Filling out the SPICE Kernel Files Class

The SPICE_Kernel_Files class is used to cite the specific SPICE kernel files used in calculating the associated geometry. Since SPICE kernels are also archivable products, they will usually be referenced by their PDS logical identifier and version ID (i.e., *LIDVID*) by the time the associated data are archived. If referencing by LIDVID presents a problem, you should let PDS node consultant know ASAP, and use the various names and IDs that are included optionally in this class to help link early mission data to its final SPICE kernels after the fact.

<SPICE_Kernel_Identification>

REQUIRED

You are required to identify at least one SPICE kernel in your <*SPICE_Kernel_Files*> class. You will repeat this class for each kernel file you need to reference.

Note that if you reference a meta-kernel, you do *not* need to reference all the kernel files that the meta-kernel references. Make sure you include the appropriate version ID in the kernel reference, though.

Usage Note

Always use <*Internal_Reference*> to identify any SPICE kernel that has a LIDVID, and always use the version ID (the "VID" part) when you do.

<kernel_type>

OPTIONAL

This is the standard NAIF/SPICE abbreviation used to identify kernels in that toolkit. If it is used, it must have one of the following values:

- CK
- DBK
- DSK
- EK
- FK
- IK
- LSK
- MK
- PCK
- SCLK
- SPK

<spice_kernel_file_name>

REQUIRED

This is the name of the file containing the SPICE kernel. Do not include path information (it is unlikely to be correct in the archive), but do include the correct extension.

<kernel_provenance>

OPTIONAL

This attribute indicates whether the data in the kernel cited is a prediction, a reconstruction, a combination of those two, or if that distinction is not relevant (as in the case of a leap second kernel). It must contain one of the following values:

- **Mixed**
- **Predicted**

- **Provenance Not Applicable**
- **Reconstructed**

> **Note:** *While this attribute is technically optional, you should* always *use it to indicate at least at a coarse level the quality of the geometric values provided wherever that makes sense.*

<pds:Internal_Reference>

OPTIONAL

Use this class to identify your SPICE kernels by their PDS URI (LIDVID, in particular). This allows the kernels to be programmatically linked to this data product.

Note that this class is actually in the PDS namespace, as are all its elements, so you will need to indicate that namespace for this class and its elements. There are two ways to do that: by using a pre-defined namespace prefix, or by specifying the PDS4 core namespace URI via an *xmlns* XML-attribute in each of the tags. For this page, we're using the namespace abbreviation as a prefix on the tag.

If that all sounds like gibberish to you, you might want to check the Namespace Reference topic on the Schema Referencing in PDS4 Labels page.

<pds:lid_reference> or <pds:livid_reference>

REQUIRED

One or the other of these is required to be present. In most cases, version matters and you should reference your SPICE kernel products by LIDVID rather than just LID.

<pds:reference_type>

REQUIRED

This *must* have a value of **geometry_to_SPICE_kernel**.

<pds:comment>

OPTIONAL

If you have anything else you'd like to say about the particular kernel product being referenced, do it here.

<comment>

OPTIONAL

If you have any additional comments to make about the SPICE kernels you've referenced as a group, this is the place to do it.

> ***Note:*** *This attribute is currently repeatable, but it probably shouldn't be. Don't repeat it.*