

Collection Reference

- [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 Collection Reference identifies the collection to which the granule belongs. This is done by providing the collection's [Short Name](#) and [Version Id](#), or the collection's [Entry Title](#).

Best Practices

It is required that each granule be associated with a parent collection metadata record via the Collection Reference element. This can be done in one of two ways:

Option 1: Provide the collection [Short Name](#) and [Version](#).

- Short Name: The collection's short name per the UMM-C.
- Version Id: The collection's version per the UMM-C.

Option 2: Provide the collection [Entry Title](#).

- Entry Title: The collections entry title per the UMM-C.

Example:

Option 1	Option 2
Short Name: AST14DEM Version: 003	Entry Title: ASTER Digital Elevation Model V003

Element Specification

Collection Reference is required in the UMM-G (Cardinality: 1). Use option 1 OR option 2.

Option 1:

Model	Element	Type	Constraints	Required?	Cardinality
UMM-G	CollectionReference/ShortName	String	1 - 85 characters	Yes	1
UMM-G	CollectionReference/Version	String	1 - 80 characters	Yes	1

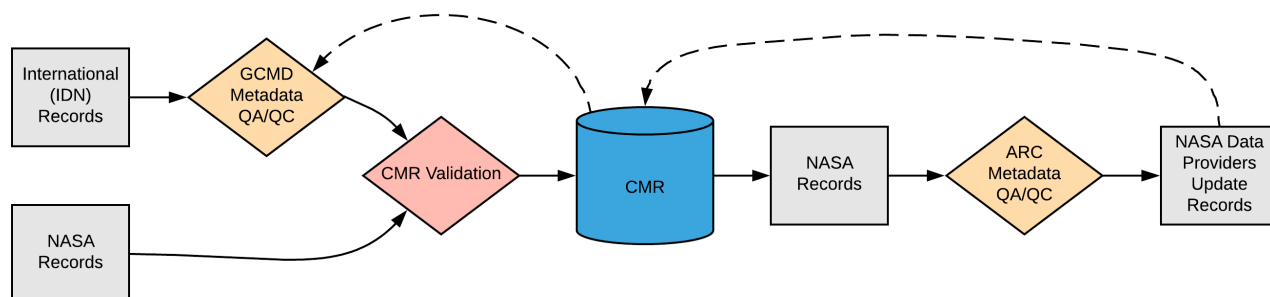
OR

Option 2:

Model	Element	Type	Constraints	Required?	Cardinality
UMM-G	CollectionReference/EntryTitle	String	1 - 1030 characters	Yes	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: - Both the Short Name and Version Id or the Entry Title is not provided. - The Short Name, Version Id or Entry Title provided are not identical to the associated collection.
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

Collection Reference is required in ECHO 10 (Cardinality: 1). Use option 1 OR option 2.

Option 1:

UMM-G Element	ECHO 10 Path	Type	Constraints	Required in ECHO10?	Cardinality
CollectionReference/ShortName	Collection/ShortName	String	n/a	Yes	1
CollectionReference/Version	Collection/VersionId	String	n/a	Yes	1

OR

Option 2:

UMM-G Element	ECHO 10 Path	Type	Constraints	Required in ECHO10?	Cardinality
CollectionReference/EntryTitle	Collection/DataSetId	String	n/a	Yes	1

Example Mapping

ECHO 10

```

    Option 1:
<Collection>
  <ShortName>GPM_1BPR</ShortName>
  <VersionId>05</VersionId>
</Collection>

    Option 2:
<Collection>
  <EntryTitle>GPM PR on TRMM Echo Power L1B 1.5
hours 5 km V05 (GPM_1BPR) at GES DISC</EntryTitle>
</Collection>

```

UMM

```

Option 1:
"CollectionReference": {
  "ShortName": "GPM_1BPR",
  "Version": "05"

Option 2:
"CollectionReference": {
  "EntryTitle": "GPM PR on TRMM Echo Power L1B
1.5 hours 5 km V05 (GPM_1BPR) at GES DISC"

```

ISO 19115-2 MENDS

Collection Reference is not required in ISO 19115-2 MENDS (Cardinality: 0..*), however, it is required that this information be provided in the CMR. Provide option 1 OR option 2.

Option 1:

UMM-G Element	ISO Path	Type	Notes
CollectionReference /ShortName	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/ [=> [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:code/gco:CharacterString = {the actual Collection ShortName} [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:codeSpace/gco:CharacterString=gov.nasa.esdis.umm.collectionshortname [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:description/gco:CharacterString = CollectionShortName	String	The Short Name is provided in the gmd:code field. Provide the string "gov.nasa.esdis.umm.collectionshortname" in the gmd:codeSpace field. The CMR will use this string to parse out the appropriate Short Name value. Also provide the string "CollectionShortName" in the gmd:description field. The CMR will use this string to parse out the appropriate Short Name value.
CollectionReference /Version	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/ [=> [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:code/gco:CharacterString = {the actual Collection Version} [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:codeSpace/gco:CharacterString=gov.nasa.esdis.umm.collectionversion [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:description/gco:CharacterString = CollectionVersion	String	The Version Id is provided in the gmd:code field. Provide the string "gov.nasa.esdis.umm.collectionversion" in the gmd:codeSpace field. The CMR will use this string to parse out the appropriate Version Id value. Also provide the string "CollectionVersion" in the gmd:description field. The CMR will use this string to parse out the appropriate Version Id value.

OR

Option 2:

UMM-G Element	ISO Path	Type	Notes
---------------	----------	------	-------

CollectionReference/EntryTitle	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation [=> [=>/gmd:associationType/gmd:DS_AssociationTypeCode codeList= " https://cdn.earthdata.nasa.gov/iso/resources/Codelist/gmxCodetests.xml#DS_AssociationTypeCode " codeListValue="LargerWorkCitation" = LargerWorkCitation [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:code/gco:CharacterString = {the actual Collection EntryTitle} [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:codeSpace/gco:CharacterString=gov.nasa.esdis.umm.entrytitle [=>/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:description/gco:CharacterString = EntryTitle	String	Select the codelist value "LargerWorkCitation". The Entry Title is provided in the gmd:code field. Provide the string "EntryTitle" in the gmd:description field. The CMR will use this string to parse out the appropriate Entry Title value.
--------------------------------	---	--------	---

Example Mapping

ISO 19115-2 MENDS

```

Option 1:
<gmi:MI_Metadata>
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:aggregationInfo>
        <gmd:MD_AggregateInformation>
          <gmd:aggregateDataSetIdentifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gco:CharacterString>GPM_1BPR</gco:
CharacterString>
              </gmd:code>
              <gmd:codeSpace>
                <gco:CharacterString>gov.nasa.
esdis.umm.collectionshortname</gco:CharacterString>
              </gmd:codeSpace>
              <gmd:description>
                <gco:
CharacterString>CollectionShortName</gco:
CharacterString>
              </gmd:description>
            </gmd:MD_Identifier>
          </gmd:aggregateDataSetIdentifier>
        </gmd:MD_AggregateInformation>
      </gmd:aggregationInfo>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
</gmi:MI_Metadata>
<gmi:MI_Metadata>
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:aggregationInfo>
        <gmd:MD_AggregateInformation>
          <gmd:aggregateDataSetIdentifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gco:CharacterString>05</gco:
CharacterString>
              </gmd:code>
              <gmd:codeSpace>
                <gco:CharacterString>gov.nasa.
esdis.umm.collectionversion</gco:CharacterString>
              </gmd:codeSpace>
              <gmd:description>
                <gco:
CharacterString>CollectionVersion</gco:
CharacterString>
              </gmd:description>
            </gmd:MD_Identifier>
          </gmd:aggregateDataSetIdentifier>
        </gmd:MD_AggregateInformation>
      </gmd:aggregationInfo>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
</gmi:MI_Metadata>

```

Option 2:

```

<gmi:MI_Metadata>
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:aggregationInfo>
        <gmd:MD_AggregateInformation>
          <gmd:associationType>
            <gmd:DS_AssociationTypeCode codeList=
"https://cdn.earthdata.nasa.gov/iso/resources
/CodeList/gmxCodeLists.xml#DS_AssociationTypeCode"
codeListValue="LargerWorkCitation"
>LargerWorkCitation</gmd:DS_AssociationTypeCode>
          </gmd:associationType>
          <gmd:aggregateDataSetIdentifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gco:CharacterString>GPM PR on TRMM
Echo Power L1B 1.5 hours 5 km V05 (GPM_1BPR) at GES
DISC</gco:CharacterString>
              </gmd:code>
              <gmd:codeSpace>
                <gco:CharacterString>gov.nasa.esdis.
umm.entrytitle</gco:CharacterString>
              </gmd:codeSpace>
              <gmd:description>
                <gco:CharacterString>EntryTitle</gco:
CharacterString>
              </gmd:description>
            </gmd:MD_Identifier>
          </gmd:aggregateDataSetIdentifier>
        </gmd:MD_AggregateInformation>
      </md:aggregationInfo>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
</gmi:MI_Metadata>

```

UMM

Option 1:

```

"CollectionReference": {
  "ShortName": "GPM_1BPR",
  "Version": "05"
}

```

Option 2:

```

"CollectionReference": {
  "EntryTitle": "GPM PR on TRMM Echo Power L1B
1.5 hours 5 km V05 (GPM_1BPR) at GES DISC"
}

```

ISO 19115-2 SMAP

Collection Reference is not required in ISO 19115-2 SMAP (Cardinality: 0..*), however, it is required that this information be provided in the CMR. Provide option 1 OR option 2.

Option 1:

UMM-G Element	ISO Path	Type	Notes
CollectionReference/ShortName	/gmd:DS_Series/gmd:composedOf/gmd:DS_DataSet/gmd:has/gmi:MI_Metadata /gmd:identificationInfo/gmd:MD_DataIdentification/gmd:citation/gmd:CI_Citation /gmd:identifier/gmd:MD_Identifier/ [=] [=> gmd:code/gco:CharacterString = insert Short Name here [=> gmd:description/gco:CharacterString = The ECS Short Name	String	The Short Name is provided in the gmd:code field. Also provide the string "The ECS Short Name" in the gmd:description field. The CMR will use this string to parse out the appropriate Short Name value.

CollectionReference/Version	/gmd:DS_Series/gmd:composedOf/gmd:DS_DataSet/gmd:has/gmi:MI_Metadata /gmd:identificationInfo/gmd:MD_DataIdentification/gmd:citation/gmd:CI_Citation /gmd:identifier/gmd:MD_Identifier/ [=> [=> gmd:code/gco:CharacterString = insert Version Id here [=> gmd:description/gco:CharacterString = The ECS Version ID	String	The Version Id is provided in the gmd:code field. Also provide the string "The ECS Version ID" in the gmd:description field. The CMR will use this string to parse out the appropriate Version Id value.
-----------------------------	---	--------	---

OR

Option 2:

UMM-G Element	ISO Path	Type	Notes
CollectionReference/EntryTitle	/gmd:DS_Series/gmd:composedOf/gmd:DS_DataSet/gmd:has/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ [=> [=> gmd:aggregationInfo/gmd:MD_AggregateInformation/gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:code/gco:CharacterString = insert Entry Title here [=> gmd:citation/gmd:CI_Citation/gmd:title/gco:CharacterString = DataSetId	String	The Entry Title is provided in the gmd:code field. Also provide the string "DataSetId" in the gmd:title field. The CMR will use this string to parse out the appropriate Entry Title value.

Example Mapping

ISO 19115-2 SMAP

Option 1:

```

<gmd:DS_Series>
  <gmd:composedOf>
    <gmd:DS_DataSet>
      <gmd:has>
        <gmi:MI_Metadata>
          <gmd:identificationInfo>
            <gmd:MD_DataIdentification>
              <gmd:citation>
                <gmd:CI_Citation>
                  <gmd:identifier>
                    <gmd:MD_Identifier>
                      <gmd:code>
                        <gco:
CharacterString>GPM_1BPR</gco:CharacterString>
                      </gmd:code>
                      <gmd:description>
                        <gco:CharacterString>The
ECS Short Name</gco:CharacterString>
                      </gmd:description>
                    </gmd:MD_Identifier>
                  </gmd:identifier>
                </gmd:CI_Citation>
              </gmd:citation>
            </gmd:MD_DataIdentification>
          </gmd:identificationInfo>
        </gmd:MI_Metadata>
      <gmi:MI_Metadata>
        <gmd:identificationInfo>
          <gmd:MD_DataIdentification>
            <gmd:citation>
              <gmd:CI_Citation>
                <gmd:identifier>
                  <gmd:MD_Identifier>
                    <gmd:code>
                      <gco:CharacterString>05<
/gco:CharacterString>
                    </gmd:code>
                    <gmd:description>
                      <gco:CharacterString>The
ECS Version ID</gco:CharacterString>
                    </gmd:description>
                  </gmd:MD_Identifier>
                </gmd:identifier>
              </gmd:CI_Citation>
            </gmd:MD_DataIdentification>
          </gmd:identificationInfo>
        </gmi:MI_Metadata>
      </gmd:has>
    </gmd:DS_DataSet>
  </gmd:composedOf>
</gmd:DS_Series>

```

```

        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
</gmd:MI_Metadata>
</gmd:has>
</gmi:DS_Dataset>
</gmd:composedOf>
</gmd:DS_Series>

Option 2:
<gmd:DS_Series>
  <gmd:composedOf>
    <gmd:DS_DataSet>
      <gmd:has>
        <gmi:MI_Metadata>
          <gmd:identificationInfo>
            <gmd:MD_DataIdentification>
              <gmd:aggregationInfo>
                <gmd:MD_AggregateInformation>
                  <gmd:aggregateDataSetIdentifier>
                    <gmd:MD_Identifier>
                      <gmd:code>
                        <gco:CharacterString>GPM PR
on TRMM Echo Power L1B 1.5 hours 5 km V05 (GPM_1BPR)
at GES DISC</gco:CharacterString>
                      </gmd:code>
                    </gmd:MD_Identifier>
                  </gmd:aggregateDataSetIdentifier>
                </gmd:MD_AggregateInformation>
              </gmd:aggregationInfo>
            <gmd:citation>
              <gmd:CI_Citation>
                <gmd:title>
                  <gco:CharacterString>DataSetId<
/co:CharacterString>
                </gmd:title>
              </gmd:CI_Citation>
            </gmd:citation>
          </gmd:MD_DataIdentification>
        </gmd:identificationInfo>
      </gmd:MI_Metadata>
    </gmd:has>
  </gmi:DS_Dataset>
</gmd:composedOf>
</gmd:DS_Series>

```

UMM

```

Option 1:
"CollectionReference": {
  "ShortName": "GPM_1BPR",
  "Version": "05"

Option 2:
"CollectionReference": {
  "EntryTitle": "GPM PR on TRMM Echo Power L1B
1.5 hours 5 km V05 (GPM_1BPR) at GES DISC"

```

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 Collection Reference during the transition from version 1.5.0 to 1.6.0.
1.5.0	01/30/2019	No changes were made for Collection Reference during the transition from version 1.4.0 to 1.5.0.
1.4.0	08/01/2018	No changes were made for Collection Reference during the transition from version 1.3.0 to 1.4.0.

ARC Documentation

Version	Date	What Changed	Author
1.0	03/05/2019	Recommendations/priority matrix transferred from internal ARC documentation to wiki space	Jeanne' le Roux Ingrid Garcia-Solera