

Geometry dictionary Version 1.3.0: Summary of changes since version 1.2.0

Note there were numerous typo corrections and a few minor adjustments which are described in the <documentation> attribute at the top of the schema file and in the modification history in the dictionary product label (see comments under version 1.2.1 and version 1.3.0).

In version 1.3.0, the Geometry Orbiter portion of the Geometry dictionary underwent a major reorganization. Many classes and attributes were renamed, either for improved clarity or to bring the names into compliance with formation rules specified in the Standards Reference. All are documented in the modification history.

Appendix A gives before and after, high level outlines of the dictionary schema file.

One significant change in version 1.3.0 is the removal of the choice between Geometry_Orbiter and Geometry_Lander within the Geometry class. The previous construction required that at least one of the two classes be present. Now both are optional.

Another significant change in version 1.3.0 is the expansion of parameters given as a range of values. This in turn necessitated providing geometry reference time as a range: geometry_start_time and geometry_stop_time. geometry_reference_time was previously required. Now it, along with the two range parameters, is included in a choice, with at least one required. All three variations may be used in a label.

There are now two types of ranges for geometric parameters:

- start_<parameter >, stop_<parameter > give the values of the parameters at the beginning and end of the observation. These correspond to the times given by geometry_start_time and geometry_stop_time.
- minimum_<parameter>, maximum_<parameter> give the minimum and maximum values in the product. These may or may not be calculated for a single time. For example, in a short exposure image of a planetary surface, quantities like min/max longitude typically are calculated for the same time. Conversely for an observation over several hours (e.g., push broom camera, imaging spectrometer) the values typically represent the range over the observation and are not associated with any particular time within the observation.

Associating time with a particular parameter.

All single valued (specific) parameters in the Geometry_Orbiter class must be determined at the time specified by geometry_reference_time.

For parameters given as start_ / stop_ pairs, the values are associated with geometry_start_time and geometry_stop_time respectively

For parameters given as minimum_ / maximum_ pairs, there is no requirement to identify an associated time. However, comments should be used to provide as much temporal information as is practical (e.g., indicate if the values are associated with the geometry_reference_time.

Schematron rules ensure that if either of a range's endpoints (time or geometric parameter) is used, both are given, and that if start_<parameter > and stop_<parameter > are used, geometry_start_time and geometry_stop_time are also given.

Ensuring that the appropriate geometry time information is given in products for which minimum_<parameter> and maximum_<parameter> are used must be the responsibility of the provider, the archiving node, and the peer review. Additional help with this dictionary is available from the SBN's Geometry Dictionary wiki:

http://sbndev.astro.umd.edu/wiki/Filling_Out_the_Geometry_Dictionary_Classes.

Appendix A High Level Outlines of the Geometry Dictionary before and with version 1.3.0

The overall structure of the dictionary and the overall organization of the Geometry_Lander class are unchanged:

Geometry

- SPICE_Kernel_Files
- Image_Display_Geometry
- choice[1,*]
 - Geometry_Orbiter
 - Geometry_Lander
 - Articulation_Device_Parameters
 - Camera_Model_Parameters
 - Coordinate_Space_Definition
 - Derived_Geometry
 - Motion_Counter

The Geometry Orbiter class changed significantly:

Prior to version 1.3.0

Geometry_Orbiter

- geometry_reference_time
- Central_Body_Identification
- Geometry_Target_Identification
- Coordinate_System_Identification
- Specific_Distances
 - Distance_Generic
- Pixel_Dimensions
- Surface_Geometry
- Illumination_Geometry
 - Illumination_Single_Values
 - Illumination_FOV_Range_Values
- Specific_Cartesian_Vectors
- Specific_Planetocentric_Vectors
- Generic_Vectors

Version 1.3.0

Geometry_Orbiter

- choice [1,3]
 - geometry_reference_time
 - geometry_start_time
 - geometry_stop_time
- Orbiter_Identification
 - Central_Body_Identification
 - Geometry_Target_Identification
 - Coordinate_System_Identification
- Pixel_Dimensions
- Distances
 - Distances_Specific
 - Distances_Min_Max
 - Distances_Start_Stop
 - Distance_Generic
- Surface_Geometry
 - Surface_Geometry_Specific
 - Surface_Geometry_Min_Max
 - Surface_Geometry_Start_Stop
- Illumination_Geometry
 - Illumination_Geometry_Specific
 - Illumination_Geometry_Min_Max
 - Illumination_Geometry_Start_Stop
- Vectors
 - Vectors_Cartesian_Specific
 - Vectors_Planetocentric_Specific
 - Generic_Vectors