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# UNDERSTANDING AND IMPROVING DATE SEARCHING IN CONTENTDM



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# PURPOSE

- To share information regarding problems encountered when searching by date and methods/settings discovered to solve, and explain, such problems
  - Enhanced understanding of how CONTENTdm handles search function
  - Improved search results
- Focus: CONTENTdm Advanced Search's "Enter Date" interface

# DIGITAL MEDIA REPOSITORY

[HTTPS://DMR.BSU.EDU](https://dmr.bsu.edu)

- Added first collection in February 2005
- As of January 2021, the DMR contains 311 digital collections
- Created from 764 digitized archival collections (full or partial)
  - Ball State University history and operations
  - Specific units within Ball State
    - Andrew Seager Archive for the Built Environment
    - Virginia B. Ball Center for Creative Inquiry
  - Local history of Muncie and Delaware County, Indiana
  - Student projects and significant coursework
- Over 250,000 records (digital objects)
  - Just shy of 1.2 million items (text, images, audio/visual)



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# BACKGROUND – TRANSITION PERIOD

- Ball State used a local instance of CONTENTdm until August 2018
- Transitioned to a hosted instance of CONTENTdm during Fall 2018 – Spring 2019
- Noticed that DMR records, known to exist, were not present in search results when searching by date in the "Enter Date" interface

# BACKGROUND – TRANSITION PERIOD

- Deliberate testing across the spectrum of collections
  - Discovered that no results at all were being presented.
- Apart from use of an “*ON*” *date* search
  - Appears to operate like a keyword search
  - Search terms highlighted when found in any field
  - Not limited to specified date fields

# CONTEXT – DATE FIELDS

- Metadata standards behind the DMR provide for three specified date fields and a date-related field
  - **Original Date**
    - Most useful to user / researcher
    - Provides context beyond a strict ISO standard format (text-based)
    - Allows for inexact dates (e.g., circa, unknown, etc.)
    - Informed by DPLA requirements for its harvesting of metadata
  - **System Date**
    - As CONTENTdm developed, became a new and required field
    - Date-based formatting standard
    - Initially only YYYY, but eventually led to more specifically dates (YYYY-MM-DD) and date ranges (YYYY-YYYY)

# CONTEXT – DATE FIELDS

- **Digital Date**

- Administrative
- Useful for tracking collection history, metadata revisions, and other significant events

- **Time Period**

- Locally developed to provide for broad date ranges (e.g., decades, centuries, etc.)
- Necessity for museum objects with BCE dates as the BCE/CE distinction is not handled in CONTENTdm



# CONTEXT – DATE FIELD PROPERTIES

- Original Date
  - Dublin Core mapped to Date-Created
  - Data Type = Text
  - Hidden = NO
- System Date
  - Dublin Core mapped to None
  - Data Type = Date
  - Hidden = YES
- Digital Date
  - Dublin Core mapped to Date-Available
  - Data Type = Text
  - Hidden = NO



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# Date Search Interface

  
**Advanced Search** 

- ☒ Select All Collections
- ☒ 376th Heavy Bombardment Group Oral Histories
- ☒ ALI Archives
- ☒ Altrusa International Records
- ☒ American Almanacs
- ☒ American Cities Historic Maps

Show All

Cancel

Save

## Enter Search Term:

All fields

Please enter a Search Term

All of the words

+ Add Row

## Enter Date:

on

e.g. yyyy, yyyy-mm, yyyy-mm-dd

Clear

Search



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# What changed?

Why do only some date searches return results?

# June 2019 patch notes

## Date search within a single collection uses the first field with the data type of “Date”

In Advanced Search, date search within a single collection now strictly uses the first field with the data type of “Date” to ensure seamless searching. The new rule for the Date search is simple and clear: in the fields list from CONTENTdm Administration, the first field of data type “Date” will be used for Date search. To ensure your Date search works and you are searching in the desired field, check your field settings in CONTENTdm Administration > collections > fields, as indicated in the image below:



### Metadata fields

View and configure collection and administrative fields.

Collection field properties									
View, add, edit and delete fields. Enable full text searching and controlled vocabulary. After you have added, changed, or deleted fields, index the collection to update changes.									
	Field name	DC map	Data type	Large	Search	Hide	Required	Vocab	add field
1	Title	Title	Text	No	Yes	No	Yes	No	move to   edit   delete
2	Subject	Subject	Text	No	Yes	No	No	No	move to   edit   delete
3	Description	Description	Text	Yes	Yes	No	No	No	move to   edit   delete
4	Creator	Creator	Text	No	No	No	No	No	move to   edit   delete
5	Publisher	Publisher	Text	No	No	No	No	No	move to   edit   delete
6	Contributors	Contributors	Text	No	No	No	No	No	move to   edit   delete
7	Date aaa	Date	Date	No	Yes	No	No	No	move to   edit   delete
8	Date original	Date-Created	Date	No	Yes	No	No	No	move to   edit   delete
9	Date bbb	None	Text	No	No	Yes	No	No	move to   edit   delete
			Text	No	No	No	No	No	move to   edit   delete
			Text	No	No	No	No	No	move to   edit   delete
			Text	No	No	No	No	No	move to   edit   delete
13	Source	Source	Text	No	No	No	No	No	move to   edit   delete

“Date aaa” is the 1st field of type “Date”

[https://help.oclc.org/Metadata\\_Services/CONTENTdm/Release\\_notes/2019\\_release\\_notes/095\\_CONTENTdm\\_release\\_notes\\_June\\_2019](https://help.oclc.org/Metadata_Services/CONTENTdm/Release_notes/2019_release_notes/095_CONTENTdm_release_notes_June_2019)

# What this means

There are two search contexts to design for:

1. Searching a single collection
2. Searching multiple collections

And these contexts look at very different things.

# What this means

	DC Map set to a Date element	DC Map not set to a Date element
Data Type set to Date	Single-collection searches and multi-collection searches return results	Single-collection searches return results (if and only if this is the first field with this data type)
Data Type not set to Date	Multi-collection searches return results	Does not return date results

# Searching a single collection

In Advanced Search, date search within a single collection now strictly uses the first field with the data type of “Date.”

- Field must have “Date” data type
- Field must be the first field with “Date” data type
  - Others are ignored in this search context
- Field must be searchable (“Search” = Yes)
- Field must not be hidden (“Hide” = No)

Only the first field meeting these criteria is searched.



# Searching a single collection

	Field name	DC map	Data type	Large	Search	Hide	Required	Vocab		add field
1	Title	Title	Text	No	Yes	No	Yes	No	move to ▼	edit   delete
2	Creator	Creator	Text	No	Yes	No	No	No	move to ▼	edit   delete
3	Subject - LCSH	Subject	Text	Yes	Yes	No	No	No	move to ▼	edit   delete
4	Original Date	Date-Created	Text	No	Yes	No	No	No	move to ▼	edit   delete
5	Description	Description	Text	Yes	Yes	No	No	No	move to ▼	edit   delete
6	Alternative Title	Title-Alternative	Text	No	Yes	No	No	No	move to ▼	edit   delete
7	Contributor(s)	Contributors	Text	No	Yes	No	No	No	move to ▼	edit   delete
8	Publisher	Publisher	Text	No	Yes	No	No	No	move to ▼	edit   delete
9	Subject - TGM	Subject	Text	No	Yes	No	No	Yes	move to ▼	edit   delete
10	Subject - Other	Subject	Text	No	Yes	No	No	No	move to ▼	edit   delete
11	Persons Pictured	Subject	Text	No	Yes	No	No	No	move to ▼	edit   delete
12	Geographic Location	Coverage-Spatial	Text	No	Yes	No	No	No	move to ▼	edit   delete
13	System Date	Date	Date	No	Yes	Yes	No	No	move to ▼	edit   delete
14	Time Period	Coverage-Temporal	Text	No	Yes	No	No	No	move to ▼	edit   delete
15	Series	Relation	Text	No	Yes	No	No	No	move to ▼	edit   delete
16	Notes	Description	Text	No	Yes	No	No	No	move to ▼	edit   delete
17	Digital Date	Date-Available	Date	No	Yes	No	No	No	move to ▼	edit   delete
18	Internal Notes	None	Text	No	Yes	Yes	No	No	move to ▼	edit   delete

← No Date data type

← Hidden field

✓ "Date" data type,  
Searchable, not Hidden



# Searching multiple collections

Data type and field order is irrelevant in this context; only DC map matters.

- Field must have “Date” or qualified Date DC map
- Field must be searchable (“Search” = Yes)
- Field must not be hidden (“Hide” = No)

All fields meeting these criteria are searched.

# What this means for collection metadata

Our fix: designating one field present in all collections as a “key date” that we can configure to be searchable in all possible searches.

# Our solution

## 1. Field must be searchable (Search set to “Yes”)

	Field name	DC map	Data type	Large	Search	Hide	Required	Vocab		add field
1	Title	Title	Text	No	Yes	No	Yes	No	move to ▾	edit   delete
2	Repository	Provenance	Text	No	Yes	No	No	No	move to ▾	edit   delete
3	Creator	Creator	Text	No	Yes	No	No	No	move to ▾	edit   delete
4	Subject - LCSH	Subject	Text	Yes	Yes	No	No	No	move to ▾	edit   delete
5	System Date	Date	Date	No	Yes	No	No	No	move to ▾	edit   delete

(Note that this is the first date field)

# Our solution

1. Field must be searchable (Search set to “Yes”)
2. Field data type set to “Date”

	Field name	DC map	Data type	Large	Search	Hide	Required	Vocab		add field
1	Title	Title	Text	No	Yes	No	Yes	No	move to ▾	edit   delete
2	Repository	Provenance	Text	No	Yes	No	No	No	move to ▾	edit   delete
3	Creator	Creator	Text	No	Yes	No	No	No	move to ▾	edit   delete
4	Subject - LCSH	Subject	Text	Yes	Yes	No	No	No	move to ▾	edit   delete
5	System Date	Date	Date	No	Yes	No	No	No	move to ▾	edit   delete

# Our solution

1. Field must be searchable (Search set to “Yes”)
2. Field data type set to “Date”
3. DC map set to a Date value

	Field name	DC map	Data type	Large	Search	Hide	Required	Vocab		add field
1	Title	Title	Text	No	Yes	No	Yes	No	move to ▾	edit   delete
2	Repository	Provenance	Text	No	Yes	No	No	No	move to ▾	edit   delete
3	Creator	Creator	Text	No	Yes	No	No	No	move to ▾	edit   delete
4	Subject - LCSH	Subject	Text	Yes	Yes	No	No	No	move to ▾	edit   delete
5	System Date	Date	Date	No	Yes	No	No	No	move to ▾	edit   delete

# One last thing

- Field must be marked as searchable in website collection-level advanced search configuration
- DC map must be marked as searchable in the website global-level advanced search configuration

# Collection-level settings

**Website Configuration Tool** Logged in as: mpalos@bsu.edu | Logout

Global Settings | **Collection-level Settings** | Save Preview Publish More

Editing collection: 376th Heavy Bombardment Gro change

Appearance

**Search & Browse**

Items

Page Types

Localization

Custom

**Advanced Search** [View Help and examples](#)

Choose advanced search fields:


<input checked="" type="checkbox"/> All Fields	<input checked="" type="checkbox"/> Media Type
<input checked="" type="checkbox"/> Title	<input checked="" type="checkbox"/> Original Format
<input checked="" type="checkbox"/> Interviewer	<input type="checkbox"/> Digital Date
<input type="checkbox"/> Interviewee	<input checked="" type="checkbox"/> File Format
<input checked="" type="checkbox"/> Subject - LCSH	<input type="checkbox"/> Pixel Width
<input checked="" type="checkbox"/> Original Date	<input type="checkbox"/> Pixel Height
<input checked="" type="checkbox"/> Description	<input type="checkbox"/> Digitization Equipment
<input type="checkbox"/> Alternative Title	<input type="checkbox"/> Capture Specifications
<input checked="" type="checkbox"/> Videographer	<input checked="" type="checkbox"/> Transcript Digital Identifier
<input type="checkbox"/> Producer	<input type="checkbox"/> Item Identifier
<input checked="" type="checkbox"/> Publisher	<input type="checkbox"/> Link to Library Catalog Record
<input type="checkbox"/> Subject - TGM	<input type="checkbox"/> Subcollection
<input type="checkbox"/> Subject - Other	<input type="checkbox"/> Subcollection URL
<input type="checkbox"/> Persons Pictured	<input checked="" type="checkbox"/> Collection
<input type="checkbox"/> Geographic Location	<input type="checkbox"/> Collection URL
<input checked="" type="checkbox"/> Time Period	<input type="checkbox"/> Archival Collection
<input type="checkbox"/> Squadron	<input type="checkbox"/> Archival Collection URL
<input type="checkbox"/> Location Recorded	<input type="checkbox"/> Repository
<input type="checkbox"/> Series	<input type="checkbox"/> Online Provider
<input type="checkbox"/> Notes	<input type="checkbox"/> Acknowledgements
<input checked="" type="checkbox"/> Audience	<input checked="" type="checkbox"/> Copyright
<input checked="" type="checkbox"/> Language	<input type="checkbox"/> Content Statement
<input type="checkbox"/> Medium	<input type="checkbox"/> Access Information
<input type="checkbox"/> Physical Dimensions	<input type="checkbox"/> Full Text
<input type="checkbox"/> Run Time	<input checked="" type="checkbox"/> System Date
<input type="checkbox"/> Scale	

☒ Enable date search





# Global settings

 **Website Configuration Tool**

Logged in as: **mpalos@bsu.edu** | [Logout](#)

Global Settings

Collection-level Settings

Save

Preview

Publish

More

Configurations made on the "Global Settings" tab apply to all collections on the website. If you'd like to make specific changes to individual collections, select the "Collection-level Settings" tab. Any collection-level settings will override global settings.

Appearance

Search & Browse

Viewing Option

Results

Facets

Advanced Search

Navigation

Items

Page Types

Localization

Analytics & SEO

Custom

☒ All Fields

☒ Title

☒ Subject

☒ Description

☒ Creator

☒ Publisher

☒ Contributors

☒ Date

☒ Type

☒ Format

☒ Identifier

☒ Source

☒ Language

☒ Relation

☒ Coverage

☒ Rights

☒ Audience

☐ Accrual Method

☐ Accrual Periodicity

☐ Accrual Policy

☐ Instructional Method

☐ Provenance

☒ Title-Alternative

☒ Description-Table Of Contents

☒ Description-Abstract

☒ Date-Created

☒ Date-Valid

☒ Date-Available

☒ Date-Issued

☒ Date-Modified

☐ Date-Accepted

☐ Date-Copyrighted

☐ Date-Submitted

☒ Format-Extent

☒ Format-Medium

☐ Identifier-Bibliographic Citation

☒ Relation-Is Version Of

☒ Relation-Has Version

☒ Relation-Is Replaced By

☒ Relation-Replaces

☒ Relation-Is Required By

☒ Relation-Requires

☒ Relation-Is Part Of

☒ Relation-Has Part

☒ Relation-Is Referenced By

☒ Relation-References

☒ Relation-Is Format Of

☒ Relation-Has Format Of

☒ Relation-Conforms To

☐ Rights-Access Rights

☐ Rights-License

☐ Rights-Rights Holder

☒ Coverage-Spatial

☒ Coverage-Temporal

☒ Audience-Mediator

☐ Audience-Education Level

☒ Enable date search

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# Lessons learned

- Successful metadata design requires keeping in mind two search contexts
- Collections should be designed with a “key date” field in mind:
  - The field should be set to the Date data type *and* be the first field in the collection with this data type
  - The field should be mapped to a DC.Date element.
  - The field should not be hidden
  - And has both the field and DC map exposed to the advanced search interface in the website settings

Field name	DC map	Data type	Large	Search	Hide	Required	Vocab	add field	
System Date	Date	Date	No	Yes	No	No	No	move to ▾	edit   delete



# Q & A

	DC Map set to a Date element	DC Map not set to a Date element
Data Type set to Date	Single-collection searches and multi-collection searches return results	Single-collection searches return results (if and only if this is the first field with this data type)
Data Type not set to Date	Multi-collection searches return results	Does not return date results



# Questions?

Please send all questions via the Chat panel.

- Click on the Chat box to make it the active window.
- To submit a question, please select **All Panelists** in the To box.
- Clicking the “Enter” key will send your message.
- We will answer as many questions as time allows.

