
# Proposal to Deprecate the Display_2D_Image Class

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# Display_2D_Image

- Original Purpose
  - To resolve the ambiguity in vertical display direction for FITS vs. VICAR data
  - Only designed for two-dimensional array data
  - Very specific to imaging data

# Example of Old Class

```
<Array_2D_Image>
  <local_identifier>IMAGE DATA</local_identifier>
  <offset unit="byte">2048</offset>
  <axes>2</axes>
  <axis_index_order>Last Index Fastest</axis_index_order>
  <Element_Array>
    <data_type>UnsignedByte</data_type>
  </Element_Array>
  <Axis_Array>
    <axis_name>Sample</axis_name>
    <elements>1024</elements>
    <sequence_number>1</sequence_number>
  </Axis_Array>
  <Axis_Array>
    <axis_name>Line</axis_name>
    <elements>5632</elements>
    <sequence_number>2</sequence_number>
  </Axis_Array>
  <Display_2D_Image>
    <line_display_direction>Down</line_display_direction>
    <sample_display_direction>Right</sample_display_direction>
  </Display_2D_Image>
</Array_2D_Image>
```

# New Display Dictionary

- Purpose
  - Moves solution of the directionality problem to the Display_Direction class
  - Provides a more generalized solution for display of n-dimensional data, including non-imaging data
  - Includes instructions for display of color and video data; may easily incorporate sound in the future
  - Deliberately removes attributes describing *use* of data from core part of the model which describes *structure* of the data

# Example of New Class

```
<Discipline_Area>
  <disp:Display_Settings>
    <disp:Local_Internal_Reference>
      <disp:local_identifier_reference>IMAGE DATA</disp:local_identifier_reference>
      <disp:local_reference_type>display_settings_to_array</disp:local_reference_type>
    </disp:Local_Internal_Reference>
    <disp:Display_Direction>
      <disp:horizontal_display_axis>Sample</disp:horizontal_display_axis>
      <disp:horizontal_display_direction>Left to Right</disp:horizontal_display_direction>
      <disp:vertical_display_axis>Line</disp:vertical_display_axis>
      <disp:vertical_display_direction>Top to Bottom</disp:vertical_display_direction>
    </disp:Display_Direction>
  </disp:Display_Settings>
</Discipline_Area>
<Array_2D_Image>
  <local_identifier>IMAGE DATA</local_identifier>
  <offset unit="byte">2048</offset>
  <axes>2</axes>
  <axis_index_order>Last Index Fastest</axis_index_order>
  <Element_Array>
    <data_type>UnsignedByte</data_type>
  </Element_Array>
  <Axis_Array>
    <axis_name>Sample</axis_name>
    <elements>1024</elements>
    <sequence_number>1</sequence_number>
  </Axis_Array>
  <Axis_Array>
    <axis_name>Line</axis_name>
    <elements>5632</elements>
    <sequence_number>2</sequence_number>
  </Axis_Array>
</Array_2D_Image>
```

# Example with Color Description

```
<Discipline_Area>
  <disp:Display_Settings>
    <disp:Local_Internal_Reference>
      <disp:local_identifier_reference>IMAGE DATA</disp:local_identifier_reference>
      <disp:local_reference_type>display_settings_to_array</disp:local_reference_type>
    </disp:Local_Internal_Reference>
    <disp:Display_Direction>
      <disp:horizontal_display_axis>Sample</disp:horizontal_display_axis>
      <disp:horizontal_display_direction>Left to Right</disp:horizontal_display_direction>
      <disp:vertical_display_axis>Line</disp:vertical_display_axis>
      <disp:vertical_display_direction>Top to Bottom</disp:vertical_display_direction>
    </disp:Display_Direction>
    <disp:Color_Display_Settings>
      <disp:color_display_axis>Band</disp:color_display_axis>
      <disp:red_channel_band>1</disp:red_channel_band>
      <disp:green_channel_band>2</disp:green_channel_band>
      <disp:blue_channel_band>3</disp:blue_channel_band>
    </disp:Color_Display_Settings>
  </disp:Display_Settings>
</Discipline_Area>
```

# Example with Video Description

```
<Discipline_Area>
  <disp:Display_Settings>
    <disp:Local_Internal_Reference>
      <disp:local_identifier_reference>RASTER MOVIE DATA</disp:local_identifier_reference>
      <disp:local_reference_type>display_settings_to_array</disp:local_reference_type>
    </disp:Local_Internal_Reference>
    <disp:Display_Direction>
      <disp:horizontal_display_axis>Sample</disp:horizontal_display_axis>
      <disp:horizontal_display_direction>Left to Right</disp:horizontal_display_direction>
      <disp:vertical_display_axis>Line</disp:vertical_display_axis>
      <disp:vertical_display_direction>Top to Bottom</disp:vertical_display_direction>
    </disp:Display_Direction>
    <disp:Movie_Display_Settings>
      <disp:time_display_axis>Time</disp:time_display_axis>
      <disp:frame_rate unit="frames/s">6</disp:frame_rate>
      <disp:loop_flag>true</disp:loop_flag>
      <disp:loop_count>10</disp:loop_count>
      <disp:loop_delay unit="s">3</disp:loop_delay>
      <disp:loop_back_and_forth_flag>false</disp:loop_back_and_forth_flag>
    </disp:Movie_Display_Settings>
  </disp:Display_Settings>
</Discipline_Area>
```