

MetaToo System Administration Guide

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I. Initial Preparations

Disposition: Describing what needs to be done in order to make MetaToo operational as a webapplication for online cataloguing of metadata: Install, Configure (formats, forms, screens, etc), Load (of existing records).

Chapter 1. Installation

A MetaToo application consist of the MetaToo core as well as an application specific supplement and customisation of the core.

Throughout this document, the core may be refered to as "fit" (for historic reasons) or as "the metatoo core".

The target system for the installation must be UNIX. The software packages are particularly well suited for Debian Linux, but should work with other UNIX variants.

1.1. From Source

Installation on a UNIX system involves the following:

1. Acquire the MetaToo core software package (<http://toolxite.net/metatoo/>) as well as the MetaToo supplement packages relevant for the application.
2. Make sure that the software upon which MetaToo depends are present on the target system. The setup script (see below) will provide you with a list of missing packages upon startup. Also, make sure that a database user with appropriate privileges exist. This database user should either have privileges to create databases or - in the case an already existing database is to be used - have all privileges on that existing database.
3. Unpack the core package and the application package in the same directory. The core package will have be named `fit.ver` where `ver` will usually be a 3 digit version number (e.g. `fit.1.4.5`). The name of the application directory can be anything. For the purpose of this document, we will refer to it as `app/`

The rest of the installation takes place from within the `app/` directory.

4. Make any necessary adjustments of the configuration file `config.in`. The various entries are described in Chapter 2. In most cases, no adjustments are needed.
5. In the `app/` directory, run the setup script `setup` as superuser (root):

```
app/# ./setup
```

This script will start an interactive dialog with the installer and subsequently:

- check the target system for existence of necessary Perl modules,
- perform the necessary database actions to create the necessary table structure,
- install the necessary code on the target system, and

- upload to the database the content of various definitions (formats, forms, etc) located in the source package(s) in various files.

The setup dialog will ask for the following:

Service name

The dialog will start by asking for a service name - `vname` - for the installation. Default value is the value for configuration parameter `PACKAGE`.

Database name

MySQL user name

MySQL password

Informations regarding the database used for the installation.

Admin email

The mail address to which MetaToo system mails are sent. Should be the application manager or the system administrator.

```
metatoo user 'admin' password
```

```
metatoo user 'root' password
```

The passwords for the two special users associated with any MetaToo installation.

After these informations are fed to the setup script, it will establish the MetaToo database.

Application specific - as well as core - definitions are then loaded into the database.

Finally, various codefiles are copied to their location beneath the `cgi-bin` directory of the target system. During the copy, the files are renamed, introducing the chosen service name as prefix.

1.1.1. Installing an Additional Version of The Application

An application may be installed more than once on the target system, for example, for test purpose.

Making a second installation of an application is done by making a new installation of the MetaToo supplement packages relevant for the application into directory `app2/` which should reside as sibling to `app/`, and then repeat step 4 and 5 of the install procedure described above. Make sure to:

- choose a service name at the beginning of the dialog which is different from the service name chosen for the initial installation, and
- choose database parameters for a database different from the one used for the first installation.

As with a first-time installation, it is important that the database user is allowed to create databases (or that the database is readily created at setup time).

Chapter 2. Configuration

A walkthrough of MetaToos `config.in` file

Chapter 3. Defining XML MetaData

describing formats and introducing forms and their relations

II. Administrative Maintenance

Disposition: Describing how to configure metatoo: format design, formi design, screen design (images, stylesheets, etc), lookups (internal, external). Also, user-maintenance, authorisation, workflow, etc.

Intended audience: Application Managers

Chapter 4. Format Design

Choose Administration -> Formats -> New Use xpath (without prefix /) with one addition:
foo/bar/.body allow content to an element which has nothing else than attributes as its children

Chapter 5. Form Setup

Cataloguing form setup is a process which influence both the input experience when actually using the form to catalogue metadata as well as the structure of the resulting xml metadata.

The form *design* is the process of determining

- which elements the resulting xml metadata should contain; their names and their structure
- for each field, which kind of input widget should be used to input content to fields
- the associated text elements associated with fields when cataloguing: Labels and help
- the associated cataloguing actions which should be available for fields.

The form *customisation* is the process of determining the apperance of the input form in the cataloguers browser.

A form is designed and/or customised by logging in as admin, choose "administration" and choose the "Forms" menu.

If the form in question does not exist, create it either by duplicating an existing or by creatig a new by pressing "New".

Locate the form in question in the list of forms and press "Edit". This will bring up the design and customisation form for the form in question.

The following sections will describe the setup possibilities for the form in question by describing the content and use of this design and customisation form.

5.1. Design

Disposition: Describe includes, groups, properties, labels, help, actions.

5.2. Customisation

The cataloguing form for - as well as the view of - a metadata record are created by merging an xml representation of the record data with eXtensible Stylesheet Language (XSL) stylesheets, and the resulting HTML is then rendered by the cataloguers browser using Cascading Style Sheets (CSS).

For a specific form, the choice of XSL stylesheets is done by selecting from the dropdown "XSL Stylesheet" near the top.

MetaToo ships with a limited selection of XSL stylesheets, each defining a basic visual structure and design for cataloguing forms. If a more application specific layout is needed, it is possible to supplement this list with alternative stylesheet(s).

Each XSL stylesheet has an associated CSS stylesheet. Depending on the degree of customisability in the HTML produced by the XSL, this CSS determines a number of styling parameters for the appearance of the cataloguing form in the browser.

A form specific appearance is obtained by overloading the associated CSS. This is done by redefining (parts of) the CSS in the input field "CSS" near the top.

In the design process of the actual browser experience of a certain form, FireFox equiped with the WebDeveloper plugin - and perhaps even with the mozdev plugin - is recommended.

Below, the structure of the output of each of the default XSL is briefly described, as well as the most relevant CSS classes to change.

5.2.1. XSL: standard_form

This XSL represents a layout of the input form which is historically inspired: The structure of its output resembles that of the HTML produced by earlier versions of MetaToo.

The descriptive area - the left hand side of the form - is organised in columns with fixed width. Labels for groups and fields on the top level is set in the first column, labels for groups and fields on the second level is set in the second column, etc. The number of columns are determined by the depth of the form.

Labelwise, groups are layed out with its label vertically aligned with the label of the first subfield or subgroup.

Buttons for collapsion/expansion of groups, adding new occurrences (repeat), reordering occurrences (move up and move down) as well as buttons for longhelp and lookup are located in the vicinity of the label; either immediately after it or right justified in its column.

Help texts are placed as it is described in the design and customisation form: Either below or to the right of input boxes, below the label or as the first line of a group.

CSS classes most relevant to modify:

#the_form

The class controlling the whole form. Its width should be defined in accordance with the width for the descriptive area and the width for the input area.

`.input-area`

The class controlling the input area - the right hand side of the form, containing the input boxes. Its width should be set in accordance with the width of the individual input boxes as well as the total width of any horizontally laid out groups.

`.description-area-1`

`.description-area-2`

`.description-area-3`

`.description-area-4`

The class styling the columns of the descriptive areas. Their width should be chosen according to the label texts in a form, making the linebreaking visually tolerable.

Example CSS snippet:

III. Getting Data Into and Out of MetaToo

Disposition: 1) Describing how to load data into MetaToo 2) Describing how to access catalogued metadata. Describing the Data Access Service (DAS)

Chapter 6. Delivering Data Downstream: The Data Access Service (DAS)

Making records and associated digital objects catalogued with MetaToo available outside of MetaToo is done via communication through the Data Access Service, or DAS.

A client program can use DAS as a web service for retrieving records as well as for registering back informations for records and their associated digital objects.

Note: by default, this service is only accessible from localhost, if you wish to grant external access, add `auth.ip` to the configuration file with a space separated list of IP addresses: e.g. `das.ip 127.0.0.1 192.168.1.2`

This chapter describes the communication.

6.1. REST based DAS API for Retrieving Records

The DAS is called for record retrieval as `http://yourserver/cgi-bin/yourapp_das?key=val&...&key=val`, where the possible keys (and their values) are described below.

6.1.1. Search related

id

a single record ID or a comma separated list of record IDs.

status

a comma separated list record status

timestamp

either a unix timestamp (seconds since EPOCH) or a timestamp in the format YYYYMMDDHHMMSS or 1957-03-20T20:30:00.

type

a comma separated list of record type

where

an arbitrary where clause which can be used to select records based, at this time, on the `id`, `update`, `cdate`, `status`, `grp`, `uid` and `type`.

6.1.2. Format related

format

if set to 'short', the record XML is not returned

gzip

if equal to 1, the result will be compressed with gzip

pad

if equal to 1, the XML returned will be indented

raw

if equal to 1, the records returned will be exactly like in the database and will not include, among other things, authority text mapping

6.1.3. Others

firstRecord

the number of the first record to be returned, starting from 1 (default: 1).

key

the authentication key, which must match configuration option `das.key`, if it is defined

maxRecords

the maximum number of records returned (default: 100000).

6.1.4. Changes done to database records

The following changes are done to the database record when not using the **raw** argument:

Adding of fit namespace to admin fields

All fields and attributes under `/<root>/admin` are modified to use the fit namespace.

Change update timestamps

All Unix timestamps under `//admin/cataloguer/timestamp` are changed to ISO8601 dates in local time without timezone.

Adding release dates

The first date of catalogue publication under a new status is added as `admin/released`, with the attribute `status` giving the status code and the body being an ISO8601 date as described above.

Change of authority attribute to fit namespace

All attributes with the name *authority* or *authority_** are moved to the fit namespace.

Modifications done through the export configuration in Metatoo

Metatoo can be configured to modified records upon export. If you have a file 'export.cat_doc.xml' in your application xml directory, changes defined in the file will be applied to your record in DAS.

6.2. Example Response

```
<das:records xmlns:das="http://toolxite.net/ns/metatoo/das/" hits="37">❶
  <das:record id="34" status="O3">
    <das:object id="e674fb0fce2b68381cc47dca7ed5782a" type="image/gif"
      uri="/doc/e674fb0fce2b68381cc47dca7ed5782a">
      yeti5.gif
    </das:object>
    <das:data>
      ...your XML record...
    </das:data>
  </das:record>
  <das:record id="46" status="O4">
  ...
</das:record>
<das:record id="15" status="D"/>
<das:diagnostic>
  <das:result>
    <das:returned>3</das:returned>
    <das:total>37</das:total>
  </das:result>
  <das:error type="warning">
    partial reply
  </das:error>
  <das:args>
    <das:where></das:where>
    <das:timestamp></das:timestamp>
    <das:type></das:type>
    <das:status></das:status>
    <das:pad>1</das:pad>
    <das:raw></das:raw>
    <das:gzip>0</das:gzip>
    <das:firstRecord></das:firstRecord>
    <das:maxRecords>3</das:maxRecords>
  </das:args>
  <das:select>select id from cat_doc</das:select>
</das:diagnostic>
</das:records>
```

- ❶ Description of construct 1
- ❷ Description of construct 2

In this example the we get back three records from the puller. The maxRecords parameter was set to 3 and we can see my comparing //diagnostic/result/total and returned that the reply in incomplete. An error of type warning also indicates that this is a partial reply. To view the next two records, you would need to use the same request but this time setting firstRecord to 4.

The attribute /records/record/@id is the metatoo internal identifier for that record. The attribute /records/record/@status is the status of the record, in the example above, you can see that the record as status D which stands for deleted. Deteted records are returned as a closed tag with just the id and status attributes. The object field is a pointer to a file uploaded with the record. Using the object/@id attribute it is possible to link the actual file section in you record to the object/@uri.

6.3. REST based DAS API for Retrieving Digital Objects

The DAS is called for Digital Object retrieval as `http://yourserver/cgi-bin/yourapp_das/doc/CKSUM`, where CKSUM is the MetaToo internl identifier (checksum) for the digital object.

This URL can be constructed from a DAS record retrieval response by combining the url for the DAS with the "uri" attribute of the <das:object> element.

6.4. REST based DAS API for Registering Back Information

A client using the DAS interface to extract records may register back information for records (e.g. id's from various staorage or handler services) as well as for objects associated with records.

The REST based interface for that resides on `http://yourserver/cgi-bin/yourapp_das/extid?key=val&...&key=val`, where the keys are described below.

type

The type of the external id. Typically an identifier of the recieving system.

extid

The external ID to register.

recid

The record ID to register for.

objid

The identifier (cksum) of a MetaToo object related to the record. Use this if the registration is for the digital object rather than for the record itself.

6.5. REST based DAS API for Retrieving Authorities

In order to retrieve an xml representation of authority 'foobar', the DAS is called for authorities as http://yourserver/cgi-bin/yourapp_das?tab=fit_authority&where=name='foobar'

If an element in a DAS record retrieval response was catalogued by a form in which authority (dropdown) 'quez' were used for this element, the element will carry an attribute 'fit:auth_quez'.

Chapter 7. Authorisation data: The Auth Service

This service is designed to be used by external service to discover some of the Metatoo authorisation data for a specified user. For example, a search interface could have a direct link to edit a record but unless authorisation information is available, that system has no way of knowing if the user is actually allowed to edit the record.

Note: by default, this service is only accessible from localhost, if you wish to grant external access, add `auth.ip` to the configuration file with a space separated list of IP addresses: e.g. `auth.ip 127.0.0.1 192.168.1.2`

This authorisation service is REST based and takes a single user ID as parameter: e.g. `http://localhost/cgi-bin/urbit_auth?id=root`

The result is an XML record with the following main elements: `diagnostic`: internal diagnostic, `fields`: fields from the authentication record, `flags`: authorisation flags, `groups`: main and extra groups this user belongs to. Example record:

```
<authentication>
  <diagnostic>
    <id>darcimm</id>
    <grp>dtu_imm</grp>
  </diagnostic>
  <fields>
    <email>pf@dtv.dk</email>
    <grp>dtu_imm</grp>
    <id>darcimm</id>
    <switch_id/>
  </fields>
  <flags>
    <flag>default_document</flag>
    <flag>default_document_create</flag>
    <flag>default_document_pe</flag>
    <flag>default_document_view</flag>
    <flag>document_group_list</flag>
    <flag>document_proof_o21</flag>
    <flag>document_search</flag>
    <flag>document_su_in</flag>
    <flag>document_su_in_create</flag>
    <flag>document_su_l</flag>
    <flag>document_su_pr</flag>
    <flag>fit_authorisation_view</flag>
    <flag>fit_authority_view</flag>
    <flag>fit_javascript_view</flag>
    <flag>fit_view_view</flag>
```

```
</flags>
<groups>
  <group>dtu_imm</group>
</groups>
</authentication>
```

This service does not return table level authorisation information because the resulting XML would be too complicated and hard to use by an external service anyway.

You can however deduce some things based on your authentication rules. For example, by default a user is always able to edit his own records, this will mean that darcimm user will be able to edit all his own records.

Further more, there are super-user flags defined which allows a user to edit records of a certain time if they are part of a group to which he belongs. For example, the user above has the flag `document_su_1` and has access to group `dtu_imm`, which means he will be able to edit all `dtu_imm` literature records.

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