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Communicate

mScope Clinical Application

v3.4 Training Manual

Contents of this Training Manual

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1. Introducing mScope

A. *Q & A*

B. *Overview*

C. *Media*

D. *The Portal*

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F. *Summary*

1. A. Introducing mScope – Q & A

Q: What is mScope?

A: mScope is Aurora Interactive Ltd.'s universal Web viewer for disseminating and collaborating around medical images anywhere and at any time.

Q: What is the mScope Clinical Suite?

A: The mScope Clinical Suite is an additional suite of tools to enable hospitals and other professional organizations to easily and intuitively view, manage, distribute, enrich, share and collaborate around digital medical content using the mScope Viewer and the mScope Clinical Portal.
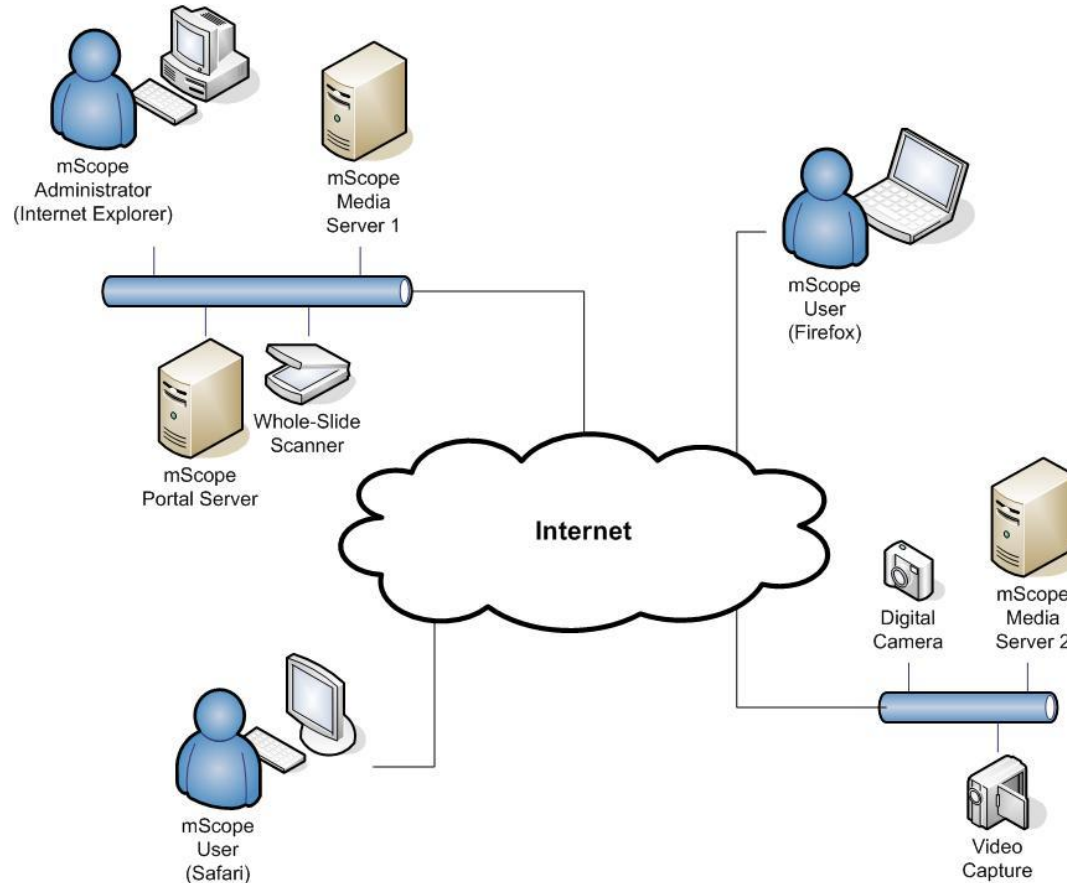
1. B. Introducing mScope – Overview

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

- Manages all forms of media and information required to support medical education

- Uses a centralized mScope Portal server to organize, enrich and share medical media and information

- Uses the mScope Viewer to allow users to view, enrich and collaborate around media without displacing or copying it

- Operates on multiple operating systems (e.g. Windows, Mac)

- May be accessed by multiple browser types (e.g. Internet Explorer, Safari, Mozilla Firefox, etc.)

- Supports many image formats (native whole-slide scanner formats, DICOM, digital video, digital cameras, etc.)

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1. B. Introducing mScope - Overview

The following diagram illustrates a typical mScope implementation:

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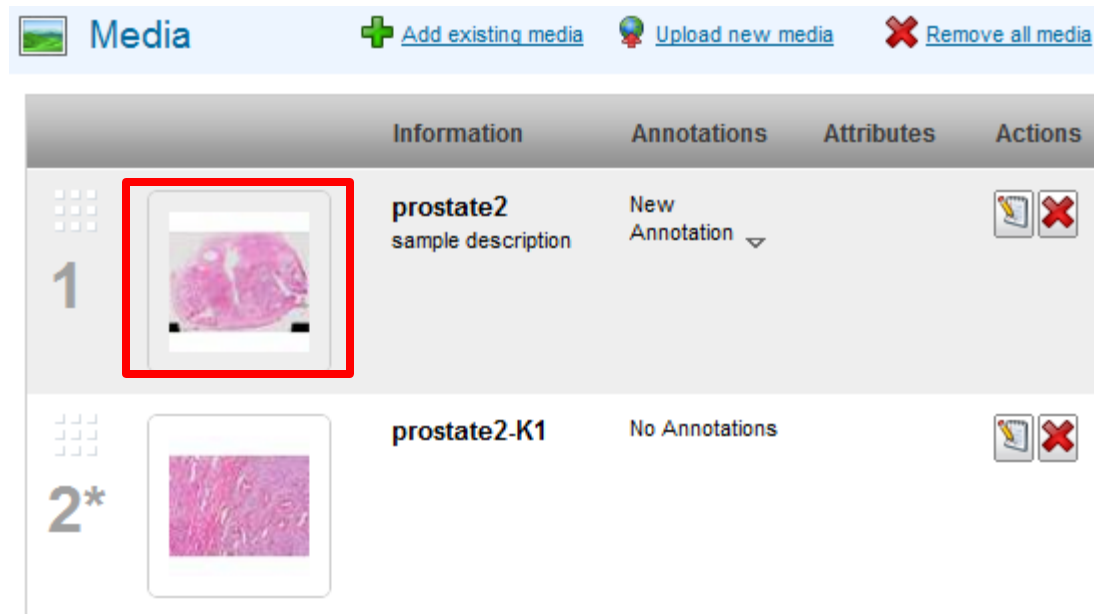Thank you for your cooperation.

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1. C. Introducing mScope – Media

Media is defined as any file containing visual information. mScope supports hundreds 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, Olympus, etc.)

Media is displayed in the mScope Portal using thumbnails:

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1. D. Introducing mScope – The Portal

mScope is a web application capable of running on a PC or Mac. The mScope Portal may be accessed through any Web browser (e.g. Internet Explorer, Mozilla Firefox, Safari, etc.) and is the primary work area for users and administrators of the mScope Clinical Suite.

1. D. Introducing mScope – The Portal

Users must login to gain access to the application. mScope contains its own authentication supporting usernames and passwords but can be linked to an existing security system to avoid duplicates and multiple login requests.

Welcome to the mScope Portal

Please identify yourself

Username:
Password:

☐ Remember me on this computer.

I forgot my password.

Log In

1. D. Introducing mScope – The Portal

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

- Studies

- Opinions

- Panel Discussion

- Knowledge Base

- Modalities

- Search

A more detailed description of the mScope Portal, its modules and their features will be provided in Section 2 of this manual.

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1. E. Introducing mScope – The Viewer

The mScope Viewer is analogous to a virtual microscope. It is launched when a user clicks on a Media thumbnail in the Portal. In order to eliminate the requirement to download an 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 and includes tools to allow users to navigate the Media.

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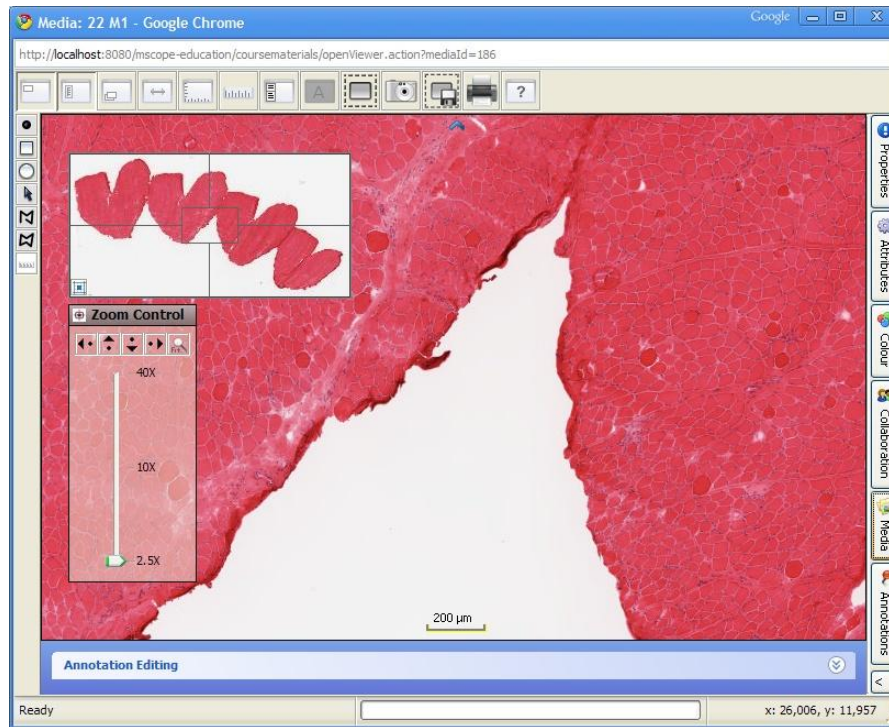
1. E. Introducing mScope – The Viewer

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

- Properties

- Attributes

- Color

- Thumbnails

- Collaboration

- Annotations

A more detailed description of the mScope Viewer, its modules and their features will be provided in Section 3 of this manual.
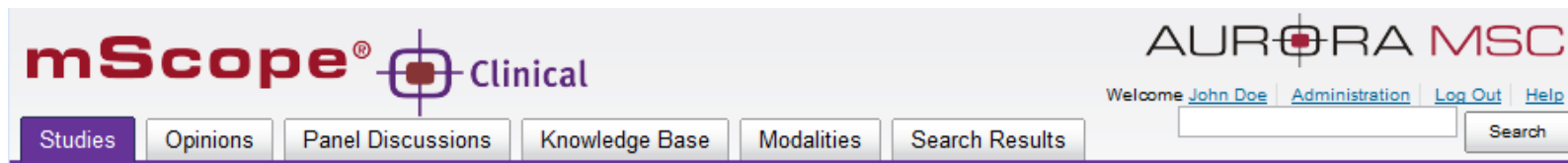
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2. The mScope Portal

A. *Header*

B. *Modules*

C. *Studies Home*

D. *Viewer*

E. *Viewer Media*

F. *Viewer Collaboration*

G. *Viewer Tools*

H. *Viewer Annotations*

I. *Casses*

J. *Workflow*

K. *Operations*

L. *Opinions*

M. *Panel Discussion*

N. *Knowledge Base*

O. *Modalities*

P. *Search*

2. A. The mScope Portal - Header

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

- User Profile

- Administration

- Log Out

- Help

- Search

- Module Navigation menu (tabs): Studies, Opinions, Panel Discussion, Knowledge Base, and Search.
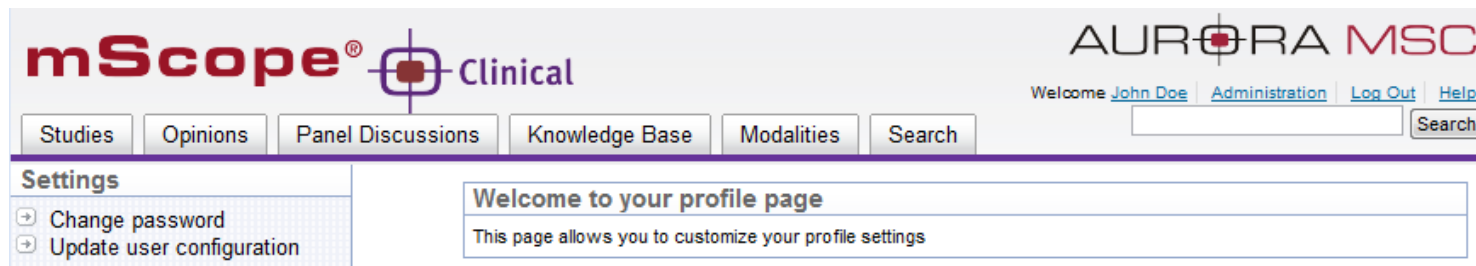
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2. A. The mScope Portal - Header

User Profile: By clicking the username after "Welcome" in the top right of the Header…
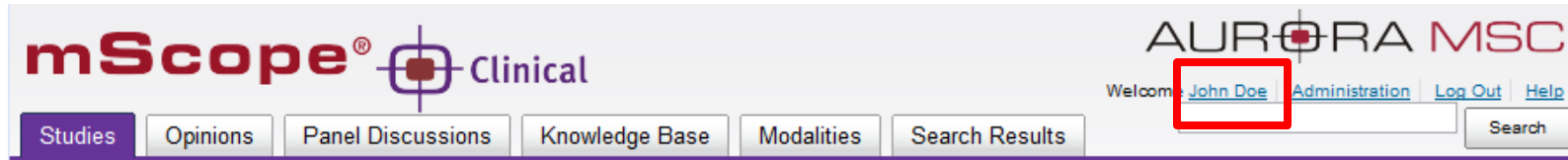
… the user is redirected to the Profile page where they may change their password or increase the available memory for the viewer improving its performance.

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2. A. The mScope Portal - Header

If you are using mScope's user identification selecting modify password on the previous page will bring you to the password page where you can enter a new password.

Change password : Path1

* Old password: [   ]

* New password: [   ]

* Confirm new password: [   ]

✔ Save   Cancel

Selecting Update user configuration brings you to the memory management page. Increasing the memory improves the performance of the viewer.

Update user configuration

Viewer memory (MB): [128 ▼]

This setting sets the amount of virtual memory dedicated to your image viewer. The higher the setting, the more image tiles you can keep in memory and the faster your experience when navigating images.

Current default memory setting (MB): **128**

✔ Save   Cancel

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2. A. The mScope Portal - Header

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 the help link…
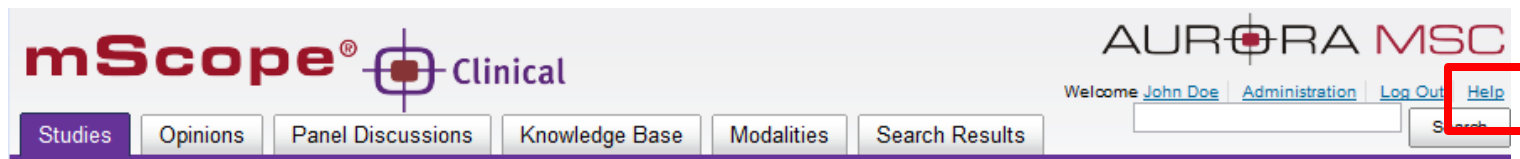
… redirects the User to Aurora MSC's mScope Help website, where documentation and technical support can be obtained.

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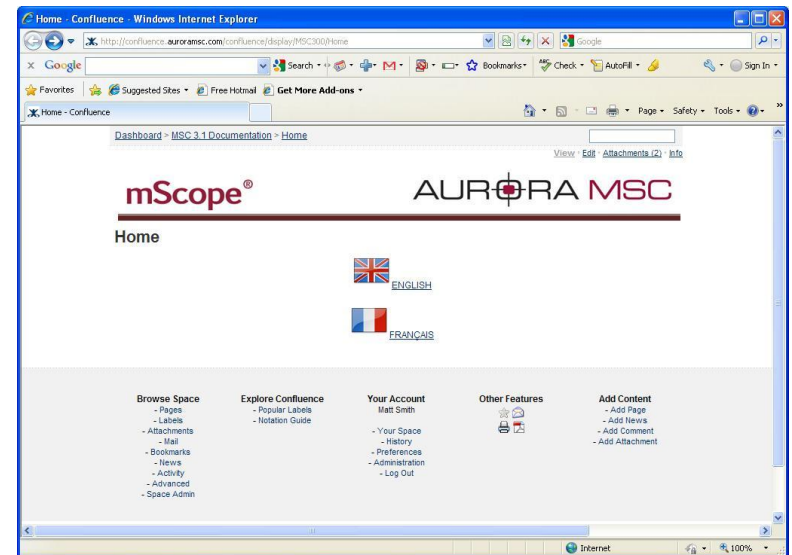
2. B. The mScope Portal – Modules

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

- Studies – lists all active cases
- Opinions – lists all cases that have been referred to a specialist
- Panel Discussion – handles group based case discussion
- Knowledge Base – de-identified list of reference cases
- Modalities – lists all connected hardware such as cameras (video, grossing station) and slide scanners
- Search – displays search results

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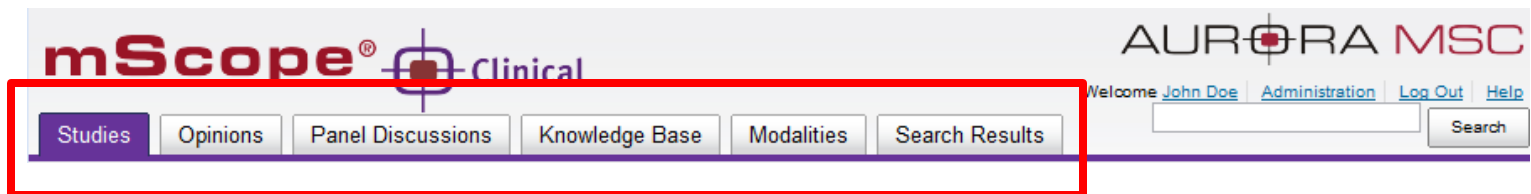
2. C. The mScope Portal – Studies Home

The Studies page can be reached by selecting the "Studies" Navigation menu tab. It is divided into two sections; the "case organizer" (left) and "case list" (right). Both the organizer and list will display information based on the cases you have permission to see.

2. C. The mScope Portal – Studies Home

The case organizer filters the active cases by workflow state and ownership. Case development is handled in the first phase of the workflow "Quality Control". Those responsible for preparing cases work almost exclusively in this section. When a case has been assigned to a pathologist or pathologist group it moves to the next state "Diagnosis pending" at which it becomes the responsibility of the pathologist.

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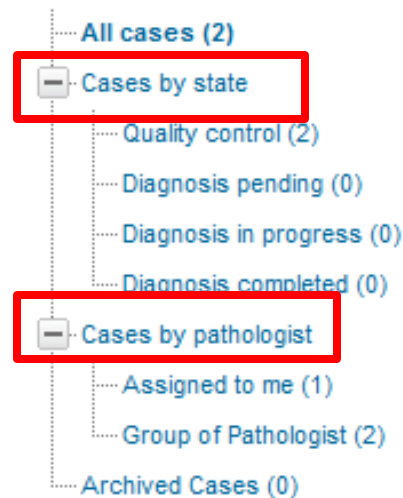
2. C. The mScope Portal – Studies Home

The case list displays available cases based on the section selected in the case organizer. For example, selecting "Quality Control" will display cases which are in development or have yet to be assigned.

The case list displays a quick overview of each case including the priority, creation date, assignment, etc and may be sorted by selecting the title (if it is underlined).

Selecting the case name opens the case for viewing and editing.

Clicking on the media will cause it to open in the viewer.

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2. D. The mScope Portal – Viewer

Selecting a thumbnail from the case list or media section of a case opens the image in the viewer
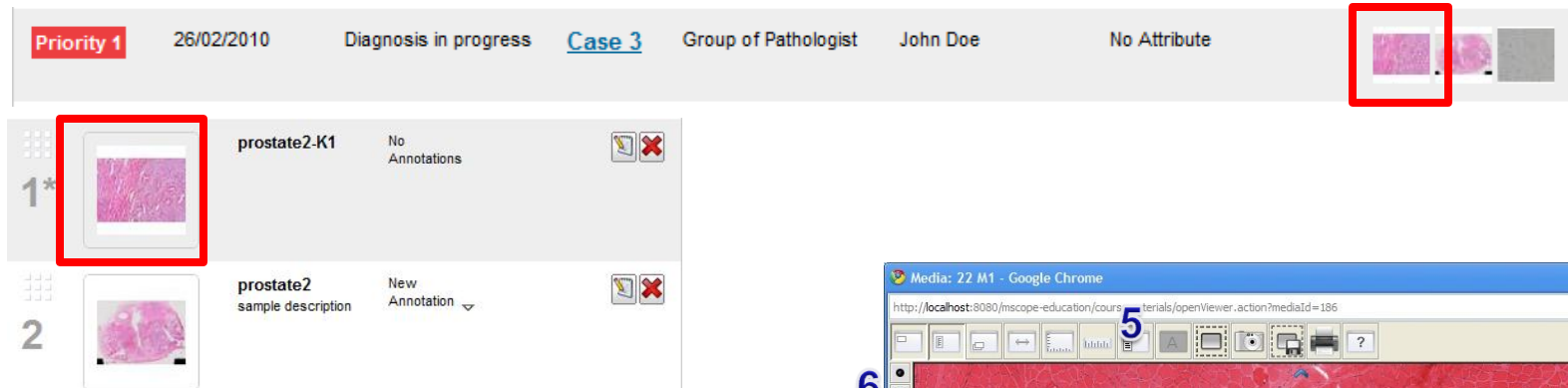
The viewer is organized in five sections:

1. Main Image

2. Navigation Control

3. Magnification Control

4. Tabs

5. Tools

6. Annotations Tools

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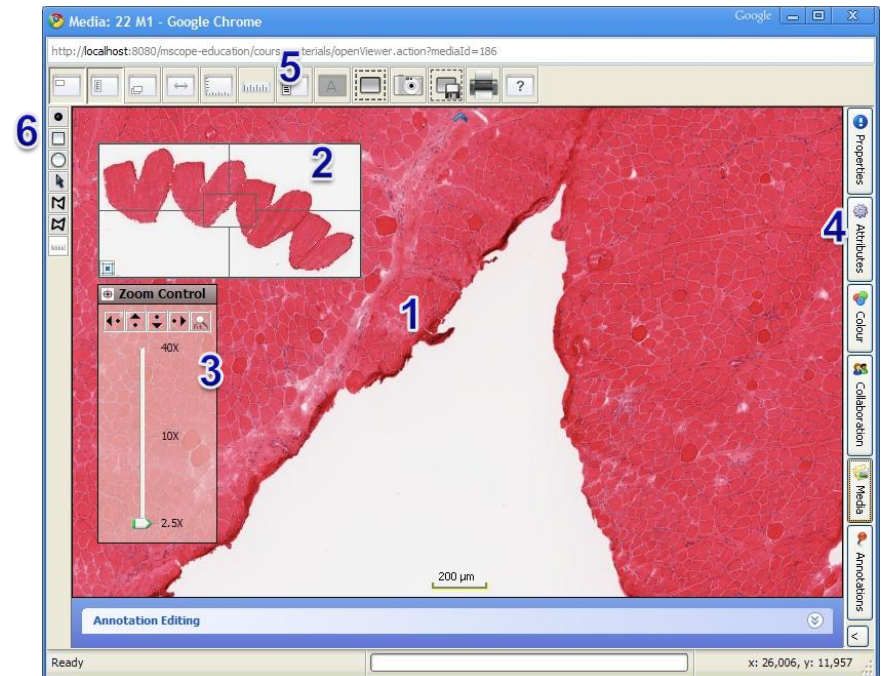
2. D. The mScope Portal – Viewer

The **Main Image (1)** displays the slide at the desired magnification allowing you to navigate it. There are two ways to navigate the image directly.

• Press and hold the left mouse button and drag in the direction you want to go.

• Move to the edge of the image and click the "Arrow" button that will appear to scan across the image shifting the view.

You can also change the magnification using the scroll wheel. Rolling up increases the magnification and down decreases it.

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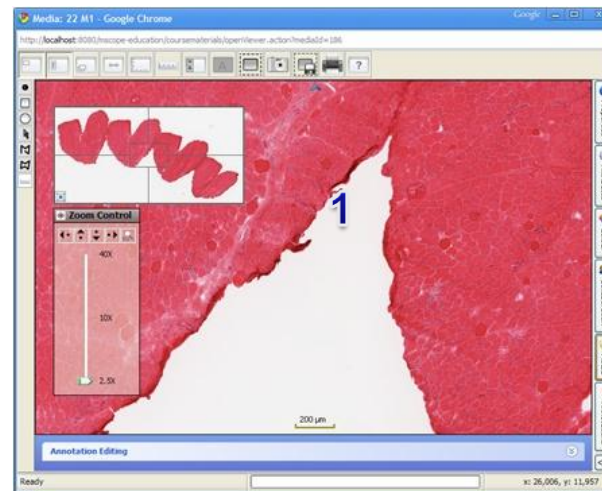
2. D. The mScope Portal – Viewer

The **Navigation Control (2)** displays the whole image identifying the area currently being viewed in the main window.

Its position can be changed by dragging it with the left mouse button.

Left clicking inside the view will center the main window around the selected location.

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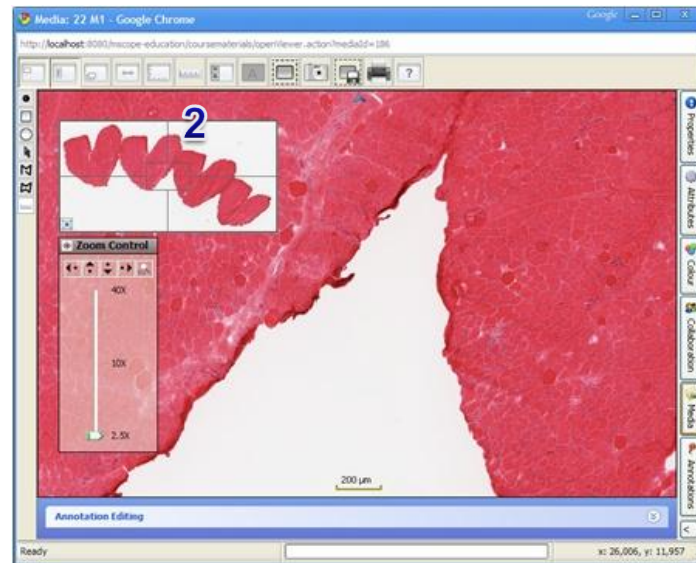
2. D. The mScope Portal – Viewer

The **Magnification Control (3)** displays the available display levels.

Magnification may be controlled by the slider bar. You can also force the image to fit the screen by selecting the ″Fit″ button located on the top right.

Scanning the image may be done using the buttons located on the top left.

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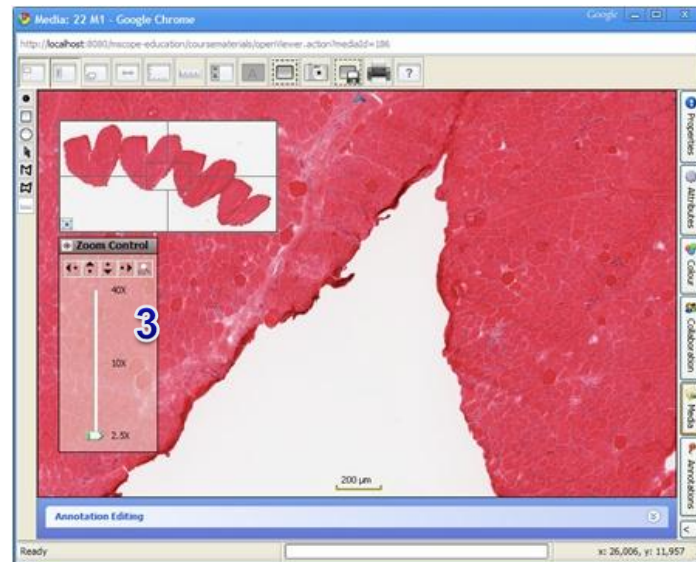
2. D. The mScope Portal – Viewer

Properties: Basic details about the magnification and dimensions of the image.

Attributes: Listing all mScope attributes as well as information pulled from the file.

Color: Allows you to temporarily adjust the image display. These settings are not saved.

Collaboration: Allows multiple users to share the view of a host and pass control back and forth. All actions done by the host are seen including the creation of annotations.

Media: Lists all media of a case and allows you to switch between images without going back to the portal.

Annotations: Drawing tools that enrich slides with detail.

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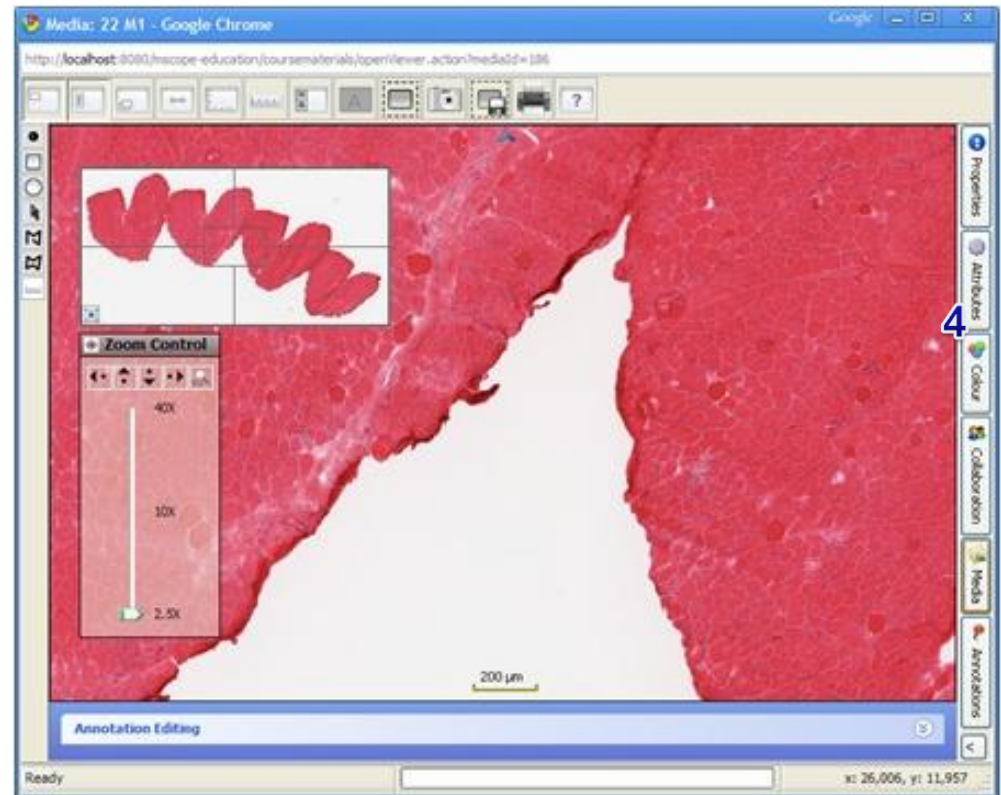
2. E. The mScope Portal – Viewer Media

All media associated with a case are displayed in the Media tab allowing you to switch without having to return to the portal.

You can also filter and sort the media list. By entering a requirement in the ″Contains″ text box, selecting the filter type and selecting apply you can display specfic files (e.g. filtering on media containing UFR will return any files with UFR in the name).

Sorting organizes the files based on the selection.
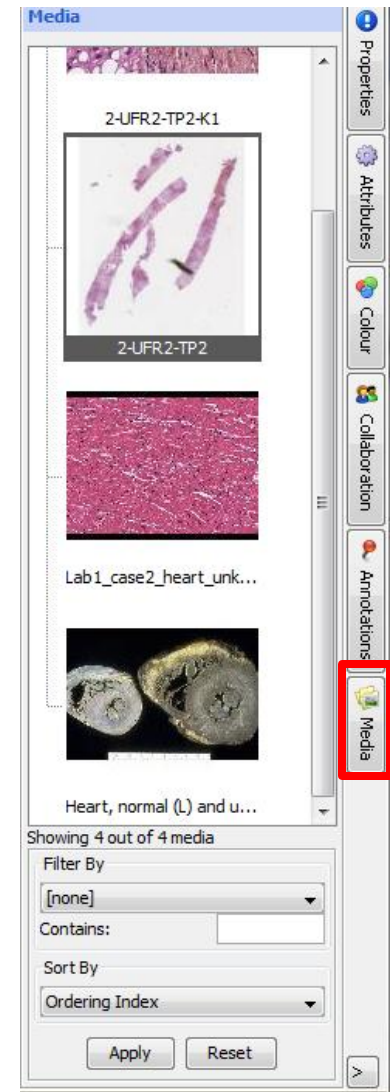
2. F. The mScope Portal – Viewer Collaboration

Collaboration creates a virtual multi-head microscope enabling users to work together from different locations.

When more than one user is viewing the same file the Collaboration tab displays a number. By double clicking users from the list you can invite them to join you.
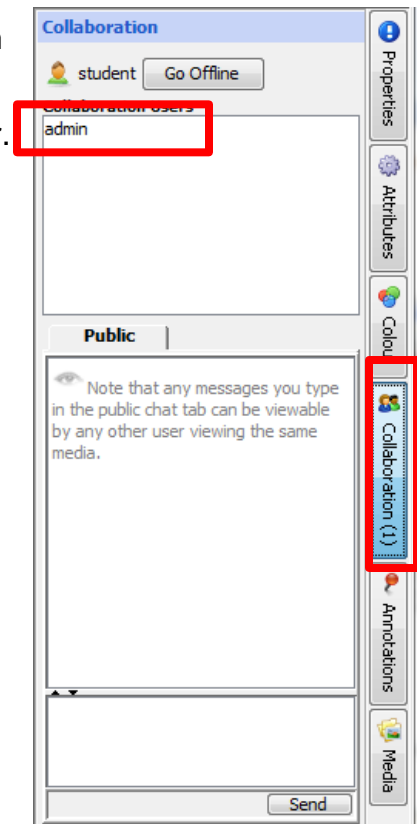
You can choose to have an open collaboration allowing others to take control of viewing at any time or have a closed collaboration where users must request permission to take control.

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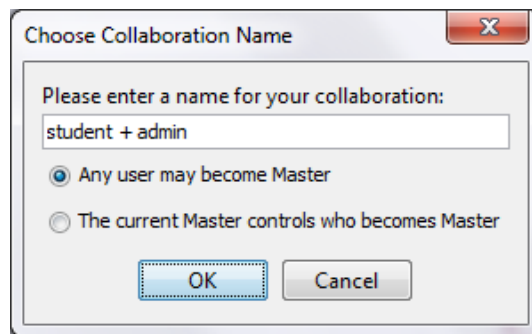
2. I. The mScope Portal – Viewer Collaboration

To signify a collaboration has been requested the color of the collaboration tab for the user being invited will turn yellow and the invitation will appear in the invitation list. Double clicking the invitation will start the collaboration.

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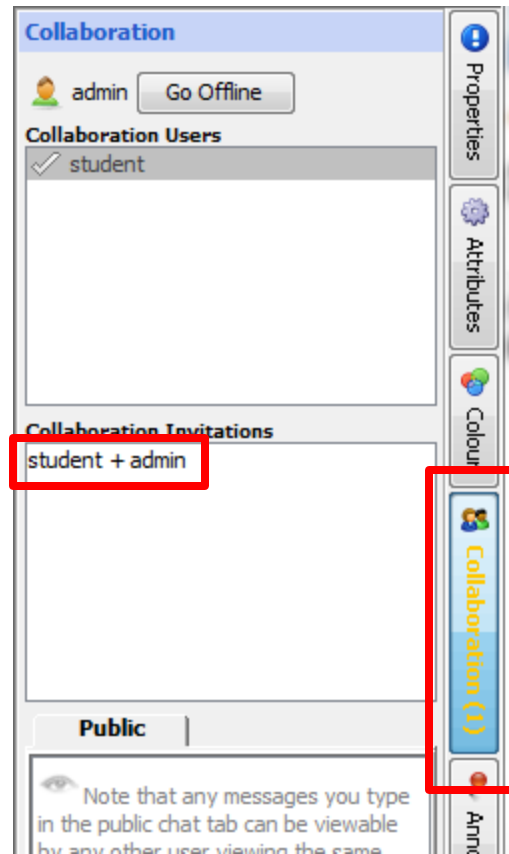
2. I. The mScope Portal – Viewer Collaboration

All users in a collaboration will see what the host is viewing. If the host pans or zooms on the image it will imediately update for everyone. Additionally, annotations will appear in real time as well.

mScope provides a chat section allowing you to communicate with others if you are unable to use VOIP or the phone.

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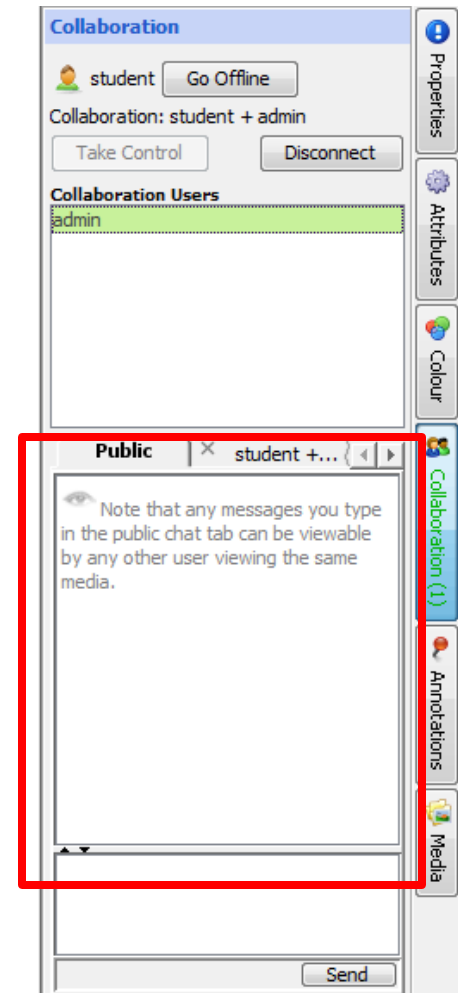
2. G. The mScope Portal – Viewer Tools

The **Tools (5)** at the top of the Viewer allow you to:

• Hide the Navigation control

• Cycle through tag and whole slide images
(if available)

• Switch view modes

• Take snapshot

• Print

• Add a grid

• Add a ruler

• View attributes

• See basic help
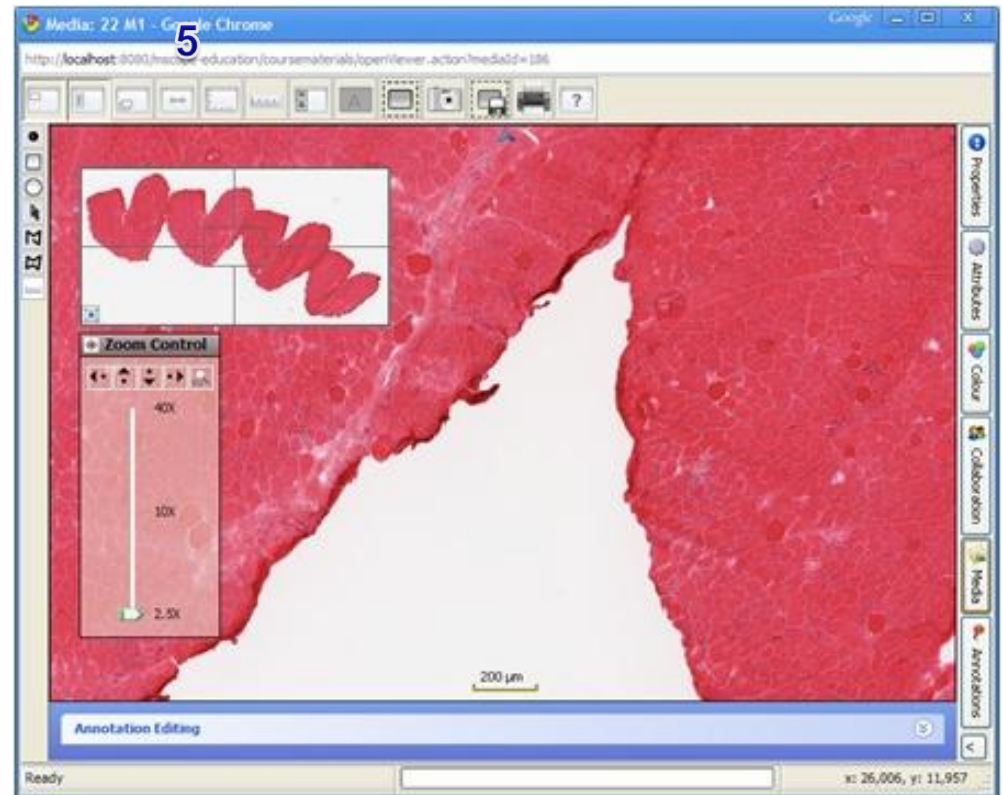
2. H. The mScope Portal – Viewer Annotations

The ″**Annotation Tools** ″ **(6)** allow you to enrich content by identifying areas of interest with shapes that include descriptions. Annotations are specific to the instance of an image. For example an annotation in a case in Studies may have different annotations from a copy in the Knowledge Base.

mScope supports seven annotation types.

- Point

- Rectangle

- Ellipse

- Arrow

- Polyline

- Polygon

- Ruler (only available if image has conversion information available)

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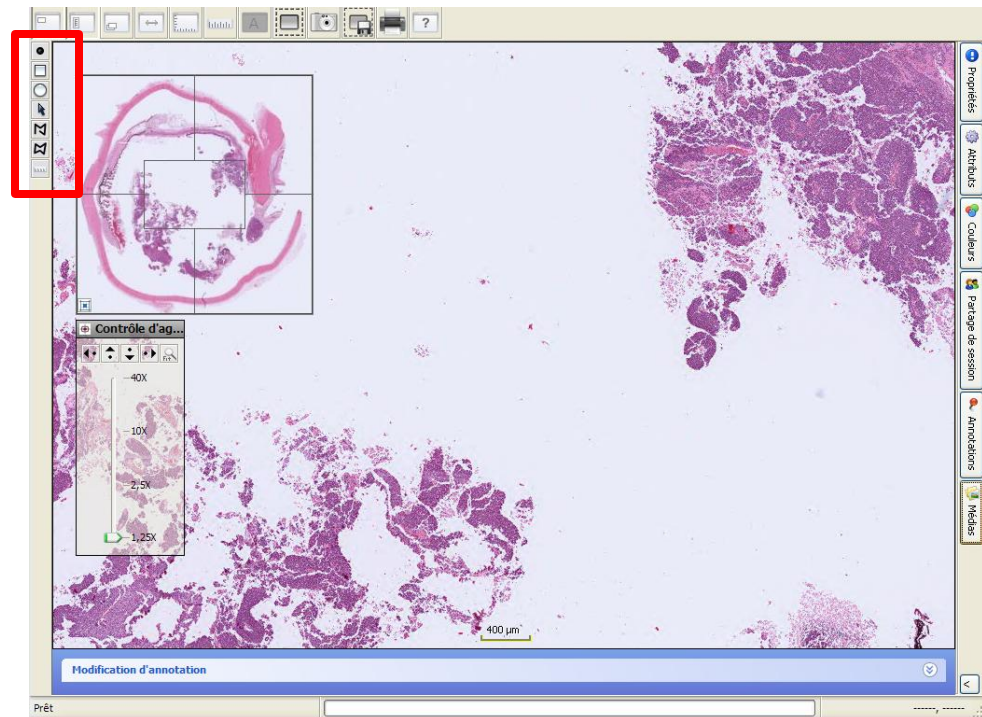
2. H. The mScope Portal – Viewer Annotations

Arrow, circle, rectcangle, tape annotations are drawn by **left clicking the start and dragging to the end** before releasing.

Polyline and polygon annotations are drawn by **left clicking the points that define them**.

The annotation editor appears at the bottom of the viewer. The title defaults to "new annotation" and the description is empty. The new annotation also appears in the annotation tab identified by its title.

Annotations with unsaved changes will appear with a "*" at the beginning of the Title in the annotation tab on the right.

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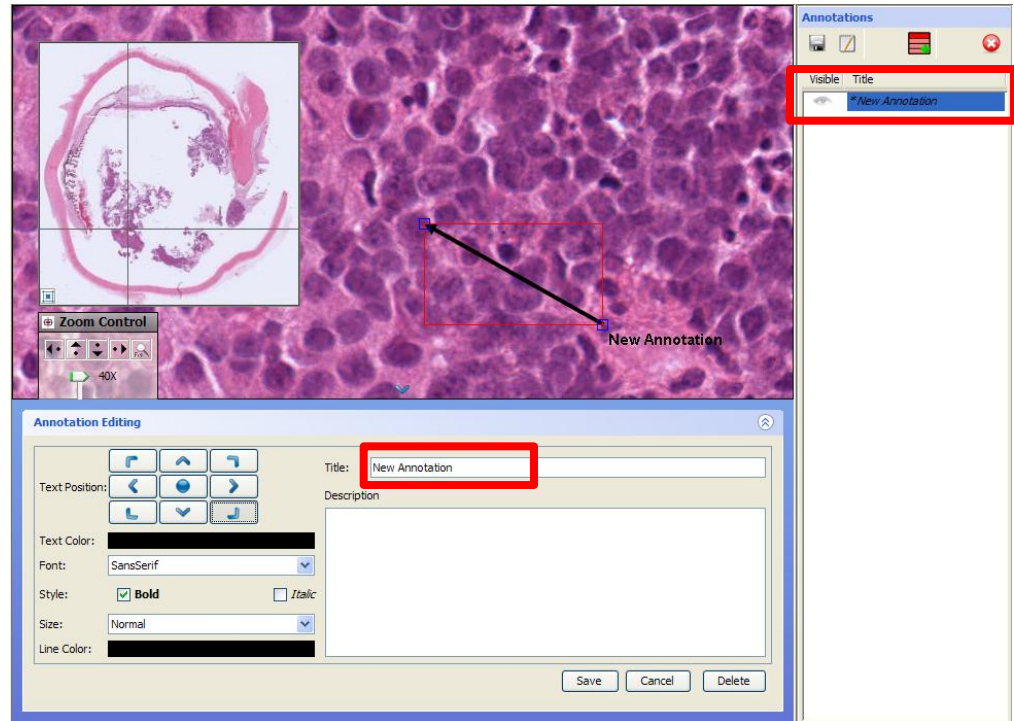
2. H. The mScope Portal – Viewer Annotations

Once you've begun creating an annotation the editor appears at the bottom of the viewer. Annotations provide a Title and Description for adding descriptions located at the right of the editor. Additionally, you can change the Title position, color, font, and style. The color of the overall annotation can also be set.

For ellipse, rectangle and polygons which are closed shapes a filter color may be applied to highlight the area of interest.

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2. H. The mScope Portal – Viewer Annotations

Annotations may be grouped to display together. The group button allows you to create a group. To add annotations to it simply drag them under it. All annotations under a group are part of it.

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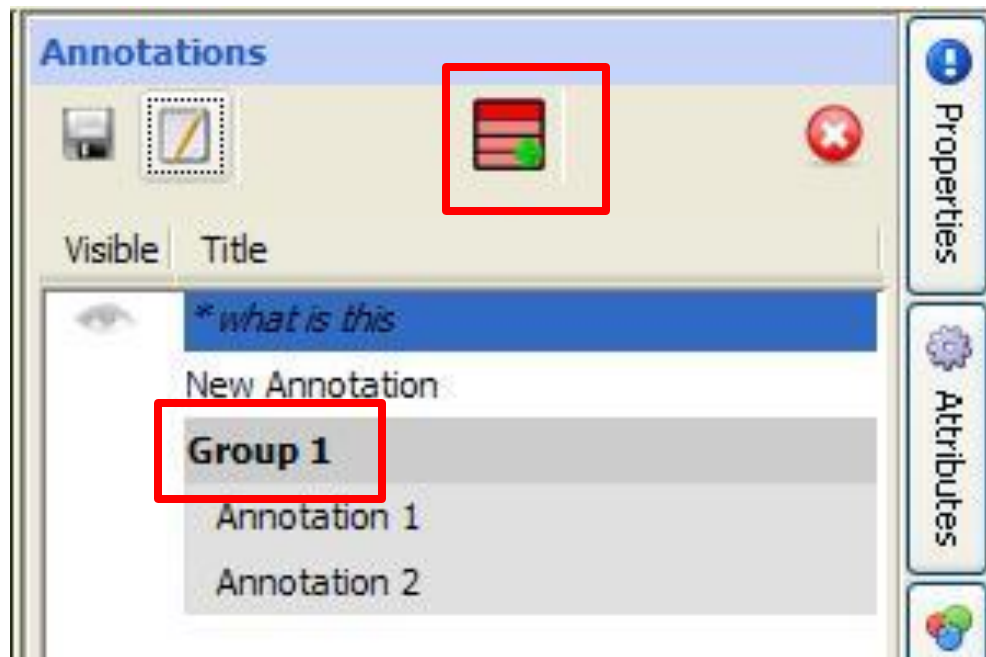
2. H. The mScope Portal – Viewer Annotations

The *"Annotation side bar"* displays the media description if present and annotations along with their descriptions. Selecting the *"show/hide Annotation side bar"* button from the toolbar at the top of the viewer opens the side bar. You can view annotations and groups but you cannot modify them. The side bar allows you to navigate annotations

while having another tool tab e.g
Collaboration or Media open.

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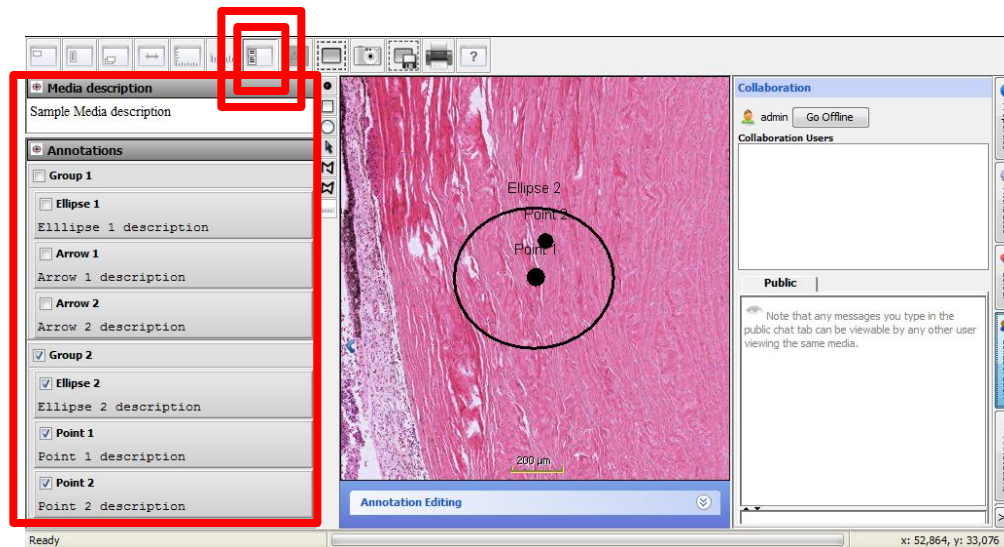
2. I. The mScope Portal – Case 1 of 4
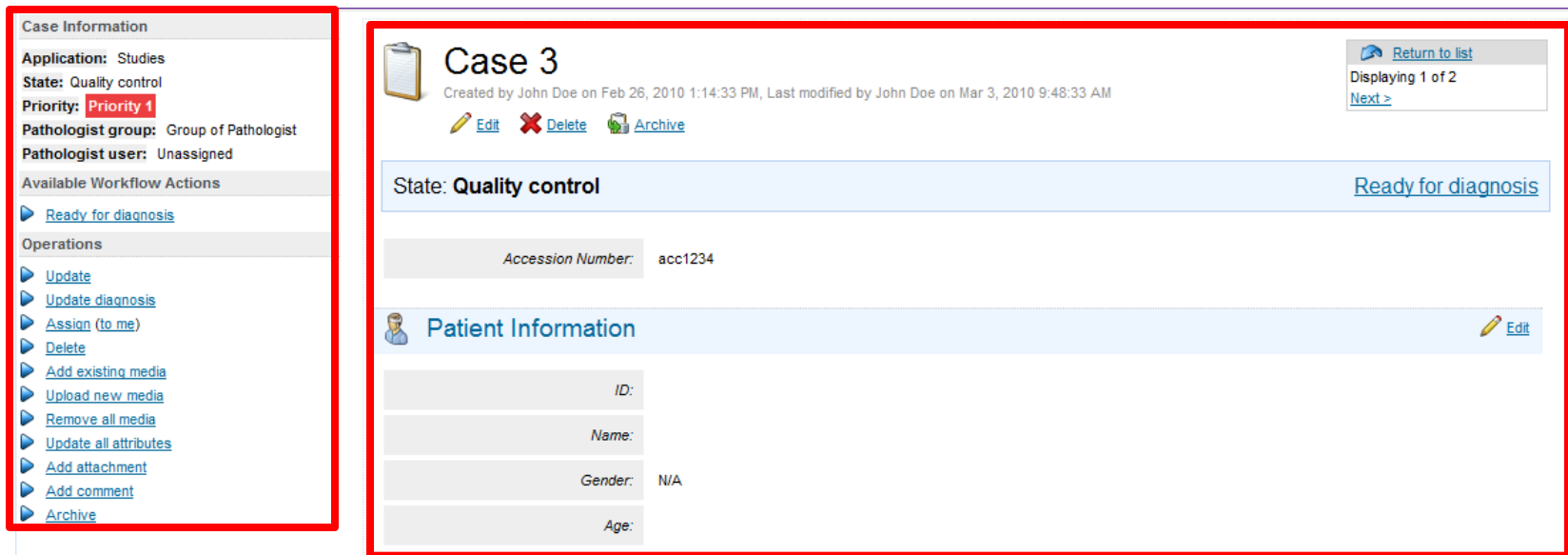
Studies connect the details of a case enabling informed diagnosis. It is structured with tools and workflow controls on the left and case information on the right .

The tools displayed are based on the user's permission and the study's position in the workflow.

Studies display the following details:

• Case ID – unique identifier that may or may not be the accession number

• Accession Number

• Patient Information – depending one what is required

Note: You can modify specific sections of a case by selecting 🖉 Edit

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• Clinical Information – details about the patient, samples, etc.

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• Media – including whole slide images, gross images, and video

  • media list in the order they are detected but can easily be changed by dragging the number to the appropriate location

  • details such as annotations, attributes, and media names and descriptions can be changed by selecting the edit action

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2. I. The mScope Portal – Case 3 of 4

• Diagnosis – the findings of the pathologist

• References – additional details
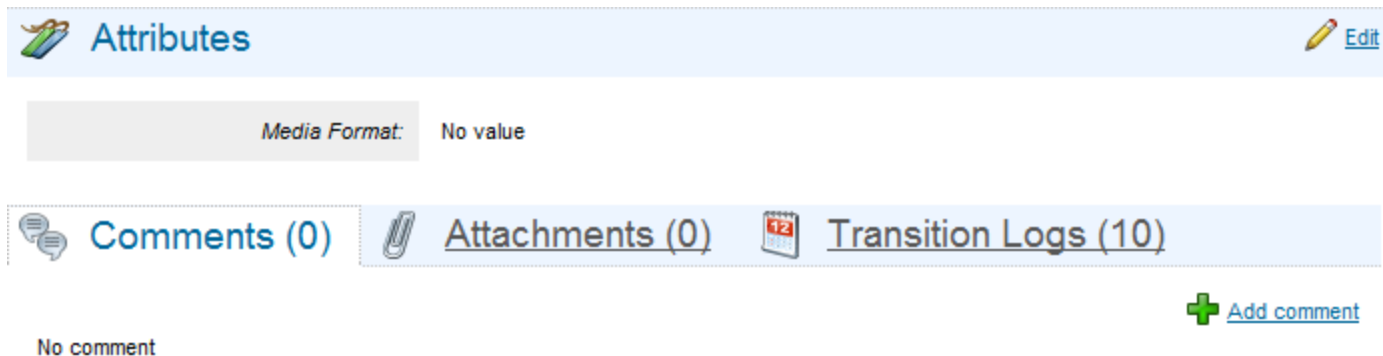
Note: Each of these sections are rich text fields that may contain bullets, images, and web links.

• Attributes – meta-data for classifying,organizing, and searching (e.g. SNOMED)

• Comments

• Attachments – additional documents like word documents that require specialized software to view

• Transition log – displays the history of the case showing the time it spent at each step of the workflow

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2. J. The mScope Portal – Workflow

mScope provides a workflow mechanism for managing the life cycle of a case that may be customized to meet the needs of an organization. Based on the state of the case in the cycle specific Workflow actions will be available. These are:

• Ready for diagnosis – case is ready to be assigned to a pathologist

• Incomplete case – more information required before diagnosis can begin

• Start diagnosis – pathologist has accepted the case

• Stop diagnosis – pathologist is unable to work on the case

• Request opinion – pathologist requests a consult

• Cancel opinion

• Ready for opinion – the case is ready for the consultant to view

• Start opinion – the consultant has accepted the case

Workflow actions are available both in the tools section on the left of the page as well as the case below the title.

Case Information

Application: Studies
State: Diagnosis in progress
Priority: Priority 1
Pathologist group: Group of Pathologist
Pathologist user: John Doe

Available Workflow Actions

▷ Complete diagnosis
▷ Stop diagnosis
▷ Request an opinion

Operations

▷ Update
▷ Update diagnosis
▷ Assign
▷ Add existing media
▷ Upload new media
▷ Remove all media
▷ Update all attributes
▷ Add attachment
▷ Add comment
▷ Archive

Case 3

Created by John Doe on Feb 26, 2010 1:14:33 PM, Last modified by John Doe on Mar 4, 2010 1:01:03 PM

✎ Edit   🗐 Archive

🐎 Return to list
Displaying 1 of 2
Next >

State: **Diagnosis in progress**   Complete diagnosis   Stop diagnosis   Request an opinion

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2. K. The mScope Portal – Operations

Operations list the actions available to the user. These vary based on the user's permissions and the state of the case in the workflow cycle.

• Update – opens all sections of the case for editing

• Update diagnosis – opens the diagnosis field for editing

• Assign – selects the user and group(s) which are responsible for the case

• Delete – removes the case

• Add existing media – opens the list of unassigned files in Modalities for selection

• Upload new media – allows adding media files from user's computer

• Remove all media

• Update all attributes – opens all attributes for editing

• Add attachment – allows adding non-media files from the user's computer

• Add comment

• Archive – move the case out of the active case list

• Add specialists – select the users you would like to consult on a case with

Case Information

Application: Studies
State: Diagnosis in progress
Priority: Priority 1
Pathologist group: Group of Pathologist
Pathologist user: John Doe

Available Workflow Actions

▷ Complete diagnosis
▷ Stop diagnosis
▷ Request an opinion

Operations

▷ Update
▷ Update diagnosis
▷ Assign
▷ Add existing media
▷ Upload new media
▷ Remove all media
▷ Update all attributes
▷ Add attachment
▷ Add comment
▷ Archive

2. L. The mScope Portal – Opinions

The Opinions module is a case list like the Studies with the exception that it is focused on handling consultation instead of primary diagnosis. Studies are managed, viewed, and documented the same way they are in the Study module.

2. L. The mScope Portal – Opinion

An opinion is rendered by selecting "Start" from the State section or the "Opinions" section located near the bottom of the case. Selecting "Send back to Draft" allows the owner to make changes before continuing.

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2. M. The mScope Portal – Panel Discussions

To handle group discussions including tumor boards the Panel Discussion module allows multiple users to work together on cases.

Cases are listed by state on the left and the panels you are a member of display on the right along with cases. Unlike Study and Opinion cases any member of a panel can add annotations, and modify data fields including clinical, diagnosis.

2. N. The mScope Portal – Knowledge Base

The Knowledge Base is a repository for rare and sample studies that have had patient information removed. Studies are handled similarly to Study and Opinion cases with the exception that they have no workflow information.

Studies in the knowledge base can be filtered based on attributes. This allows you to quickly pull all examples containing the area of interest.

2. O. The mScope Portal – Modalities

Modalities maps all media producing hardware that are attached to the portal catelogging all media they create. Any media not assigned to a case appear here. In an integrated system media are automatically assigned to the appropriate case so the media list is empty. However, if a file cannot be matched for some reason (e.g. smudged barcode) the file will be held here to be manually assigned "Classified" to a case.

2. O. The mScope Portal – Modalities

Selecting "Classify" for a file in the media list brings you to the classification page which you use to find the case to assign the file to. You can add a file to a case in Studies, Opinions, or the Knowledge Base. If the case does not exist you can create it. Once the file has been classified it will removed from the modalities list.

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2. P. The mScope Portal - Search

Finding Cases can be done using the "Search" module. mScope searches Cases for instances of text returning the resulting list.
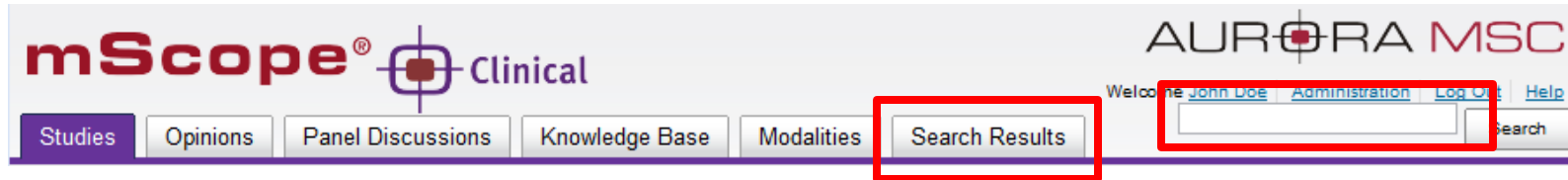
The following example shows the results of search for "Sample". Any text containing "Sample" is selected.

You can quickly find cases based on patient and case related details.

Search tips are provided on the right of the page.

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Thank you for your cooperation.

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