

Specification for Expressing Date Statements

Note: Contextual rules for the required Date Label element need to be formulated. All the rules for the Date Label element need to be provided in the Date Statement specification. The rules applicable to each context record need to be indicated in the specification for the context record.

Da1: Scope / Purpose

The sub-record is designed to enable repositories to express multiple dates within the context of an accession, resource, resource component, digital object, digital object component, and rights record. All of these record types are, for this specification, considered context records.

In addition the sub-record will support:

1. specifying the date type
2. fully normalized date entries according to ISO 8601
3. characterizing dates as being uncertain
4. indicating calendar used for date entry
5. indicating era used for date entry
6. generating reports on repository holdings including date information
7. being accessible to all staff users

The date sub-record will support scoping searches, browse list, and reports.

Da2: Record / template description

The date record will include the following fields:

- Date Type (required)
- Date Expression (required if Date Begin not present)
- Date Begin Integer (required if Date Expression not present)
- Date End Integer (required if Date Begin present)
- Date Label (required)
- Date Uncertain

- Date Era
- Date Calendar

System Control Data (generated by application and not editable by operator)

- Record Created Timestamp
- Last Modified Timestamp
- Record Created Staff Name
- Last Modified Staff Name

The date record will also include controls for:

- Saving a date record
- Saving a date record and starting a new date record
- Canceling a date record started but not yet saved

Da3: Displaying date statements

All date statements will be displayed in a pane embedded in the context record to which they are linked, (e.g., an accession record or digital object component record). ---

The pane will be divided into two columns. The left column will be for the date type and the right column will be for the date value. The list of data statements will be sortable by either column, (i.e., either in date type order (A-Z) or date value order (numeric)).

The date pane will also include two control buttons: “Add Date” and “Remove Date”.

Da4: Creating / Deleting date statements

Date statements are created from within any type of context record. Depending on the context record type, a user may declare 0 or more date statements for each context record.

To create a date statement, the user selects the “Add Date” option from within the context record. This will open the date sub-record. The user must then indicate/record:

- if the date expression is for a single date, inclusive dates, or bulk dates
- the context (i.e., label) of the date has (e.g., copyright, publication, etc.)
- the date expression, and / or
 - the begin date

- the end date

The user may also indicate

- if the date is an uncertain date
- the calendar type for the date
- the era of the date

To delete a date statement, the user must highlight one or more of the date statements listed in the date pane of the context record, and then select the “Remove Date” option. The user will be requested to confirm their intention. If confirmation is given, the selected date statement(s) will be removed from the list of date statements in the associated open context record, indicating that the corresponding date statement sub-record(s) have been deleted.

Da5: Business rules

1. A date statement may be recorded by all staff users
2. A valid date statement requires data values for the following fields
 - a. Date Type
 - b. Date Expression (if not Date Begin)
 - c. Date Begin (if not Date Expression)
 - d. Date end (when Date Begin is present)
 - e. Date Label
3. A valid date statement may also indicate the calendar and era for the date and if the date is an approximation, questionable, or inferred.
4. A date statement must be linked to a context record (i.e., an accession, resource, resource component, digital object, digital object component, or rights record)
5. A date statement may be linked to only one accession, resource, resource component, digital object, digital object component, or rights record
6. Zero, one, or more than one date statements may be linked to the same context record

7. Two date statements with the same date label may not be linked to the same context record, (i.e., two dates both having the label “creation”) will not be permissible
8. Date Begin and Date End values must conform to ISO 8601. Values may be for years (YYYY), or years and months (YYYY-MM) or years, months and days (YYYY-MM-DD). Values may be formatted with or without hyphens (YYYYMMDD or YYYY-MM-DD)
9. Date Begin and date End must have identical values for a date statement for a single date

Da6: Required task sequence

1. Select the option to record a date statement within an appropriate context record
2. Indicate if the date statement is for a single date, inclusive dates, or bulk dates (date scope)
3. Either enter the date expression, and / or
4. Enter the value for the date begins
5. Enter the value for the date end if a value has been entered for the date begin (date begin and date end will be the same value for a single date)
6. Indicate the label for the date, (e.g., creation, publication, issue, etc.)
7. Save the date statement

Da7: Optional task sequence

1. Indicate if the date is an approximation, questionable, or inferred (otherwise accept default value that date is certain)
2. Record the calendar used for the date statement
3. Record the era used for the date statement

Da8: User intentions / Application response sequence

User intention (Required fields in <i>italics</i>)	Application response / action
<i>Within an open context record, select the option to create a date statement</i>	

	Application opens the date statement record template, with all assigned default values present
<i>Indicate date statement is for a single date, inclusive dates, or bulk dates</i>	
<i>Record the date expression, and / or</i>	
<i>Record the date begin value, and</i>	
	If date type is for a single date, then end date is populated with the same date value as begin date. Otherwise, end date is left blank
<i>Record the date end value</i>	
<i>Indicate the label for date statement</i>	
Record optional information	
<i>Save the date statement</i>	
	If the date statement is not valid, application will indicate date statement cannot be saved and will indicate what needs to be fixed for record to be saved
	Or, if date statement is valid, application will indicate record has been saved, and date statement will appear in the date pane in the context record

User intention (Required fields in <i>italics</i>)	Application response / action
<i>Within an open context record, select an existing date statement to edit within the date statement pane</i>	
	Application displays the selected date

	statement record
<i>Edit one or more field in the open extent record</i>	
<i>Save the edited extent record</i>	
	If the edited date statement record is no longer valid, application will indicate date record cannot be saved and will indicate what needs to be fixed for record to be saved
	Or, if the edited date statement record is valid, the machine will indicate record has been saved, and the updated date statement will appear in the extent pane of the context record

User intention (Required fields in <i>italics</i>)	Application response / action
<i>Within an open context record, select one or more existing date statements to delete within the date statement pane</i>	
<i>Select the option to delete the date statement(s)</i>	
	Application responds: "Are you sure you want to delete "N" date record(s). Yes or No
<i>Select the No option</i>	
	Application reverts to the state before selecting delete option
<i>Select the Yes option</i>	
	Application indicates "N" records have been deleted

	Application responds within 2 seconds and refreshes list of date statements in date pane of open context record
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User intention (Required fields in <i>italics</i>)	Application response / action
<i>After adding one or more date statements to an open context record, choose to save the open context record</i>	
	<p>Application will indicate the open context record is updated if:</p> <ul style="list-style-type: none"> • no date statements are linked, in the case of all context records, except the resource record (at least one date statement is required for the resource record) • one or more date statements are linked and none of the date statements are of the same type, (e.g. there are not two copyright date statements)
	<p>Otherwise, application will indicate open context record is invalid and cannot be updated if</p> <ul style="list-style-type: none"> • one or more date statements are linked to the context record and at least two are of the same type • or, in the case of the resource record, no date statement is linked to resource record

Da9: Date data elements

Element	Definition	Type	Default Values	Required
dateType	Indicates the record is for a single date, inclusive dates, or bulk dates	Non-config lookup	Bulk Inclusive Single	Yes
dateLabel	Describes what the type of date signifies, (e.g., created, published, etc.)	Non-config lookup	Copyright Created Digitized Issued Modified Published Other	Yes
dateUncertain	Indicates if the date is approximate, inferred, questionable.	Non config lookup	Approximate Inferred Questionable	No

dateExpression	A natural language expression specifying the date or date range of the materials described in the context record.	Text > 256		Yes if dateBegin and dateEnd are not present
dateBegin	An integer representing a single date or the first date in a date range (e.g., inclusive date)	Integer		Yes if dateExpression is not present and if dateEnd is present
dateEnd	An integer repeating the same date in dateBegin for a single date or the second date in a date range (e.g., inclusive date)	Integer		Yes, if dateBegin is present
dateEra	Identifies the era of the dates given.	Config lookup list	ce	No
dateCalendar	Indicates the calendar used for the dates given	Config lookup list	Gregorian	No

accessionRecordCreatedTimestamp		timestamp	Automatically generated when record is created	Yes
accessionLastModifiedTimestamp		timestamp	Automatically updated when record is saved.	Yes
accessionRecordCreatedStaff		Text < 256	Automatically insert lookup of staff name from user tables	Yes
AccessionLastModifiedStaff		Text < 256	Automatically insert lookup of staff name from user tables	Yes

Accessions

Date information in either XML or CSV formatted accession records will be imported to a date record for the corresponding accession record.

EADs:

The EAD files/records with valid date entry elements will import and be associated with the proper resource or resource component record.

MARCXMLs

The MARCXML fields 245\$f, 245\$g, and 260\$c will import and populate the appropriate date elements in a resource record. The 245 date fields will be given precedent over the 260\$c date field.

Digital objects:

Date information in CSV formatted digital object records will be imported to a date record for the corresponding digital object record.

Da11: Exports

Data recorded in a date statement in digital object, resource, and rights records will be recorded appropriately into exported EAD, MARCXML, DC, and MODS exports. Date statements in accession records will be transmitted out of the application through the appropriate accession reports.

Element	Output Format			
	EAD	MODS	MARCXML	DC
dateType	@type	@type (only for <dateOther>); otherwise n/a		
dateLabel	@label	Determines mods element		
dateUncertain	@certainty	@qualifier		
dateExpression	<unitdate>	Depending on dateLabel: <ul style="list-style-type: none"> • <copyrightDate> • <dateCreated> • <dateCaptured> • <dateValid> • <dateModified> 		<date>

			• <dateOther>	
dateBegin	@normal	@point="start" @keydate="yes"		<date>
dateEnd	@normal	@point="end"		<date>
dateEra	@era	n/a		
dateCalendar	@calendar	n/a		

DRAFT

Date expression examples (encodings below per metadata format):

July 16, 1977 (for the creation date of a single manuscript)

1923-1945 inclusive, 1936-1939 bulk (creation dates for an aggregation)

Circa 1919-1924 (creation dates for an aggregation)

Encoding examples by format type:

EAD:

All date statements will be output in a single <unitdate> wrapper element. Each date statement will be encoded as a <unitdate> within the <unitdate> wrapper.

```
<unitdate>  
<unitdate label="creation" type="single" normal="1977-07-16">July 16,  
1977</unitdate>  
</unitdate>
```

```
<unitdate>  
<unitdate label="creation" type="inclusive" normal="1923/1945">1923-  
1945</unitdate>  
<unitdate label="creation" type="bulk" normal="1936/1939">1936-  
1939</unitdate>  
</unitdate>
```

```
<unitdate>  
<unitdate label="creation" type="inclusive" certainty="approximate"  
normal="1919/1924">circa 1919-1924</unitdate>  
</unitdate>
```

MODS

Each date statement will be encoded in a separate <originInfo> element. The element in which the date statement is encoded will be determined by the value

of dateLabel. For instance, a dateLabel value of "Created" will cause the date statement to be encoded in the <dateCreated> element.

The beginDate encoding will have added to it the following attributes:

```
encoding="w3cdf"
```

```
keyDate="yes"
```

```
point="start"
```

The endDate encoding will have added to it the following attributes:

```
encoding="w3cdf"
```

```
point="end"
```

The dateApproximation field will be encoded as the "qualifier" attribute.

MODS encoding example for date statements at the top of this section.

```
<originInfo>
<dateCreated>July 16, 1977</dateCreated>
<dateCreated encoding="w3cdf" keyDate="yes" point="start">1977-07-
16</dateCreated>
<dateCreated encoding="w3cdf" point="end">1977-07-16</dateCreated>
</originInfo>
```

```
<originInfo>
<dateCreated>1923-1945 inclusive, 1936-1939 bulk</dateCreated>
<dateCreated encoding="w3cdf" keyDate="yes"
point="start">1923</dateCreated>
<dateCreated encoding="w3cdf" point="end">1945</dateCreated>
</originInfo>
```

```
<originInfo>
<dateCreated>circa 1919-1924</dateCreated>
<dateCreated encoding="w3cdf" qualifier="approximate" keyDate="yes"
point="start">1919</dateCreated>
<dateCreated encoding="w3cdf" point="end">1924</dateCreated>
</originInfo>
```

MARCXML:

Appropriate date statements will be exported from a resource record to a parent MARCXML record as illustrated below. Preference will be given to exporting the date expression first and the normalized dates second. Single and inclusive dates will be encoded as subfield f, whereas bulk dates will be encoded as subfield g. If present in the date statement, a label indicating uncertainty (approximation, questionable, inferred) will be inserted in the exported date expression.

MARCXML encoding examples for date statements at top of this section:

```
<datafield tag="245" ind1="1" ind2="0">  
  <subfield code="a">[title]</subfield>  
  <subfield code="f">July 16, 1977</subfield>  
</datafield>
```

```
<datafield tag="245" ind1="1" ind2="0">  
  <subfield code="a">[title]</subfield>  
  <subfield code="f">1923-1945</subfield>  
  <subfield code="g">1936-1939</subfield>  
</datafield>
```

```
<datafield tag="245" ind1="1" ind2="0">  
  <subfield code="a">[title]</subfield>  
  <subfield code="f">circa1919-1924</subfield>  
</datafield>
```

Dublin Core:

For Dublin Core exports, the date statement will be expressed simply in the <date> element.

Each date expression will be encoded in a <date> element. If the date statement also includes begin and end date values, then those will be encoded in a separate <date> element, as illustrated in the examples below.

Other attributes for date type, label, approximation, etc. will not be included in the <date> element in Dublin Core records.

Dublin Core encoding examples for the date statements at the top of this section:

```
<date>July 16,1977</date>  
<date>1977-07-16</date>
```

```
<date>1923-1945 inclusive, 1936-1939 bulk</date>  
<date>1923/1945</date>
```

```
<date>circa 1919-1924</date>  
<date>1919/1924</date>
```

Note: These encoding examples are provisional illustrations. Meticulous mappings and encoding formulations will need to be created, tested, and revised when the export engine is built.

Da12: Reports

Date statements are part(s) of other records, (e.g., an accession or resource record). There will be no report(s) for date information independent of its context within other records and their associated reports.