

Installation Guide for the MULTIMEDIA CATALOGUE 1.17

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1 Before you begin

The MULTIMEDIA CATALOGUE requires additional software which needs to be installed and configured. This guide will *not* explain in much detail how this has to be done, though it points out some issues which has to be regarded.

You should be familiar with the installation and configuration of software on a UNIX system. It helps if you have some experience with PostgreSQL, PHP and Apache.

This guide will not cover the installation on Oracle, though the software has been successfully run on it. Full support for Oracle is currently prevented by some missing files to create some database tables and lack of sufficient testing.

2 Software requirements

The MULTIMEDIA CATALOGUE is based on a hypertext system which internally uses a relational database for storage of documents, folders and meta-data. In order to run the hypertext system you will need to install and configure:

1. PostgreSQL 7.x
2. Apache 1.3.x
3. PHP 4
4. sgrep 1.92

In case you would like to use an ldap server for user authentication you will also need openldap or any other ldap server.

This system has been developed on Linux and is known to work on Linux for the intel and powerpc architecture. Other Unix platforms are likely to work as well.

3 Software installation

This section will shortly explain how to install the required software. It will not go into details when basic installation issues of the required software are concerned. In such a case please refer to the installation instructions of each software package.

If you would like to do user authentication by an ldap server, you will also have to install openldap (<http://www.openldap.org>). This document will not explain the installation of any ldap server.

3.1 Installation of PostgreSQL

PostgreSQL can be found at <http://www.postgresql.org>. Install PostgreSQL as described in its documentation. If you already have a working PostgreSQL database system make sure it is at least version 7.0.

3.2 Installation of Apache

Install Apache as described in its documentation but make sure to include the rewrite and php4 module which is not included by default.

3.3 Installation of PHP4

The installation of PHP 4 has to be done as a module of apache. A detailed instruction can be found in the documentation of PHP 4. You must include the extension hyperwave, postgresql and gd. The ldap extension is also required if you want to do authentication of users by a ldap server.

3.4 Installation of sgrep

sgrep is a program to find blocks with arbitrary delimiters in text files. The hypertext system needs sgrep to extract links from HTML documents.

sgrep can be found at <http://www.cs.helsinki.fi/u/jjaakkol/sgrep.html> as a binary for several platforms or as source code.

Place the executable program at a place where it can be found by your web server e.g. /usr/bin or /usr/local/bin. If you place it in a non common directory make sure to adjust your \$PATH variable.

3.5 Installation of the hypertext system and the MULTIMEDIA CATALOGUE

To install the hypertext system and the MULTIMEDIA CATALOGUE just unpack the archive `hypertext-system.tar.gz` in the `DOCUMENT_ROOT` of your apache web server. It will create a directory `htsys` which can be renamed if this is required. This will from now on be called the *root directory of the hypertext system*. Do the same with the archive `hypertext-images.tar.gz` which will create a directory `htsys_images`. The MULTIMEDIA CATALOGUE is part of these archives and does not have to be installed separately.

The root directory of the hypertext system must contain a directory named `secrets`. It will store the users profiles and may only be accessible by the web server for security reasons. Create in by running `mkdir secrets` in the root directory of the hypertext system.

The MULTIMEDIA CATALOGUE may use external meta data to describe each catalogue entry. For installation of this module, unpack the archives `mmc-lom.tar.gz` and `mmc-lom-images.tar.gz` in the `DOCUMENT_ROOT`. It will create the two directories `lom` and `lom_images`. The archives contain a stand alone LOM-Editor (*Learning Object Model*) which may be used without the MULTIMEDIA CATALOGUE. Installing the editor is optional but highly recommend.

4 Configuration

At this point you should have installed all required software and be ready to configure the systems. It is helpful if you are familiar with the PostgreSQL interactive terminal (`psql`) and the configuration of the apache web server.

4.1 Configuring PostgreSQL

Make sure you switch to the Unix account which may administer your PostgreSQL database. Quite often this user is called 'postgres'. Alternatively you can use a PostgreSQL account with rights to create new users and databases.

First of all, create a database user with a name of your choice. This account will be used to do all modifications on database tables of the hypertext system. We recommend the name 'htsys'.

```
createuser -A -D -P htsys
```

Secondly, create a database with a name of your choice and allow access for the previously created user. The easiest way would be to choose the same name as for the user.

```
createdb htsys
```

Next, create all necessary tables by running the following command.

```
psql -U <username> -W -d <databasename> -f create_htsys_pg.sql
```

The *username* and *databasename* are the names of the just created user and database, e.g. htsys. It will only create the tables for the hypertext system.

If that fails because of missing language support for plpgsql you will run as the postgres superuser the following command.

```
createlang -L <PGLIB directory> plpgsql <databasename>
```

If you would like to create the initial collections in the hypertext system run the following command as well.

```
psql -U <username> -W -d <databasename> -f insert_htsys_pg.sql
```

The collections are called hyperroot and rootcollection. You do not have to create those collections, if you rather like to use the sample catalogue. Its installation is described in section 4.5.2.

Depending on the user authentication method you will also have to create some more tables by running the following command.

```
psql -U <username> -W -d <databasename> -f create_user_group_pg.sql
```

It creates a simple user and group database. You will not need these tables if you employ a ldap server. If you are unsure about the authentication method, create these tables. The command will also create the user 'mmc' with the password 'catalog'.

You should create these tables if you plan to install the sample catalogue, since it requires a user named 'mmc', unless you have the possibility to create such a user on your own ldap server.

4.2 Configuring Apache and PHP4

Apache needs to be configured to execute PHP scripts in the directory \$DOCUMENT_ROOT/htsys and \$DOCUMENT_ROOT/lom or whatever name you have chosen. This can be done by adding the following lines into your httpd.conf:

```
<Directory "/usr/local/apache/htdocs/htsys">
    SetHandler application/x-httpd-php
    php_value upload_max_filesize 6000000
</Directory>

<Directory "/usr/local/apache/htdocs/lom">
    SetHandler application/x-httpd-php
</Directory>
```

Setting the maximum size for uploading files is not required, if the default of 1MB is sufficient for your application.

In order to make hypertext objects in the database directly accessible by specifying its name in the URL, it is required to turn rewriting on. Any URL of the form http://host/xxxx needs to be rewritten to http://host/htsys/HyperText/xxxx. In order to prevent rewriting of URLs pointing to images or other PHP scripts needed by application of the hypertext system, those URLs which start with /htsys, /htsys_images, /lom, or /lom_images (or whatever names you have chosen) need to be taken out. Add the following to your httpd.conf.

```
RewriteLog "/usr/local/apache/logs/rewrite.log"
RewriteEngine on

RewriteRule ^/htsys/(.*) /usr/local/apache/htdocs/htsys/$1 [L]
RewriteRule ^/htsys_images/(.*) /usr/local/apache/htdocs/htsys_images/$1 [L]
RewriteRule ^/icons/(.*) /usr/local/apache/icons/$1 [L]
RewriteRule ^/info /usr/local/apache/info [L]
RewriteRule ^/lom/(.*) /usr/local/apache/htdocs/lom/$1 [L]
RewriteRule ^/lom_images/(.*) /usr/local/apache/htdocs/lom_images/$1 [L]
RewriteRule ^/(.*) /usr/local/apache/htdocs/htsys/HyperText/$1 [L]
RewriteRule ^(.*) /usr/local/apache/htdocs/htsys/HyperText/$1 [L]
```

You may want to exclude further URLs from rewriting if you want to serve other documents on the web server. Place those documents in a directory and add a rule like the following.

```
RewriteRule ^/xxxx/(.*) /usr/local/apache/xxxx/$1 [L]
```

xxxx stands for the name of the directory containing the documents. Just keep in mind that any document in the hypertext system cannot be accessed if it is shadowed by a document on the web server. The fourth rule in the above configuration is such a rule which prevents access on a document with the name info in the hypertext system.

4.3 Adding a hypertext system user

The hypertext system either has its own user and group management or it relies on an external ldap server. In case of a ldap server you can pick any user and make it the system user (see section 4.4). If you rather like to use the user and group management of the hypertext system, you should either create a user or utilize the one which has been inserted when you created the tables for the user and group management (see section 4.1). Creating a new user has currently to be done manually by issuing the necessary sql commands within psql or by using the web interface. To insert a user manually go into the PostgreSQL interactive terminal by issuing the following command:

```
psql -U <username> -W -d <databasename>
```

Replace the *<username>* and *<databasename>* with the names you have chosen before, e.g. htsys in both cases. Now run the sql command

```
insert into htuser (name, password, realname, email) values
    (<name>, '<password>', '<realname>', '<email>');
```

Replace *<name>* with the login name, *<password>* with the encrypted password, *<realname>* with the real name of the user and *<email>* with his/her email. An encrypted password can be created with the following perl command:

```
perl -e "print crypt('<password>', '<salt>')"
```

Replace *<password>* with the readable password and *<salt>* with any two character alpha numeric string.

Keep in mind that this command may go into the history



of your shell, which may reveal the password to others using the same Unix account.

A user can also be added to the internal user database by using a web interface (see figure 1). It can be found in the root directory of the hypertext system, e.g. `http://localhost/htsys/adduser.php`. Just enter the data of the new user and hit the 'Add User' button. The currently available users are listed on the top of the page.

4.4 Configuring the hypertext system and the MULTIMEDIA CATALOGUE

For configuration of the hypertext system you will have to edit the file `config.inc` in the root directory of the hypertext system.

The fields that need to be checked and possibly modified are:

DATABASE_HOST The host name of the database server. Can be left unchanged if the apache server and the database server reside on the same host.

DATABASE_NAME The name of the database (can be left unchanged if you followed the recommendation in this installation guide).

DATABASE_USER The name of the database user (can be left unchanged if you followed the recommendation in this installation guide).

DATABASE_PW Password of the database user. Whatever you chose in section 4.1.

HTSYS_ROOT The root directory of the hypertext system where all PHP scripts are located. This directory must be specified relative to the `DOCUMENT_ROOT` of the apache web server. If you did not change the default directory, leave this unchanged.

SYSTEM_USER A hypertext system user with unlimited access to all objects. This may be any user name. If you installed the database tables for authentication, you have already created a user 'mmc' which can be used as the system user. Do not confuse this with the database user.

IMAGE_DIR The directory where all the images are. If you did not change the default directory, leave this unchanged.

ANNOTATIONS The name of the collection where annotations will be stored. Do not change this, if you will install the example catalogue as described in section 4.5.2.

AUTH_METHOD The method of authentication. It can be either 'internal' or 'ldap'. If you use 'internal' authentication you will have to install the user and group management tables (see section 4.1). If you use 'ldap' you will need a working ldap server.

LDAP_SERVERS A list of ldap servers which are contacted one by one. Set this variable, if you selected 'ldap' as your authentication method.

Before any further configuration of the hypertext system and the MULTIMEDIA CATALOGUE you can make a first trial to access the rootcollection by pointing your browser to the URL `http://localhost[:port]/`. If you have inserted the initial collections as described in section 4.1, you will see just one clickable entry with the title "Root of hypertext system"

The appearance of the page is determined by the default application, which can be used for basic document manipulations.

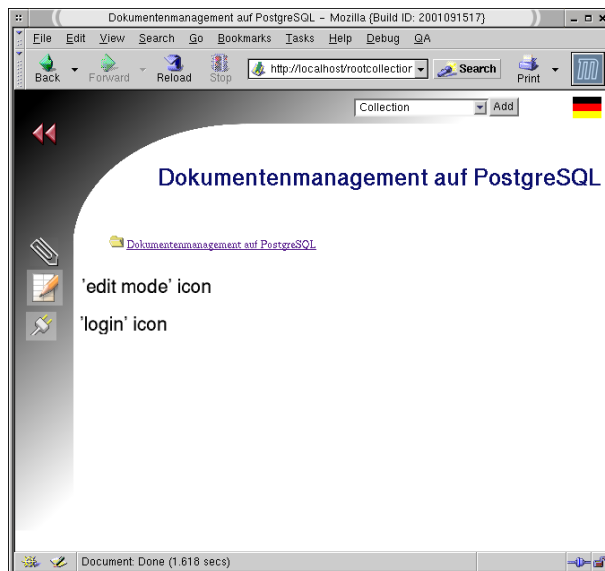
The MULTIMEDIA CATALOGUE itself will not be visible until you either create a new collection of type 'MultimediaCatalogue' or inserting the example catalogue. Both alternatives will be explained in section 4.5.

4.5 Creating the MULTIMEDIA CATALOGUE

The MULTIMEDIA CATALOGUE is a collection of type 'Multimedia Catalogue' within the hypertext system. It will not be available until you create such a collection.

4.5.1 Manual creation of the catalogue

Login as system user by clicking the 'login' icon on the left side of the entry page. Go into edit mode by clicking on the 'edit mode' icon on the left side of the entry page. You will now see an option menu in the header of the page, indicating you are in edit mode. Select the item 'Multimedia Catalogue' and click on 'Add'. The following HTML form will ask for a title and a description. The name is already preset. Fill out the empty fields, modify the name and hit the 'Insert' button on the bottom of the



page. If the operation was successful, the following page will inform you about the just inserted object. You may now close the page by clicking the

'close' button in the left corner of the page or go straight into the catalogue by following the link on the bottom of the page.

In order to add content to the catalogue, you will have to insert further objects of type 'Multimedia Catalogue Section' and finally a 'Multimedia Catalogue Entry'. The procedure is the same as for the 'Multimedia Catalogue' object.

If you would like to use the workspace, you will also have to create a collection of type 'Workspaces' below the root collection of the hypertext system. Set the configuration variable `workspace_name` of the MULTIMEDIA CATALOGUE to the name of this collection (see section 4.6). In this collection you will have to create private collections of type 'Workspace' for each user. The name of this collections has to be `<username>_workspace`. Make sure to set the rights to 'R:a' and the author to the users name, to make it only accessible by that user.

Another collection of type 'Collection' has to be inserted for annotations. Make sure to set the configuration variable `ANNOTATIONS` of the hypertext system to the name of this collection. This collection should have 'W:u' rights, which allows any logged in user to place an annotation into the collection, but will not allow to delete other annotations as its own.

Profiles of the users have to be stored in a separate collection as well. This collection has the same permissions as the annotation collection. Its name is arbitrary, though 'profiles' is a good choice. Set the configuration variable `PROFILES` on the name you have chosen.

For further information please read the section on 'Inserting Content' in the users manual.

4.5.2 Insert example catalogue

The file `example_catalogue.tar` contains an example catalogue which can be fed directly into the PostgreSQL database. Run the command

```
pg_restore -d htsys example_catalogue.tar
```

as the postgres superuser.

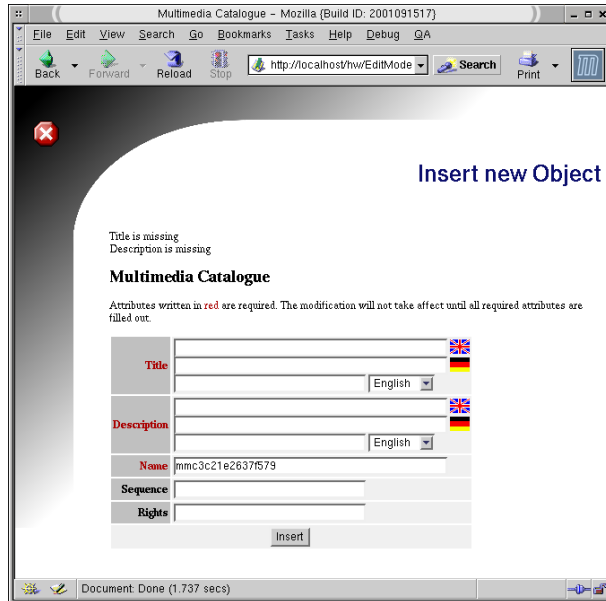


Figure 3: Adding the MULTIMEDIA CATALOGUE.

This command will create a MULTIMEDIA CATALOGUE with several sections and entries. It will override any other objects (including the `hyperroot` and `rootcollection`) which may have been stored in the hypertext system before. If this is not what you want consider to create the catalogue manually (see section 4.5.1).

The author of each object in the example catalogue is the user 'mmc'. If you have not created this user by now, do it now to be able to modify the catalogue.

4.6 Configuring the MULTIMEDIA CATALOGUE

The MULTIMEDIA CATALOGUE has a similar configuration file as the hypertext system. It is located in `MMCatalogue/include/config.inc` relatively to the root directory of the hypertext systems.

workspace_name Name of collection where the users' workspaces are located. Do not change this, if you installed the example catalogue.

workspace_prefix Postfix of the name of each user workspace. The complete name of the workspace is the users login name and this value. Do not change this, if you installed the example catalogue.

help_name The collection containing the help for the catalogue. Do not change this, if you installed the example catalogue.

catalogue_name The name of the collection containing the catalogue itself. Do not change this, if you installed the example catalogue.

admin_email The email address of the catalogue administrator.

search_script The PHP script to be used if the user searches for catalogue entries. This can be either 'Search' or 'LOMSearch'. In the second case you will have to install the LOM Database.

lom_editor_dir The directory where the PHP scripts for the lom editor are located.

4.7 Configuration of the LOM editor

The LOM editor is a separate web application which does not need the hypertext system. It can be used to store meta data of items in the MULTIMEDIA CATALOGUE. The LOM editor needs no extra configuration once it is installed. Just make sure to configure the MULTIMEDIA CATALOGUE, so it uses the LOM database for searching.