DOI

- Element Description
- Best Practices
  - For DOI/DOI and DOI/Authority
  - For DOI/MissingReason and DOI/Explanation
- Element Specification
- Metadata Validation and QA/QC
- Dialect Mappings
  - DIF 10
  - ECHO 10
  - ISO 19115-2 MENDS
  - ISO 19115-2 SMAP
- UMM Migration
  - ISO 19115-1
- History
  - UMM Versioning
  - ARC Documentation

Element Description

This element stores the DOI (Digital Object Identifier) that identifies the data collection. A DOI is a persistent identifier that is used to uniquely identify objects including datasets and documents.

This element also includes the options to provide information on the authority that registers the DOI, as well as the DOI of the previous version of the record.

Best Practices

For the DOI concept, there are two options for providing information. These options are:

DOI/DOI: The DOI (Digital Object Identifier) that identifies the collection.

DOI/Authority: The DOI organization that is responsible for creating the DOI.

DOI/PreviousVersion: The previous version of this record's DOI, if applicable. Its sub elements are:

- DOI/PreviousVersion/DOI: The previous version of this record's DOI. - If the PreviousVersion element is used, then the DOI must be provided.
- DOI/PreviousVersion/Version: The version number if one exists.
- DOI/PreviousVersion/Description: A short description of what the DOI represents
- DOI/PreviousVersion/Published: The date or date and time the previous version was published.

or

DOI/MissingReason: This element stores the fact that a DOI is not applicable for a record.

DOI/Explanation: This element describes the reason the DOI is not applicable.

For DOI/DOI and DOI/Authority

DOI/DOI:

- When providing information in the DOI/DOI field, only the DOI string should be provided. The string value should begin with the directory indicator.
- The DOI URL should not be stored in the DOI element but should instead be provided as a RelatedURL.
- For ESDIS providers specifically:
  - DOI is a required metadata element for ESDIS providers. While the majority of ESDIS datasets will have a DOI, there are certain cases where having a DOI is not appropriate. These cases include near real time datasets and datasets that will soon be replaced by a new version. Please see the DOI/MissingReason and DOI/Explanation section for more information.
  - More details on the ESDIS DOI process can be found here: ESDIS DOI Process
  - A list of DOIs registered through ESDIS can be found here: ESDIS DOIs Status and Listing
  - The directory indicator for ESDIS is "10." Therefore, if the DOI was registered through ESDIS, the beginning of the DOI string should be "10.5067".

DOI/Authority:

- For ESDIS providers specifically:
  - The DOI/Authority element value should be "https://doi.org/"

DOI/PreviousVersion/DOI:

- When providing information in the DOI/DOI field, only the DOI string should be provided. The string value should begin with the directory indicator.

- The DOI URL should not be stored in the DOI element but should instead be provided as a RelatedURL.

Examples:

DOI/DOI: "10.5067/ISS/CATS/L2O_N-M7.1-V2-01_05KMPRO",

DOI/Authority: "https://doi.org/",

DOI/PreviousVersion: {

DOI: 10.5067/ISS/CATS/L2O_N-M7.1-V1-01_05KMPRO,

Version: "1-01",

Description: "Cloud-Aerosol Transport System (CATS) International Space Station (ISS) Level 2 Operational Day Mode 7.1 Version 1-01 5 km Profile data product.",

Published: 2015-01-01T08:00:00}

DOI/DOI: "10.5067/MEASURES/GWELD/GWELDYR.003"

DOI/Authority: "https://doi.org/"

For DOI/MissingReason and DOI/Explanation

DOI/MissingReason:

- This element should only be used for specific cases where assigning a DOI to a dataset is not appropriate. These cases include near real time datasets, provisional datasets, and datasets that will soon be replaced by a new version.
- This element is controlled by the enumeration value "Not Applicable." For translation purposes, a value of "Unknown" is provided for data sets that do not have a DOI or a MissingReason set.

DOI/Explanation:

- This element should be used to describe why a dataset was not assigned a DOI.

Examples:

DOI/MissingReason: "Not Applicable"

DOI/Explanation: "The collection is near real time and only exists for a couple of days, therefore, the collection was not assigned a DOI."

DOI/MissingReason: "Not Applicable"

DOI/Explanation: "A new version of this dataset will be released in a month (May 2018). This version will be removed from CMR, and the new version will be assigned a DOI."

AssociatedDOIs also exist so that data providers can add DOIs from either parent or other associated collections. This allows users to cite a group of data products.

Element Specification

Choice of:

Model	Element	Type	Constraints	Required?	Cardinality
UMM-C	DOI/DOI	String	1024 maximum characters	Yes, if applicable	1
UMM-C	DOI/Authority	String	80 maximum characters	No	0..1
UMM-C	DOI/PreviousVersion	Object	n/a	No	0..1
UMM-C	DOI/PreviousVersion/DOI	String	1024 maximum characters	Yes, if applicable	1
UMM-C	DOI/PreviousVersion/Version	String	80 maximum characters	No	0..1
UMM-C	DOI/PreviousVersion/Description	String	2048 maximum characters	No	0..1
UMM-C	DOI/PreviousVersion/Published	Date Time	n/a	No	0..1

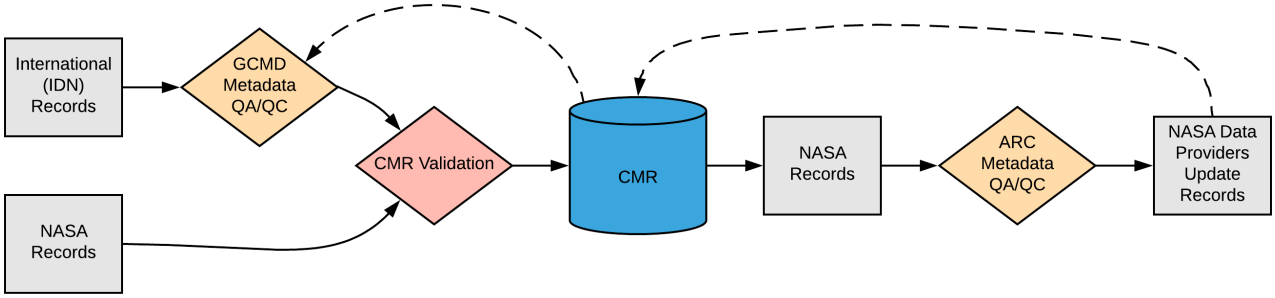
or

Model	Element	Type	Usable Valid Values	Constraints	Required?	Cardinality
UMM-C	DOI/MissingReason	Enumeration	Not Applicable	n/a	Yes, if applicable	1
UMM-C	DOI/Explanation	String	n/a	1024 maximum characters	No	0..1

Note: only 1 DOI or DOI/MissingReason may be provided (Cardinality: 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
  - Verify that the DOI resolves to the appropriate web page.
- Automated Review
  - Check that the field length is not greater than 1,024 characters.
  - Check that the DOI is resolvable.
  - Check that the DOI syntax is valid.

- The DOI must start with two digits followed by a period (.) followed by 4 digits followed by an optional period with optional digits. After the digits the DOI value must be followed by a slash (/) followed by alphanumeric characters.
- The DOI must be at least 1 character and at most 1024 characters in length.

ARC Priority Matrix

Priority Categorization	Justification
Red = High Priority Finding	This element is categorized as highest priority when: • No DOI is provided (either a DOI or "Not Applicable"). • The dataset has a DOI but the metadata indicates that it does not. • The incorrect DOI is listed for the dataset. • The DOI listed leads to a broken link. • The DOI is provided in the incorrect format (e.g. as a URL rather than just the DOI string). • The DOI/Explanation includes spelling or grammatical errors
Yellow = Medium Priority Finding	This element is categorized as medium priority when: • The DOI/MissingReason option is used but no DOI/Explanation is provided.
Blue = Low Priority Finding	This element is categorized as low priority when: • The CollectionDOI/Authority needs to be added: “https://doi.org/” because it is missing.
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 10

Only 1 Persistent Identifier may be provided (Cardinality: 1)

Choice of:

UMM-C Element	DIF 10 Path	Type	Usable Valid Values	Constraints	Required in DIF 10?	Cardinality	Notes
	Dataset_Citation /Persistent_Identifier /Type	Enumeration	DOI ARK	n/a	Yes	1	Only DOI will map to CMR. ARK will not map. This element does not directly map to a UMM element - choosing 'DOI' indicates to CMR that the Identifier and Authority elements should be mapped.
DOI/DOI	Dataset_Citation /Persistent_Identifier /Identifier	String	n/a	1 - 80 characters	Yes	1	n/a
DOI /Authority	Dataset_Citation /Persistent_Identifier /Authority	String	n/a	1 - 80 characters	No	0..1	For ESDIS providers, recommend providing "https://doi.org/" as the DOI authority.

or

UMM-C Element	DIF 10 Path	Type	Usable Valid Values	Constraints	Required in DIF 10?	Cardinality	Notes
DOI /MissingReason	Dataset_Citation /Persistent_Identifier /MissingReason	Enumeration	Not Applicable	n/a	Yes	1	Use this option if a dataset does not have a persistent identifier.
DOI /Explanation	Dataset_Citation /Persistent_Identifier /Explanation	String	n/a	n/a	No	0..1	While not required, it is highly recommended to provide an explanation for why a persistent identifier is not applicable for a dataset.

Enumeration Mapping

DIF 10	Translation Direction	UMM
Not Applicable		Not Applicable

Example Mapping

DIF 10

```
<Dataset_Citation>
 ...
  <Persistent_Identifier>
    <Type>DOI</Type>
    <Identifier>10.5067/IAGYM8Q26QRE</Identifier>
    <Authority>https://doi.org/</Authority>
  </Persistent_Identifier>
</Dataset_Citation>

or

<Dataset_Citation>
 ...
  <Persistent_Identifier>
    <MissingReason>Not Applicable</MissingReason>
    <Explanation>The collection is near real time
and only exists for a couple of days, therefore, the
collection was not assigned a DOI.</Explanation>
  </Persistent_Identifier>
</Dataset_Citation>
```

UMM

```
"DOI": {
  "DOI" : "10.5067/IAGYM8Q26QRE",
  "Authority" : "https://doi.org/"
},

or

"DOI": {
  "MissingReason" : "Not Applicable",
  "MissingExplanation" : "The collection is near
real time and only exists for a couple of days,
therefore, the collection was not assigned a DOI."
},
```

ECHO 10

Only 1 DOI may be provided (Cardinality: 1)

Choice of:

UMM-C Element	ECHO 10 Path	Type	Constraints	Required in ECHO10?	Cardinality	Notes
DOI/DOI	/Collection/DOI /DOI	String	1 - 1024 characters	No	0..1	n/a
DOI/Authority	/Collection/DOI /Authority	String	1 - 80 characters	No	0..1	For ESDIS providers, recommend providing "https://doi.org/" as the DOI authority.

or

UMM-C Element	ECHO 10 Path	Type	Usable Valid Values	Constraints	Required in ECHO10?	Cardinality	Notes
DOI /MissingReason	/Collection/DOI /MissingReason	Enumeration	Not Applicable	n/a	No	0..1	Use this option if a dataset does not have a DOI.
DOI /Explanation	/Collection/DOI /Explanation	String	n/a	?	No	0..1	While not required, it is highly recommended to provide an explanation for why a persistent identifier is not applicable for a dataset.

Enumeration Mapping

ECHO 10	Translation Direction	UMM
Not Applicable		Not Applicable

Example Mapping

ECHO 10

```
<DOI>
  <DOI>10.5067/IAGYM8Q26QRE</DOI>
  <Authority>https://doi.org/</Authority>
</DOI>

or

<DOI>
  <MissingReason>Not Applicable</MissingReason>
  <Explanation>The collection is near real time and
only exists for a couple of days, therefore, the
collection was not assigned a DOI.</Explanation>
</DOI>
```

UMM

```
"DOI": {
  "DOI" : "10.5067/IAGYM8Q26QRE",
  "Authority" : "https://doi.org/"
},

or

"DOI": {
  "MissingReason" : "Not Applicable",
  "MissingExplanation" : "The collection is near
real time and only exists for a couple of days,
therefore, the collection was not assigned a DOI."
},
```

ISO 19115-2 MENDS

Only 1 DOI will be translated to CMR (Cardinality: 1)

Choice of:

UMM-C Element	ISO 19115-2 MENDS **Path**	Type	Notes
DOI/DOI	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:code /gco:CharacterString	String	Where the DOI string is provided.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd: codeSpace/gco:CharacterString = gov.nasa.esdis.umm.doi	String	The value of "gov.nasa.esdis.umm.doi" should be provided here so that CMR can properly parse out the DOI.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd: description/gco:CharacterString contains DOI	String	The value must contain the string "DOI" so that CMR can properly identify and translate the DOI.
DOI /Authority	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd: authority/gmd:CI_Citation/gmd:title - empty element	String	Leave this element empty.

	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:authority/gmd:CI_Citation/gmd:date - empty element	String	Leave this element empty.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:authority/gmd:CI_Citation/ gmd:citedResponsibleParty/gmd:CI_ResponsibleParty/gmd:organisationName/gco:CharacterString	String	Provide the authority here. For ESDIS providers, recommend listing "https://doi.org" as the DOI authority.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:authority/gmd:CI_Citation/ gmd:citedResponsibleParty/gmd:CI_ResponsibleParty/gmd:role/gmd:CI_RoleCode codeList="https://cdn.earthdata.nasa.gov/iso/resources/Codelist/gmxCodelists.xml#CI_RoleCode" codeListValue="" = authority	Codelist	Choose the "authority" codelist value so that CMR can properly identify the DOI/Authority element. This codelist value does not directly map to a UMM element - choosing 'authority' indicates to CMR that the Authority element should be mapped.
DOI /PreviousVersion /Version	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation/ gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:authority/gmd:CI_Citation/gmd:edition/gco:CharacterString	String	Provide the version.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation/ gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:authority/gmd:CI_Citation/gmd:title gco:nilReason="inapplicable"		Leave this element empty.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation/ gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:authority/gmd:CI_Citation/gmd:date gco:nilReason="inapplicable"		Leave this element empty.
	/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/eosCodelists.xml#EOS_AssociationTypeCode_doiPreviousVersion codeListValue=doiPreviousVersion codeListValue="DOI_Previous_Version"	Codelist	Choose the "doiPreviousVersion" codelist value so that CMR can properly identify the DOI/PreviousVersion element. This codelist value does not directly map to a UMM element - choosing 'doiPreviouVersion' indicates to CMR that the DOI Previous Version element should be mapped.
DOI /PreviousVersion /Description	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation/ gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:authority/gmd:CI_Citation/gmd:otherCitationDetails/gco:CharacterString	String	Provide the Previous Version Description
DOI /PreviousVersion/DOI	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation/ gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:code/gco:CharacterString = <Previous Version DOI>	String	Provide the DOI.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation/ gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:codeSpace/gco:CharacterString = gov.nasa.esdis.umm.doi.previousversion	String	The value of "gov.nasa.esdis.umm.doi.previousversion" should be provided here so that CMR can properly parse out the DOI Previous Version.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation/ gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:description/gco:CharacterString = DOI Previous Version	String	The value must contain the string "DOI Previous Version" so that CMR can properly identify and translate the DOI Previous Version.
DOI /PreviousVersion /Published	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:aggregationInfo/gmd:MD_AggregateInformation/ gmd:aggregateDataSetIdentifier/gmd:MD_Identifier/gmd:authority/gmd:CI_Citation/gmd:editionDate/gco:DateTime	Date	Format 4 digit year followed by - followed by 2 digit month followed by - followed by 2 digit day - followed by T - followed by 2 digit hour, 2 digit minutes, 2 digit seconds. For example: 2024-02-29T01:00:00

or

UMM-C Element	ISO 19115-2 MENDS **Path**	Type	Notes
DOI /MissingReason	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:code nilReason="inapplicable"	Code	This indicates that the DOI is "Not Applicable".

	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:codeSpace/gco:CharacterString = gov.nasa.esdis.umm.doi	String	The value of "gov.nasa.esdis.umm.doi" should be provided here so that CMR can properly parse out the DOI information.
	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:description/gco:CharacterString contains DOI	String	The value must contain the string "DOI" so that CMR can properly identify and translate the DOI information.
DOI /Explanation	/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:description/gco:CharacterString contains Explanation:	String	If the dataset does not have a DOI, it is highly recommended to provide an explanation why here. The value must contain the string "Explanation:" so that CMR can properly parse out the text.

Enumeration/Code List Mapping

ISO MENDS	Translation Direction	UMM
inapplicable		Not Applicable

Example Mapping

ISO 19115-2 MENDS

```
<gmi:MI_Metadata>
  ...
  <gmd:identificationInfo>
        <gmd:MD_DataIdentification>
          <gmd:citation>
            <gmd:CI_Citation>
          ...
          <gmd:identifier>
            <gmd:MD_Identifier>
              <gmd:authority>
                <gmd:CI_Citation>
                  <gmd:title gco:nilReason="
inapplicable"/>
                  <gmd:date gco:nilReason="
inapplicable"/>
                  <gmd:citedResponsibleParty>
                    <gmd:CI_ResponsibleParty>
                      <gmd:organisationName>
                        <gco:
CharacterString>https://doi.org/</gco:
CharacterString>
                      </gmd:organisationName>
                      <gmd:role>
                        <gmd:CI_RoleCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/gmxCodelists.xml#CI_RoleCode" codeListValue="
authority">authority</gmd:CI_RoleCode>
                      </gmd:role>
                    </gmd:CI_ResponsibleParty>
                  </gmd:citedResponsibleParty>
                </gmd:CI_Citation>
              </gmd:authority>
              <gmd:code>
                <gco:CharacterString>10.5067
/IAGYM8Q26QRE</gco:CharacterString>
              </gmd:code>
              <gmd:codeSpace>
                <gco:CharacterString>gov.nasa.esdis.
umm.doi</gco:CharacterString>
              </gmd:codeSpace>
```

```
              <gmd:description>
                <gco:CharacterString>A Digital
Object Identifier (DOI)</gco:CharacterString>
              </gmd:description>
            </gmd:MD_Identifier>
          </gmd:identifier>
          ...
        </gmd:CI_Citation>
      </gmd:citation>
      ...
      <gmd:aggregationInfo>
        <gmd:MD_AggregateInformation>
          <gmd:aggregateDataSetIdentifier>
            <gmd:MD_Identifier>
              <gmd:authority>
                <gmd:CI_Citation>
                  <gmd:title gco:nilReason="
inapplicable"/>
                  <gmd:date gco:nilReason="
inapplicable"/>
                  <gmd:edition>
                    <gco:CharacterString>1.00</gco:
CharacterString>
                  </gmd:edition>
                  <gmd:editionDate>  <!-- Previous
Version Publish Date -->
                    <gco:DateTime>2003-08-25T08:00:
00</gco:DateTime>
                  </gmd:editionDate>
                  <gmd:otherCitationDetails>
                    <gco:CharacterString>MODIS
Mosaic of Greenland 2000</gco:CharacterString>
                  </gmd:otherCitationDetails>
                </gmd:CI_Citation>
              </gmd:authority>
              <gmd:code>
                <gco:CharacterString>10.5067
/IAGYM8Q26QAB</gco:CharacterString>
              </gmd:code>
              <gmd:codeSpace><gco:
CharacterString>gov.nasa.esdis.umm.doi.
previousversion</gco:CharacterString></gmd:codeSpace>
              <gmd:description><gco:
CharacterString>DOI Previous Version</gco:
CharacterString></gmd:description>
            </gmd:MD_Identifier>
          </gmd:aggregateDataSetIdentifier>
          <gmd:associationType>
            <gmd:DS_AssociationTypeCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/eosCodelists.xml#EOS_AssociationTypeCode"
codeListValue="doiPreviousVersion"
>DOI_Previous_Version</gmd:DS_AssociationTypeCode>
          </gmd:associationType>
        </gmd:MD_AggregateInformation>
      </gmd:aggregationInfo>

or

<gmi:MI_Metadata>
  ...
  <gmd:identificationInfo>
        <gmd:MD_DataIdentification>
          <gmd:citation>
            <gmd:CI_Citation>
          ...
          <gmd:identifier>
            <gmd:MD_Identifier>
              <gmd:code gco:nilReason="inapplicable"
/>
              <gmd:codeSpace>
```

```
              <gco:CharacterString>gov.nasa.esdis.
umm.doi</gco:CharacterString>
            </gmd:codeSpace>
            <gmd:description>
              <gco:CharacterString>DOI
Explanation: The collection is near real time and
only exists for a couple of days, therefore, the
collection was not assigned a DOI.</gco:
CharacterString>
            </gmd:description>
          </gmd:MD_Identifier>
        </gmd:identifier>
        ...
```

UMM

```
"DOI": {
  "DOI" : "10.5067/IAGYM8Q26QRE",
  "Authority" : "https://doi.org/",
  "PreviousVersion" : {
    "Version" : "1.00",
    "Description" : "MODIS Mosaic of Greenland 2000",
    "DOI" : "10.5067/IAGYM8Q26QAB",
    "Published" : "2003-08-25T08:00:00.000Z"
  }
},

or

"DOI": {
  "MissingReason" : "Not Applicable",
  "MissingExplanation" : "The collection is near
real time and only exists for a couple of days,
therefore, the collection was not assigned a DOI."
},
```

ISO 19115-2 SMAP

Only 1 DOI will be translated to CMR (Cardinality: 1)

Choice of:

UMM-C Element	ISO 19115-2 SMAP Path	Type	Notes
DOI/DOI	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo /gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:code/gco: CharacterString	String	Where the DOI string is provided.
	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo /gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:codeSpace /gco:CharacterString = gov.nasa.esdis.umm.doi	String	The value of "gov.nasa.esdis.umm.doi" should be provided here so that CMR can properly parse out the DOI.
	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo /gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:description /gco:CharacterString contains DOI	String	The value must contain the string "DOI" so that CMR can properly identify and translate the DOI.
DOI /Authority	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo /gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:authority /gmd:CI_Citation/gmd:title - empty element	String	Leave this element empty.

	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo /gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:authority /gmd:CI_Citation/gmd:date - empty element	String	Leave this element empty.
	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo /gmd:MD_DataIdentification /gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:authority /gmd:CI_Citation/ gmd:citedResponsibleParty/gmd:CI_ResponsibleParty/gmd: organisationName/gco:CharacterString	String	Provide the authority here. For ESDIS providers, recommend listing "https://doi.org" as the DOI authority.
	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo /gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd:MD_Identifier/gmd:authority /gmd:CI_Citation/ gmd:citedResponsibleParty/gmd:CI_ResponsibleParty/gmd: role/gmd:CI_RoleCode codeList="https://cdn.earthdata.nasa.gov/iso/resources /Codelist/gmxCodelists.xml#CI_RoleCode" codeListValue="" = authority	Codelist	Choose the "authority" codelist value so that CMR can properly identify the DOI/Authority element. This codelist value does not directly map to a UMM element - choosing 'authority' indicates to CMR that the Authority element should be mapped.

or

UMM-C Element	ISO 19115-2 SMAP Path	Type	Notes
DOI /MissingReason	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata /gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd: MD_Identifier/gmd:code nilReason="inapplicable"	Code	This indicates that the DOI is "Not Applicable".
	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata /gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd: MD_Identifier/gmd:codeSpace/gco:CharacterString = gov.nasa.esdis.umm.doi	String	The value of "gov.nasa.esdis.umm.doi" should be provided here so that CMR can properly parse out the DOI information.
	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata /gmd:identificationInfo/gmd:MD_DataIdentification/]gmd:citation/gmd:CI_Citation/gmd:identifier/gmd: MD_Identifier/gmd:description/gco:CharacterString contains DOI	String	The value must contain the string "DOI" so that CMR can properly identify and translate the DOI information.
DOI /MissingReason	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata /gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:identifier/gmd: MD_Identifier/gmd:description/gco:CharacterString contains Explanation:	String	If the dataset does not have a DOI, it is highly recommended to provide an explanation why here. The value must contain the string "Explanation:" so that CMR can properly parse out the text.

Enumeration/Code List Mapping

ISO SMAP	Translation Direction	UMM
inapplicable		Not Applicable

Example Mapping

ISO 19115-2 SMAP

```
<gmd:DS_Series>
 <gmd:seriesMetadata>
  <gmi:MI_Metadata>
    ...
        <gmd:identificationInfo>
          <gmd:MD_DataIdentification>
                <gmd:citation>
                  <gmd:CI_Citation>
          ...
            <gmd:identifier>
              <gmd:MD_Identifier>
                <gmd:authority>
                  <gmd:CI_Citation>
```

```
                    <gmd:title/>
                    <gmd:date/>
                    <gmd:citedResponsibleParty>
                      <gmd:CI_ResponsibleParty>
                        <gmd:organisationName>
                          <gco:
CharacterString>https://doi.org/</gco:
CharacterString>
                        </gmd:organisationName>
                        <gmd:role>
                          <gmd:CI_RoleCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/gmxCodelists.xml#CI_RoleCode" codeListValue=""
>authority</gmd:CI_RoleCode>
                        </gmd:role>
                      </gmd:CI_ResponsibleParty>
                    </gmd:citedResponsibleParty>
                  </gmd:CI_Citation>
              </gmd:authority>
              <gmd:code>
                <gco:CharacterString>10.5067
/IAGYM8Q26QRE</gco:CharacterString>
              </gmd:code>
              <gmd:codeSpace>
                <gco:CharacterString>gov.nasa.esdis.
umm.doi</gco:CharacterString>
              </gmd:codeSpace>
              <gmd:description>
                <gco:CharacterString>A Digital
Object Identifier (DOI)</gco:CharacterString>
              </gmd:description>
            </gmd:MD_Identifier>
          </gmd:identifier>
          ...

or

<gmd:DS_Series>
 <gmd:seriesMetadata>
  <gmi:MI_Metadata>
    ...
        <gmd:identificationInfo>
          <gmd:MD_DataIdentification>
                <gmd:citation>
                  <gmd:CI_Citation>
            ...
            <gmd:identifier>
              <gmd:MD_Identifier>
                <gmd:code gco:nilReason="
inapplicable"/>
                <gmd:codeSpace>
                  <gco:CharacterString>gov.nasa.
esdis.umm.doi</gco:CharacterString>
                </gmd:codeSpace>
                <gmd:description>
                  <gco:CharacterString>DOI
Explanation: The collection is near real time and
only exists for a couple of days, therefore, the
collection was not assigned a DOI.</gco:
CharacterString>
                </gmd:description>
              </gmd:MD_Identifier>
            </gmd:identifier>
            ...
```

UMM

```
"DOI": {
  "DOI" : "10.5067/IAGYM8Q26QRE",
  "Authority" : "https://doi.org/"
},

or

"DOI": {
  "MissingReason" : "Not Applicable",
  "MissingExplanation" : "The collection is near
real time and only exists for a couple of days,
therefore, the collection was not assigned a DOI."
},
```

UMM Migration

None

Future Mappings

ISO 19115-1

Only 1 DOI will be translated to CMR (Cardinality: 1)

Choice of:

UMM-C Element	ISO 19115-1 Path	Type	Notes
DOI/DOI	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:code/gco:CharacterString	String	Where the DOI string is provided.
	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:codeSpace = gov.nasa.esdis.umm.doi	String	The value of "gov.nasa.esdis.umm.doi" should be provided here so that CMR can properly parse out the DOI.
	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:description/gco:CharacterString contains DOI	String	Leave this element empty.
DOI /Authority	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:authority/cit:CI_Citation/cit:title - empty element	String	Provide the authority here. For ESDIS providers, recommend listing "https://doi.org" as the DOI authority.
	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:authority/cit:CI_Citation/cit:citedResponsibleParty/ cit:CI_Responsibility/cit:party/cit:CI_Organization/cit:name/gco:CharacterString	String	Provide the authority here. For ESDIS providers, recommend listing "https://doi.org" as the DOI authority.
	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:authority/cit:CI_Citation/cit:citedResponsibleParty/cit:CI_Responsibility/cit:role/cit:roleCode codeList="http://standards.iso.org/iso/19115/resources/Codelist/cat/codelists.xml#CI_RoleCode" codeListValue="" value = authority	Codelist	Choose the "authority" codelist value so that CMR can properly identify the DOI/Authority element. This codelist value does not directly map to a UMM element - choosing 'authority' indicates to CMR that the Authority element should be mapped.

or

UMM-C Element	ISO 19115-1 Path	Type	Notes

DOI /MissingReason	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:code nilReason="inapplicable"	Code	This indicates that the DOI is "Not Applicable".
	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:codeSpace = gov.nasa.esdis.umm.doi	String	The value of "gov.nasa.esdis.umm.doi" should be provided here so that CMR can properly parse out the DOI information.
	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:description/gco:CharacterString contains DOI	String	The value must contain the string "DOI" so that CMR can properly identify and translate the DOI information.
DOI /MissingReason	/mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:citation/cit:CI_Citation/ cit:identifier/mcc:MD_Identifier/mcc:description/gco:CharacterString contains Explanation:	String	If the dataset does not have a DOI, it is highly recommended to provide an explanation why here. The value must contain the string "Explanation:" so that CMR can properly parse out the text.

Enumeration/Code List Mapping

ISO 19115-1	Translation Direction	UMM
inapplicable		Not Applicable

Example Mapping

ISO 19115-1

```
<mdb:MD_Metadata>
  ...
  <mdb:identificationInfo>
    <mri:MD_DataIdentification>
      <mri:citation>
        <cit:CI_Citation>
          ...
          <cit:identifier>
             <mcc:MD_Identifier>
                <mcc:authority>
                   <cit:CI_Citation>
                      <cit:title/>
                      <cit:citedResponsibleParty>
                         <cit:CI_Responsibility>
                            <cit:role>
                               <cit:roleCode
codeList="http://standards.iso.org/iso/19115
/resources/Codelist/cat/codelists.xml#CI_RoleCode"
codeListValue="CI_RoleCode_author">author</cit:
roleCode>
                            </cit:role>
                            <cit:party>
                               <cit:CI_Organisation>
                                  <cit:name>
                                     <gco:
CharacterString>https://doi.org/</gco:
CharacterString>
                                  </cit:name>
                               </cit:CI_Organisation>
                            </cit:party>
```

```
                        </cit:CI_Responsibility>
                     </cit:citedResponsibleParty>
                  </cit:CI_Citation>
               </mcc:authority>
               <mcc:code>
                  <gco:CharacterString>10.5067
/IAGYM8Q26QRE</gco:CharacterString>
               </mcc:code>
               <mcc:codeSpace>
                  <gco:CharacterString>gov.nasa.
esdis.umm.doi</gco:CharacterString>
               </mcc:codeSpace>
               <mcc:description>
                  <gco:CharacterString>A Digital
Object Identifier (DOI)</gco:CharacterString>
               </mcc:description>
            </mcc:MD_Identifier>
         </cit:identifier>
         ...
or

<mdb:MD_Metadata>
  ...
  <mdb:identificationInfo>
    <mri:MD_DataIdentification>
      <mri:citation>
        <cit:CI_Citation>
          ...
          <cit:identifier>
             <mcc:MD_Identifier>
                <mcc:code gco:nilReason="
inapplicable"/>
                <mcc:codeSpace>
                   <gco:CharacterString>gov.nasa.
esdis.umm.doi</gco:CharacterString>
                </mcc:codeSpace>
                <mcc:description>
                   <gco:CharacterString>DOI
Explanation: The collection is near real time and
only exists for a couple of days, therefore, the
collection was not assigned a DOI.</gco:
CharacterString>
                </mcc:description>
             </mcc:MD_Identifier>
          </cit:identifier>
          ...
```

UMM

```
"DOI": {
  "DOI" : "10.5067/IAGYM8Q26QRE",
  "Authority" : "https://doi.org/"
},

or

"DOI": {
  "MissingReason" : "Not Applicable",
  "MissingExplanation" : "The collection is near
real time and only exists for a couple of days,
therefore, the collection was not assigned a DOI."
},
```

History

UMM Versioning

Version	Date	What Changed
1.18.0	2024	PreviousVersion was added for Web Unification
1.15.5	2020-12-03	No changes were made for DOI during the transition from version 1.15.4 to 1.15.5
1.15.4	2020-09-18	No changes were made for DOI during the transition from version 1.15.3 to 1.15.4
1.15.3	2020-07-01	No changes were made for DOI during the transition from version 1.15.2 to 1.15.3
1.15.2	2020-05-20	No changes were made for DOI during the transition from version 1.15.1 to 1.15.2
1.15.1	2020-03-25	No changes were made for DOI during the transition from version 1.15.0 to 1.15.1
1.15.0	2020-02-26	No changes were made for DOI during the transition from version 1.14.0 to 1.15.0
1.14.0	2019-10-21	No changes were made for DOI during the transition from version 1.13.0 to 1.14.0
1.13.0	2019-04-11	No changes were made for DOI during the transition from version 1.12.0 to 1.13.0
1.12.0	2019-01-22	No changes were made for DOI during the transition from version 1.11.0 to 1.12.0.
1.11.0	2018-11-28	No changes were made for DOI during the transition from version 1.10.0 to 1.11.0.
1.10.0	2018-05-02	During the transition from version 1.9.0 to 1.10.0, the sub elements 'MissingReason' and 'Explanation' were added to inform users why a collection is exempt from having a DOI assigned to it.

ARC Documentation

Version	Date	What Changed	Author
2.0	2021-06-18	ARC Priority Matrix updated to include DOI/Missing Reason option.	Jeanne' le Roux
1.0	2018-04-30	Recommendations/priority matrix transferred from internal ARC documentation to wiki space	Jeanne' le Roux