

Standards Change Request

Pointer/Object Ambiguity in the Standards Reference

SCR 3-1127.v3

Provenance:

Submitted

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Problem:

As labels become more complicated, we frequently encounter the case of multiple objects of the same basic type (IMAGE or TABLE, e.g.) being described in the same label. By convention we at SBN have always used unique identifiers for objects of similar type, which we formulate by prepending a descriptive modifier to the base type (as is done in the occasional SR example). Recent interaction with the Rosetta mission, however, has pointed out two major logical holes in the PDS label (and possibly ODL) standards: 1. I can find no requirement in the SR that object identifiers be unique within an ODL file. 2. I can find no statement in the SR that object identifiers in PDS labels must end, or even contain, the base object type. Similarly, there is not statement in the SR that requires that pointers and objects with the same name should be mapped to each other based on their sequence in the file.

Current Urgency:

Medium.

Proposed Solution:

Modify the text of the Standards reference to stipulate that object identifiers must be unique within the containing label.

Impact Assessment:

PDS Standards Reference – Changes as described in "Requested Changes"

Archive Preparation Guide – no impact

Proposer's Archive Guide – no impact

Planetary Science Data Dictionary – no impact

PDS tools - Must be modified to check for and report duplicates.

PDS Web Site – no impact

External Agencies – no impact?

External Interfaces – no impact?

Compliance/compatibility with ODL and ISO Standards – no impact

Additional Information:

Sections within PDS Standards Reference which refer to Object Pointers

4.1 Data Product File Configurations

Examples

5.1.1 Labeling methods

5.2.1 Attached and Detached Labels

5.2.2 Combined Detached Labels

5.2.3 Minimal Labels

5.3 Detailed Label Contents Description

5.3.3 Data Object Pointers

5.3.3.1 Use of Pointers in Attached Labels

12.1 About the ODL Specification

12.4.3 Pointer Statement

14.1.1 Data Location Pointers (Data Object Pointers)

14.2 Rules for Resolving Pointers

A.17.5 Example

Figures which use Pointers

Figure 5.2 PDS Attached / Detached Label Structure

Figure 5.6 Data Object Pointers – Detached & Combined Labels

Requested Changes:

Change section "5.3.3.1 Use of Pointers in Attached Labels" to insert the text:

The <object_identifier> is the unique name assigned to the object description.

before

See Chapter 12, Object Description

Change section " 5.3.3.2 Use of Pointers in Detached and Combined Detached Labels" by inserting:

(e) The <object_identifier> is the unique name of an object description.

after:

(d) Records and bytes are numbered from 1.

Add a section

12.4.4.2 PDS Usage of OBJECT

If an object is referenced using a data object pointer, then the object identifier must be unique within a label context. For example, if multiple IMAGE objects exist in a label then only one IMAGE object can have the generic identifier of "IMAGE", the other IMAGE object must have a different identifier which ends with "_IMAGE" (i.e. SECOND_IMAGE) to indicate its object class.

In the introductory text of "Chapter 14. Pointer Usage" change:

Pointer statements begin with a caret ("^") and the name of a PDS object or element.

to:

Pointer statements begin with a caret ("^") and the identifier assigned to an object or the name of an element.

Change the text of section "14.1.1 Data Location Pointers (Data Object Pointers)" from:

The most common use of pointers is for linking object descriptions to the actual data. The syntax of these pointers depends on whether the label is attached or detached from the data it describes.

to:

The most common use of pointers is for linking object descriptions to the actual data. This is called a "data object pointer." A Data Object pointer begins with a caret ("^") followed by the identifier assigned to the object description within the label. The syntax for the values assigned to these pointers depends on whether the label is attached or detached from the data it describes.

Correct the example in "A.26.5 Example"

Change:

OBJECT = SPECTRUM

to:

OBJECT = TOTAL_INTENSITY_SPECTRUM