

PDS4 Examples

PDS 2010 Tech Session

June 10, 2009

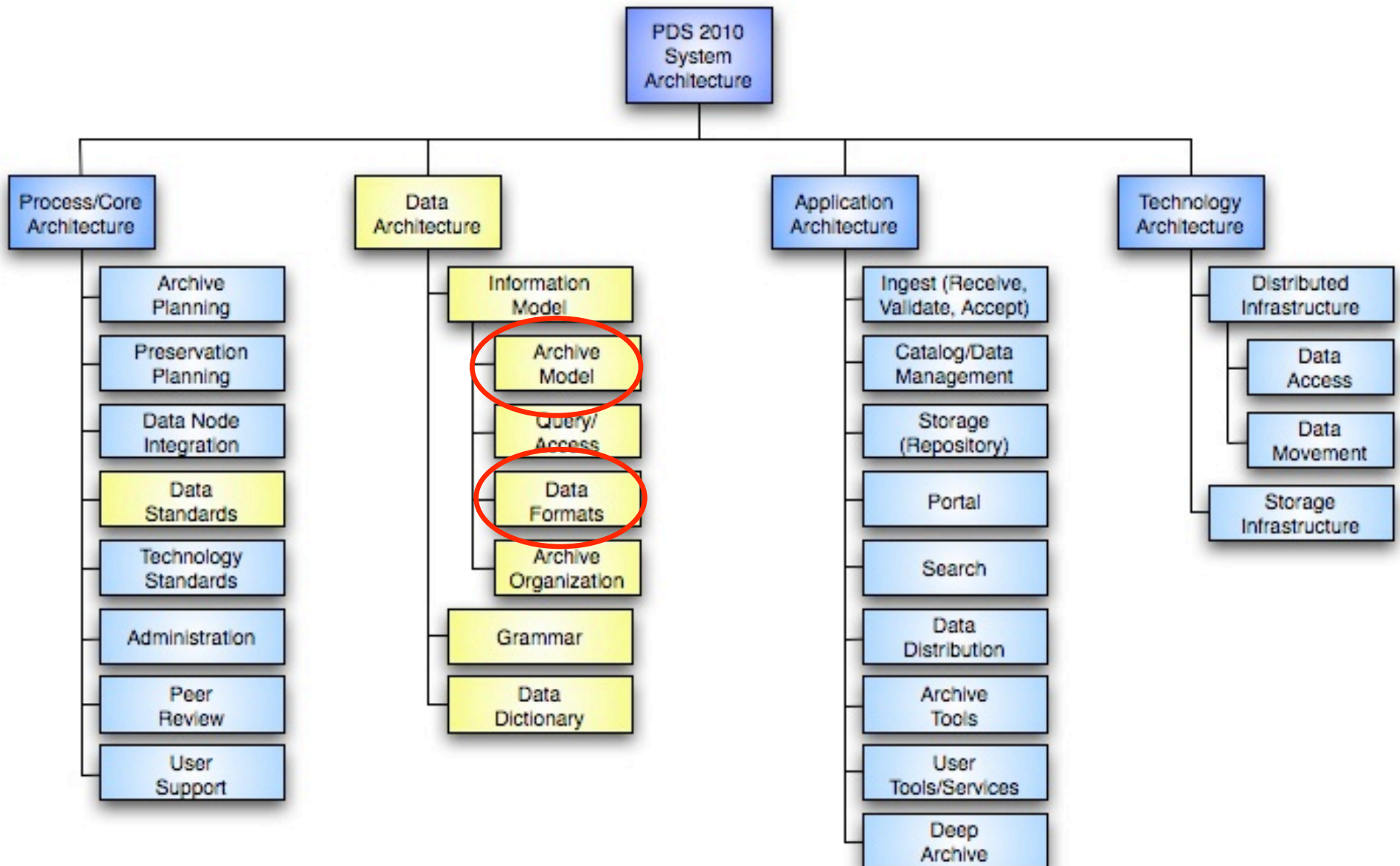
PDS 2010 Data Design WG

Purpose

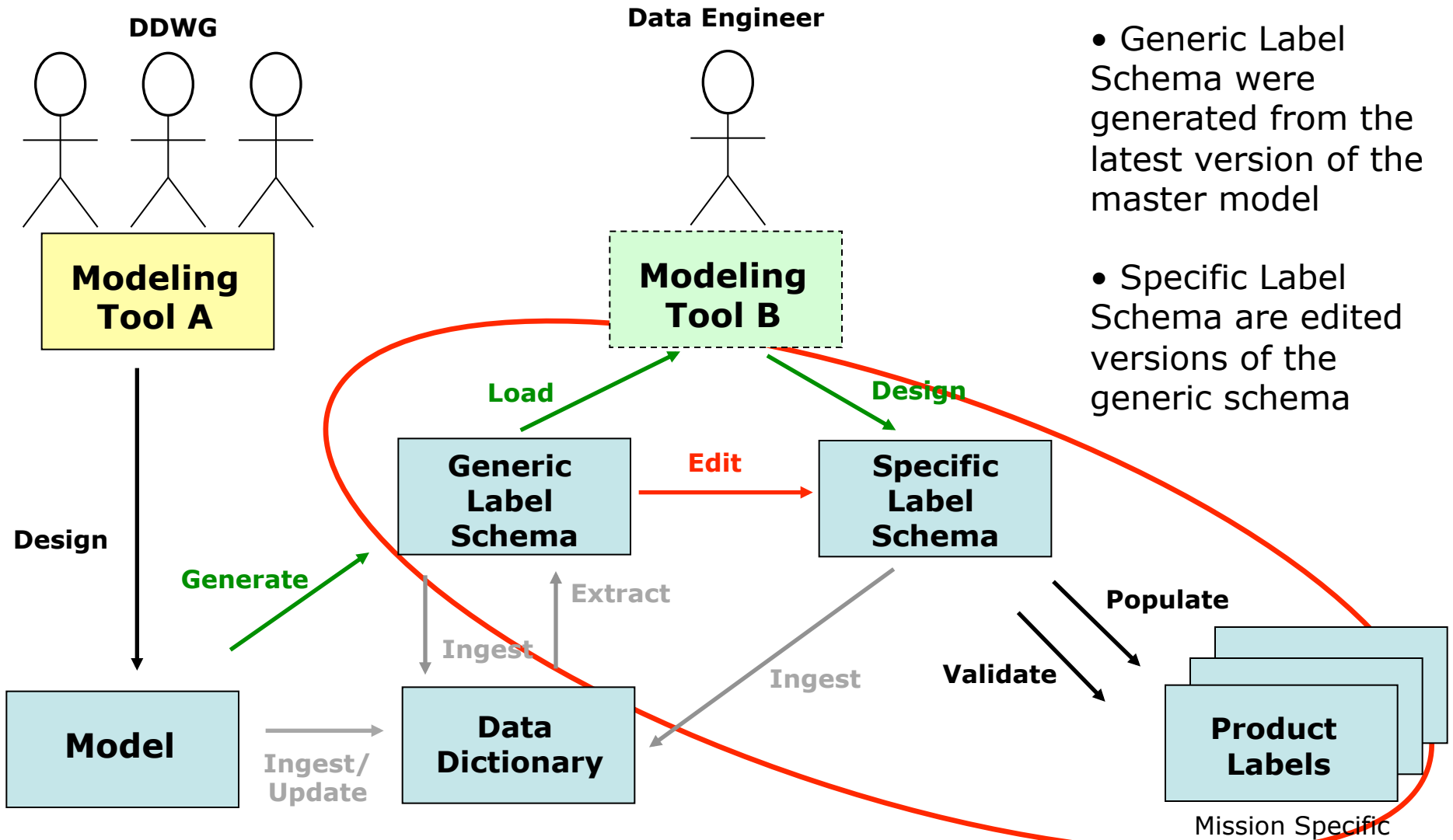
- Present a user friendly view of the PDS4 data model using real examples
- Show the process for creating a label
 - Get a generic label schema
 - Design a specific label schema
 - Populate a label using the specific label schema

Note – This process is currently being done manually or using XML tools such as Oxygen. The systems design group will talk about label design approaches.

PDS 2010 Architecture



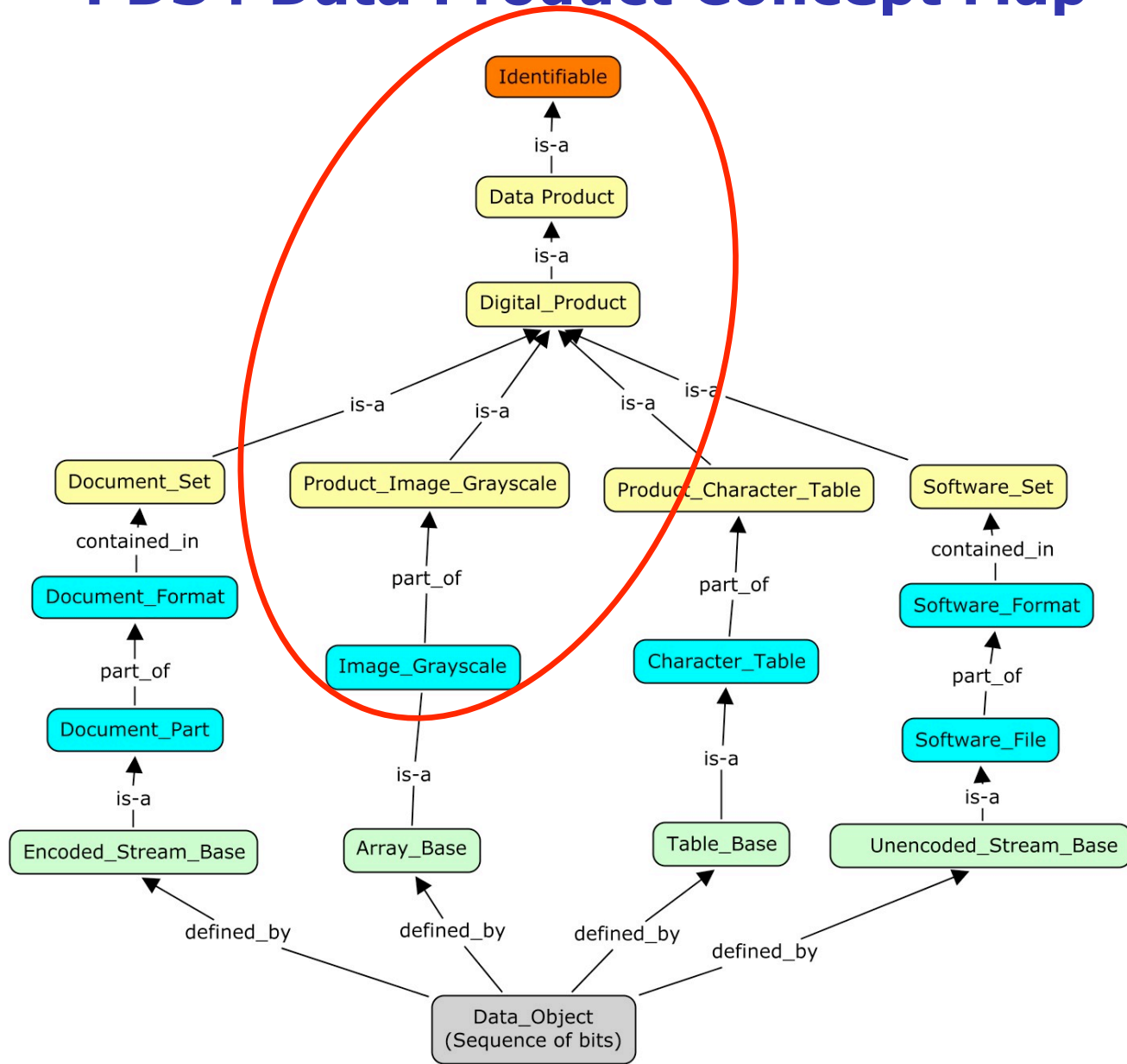
PDS4 Product Label Creation



- Generic Label Schema were generated from the latest version of the master model
- Specific Label Schema are edited versions of the generic schema

Current using editor
Current using Oxygen/Future Design Tool
 Proposed

PDS4 Data Product Concept Map



Image_Grayscale Example

Label Template

```
Object = Image_Grayscale; /* Occurs 1 Times */
  Data_Location      = (${file_local_identifier}, ${offset});
  first_element     = TOPLEFT;
  min_index         = 0;
  number_of_axes    = 2;
  axes_order        = FAST2SLOW;
  byte_order        = MSBF;
  element_type      = ${element_type};
  axis_length       = (${axis_length}, ${axis_length});
  axis_name         = (${axis_name}, ${axis_name});
End_Object = Image_Grayscale;
```

↓

**Edit &
Populate**

→

Label

```
Object      = Image_Grayscale;
  Data_Location = (filename, 0);
  first_element = TOPLEFT;
  min_index    = 0;
  number_of_axes = 2;
  axes_order   = FAST2SLOW;
  byte_order   = MSBF;
  element_type = DECIMAL_INTEGER;
  axis_length  = (800, 800);
  axis_name    = (ROW, COLUMN);
End_Object    = Image_Grayscale;
```

PDS4 Product Label

Product

```
Object = Product_Image_Grayscale
```

Identification Metadata

```
Object = Identification_Section;  
  Identifier           = <Unique within PDS>  
  URN                 = <Unique Globally>  
  Title               = <Display String on Web>  
  Version              = "1.0";  
  Label_Revision_Note = "20090101:1.0 - initial ..."  
  DD_Version_Id       = "DD_Version_Id";  
  PDS_Version_Id      = "PDS4.0";  
  Product_Creation_Time = 1998-07-14T00:36:08.000;  
End_Object = Identification_Section;
```

Descriptive Metadata

```
Object = Circumstances_Of_Observation_Section;  
  Start_Time           = 2001-06-06T12:00:00;  
  Spacecraft_Clock_Start_Count = "1246943630";
```

...

PDS4 Product Label

Context Information – Referencing – Under Construction

```
Object = Dataset_Section;  
  data_set_id = <data set>;  
  <data set specific parameters>  
End_Object = Dataset_Section;
```

```
Object = Mission_Section;  
  mission_name = <mission>;  
End_Object = Mission_Section;
```

```
Object = Target_Section;  
  target_name = <target>;  
End_Object = Target_Section;
```

```
Object = Instrument_Section;  
  instrument_id = <instrument>;  
End_Object = Instrument_Section;
```

```
Object = Instrument_Host_Section;  
  instrument_host_id = <host>;  
End_Object = Instrument_Host_Section;
```

```
Object = Node_Section;  
  node_id = <node>;  
End_Object = Node_Section;
```


PDS4 Product Label

Structural Metadata

```
Object = Tagged_Image_Grayscale_Set;
```

```
Object          = Image_Grayscale;  
  Data_Location = (filename, 255);  
  first_element = TOPLEFT;  
  min_index     = 0;  
  number_of_axes = 2;  
  axes_order    = FAST2SLOW;  
  byte_order    = MSBF;  
  element_bytes           = 1;  
  element_type            = DECIMAL_INTEGER;  
  axis_length             = (800, 800);  
  axis_name                = (ROW, COLUMN);  
End_Object              = Image_Grayscale;
```

PDS4 Product Label

File Metadata

```
OBJECT = FILE_SECTION;  
  OBJECT = FILE_BINARY_FIXED;  
    LOCAL_IDENTIFIER = "MPFL_M_IMP_IMAGE_FILE";  
    CHECKSUM          = "0ff0a5dd0f3ea4e104b0eae98c87f36c";  
    FILE_SIZE         = 12345;  
    FILE_NAME         = "N2075WE02R.FIT";  
    FILE_TYPE         = BINARY;  
    MAX_RECORD_BYTES = 512;  
    RECORD_TYPE       = FIXED;  
  END_OBJECT = FILE_BINARY_FIXED;
```

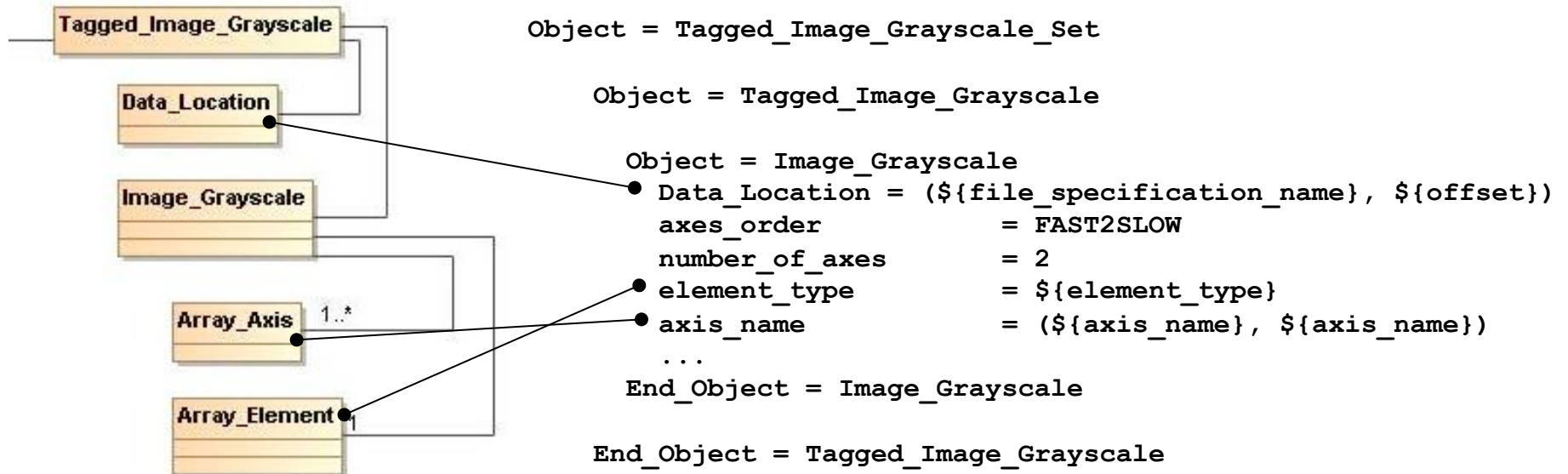
Example Munging Rules

•Flatten

- A class is flattened within a parent class by making each child class attribute a separate data element that is assigned a sequence of values.
- Example Array_Axis within Array_Base

•Sequence

- A class becomes a data element with a sequence of values. E.g. Data Location



Examples

- Detailed PDS4 Data Model Discussion
 - Image_Grayscale – Elizabeth R.
 - Table_Character – Lyle H.
 - Table_Character_Grouped – Ed G.
 - Software – Anne R.

Backup

Image Grayscale – UML to PVL Map

