Function 1: Fetch and Display Single XML

Overview

Function 1 provides a quick way to view the complete XML structure of any bibliographic record in Alma. This read-only function retrieves the full record data and displays it in a formatted, user-friendly dialog window, making it easy to inspect metadata, troubleshoot issues, or understand record structure before making changes.

What It Does

This function fetches a single bibliographic record from Alma using its MMS ID and displays the complete XML in a popup dialog with syntax formatting and copy functionality.

Key Features

- **Read-only operation**: No modifications to Alma data
- **Full record retrieval**: Gets complete bibliographic record with all fields
- **Pretty-printed XML**: Automatic formatting with proper indentation
- **Copy to clipboard**: One-click copying of entire XML content
- **Large file handling**: Can display records of any size
- **Character count**: Shows total XML size in the dialog

How It Works

Step-by-Step Process

1. **User Input**: Enter an MMS ID in the input field
2. **API Request**: Sends GET request to Alma Bibs API
3. **Receive XML**: Gets raw XML response from Alma
4. **Format XML**: Pretty-prints with indentation and line breaks
5. **Display Dialog**: Opens popup window with formatted XML
6. **User Actions**: View, scroll, and optionally copy the XML

API Endpoint

```
GET /almaws/v1/bibs/{mms_id}?view=full&expand=None
Accept: application/xml
```

Parameters:

- `mms_id`: The bibliographic record identifier
- `view=full`: Returns complete record data
- `expand=None`: No additional expansion of linked data
- `apikey`: API authentication key

Usage

Basic Operation

1. **Enter MMS ID**: Type or paste the MMS ID in the "MMS ID" input field
   - Example: `991234567890104641`
2. **Select Function**: Choose "Fetch and Display Single XML" from the function dropdown
3. **Execute**: Click the function button
4. **View XML**: Dialog window opens with formatted XML
5. **Copy (Optional)**: Click "Copy to Clipboard" to copy the entire XML
6. **Close**: Click "Close" button to dismiss the dialog

Dialog Features

Title Bar:

- Shows the MMS ID: "XML for MMS ID: 991234567890104641"

Content Area:

- File size display: "Size: 45,823 characters"
- Scrollable text field with formatted XML
- Fixed-width font for readability
- 25 visible lines with scroll capability
- Read-only (cannot be edited)

Action Buttons:

- **Copy to Clipboard**: Copies entire XML to system clipboard
  - Button changes to "Copied!" for 2 seconds after clicking
  - Then resets back to "Copy to Clipboard"
- **Close**: Closes the dialog window

XML Structure

Record Components

The displayed XML includes all standard Alma bibliographic record elements:

Root Element:

```
<bib>
  <!-- Record metadata -->
</bib>
```

Key Sections:

- `mms_id`: Alma record identifier
- `record_format`: MARC21 or other format

- `linked_record_id`: Links to other records
- `title`: Brief title for display
- `author`: Primary author/creator
- `issn`: Serial number (if applicable)
- `isbn`: Book number (if applicable)
- `network_number`: Network-level identifiers
- `publisher_const`: Publisher information
- `originating_system`: Source system code
- `originating_system_id`: Original identifier
- `cataloging_level`: Cataloging completeness level
- `record`: Full MARC21 record with all fields
- `anies`: Dublin Core metadata (if present)

Dublin Core in anies

The `<anies>` section contains Dublin Core metadata:

```
<anies>
  <record xmlns="http://alma.exlibrisgroup.com/dc/01GCL_INST"
          xmlns:dc="http://purl.org/dc/elements/1.1/"
          xmlns:dcterms="http://purl.org/dc/terms/">
    <dc:title>Title of Item</dc:title>
    <dc:creator>Author Name</dc:creator>
    <dc:identifier>dg_12345</dc:identifier>
    <dc:rights>Rights Statement</dc:rights>
    <!-- Additional Dublin Core fields -->
  </record>
</anies>
```

Use Cases

1. Record Structure Inspection

Scenario: Need to understand how metadata is structured in a record

Workflow:

1. Enter MMS ID
2. Run Function 1
3. Examine XML structure
4. Identify field locations and namespace usage

Benefits:

- See exact field names and namespaces
- Understand parent-child relationships
- Identify repeated fields
- Locate specific metadata elements

2. Pre-Edit Verification

Scenario: Planning to run Functions 2, 6, or 7 and want to verify data first

Workflow:

1. Fetch XML for sample record
2. Search for target fields (dc:relation, dc:rights, dc:identifier)
3. Verify field values and structure
4. Confirm records will be affected by planned function

Benefits:

- Avoid unexpected changes
- Verify target fields exist
- Check current values before modification
- Ensure function will work as expected

3. Troubleshooting Metadata Issues

Scenario: Record not displaying correctly or has data quality issues

Workflow:

1. Get MMS ID of problematic record
2. Fetch and display XML
3. Search for specific fields or values
4. Identify malformed data, encoding issues, or missing fields

Benefits:

- See raw data as stored in Alma
- Identify encoding problems (special characters)
- Find empty or malformed fields
- Diagnose namespace issues

4. Copy Record XML for External Processing

Scenario: Need to analyze record outside of CABB

Workflow:

1. Fetch XML for record
2. Click "Copy to Clipboard"
3. Paste into text editor, XML validator, or other tool
4. Perform external analysis or transformation

Benefits:

- Work with XML in preferred tools
- Share record data with colleagues
- Validate against schemas

- Transform using XSLT or other processors

5. Documentation and Training

Scenario: Creating documentation or training materials about Alma records

Workflow:

1. Fetch XML for example records
2. Copy XML for documentation
3. Use in training materials or technical specifications

Benefits:

- Real examples from production system
- Accurate field representations
- Complete metadata context
- Version-specific format documentation

6. Comparison Before and After Edits

Scenario: Verify changes made by other functions

Workflow:

1. **Before**: Fetch and copy XML before running editing function
2. **Edit**: Run Functions 2, 6, or 7
3. **After**: Fetch XML again for same record
4. **Compare**: Use diff tool to see exact changes

Benefits:

- Confirm only intended fields changed
- Verify no data loss
- Document transformation results
- Quality assurance for batch operations

Output Format

Pretty-Printed XML

The function formats XML with:

- **Consistent indentation**: 2 spaces per level
- **Line breaks**: Each element on separate line
- **Attribute formatting**: Attributes on same line as opening tag
- **Namespace declarations**: Preserved with prefixes
- **Text content**: Preserved exactly as stored

Example Display

```xml
<?xml version="1.0" ?>
<bib>
  <mms_id>991234567890104641</mms_id>
  <record_format>marc21</record_format>
  <linked_record_id></linked_record_id>
  <title>Sample Digital Object</title>
  <author>Smith, John</author>
  <originating_system>01GCL_INST</originating_system>
  <originating_system_id>grinnell:12345</originating_system_id>
  <anies>
    <record xmlns="http://alma.exlibrisgroup.com/dc/01GCL_INST"
            xmlns:dc="http://purl.org/dc/elements/1.1/"
            xmlns:dcterms="http://purl.org/dc/terms/">
      <dc:title>Sample Digital Object</dc:title>
      <dc:creator>Smith, John</dc:creator>
      <dc:identifier>dg_12345</dc:identifier>
      <dc:identifier>Grinnell:12345</dc:identifier>
      <dc:date>1925</dc:date>
      <dc:rights>Public Domain</dc:rights>
    </record>
  </anies>
</bib>
```

Technical Details

Character Limit

- **Maximum display**: Unlimited characters
- **Dialog scrollable**: Can handle very large records
- **Copy functionality**: Copies complete XML regardless of size
- **Truncation**: Log messages truncate to first 500 chars (full XML still displayed)

Response Time

- **Typical**: 1-2 seconds for standard records
- **Large records**: 2-5 seconds for records with extensive holdings
- **Network dependent**: Speed varies with connection quality

Error Handling

Common Errors:

Error	Status Code	Cause	Solution
Record not found	404	Invalid MMS ID	Verify MMS ID is correct
Unauthorized	401	Invalid API key	Check .env configuration
Access denied	403	API key lacks permissions	Add "Bibs" read permission
Server error	500	Alma internal error	Retry or contact support

Error Messages:

```
Failed to fetch record: 404
```

```
API Key not configured
```

Logging

The function logs:

- Start of fetch operation with MMS ID
- Raw XML length
- Pretty-printed XML length
- Success or failure status
- Any errors with full traceback

Log Example:

```
Fetching XML for MMS ID: 991234567890104641
Requesting bibliographic record 991234567890104641 from Alma API
Raw XML length: 42,156 chars
Pretty-printed XML length: 45,823 chars
Successfully fetched XML for MMS ID: 991234567890104641
Displaying XML dialog...
```

Comparison with Other Methods

CABB Function 1 vs. Alma UI

CABB Function 1 Advantages:

- Faster access (single field, one click)
- Copy functionality built-in
- Formatted for readability
- Can be scripted/automated
- Works offline from saved MMS IDs

Alma UI Advantages:

- Shows related data (holdings, items)
- Editing capabilities
- Authority file integration
- Full system context

CABB Function 1 vs. API Direct Call

CABB Function 1 Advantages:

- No curl/postman setup needed
- Automatic formatting
- User-friendly dialog
- Copy button convenience
- Error handling built-in

API Direct Call Advantages:

- Scriptable for automation
- Can process many records
- Integration with other tools
- Returns JSON option

Best Practices

1. **Keep MMS IDs handy**: Maintain a list of common record IDs for quick testing
2. **Copy before major changes**: Snapshot XML before running modification functions
3. **Use for training**: Show new staff what Alma records look like internally
4. **Validate structure**: Check that records follow expected patterns
5. **Document anomalies**: Copy XML for records with unusual structures
6. **Share examples**: Use copied XML in documentation and communications
7. **Verify namespaces**: Check that Dublin Core and custom namespaces are correct

Limitations

- **Single record only**: Cannot display multiple records at once
- **Read-only**: Cannot edit XML directly (must use other functions)
- **No syntax highlighting**: Plain text display (not color-coded)
- **No XPath search**: Cannot query specific elements in the dialog
- **No save option**: Cannot save XML to file directly (must copy and paste)
- **Network required**: Cannot work offline (needs API access)

Integration with Other Functions

Before Running Function 2 (Clear dc:relation)

- Verify which dc:relation fields exist
- Check which ones match the deletion pattern
- Confirm the record should be modified

Before Running Function 6 (Replace dc:rights)

- Check current dc:rights values
- Verify author copyright statement is present
- Confirm need for replacement

Before Running Function 7 (Add Grinnell Identifier)

- Check for existing dg_ identifiers
- Verify Grinnell: identifier doesn't already exist
- Confirm identifier format

After Running Any Editing Function

- Fetch XML to verify changes
- Compare with before state
- Document the modifications

With Function 3 (Export to CSV)

- Export records first
- Use Function 1 to examine individual records
- Understand XML structure for CSV field mapping

Keyboard Shortcuts

Within Dialog:

- **Ctrl/Cmd + A**: Select all XML text
- **Ctrl/Cmd + C**: Copy selected text (alternative to button)
- **Scroll wheel**: Navigate through long XML
- **Esc**: Close dialog (if supported by browser)

Privacy and Security

- **API key required**: Must have valid Alma API key configured
- **Read permission**: API key must have "Bibs" read access
- **No data sent out**: XML only displayed locally, not transmitted elsewhere
- **Clipboard security**: Copied XML persists in clipboard (clear if sensitive)
- **No logging of content**: Only metadata logged (size, MMS ID), not actual content

Troubleshooting

Dialog Doesn't Appear

Cause: JavaScript error or page update issue **Solution**:

- Check browser console for errors
- Refresh the application
- Verify MMS ID was entered

XML Shows Encoding Issues

Cause: Special characters not properly encoded **Solution**:

- This reflects actual data in Alma
- May need manual correction in Alma
- Report to cataloging team for cleanup

Copy Button Doesn't Work

Cause: Browser clipboard permissions **Solution**:

- Grant clipboard access when prompted
- Try manual select-all and copy
- Check browser compatibility

Very Slow Loading

Cause: Large record or slow network **Solution**:

- Wait for completion (may take 10-15 seconds)
- Check network connection
- Try again during off-peak hours

Related Documentation

- **Alma Bibs API**: https://developers.exlibrisgroup.com/alma/apis/bibs/
- **MARC21 Format**: https://www.loc.gov/marc/bibliographic/
- **Dublin Core Metadata**: https://www.dublincore.org/specifications/dublin-core/

Version History

- **Initial Implementation**: Original function in CABB v1.0
- **Purpose**: Provide quick XML inspection capability
- **Status**: Active, stable, production-ready