

mScope Research

version 3.8

User Guide

September 2011

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1. Introduction

Aurora Interactive's mScope Research Suite enables organizations to easily and intuitively view, manage, distribute, enrich, share and collaborate around digital imaging content using any Web browser connected to the Internet.

This document describes the functionality and implementation of the mScope Research application v3.8.

2. mScope Components and Concepts

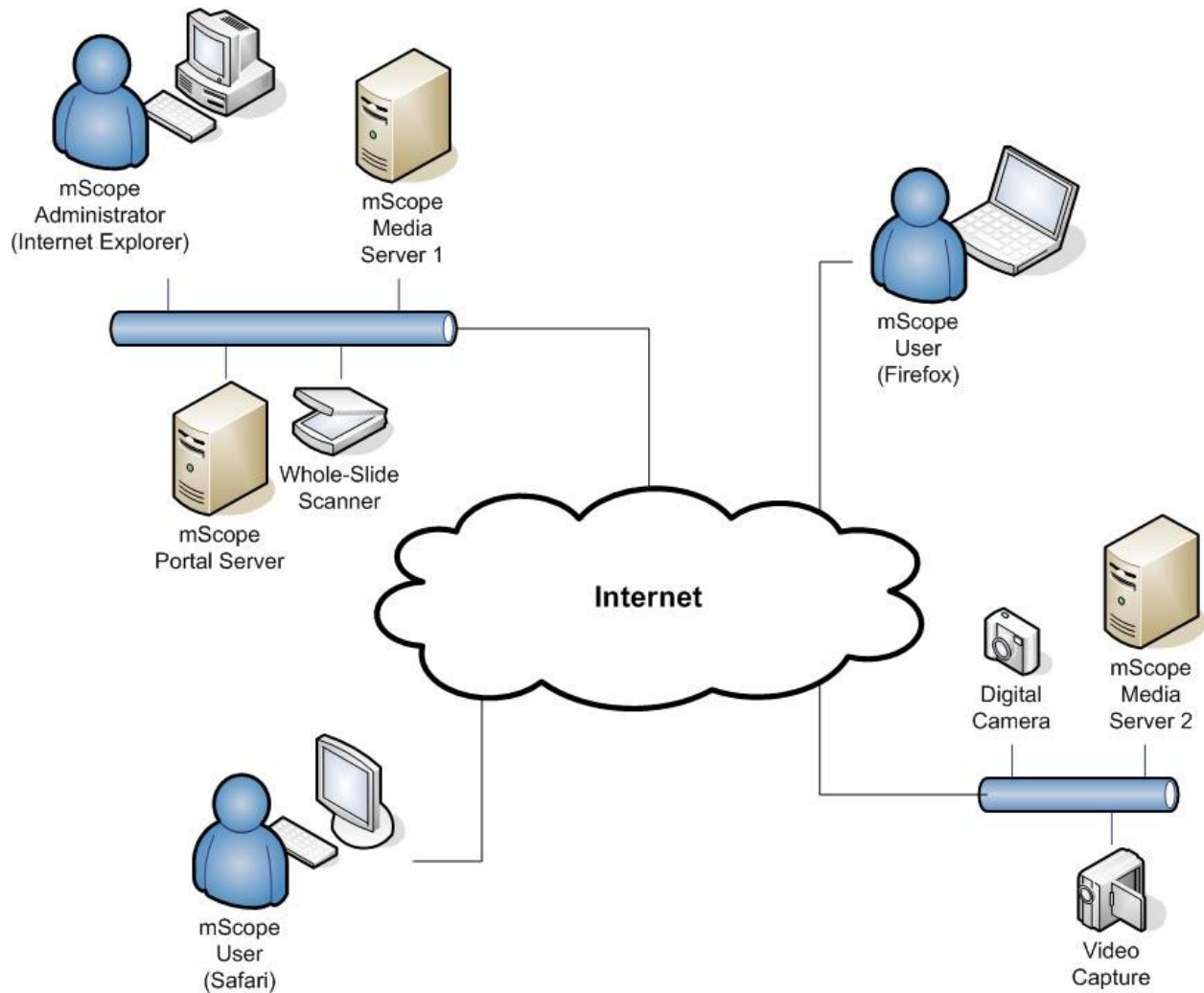
This section describes the main components of the mScope Research application, how they interact and their primary functions.

2.1. *mScope Overview*

The mScope Research application is a Web-based thin-client application that:

- manages all forms of media and information required to support research
- uses a centralized mScope Portal server to organize and share media and information and route user requests to view media stored on one or more distributed Media Servers
- uses the mScope Viewer to allow users to view, enrich and collaborate around media without displacing it from its Media Server
- operates on multiple operating systems (e.g. Windows, Mac)
- may be launched within multiple browser types (e.g. Internet Explorer, Chrome, Safari, Firefox, etc.)
- supports many media formats (all major whole-slide scanner manufacturers, DICOM, digital video, digital cameras, etc.)

The following diagram illustrates a typical mScope Research implementation:



2.2. What is Media?

In the context of the mScope, media is defined as any file containing visual information. mScope supports a wide array of media formats. Examples include:

- 2D images (e.g. .jpg, .gif, etc.)
- video (e.g. .mpeg)
- whole-slide images produced by slide scanners (e.g. Aperio, Hamamatsu, Zeiss, etc.)

Media is displayed in the mScope Portal using thumbnails



2.3. mScope Portal Overview

The mScope Portal may be accessed through any Web browser (e.g. Internet Explorer, Chrome, Firefox, Safari, etc.) and is the primary work area for users and administrators of the mScope Education Suite. It is through the mScope Portal that users and administrators access, upload, manage, link, enrich and share content.

Welcome to the mScope Research Portal

Org. unit	Code	Name	Attribute template	Start date	End date	# Medias	# Attachments
QC	QC-A	Sample Search	None	None	None	0	0
NCE	762	Search Meta Biomarkers	None	07/10/2011	20/01/2012	2	0
MTL	R1-001	Research #1 Study #1	None	18/08/2011	31/08/2011	3	0

Name	Access path	# Medias
Personal Folder #2	/ Personal Folder #2	1
Personal Folder #1	/ Personal Folder #1	0

mScope Research Portal 3.8.1
 © Aurora Interactive, Ltd.
 Licensed to: Research License (10 user)
 Last login: 26-Aug-2011 11:39:22 AM

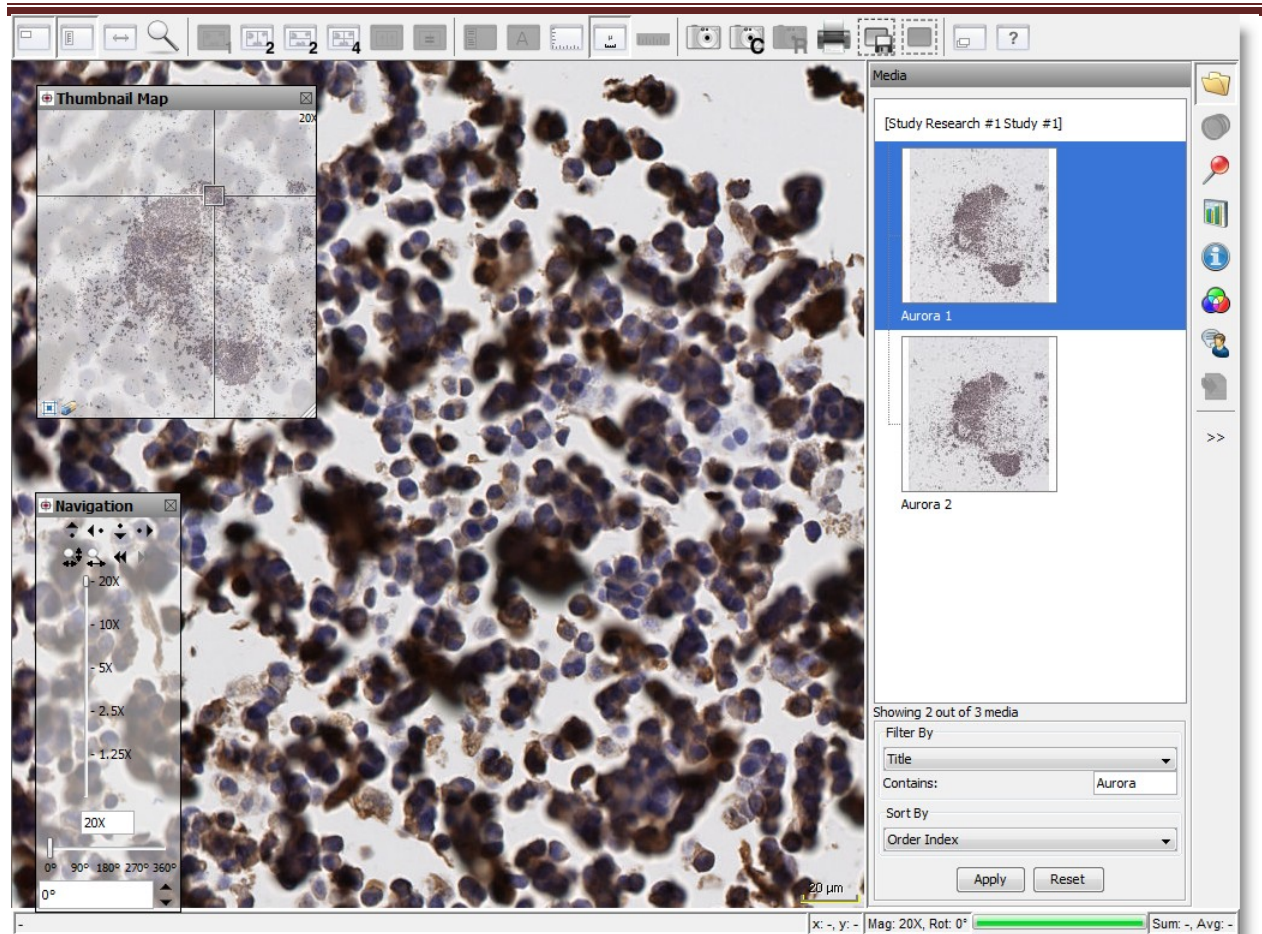
The Portal may be configured to include all or some of the following modules (tabs):

- Dashboard
- Media Library
- Studies
- Administration

For a detailed description of the mScope Portal, its modules and their features, please refer to Section 2.5.

2.4. mScope Viewer Overview

The mScope Viewer is a Java applet that is launched when a user clicks on a media thumbnail in the Portal. In order to eliminate the requirement to download the entire media file (which in some cases is several GBs in size), it selectively and intelligently loads the data corresponding to the region within the viewing area. The mScope Viewer includes tools to allow users to navigate, zoom, annotate, synchronize and collaborate around media.



The Viewer may also be configured to include all or some of the following modules (tabs):

- Attributes
- Color
- Collaboration
- Annotations
- Analysis
- Media

For a detailed description of the mScope Viewer, its modules and their features, please refer to the mScope Viewer User Guide.

3. mScope FAQ

This section addresses frequently asked questions (FAQs) from mScope Research application users and administrators.

3.1. *Hardware and software requirements*

The following table highlights the minimum and recommended hardware and software configurations for administrators and users of the mScope Research Suite v3.8:

	Minimum	Recommended
Operating System	Windows XP, Mac OS 10.4	Windows XP+, Mac OS 10.4+
Internet Browser	MSIE 6.0, Firefox 2.0, Safari 3.0, Google Chrome	Google Chrome
Cookies	Enabled	Enabled
Additional Software (plugins)	Java 1.5+	Java 1.6+
Java Virtual Memory	64 MB	128 MB+
CPU	2GHz single core	Dual core+
RAM	1 GB	2 GB+
Hard Drive Space	Not applicable	Not applicable
Screen Resolution	1024 x 768	1024 x 1280+
Network Connection	3 Mbps	10 Mbps+

3.2. Language Setting

The mScope Education Suite is designed to detect the language setting of the user's Internet browser and display the appropriate translation. In the event the user's Internet browser language setting is not supported, English will be displayed as the default language.

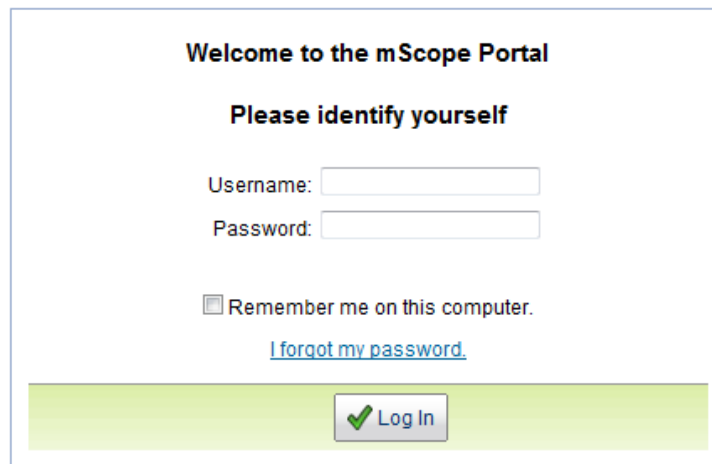
The mScope Education Suite v3.8 currently supports the following Internet browser language settings:

- English
- French
- Spanish
- German
- Portuguese

3.3. Logging in and out

To enter the mScope Portal users must authenticate themselves by logging in:

1. Clicking the "Log in" button at the top right of the mScope Portal window will bring up the page shown below.
2. The user must then enter their username and password and click on "Log In"



Welcome to the mScope Portal

Please identify yourself

Username:

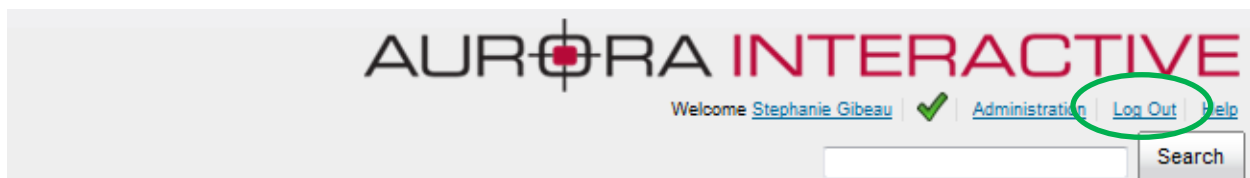
Password:

Remember me on this computer.

[I forgot my password.](#)

1. **Tip:** By selecting the "Remember me on this computer" checkbox, the next time the user accesses mScope he will not need to enter his username and password and will be automatically logged in.

To unset this automatic behavior, the user must click on the "Log out" link located in the upper right corner of the screen. The user will then be automatically redirected to the log in page.



3.4. *Forgot my password*


If you forgot your password you may select the "I forgot my password" link.


Enter you user name and click "Send" in order to receive a new password at the email address associated to your mScope user profile.


3.5. *Settings not supported*

When a user logs in the system performs a check to verify that the user's computer has all the required components and software to run mScope. If this process is successful, they will be brought to their home page. If the process fails, a warning message is issued.

By clicking the link "View more information" you will be directed to a Setting Summary page highlighting your settings as they compare to system requirements:

 Not Certified means that your settings do not meet the minimum settings.

 Warning means that your settings do not meet the recommended settings, but meet the minimum settings.

 Certified means that your settings meet the recommended settings.

Settings Information

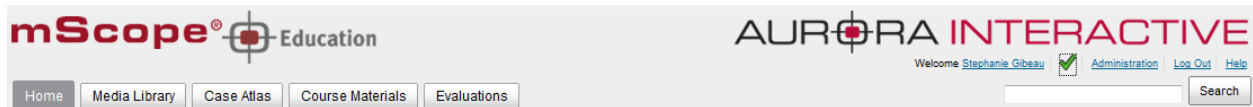
Setting Name	Minimum Settings	Recommended Settings	Your Settings	Result	Links
Browser	MSIE 7.x+, Firefox 2.x+, Safari 3.x+	MSIE 8.x+, Firefox 3.x+, Safari 3.x+	msie 8.0	✔	
OS	Windows NT 5.1+, MAC	Windows NT 5.1+, MacOS 10.4.x	windows nt 8.1	✔	
Javascript	JavaScript 1.x+	JavaScript 1.2+	Javascript 1.2	✔	
Java	Java 1.5+	Java 1.6+	Java 1.6.0_17	✔	
Cookie	Enabled	Enabled	Enabled	✔	
Screen Resolution	1024x768+	1024x768+	1688x949	✔	
User Agent	Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 6.1; WOW64; Trident/4.0; SLCC2; .NET CLR 2.0.50727; .NET CLR 3.5.30729; .NET CLR 3.0.30729; Media Center PC 6.0; MDDC; .NET4.0C)				

Clicking on the "Links" will redirect you to a website that supplies the required fix for the settings issue. *Note:* It is possible that your network administrator may prevent you from applying the updates. You'll need to consult with them if this occurs.

One common cause of the "Settings not supported" message that is not highlighted in the Setting Summary above is when the Web browser's security settings are too high. In this case, reduce them by one increment and refresh the Log in page to see if that corrects the problem.

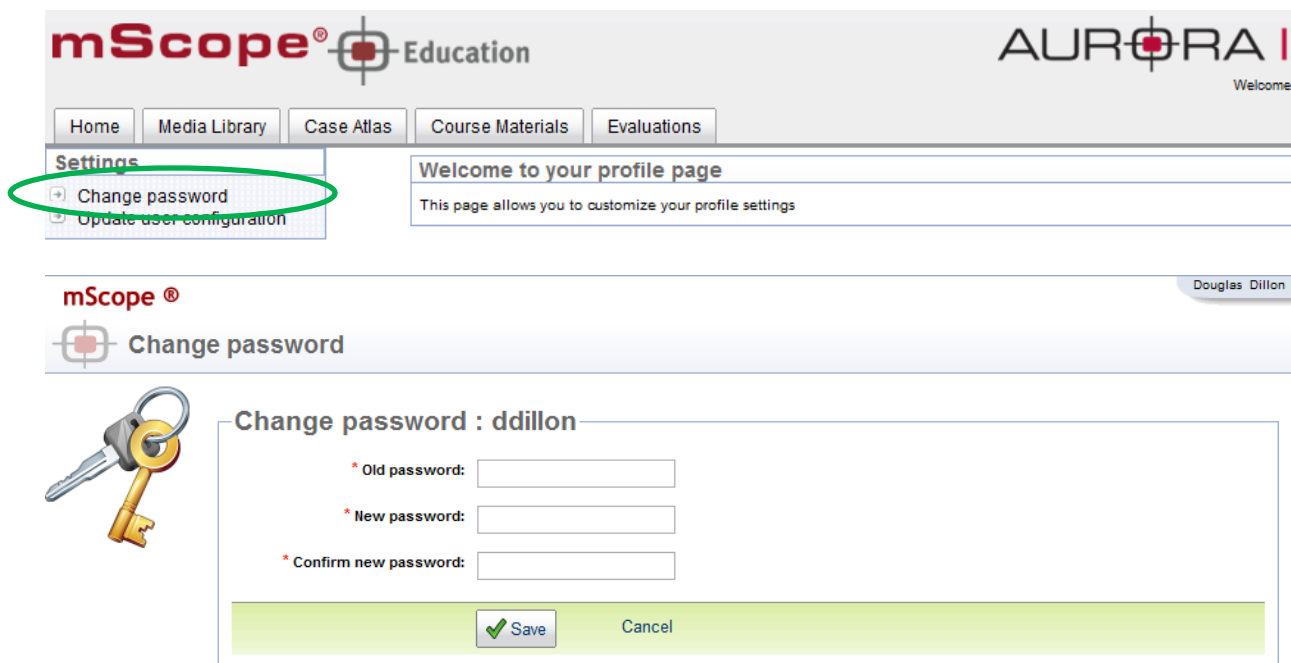
4. User Profile

Access your user profile at any time during a session by clicking on your username, displayed at the upper right corner of your browser. This allows you to update your password or modify your configurations.



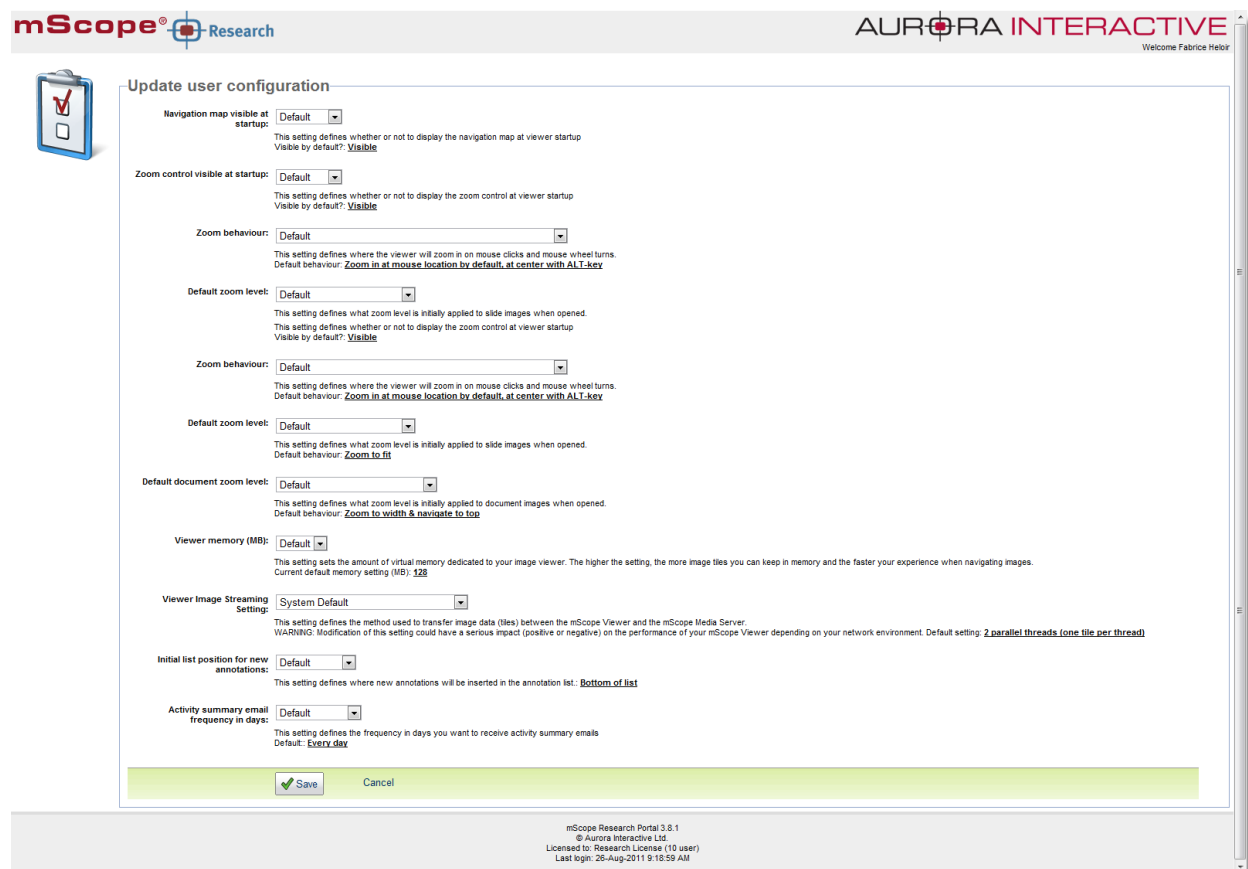
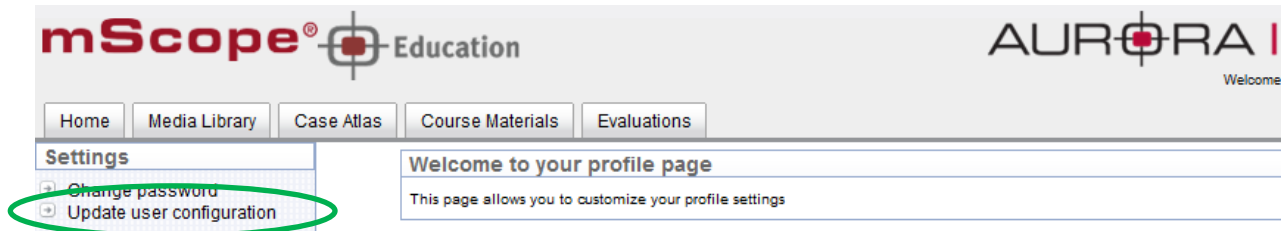
4.1 Change Password

Users can change their password by clicking their username in the top right of the mScope Portal beside "Welcome". This will load the Profile page. Simply click "Change Password" in the left menu and enter your old and new passwords:



4.2 User Configuration

Users can change viewer properties by clicking on the “Update user configuration” link from the “Settings” menu of their user profile.



The following aspects of the viewer may be configured:

- **Navigation Map Visibility:** on or off by default at startup
- **Zoom Control Visibility:** on or off by default at startup
- **Zoom behavior:** at center or at mouse location by default at startup

- **Default zoom level:** to fit, to width, to layer closest to fit, bottom layer by default at startup
- **Default document zoom level:** to width & navigate to top, to fit, to width, to layer closest to fit, to bottom layer by default at startup
- **Viewer memory:** increases performance by allowing the viewer to download data before you need it. The table below displays the recommended configurations based on your computer's RAM memory:

User computer's RAM memory	mScope's recommended setting
Less than 1 Go	128 Mo
Between 1Go and 3Go	256 Mo
More than 3 Go	512 Mo

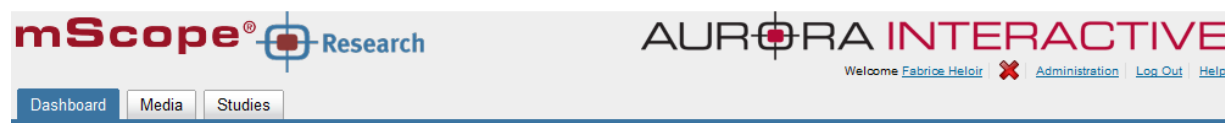
Warning: Increasing mScope's viewer's memory could slow down concurrent applications on your computer. If this is the case, decrease the selected value of this parameter.

5. mScope Portal

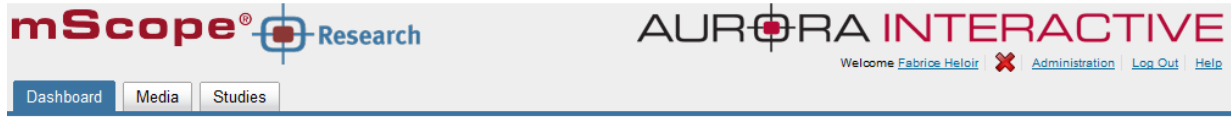
The mScope Portal may be accessed through any Web browser (e.g. Internet Explorer, Chrome, Firefox, Safari, etc.) and is the primary work area for users and administrators of the mScope Research application. It is through the mScope Portal that users and administrators access, upload, manage, link, enrich and share content.

The Portal may be configured to include all or some of the following Modules (tabs):

- Dashboard
- Media Library
- Studies
- Administration



5.1 Portal Header



The mScope Portal Header is accessible from all pages of the Portal and includes the following elements:

User Profile: By clicking the username after "Welcome" in the top right of the Header, the user is redirected to the Profile page where his or her password can be changed.

Requirement validation indicator: Additionally, mScope displays requirement validation to the left of the Home link. A check mark denotes that your computer has the recommended requirements for browser, java, and screen resolution. If any are not met an "x" will appear. NOTE: You may still be able to utilize all of the features of the mScope Portal even if an "x" is present (e.g. you meet all minimum requirements). Click on the "x" to see a summary and get links to update your system to recommended settings.

Administration: The "Administration" link in the top right of the Header may or may not appear depending on whether or not the User has administrative privileges. If it does appear, clicking it redirects the User to the Administration page where Users, Groups, Servers, Licenses, Media Attributes and Media Links are managed. For more details, please refer to the mScope Administrator User Guide.

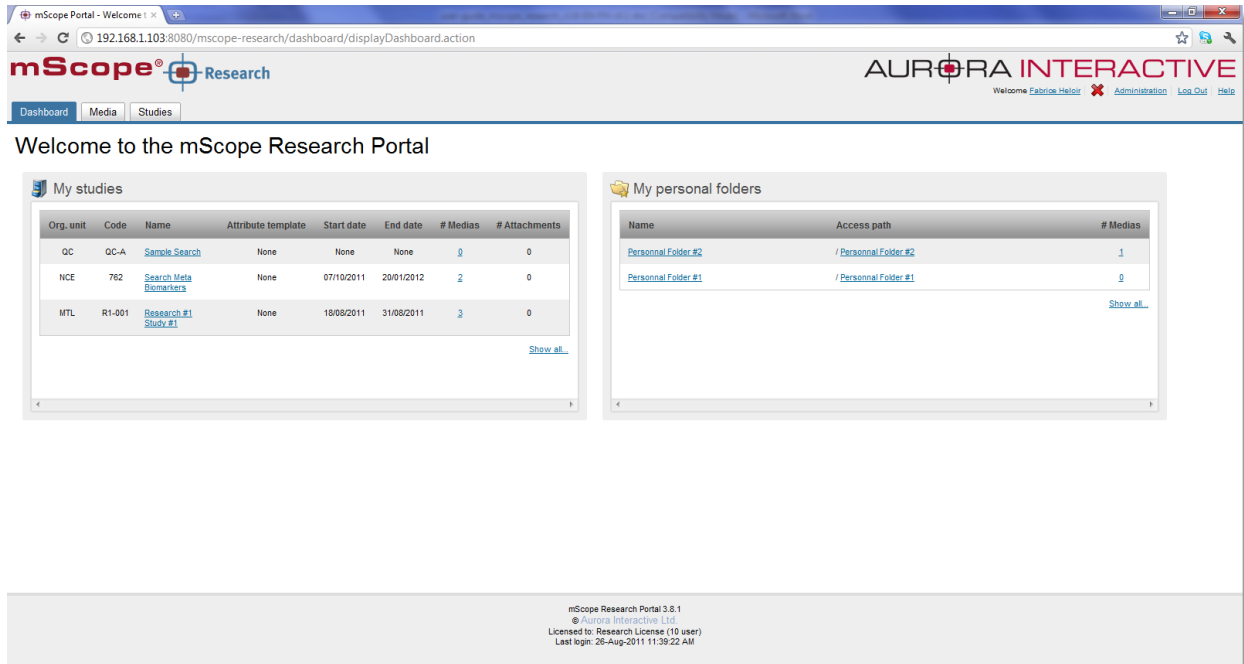
Log Out: Clicking "Log Out" in the top right of the Header logs the User out and redirects them to the Home page.

Help: Clicking  redirects the User to Aurora MSC's mScope Help webpage, where documentation and technical support can be obtained.

Module Navigation menu (tabs): By clicking the Module Navigation menu tabs, the User is redirected to the desired Module. Note that the Module the user is currently in is displayed above the Module Navigation menu beside the mScope bullseye. Some Modules shown above may not be displayed. Which ones appear will depend on your system license and User Permissions.

5.2 Dashboard

This page can be reached by selecting the "Dashboard" tab. It displays widgets giving you quick links to your studies ("My studies") & media ("My Personal Folders").



5.3 Media Library

The library is a media storage area available to all users and groups.

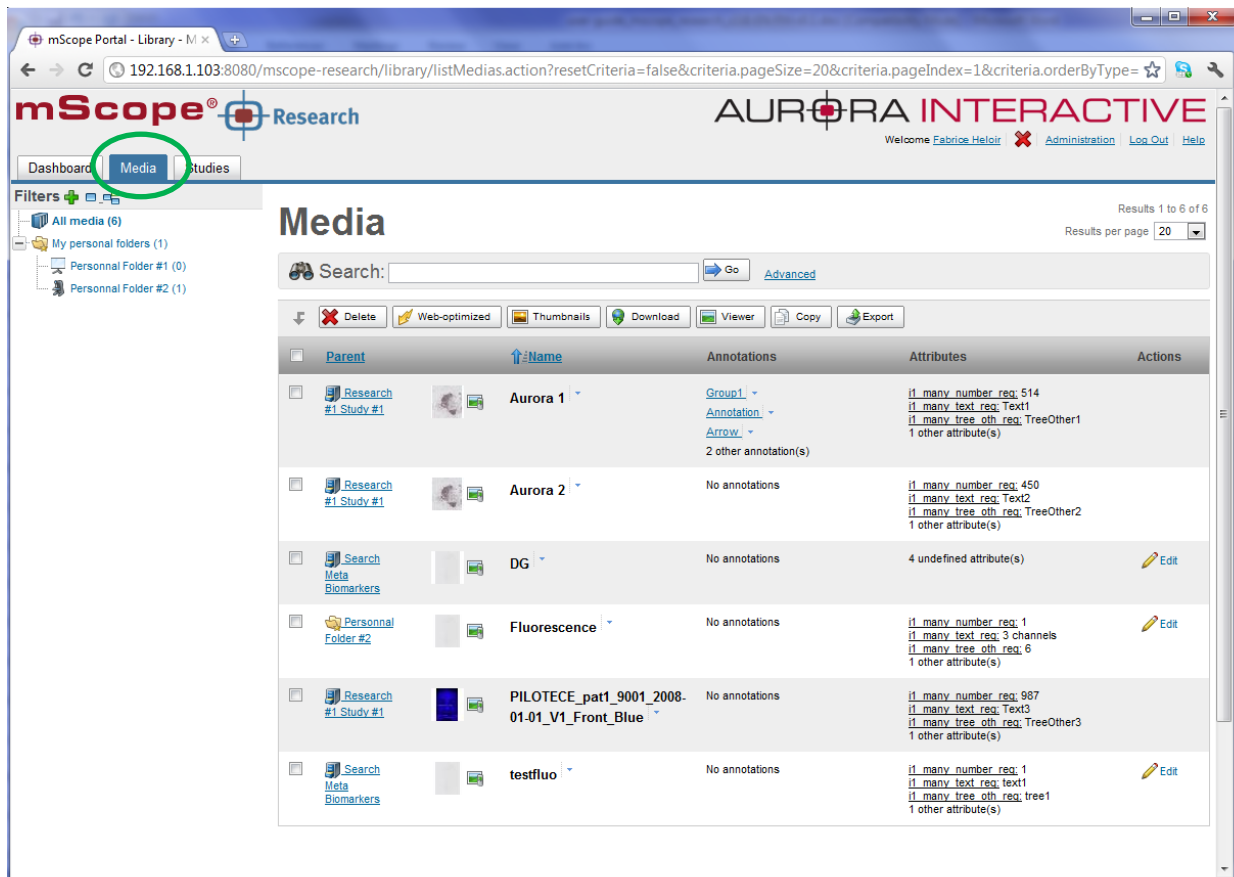
All media are stored in the library, accessible via the link “All media”.

Folders can also be created here, allowing a user to classify images as required.

Media are added to the library using a shared ingestion folder or a Drop-Box folder with enhanced security settings (Please contact your system administrator to ask where your folder is located).

You can also add meta-data files (in CSV format) for each media in order to associate them with structured, searchable data in the mScope database.

Each imported media must be associated to a study when ingested (see further details about studies in Section 5.4 of this guide)

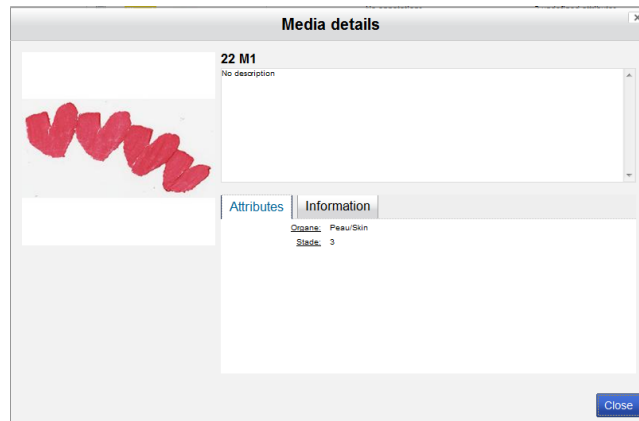


Media Library Navigation (left side menu):

- **All Media:** displays the list of all media that you have permission to see based on the Org-unit(s) you belong to and the studies you own.
- **My personal folders:** Allows the user to group and/or classify personal images. See Section 5.3.1.

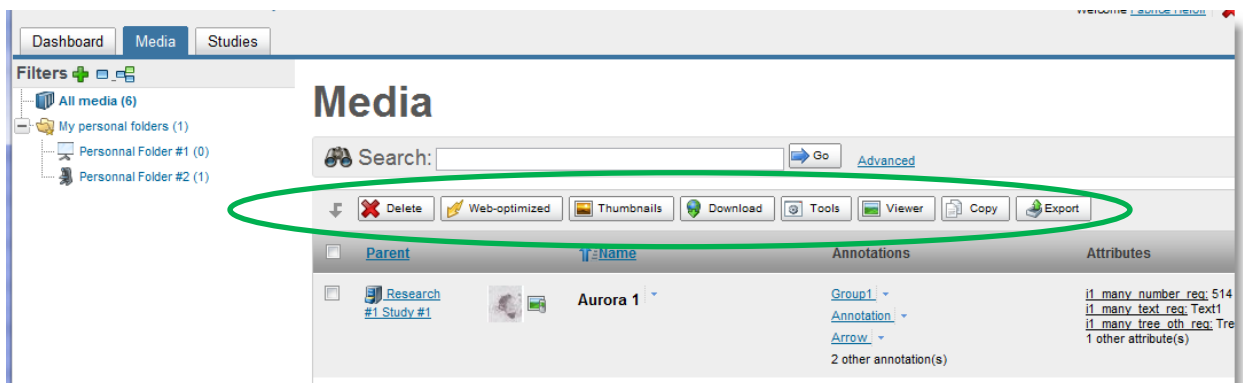
Viewing a media: Click on a thumbnail to display an image in mScope's universal viewer. *For more information on the viewer, please refer the mScope Universal Viewer user guide.*

Media details: Click on the blue triangle located on the right side of a media's name to display more information about it as well as a larger preview.



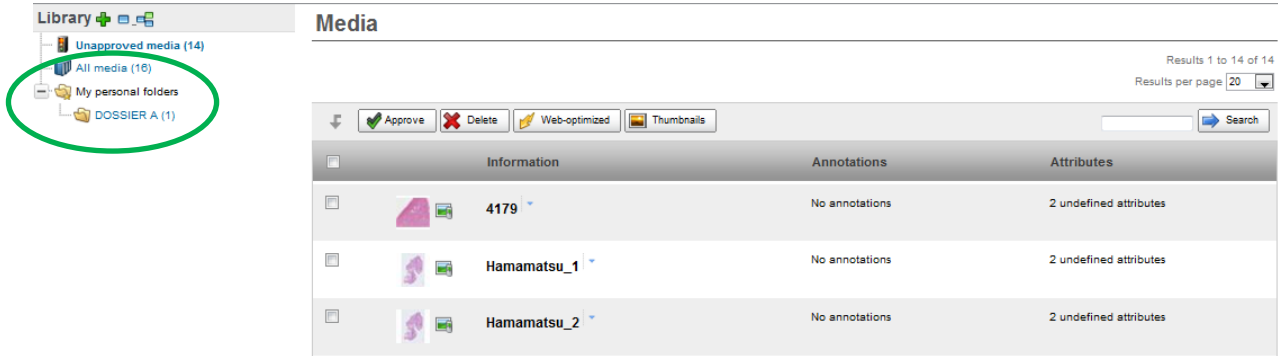
Media toolbar: Lists available operations in the Media Library

- **Delete:** the media is not physically deleted yet, it is only removed from the mScopeLibrary. File deletion will occur based on the cleanup schedule defined by your administrator.
- **Web-Optimized:** A “light” version of a media may be generated in order to improve its Web viewing performance. This function is particularly useful for formats where tiles overlap. “Light” images will reduce the amount of information streamed to the viewer.
 Note: This functionality is currently only available for ZEISS images.
- **Thumbnails:** This function allows the user to generate a thumbnail in the event it is missing/broken.
- **Copy :** Copy selected media into one or more of your personal folders
- **Download :** Download the complete file of selected image(s) to your computer in order to use them outside of mScope
- **Viewer :** Open selected images in the mScope Universal Viewer
- **Export :** Create a CSV file containing all of the meta-data of the selected image(s)
- **Tools:** Launch external tool, with or without selected image(s).
- **Search :** find media using a simple or advanced search form

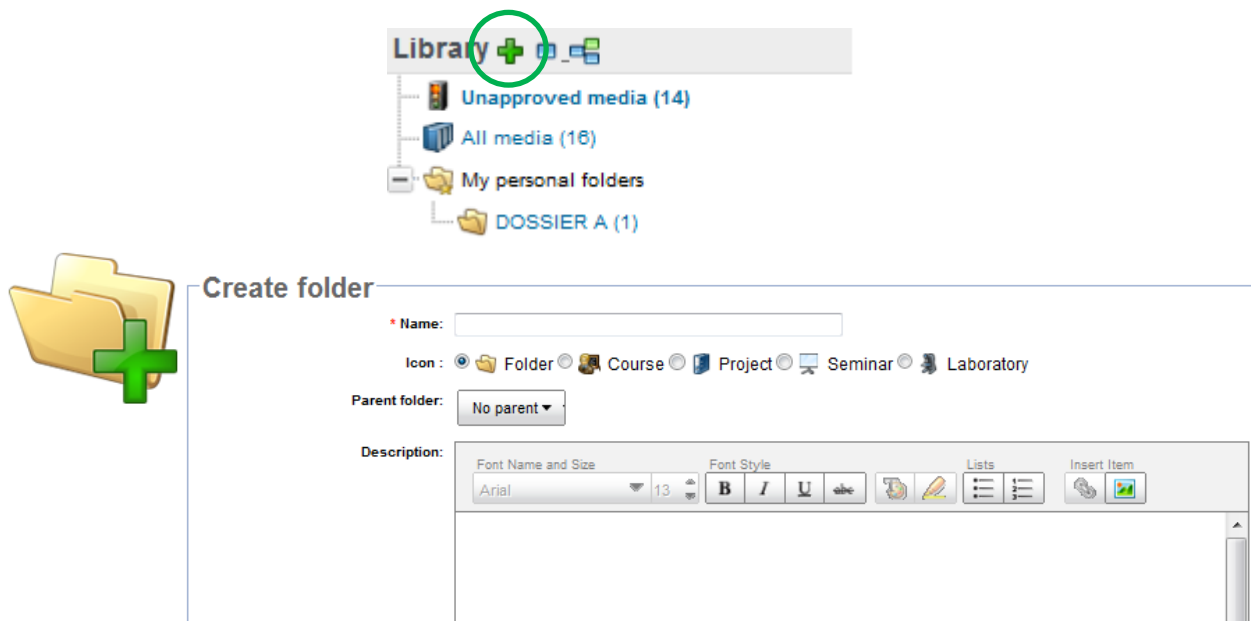


5.3.1 Personal folders

The personal folders section consists of a private user workspace. You can't see other users' personal folders and vice versa.



Click on the green “plus” icon to create as many folders and sub-folders as you need.

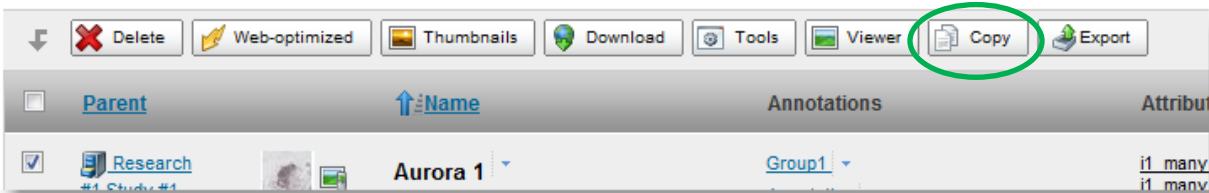


When media are added to a subfolder, the information is also displayed in the general media list.

5.3.2 Copy Media

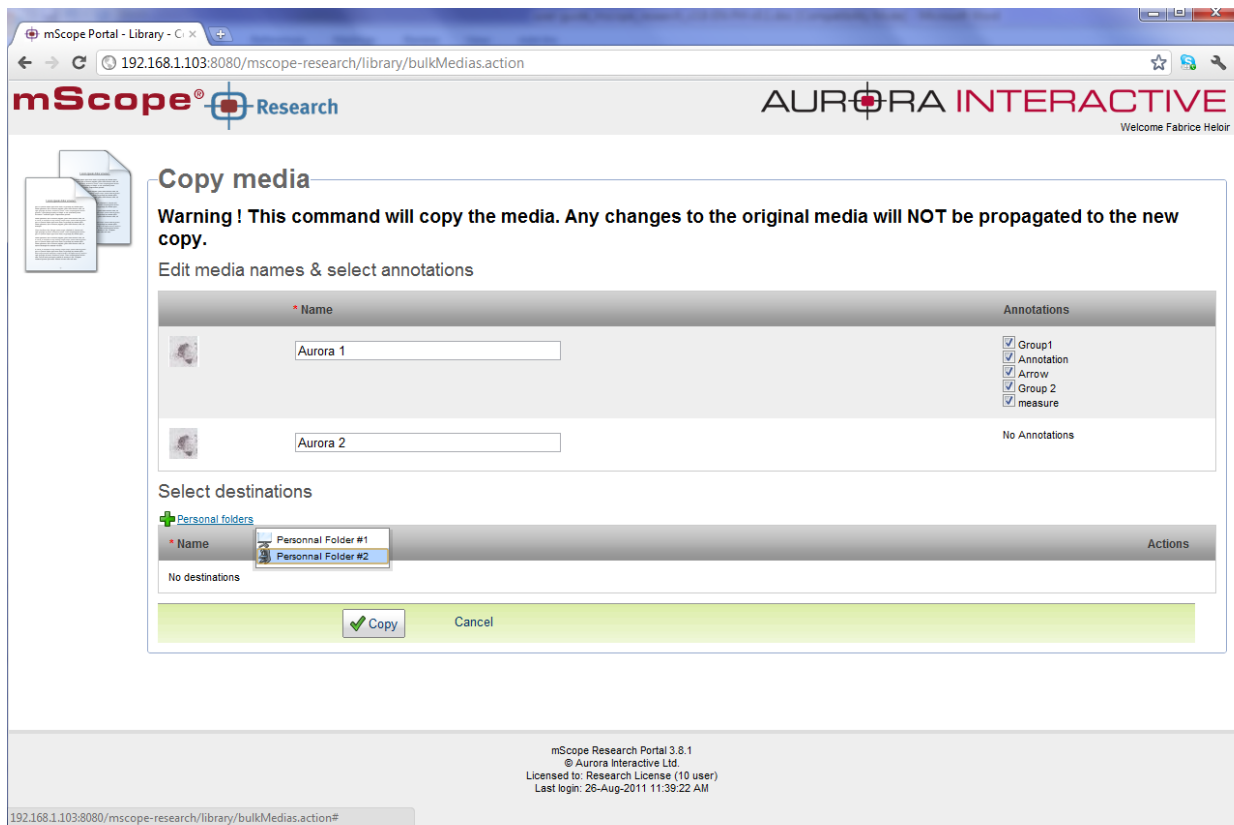
You can copy one or more media to one or more of your personal folders.

Select one or more media from the current page and click “Copy”. This action creates a “logical copy” of the media in the mScope database (i.e. to avoid wasting disk space no actual “files” are duplicated).



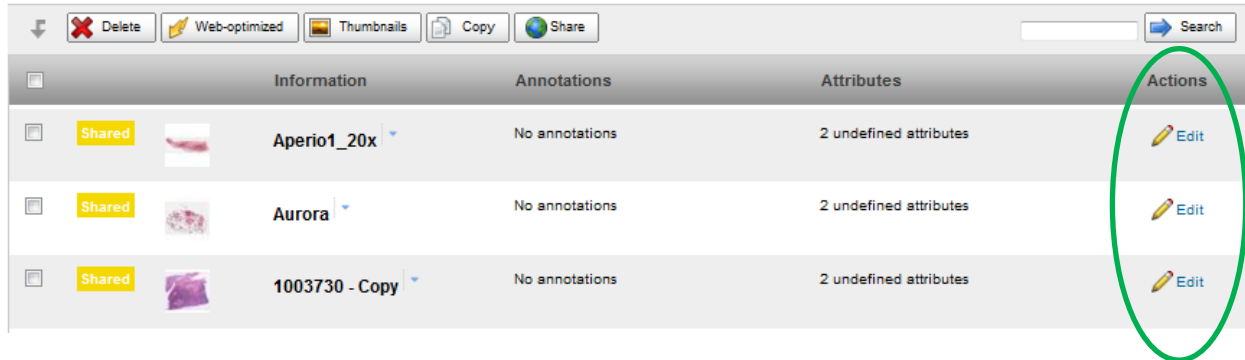
You may then:

- Rename the media (optional)
- Select any existing annotation(s) you want to include in the copy (optional, “All” selected by default)
- Choose the destination of the copy (mandatory)
- Click the “Copy” button to validate.

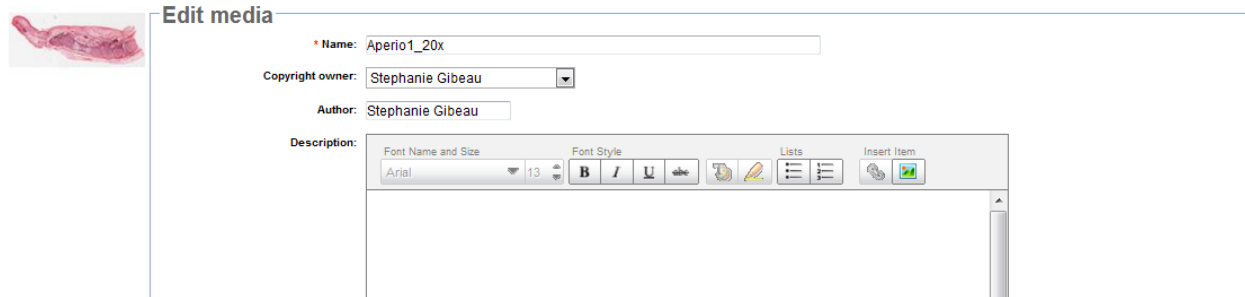


5.3.3 Modify Media Properties

Media properties may be modified by clicking on the “Edit” link in the “Actions” column.



A modification window is then displayed, allowing you to update the media properties.

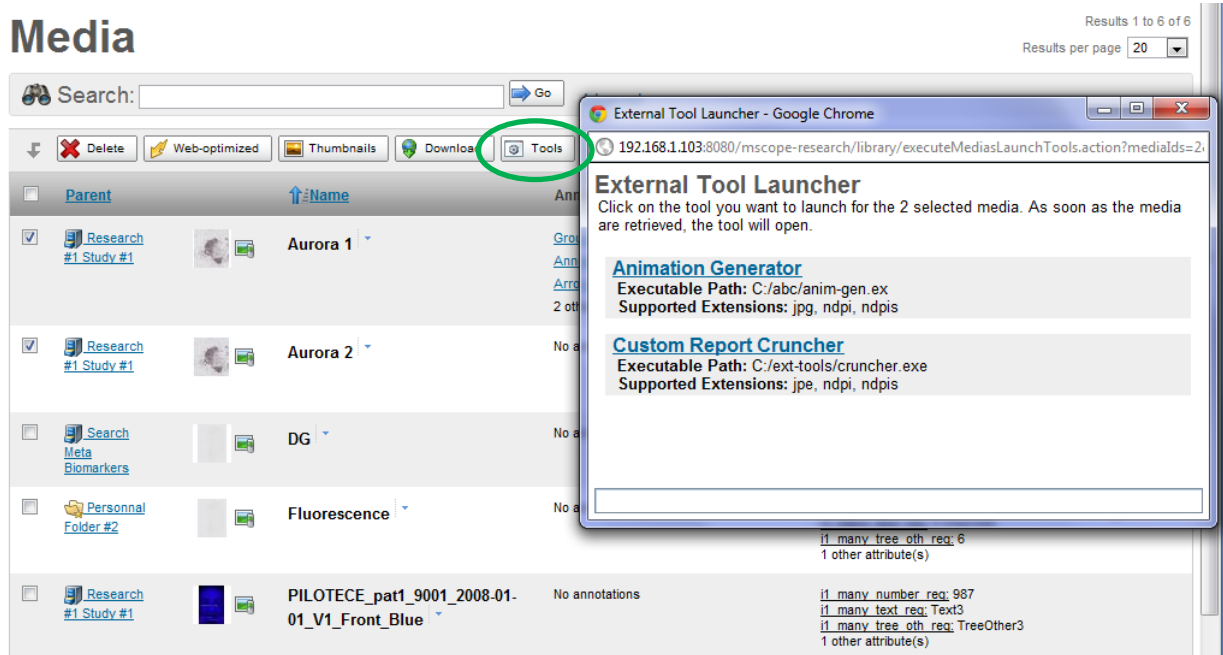


5.3.4 Launch External Tools

An “external tool” is any third-party application that you want to launch directly from mScope, with or without selected media from the mScope library.

- Without images: simply click the “Tools” button and then select which application you want to launch in the pop-up window
- With media:
 - o select the media you want to open in an external tool
 - o click on the name of the application you want to load with the selected images

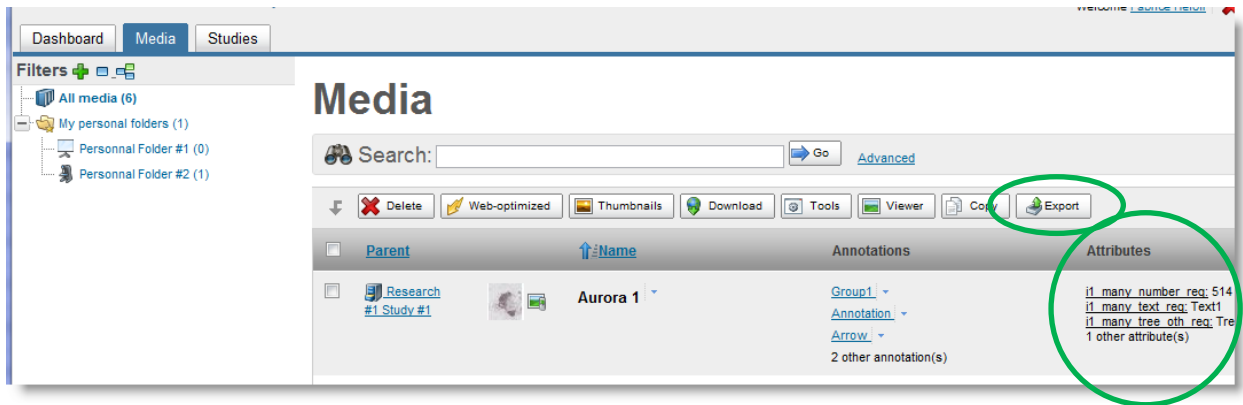
If you need more details on the available external tools, please contact your system administrator



5.3.5 Export Attributes to a CSV File

Each media in mScope can be tagged with meta-data. These meta-data are stored as mScope attributes.

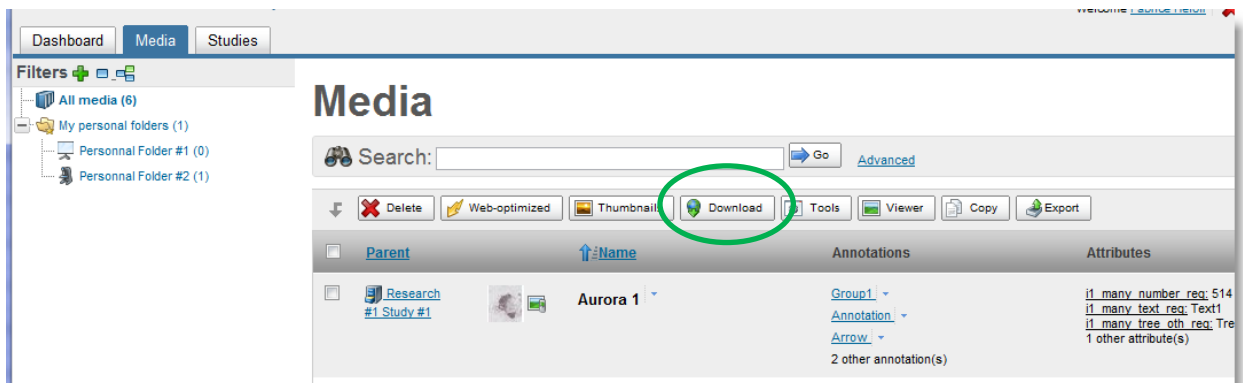
Using the “Export” button you can generate a CSV file (useable in Microsoft Excel for example) that includes all meta-data values for the media you selected.



5.3.6 Download Native File

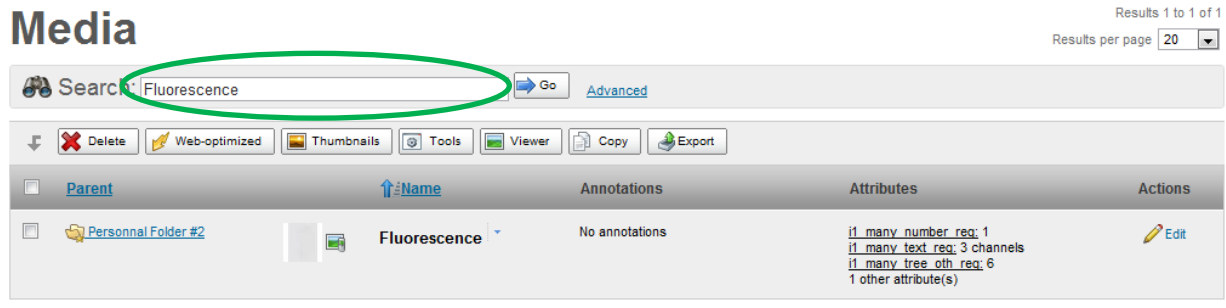
If you need to save a copy of a media file to your computer, you can select it in the media Library and then click the “Download” button. This will prompt a “Save” window where you can choose the destination for the file.

Note: If the file size is very large or if the network speed is too slow, an mScope “processing” logo will appear before the window appears.



5.3.7 Simple search

A simple search field is displayed at the top of the Media Library page. Searches may be based on one or more keywords or parts of keywords (see example below).



Search results will display the list of media with fields containing the searched text.

The following media text fields are looked at by mScope's search engine:

- Media name
- Media filename
- Media attribute values
- Media annotations (titles & descriptions)
- Media folder name
- Media study name

Simple Search Tips:

1. Use characters such as "*" to search on parts of key words only. You are also allowed to type spaces between two stars.

Examples:

- Enter "acc*" in the search field to see "acc1" and "acc123" included in the search results.
- Enter *Front Blue* will return all the images that contain the string "Front Blue" (space included)

2. Search for exact text using a double quote.

Example: Enter “fluo UV” (including the “”) in the search field to return matches to the exact string “fluo UV”. Without the “” the search engine will assume it has 2 keywords: Fluo AND UV, not one.

Warning: Do not combine double quotes and stars because stars are allowing space.

Note: Do not use double quotes in advance form, use the “Equals” operator instead

3. If you search multiple keywords separated by spaces for the simple search will return media that match both criteria, but not necessary in all in the same data field.

Example: Enter “fluorescence bio” to return media that contain “fluorescence” in the name and “bio” in an attribute.

4. Search for media with a wider range of results using the OR operator.

Example: Entering “foot OR hand” will return media that contain “foot” OR “hand” across all searchable text fields.

Note: you can’t use the AND and OR operators in a single simple search.

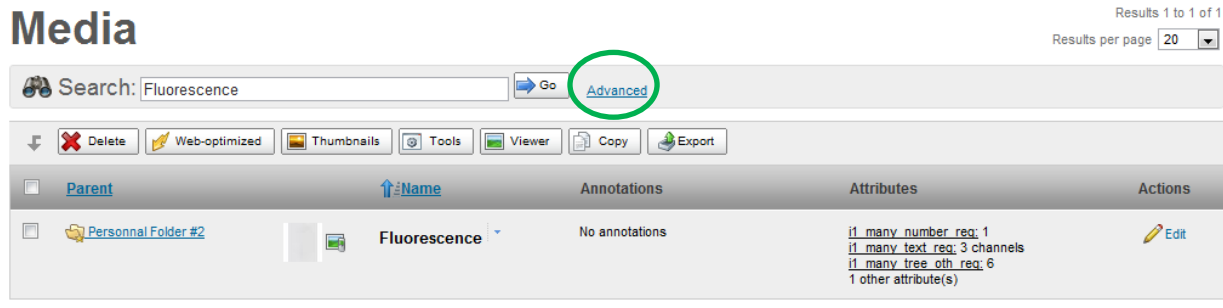
5. If you want to share a search result list with one of your colleagues simply copy/paste the URL of the results page into an email or document (the search results page is defined by a permanent URL). *Note:* your colleague needs permission to see these media (shared study).
6. Underscore and dash characters (_ and -) are considered normal characters and are not replaced with spaces from your query.
Example: If the user searches media using the string “CP_R” in simple search, this won’t find the media named “CP R Fluo”.
7. When you type only one keyword in the simple search field, the search engine will search for :
 - a. that exact string, or
 - b. a part of a string that includes underscore and dash characters (_ and -)

Example:

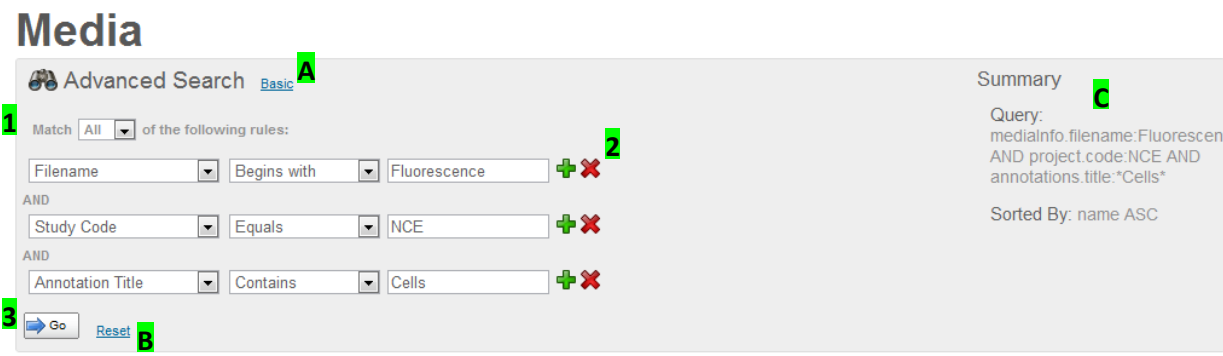
- Type “Blue” and the media named “Blueberry” won’t be returned.
- Type “Blue” and the media named “CP_R_Blue” will be returned.

5.3.8 Advanced Search

When you execute more complex searches you may choose to use the advanced search form. To do so, click on the “advanced” link beside the simple search field.



The form will then be expanded. To return to the simple search form, click on the “basic” link (A).



1. Choose the type of search:
 - Match ALL of the rules (i.e. use the AND logical operator)
 - Match ANY of the rules (i.e. use the OR logical operator)
2. Select the search field, the operator and the value. Using the “+” and “X” buttons will allow you to add or remove search rules.
3. Click the “Go” button to find and display the results

The “Reset” link (B) removes all the rules in the search form.

The summary zone (C) is the mScope search engine translation for your advanced search. This “Database Query” can be used directly in the simple search field if needed.

5.4 Studies

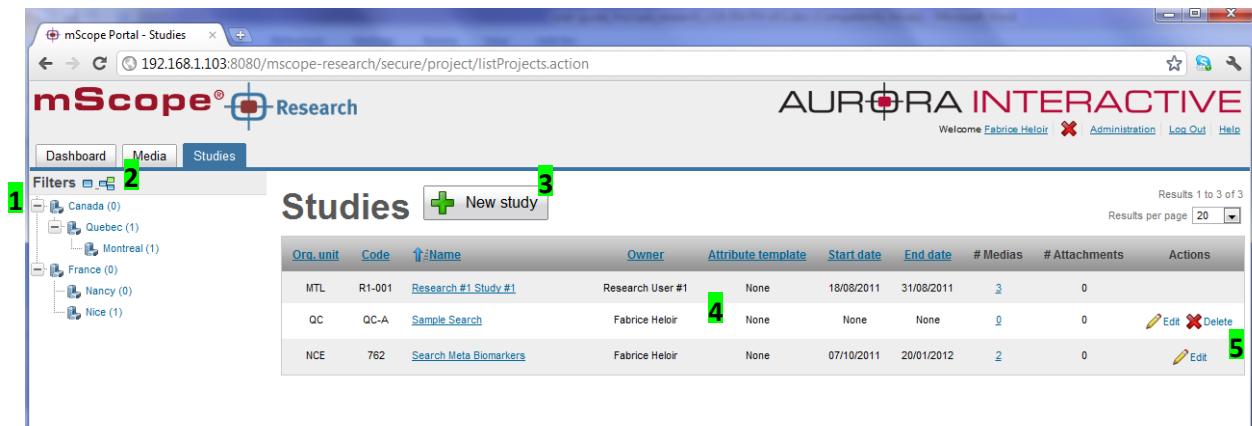
A “study” contains descriptions, media and files related to a research project.

Each user can create one (and become its owner) and enrich it:

- Import media
- Import media meta-data
- Describe the study with study attributes
- Attach files
- Record dictations

Your study is automatically shared with same organizational unit that you created the study for.

Clicking on the “Studies” tab brings you to the list of studies you are permitted to access across your organization.



1. List of the organizational units, and how many studies are in each.
 - Click on of the org. unit name to show the studies list for that org. unit only.
2. Buttons that collapse / expand the org, unit list
3. Brings you to the study creation form
4. List of studies.
 - Click on the column headers to sort the studies. 1st click implements ascending order, 2nd click implements descending order (the arrow indicates the current ordering).

- Click on the name of the study to access the content of the study page (read or write access, based on your permissions for this study)
 - Click on the media number of a study to directly access the list of all the study media without going to the Media page.
5. The “Actions” column allows you to modify a study without having to enter the study details page. From the study list you can:
- Edit the study info by clicking the “Edit” link.
 - Delete a study by clicking the “Delete” link. A study can only be deleted if it contains no media. If you really need to get rid of such a study, please contact your system administrator.

5.4.1 Study Structure

The screenshot shows the mScope Research interface. The main content area displays the following details for 'Research #1 Study #1':

- Code:** R1-001
- Owner:** Research User #1
- Organization unit:** MTL
- Description:** None
- Start date:** 18/08/2011
- End date:** 31/08/2011
- Attribute template:** None
- # Medias:** 3

Below the metadata, there are sections for 'Attachments' and 'Import Logs'.

Attachments: A table with columns: Label, Description, Owner, Size (kb), Type, Actions. It shows 'No Attachment'.

Import Logs: A table with columns: Status, Import, Date, Type, Success / Total.

Status	Import	Date	Type	Success / Total
✓	Import-5	18/08/2011 11:21 AM	Attributes	5 / 5
✓	Import-4	18/08/2011 11:21 AM	Media	1 / 1
✗	Import-3	18/08/2011 11:14 AM	Media	0 / 1

A study is composed of the following elements:

- Code:** The study code. Code uniqueness is enforced by the organizational unit to which the study belongs
- Name:** The name of the study.
- Organizational Unit:** The organizational unit the study belongs to.
- Owner:** Name of the user that the study belongs to. Only the owner has the right to modify the content of a study (WRITE access). All other users belonging to the study org. unit have Read-Only access.
- Start & End date:** The start and end dates of the study.
- Attribute Template:** This template will define the list of that attributes that will be used as descriptive study fields and media meta-data. Contact your administrator if you require different attribute templates than those currently available.
- Description:** The overall description of the study.
- List of attributes:** The structured description of the study. The list of attributes is defined by the attribute template you choose at the time of study creation.
- Attachments:** Additional files (such as word documents, etc.) that are not directly displayed by mScope. You can also record audio files directly from your computer in the study to take quick notes. (Click the corresponding links on the right of the screen to attach or record file)
- Import Logs:** These are the logs of all file imports (via simple ingestion or secure drop-box). To access reports for each batch of imported files click the links in the "Success" column.

Media import status:

- Green = 100% successful
- Yellow = partially done, with warnings (please read the import report for more details)
- Red = failed (please read the import report for more details)

11. Media: Number of media currently available in the study. Click on the link and the list of all these media will be displayed so you can view, annotate or analyze them directly from mScope.

MTL **Research #1 Study #1**
 Created by Research User #1 on 18-Aug-2011 11:05:19 AM, Last modified by Research User #1 on 18-Aug-2011 11:05:19 AM

Results 1 to 3 of 3
 Results per page 20

Search: [Go](#) [Advanced](#)

Web-optimized | Thumbnails | Download | Tools | Viewer | Copy | Export

Parent	Name	Annotations	Attributes
Research #1 Study #1	Aurora 1	Group1 Annotation Arrow 2 other annotation(s)	i1_many_number_req: 514 i1_many_text_req: Text1 i1_many_tree_oth_req: TreeOther1 1 other attribute(s)
Research #1 Study #1	Aurora 2	No annotations	i1_many_number_req: 450 i1_many_text_req: Text2 i1_many_tree_oth_req: TreeOther2 1 other attribute(s)
Research #1 Study #1	PILOTECE_pat1_9001_2008-01-01_V1_Front_Blue	No annotations	i1_many_number_req: 987 i1_many_text_req: Text3 i1_many_tree_oth_req: TreeOther3 1 other attribute(s)

5.4.2 Create & Edit Studies

To create a study click the “New Study” button, on the top of the study list landing page. Complete all the mandatory fields in the form and click on the “Create Study” button. For more information regarding the fields please refer to Section 5.4.1.

To edit an existing study, click on the “Edit” link at the top of the study details page. **Note:** tools such as edit and delete will not be available if you do not have authoring permissions.

Please be aware that only the mScope Super-User can change the owner of a study.

5.4.3 Attributes

There are three (3) types of attributes available:

1. Free text
2. Value list (including free text entry if appropriate)
3. Value tree lists (including free text entry if appropriate)

5.4.4 Attachments

Additional documentation and dictations are displayed in the “Attachments” section of the study. This is for non-media files not supported by the mScope viewer. Uploading attachments from your computer is accomplished by selecting “Add attachment”. Selecting “Record new audio” allows you to add audio files to the study that can later be transcribed.

Label	Description	Owner	Size (kb)	Type	Actions
1. Commentary	Encoded Audio Dictation	Fabrice Heloir	658854	audio/ogg	Edit Delete
2. Notes	Encoded Audio Dictation	Fabrice Heloir	452466	audio/ogg	Edit Delete

Recording audio clips is achieved by selecting the red record button. Selecting record again will allow you to add additional clips. Clips can be saved or removed from the list using the buttons at the top left.

