EQUELLA®

Metadata Schema Configuration Guide

Version 6.3

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Metadata schema overview

A metadata schema (schema) is a storage structure used to hold an item's metadata. Item metadata is used in searching and managing items within the EQUELLA Digital Repository. A schema that conforms to an available standard increases the discoverability, utility and interoperability of items held in different repositories.

The purpose of this guide is to provide system administrators with an understanding of the EQUELLA Metadata Schemas tool to enable successful management of metadata.

Please note that this guide has been developed to best reflect the full capabilities of EQUELLA and as such may differ in appearance to your own installation. The examples in this guide use a LOM compliant schema called the *Generic Schema* and a *Generic* citation provided in the *EQUELLA Vanilla Institution.* Information on institution management is provided in the *EQUELLA Installation and Administration Guide.*

Metadata schemas

The most widely recognised metadata schema for learning objects is the internationally recognised IEEE 1484.12.1 Standard for Learning Object Metadata (LOM) standard available from:

- http://standards.ieee.org/findstds/standard/1484.12.1-2002-Cor_1-2011.html.

A reference for the Aus-NZ interpretation (ANZ-LOM) that describes the use of each field and common controlled vocabularies is available from:

- http://www.ndlrn.edu.au/verve/_resources/ANZ-LOM_1_02_file.pdf#search=schema

Other metadata schema standards are available from:

- IMS (http://www.imsglobal.org/)
- Dublin Core (http://dublincore.org/about/).

A metadata schema comprises nodes that can contain further child nodes, metadata or attributes. An example is shown in Figure 1.
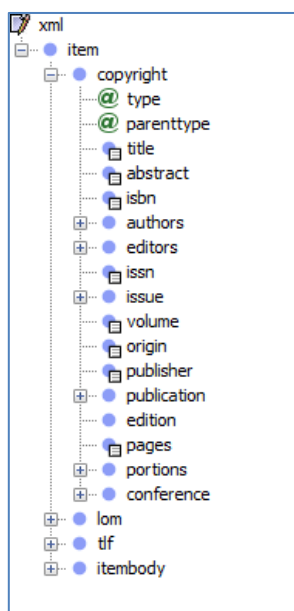
Figure 1 Metadata schema

In this example, the *item* node comprises a group of nodes associated with the node (indicated by the '+') including the *copyright* node that has *type* and *parenttype* attributes and a group of simple data nodes. The schema, when associated with a collection, controls all the metadata stored by items in the repository and affects the item's lifecycle, usefulness, interoperability and discoverability.

Metadata schemas are the core of item management in EQUELLA, providing storage for metadata used:

- to control contribution wizard behaviour
- collection management
- for searching
- for workflow control (moderation)
- for informational display to users

EQUELLA provides a LOM compliant schema called the Generic Schema with each EQUELLA Vanilla Institution and it provides a starting point for creating custom metadata schemas that closely fit the institution's purpose. Further information on institution management is provided in the EQUELLA Installation and Administration Guide.

Before creating or modifying a schema gaining a clear understanding of the required business processes greatly simplifies schema creation.

The examples in this guide use the *Generic Schema.*

Schema Editor

Metadata schemas are modified or created in the EQUELLA Administration Console.

To access EQUELLA and open the Administration Console:

1. Open a browser and enter your EQUELLA URL
   (e.g. *'http://equella.myequellainstitution.edu'*).

2. Log in to EQUELLA as an administrator user to display the EQUELLA dashboard.

3. Click the **Settings** button to display the Settings page, then select **Administration console** from the categories list. An example is shown in Figure 2.
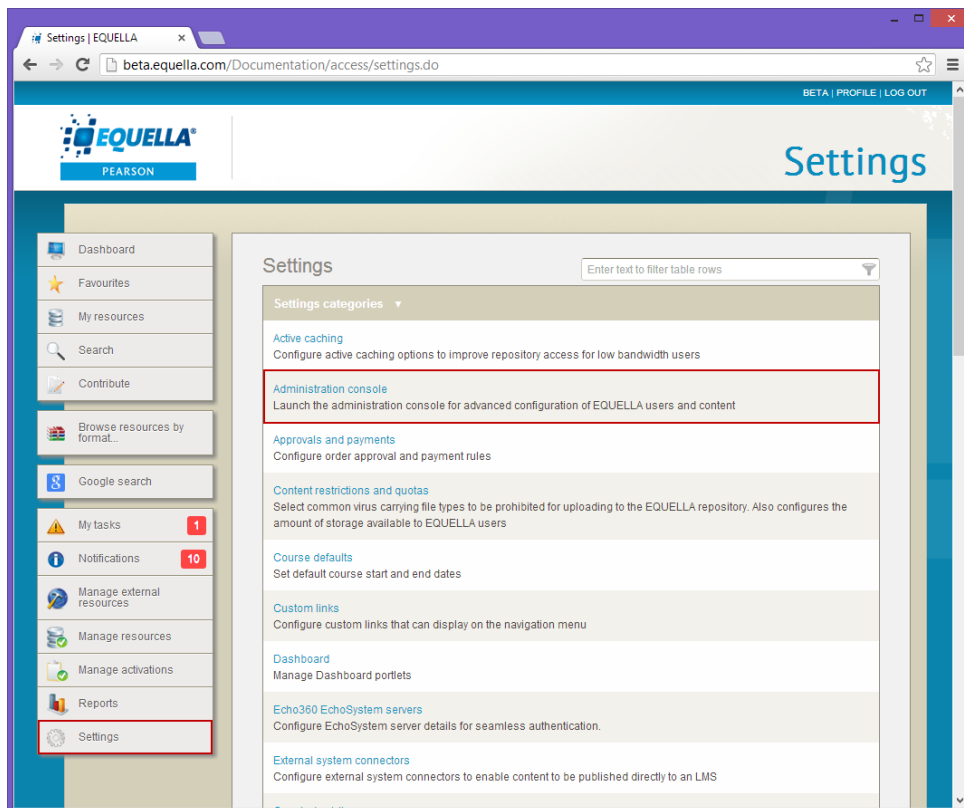
Figure 2 Open the Administration console from the Settings page

4. Select the **Metadata Schemas** option to display the **Metadata Schemas** pane that contains a list of all previously configured profiles. An example is shown in Figure 3.
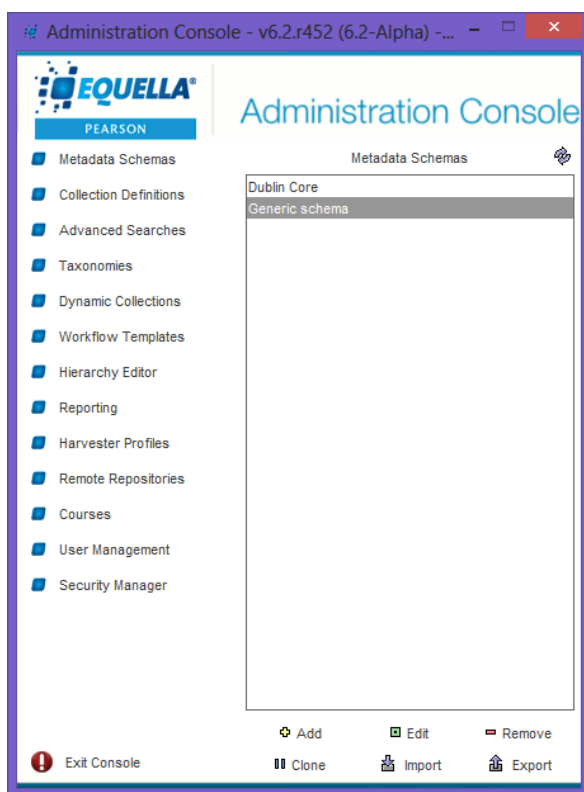
Figure 3 Metadata Schemas pane

Administration Console elements

When the **Metadata Schemas** tool has been selected the **Add**, **Edit**, **Remove**, **Clone**, **Import** and **Export** buttons are enabled. (Providing the correct privileges have been granted, refer to the *EQUELLA Security Guide* for further information.)

Add

Click ✚ Add to display the Schema Editor and create a new schema.

Edit

Select a schema then click ▣ Edit (or double-click on a schema name) to display the **Schema Editor** and modify a schema.

If the selected schema is being edited by another user a **Locked** dialog is displayed as shown in Figure 4, providing the following options:

- **Open as read-only**—disables the **Save** button so that no changes can be made.
- **Force unlock**—unlocks the entity from another user. Editing can occur but changes can be lost from either user.
- **Do not open**—the selected schema's editor is not opened.
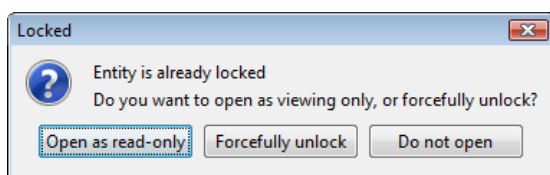
Figure 4 Locked entity dialog

Remove

Click ▬ Remove to delete the selected schema. You will be asked to confirm this action.

Clone

Click ‖ Clone to copy an existing schema. The cloned schema can then be modified by clicking ▣ Edit .

Import

Click ⬇ Import to import a schema that has previously been exported from the Administration Console. A warning dialog is displayed as shown in Figure 5.

(*Note: Only ZIP files that have been exported from the Administration Console should be imported—other ZIP files may adversely affect the stability of the system.*)
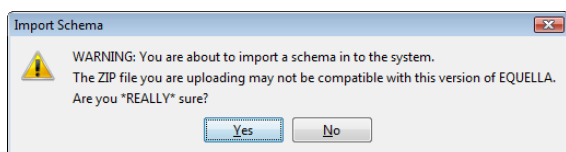
Figure 5 Import Schema warning dialog

Export

Click ⬆ Export to export a schema as a ZIP file.

Configure a metadata schema

To add a new schema

1. Click ✚ Add to display the **Schema Editor**.

To edit a schema

1. Select a schema (e.g. *Generic schema*).
2. Click ▣ Edit to display the **Schema Editor**.

The **Schema Editor** provides an interface for schema creation with the following tabs:

- **Details**—includes general information for the schema and association of item paths.
- **Editor**—creates a schema to gather the metadata.
- **Transformations**—enables the conversion of metadata from uploaded XSLTs to enable import and export of metadata and items between repositories.
- **Citations**—gathers citation information from the schema metadata and transforms it into the appropriate format from uploaded XSLTs.
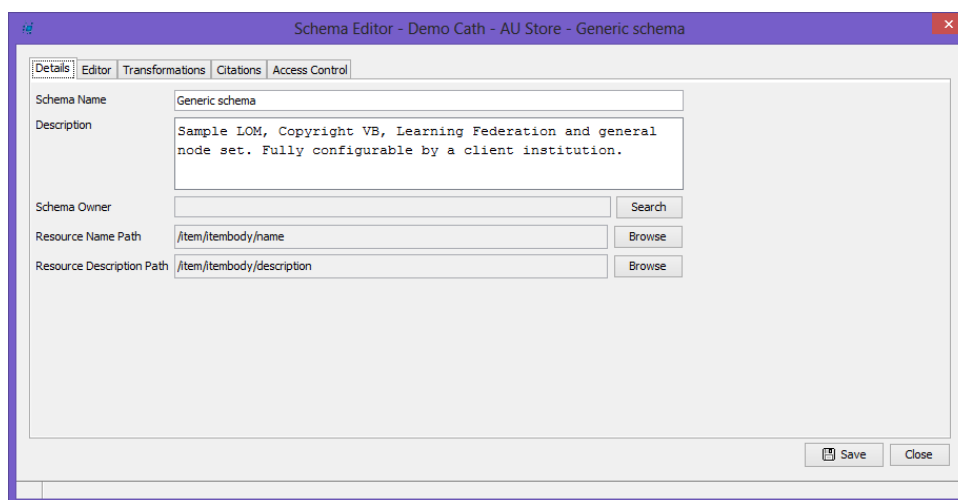
- **Access Control**—controls access to a schema.

Each tab is described in the following sections:

Details tab

The **Details** tab is displayed when the **Schema Editor** is opened. An example is shown in Figure 6.


Figure 6 Schema Editor—Details tab

The Details tab elements include:

- **Schema Name**—enter or edit the schema name.
- **Description**—enter or edit the purpose of the schema.
- **Schema Owner**—displays the schema owner (typically the schema creator). Clicking [Search] displays the **Select Recipients…** dialog where a new owner can be selected.
- **Resource Name Path**—displays the node that holds the Schema Name metadata. The node is shown with all its ancestor nodes. Clicking [Browse] displays the **Choose a schema element?** dialog where a different node can be selected.
- **Resource Description Path**—displays the node that holds the Schema Description metadata. The node is shown with all its ancestor nodes. Clicking [Browse] displays the **Choose a schema element?** dialog where a different node can be selected.

Editor tab

The **Editor** tab shown in Figure 7 displays the metadata structure as an expandable/collapsible tree of nodes.
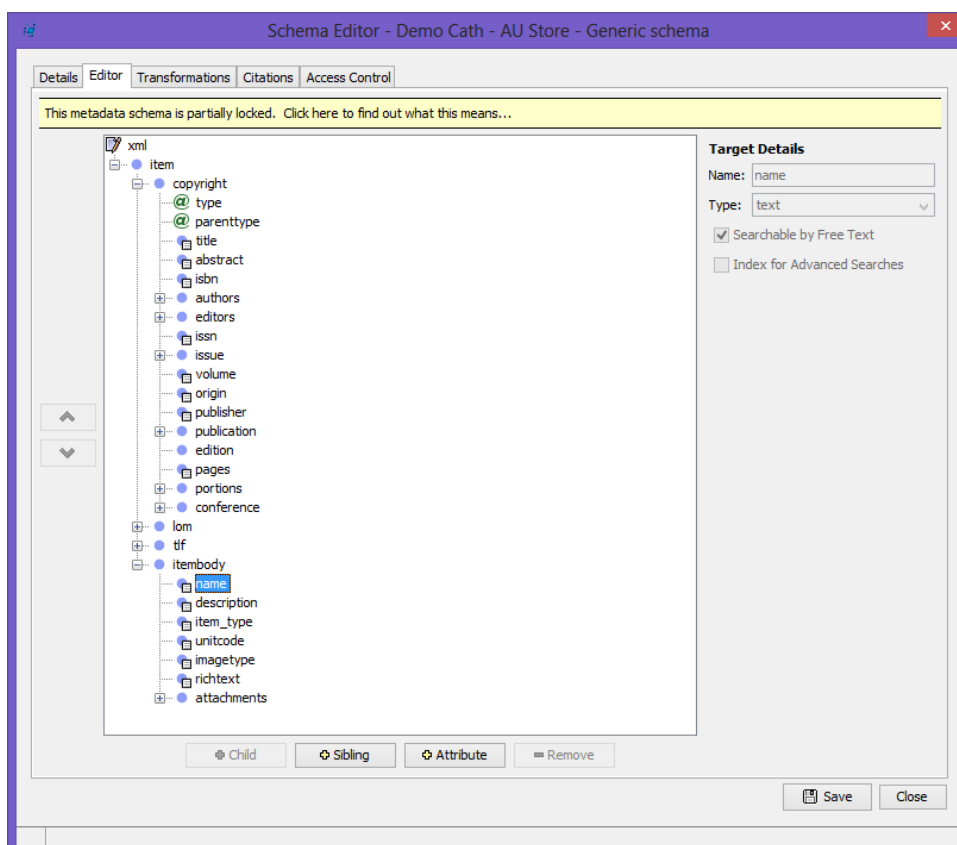
Figure 7 Schema Editor—Editor tab

Schemas all have the base ![xml icon] node and must contain a node for the *name* and *description* of contributed items.

A schema-node name is the concatenation of the node's name with that of all its ancestors. Schema-node names must be unique, however duplicate node names can be used within the schema if the nodes do not share the same parent.

Partial locking

A '*This metadata schema is partially locked*' warning is displayed when a metadata schema is being used in EQUELLA.

Partial locking of a schema prevents changes to the locked nodes. Schema nodes are locked when the schema has been associated with a collection and prevent inadvertent corruption of existing collections. Attributes and sibling nodes can be added to locked nodes without issue.

Selecting **Click here to find out what this means...**displays the **Schema Partially Locked** dialog shown in Figure 8, explaining the consequences of unlocking the schema.
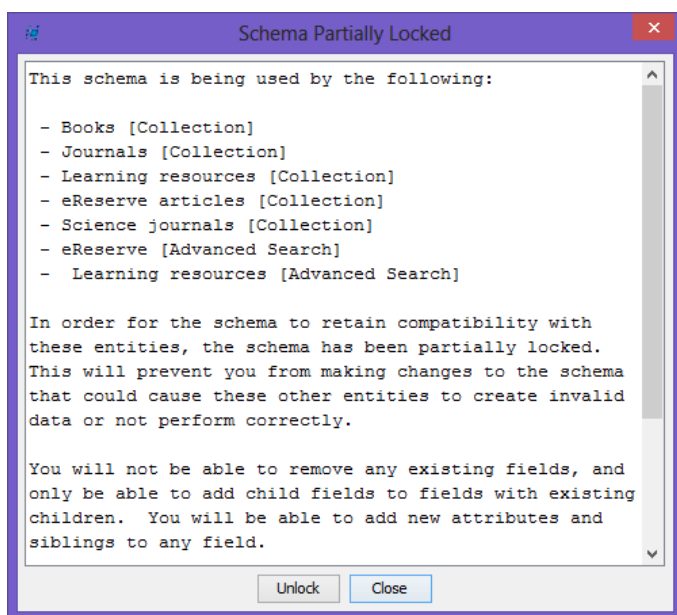
Figure 8 Schema Partially Locked dialog

Unlocking a schema is *not* recommended as it can disrupt the use of existing collections, workflows and searches.

Hierarchy pane

The area where schema nodes are added and edited.

Schema nodes

Schema nodes are displayed in the hierarchy pane with the following icons to indicate their state:

Unlocked

A node will be in an unlocked state when it is created. All operations are permissible on unlocked nodes including renaming, moving and deleting. Selecting an unlocked node displays its details in the **Target Details** section.

Locked

Locked nodes cannot be renamed, moved, deleted, or modified in any way. Child nodes can be added to a locked node, but only if the locked node already has at least one child node. A sibling node or attribute can be added to any locked node.

Searchable

Searchable locked and unlocked nodes are searched by the Free Text engine and/or Power Search engine.

Attribute @

Attributes (things associated with node) can be added to any schema node.

Movement arrows

The buttons to the left of the **Schema Editor** pane allow nodes to be moved around the tree. Only unlocked nodes can be moved and if a move will cause a naming conflict the button is disabled.
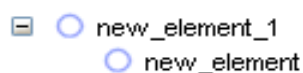
This arrow moves the selected element node above its neighbouring sibling.

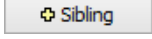This arrow moves the selected element node below its neighbouring sibling.

Add Child

Click ⊕ Child to add a sub-element node to the selected element in the schema. Children cannot be added to locked nodes unless a child node currently exists.
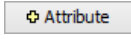
⊟ ○ new_element_1
      ○ new_element

Figure 9 New child element

Add Sibling

Click ⊕ Sibling to add a new element node at the same level as the selected element in the schema.

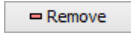○ new_element
○ new_element_1
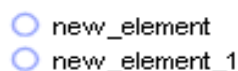
Figure 10 New sibling element

Add Attribute

Click ⊕ Attribute to add a new attribute to the currently selected element node. An attribute can be added to any node.

⊟ ○ new_element_2
      @ new_element

Figure 11 New attribute

Remove

Click ▭ Remove to remove the selected element from the schema. Only unlocked nodes can be removed from the schema.

Target Details

Selecting an unlocked node in the tree displays its details in the **Target Details** section. These details can be edited and must be saved to apply the changes. The details include:

- **Name**—enter or edit the name of the selected node.
- **Type**—select the type of data that will be stored in this node. The possible types are **text** or **HTML**.
- **Searchable by Free Text**—nodes with this option selected will be indexed by the Free Text engine and used for basic searches.
- **Index for Advanced Searches**—nodes with this option selected will be indexed by the Power Search engine and used for power searches and for duplication and uniqueness checking.

Add schema nodes

This example uses a simple schema that comprises the base *xml* node with a child *item* and child *name* and *description* nodes. The schema is:

```
xml
    item
        name
        description
```

To enter schema elements

1. Select the **Editor** tab in the **Schema Editor**.
2. Select the 📝 xml node.
3. Click the ⊕ Child button. A new node is added with the default label *new_element*, an example is shown in Figure 12.
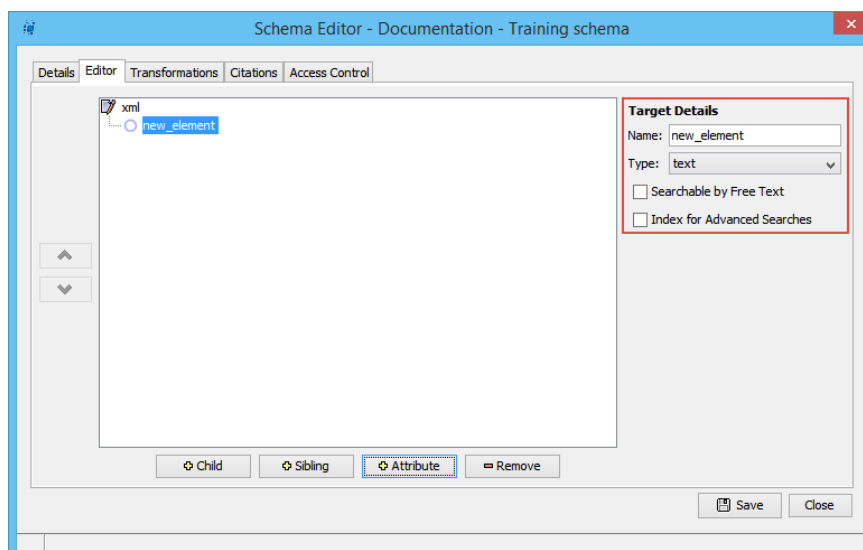
Figure 12 Editor with child node added

4. Enter a name (e.g. *item*) in the **Name** field to display the new name in the hierarchy pane.
5. Select a **Type** (e.g. *text*) from the drop-down list.
6. Select the newly created node (e.g. *item*).
7. Click the ⊕ Child button to create a new node.

8. Enter a name (e.g. *name)* in the **Name** box.

9. Select a **Type** (e.g. *text*) from the drop-down list.

10. Check the **Searchable by Free Text** checkbox and the **Index for Power Searches** checkbox to make the node searchable using basic and power searches.

11. Select the node (e.g. *name*).

12. Click the [⊕ Sibling] button to create a new node.

13. Enter a name (e.g. *description)* in the **Name** box.

14. Select a **Type** (e.g. *text*) from the drop-down list.

15. Check the **Searchable by Free Text** checkbox and the **Index for Power Searches** checkbox to make the node searchable using basic and power searches.

16. Add further nodes as necessary; the completed schema is shown in Figure 13.
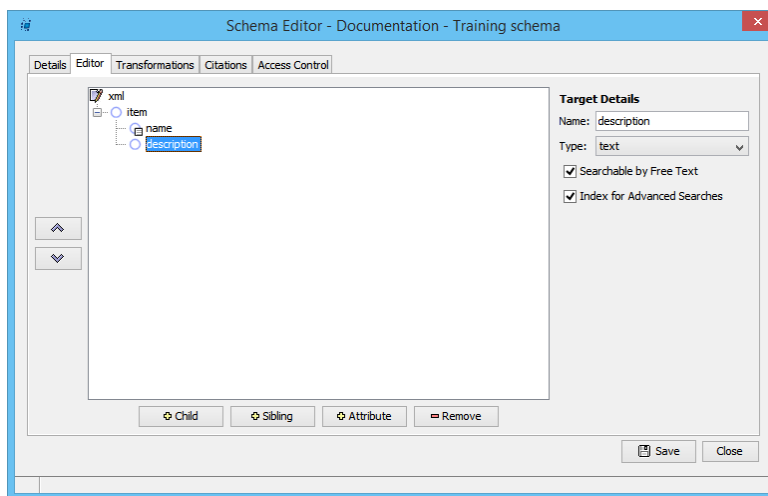
Figure 13 Editor with completed schema

Once the *name* and *description* nodes have been created, the **Item Name Path** and **Item Description Path** on the **Details** tab can be populated.

To add schema elements

1. Select the **Details** tab on the **Schema Editor**.

2. Enter a **Schema Name** and **Description**.

3. Click [Browse] next to the **Item Description Path** field to display the **Choose a schema element?** dialog showing the recently created schema. An example is shown in
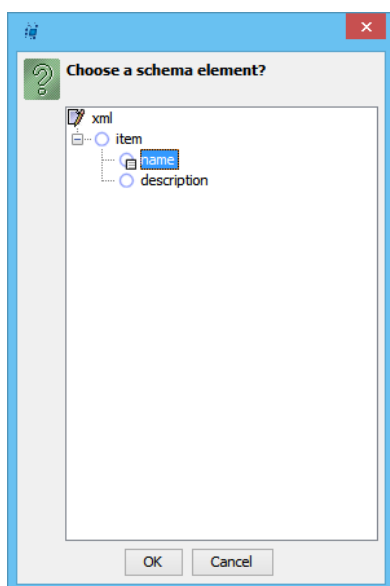
Figure 14 Choose a schema element dialog

4. Select the appropriate schema element (e.g. *name*).

5. Click [OK] to display the selected schema element in the **Item Name Path.** An example is shown in Figure 15.

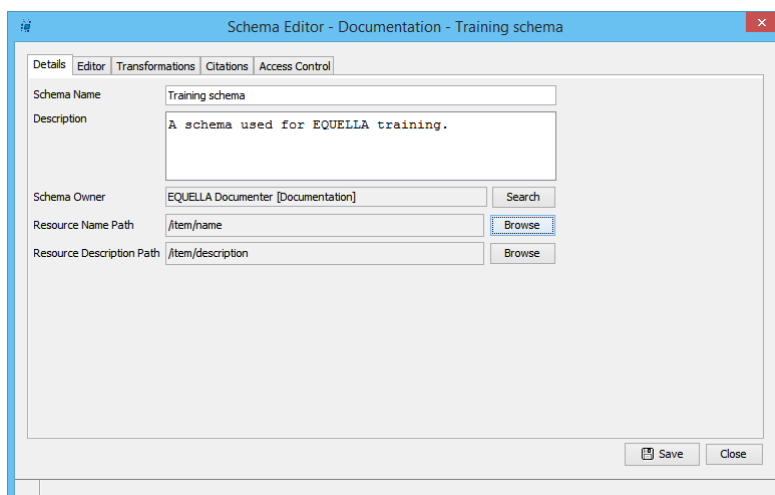**Figure 15 Schema Editor – Details tab**

6. Click [Browse] next to the **Item Description Path** field and select the *description* element from the **Choose a schema element?** dialog as shown in Figure 14.

When a node is being used by another control a warning dialog is displayed as shown in Figure 16.
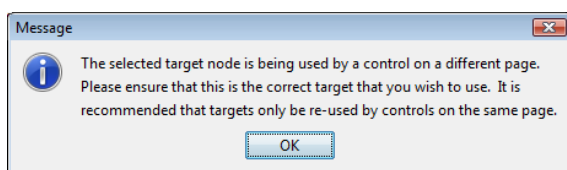
Figure 16 Warning dialog

To save the schema

1. Click [💾 Save] to display a confirmation dialog.
2. Click [OK].

Transformations tab

The Schema Editor enables the conversion of metadata between schemas to enable import and export of metadata and items between repositories. Item metadata can be transformed to the relevant schema when it is imported to or exported from EQUELLA using the **Transformations** tab as shown in Figure 17.
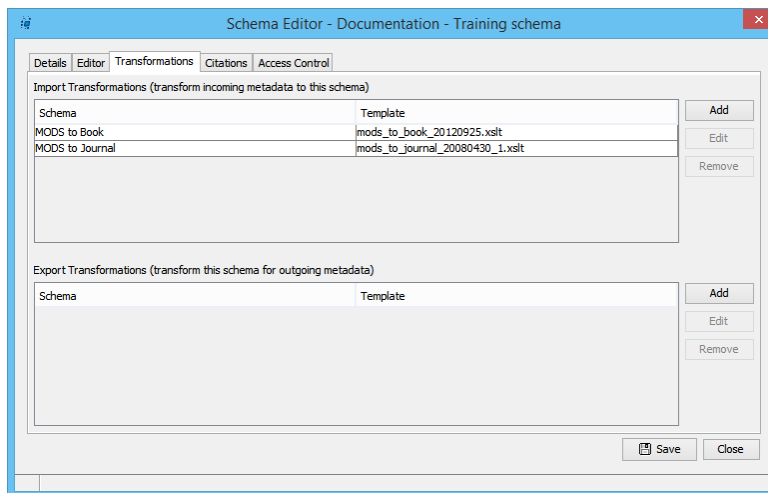

Figure 17 Schema Editor—Transformations tab

The Transformation tab comprises the **Import Transformations** and **Export Transformations** sections.

Import transformations

- **Schema**—a description of the schema typically describing the originating schema.
- **Template**—the name of the XSLT used to transform metadata.
- [Add]—displays the **Select Transformation** dialog to add the transformation file.
- [Edit]—enabled when an import transformation schema is selected. Displays the **Select Transformation** dialog to edit the schema name or change the transformation file.
- [Remove]—enabled when an import transformation schema is selected. Removes the selected schema from the transformation list.

Export transformation

- **Schema**—a description of the schema typically describing the output schema.
- **Template**—the name of the XSLT used to transform metadata.
- [Add]—displays the **Select Transformation** dialog to add the transformation file.

- **Edit** —enabled when an export transformation schema is selected. Displays the **Select Transformation** dialog to edit the schema name or change the transformation file.
- **Remove** —enabled when an import transformation schema is selected. Removes the selected schema from the transformation list.
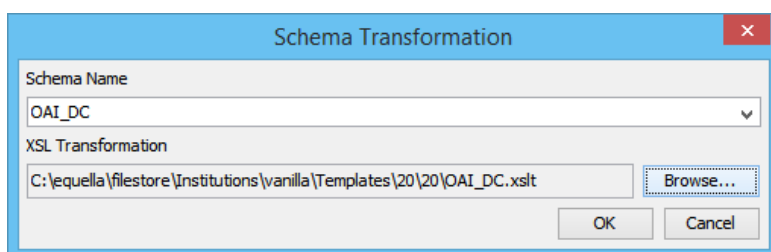
To configure Schema transformations

1. Click **Add** beside the transformations pane (e.g. *Export Transformations*).

A **Schema Transformation** dialog is displayed as shown in Figure 18.

Figure 18 Schema Transformation dialog

2. Select the required schema (e.g. *OAI_DC*) from the **Schema Name** drop-down list or enter the schema name.
3. Click **Browse** to locate the required **XSL Transformation**.
4. Click **OK** to add the XSLT. An example is shown in Figure 19.
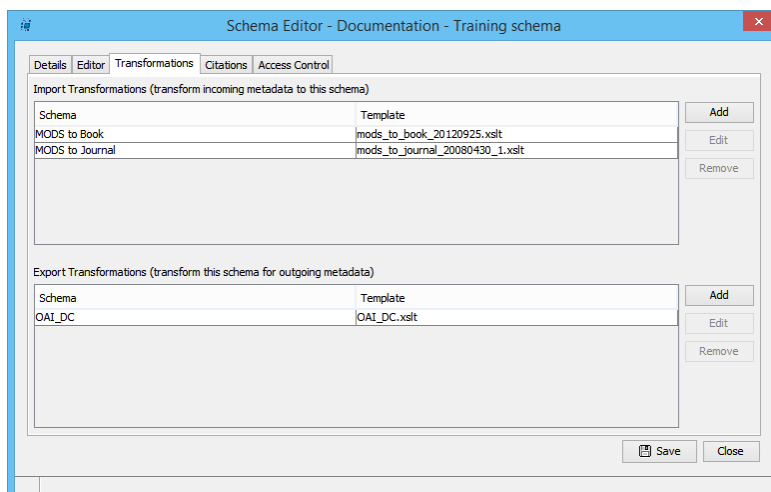
Figure 19 Transformations tab with added XSLTs

5. Use the **Add**, **Edit** or **Remove** buttons as necessary to perform the associated actions.

Further information on XSLTs is provided in the *XSLT template data* section on page 20. Further information on applying an XSLT to a collection is provided in the *Associate a schema to a collection* section on page 19.

Citations tab

When citing licensed material an institution-preferred style can be selected. Citations can be configured in the **Citations** page shown in Figure 20. Various citation styles can be added (Harvard, Chicago etc.) for use with items associated with the schema (by a collection using the schema). The citation information is gathered from the schema metadata and transformed into the appropriate format by an XSLT. A generic citation style is provided with the *EQUELLA Vanilla Institution*.
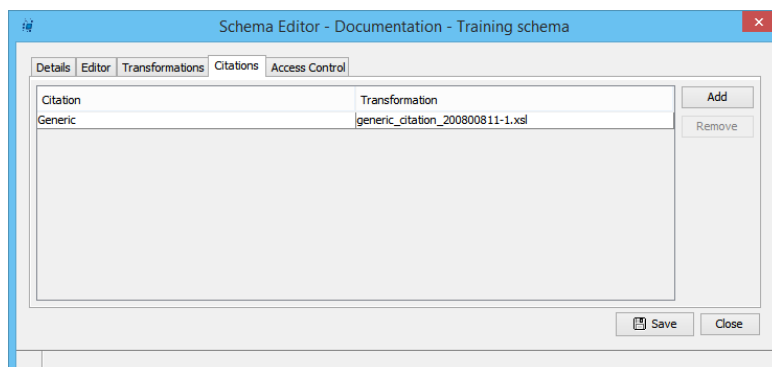

Figure 20 Schema Editor—Citations tab

The Citations tab includes the following elements:

- Add —adds a new row to the citation pane.
- **Citation**—select this field to enter a citation name directly or select from the drop-down list.
- **Transformation**—select this field to display a browse dialog for selecting an XSLT file from a local computer.
- Remove —enabled when a row is selected. Removes the citation transform from the schema.

To add a citation

1. Select the **Citations** tab on the **Schema Editor**.
2. Click Add .
3. Click underneath **Citation** to display a drop-down menu of available citation styles.
4. Select the required citation or enter a citation name (e.g. *Generic*).
5. Click underneath **Transformation** to display a browse dialog enabling selection of an XSLT file.

Figure 20 shows the completed **Citation** page.

Access control tab

Schema collaborators (users who can perform various operations on a schema) are managed with the **Access Control** page shown in Figure 21. Collaborators can be selected individually, as groups or by role to be granted permissions to perform actions on the schema.
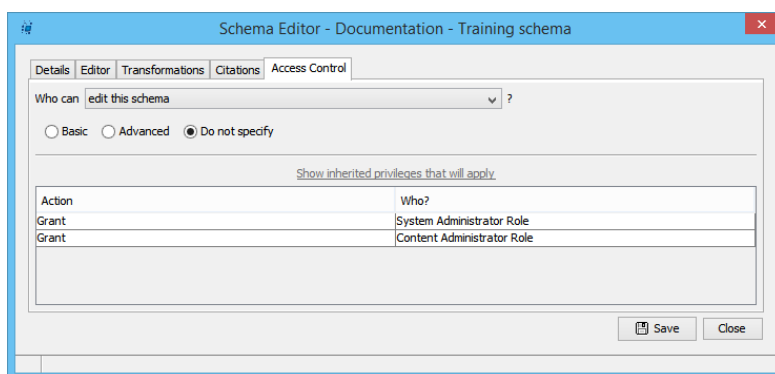
Figure 21 Schema Editor—Access Control tab

The three privileges for schemas are:

- CREATE_SCHEMA = create a schema
- DELETE_SCHEMA = delete this schema
- EDIT_SCHEMA = edit this schema

These privileges are typically granted to Administrators.

If delete or edit privileges are not specified on the Access Control tab of the Schema Editor, users and collaborators associated with this particular schema will inherit the privileges that are set at the Schemas level in the Administration Console Security Manager. Further information is provided in the *EQUELLA Security Guide.*

To save the schema settings

1. Click ![Save button] to save the configuration details.
2. Click ![Close button] to close the Schema Editor.

Associate a schema to a collection

Each EQUELLA collection requires a metadata schema. An instance of the schema metadata is associated with each item contributed to the collection and controls the item's lifecycle and search ability.

Any SCORM XSLT templates uploaded using the metadata schema's **Transformation** tab are associated with the metadata schema. Further information is provided in the *Transformations tab* section on page 16. The selected XSLT template transforms the current metadata into a SCORM compliant package. Further information on XSLT is provided in the *XSLT template data* section on page 20.

To apply a schema to a collection definition

1. Select **Collection Definitions** in the Administration Console.
2. Choose a collection (e.g. *Learning Resources Collection*) to display the **Collection Definition Editor**.
3. Select the schema (e.g. *Generic schema*) from the **Select metadata schema** drop-down list as shown in Figure 22.

To apply an export transformation to a collection

1. Select the required export template (e.g. *OAI_DC*) from the **Allow SCORM packaging** drop-down list as shown in Figure 22.
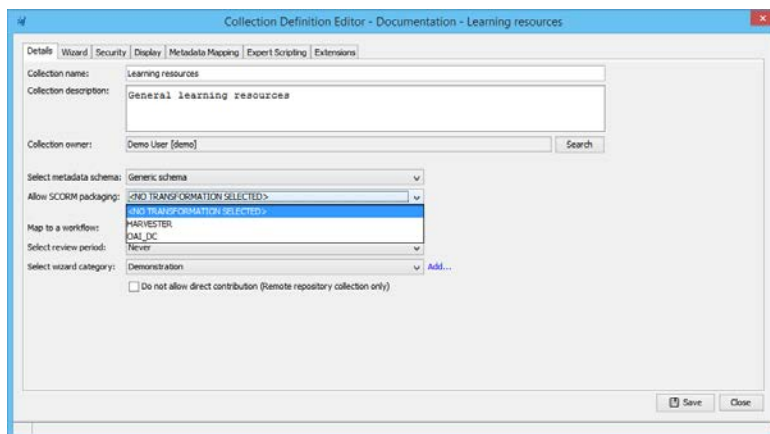

Figure 22 Collection Definition Editor—Details tab

2. Save and close the editor.

Close the Administration Console

To log out of the Administration Console

1. Click the ⚠ Exit Console button.

Using metadata schemas

Metadata schemas are associated with collections, workflows and advanced searches. Typically, metadata is added to an item in a collection at contribution and then used by the associated workflow and advanced search. Further information on using schemas is provided in the following guides:

- *EQUELLA Collection Definition Configuration Guide.*
- *EQUELLA Workflow Configuration Guide.*
- *EQUELLA Advanced Search Configuration Guide.*
- *EQUELLA Copyright Configuration (CAL) Guide.*

XSLT template data

Extensible stylesheet transformations (XSLTs) are commonly used to change the presentation of XML data. In EQUELLA, they can be used to present information returned in display and confirmation templates, email templates, export templates, OAI and Z3950 import and display results.

Item data is of the form as shown in the example below:

```
<xml>
```

```
<item id="dd8d6c65-437d-1e78-e383-0d5f9cc738e0" itemdefid="6e85ce64-9a11-c5e7-69a4-
bd30ec61007f" itemstatus="live" key="26427" version="1">
        <itembody>
            <name>EQUELLA Promotional Video</name>
            <description>Short marketing video about EQUELLA</description>
            ....(other item schema nodes)...
        </itembody>
        <owner>
                a11c588d-79a3-aa90-7fd9-6f641cd47db3
                <user id="a11c588d-79a3-aa90-7fd9-6f641cd47db3">
                        <username>int.sysadmin</username>
                        <givenname>Internal EQUELLA</givenname>
                        <surname>System Administrator</surname>
                </user>
        </owner>
        <datecreated>2009-02-12T17:01:52+1100</datecreated>
        <datemodified>2009-02-12T17:01:52+1100</datemodified>
        <dateforindex>2009-09-21T17:05:22+1000</dateforindex>
        <rating average="-1.0" />
        <attachments>
            ....(other attachment nodes)...
        </attachments>
        <badurls />
        <history>
            ....(other history nodes)...
        </history>
        <moderation>
            ....(other moderation nodes)...
        </moderation>
        <navigationNodes />
    </item>
    <template>entity/25709/displaytemplate/</template>
    <itemdir>/doco/items/dd8d6c65-437d-1e78-e383-0d5f9cc738e0/1/</itemdir>
    <sessionparams />
    <collection>Learning Resources Collection</collection>
</xml>
```

Copyright compliance schema

*C*opyright nodes are provided in the *Generic schema* in the *EQUELLA Vanilla Institution* shown in Figure 23.
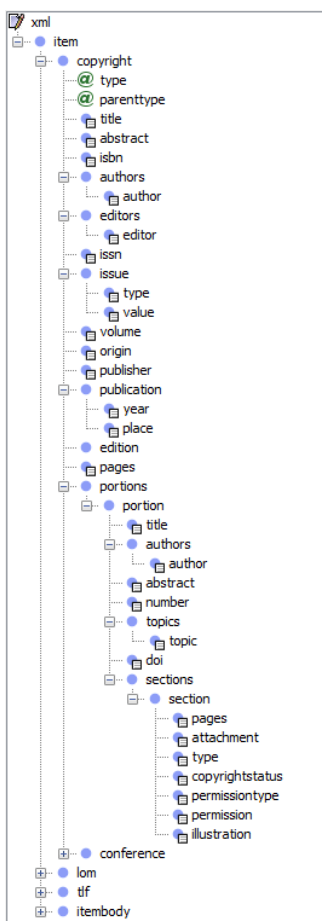
Figure 23 Generic schema copyright nodes

Contact Client Support

We are always happy to help.

If your organisation has a support agreement with EQUELLA then help is available at http://equella.custhelp.com.