ Product Observational/Observation Area/Discipline Area/Imaging/Commanded Parameters/Shutter Subtraction/shutter subtraction_mode	1) True 2) Conditional ASCII_Short_String_Collapsed
proc:Software		1)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The Software class describes the data processing software used in order to produce the data product.	1) name 2) software_id 3) software_version_id 4) software_type 5) description 6) Internal Reference 7) proc:Software Program	
proc:Software_Program	The Software_Program class describes the specific components or tasks of the Software executed in producing the data product. InSight Specific: <i>When used to document the VICAR processing history, multiple instances of Software_Program show the different programs that have been run on the data, in the order they were run.</i>	1)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program[*] 2)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program 1) name 2) proc:program_type_name 3) proc:program_user 4) proc:program_hostname 5) proc:program_path 6) proc:program_version 7) proc:program_start_date_time 8) proc:program_stop_date_time 9) description 10) proc:Software Program Parameters	
proc:Software_Program_Parameters	The Software_Program_Parameters class specifies the set of 1 or more parameters for the software program. These parameters can be input, output, or log information. The premise being a way to capture as much information as possible about the software program execution.	1)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program[*]/Software Program Parameters 2)/ Product Observational/Observation Area/Discipline Area/Processing Information/Process/Software/Software Program/Software Program Parameters 1) proc:Parameter	
geom:solar_azimuth <i>SITE_DERIVED_GEOMETRY_PARMS. SOLAR_AZIMUTH SITE_DERIVED_GEOMETRY_PARMS. SOLAR_AZIMUTH__UNIT</i>	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. InSight Specific: <i>Computed using SPICE.</i>	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/solar_azimuth	ASCII_Real <i>Units_of_Angle</i>
		1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry[*]/solar_elevation	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:solar_elevation <i>SITE_DERIVED_GEOMETRY_PARMS. SOLAR_ELEVATION SITE_DERIVED_GEOMETRY_PARMS. SOLAR_ELEVATION__UNIT</i>	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. InSight Specific: <i>Computed using SPICE.</i>		ASCII_Real <i>Units_of_Angle</i>
solar_longitude <i>IDENTIFICATION. SOLAR_LONGITUDE</i>	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. InSight Specific: <i>This provides a measure of season on a target body, with values of 0 to 90 degrees representing northern spring, 90 to 180 degrees representing northern summer, 180 to 270 degrees representing northern autumn and 270 to 360 degrees representing northern winter. Note that this duplicates the solar_longitude in the pds: dictionary.</i>	1)/Product Observational/Observation Area/Time Coordinates/solar_longitude	ASCII_Real <i>Units_of_Angle</i>
msn:solar_longitude <i>IDENTIFICATION. SOLAR_LONGITUDE</i>	solar_longitude is the solar longitude, as defined in the main PDS4 data dictionary. InSight Specific: <i>This provides a measure of season on a target body, with values of 0 to 90 degrees representing northern spring, 90 to 180 degrees representing northern summer, 180 to 270 degrees representing northern autumn and 270 to 360 degrees representing northern winter. Note that this duplicates the solar_longitude in the pds: dictionary.</i>	1)/Product Observational/Observation Area/Discipline Area/Mission Information/Surface Mission/solar_longitude	ASCII_Real <i>Units_of_Angle</i>
	The solution_id attribute specifies the unique identifier for the solution set to which the values in	1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Coordinate Space Present/Coordinate Space Indexed/solution_id	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:solution_id *_COORDINATE_SYSTEM. SOLUTION_ID	<p>the group belong. For certain kinds of information, such as pointing correction (pointing models) and rover localization (coordinate system definitions), the "true" value is unknown and only estimates of the true value exist. Thus, more than one set of estimates may exist simultaneously, each valid for its intended purpose. Each of these sets is called a "solution" to the unknown true value. The solution_id attribute is used to identify which solution is being expressed by the containing group. No specific naming convention is defined here, however it is recommended that projects adopt one. The intent is to be able to identify who created the solution, and why. Possible components of the naming convention include user, institution, purpose, request ID, version, program, date/time.</p> <p>InSight Specific: <i>Must be globally unique across all coordinate system instances, i.e. it cannot be reused to define the same coordinate system instance differently. Different coordinate system instances (for example, different values of the RMC index) may share the same SOLUTION_ID. See also REFERENCE_COORD_SYSTEM_NAME and REFERENCE_COORD_SYSTEM_SOLN_ID. The SOLUTION_ID should be the same identifier used in the PLACES rover localization database. The special name "telemetry" is used for values telemetered from the rover. If SOLUTION_ID is absent, "telemetry" should be assumed.</i></p>		ASCII_Short_String_Collapsed
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.	1)/ Product File Text/Reference List/Source Product Internal[*] 2)/ Product Observational/Reference List/Source Product Internal[*] 3)/ Product Observational/Reference List/Source Product Internal	
		1) lidvid reference 2) reference type 3) comment	
msn:spacecraft_clock_partition <i>IDENTIFICATION.</i> SPACECRAFT_CLOCK_CNT_PARTITION	The spacecraft_clock_partition provides the clock partition active for the spacecraft_clock attribute. InSight Specific: <i>Always 1 for InSight.</i>	1)/ Product Observational/Observation Area/Discipline Area/Mission Information/spacecraft_clock_partition	ASCII_Integer
msn:spacecraft_clock_start <i>IDENTIFICATION.</i> SPACECRAFT_CLOCK_START_COUNT	The spacecraft_clock_start is the value of the spacecraft clock at the beginning of the observation.	1)/ Product Observational/Observation Area/Discipline Area/Mission Information/spacecraft_clock_start	ASCII_Short_String_Collapsed
		1)/ Product Observational/Observation Area/Discipline Area/Mission Information/spacecraft_clock_stop	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
msn:spacecraft_clock_stop <i>IDENTIFICATION. SPACECRAFT_CLOCK_STOP_COUNT</i>	The spacecraft_clock_stop is the value of the spacecraft clock at the end of the observation. spacecraft_clock_stop should only be used if there's also a spacecraft_clock_start value.		ASCII_Short_String_Collapsed
cart:Spatial_Reference_Information	The Spatial_Reference_Information class provides a description of the reference frame for, and the means to encode, coordinates in a data set.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information 1) cart:Horizontal Coordinate System Definition	
Special_Constants	The Special_Constants class provides a set of values used to indicate special cases that occur in the data.	1)/ Product Observational/File Area Observational/Array 2D Image/Special Constants 2)/ Product Observational/File Area Observational/Array 3D Image/Special Constants 1) saturated_constant 2) missing_constant 3) error_constant 4) invalid_constant 5) unknown_constant 6) not_applicable_constant 7) valid_maximum 8) high_instrument_saturation 9) high_representation_saturation 10) valid_minimum 11) low_instrument_saturation 12) low_representation_saturation	
geom:spice_kernel_file_name <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)/ Product Observational/Observation Area/Discipline Area/Geometry/SPICE Kernel Files/SPICE Kernel Identification/spice kernel file name	ASCII_File_Name
geom:SPICE_Kernel_Files	The SPICE_Kernel_Files class provides references to the SPICE files used when calculating geometric values.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/SPICE Kernel Files 1) comment 2) geom:SPICE Kernel Identification	
geom:SPICE_Kernel_Identification	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)/ Product Observational/Observation Area/Discipline Area/Geometry/SPICE Kernel Files/SPICE Kernel Identification 1) kernel_type 2) geom:spice_kernel_file_name 3) geom:kernel_provenance 4) Internal Reference	
cart:start_azimuth <i>SURFACE_PROJECTION_PARS. START_AZIMUTH</i>	The start_azimuth specifies the angular distance from a fixed reference position at which an image or observation starts. Azimuth is measured in a spherical coordinate system, in a plane normal to the principal axis. Azimuth values increase according to	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/start azimuth 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical Perspective/start azimuth	

Dictionary:PDS4 Keyword VICAR Property.VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	the right hand rule relative to the positive direction of the principal axis of the spherical coordinate system. For lander map projections, this attribute specifies the azimuth of the left edge of the output map. Applies to Cylindrical and Cylindrical-Perspective lander map projections only.		ASCII_Real <i>Units_of_Angle</i>
geom:start_azimuth *_DERIVED_GEOMETRY_PARAMS.START_AZIMUTH	The start_azimuth attribute specifies the angular distance from a fixed reference position at which an image or observation starts. Azimuth is measured in a spherical coordinate system, in a plane normal to the principal axis. Azimuth values increase according to the right hand rule relative to the positive direction of the principal axis of the spherical coordinate system. When applied to a site or surface projection coordinate space, specifies the azimuth of the left edge of the output map. Applies to Cylindrical and Cylindrical-Perspective projections only.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry/start azimuth	ASCII_Real <i>Units_of_Angle</i>
start_date_time IDENTIFICATION.START_TIME	The start_date_time attribute provides the date and time appropriate to the beginning of the product being labeled. InSight Specific: <i>The time period of interest is returned from SPICE subroutines and is based on the beginning of data acquisition.</i>	1)/ Product Collection/Context Area/Time Coordinates/start date time 2)/ Product Observational/Observation Area/Time Coordinates/start date time	ASCII_Date_Time_YMD_UTC
msn:start_local_mean_solar_time IDENTIFICATION.LOCAL_MEAN_SOLAR_TIME	start_local_mean_solar_time is the local mean solar time, as defined in the main PDS4 data dictionary.	1)/ Product Observational/Observation Area/Discipline Area/Mission Information/Surface Mission/start local mean solar time	ASCII_Short_String_Collapsed
msn:start_local_mean_solar_time_sol	The start_local_mean_solar_time_sol element specifies the number of solar days elapsed since a reference day (e.g. the day on which a landing vehicle set down) for local mean solar time (LMST). Days are measured in rotations of the planet in question from midnight to midnight. The reference day is '0', as Landing day is Sol 0. If before Landing day, then value will be less than or equal to '0' and can be negative. InSight Specific: <i>Note that this sol value can be different from the sol (start_sol_number), which is derived from local_true_solar_time.</i>	1)/ Product Observational/Observation Area/Discipline Area/Mission Information/Surface Mission/start local mean solar time_sol	ASCII_Integer
msn:start_local_true_solar_time IDENTIFICATION.LOCAL_TRUE_SOLAR_TIME	start_local_true_solar_time is the local true solar time, as defined in the main PDS4 data dictionary. InSight Specific: <i>The valid value is expressed in terms of a 24-hour clock, so the acceptable range is 00:00:00.000 to 23:59:59.999. See also LOCAL_TRUE_SOLAR_TIME_SOL for the sol number.</i>	1)/ Product Observational/Observation Area/Discipline Area/Mission Information/Surface Mission/start local true solar time	ASCII_Short_String_Collapsed
	The start_local_true_solar_time_sol element specifies the number of solar days elapsed since a	1)/ Product Observational/Observation Area/Discipline Area/Mission Information/Surface Mission/start local true solar time so !	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
msn:start_local_true_solar_time_sol <i>IDENTIFICATION. LOCAL_TRUE_SOLAR_TIME_SOL</i>	reference day (e.g. the day on which a landing vehicle set down) for local true solar time (LTST). Days are measured in rotations of the planet in question from midnight to midnight. The reference day is '0', as Landing day is Sol 0. If before Landing day, then value will be less than or equal to '0' and can be negative. InSight Specific: <i>The reference day is 0, as Landing day is Sol 0. If before Landing day, then value will be less than or equal to 0 and can be negative.</i>		ASCII_Integer
msn:start_sol_number <i>IDENTIFICATION. PLANET_DAY_NUMBER</i>	The start_sol_number is the number of the Mars day on which an observation began. Landing day is Sol 0.	1)/Product Observational/Observation Area/Discipline Area/Mission Information/Surface Mission/start_sol_number	ASCII_Integer
img_surface:stereo_baseline_length <i>DERIVED_IMAGE_PARMS. STEREO_BASELINE</i>	The stereo_baseline_length attribute specifies the separation between the two cameras used for processing of the stereo image.	1)/Product Observational/Observation Area/Discipline Area/Surface Imaging/Stereo Product Parameters/stereo_baseline_length	ASCII_Real <i>Units_of_Length</i>
img_surface:stereo_match_id <i>IDENTIFICATION. STEREO_MATCH_ID</i>	The stereo_match_id attribute specifies which other image this image matches with for stereo processing. If used for a mission, the two images making up a stereo pair should share the same stereo_match_id value. InSight Specific: <i>The stereo_match_id is derived from the image_id (see SIS Appendix A). Numeric values indicate commanded stereo pairs; alpha values indicate ground-assigned stereo pairs. In order for an image pair to be matched for stereo, the sequence_id, mesh_id, and sol also need to match, in addition to stereo_match_id.</i>	1)/Product Observational/Observation Area/Discipline Area/Surface Imaging/Image Identifiers/stereo_match_id	ASCII_Short_String_Collapsed
img_surface:stereo_product_parameters	The Stereo_Product_Parameters class describes the conditions under which stereo analysis was performed. This includes items such as the stereo baseline (separation between the cameras) and what partner image(s) were used for stereo analysis. If present, stereo partner images can be referenced using either an Internal_Reference or External_Reference.	1)/Product Observational/Observation Area/Discipline Area/Surface Imaging/Stereo Product Parameters 1) img_surface:stereo_baseline_length 2) External_Reference 3) Internal_Reference	
cart:stop_azimuth <i>SURFACE_PROJECTION_PARMS. STOP_AZIMUTH</i>	The stop_azimuth attribute specifies the angular distance from a fixed reference position at which an image or observation stops. Azimuth is measured in a spherical coordinate system, in a plane normal to the principal axis. Azimuth values increase according to the right hand rule relative to the positive direction of the principal axis of the spherical coordinate system. For lander map projections, this attribute specifies the azimuth of the right edge of the output map. Applies to Cylindrical and Cylindrical-Perspective lander map projections only.	1)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/stop_azimuth 2)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical Perspective/stop_azimuth	ASCII_Real <i>Units_of_Angle</i>

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:stop_azimuth <i>*_DERIVED_GEOMETRY_PARAMS.STOP_AZIMUTH</i>	The stop_azimuth attribute specifies the angular distance from a fixed reference position at which an image or observation stops. Azimuth is measured in a spherical coordinate system, in a plane normal to the principal axis. Azimuth values increase according to the right hand rule relative to the positive direction of the principal axis of the spherical coordinate system. When applied to a site or surface projection coordinate space, specifies the azimuth of the right edge of the output map. Applies to Cylindrical and Cylindrical-Perspective projections only.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Derived Geometry/stop_azimuth	ASCII_Real <i>Units_of_Angle</i>
stop_date_time <i>IDENTIFICATION.STOP_TIME</i>	The stop_date_time attribute provides the date and time appropriate to the end of the product being labeled. InSight Specific: <i>The time period of interest is returned from SPICE subroutines and is based on the end of data acquisition.</i>	1)/ Product Collection/Context Area/Time Coordinates/stop_date_time 2)/ Product Observational/Observation Area/Time Coordinates/stop_date_time	ASCII_Date_Time_YMD_UTC
Stream_Text	The Stream text class defines a text object.	1)/ Product Observational/File Area Observational Supplemental1/Stream Text 2)/ Product File Text/File Area Text/Stream Text	1) <i>Parsable_Byte_Stream</i> 2) name 3) offset 4) record_delimiter 5) local_identifier 6) object_length 7) md5_checksum 8) description 9) parsing_standard_id 10) <i>Digital_Object</i>
img:Subframe	The Subframe class describes the position and other optional characteristics of an image subframe, relative to the original image.	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Subframe	1) img:first_line 2) img:first_sample 3) img:lines 4) img:samples 5) img:line_fov 6) img:sample_fov 7) name 8) description 9) img:subframe_type
msn_surface:surface_gravity <i>ARM_ARTICULATION_STATE.GRAVITY_ACCELERATION</i>	The surface_gravity attribute specifies the acceleration of gravity (magnitude, not direction).	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/surface_gravity	ASCII_Real <i>Units_of_Acceleration</i>
img_surface:Surface_Imaging		1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging	

Dictionary:PDS4 Keyword VICAR Property.VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	Attributes specific to imaging instruments on surface missions.	1) img_surface:Image_Identifier 2) img_surface:Instrument_Information 3) img_surface:Derived_Product_Parameters 4) img_surface>Error_Model 5) img_surface:Geometry_Projection 6) img_surface:Stereo_Product_Parameters 7) geom:Coordinate_Space_Reference 8) img_surface>Error_Pixel	
msn:Surface_Mission	The Surface_Mission class provides information about a surface mission.	1) /Product_Observational/Observation_Area/Discipline_Area/Mission_Information/Surface_Mission 1) msn:start_sol_number 2) msn:stop_sol_number 3) msn:start_local_mean_solar_time 4) msn:stop_local_mean_solar_time 5) msn:start_local_mean_solar_time_sol 6) msn:stop_local_mean_solar_time_sol 7) msn:start_local_true_solar_time 8) msn:stop_local_true_solar_time 9) msn:start_local_true_solar_time_sol 10) msn:stop_local_true_solar_time_sol 11) msn:solar_longitude	
msn_surface:Surface_Mission_Information	The Surface_Mission_Information class contains attributes specific to surface missions which apply across instrument types.	1) /Product_Observational/Observation_Area/Discipline_Area/Surface_Mission_Information 1) msn_surface:surface_gravity 2) msn_surface:Command_Execution 3) msn_surface:Telemetry	
cart:Surface_Model_Parameters	This class describes the surface model used by the projection. For in-situ mosaics, the surface model describes the surface upon which input images are projected in order to create a unified point of view in a mosaic. To the extent the surface model does not match the actual surface, parallax errors typically occur at seams between images.	1) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Surface_Model_Parameters 1) cart:surface_model_type 2) cart:Surface_Model_Planar 3) cart:Surface_Model_Spherical 4) geom:Coordinate_Space_Reference	
cart:Surface_Model_Planar	This is a specific type of surface model that treats the surface as a flat plane, with a specified orientation (Vector_Surface_Normal) and location (Vector_Surface_Ground_Location).	1) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Surface_Model_Parameters/Surface_Model_Planar 1) cart:Vector_Surface_Normal 2) cart:Vector_Surface_Ground_Location	
cart:surface_model_type SURFACE_MODEL_PARAMS. SURFACE_MODEL_TYPE	Specifies the type of surface used for the reprojection performed during the mosaicking process. Valid values: Planar - refers to a flat planar model; Spherical - refers to a spherical model.	1) /Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Surface_Model_Parameters/surface_model_type 1) Spherical 2) Planar	ASCII_Short_String_Collapsed
Table_Delimited		1) /Product_Observational/File_Area_Observational/Table_Delimited[*]	

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition InSight-Specific Information	XPath	
		Valid Values (attribute) Children (class)	Data Type Units
	The Table_Delimited class defines a simple table (spreadsheet) with delimited fields and records.	1) Parsable_Byte_Stream 2) name 3) offset 4) records 5) local_identifier 6) object_length 7) record_delimiter 8) md5_checksum 9) parsing_standard_id 10) description 11) field_delimiter 12) Digital_Object 13) Uniformly_Sampled 14) Record_Delimited	
Target_Identification	The Target_Identification class provides detailed target identification information.	1) Product_Collection/Context_Area/Target_Identification 2) Product_Observational/Observation_Area/Target_Identification 1) name 2) alternate_designation 3) type 4) description 5) Internal_Reference	
msn_surface:Telemetry	The Telemetry class contains downlink-related attributes used primarily during mission operations.	1) Product_Observational/Observation_Area/Discipline_Area/Surface_Mission_Information/Telemetry 1) msn_surface:application_id 2) msn_surface:application_subtype_id 3) msn_surface:application_name 4) msn_surface:provider_id 5) msn_surface:flight_software_version_id 6) msn_surface:telemetry_source_name 7) msn_surface:transport_protocol 8) msn_surface:communication_session_id 9) msn_surface:telemetry_source_start_time 10) msn_surface:telemetry_source_sclk_start 11) msn_surface:product_completion_status 12) msn_surface:earth_received_start_date_time 13) msn_surface:earth_received_stop_date_time 14) msn_surface:download_priority 15) msn_surface:data_size 16) msn_surface:expected_packets 17) msn_surface:received_packets	
msn_surface:telemetry_source_name TELEMETRY. TELEMETRY_SOURCE_NAME	The telemetry_source_name specifies the name source of the telemetry data described in the parent class. InSight Specific: For InSight this is either 'TDS' for the telemetry server, or the name of the SFDU file or CCSDS packet directory used as input to the EDR generator.	1) Product_Observational/Observation_Area/Discipline_Area/Surface_Mission_Information/Telemetry/telemetry_source_name	ASCII_Short_String_Collapsed
		1) Product_Observational/Observation_Area/Discipline_Area/Surface_Mission_Information/Telemetry/telemetry_source_sclk_start	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
msn_surface: telemetry_source_sclk_start <i>TELEMETRY. TELEMETRY_SOURCE_SCLK_START</i>	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. InSight Specific: <i>This is the time in the CCSDS header. Used to find all the matching packets for one product.</i>		ASCII_Short_String_Collapsed
msn_surface: telemetry_source_start_time <i>TELEMETRY. 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)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/telemetry_source_start_time	ASCII_Date_Time_YMD_UTC
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)/ Product Observational/Observation Area/Discipline Area/Imaging/Instrument State/Device Temperatures/Device Temperature*/temperature_value	ASCII_Real <i>Units_of_Temperature</i>
Time_Coordinates	The Time_Coordinates class provides a list of time coordinates.	1)/ Product Collection/Context Area/Time Coordinates 2)/ Product Observational/Observation Area/Time Coordinates 1) start_date_time 2) stop_date_time 3) local_mean_solar_time 4) local_true_solar_time 5) solar_longitude	
title	The name given to the resource. Typically, a Title will be a name by which the resource is formally known. - Dublin Core - The title is used to refer to an object in a version independent manner.	1)/ Product Collection/Identification Area/title 2)/ Product XML Schema/Identification Area/title 3)/ Product File Text/Identification Area/title 4)/ Product Document/Identification Area/title 5)/ Product Observational/Identification Area/title 6)/ Product Browse/Identification Area/title	UTF8_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. InSight Specific: <i>For InSight this is always SFDU.</i>	1)/ Product Observational/Observation Area/Discipline Area/Surface Mission Information/Telemetry/transport_protocol 1) SFDU 2) Data Product	ASCII_Short_String_Collapsed

Dictionary: PDS4 Keyword VICAR Property. VICAR Keyword	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
type	The type attribute classifies Investigation_Area according to the scope of the investigation..	1)/ Product_Collection/Context_Area/Investigation_Area/type 2)/ Product_Collection/Context_Area/Observing_System/Observing_System_Component[*]/type 3)/ Product_Collection/Context_Area/Target_Identification/type 4)/ Product_Document/Context_Area/Investigation_Area/type 5)/ Product_Document/Context_Area/Observing_System/Observing_System_Component/type 6)/ Product_Observational/Observation_Area/Investigation_Area/type 7)/ Product_Observational/Observation_Area/Observing_System/Observing_System_Component[*]/type 8)/ Product_Observational/Observation_Area/Target_Identification/type	
		1) Individual Investigation 2) Mission 3) Observing Campaign 4) Other Investigation	ASCII_Short_String_Collapsed
unit <i>DERIVED_IMAGE_PARMS. RADIANCE_OFFSET_UNIT DERIVED_IMAGE_PARMS. RADIANCE_SCALING_FACTOR_UNIT</i>	The unit attribute provides the unit of measurement. InSight Specific: <i>This defines the unit of measurement for the data (image pixels) themselves.</i>	1)/ Product_Observational/File_Area_Observational/Array_2D_Image/Element_Array/unit 2)/ Product_Observational/File_Area_Observational/Array_3D_Image/Element_Array/unit	
			UTF8_Short_String_Collapsed
value_offset <i>DERIVED_IMAGE_PARMS. RADIANCE_OFFSET</i>	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: $Ov = (Sv * scaling_factor) + value_offset$. The default value is 0.	1)/ Product_Observational/File_Area_Observational/Array_2D_Image/Element_Array/value_offset 2)/ Product_Observational/File_Area_Observational/Array_3D_Image/Element_Array/value_offset	
			ASCII_Real
geom:Vector_Axis <i>GEOMETRIC_CAMERA_MODEL. MODEL_COMPONENT_2</i>	The Vector_Axis is a unit vector that describes the axis of the camera, defined as the normal to the image plane.	1)/ Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Vector_Axis 2)/ Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHV_Model/Vector_Axis 3)/ Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model/Vector_Axis	
		1) geom:x_unit 2) geom:y_unit 3) geom:z_unit 4) geom:Vector_Cartesian_Unit	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:Vector_Center GEOMETRIC_CAMERA_MODEL. MODEL_COMPONENT_1 GEOMETRIC_CAMERA_MODEL. MODEL_COMPONENT_UNIT	The Vector_Center describes the location of the entrance pupil of a camera.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE_Model/Vector Center 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Center 3)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR_Model/Vector Center	
		1) geom:x position 2) geom:y position 3) geom:z position 4) geom:Vector_Cartesian_Position_Base	
geom:Vector_Device_Gravity *_ARTICULATION_STATE. ARTICULATION_DEV_VECTOR	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.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[1]/Vector Device Gravity	
		1) geom:x unit 2) geom:y unit 3) geom:z unit 4) geom:Vector_Cartesian_Unit	
geom:Vector_Horizontal GEOMETRIC_CAMERA_MODEL. MODEL_COMPONENT_3	The Vector_Horizontal is a composite vector encoding three quantities: H' (a vector in the image plane perpendicular to the vertical columns), Hs (the distance between the lens center and image plane, measured in horizontal pixels), and Hc (the horizontal image coordinate directly under C when moving parallel to A). H' is often thought of as describing the orientation of rows in space, but is actually perpendicular to the columns.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE_Model/Vector Horizontal 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Horizontal 3)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR_Model/Vector Horizontal	
		1) geom:x pixel 2) geom:y pixel 3) geom:z pixel 4) geom:Vector_Cartesian_Pixel	
geom:Vector_Model_Transform	The Vector_Model_Transform class specifies, along with the Quaternion_Model_Transform class, the transform used for the camera model in this image. Camera models created by the calibration process have associated with them a pose, comprised of the position (offset) and orientation (quaternion) of the camera at the time it was calibrated. The model is transformed ("pointed") for a specific image by computing, generally using articulation device kinematics, a final pose for the image. The camera model is then translated and rotated from the calibration to final pose. This class specifies the offset portion of the final pose. InSight Specific: <i>The calibration pose is in NSYT_idc.point in the calibration collection.</i>	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Vector Model Transform	
		1) geom:x 2) geom:y 3) geom:z 4) geom:Vector_Cartesian_No_Units	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:Vector_Optical <i>GEOMETRIC_CAMERA_MODEL. MODEL_COMPONENT_5</i>	The Vector_Optical is a unit vector that describes the axis of symmetry for radial distortion in the camera.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE_Model/Vector Optical 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR_Model/Vector Optical	
		1) geom:x_unit 2) geom:y_unit 3) geom:z_unit 4) <i>geom:Vector_Cartesian_Unit</i>	
geom:Vector_Origin_Offset <i>LANDER_COORDINATE_SYSTEM. ORIGIN_OFFSET_VECTOR</i>	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.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Vector Origin Offset	
		1) geom:x_position 2) geom:y_position 3) geom:z_position 4) <i>geom:Vector_Cartesian_Position_Base</i>	
cart:Vector_Projection_Origin <i>SURFACE_PROJECTION_PARS. PROJECTION_ORIGIN_VECTOR</i>	The Vector_Projection_Origin class specifies the location of the origin of the projection. For Polar and Cylindrical projections, this is the XYZ point from which all the azimuth/elevation rays emanate. For the Cylindrical-Perspective projection, this defines the center of the circle around which the synthetic camera orbits. For Orthographic, Orthorectified, and Vertical projections, this optional keyword specifies the point on the projection plane that serves as the origin of the projection (i.e. all points on a line through this point in the direction of PROJECTION_Z_AXIS_VECTOR will be located at X=Y=0 in the projection). If not present, (0,0,0) should be assumed. This translation is generally not necessary and not often used; the (X Y)_AXIS_MINIMUM and (X Y)_AXIS_MAXIMUM fields allow the mosaic to be located arbitrarily in the projection plane.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/Vector Projection Origin	
		1) cart:x_position 2) cart:y_position 3) cart:z_position 4) <i>cart:Vector_Cartesian_Position_Base</i>	
img_surface:Vector_Range_Origin <i>DERIVED_IMAGE_PARS. RANGE_ORIGIN_VECTOR</i>	The Vector_Range_Origin class specifies the 3-D space from which the Range values are measured in a Range RDR. This will normally be the same as the C point of the camera. It is expressed in the coordinate system specified by the Coordinate_Space_Reference class.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Vector Range Origin	
		1) img_surface:x_position 2) img_surface:y_position 3) img_surface:z_position	
cart:Vector_Surface_Ground_Location <i>SURFACE_MODEL_PARS. SURFACE_GROUND_LOCATION</i>	The Vector_Surface_Ground_Location class specifies any point on the surface model, in order to fix the model in space. This point is measured in the coordinates specified by the Coordinate_Space reference in the Surface_Model_Parameters class.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Surface Model Planar/Vector Surface Ground Location	
		1) cart:x_position 2) cart:y_position 3) cart:z_position 4) <i>cart:Vector_Cartesian_Position_Base</i>	
	The Vector_Surface_Normal class specifies a vector normal to the planar surface model. This vector is	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Surface Model Planar/Vector Surface Normal	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
cart: Vector_Surface_Normal <i>SURFACE_MODEL_PARAMS. SURFACE_NORMAL_VECTOR</i>	measured in the coordinates specified by the Coordinate_Space reference in the Surface_Model_Parameters class.	1) cart:x_unit 2) cart:y_unit 3) cart:z_unit 4) <i>cart:Vector_Cartesian_Unit_Base</i>	
geom: Vector_Vertical <i>GEOMETRIC_CAMERA_MODEL. MODEL_COMPONENT_4</i>	The Vector_Vertical is a composite vector encoding three quantities: V' (a vector in the image plane perpendicular to the horizontal rows), Vs (the distance between the lens center and image plane, measured in vertical pixels), and Vc (the vertical image coordinate directly under C when moving parallel to A). V' is often thought of as describing the orientation of columns in space, but is actually perpendicular to the rows.	1) Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE_Model/Vector_Vertical 2) Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector_Vertical 3) Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR_Model/Vector_Vertical 4) <i>geom:x_pixel</i> 2) <i>geom:y_pixel</i> 3) <i>geom:z_pixel</i> 4) <i>geom:Vector_Cartesian_Pixel</i>	
version_id	The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation. InSight Specific: <i>On InSight, the version is always x.0 where x matches the operations version at the end of the filename. Thus versions may not start at 1.0 and version numbers may be skipped.</i>	1) Product Collection/Identification Area/version_id 2) Product Collection/Identification Area/Modification History/Modification Detail/version_id 3) Product XML Schema/Identification Area/version_id 4) Product XML Schema/Identification Area/Modification History/Modification Detail/version_id 5) Product Document/Identification Area/Modification History/Modification Detail/version_id 6) Product File Text/Identification Area/version_id 7) Product Document/Identification Area/version_id 8) Product Observational/Identification Area/version_id 9) Product Browse/Identification Area/version_id	ASCII_Short_String_Collapsed
cart: Vertical	This is an in-situ projection that provides an overhead view. By projecting to a surface model, the need for range data is eliminated, but significant layover effects can happen when the actual geometry does not match the surface model. It has a constant scale in meters/pixel, subject to layover distortion.	1) Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Vertical 1) cart:pixel_resolution_x 2) cart:pixel_resolution_y 3) cart:x_axis_maximum 4) cart:x_axis_minimum 5) cart:y_axis_maximum 6) cart:y_axis_minimum 7) cart:Pixel_Position_Origin 8) cart:Vector_Projection_Origin	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
disp:vertical_display_axis	The vertical_display_axis attribute identifies, by name, the axis of an Array (or Array subclass) that is intended to be displayed in the vertical or "line" dimension on a display device. The value of this attribute must match the value of one, and only one, axis_name attribute in an Axis_Array class of the associated Array.	1)/ Product Observational/Observation Area/Discipline Area/Display Settings/Display Direction/vertical_display_axis	
			ASCII_Short_String_Collapsed
disp:vertical_display_direction	The vertical_display_direction attribute specifies the direction along the screen of a display device that data along the vertical axis of an Array is supposed to be displayed.	1)/ Product Observational/Observation Area/Discipline Area/Display Settings/Display Direction/vertical_display_direction	
		1) Bottom to Top 2) Top to Bottom	ASCII_Short_String_Collapsed
wavelength_range	The wavelength range attribute specifies the wavelength range over which the data were collected or which otherwise characterizes the observation(s). Boundaries are vague, and there is overlap. InSight Specific: <i>For InSight cameras the value is always Visible.</i>	1)/ Product Collection/Context Area/Primary Result Summary/Science Facets/wavelength_range	
		2)/ Product Observational/Observation Area/Primary Result Summary/Science Facets/wavelength_range	
img:width_pixels <i>INSTRUMENT_STATE_PARMs.</i> <i>PIXEL_AVERAGING_WIDTH</i>	The width_pixels attribute provides the horizontal dimension, in pixels. InSight Specific: <i>InSight does not support downsampling, so this value is always 1.</i>	1)/ Product Observational/Observation Area/Discipline Area/Imaging/Downsampling/Pixel Averaging Dimensions/width_pixels	
			ASCII_NonNegative_Integer <i>Units_of_Misc</i>
geom:x <i>GEOMETRIC_CAMERA_MODEL.</i> <i>MODEL_TRANSFORM_VECTOR</i>	The x component of a Cartesian vector which has no units.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/Vector Model Transform/x	
			ASCII_Real
cart:x_axis_maximum <i>SURFACE_PROJECTION_PARMs. X_AXIS_MAXIMUM</i> <i>SURFACE_PROJECTION_PARMs.</i> <i>X_AXIS_MAXIMUM_UNIT</i>	The x_axis_maximum attribute specifies the value of the X coordinate (measured in the projection frame) of a Vertical, Orthographic or Orthorectified lander map projection at the top of the image. Note that +X is at the top of the image and +Y is at the right, so +X corresponds to North in the Vertical projection.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Vertical/x_axis_maximum	
		2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Orthorectified/x_axis_maximum	
			ASCII_Real <i>Units_of_Length</i>

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
cart:x_axis_minimum SURFACE_PROJECTION_PARAMS.X_AXIS_MINIMUM SURFACE_PROJECTION_PARAMS.X_AXIS_MINIMUM_UNIT	The x_axis_minimum attribute specifies the value of the X coordinate (measured in the projection frame) of a Vertical, Orthographic or Orthorectified lander map projection at the bottom of the image.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Vertical/x_axis_minimum 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Orthorectified/x_axis_minimum	ASCII_Real Units_of_Length
geom:x_pixel	The x component of a Cartesian pixel vector; typically used in camera models.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Vector Horizontal/x_pixel 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Vector Vertical/x_pixel 3)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Horizontal/x_pixel 4)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Vertical/x_pixel 5)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Vector Horizontal/x_pixel 6)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Vector Vertical/x_pixel	ASCII_Real
geom:x_position	The x component of a Cartesian position vector.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Vector Center/x_position 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Center/x_position 3)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Vector Center/x_position 4)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Vector Origin Offset/x_position	ASCII_Real Units_of_Length

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
cart:x_position <i>SURFACE_PROJECTION_PARS. PROJECTION_ORIGIN_VECTOR</i>	The x component of a Cartesian position vector.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/Vector Projection Origin/x_position 2)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Surface Model Planar/Vector Surface Ground Location/x_position	ASCII_Real <i>Units_of_Length</i>
img_surface:x_position <i>DERIVED_IMAGE_PARS. RANGE_ORIGIN_VECTOR</i>	The x component of a Cartesian position vector.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Vector Range Origin/x_position	ASCII_Real <i>Units_of_Length</i>
geom:x_unit	The x component of a unit Cartesian vector.	1)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Vector Axis/x_unit 2)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Vector Optical/x_unit 3)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Axis/x_unit 4)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Articulation Device Parameters[1]/Vector Device Gravity/x_unit 5)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Vector Axis/x_unit 6)/ Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Vector Optical/x_unit	ASCII_Real
cart:x_unit <i>SURFACE_MODEL_PARS. SURFACE_NORMAL_VECTOR</i>	The x component of a unit vector.	1)/ Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Surface Model Planar/Vector Surface Normal/x_unit	ASCII_Real
XML_Schema		1)/ Product XML Schema/File Area XML Schema[*]/XML Schema	

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
	The XML Schema class defines a resource used for the PDS4 implementation into XML.	1) <i>Parsable_Byte_Stream</i> 2) name 3) offset 4) parsing_standard_id 5) local_identifier 6) object_length 7) idd_version_id 8) md5_checksum 9) description 10) <i>Digital_Object</i>	
geom:y <i>GEOMETRIC_CAMERA_MODEL. MODEL_TRANSFORM_VECTOR</i>	The y component of a Cartesian vector which has no units.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/Vector_Model_Transform/y	ASCII_Real
cart:y_axis_maximum <i>SURFACE_PROJECTION_PARMS. Y_AXIS_MAXIMUM SURFACE_PROJECTION_PARMS. Y_AXIS_MAXIMUM_UNIT</i>	The y_axis_minimum attribute specifies the value of the Y coordinate (measured in the projection frame) of a Vertical, Orthographic or Orthorectified lander map projection at the right edge of the image.	1)/Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/Vertical/y_axis_maximum 2)/Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/Orthorectified/y_axis_maximum	ASCII_Real <i>Units_of_Length</i>
cart:y_axis_minimum <i>SURFACE_PROJECTION_PARMS. Y_AXIS_MINIMUM SURFACE_PROJECTION_PARMS. Y_AXIS_MINIMUM_UNIT</i>	The y_axis_minimum attribute specifies the value of the Y coordinate (measured in the projection frame) of a Vertical, Orthographic or Orthorectified lander map projection at the left edge of the image.	1)/Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/Vertical/y_axis_minimum 2)/Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/Orthorectified/y_axis_minimum	ASCII_Real <i>Units_of_Length</i>

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:y_pixel	The y component of a Cartesian pixel vector; typically used in camera models.	<ul style="list-style-type: none"> 1) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Vector Horizontal/y_pixel 2) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Vector Vertical/y_pixel 3) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Horizontal/y_pixel 4) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Vertical/y_pixel 5) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Vector Horizontal/y_pixel 6) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Vector Vertical/y_pixel 	ASCII_Real
geom:y_position	The y component of a Cartesian position vector.	<ul style="list-style-type: none"> 1) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE Model/Vector Center/y_position 2) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Center/y_position 3) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR Model/Vector Center/y_position 4) /Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Vector Origin Offset/y_position 	ASCII_Real <i>Units_of_Length</i>
cart:y_position <i>SURFACE_PROJECTION_PARMES</i> <i>PROJECTION_ORIGIN_VECTOR</i>	The y component of a Cartesian position vector.	<ul style="list-style-type: none"> 1) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/Vector Projection Origin/y_position 2) /Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Surface Model Planar/Vector Surface Ground Location/y_position 	ASCII_Real <i>Units_of_Length</i>
	The y component of a Cartesian position vector.	<ul style="list-style-type: none"> 1) /Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Vector Range Origin/y_position 	

Dictionary: PDS4 Keyword <i>VICAR Property. VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img_surface:y_position <i>DERIVED_IMAGE_PARS. RANGE_ORIGIN_VECTOR</i>			ASCII_Real <i>Units_of_Length</i>
geom:y_unit	The y component of a unit Cartesian vector.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Vector_Axis/y_unit 2)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Vector_Optical/y_unit 3)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHV_Model/Vector_Axis/y_unit 4)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Articulation_Device_Parameters[1]/Vector_Device_Gravity/y_unit 5)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model/Vector_Axis/y_unit 6)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model/Vector_Optical/y_unit	ASCII_Real
cart:y_unit <i>SURFACE_MODEL_PARS. SURFACE_NORMAL_VECTOR</i>	The y component of a unit vector.	1)/Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Surface_Model_Parameters/Surface_Model_Planar/Vector_Surface_Normal/y_unit	ASCII_Real
geom:z <i>GEOMETRIC_CAMERA_MODEL. MODEL_TRANSFORM_VECTOR</i>	The z component of a Cartesian vector which has no units.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/Vector_Model_Transform/z	ASCII_Real

Dictionary: PDS4 Keyword <i>VICAR Property.VICAR Keyword</i>	General Definition <i>InSight-Specific Information</i>	XPath	
		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
geom:z_pixel	The z component of a Cartesian pixel vector; typically used in camera models.	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE_Model/Vector Horizontal/z_pixel 2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE_Model/Vector Vertical/z_pixel 3)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Horizontal/z_pixel 4)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Vertical/z_pixel 5)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR_Model/Vector Horizontal/z_pixel 6)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR_Model/Vector Vertical/z_pixel 	ASCII_Real
geom:z_position	The z component of a Cartesian position vector.	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVORE_Model/Vector Center/z_position 2)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHV Model/Vector Center/z_position 3)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Camera Model Parameters/CAHVOR_Model/Vector Center/z_position 4)/Product Observational/Observation Area/Discipline Area/Geometry/Geometry Lander/Coordinate Space Definition[*]/Vector Origin Offset/z_position 	ASCII_Real <i>Units_of_Length</i>
cart:z_position <i>SURFACE_PROJECTION_PARMES. PROJECTION_ORIGIN_VECTOR</i>	The z component of a Cartesian position vector.	<ul style="list-style-type: none"> 1)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Map Projection Lander/Cylindrical/Vector Projection Origin/z_position 2)/Product Observational/Observation Area/Discipline Area/Cartography/Spatial Reference Information/Horizontal Coordinate System Definition/Local/Surface Model Parameters/Surface Model Planar/Vector Surface Ground Location/z_position 	ASCII_Real <i>Units_of_Length</i>
	The z component of a Cartesian position vector.	1)/ Product Observational/Observation Area/Discipline Area/Surface Imaging/Derived Product Parameters/Vector Range Origin/z_position	

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		Valid Values (attribute) <i>Children (class)</i>	Data Type <i>Units</i>
img_surface:z_position <i>DERIVED_IMAGE_PARS. RANGE_ORIGIN_VECTOR</i>			ASCII_Real <i>Units_of_Length</i>
geom:z_unit	The z component of a unit Cartesian vector.	1)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Vector_Axis/z_unit 2)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVORE_Model/Vector_Optical/z_unit 3)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHV_Model/Vector_Axis/z_unit 4)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Articulation_Device_Parameters[1]/Vector_Device_Gravity/z_unit 5)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model/Vector_Axis/z_unit 6)/Product_Observational/Observation_Area/Discipline_Area/Geometry/Geometry_Lander/Camera_Model_Parameters/CAHVOR_Model/Vector_Optical/z_unit	ASCII_Real
cart:z_unit <i>SURFACE_MODEL_PARS. SURFACE_NORMAL_VECTOR</i>	The z component of a unit vector.	1)/Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Surface_Model_Parameters/Surface_Model_Planar/Vector_Surface_Normal/z_unit	ASCII_Real
cart:zero_elevation_line <i>SURFACE_PROJECTION_PARS. ZERO_ELEVATION_LINE</i>	The zero_elevation_line attribute specifies the image line representing 0.0 degree elevation. Applies to Cylindrical lander map projections.	1)/Product_Observational/Observation_Area/Discipline_Area/Cartography/Spatial_Reference_Information/Horizontal_Coordinate_System_Definition/Local/Map_Projection_Lander/Cylindrical/zero_elevation_line	ASCII_Real