

Metadata Dates

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Element Description

The Metadata Dates element is used to identify dates when the *metadata* changed in some way. This element is made of two sub-elements, Type and Date. The Type describes what the date represents: a future review, when the metadata was created, last updated, or planned for deletion. The Date describes when the metadata had or will have the action performed on it as described by the Type element.

Best Practices

Each Metadata Date is accompanied by a Type. The Type must be selected from a controlled vocabulary list. There are four options available for Type:

1. **CREATE:** The date the metadata was created. This should be the date the metadata was published in the database/ entered into the data archive system.
2. **UPDATE:** The date the metadata was last updated.
3. **REVIEW:** The date of a planned future review of the metadata.
4. **DELETE:** The date the metadata record will be deleted.

Providing a Metadata Date is optional. Multiple Metadata Dates are allowed, however, the same date type should not be repeated more than once in the same record (for example, a CREATE and an UPDATE time can be provided, but two CREATE times cannot be provided in the same record). All dates should comply with the [ISO 8601 Standard](#).

Examples:

Type = CREATE Date: 2010-02-01

Type = UPDATE Date: 2018-02-01

Type = REVIEW Date: 2019-02-01

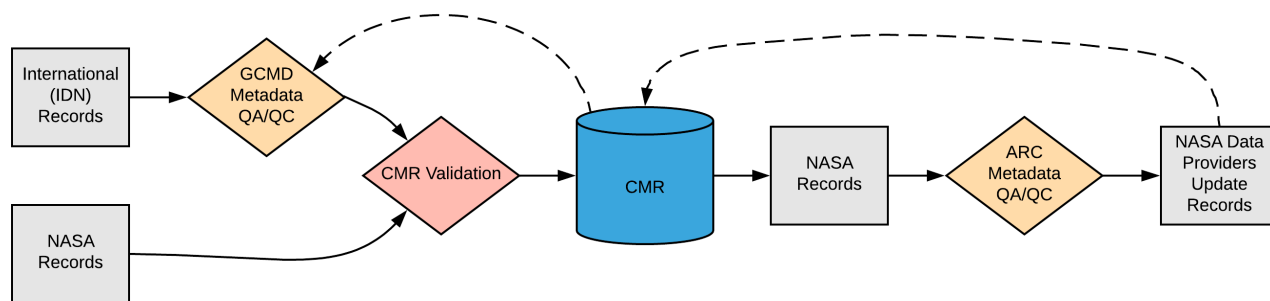
Element Specification

Metadata Date is an optional field. Multiple Metadata Dates may be provided, if necessary (Cardinality 0..*)

Model	Element	Type	Usable Valid Values	Constraints	Required?	Cardinality	Notes
UMM-C	MetadataDate /Type	Enumeration	CREATE UPDATE REVIEW DELETE	n/a	No	0..*	The same Type should not be used more than once in the same record.
UMM-C	MetadataDate /Date	dateTime	n/a	n/a	No	0..*	The actual date that the event associated with the metadata occurred/ will occur goes in this field.

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
 - Check that the date is accurate for the dataset.
- Automated Review
 - Check that the field has been populated.
 - Checks for correct format.
 - Check that the field length is not greater than 1,000 characters.

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ARC Priority Matrix

Priority Categorization	Justification
Red = High Priority Finding	This element is categorized as highest priority when: • The MetadataDate/Type does not match one of the date type enumeration values (CREATE, UPDATE, REVIEW, DELETE). • The MetadataDate/Date provided does comply with the ISO 8601 Standard.
Yellow = Medium Priority Finding	This element is categorized as medium priority when: • A REVIEW or DELETE date is in the past. • The CREATE or UPDATE date is in the future. • A translation error between a native metadata format (ISO, DIF 10, ECHO 10) and UMM is present for the date and/or the date type.
Blue = Low Priority Finding	This element is categorized as low priority when: • The default value of "1970-01-01T00:00:00.000Z" is provided.
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 a Metadata_Creation date and Metadata_Last_Revision date is required in DIF 10. The Metadata_Future_Review and Metadata_Delete fields are optional. Multiple types of Metadata Dates may be provided, if necessary (Cardinality 1..*)

UMM-C Element	DIF 10 Path	Type	Usable Valid Values	Constraints	Required in DIF 10?	Cardinality	Notes

MetadataDate/Date MetadataDate/Type=CREATE	Metadata_Dates/Metadata_Creation	Date dateTime Enumeration	unknown present unbounded future Not provided	n/a	Yes	1	Dates provided in the Metadata_Creation field will be labeled with the MetadataDate/Type of 'CREATE' when translated to UMM. If any of the enumeration values are provided (unknown, present, unbounded, future, Not provided) the date will automatically default to 1970-01-01T00:00:00Z when being translated to UMM. This is because UMM does not currently support any enumeration values in date fields.
MetadataDate/Date MetadataDate/Type=UPDATE	Metadata_Dates/Metadata_Last_Revision	Date dateTime Enumeration	unknown present unbounded future Not provided	n/a	Yes	1	Dates provided in the Metadata_Last_Revision field will be labeled with the MetadataDate/Type of 'UPDATE' when translated to UMM. If any of the enumeration values are provided (unknown, present, unbounded, future, Not provided) the date will automatically default to 1970-01-01T00:00:00Z when being translated to UMM. This is because UMM does not currently support any enumeration values in date fields.
MetadataDate/Date MetadataDate/Type=REVIEW	Metadata_Dates/Metadata_Future_Review	Date dateTime Enumeration	unknown present unbounded future Not provided	n/a	No	0..1	Dates provided in the Metadata_Future_Review field will be labeled with the MetadataDate/Type of 'REVIEW' when translated to UMM. If any of the enumeration values are provided (unknown, present, unbounded, future, Not provided) the date will automatically default to 1970-01-01T00:00:00Z when being translated to UMM. This is because UMM does not currently support any enumeration values in date fields.
MetadataDate/Date MetadataDate/Type=DELETE	Metadata_Dates/Metadata_Delete	Date dateTime Enumeration	unknown present unbounded future Not provided	n/a	No	0..1	Dates provided in the Metadata_Delete field will be labeled with the MetadataDate/Type of 'DELETE' when translated to UMM. If any of the enumeration values are provided (unknown, present, unbounded, future, Not provided) the date will automatically default to 1970-01-01T00:00:00Z when being translated to UMM. This is because UMM does not currently support any enumeration values in date fields.

Value needed for translations:

Not provided - The value of 'Not provided' might appear in the Metadata_Dates/Metadata_Creation and/or the Metadata_Dates/Metadata_Last_Revision fields as a result of software used to convert older versions of DIF to newer versions of DIF (such as 10.2 or 10.3). Required fields that are left empty in older versions of a DIF record are automatically populated with 'Not provided' when being converted to a new version, and both Metadata_Dates/Metadata_Creation and Metadata_Dates/Metadata_Last_Revision are required in the latest version of DIF. *This value should not be used by metadata providers.*

Example Mapping

DIF 10

```
<Metadata_Dates>
  <Metadata_Creation>2014-01-13</Metadata_Creation>
  <Metadata_Last_Revision>2018-11-06<
/Metadata_Last_Revision>
  <Metadata_Future_Review>2100-01-01<
/Metadata_Future_Review>
</Metadata_Dates>
```

UMM

```
DataDates: [
  {
    Date: "2014-01-13T00:00:00.000Z",
    Type: "CREATE"
  },
  {
    Date: "2018-11-06T00:00:00.000Z",
    Type: "UPDATE"
  },
  {
    Date: "2100-01-01T00:00:00.000Z",
    Type: "REVIEW"
  },
]
```

ECHO 10

Providing a Revision Date is optional in ECHO 10 (Cardinality: 0..1)

UMM-C Element	ECHO 10 Path	Type	Constraints	Required in ECHO10?	Cardinality	Notes
MetadataDate /Date MetadataDate /Type=UPDATE	Revision Date	dateTime	n/a	No	0..1	Represents the date and time that the metadata entry was created, or date and time of its most recent modification. The date provided in the RevisionDate field will be labeled with the MetadataDate/Type of 'UPDATE' when translated to UMM. This is the only Metadata Date option available in ECHO 10.

Example Mapping

ECHO 10

```
<RevisionDate>2018-11-06T00:00:00.000Z</RevisionDate>
```

UMM

```
DataDates: [  
  {  
    Date: "2018-11-06T00:00:00.000Z",  
    Type: "UPDATE"  
  }  
]
```

ISO 19115-2 MENDS

Metadata Date is an optional field. Multiple Metadata Dates may be provided, if necessary (Cardinality 0..*)

UMM-C Element	ISO 19115-2 MENDS Path	Type	Notes
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MetadataDate/Date	/gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/gmd:extendedElementInformation/ gmd:MD_ExtendedElementInformation/gmd:name/gco:CharacterString= Metadata Create Date OR Metadata Update Date OR Metadata Future Review Date OR Metadata Delete Date with /gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/gmd:extendedElementInformation/ gmd:MD_ExtendedElementInformation/gmd:definition/gco:CharacterString= Create Date OR Update Date OR Future Review Date OR Delete Date with /gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/gmd:extendedElementInformation/ gmd:MD_ExtendedElementInformation/gmd:dataType/gmd:MD_DatatypeCode codeList="" https://cdn.earthdata.nasa.gov/iso/resources/Codelist/gmxCodeLists.xml#MD_DatatypeCode codeListValue="Date" <- this isn't a codelist value?? with /gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/gmd:extendedElementInformation/ gmd:MD_ExtendedElementInformation/gmd:domainValue/gco:CharacterString= {the actual date} with /gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/gmd:extendedElementInformation/ gmd:MD_ExtendedElementInformation/gmd:parentEntity gco:nilReason="inapplicable" with /gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/gmd:extendedElementInformation/ gmd:MD_ExtendedElementInformation/gmd:rule gco:nilReason="inapplicable" with /gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/gmd:extendedElementInformation/ gmd:MD_ExtendedElementInformation/gmd:source gco:nilReason="inapplicable"	String Codelist	The actual date should be provided in the gmd:domainValue/gco:CharacterString field. A codelist value (gmd:CI_DateTypeCode) should be provided with the date in order to identify the date Type. These fields can be repeated as many times as necessary - however, note that the same DateTypeCode should not be used more than once in the same record. If the same DateTypeCode is used more than once, only the first occurrence will be translated to UMM.
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Enumeration/Code List Mapping

ISO MENDS	Translation Direction	UMM
creation		CREATE
publication		
revision		UPDATE

Example Mapping

ISO 19115-2 MENDS

```

<gmi:MI_Metadata>
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:date>
            <gmd:CI_Date>
              <gmd:date>
                <gco:DateTime>2012-12-12T00:00:00.000
Z</gco:DateTime>
              </gmd:date>
            </gmd:CI_Date>
          </gmd:date>
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
</gmi:MI_Metadata>

```

UMM

```

DataDates: [
  {
    Date: "2014-01-13T00:00:00.000Z",
    Type: "CREATE"
  },
  {
    Date: "2018-11-06T00:00:00.000Z",
    Type: "UPDATE"
  }
]

```

ISO 19115-2 SMAP

Metadata Date is an optional field. Multiple Metadata Dates may be provided, if necessary (Cardinality 0..*)

UMM-C Element	ISO 19115-2 SMAP Path	Type	Notes
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MetadataDate/Date	/gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/ gmd:extendedElementInformation/gmd:MD_ExtendedElementInformation/gmd:name/gco:CharacterString= Metadata Create Date OR Metadata Update Date OR Metadata Future Review Date OR Metadata Delete Date with /gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/ gmd:extendedElementInformation/gmd:MD_ExtendedElementInformation/gmd:definition/gco:CharacterString= Create Date OR Update Date OR Future Review Date OR Delete Date with /gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/ gmd:extendedElementInformation/gmd:MD_ExtendedElementInformation/gmd:dataType/gmd:MD_DatatypeCode codeList="https://cdn.earthdata.nasa.gov/iso/resources/Codelist/gmxCodelists.xml#MD_DatatypeCode" codeListValue="Date" <- this isn't a codelist value?? with /gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:metadataExtensionInfo/gmd:MD_MetadataExtensionInformation/ gmd:extendedElementInformation/gmd:MD_ExtendedElementInformation/gmd:domainValue/gco:CharacterString= {the actual date}	dateTime codelist	The actual date should be provided in the gmd:domainValue/gco:CharacterString field. A codelist value (gmd:CI_DateTypeCode) should be provided with the date in order to identify the date Type. These fields can be repeated as many times as necessary - however, note that the same DateTypeCode should not be used more than once in the same record. If the same DateTypeCode is used more than once, only the first occurrence will be translated to UMM.
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Enumeration/Code List Mapping

ISO MENDS	Translation Direction	UMM
creation		CREATE
publication		
revision		UPDATE

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:date>
            <gmd:CI_Date>
              <gmd:date>
                <gco:DateTime>2012-12-12T00:00:00.000
Z</gco:DateTime>
              </gmd:date>
            </gmd:CI_Date>
          </gmd:citation>
          <gmd:dateType>
            <gmd:CI_DateTypeCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/gmx/Codelists.xml#CI_DateTypeCode" codeListValue="
creation">creation</gmd:CI_DateTypeCode>
            </gmd:dateType>
          </gmd:date>
            <gco:DateTime>2018-10-03T00:00:00.000
Z</gco:DateTime>
          </gmd:date>
        </gmd:dateType>
        <gmd:CI_DateTypeCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/gmx/Codelists.xml#CI_DateTypeCode" codeListValue="
revision">revision</gmd:CI_DateTypeCode>
        </gmd:dateType>
      </gmd:CI_Date>
    </gmd:date>
    </gmd:CI_Citation>
  </gmd:citation>
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
</gmi:MI_Metadata>
</gmd:seriesMetadata>
</gmd:DS_Series>

```

UMM

```

DataDates: [
  {
    Date: "2014-01-13T00:00:00.000Z",
    Type: "CREATE"
  },
  {
    Date: "2018-11-06T00:00:00.000Z",
    Type: "UPDATE"
  }
]

```

UMM Migration

UMM Version 1.9.0	Translation Direction	UMM Version 1.10.0

History

UMM Versioning

Version	Date	What Changed
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1.15.5	12/3/2020	No changes were made for Metadata Dates during the transition from version 1.15.4 to 1.15.5
1.15.4	9/18/2020	No changes were made for Metadata Dates during the transition from version 1.15.3 to 1.15.4
1.15.3	7/1/2020	No changes were made for Metadata Dates during the transition from version 1.15.2 to 1.15.3
1.15.2	5/20/2020	No changes were made for Metadata Dates during the transition from version 1.15.1 to 1.15.2
1.15.1	3/25/2020	No changes were made for Metadata Dates during the transition from version 1.15.0 to 1.15.1
1.15.0	2/26/2020	No changes were made for Metadata Dates during the transition from version 1.14.0 to 1.15.0
1.14.0	10/21/2019	No changes were made for Metadata Dates during the transition from version 1.13.0 to 1.14.0
1.13.0	04/11/2019	No changes were made for Metadata Dates during the transition from version 1.12.0 to 1.13.0
1.12.0	01/22/2019	No changes were made for Metadata Dates during the transition from version 1.11.0 to 1.12.0.
1.11.0	11/28/2018	No changes were made for Metadata Dates during the transition from version 1.10.0 to 1.11.0.
1.10.0	05/02/2018	No changes were made for Metadata Dates during the transition from version 1.9.0 to 1.10.0.
1.9.0		

ARC Documentation

Version	Date	What Changed	Author
1.0	11/06/2018	Recommendations/priority matrix transferred from internal ARC documentation to wiki space	Jeanne' le Roux