

# Metadata Association

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## Element Description

The Metadata Association element is used to identify other metadata resources that are dependent on or related to the data described by the metadata. Such metadata resources may include (but are not limited to): services, other collections, visualizations, variables, granules, documents, etc.

### Best Practices

Metadata Association is an optional element. It can be used to identify resources stored in different metadata records that are related to the data and can also be used to define relationships between collections. For instance, a metadata association can be used to identify a parent metadata record if it exists. This usage should be reserved for instances where a group of metadata records are subsets that can be better represented by one parent metadata record, which describes the entire set. In some instances, a 'child' metadata record may point to more than one 'parent'.

The association must be made to another collection level metadata record (via the Entry Id sub-element, which should contain the related collection's [Short Name](#)) and then the Type and Description fields can be used to further explain the relationship (whether it be to the collection itself, or to a component provided in the other collection's metadata such as a service, document, visualization, etc.).

There are four sub-elements that comprise Metadata Association:

**Entry ID:** The [Short Name](#) of the target metadata record that is associated with the collection record. The Entry ID is required and should point to another collection level metadata record that includes the related information.

**Version:** The version of the target metadata record that is associated with the collection record. Providing a version is optional but is recommended if the associated collection has multiple available versions.

**Type:** The type of association between the collection metadata record and the target metadata record. Providing a Type is optional but recommended. This is a controlled vocabulary field and must be select from the following options:

- **SCIENCE ASSOCIATED:** There is an associated science resource (such as a document or data) in the target metadata record.
- **DEPENDENT:** The collection is somehow dependent on the target record.
- **INPUT:** The target record is an input to the collection. For example, the target record could be a lower level data product that was input to an algorithm and processed to create the collection.
- **PARENT:** The target record is a parent of the collection. This means the collection is a subset or 'child' of a larger parent collection.
- **CHILD:** The target record is a child of the collection. This means the collection is a parent record with a number of associated 'child' records.
- **RELATED:** The target record is somehow related to the collection.
- **LARGER CITATION WORKS:** There is a document cited in the target record that is related to the collection.

**Description:** Free-text description of the association between the collection and the target metadata record. Providing a description is optional but can be important for identifying a specific related resource such as a document, citation or piece of data in the target metadata record (recommended for SCIENCE ASSOCIATED, DEPENDENT, INPUT, RELATED and LARGER CITATION WORKS association types).

#### Examples:

EntryId: "AST\_L1A"

Version: "4"

Type: "INPUT"

Description: "Raw sensor counts that were converted to radiometric values found in this collection."

EntryId: "Polarimetric\_CT\_1602"

Version: "1"

Type: "RELATED"

Description: "This related dataset contains forest vertical structure and associated uncertainty products over the same study area derived by applying multi-baseline Polarimetric Interferometric Synthetic Aperture Radar (PolInSAR) and Polarimetric Coherence Tomographic SAR (PCT or PC-TomoSAR)."

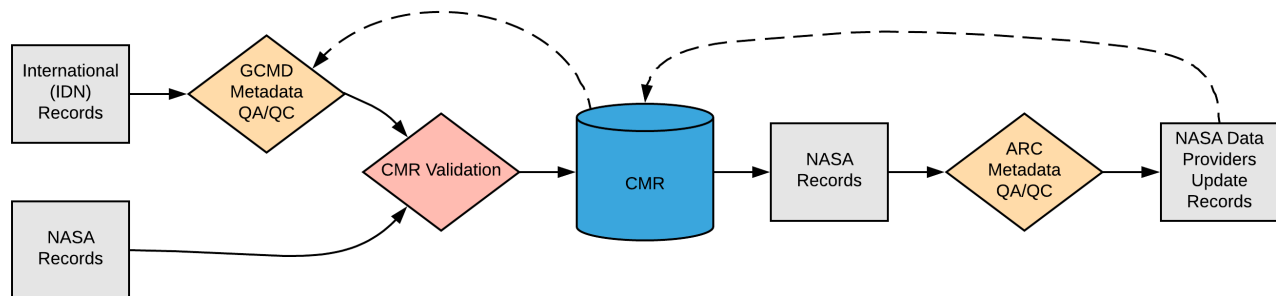
## Element Specification

Providing the Metadata Association element is optional (Cardinality: 0..\*). Multiple Metadata Associations may provided, if necessary.

Model	Element	Type	Constraints	Required?	Cardinality
UMM-C	MetadataAssociations/EntryId	String	1 - 80 characters	Yes, if applicable	1
UMM-C	MetadataAssociations/Version	String	1 - 80 characters	No	0..1
UMM-C	MetadataAssociations/Type	Enumeration	SCIENCE ASSOCIATED DEPENDENT INPUT PARENT CHILD RELATED LARGER CITATION WORKS	No	0..1
UMM-C	MetadataAssociations/Description	String	1 - 4000 characters	No	0..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.

- **Manual Review**
  - Identify errors, discrepancies or omissions.
  - Proof all content for conciseness and readability.
- **Automated Review**
  - Check the Type field to make sure it matches a Type keyword in the enumeration list.
  - Check that the Description field length is not greater than 4,000 characters
  - Check that the Short\_Name, Version, and Type field lengths are not greater than 80 characters
- Check the Type field to make sure it matches a Type keyword in the enumeration list.
- Check that the Description field length is not greater than 4,000 characters
- Check that the Short\_Name, Version, and Type field lengths are not greater than 80 characters

### ARC Priority Matrix

Priority Categorization	Justification
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Red = High Priority Finding	This element is categorized as highest priority when: <ul style="list-style-type: none"> <li>A Metadata Association is provided but the Entry Id is missing (Entry Id is required).</li> <li>An incorrect enumeration value is provided for the Metadata Association/Type field.</li> </ul>
Yellow = Medium Priority Finding	This element is categorized as medium priority when: <ul style="list-style-type: none"> <li>The Metadata Association points to an outdated collection (i.e. a collection that no longer exists).</li> <li>The Metadata Association/Description includes spelling or grammatical errors.</li> </ul>
Blue = Low Priority Finding	This element is categorized as low priority when: <ul style="list-style-type: none"> <li>Suggestions are made to change the information provided in the Metadata Association for clarity.</li> <li>Suggestions are made to provide additional information in the Metadata Association for clarity.</li> </ul>
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

**DIF 9** (Note: DIF-9 is being phased out and will no longer be supported after 2018)

### DIF 10

Providing the Metadata Association element is optional (Cardinality: 0..\*). Multiple Metadata Associations may provided, if necessary.

UMM-C Element	DIF 10 Path	Type	Constraints	Required in DIF 10?	Cardinality
MetadataAssociations/EntryId	Metadata_Association/Entry_ID/Short_Name	String		Yes	1
MetadataAssociations/Version	Metadata_Association/Entry_ID/Version	String		Yes	1
MetadataAssociations/Type	Metadata_Association/Type	Enumeration	Parent Child Related Dependent Input Science Associated	Yes	1
Metadata Associations/Description	Metadata_Association/Description	String		No	0..1

#### Enumeration Mapping

DIF 10	Translation Direction	UMM
Parent		PARENT
Child		CHILD
Related		RELATED
Dependent		DEPENDENT
Input		INPUT
Science Associated		SCIENCE ASSOCIATED
		LARGER CITATION WORKS

#### Example Mapping

DIF 10

```

<Metadata_Association>
  <Entry_ID>
    <Short_Name>AST_L1A</Short_Name>
    <Version>004</Version>
  </Entry_ID>
  <Type>Input</Type>
  <Description>Raw sensor counts that were converted
to radiometric values found in this collection.<
/Description>
</Metadata_Association>

```

## UMM

```

MetadataAssociations: [
  - {
    Type: "INPUT",
    Description: "Raw sensor counts that were
converted to radiometric values found in this
collection.",
    EntryId: "AST_L1A"
    Version: "4"
  }
],

```

## ECHO 10

Providing the Collection Association element is optional (Cardinality: 0..\*). Multiple Collection Associations may provided, if necessary.

UMM-C Element	ECHO 10 Path	Type	Constraints	Required in ECHO10?	Cardinality	Note
MetadataAssociations/EntryId	CollectionAssociations/CollectionAssociation/ShortName	String	1 - 80 characters	Yes, if applicable	1	The short name of an input collection and/or a dependent collection that is somehow associated with this collection.
MetadataAssociations/Version	CollectionAssociations/CollectionAssociation/VersionId	String	1 - 80 characters	Yes, if applicable	1	The version of an input collection and/or a dependent collection that is somehow associated with this collection.
MetadataAssociations/Type	CollectionAssociations/CollectionAssociation/CollectionType	String	1 - 80 characters	Yes, if applicable	1	The type of the association whether an input type, or dependent type etc. This field is not controlled in ECHO10, but is controlled in the UMM. Therefore, strongly recommend utilizing one of the UMM enumeration types in this field in order to prevent errors when translating from ECHO10 to other metadata formats. UMM controlled vocabulary options for this field include: SCIENCE ASSOCIATED, DEPENDENT, INPUT, PARENT, CHILD, RELATED, LARGER CITATION WORKS
MetadataAssociations/Description	CollectionAssociations/CollectionAssociation/CollectionUse	String	1 - 4000 characters	No	0..1	Explanation of how the associated collection is used for this collection.

## Enumeration Mapping

ECHO 10	Translation Direction	UMM
SCIENCE ASSOCIATED		SCIENCE ASSOCIATED
DEPENDENT		DEPENDENT

INPUT		INPUT
PARENT		PARENT
CHILD		CHILD
RELATED		RELATED
LARGER CITATION WORKS		LARGER CITATION WORKS

### Example Mapping

ECHO 10

```
<CollectionAssociations>
  <ShortName>AST_L1A</ShortName>
  <VersionId>4</VersionId>
  <CollectionType>Input</CollectionType>
  <CollectionUse>Raw sensor counts that were
converted to radiometric values found in this
collection.</CollectionUse>
</CollectionAssociations>
```

UMM

```
MetadataAssociations: [
  - {
    Type: "INPUT",
    Description: "Raw sensor counts that were
converted to radiometric values found in this
collection.",
    EntryId: "AST_L1A"
    Version: "4"
  }
],
```

## ISO 19115-2 MENDS

Providing the Metadata Association element is optional (Cardinality: 0..\*). Multiple Metadata Associations may provided, if necessary.

UMM-C Element	ISO 19115-2 MENDS Path	Type
MetadataAs sociations	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation /gmd:aggregateDataSetName/gmd:CI_Citation  Metadata Associations: /gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation /gmd:associationType/gmd:DS_AssociationTypeCode codeListValue="Science Associated"  Parent Associations: /gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation /gmd:associationType/gmd:DS_AssociationTypeCode codeListValue="largerWorkCitation"	String

### Enumeration/Code List Mapping

ISO MENDS	Translation Direction	UMM

### Example Mapping

ISO 19115-2 MENDS

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# Metadata Association Sample:

```

<gmd:dataQualityInfo>
  <gmd:DQ_DataQuality>
    <gmd:lineage>
      <gmd:LI_Lineage>
        <gmd:source>
          <gmd:LI_Source>
            <gmd:description>
              <gco:
CharacterString>Raw sensor counts that were
converted to radiometric values found in this
collection.</gco:CharacterString>
              </gmd:
description>
            <gmd:
sourceCitation>
              <gmd:
CI_Citation>
                <gmd:
title>
                  <gco:
CharacterString>AST_L1A</gco:CharacterString>
                </gmd:
title>
              <gmd:
date gco:nilReason="unknown"></gmd:date>
              <gmd:
edition>
                <gco:
CharacterString>4</gco:CharacterString>
              </gmd:
edition>
            </gmd:
CI_Citation>
          </gmd:
sourceCitation>
        </gmd:LI_Source>
      </gmd:source>
    </gmd:LI_Lineage>
  </gmd:lineage>
</gmd:DQ_DataQuality>
</gmd:dataQualityInfo>

```

## Parent Association Example:

```

<gmd:identificationInfo>
  <gmd:MD_DataIdentification>
    <gmd:aggregationInfo>
      <gmd:MD_AggregateInformation>
        <gmd:
aggregateDataSetName>
          <gmd:CI_Citation>
            <gmd:title>
              <gco:
CharacterString>MYD02SSH</gco:CharacterString>
            </gmd:title>
            <gmd:date gco:
nilReason="unknown"></gmd:date>
            <gmd:edition>
              <gco:
CharacterString>6.1NRT</gco:CharacterString>
            </gmd:edition>
          <gmd:
otherCitationDetails>
            <gco:
CharacterString>Parent collection for child product
MYD021KM.</gco:CharacterString>
          </gmd:
otherCitationDetails>

```

```

        </gmd:CI_Citation>
    </gmd:
aggregateDataSetName>
    </gmd:
MD_AggregateInformation>
        </gmd:aggregationInfo>
    </gmd:MD_DataIdentification>
</gmd:identificationInfo>

```

## UMM

```

MetadataAssociations: [
  - {
    Type: "INPUT",
    Description: "Raw sensor counts that were
converted to radiometric values found in this
collection.",
    EntryId: "AST_L1A"
    Version: "4"
  }
],

```

## ISO 19115-2 SMAP

There is currently no mapping between UMM-C and ISO 19115- for Metadata Association.

UMM-C Element	ISO 19115-2 SMAP Path	Type	Notes
MetadataAssociations	N/A	N/A	N/A

### Enumeration/Code List Mapping

ISO SMAP	Translation Direction	UMM

## UMM Migration

UMM Version 1.9.0	Translation Direction	UMM Version 1.10.0

## History

### UMM Versioning

Version	Date	What Changed
1.15.5	12/3/2020	No changes were made for Metadata Association during the transition from version 1.15.4 to 1.15.5
1.15.4	9/18/2020	No changes were made for Metadata Association during the transition from version 1.15.3 to 1.15.4
1.15.3	7/1/2020	No changes were made for Metadata Association during the transition from version 1.15.2 to 1.15.3
1.15.2	5/20/2020	No changes were made for Metadata Association during the transition from version 1.15.1 to 1.15.2

1.15.1	3/25/2020	No changes were made for Metadata Association during the transition from version 1.15.0 to 1.15.1
1.15.0	2/26/2020	No changes were made for Metadata Association during the transition from version 1.14.0 to 1.15.0
1.14.0	10/21/2019	No changes were made for Metadata Association during the transition from version 1.13.0 to 1.14.0
1.13.0	04/11/2019	No changes were made for Metadata Association during the transition from version 1.12.0 to 1.13.0
1.12.0	01/22/2019	No changes were made for Metadata Association during the transition from version 1.11.0 to 1.12.0.
1.11.0	11/28/2018	No changes were made for Metadata Association during the transition from version 1.10.0 to 1.11.0.
1.10.0	05/02/2018	No changes were made for Metadata Association during the transition from version 1.9.0 to 1.10.0.
1.9.0		

## ARC Documentation

Version	Date	What Changed	Author
1.0	02/01/2018	Recommendations/priority matrix transferred from internal ARC documentation to wiki space	<a href="#">Jeanne' le Roux</a> <a href="#">Ingrid Garcia-Solera</a>