

# PGE Version Class

- [Element Description](#)
- [Best Practices](#)
- [Element Specification](#)
- [Metadata Validation and QA/QC](#)
- [Dialect Mappings](#)
  - [ECHO 10](#)
  - [ISO 19115-2 MENDS](#)
  - [ISO 19115-2 SMAP](#)
- [UMM Migration](#)
- [History](#)
  - [UMM Versioning](#)
  - [ARC Documentation](#)

## Element Description

The PGE Version Class element stores basic descriptive characteristics related to the Product Generation Executable (PGE) associated with a granule. PGE refers to software used to produce a standard data product.

## Best Practices

There are two sub-elements that comprise PGE Version Class:

- **PGE Name:** The name of the product generation executable.
- **PGE Version:** Version of the product generation executable used to produce the granule.

Providing the PGE Version Class is optional. If provided, the Version number must be included - providing the PGE Name remains optional.

### Examples:

PGE Name: "MOD\_PR10A2\_8day\_snow\_cover\_tile"

PGE Version: "6.0.27"

PGE Name: "OMCLDO2 Level 2"

PGE Version: "2.0.0.9"

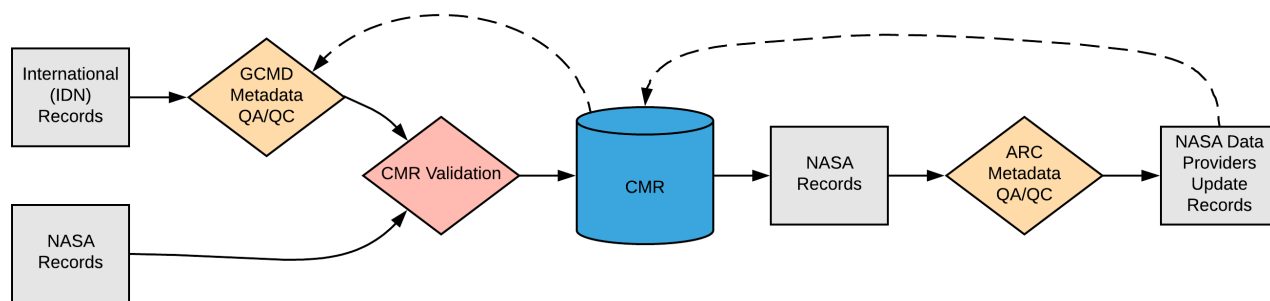
## Element Specification

The PGE Version Class element is optional. Only one PGE Version Class may be provided (Cardinality: 0..1)

| Model | Element                    | Type   | Constraints         | Required?          | Cardinality |
|-------|----------------------------|--------|---------------------|--------------------|-------------|
| UMM-G | PGEVersionClass/PGEName    | String | 1 - 1024 characters | No                 | 0..1        |
| UMM-G | PGEVersionClass/PGEVersion | String | 1 - 10 characters   | Yes, if applicable | 1           |

## Metadata Validation and QA/QC

All metadata entering the CMR goes through the below process to ensure metadata quality requirements are met. All records undergo CMR validation before entering the system. The process of QA/QC is slightly different for NASA and non-NASA data providers. Non-NASA providers include interagency and international data providers and are referred to as the International Directory Network (IDN).



Please see the expandable sections below for flowchart details.

<>

### ARC Priority Matrix

| Priority Categorization          | Justification                                                                                                                                                                                                                       |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Red = High Priority Finding      | This element is categorized as highest priority when: <ul style="list-style-type: none"> <li>The information provided is incorrect for the granule.</li> <li>A PGE Name is provided without an accompanying PGE Version.</li> </ul> |
| Yellow = Medium Priority Finding | Not Applicable                                                                                                                                                                                                                      |
| Blue = Low Priority Finding      | Not Applicable                                                                                                                                                                                                                      |
| Green = No Findings/Issues       | The element is provided and follows all applicable criteria specified in the best practices section above.                                                                                                                          |

### ARC Automated Checks

ARC uses the [pyQuARC library](#) for automated metadata checks. Please see the [pyQuARC GitHub](#) for more information.

## Dialect Mappings

### ECHO 10

The PGE Version Class element is optional in ECHO 10. Only one PGE Version Class may be provided (Cardinality: 0..1)

| UMM-G Element              | ECHO 10 Path               | Type   | Constraints         | Required in ECHO10? | Cardinality |
|----------------------------|----------------------------|--------|---------------------|---------------------|-------------|
| PGEVersionClass/PGEName    | PGEVersionClass/PGEName    | String | 1 - 1024 characters | No                  | 0..1        |
| PGEVersionClass/PGEVersion | PGEVersionClass/PGEVersion | String | 1 - 10 characters   | Yes, if applicable  | 1           |

### Example Mapping

ECHO 10

```

<PGEVersionClass>
  <PGEName>OMCLD02 Level 2</PGEName>
  <PGEVersion>2.0.0.9</PGEVersion>
</PGEVersionClass>
  
```

UMM

```

"PGEVersionClass": {
  "PGEName": "OMCLD02 Level 2",
  "PGEVersion": "2.0.0.9"
},
  
```

## ISO 19115-2 MENDS

The below table specifies where the CMR looks for PGE Version Class information in ISO. Only one PGE Version Class will be translated from ISO to the CMR (Cardinality: 0..1). Providing PGE Version class is optional, but if provided, should at a minimum include the PGE Version.

| UMM-G Element               | ISO Path                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Type   | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PGEVersionClass /PGEName    | (CMR read and write - use this ISO path to insure that the PGE Version Class will be translated from ISO to other CMR supported metadata dialects)*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | String | For read & write:<br><br>Both the PGE Name and PGE Version should be provided in the gmd:code field. The PGE Name should be preceded by the prefix "PGEName: " and the PGE Version should be preceded by the prefix "PGEVersion: ". It is not necessary to use any symbols to separate the PGE Version and PGE Class - all that is needed is the prefix.<br><br>For write only:<br><br>Provide the PGE Name value in the gmd:title field. Provide the PGE Version in the gmd:edition field. The "gmd:date gco:nilReason="unknown" path is present because it is required by ISO, but is not needed by the CMR. |
| PGEVersionClass /PGEVersion | /gmi:MI_Metadata/gmd:dataQualityInfo/gmd:DQ_DataQuality<br>/gmd:lineage/gmd:LI_Lineage/gmd:processStep/gmi:LE_ProcessStep [=><br>[=>/gmd:description/gco:CharacterString = PGEVersionClass<br>[=>/gmi:processingInformation/eos:EOS_Processing/gmi:identifier/gmd:MD_Identifier/gmd:code/gco:CharacterString = PGEName: {the actual PGEName} PGEVersion: {the actual PGEVersion}<br>[=>/gmi:processingInformation/eos:EOS_Processing/gmi:identifier/gmd:MD_Identifier/gmd:codeSpace/gco:CharacterString = gov.nasa.esdis.umm.pgeversionclass<br>[=>/gmi:processingInformation/eos:EOS_Processing/gmi:identifier/gmd:MD_Identifier/gmd:description/gco:CharacterString = PGEVersionClass<br><br>(The below x-path is CMR write only. This means that metadata records that gets translated from another metadata format to ISO will have the PGE Version Class written to this location in ISO in addition to the read & write path specified above)<br><br>/gmi:MI_Metadata/gmd:dataQualityInfo/gmd:DQ_DataQuality<br>/gmd:lineage/gmd:LI_Lineage/gmd:processStep/gmi:LE_ProcessStep [=><br><br>[=>/gmi:processingInformation/eos:EOS_Processing/gmi:softwareReference/gmd:CI_Citation/gmd:title/gco:CharacterString {PGEName}<br>[=>/gmi:processingInformation/eos:EOS_Processing/gmi:softwareReference/gmd:CI_Citation/gmd:date gco:nilReason="unknown"<br>[=>/gmi:processingInformation/eos:EOS_Processing/gmi:softwareReference/gmd:CI_Citation/gmd:edition/gco:CharacterString {PGEVersion} |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### Example Mapping

ISO 19115-2 MENDS

```

Example 1: CMR read & write
<gmi:MI_Metadata>
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <gmd:lineage>
        <gmd:LI_Lineage>
          <gmd:processStep>
            <gmi:LE_ProcessStep>
              <gmd:description>
                <gco:CharacterString>PGEVersionClass<
/gco:CharacterString>
              </gmd:description>
              <gmi:processingInformation>
                <eos:EOS_Processing>
                  <gmi:identifier>
                    <gmd:MD_Identifier>
                      <gmd:code>
                        <gco:CharacterString>PGEName:
OMCLD02 Level 2 PGEVersion:2.0.0.9</gco:
CharacterString>
                      </gmd:code>
                      <gmd:codeSpace>
                        <gco:CharacterString>gov.nasa.
esdis.umm.pgeversionclass</gco:CharacterString>
                      </gmd:codeSpace>

```

```

        <gmd:description>
          <gco:
CharacterString>PGEVersionClass</gco:CharacterString>
        </gmd:description>
      </gmd:MD_Identifier>
    </gmi:identifier>
  </eos:EOS_Processing>
</gmi:processingInformation>
</gmi:LE_ProcessStep>
</gmd:processStep>
</gmd:LI_Lineage>
</gmd:lineage>
</gmd:DQ_DataQuality>
</gmd:dataQualityInfo>
</gmi:MI_Metadata>

Example 2: CMR write only
<gmi:MI_Metadata>
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <gmd:lineage>
        <gmd:LI_Lineage>
          <gmd:processStep>
            <gmi:LE_ProcessStep>

              <gmi:processingInformation>
                <eos:EOS_Processing>
                  <gmi:softwareReference>
                    <gmd:CI_Citation>
                      <gmd:title>
                        <gco:CharacterString>OMCLD02
Level 2</gco:CharacterString>
                      </gmd:title>
                      <gmd:date gco:nilReason="
unknown"/>
                      <gmd:edition>
                        <gco:CharacterString>2.0.0.9<
/gco:CharacterString>
                      </gmd:edition>
                      </gmd:CI_Citation>
                    </gmi:softwareReference>
                  </eos:EOS_Processing>
                </gmi:processingInformation>
              </gmi:LE_ProcessStep>
            </gmd:processStep>
          </gmd:LI_Lineage>
        </gmd:lineage>
      </gmd:DQ_DataQuality>
    </gmd:dataQualityInfo>
  </gmi:MI_Metadata>

```

UMM

```

"PGEVersionClass": {
  "PGENAME": "OMCLD02 Level 2",
  "PGEVersion": "2.0.0.9"
},

```

ISO 19115-2 SMAP

PGE Version Class currently does not map to ISO 19115-2 SMAP.

| UMM-G Element   | ISO Path | Type | Notes |
|-----------------|----------|------|-------|
| PGEVersionClass | N/A      | N/A  | N/A   |

## Example Mapping

ISO 19115-2 SMAP

N/A

UMM

N/A

## UMM Migration

| UMM Version 1.4.0 | Translation Direction | UMM Version 1.5.0 |
|-------------------|-----------------------|-------------------|
|                   |                       |                   |

## History

### UMM Versioning

| Version | Date       | What Changed                                                                                  |
|---------|------------|-----------------------------------------------------------------------------------------------|
| 1.6.0   | 11/4/2019  | No changes were made for PGE Version Class during the transition from version 1.5.0 to 1.6.0. |
| 1.5.0   | 01/30/2019 | No changes were made for PGE Version Class during the transition from version 1.4.0 to 1.5.0. |
| 1.4.0   | 08/01/2018 | No changes were made for PGE Version Class during the transition from version 1.3.0 to 1.4.0. |

### ARC Documentation

| Version | Date       | What Changed                                                                              | Author                                                                  |
|---------|------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1.0     | 04/11/2019 | Recommendations/priority matrix transferred from internal ARC documentation to wiki space | <a href="#">Ingrid Garcia-Solera</a><br><a href="#">Jeanne' le Roux</a> |