PHILIPS

Computational pathology

Xplore

English

Xplore v4.1

Instructions for Use

For Research Applications.
Not intended for diagnostic use.

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1 Instructions for Use

About these Instructions for Use

These Instructions for Use are intended as a user guide to the Xplore software product. Throughout the document the 'product' will refer to the Xplore.

Before using the product, you must read these Instructions for Use. The most extensive configuration with maximum number of plug-ins is described. Not every function described may be available on your Xplore.

All human names used in this Instructions for Use are fictitious and do not relate to real people.

Conventions

Throughout this document the following conventions are used:

CAUTION

A CAUTION alerts you to where special care is necessary for the safe and reliable use of the system. Failure to observe a caution may result in minor or moderate personal injury or damage to the system or other property, and possibly in a remote risk of more serious injury, and/or cause environmental pollution.

NOTICE

This is used to identify special advice, for example to assist the user or to improve an operating sequence.

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2 Introduction

About Xplore

Xplore is an imaging and data management platform for drug and biomarker discovery.

Intended Use

Xplore is a web based image and data management platform intended for drug and biomarker research & discovery. Xplore is used to access, import, store, and search large volumes of genomic, molecular and analytic data associated with pathology images.

Xplore's TMA module allows researchers and Pathologists to view the TMA core, metadata, scoring criteria and the TMA map on a single interface.

Xplore is a Research Application. Xplore is not intended for diagnostic use.

Compatibility

The product described in this manual should not be used in combination with other equipment or components unless such other equipment or components are expressly recognized as compatible by Philips Digital Pathology Solutions. A list of such equipment and components is available upon request.

Changes and/or additions to the product should only be carried out by Philips Digital Pathology Solutions or by third parties expressly authorized by Philips Digital Pathology Solutions to do so. Such changes and/or additions must comply with all applicable laws and regulations that have the force of law within the jurisdiction(s) concerned, and with best engineering practice.

Client Software

The Xplore is entirely available online. Xplore has been validated with:

- Internet Explorer 10,
- Internet Explorer 11

Other supported web browsers are:

- Chrome
- Firefox
- Safari on Mac

No browser plugins are required. The only requirements are that the web browser must have:

- JavaScript enabled,
- Popup Blockers Disabled and
- Cookies Enabled.

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NOTICE

All the brand and product names are trademarks of their respective companies.

Supported Image Formats

The Xplore is a vendor neutral platform. Supported image formats are:

- SVS (Aperio/Ventana/Sakura/Mikroscan – JPEG/JP2 Compressions)
- NDPI (Hamamatsu)
- MRXS (3D Histech)
- SCN (Leica)
- SCN (Ariol)
- CZI (Zeiss)
- RTS (Omnyx)
- VSI (Olympus)
- Objective Imaging (Mikroscan)
- TIFF (Huron/Philips/Ventana/Trestle/Aperio)
- BIFF (Ventana)
- SQLite DB (Sakura)
- QPTFF (Perkin Elmer)
- JPEG and PNG

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Compliance

The product complies with relevant international and national standards and laws. Information on compliance is supplied on request by your local representative or by the manufacturer.

Training Area

Access the product videos and Xplore User manuals online at:
www.pathxl.co.uk
Account: pathxltraining

Your welcome pack will include your login details for the training area.

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Starting and Stopping

Logging In

To log in to the Xplore:

► Go to http://www.pathxl.co.uk.

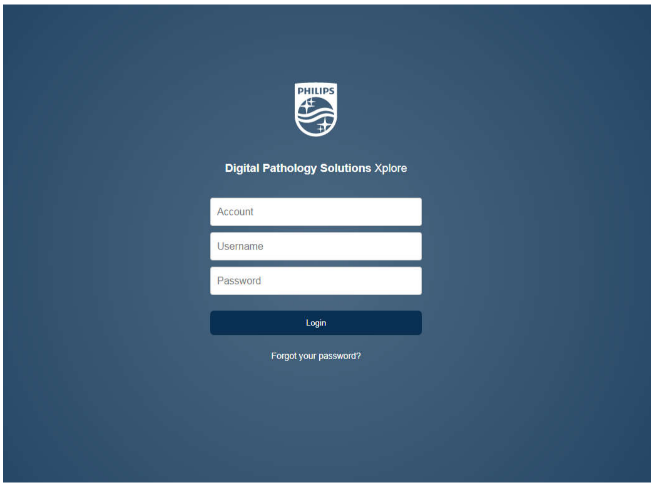

Fig. 1: Login screen Xplore

► Enter your username and password.

► Click ‘Login’.

Logging Out

To log out from the Xplore application:

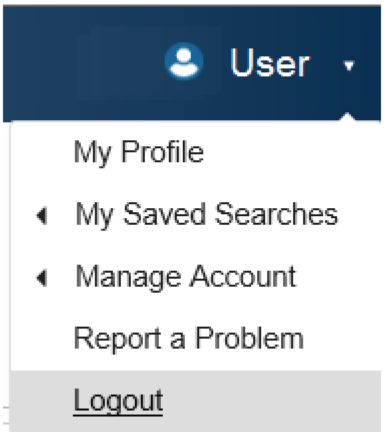

Fig. 2: Logout button

► Click on your user name in the top right corner of the screen.

► Select |Logout|.

⇨ Your work is saved and you are logged out from the Xplore application.

Closing the internet browser does not log you out. To prevent unwanted access to the Xplore application, follow the log out procedure described in this section.

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Automatic Logout

To help you prevent uncontrolled access to data, the automatic logout procedure will start 15 minutes after the last user interaction or last slide upload.

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3 Xplore

Main Workflow

The main workflow consists of the following steps:

1. Create a folder.
   – Load slide(s) and/or additional documents to the folder.
   – Associate datasets to the folder.
   – Optionally, share the folder to enable collaboration.
2. Explore the data:
   – Using search.
   – Using the Xplore grid.
   – Using the viewer to add annotations, manual cell counts, measurements.
   – Present data in a chart to identify trends and/or outliers.
3. Optionally, export data.

Users with Manager rights can dataset(s) with associated fields. These datasets can be used by all users, see chapter “Managing Datasets” on page 65.

Page Navigation

Homepage

The homepage provides an overview of the folders. Using the buttons indicated you can quickly navigate within the application.

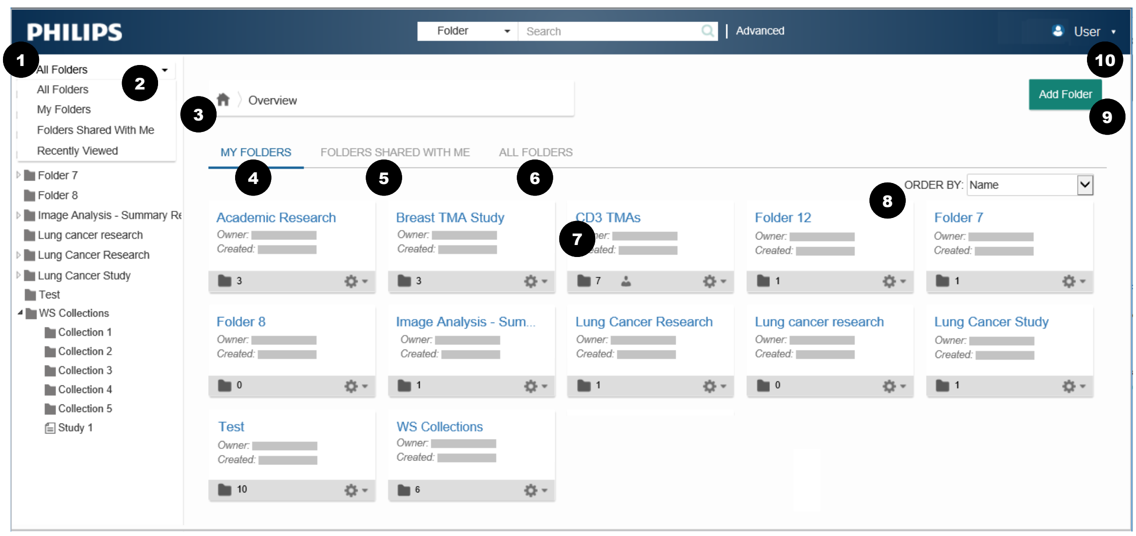

Fig. 3: Navigation on the homepage

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Item	Description
1	Click the *Philips* button and/or *Home* from the navigation trail (item 3) to return to the homepage at any time.
2	Click the triangle and select which folder view you want to display in the left pane. The option 'All folders' shows all folders that you have access to.
3	The navigation trail allows quick navigation through the page hierarchy.
4	*My Folders* will show all folders that you have created.
5	*Folders shared with me* will show all folders which other users have shared with you.
6	*All folders* will show all folders of all users and is only for available for managers, see chapter "Manager View" on page 15.
7	Click on a Folder Name to navigate to the folder.
8	*Order By* will allow you to order folders on the homepage by • Name Date • Oldest First Date • Newest First
9	Click on *Add Folder* to create a new project or study folder.
10	Click your user name to navigate to: • My Profile • My Saved Searches • Manage Account (only available for managers) • Report a Problem • Logout

Tab. 1: Navigation on the homepage

Folder View

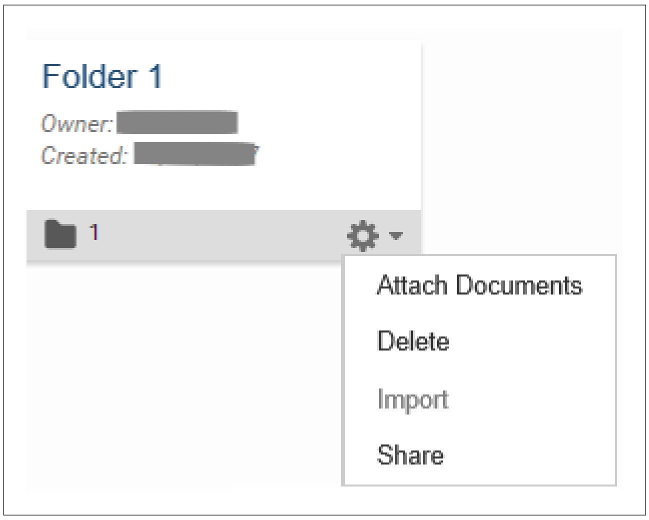

Fig. 4: Folder view on homepage

On the homepage an overview of folders is shown. You can see general folder information:

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- folder name,
- owner of the folder,
- date of creation and
- the number of sub-folders.

The action cog gives access to basic functions:

- Attach documents: allows you to upload files, e.g. reports, datasheets or images to your folder.
- Delete: deletes all contents in the folder e.g. all sub-folders and slides.
- Share: allows you to assign users with read/read-write or no access to the folder.

Manager View

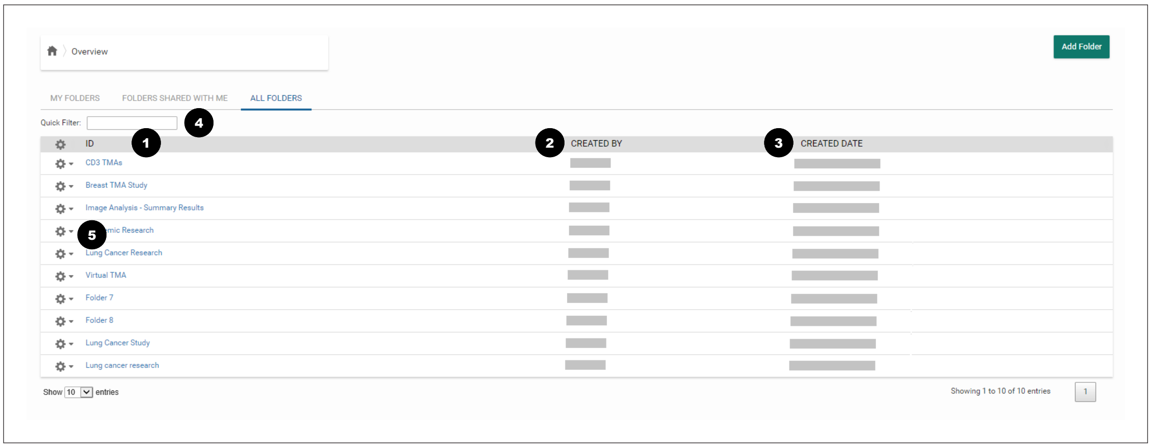

Fig. 5: 'All Folders' tab

Users with manager rights have a third tab available from the Homepage to view all folders from all users.

Item	Description
1	*ID* - shows the folder name
2	*Created By* - shows the username of the user who created the folder
3	*Created Date* - shows when the folder was created
4	Use the *Quick Filter* box to quickly find a folder from the list. "All folders” will show every top level folder and corresponding sub-folders in the account.
5	The actions cog in the left hand column allows the manager to perform actions on that folder: • Add folder • Add slides • Attach Documents • Create TMA study • Delete • Edit share

Tab. 2: 'All Folders' tab (for managers only)

Working with Folders

Folders, TMA Studies and Whole Slides are organised into different tabs. On loading the page, the first tab with content will be opened by default.

Use the Quick filter to narrow the search results.

Creating a Folder

► Click the |Add Folder| button from the Xplore Homepage.

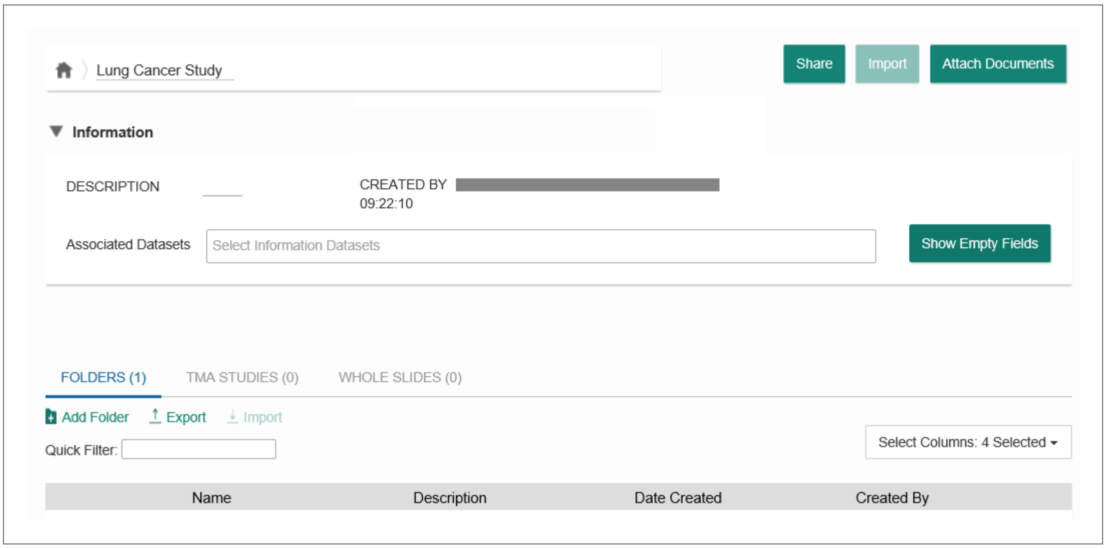

Fig. 6: Add a folder

► Click into the name field and enter a name for your folder e.g. “Lung Cancer Study”.

► Optionally, enter a description for your folder in the "Description" field.

⇨ A new folder has been created. You can now add subfolders and data to the folder and you can associate datasets to your folder.

Adding a Subfolder

► Click the |Add Folder| button to add subfolders e.g. “Collection 1”.
There is no limit on the number of sub-folders you can create.

Associating Datasets to a Folder

► Click in the 'Select Information Datasets' field and select one or more datasets from the list.

⇨ The selected dataset(s) wil be added to the 'Information' section.

⇨ The |Import| button will be enabled, allowing you to import dataset values from a TSV or CSV file.

Adding Dataset Values

There are three ways to add dataset values to your folder, as indicated in the figure.

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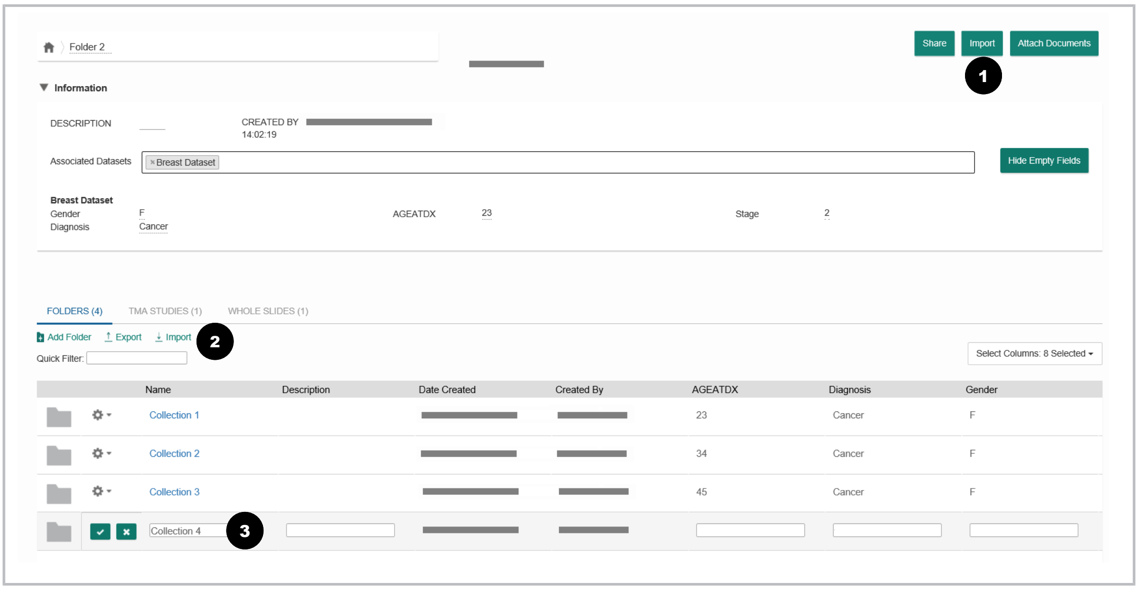

Fig. 7: Adding dataset values

Item	Description
1	The |Import| button in the top right corner of the screen allows you to import dataset values from a TSV or CSV file to the folder that you are currently viewing.
2	The |Import| button from the 'Folders' tab allows you to import dataset values from a TSV or CSV file to the subfolders listed in the table.
3	Clicking the |Edit Row| button from the action cog enables you to manually fill the dataset fields in the table.

Tab. 3: Adding dataset values to a folder

Importing dataset values

- ► Click the applicable |Import| button to import dataset values from a TSV or CSV file.

For Whole Slides and TMA Cores

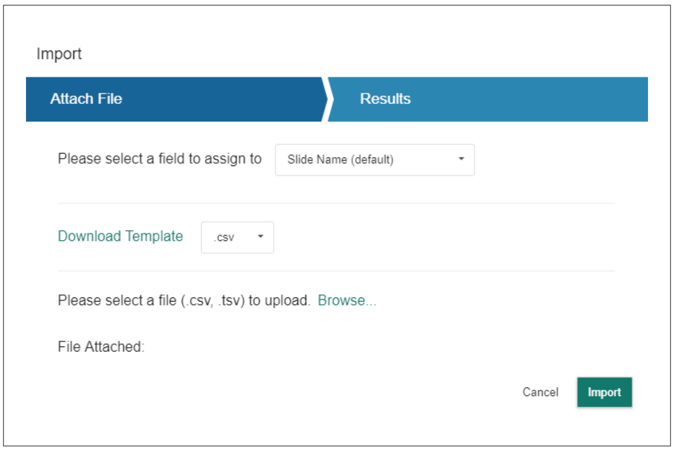

Fig. 8: Importing dataset values for Whole Slides and TMA Cores

- ► Select a data field associated with the Whole Slide/TMA Core to assign to e.g., import against a dataset field, including data captured from the barcode.
- ► Optionally, download a template to assist with creating the CSV/TSV file for upload.

► Browse to a CSV/TSV to upload.

For Folders and TMA Studies

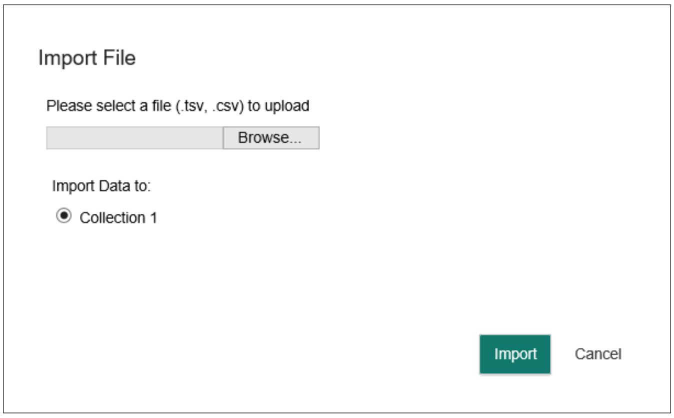

Fig. 9: Importing dataset values for Folders and TMA Studies

► Click |Choose File| to browse to file.

► Click |Import|.

⇨ The dataset values will be imported and the folder information is updated accordingly.

The spreadsheet will fail to import in the following scenarios:

- A dataset has not been associated with the slides.
- The field type does not match the values in the spreadsheet e.g. importing text to a number field.

Data will be ignored if the following conditions occur:

- The dataset field does not match, it is therefore ignored e.g. extra columns in the CSV or TSV.
- Duplicate fields exist – it will take the first column only.

Also please note that all data is case insensitive and all success/failures will provide a warning and explain why the error occurred.

Exporting Dataset Values

The export function enables you to use the data in other applications and to easily adjust data set values and then re-import the adjusted data in Xplore.

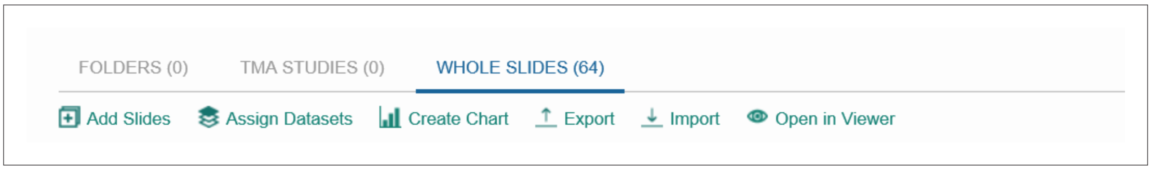

Fig. 10: |Export| button on 'WHOLE SLIDES' tab

► Click the |IExport| button to export dataset values to a TSV or CSV file.

► Enter the file name.

► Select the applicable settings for content export.
Visible Columns: Export all columns visible in the search (all pages).
All Columns: Export all columns associated with the slides or folders in the search query.

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► Select the applicable file format.
CSV: Comma separated (English Language)
TSV: Tab separated (European Language)

⇨ Xplore creates a file with the exported dataset values.

Managing Documents

Attaching Documents

► Click the applicable |Attach documents| button if you want to add a report or additional images to your folder.

- Clicking the |Attach documents| button in the top right corner of the screen allows you to add documents to the folder that you are currently viewing
- Clicking the |Attach documents| button from the action cog in the folder allows you to add documents to the selected folder in the list.

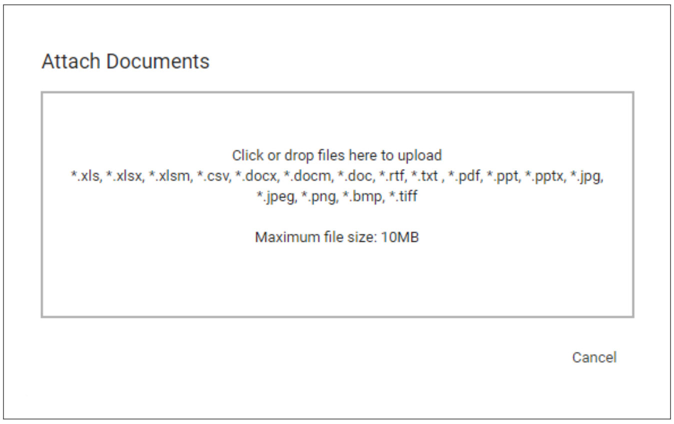

Fig. 11: Attaching Documents

⇨ The popup window will display all supported files and the maximum file size.

► Click or drop files to upload from your desktop and associate with the folder.

⇨ Uploaded documents will appear in the grid.

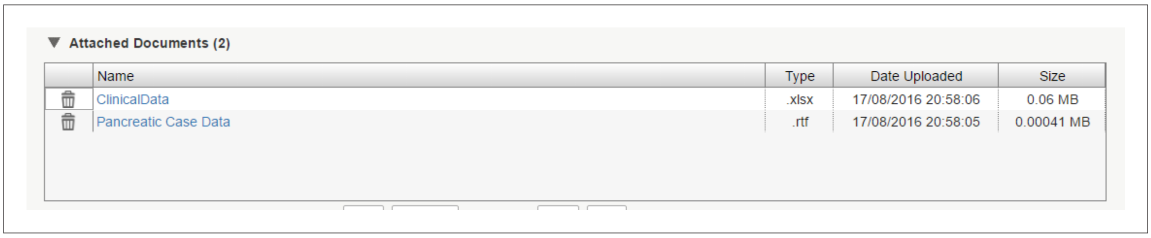

Fig. 12: Attached Documents

Downloading Documents

► Click on the hyperlinked File Name to download the document onto your local workstation from Xplore.
If the file already exists in the folder you will be prompted to resolve the conflict by skipping or replacing the file(s).

Deleting Documents

► Click on the |Delete| button to delete the file from Xplore.

Starting TMA Studies

► Click the 'TMA STUDIES' tab to start creating a TMA study.
This option is only available if the optional TMA module is installed. For more information about creating TMA studies, see chapter “TMA” on page 53.

Adding Slides

► Select the 'WHOLE SLIDES' tab.

► Click the |Add Slides| button to open the 'Image Library'.

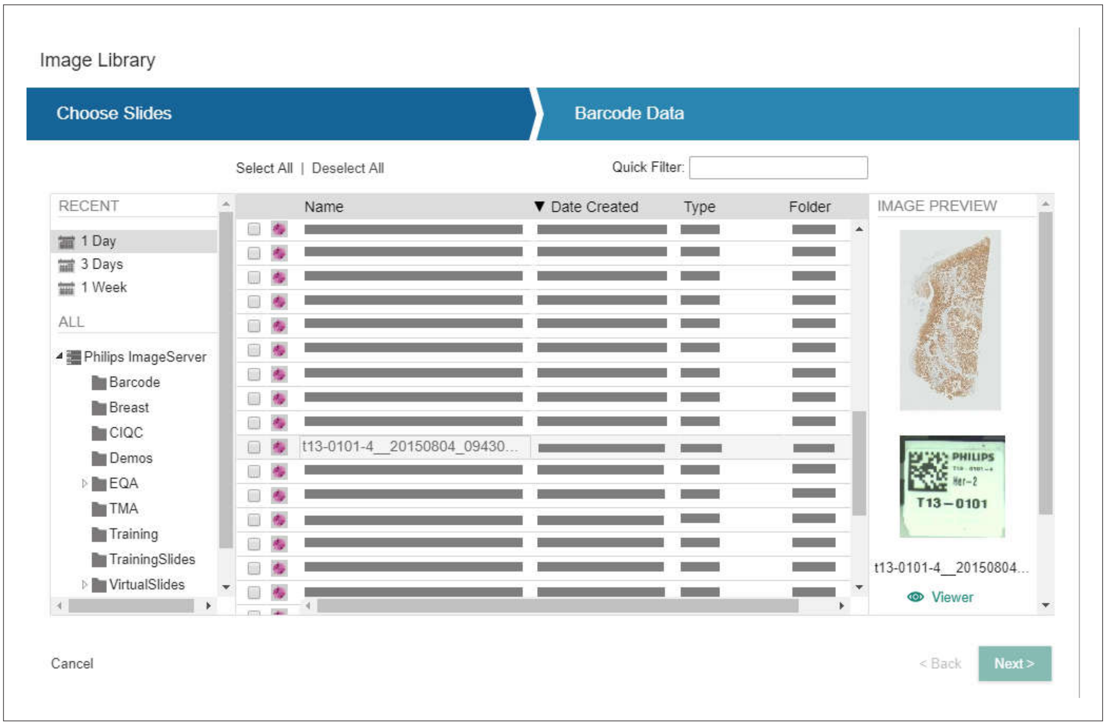

Fig. 13: Image Library

► Browse or use the quick filter to find the slides you want to add.

► Select one or more slides.

► Click |Next >|.

► If applicable, select a barcode dataset to automatically populate the dataset fields from the barcode information.

► Click |Finish|.

⇨ The slide(s) will be added to the folder.

⇨ When barcode information is available **and** matches with the selected dataset, Xplore will automatically use the barcode information to fill the dataset field.

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Working with Xplore Grid

The Xplore grid shows slides and associated data inside your folder(s). You can quickly navigate to view the slides and associated data.

Viewing Slides

- Select the 'WHOLE SLIDES' tab.
- Click the thumbnail or label preview to open the selected slide in the Viewer.

Fig. 14: Viewing slides

See chapter “Xplore Viewer” on page 37 for detailed information of the features within the Viewer.

Viewing Associated Data

- Click “Select Columns” to check which columns you want to view in the grid.
  By default Date Created and File Path will be selected.

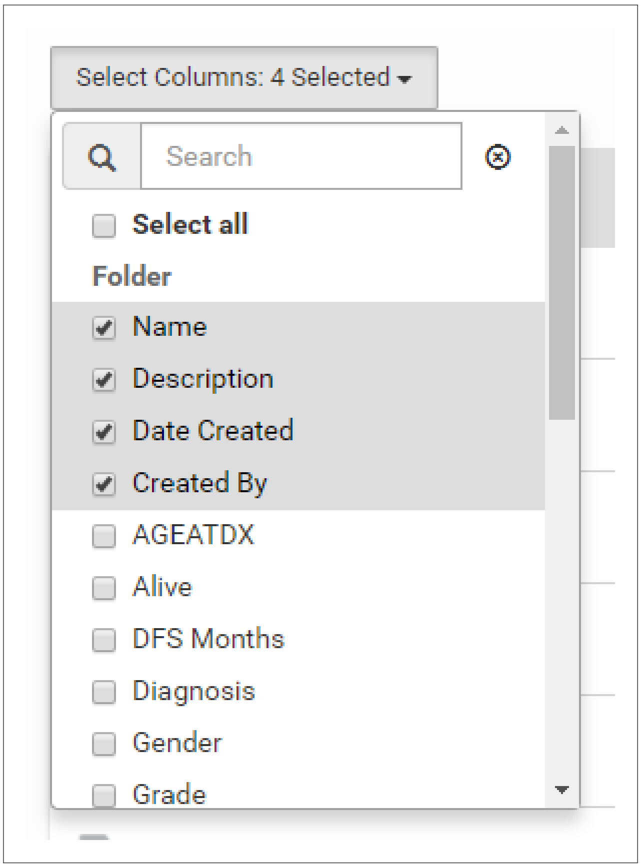

Fig. 15: Changing your Xplore Grid View

- In the grid double-click the grid lines to expand the field to the full width of the field value.

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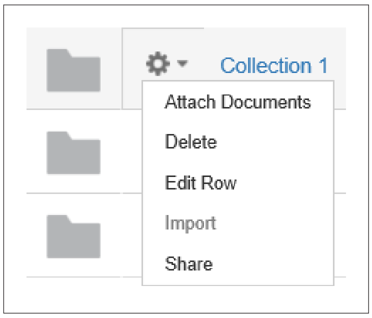
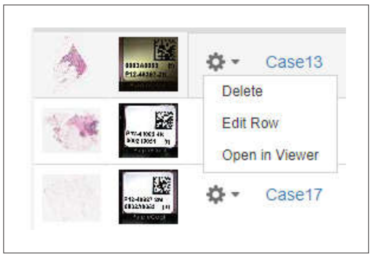
Fig. 16: Changing the column width

► Click the value under the 'Name' column to launch the data associated with the slide.

Using the Action Cog

The action cog in the Xplore grid view gives you quick access to important functions.

	Button	Function
 **Fig. 17:** Action cog options in the 'FOLDER' tab	Attach Document	Click to attach documents to the folder.
	Delete	Click to delete the folder including subfolders and slides.
	Edit Row	Click to edit the fields of the row.
	Import	Click to import dataset values from a TSV or CSV file. This is button is only enabled for folders with one or more associated datasets.
	Share	Click to share the folder, see chapter “Sharing Folders” on page 26.
 **Fig. 18:** Action cog options in the 'SLIDES' tab	Delete	Click to delete the slide from the folder.
	Edit Row	Click to edit the fields of the row.
	Open in Viewer	Click to open the image in the Viewer, see chapter “Xplore Viewer” on page 37.

Tab. 4: Action cog functions

Selecting Columns

► In the search grid, click the |Filters| dropdown and open the |Select Columns| dropdown to restrict your search to specific dataset fields.

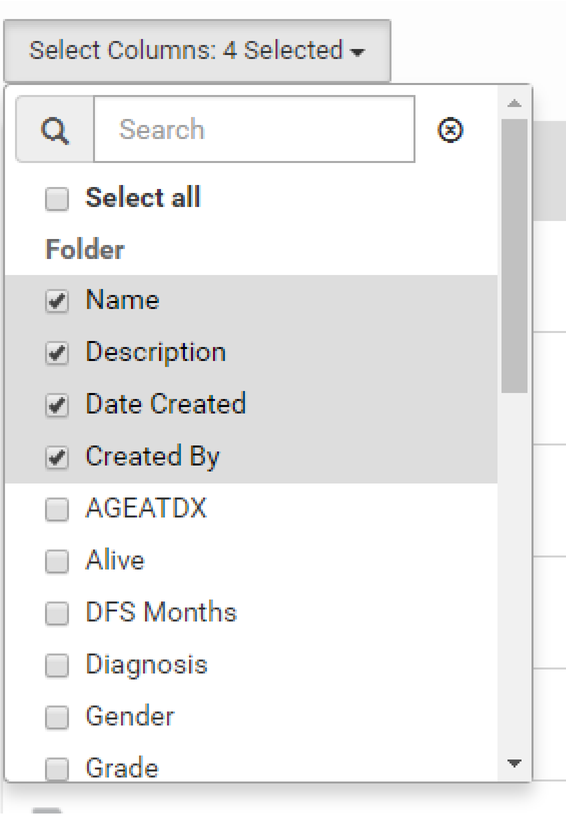


Fig. 19: Selecting dataset fields

► Click the Dataset Name (bold text) to select all fields in a dataset.

or

► Check individual fields to include these fields.
You can select columns across multiple datasets in the search and data will be displayed if relevant to the search.

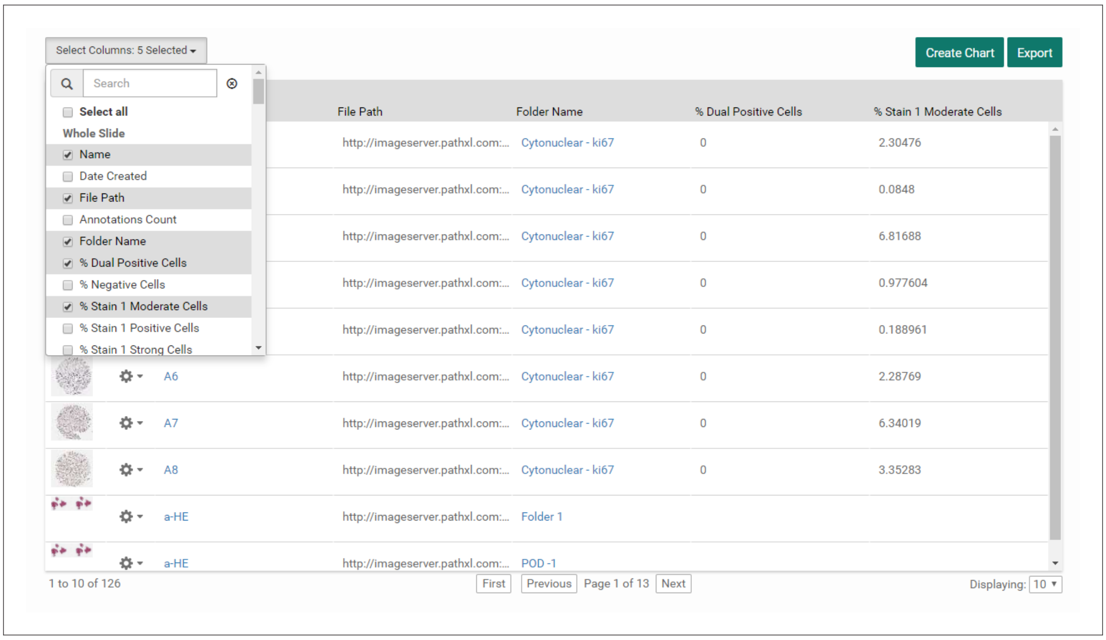


Fig. 20: Searching within selected columns

Using the Column filter

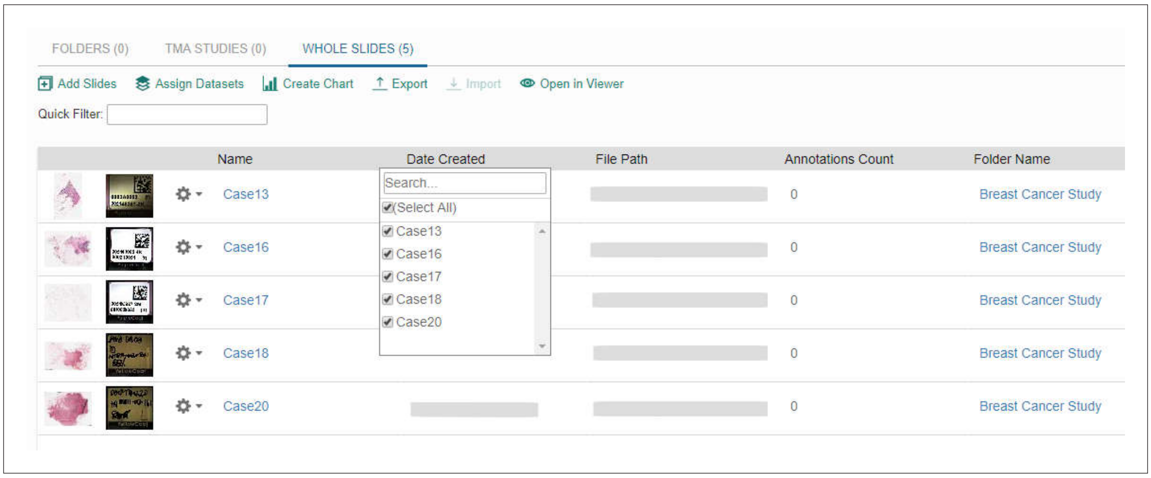


Fig. 21: Column filter

Clicking the button on a column header will open up the Column header dropdown. Use the checkboxes to remove any rows that you do not want to see. For rows with lots of data values, the Search box at the top of the Column Filter will allow you to find a specific value faster. By default, all rows are displayed.

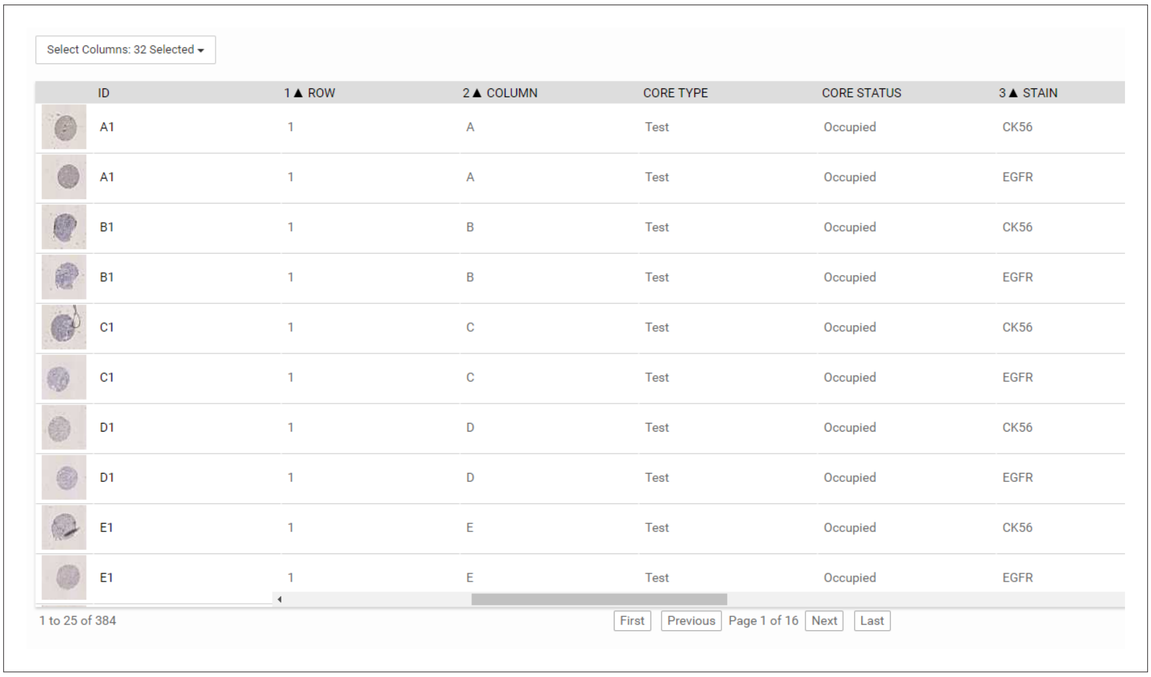
Click a column header to sort a column in Ascending order. Click again to sort in Descending order. Click a third time to reset to default behaviour.

Sorting columns

Shown slides are sorted ascending by the first column by default. Click on a column to sort data:

- Click once to sort the data ascending.
- Click again to sort the date descending.
- Click again to release sorting and return to the default sorting.

It is possible to sort on multiple columns.



	ID	1 ▲ ROW	2 ▲ COLUMN	CORE TYPE	CORE STATUS	3 ▲ STAIN
	A1	1	A	Test	Occupied	CK56
	A1	1	A	Test	Occupied	EGFR
	B1	1	B	Test	Occupied	CK56
	B1	1	B	Test	Occupied	EGFR
	C1	1	C	Test	Occupied	CK56
	C1	1	C	Test	Occupied	EGFR
	D1	1	D	Test	Occupied	CK56
	D1	1	D	Test	Occupied	EGFR
	E1	1	E	Test	Occupied	CK56
	E1	1	E	Test	Occupied	EGFR

Fig. 22: Sorting multiple columns

- Click on the first column to sort the data.
- Shift+Click on a second column to sort the data after the first selected column. The sorting is marked with 2.
- Shift+Click on a third column to sort the data after the second column. The sorting is marked with 3.
- Continue with other columns as required, you can consecutive sort all columns available.

Re-arrange Columns

Click and drag a column header to the required position in the grid to re-arrange a column. As you horizontally scroll the grid, this column will remain locked. Please note, pinned columns will revert to the original state/position if you refresh the page.

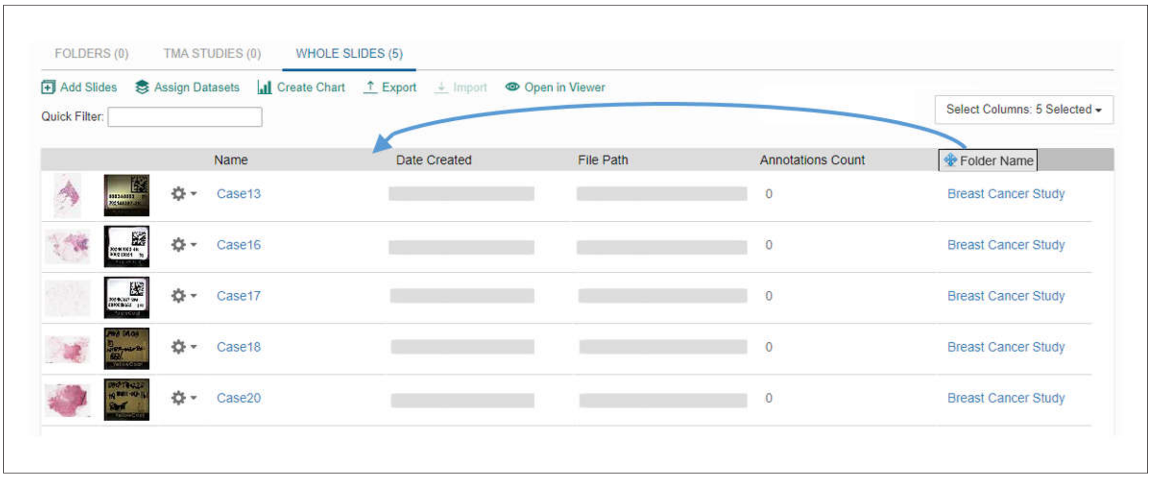


Fig. 23: Re-arrange columns (example)

Sharing Folders

Sharing in Xplore is available from the homepage or folder level.

- ► Click the actions cog on the folder you wish to share and select “Share” or select the 'Share' button in the project folder. When a folder is already shared the action is called 'Edit Share'.
- ► Enter an expiry date.
- ► Use the quick search in the share to find a user e.g. by first letter.

  or
- ► Scroll through the users list to select your user.

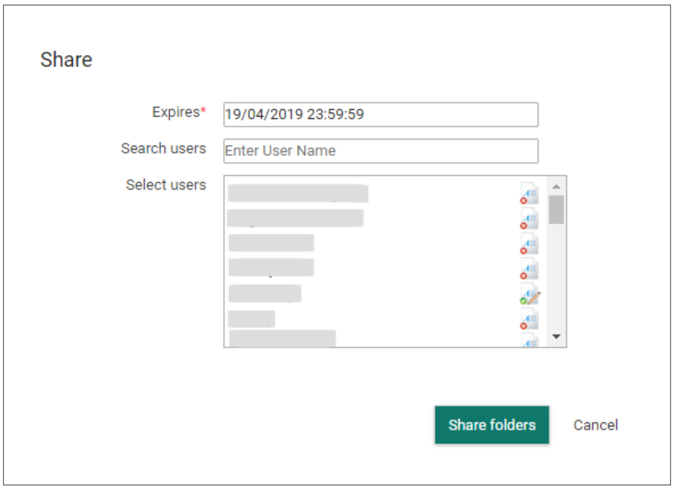


Fig. 24: Sharing folders

- ► Click once or twice on the user name to select the applicable access rights.
  Click once on the user for read access – the icon will change from red to green.
  Click twice on the user for read and write access – the icon will change to a green pen.
- ⇨ When the user logs into Xplore, he or she will then see the shared study under the tab “Folders shared with me”.

Number of clicks	Icon	Access	Description
-		No Access	The user will not see this folder or contents
1		Read Access	The user will be able to view data/slides inside this fold-er
2		Read / Write Access	The user can contribute slides and edit data inside this folder

Tab. 5: Access rights

Using Search Options

Different search options help you to quickly retrieve specific folders, slides or case data.

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Fig. 25: Search options on the homepage

Item	Description
1	*Search* allows you to search for a keyword across all folders, cases, slides and data. Use the dropdown menu to specify your search.
2	*Search* will show all data in your Xplore account and allow you to filter your search to find specific data or slides.
3	*Saved Searches* will show all searches which you have previously run and saved.

Tab. 6: Search options

Search

- ► Use the dropdown list and specify your search.
- ► Enter a value into the search bar.

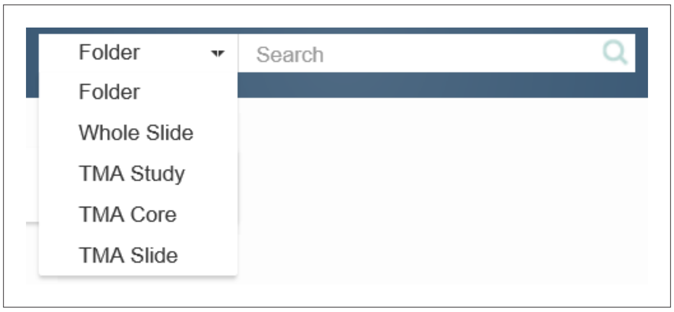

Fig. 26: Using the search

- ► Click on the button to start the search.
- ⇨ Your search data will be returned in the search page.

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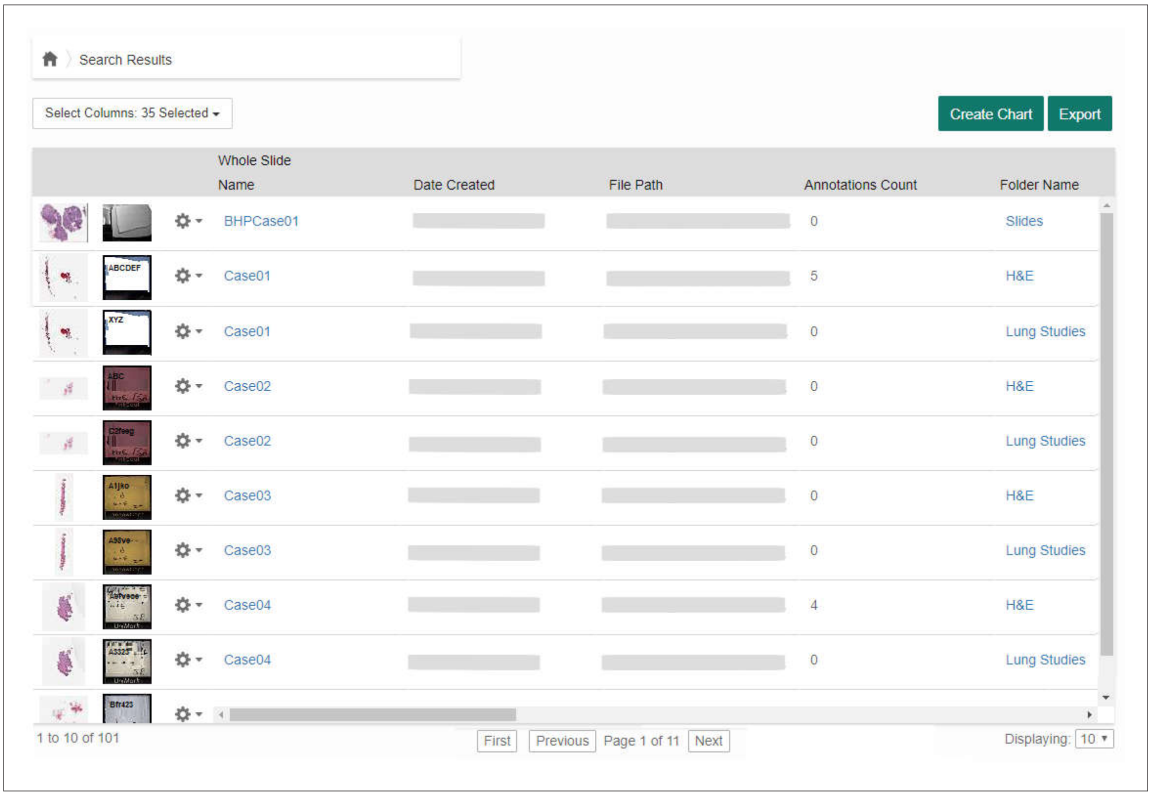

Fig. 27: Search results

Advanced Search

The advanced search allows the user to perform advanced queries on system generated fields and dataset fields across Folders, TMA and slides in Xplore.

- ► Select the “Advanced” option from the top menu bar.
- ► Select a search tab, e.g.'FOLDER' .

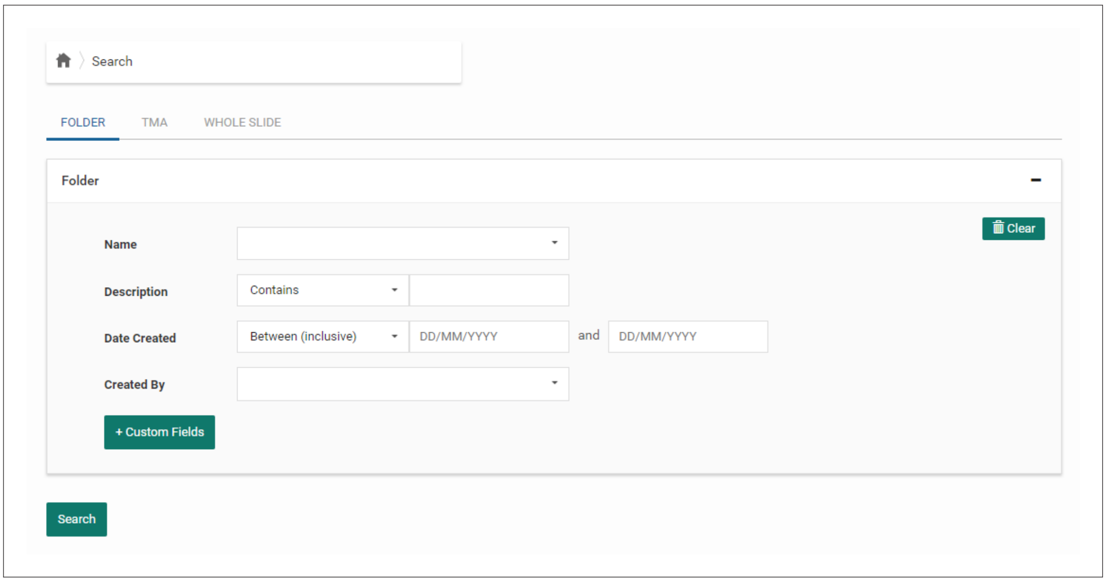

Fig. 28: Advanced search (example)

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- ► Enter your search value or search range. To help you refine your search:
  - Text fields have dropdown lists.
  - Date fields contain different operators.
  - Numeric fields contain different operators.
- ► For text fields: select the desired option for the text field.

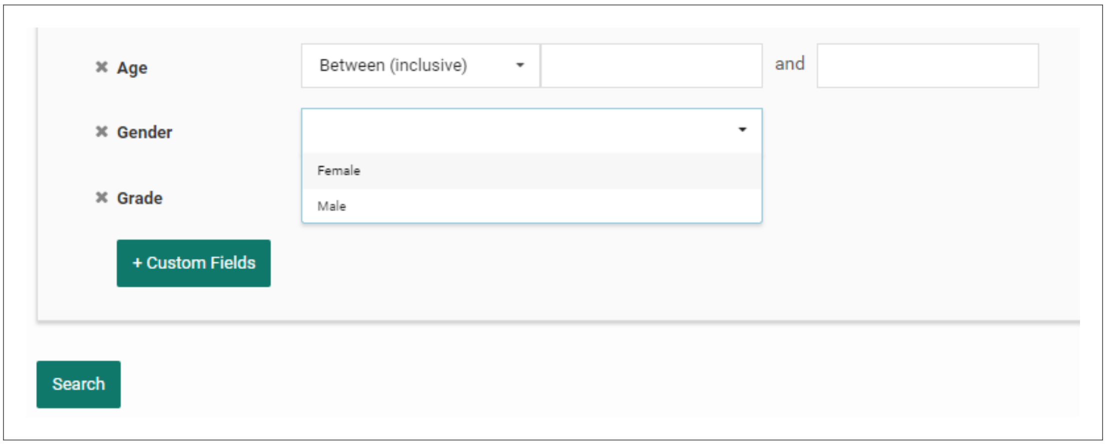

Fig. 29: Text field options

- ► For date fields: select the applicable operators and a range of 2 dates.

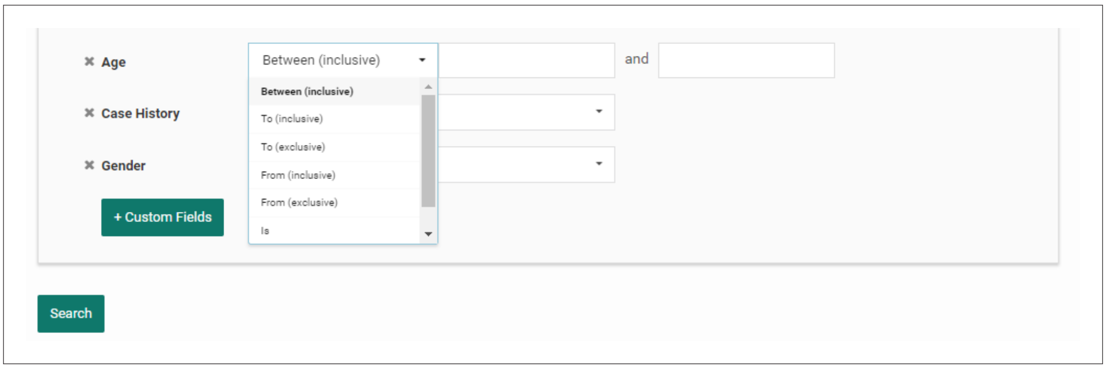

Fig. 30: Date field options

- ► For numeric fields: select the applicable operators and values.

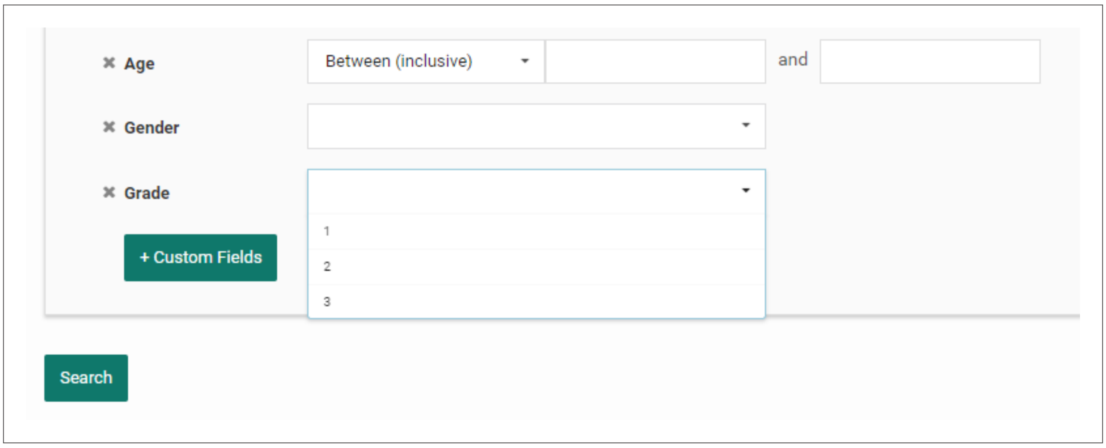

Fig. 31: Numeric field options

- ► Click |Search|.

⇨ Search results are returned in the search grid.

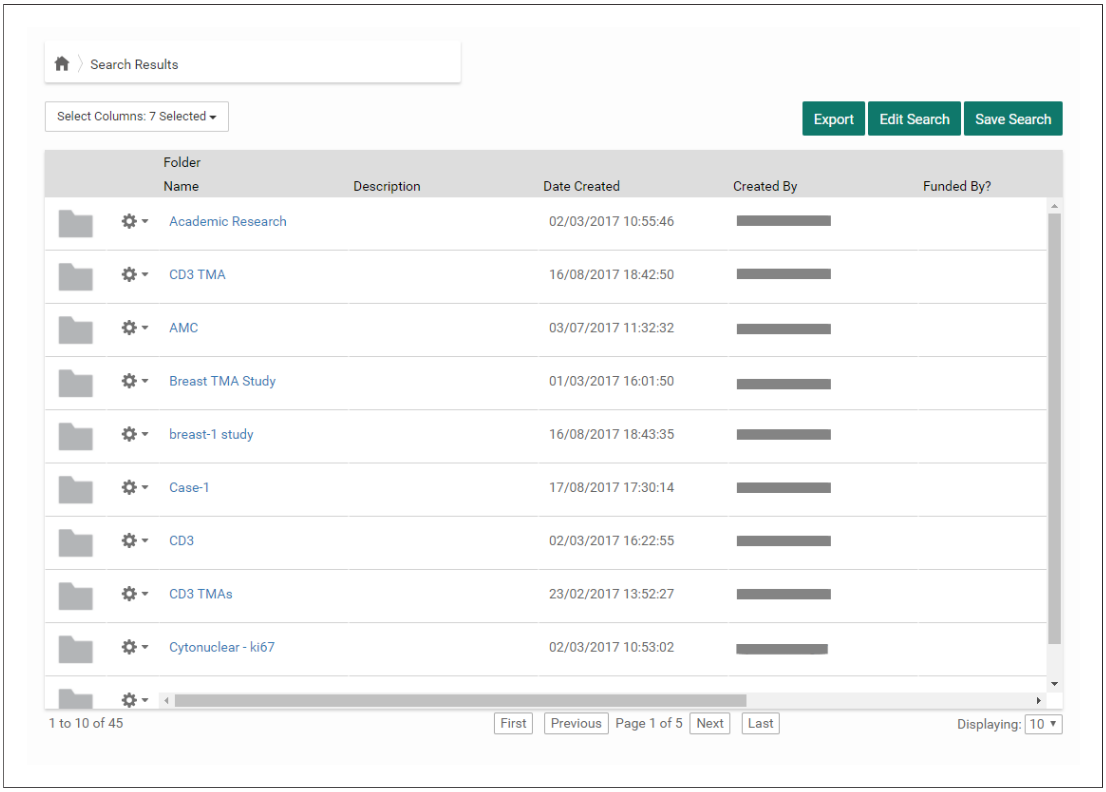

Fig. 32: Advanced search results (example)

⇨ Buttons in the top right corner of the search grid allows you to export, edit or save your search.

⇨ You can drag and drop columns to customize the search grid.

⇨ You can use the thumbnail image (if available) or use the action cog to open the image in the viewer.

⇨ If the Definiens plugin is enabled, you can launch the Definiens TissueStudio and create a Definiens project with images from Xplore.

You can refine your search in two ways:

- Adding additional criteria to your search , see chapter “Searching Custom Fields” on page 30.
  E.g. you know who created a folder but you do not know the name of a study.
- Restricting your search to selected columns (data set fields), see chapter “Selecting Columns” on page 22.

Searching Custom Fields

On the 'Whole Slide' tab you can add additional criteria to your search.

► Choose |+ Custom Fields|.

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Fig. 33: Add Custom Fields

- Select the applicable field type and click |Apply|.
- Enter your search value or search range.
- Click |Search|.

⇨ Search results are returned in the search grid.

Saving Searches

Advanced searches can be saved in Xplore.

- Once your search has been refined and retrieved, click |Save| from the top menu.

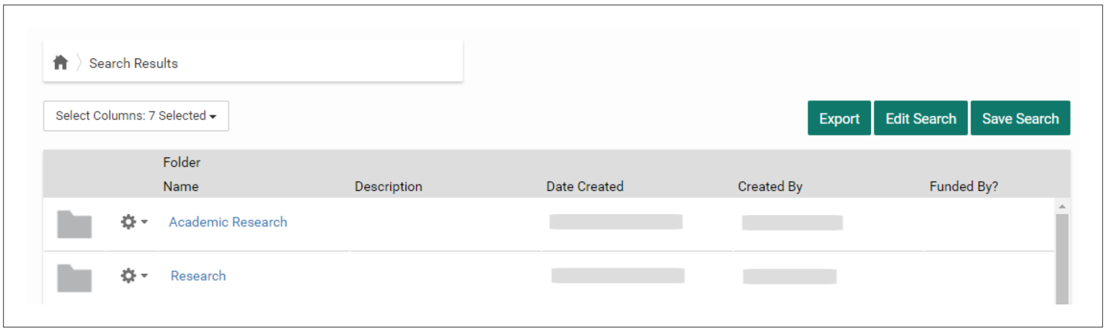

Fig. 34: Saving searches

- Enter a name for your search.
  It is good practise to name this after the search criteria e.g. General Slides –Patient ID.

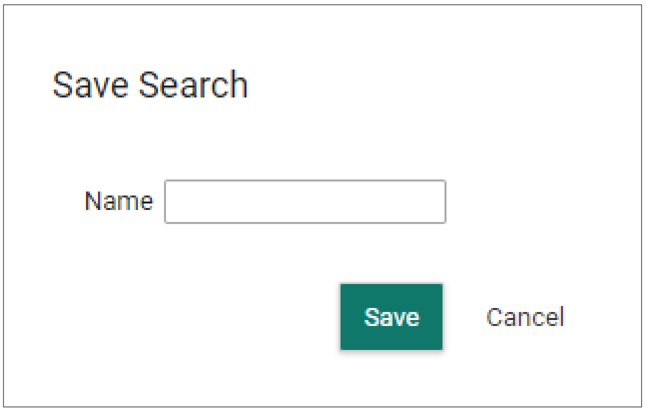

Fig. 35: Naming searches

- Click |Save| to save the search.

⇨ A confirmation message is displayed.

- Click |OK|.

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Running a Saved Search

- ► Click on your user name in the top right corner of the screen.
- ► Select |My Saved Searches| and |View All|.
  Or if present select a favourite search from the 'My Saved Searches' menu.
- ► Click on the name of the saved search to run the search.

Managing Searches

Marking searches as favourite

- ► Click on your user name in the top right corner of the screen.
- ► Select |My Saved Searches| and |View All|.

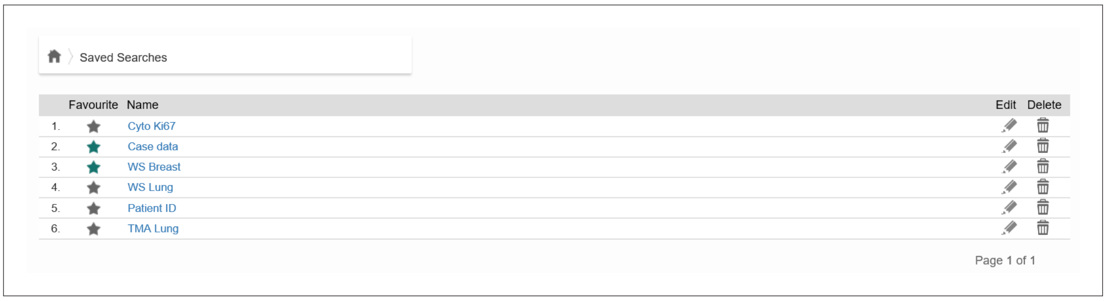

Fig. 36: Saved searches (example)

- ► Click the star icon to mark a search as favourite.
- ⇨ Favourite searches are marked by a green icon and are directly available from the 'My Saved Searches' menu.

Editing saved searches

To edit a search:

- ► Click the |Edit| button in the row of the search that you want to edit.
- ⇨ The 'Search' page opens and you can edit your search.
- ► Click |Search|.
- ⇨ Search results are returned in the search grid.
- ► Click |Save Search|.
- ► Optionally rename your search.
- ► Click |Save|.
- ⇨ A confirmation message is displayed.
- ► Click |OK|.

Deleting saved searches

To edit a search:

- ► Click the |Delete| button in the row of the search that you want to delete.

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⇨ A confirmation message is displayed.

► Click |Delete|.

⇨ The search is removed from the list.

Exporting Search Results

Once your search has been refined and retrieved you can to export the results to Excel.

► Click the |Export| button in the top right corner of the search page.

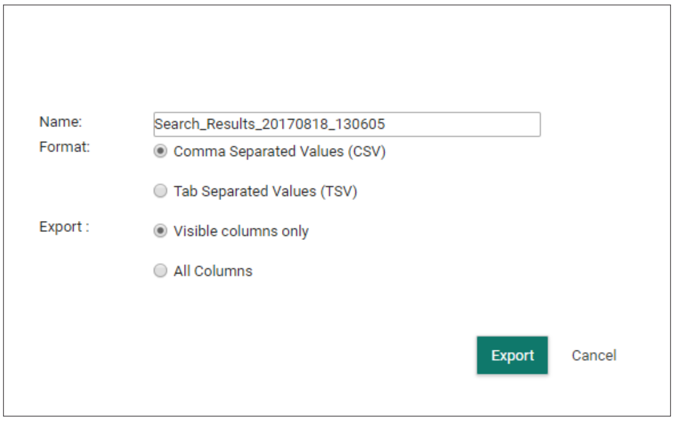

Fig. 37: Exporting Search Results

► Enter the file name.

► Select the applicable settings for content export.
Visible Columns: Export all columns visible in the search (all pages).
All Columns: Export all columns associated with the slides or folders in the search query.

► Select the applicable file format.
CSV: Comma separated (English Language)
TSV: Tab separated (European Language)

► Click |Export| to save the file to your local workstation.

Creating Charts

Charts can be created from the 'WHOLE SLIDES' tab.
If the optional TMA module is installed and one or more TMA study has been created, you can also create a chart from the 'TMA STUDIES' tab.

To create a chart:

► Navigate to the whole slides you want to use for your chart.
You can browse directly to the folder or use search to display data you want to use for the chart.

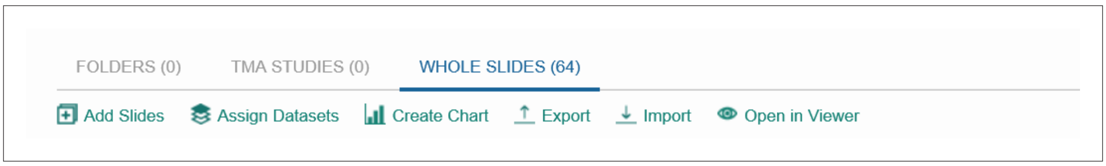

Fig. 38: |Create Chart| button on 'WHOLE SLIDES' tab

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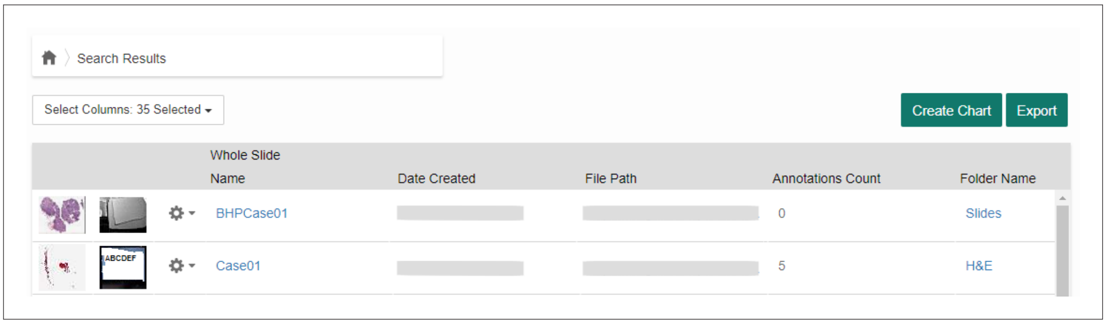

Fig. 39: Create Chart button on 'Search Results' page (example)

- ► Click the 'Create Chart' button.
- ► Select the slides that you want to include in the chart by checking the rows individually or by clicking the 'Select All' button.
- ► Click the 'Continue' button.
- ► Select the chart type.

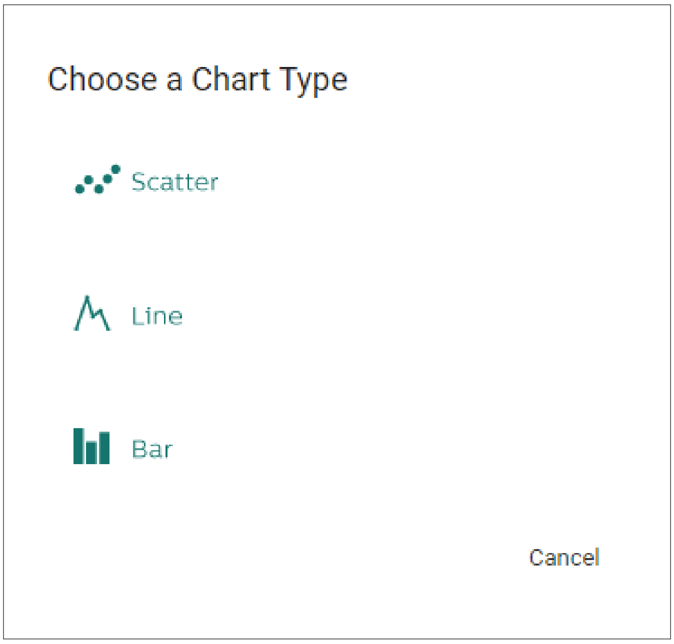

Fig. 40: Available chart types

- Scatter; you can choose an x-axis and y-axis based on the data returned in the search. Only numeric data fields can be used as x/y axis and series.
- Line; you can choose up to 6 data series.
- Bar; you can choose up to 6 data series.

- ► Enter the chart title and select which fields to use for the X-axis and Y-axis.

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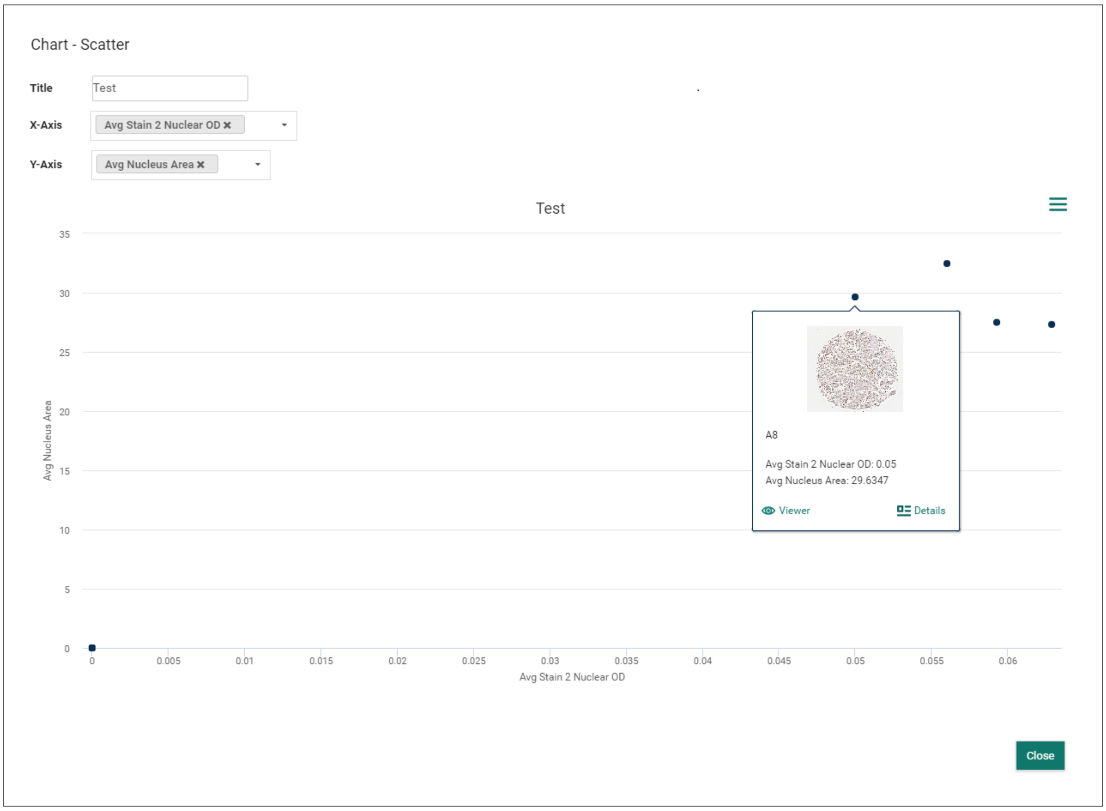

Fig. 41: Chart viewer, this example shows the 'scatter'-type chart.

⇨ Xplore displays the chart.

► Optionally, click and drag with the mouse in the chart to zoom in on a specific area.

► Optionally, click on a data point to view a thumbnail preview of the corresponding image. You can click the buttons on the preview panel to display the image in the viewer or to view the details of the image.

► Optionally, click the |Export Chart| icon and select the applicable print or export option for the chart.

Third Party Integration

Xplore can be configured to allow uni-directonal integration with Third-party software vendors:

- Definiens Tissue Studio
- Halo

To launch Definiens Tissue Studio or Halo:

► Navigate to the folder that contains the images for your Definiens/Halo project.

► Click |Launch in Halo| or |Launch in Definiens|.
The |Launch in Definiens| button is also available on the 'Search Results' page displayed after an advanced search.

► Select the images you want to include in the Definiens/Halo project.

► Click |Continue|.

⇨ A Definiens/Halo project file will be downloaded to your workstation.

► Double click the project file to launch Definiens/Halo with your images.

⇨ Annotations on the slide will be included in the Definiens Tissue Studio project file. Open Freehand annotations will be closed by Definiens Tissue Studio.

Only a single image format can be included in a single Definiens Tissue Studio project file. Only the following image formats are supported:

- APERIO [svs]
- HAMA [ndpi]
- ZEISS [czi]
- JPG (no annotations)
- OLYMPUS (no annotations)

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4 Xplore Viewer

Opening the Viewer

► Select the slide you want to view.

► Click |View| in the action cog dropdown.

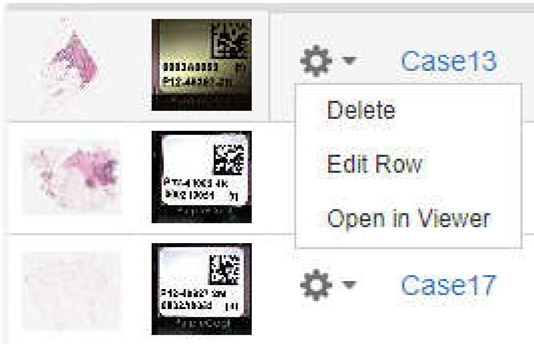


Fig. 42: Viewing a slide

OR

► Click the thumbnail of the slide.

Fig. 43: Viewing a slide

OR

► Click the |Open in Viewer| button.

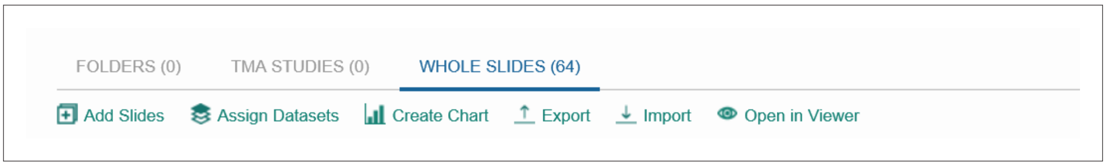
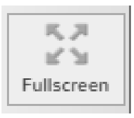


Fig. 44: |Open in Viewer| button on 'WHOLE SLIDES' tab

⇨ The viewer will open and show the slide.



► Click the |Fullscreen| button to launch the viewer in full screen mode in the browser. To return to normal mode, click the full screen button again or F11 on your keyboard.

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Viewer Toolbar

The toolbar on the left hand side of the viewer allows you to toggle on/off all the key functions. Use the mouse wheel to scroll up and down the menu.

Viewing a Slide

Viewing Label and Slide Information

Buttons in the Viewer toolbar allow you to quickly view label and slide information.

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Viewing the slide label

- ► Click the |Label| button to view the slide label.
  If the slide scanner has not scanned the slide label, this button will not appear in the viewer.
- ⇨ The label will show in the right hand side under the thumbnail.
- ► Click again to close the label.

Viewing slide information

- ► Click the button to open the 'Information' panel.

This will show the following slide information:

- Slide name,
- File type,
- Magnification,
- Z-stacks,
- MPP,
- Width,
- Height.

Viewing the slide name

If enabled in the permissions the slide name will appear above the thumbnail image.

- ► Click the |Thumbnail| button to display the thumbnail image in the top right corner if it is not visible.

Slide Navigation

Panning and Zooming

To pan:

- ► Hold the left mouse key and drag the mouse in the direction.

  OR
- ► Use the arrow keys on the keyboard: up, down, left, right and also by pressing up/right, up/left, down/right, down/left simultaneously.

  OR
- ► Use the thumbnail image in the top right corner either by a single click on a specific region or also by holding the left mouse key and dragging the mouse in the desired direction.

To zoom:

- ► Double click with the mouse to zoom through the default magnification levels.

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OR

- ► Use the mouse scroll wheel to zoom incrementally.

OR

Fig. 45: Magnification options

- ► Click the |Magnifier| button from the toolbar to open the magnification drawer and select the magnification required.
  The maximum magnification (e.g. the magnification the slide was scanned at) will automatically be listed in the drawer.

Scalebar

By default the scalebar is enabled when you open a slide. The scalebar is located in the bottom right of the viewer and will adjust in size as you zoom in and out. The scalebar will display sizes greater that or equal to 1mm in mm and less than 1mm in microns.

For standard JPEG images the scalebar will not be displayed.

- ► Click the |Scalebar| button to disable the scalebar.

Layer Navigation

If a slide has been scanned with z-stacks (Layers) the |Zstacks| button will appear and switched on by default. You will see a slider bar in the top left of the viewer.

- ► Click the arrows to focus up and down through the layers incrementally.
- ► Use the slider to drag through the focus layers.

Viewing Slides Side by Side

For studies with multiple stains, the viewer enables side by side viewing of slides.

- ► Click the |Slides| button to view multiple slides in a case.
- ⇨ The 'Slides' panel opens.

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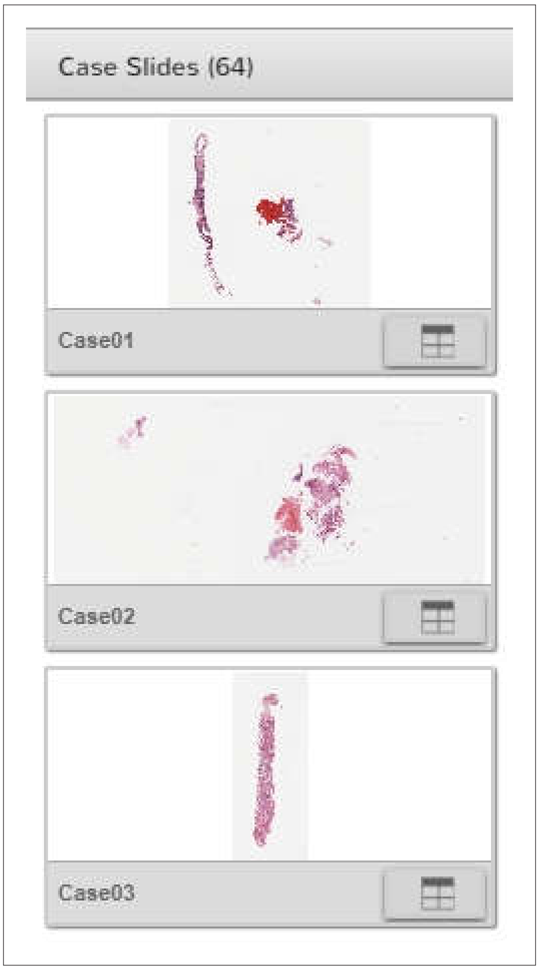
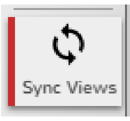


Fig. 46: 'Slides' panel

► Click the |Split Screen| button in the bottom right of the thumbnail to select slides you wish to view side by side.

⇨ The active window will be outlined in green.



► Click the |Sync Views| button in the viewer to activate the synchronizing of both magnification and panning of the images side by side.

⇨ The selected images are synchronized and you can view them side by side.

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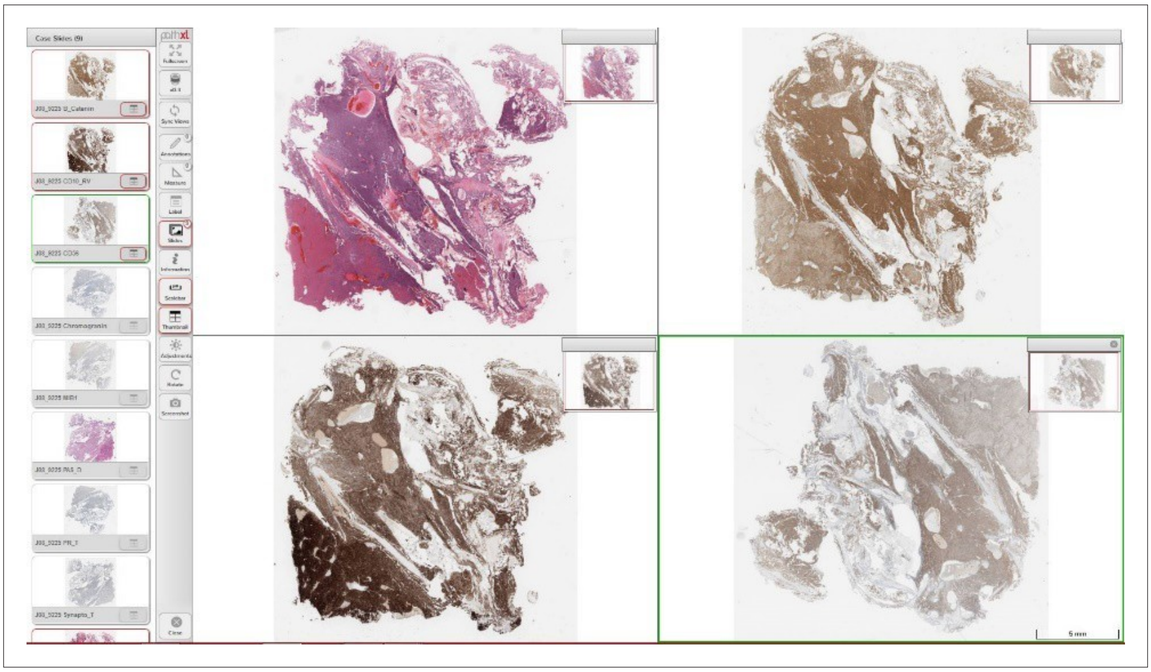

Fig. 47: Side by side view

Adjusting Images

Adjusting Image Settings

► Click the |Adjustments| button to adjust the image settings.

⇨ The 'Adjustment' panel opens.

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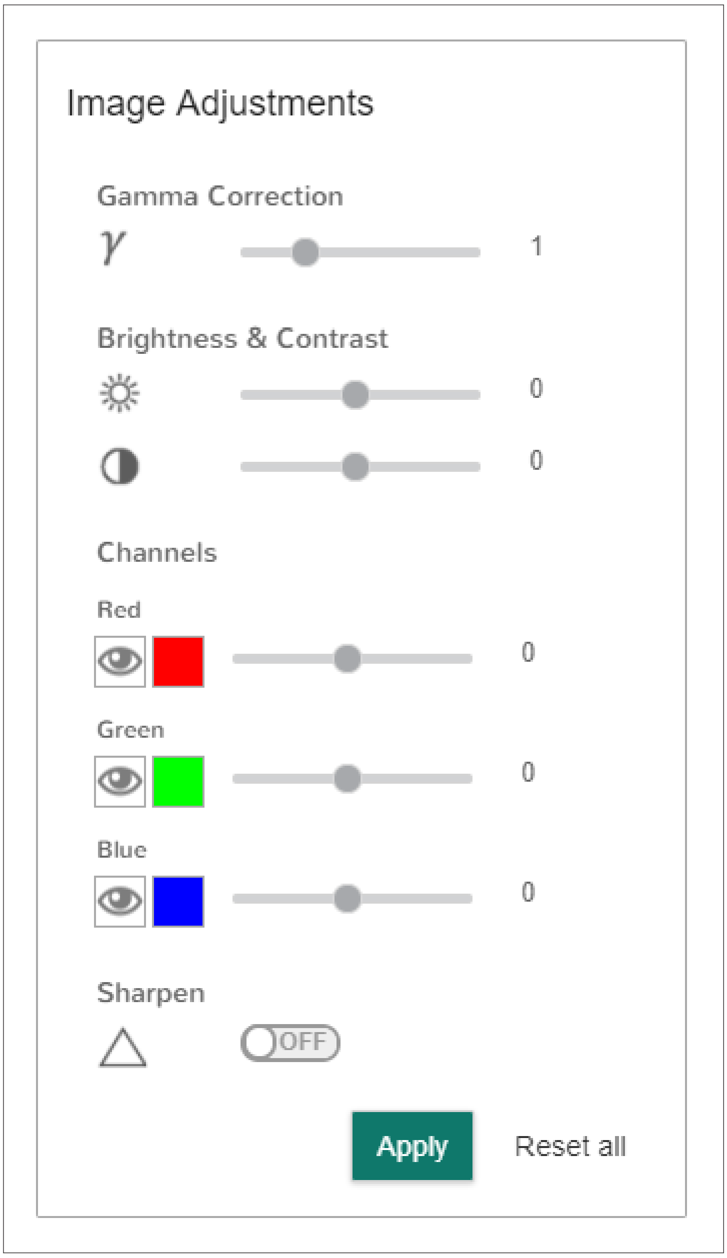


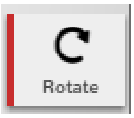
Fig. 48: 'Adjustment' panel

- Drag the slider to adjust the gamma.
  Hamamatsu slides will be automatically set with a gamma offset of 1.8.
- Drag the slider or type a value directly into the text box to adjust the brightness and contrast.
- Single click the |Eye| button to toggle on/off the channels on a fluorescent image. These channels will automatically display the channels from which the fluorescent image was scanned with. Up to 10 channels can be displayed.
- Drag the slider or type a value to incrementally adjust the channels.
- Toggle the button on/off to sharpen the image.
- Click |Apply| to save your changes.

Restoring the default settings

- Click |Reset all| to return to the default image settings.

Rotating Images



- Click the |Rotate| button to launch the rotation wheel.

⇨ 

This will open in the bottom right-hand corner above the scalebar.

- Click on the wheel to drag the ball around and adjust the rotation.

⇨ The degree of rotation will be displayed in the centre of the wheel.

- Click the centre to return the position to 0 degrees.

Saving a View

- Click the |Save View| button to to save the rotation and/or image adjustments made on a slide.

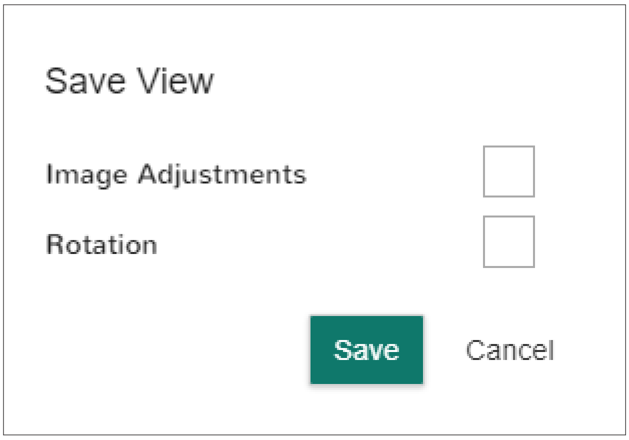


Fig. 49: Save view options

- Check the boxes in the popup window to select which option you wish to save.
- Click |Save| to save the view and close the window.

When you close and reopen the viewer it will now recall the rotation and image adjustments made and saved.

Annotating Images

Creating an Annotation

- Navigate to the region of the slide you wish to annotate and at the desired magnification.

► Choose your shape – square, circle, freehand pen, arrow or curly bracket.

► Click on the region.

⇨ The 'Annotations' panel opens.

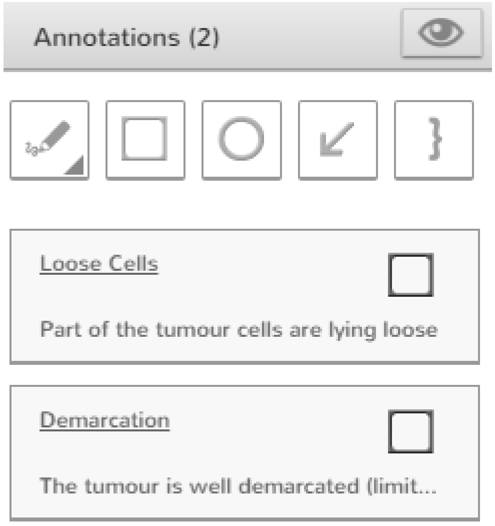


Fig. 50: 'Annotations' panel

► You can add your name, description, URL hyperlink and change the color of the annotation.

► Toggle the |Sharing| button on if you wish to share the annotation with other users.

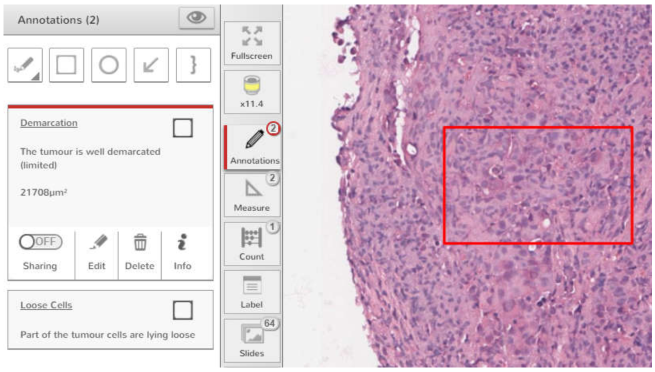


Fig. 51: New annotation

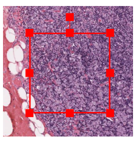
⇨ The Viewer shows the newly created annotation.

⇨ In the 'Annotation' panel the newly created annotation is listed.

Editing an Annotation

► Select the annotation you wish to edit.

► Click the |Edit| button to adjust the name, description or dimensions.



► Click on the shape to adjust the dimensions or rotate the annotation.

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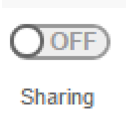
- ► Toggle the |Sharing| button on if you wish to share the annotation with other users.



- ► Toggle the |Sharing| button off if you want do not want others to view your annotation.
- ► Click |Save| to save the changes to your annotation.

Viewing Annotations

The |Annotations| button shows a number icon on the top right corner to indicate the number of annotations on the current slide.

- ► Click the |Annotations| button to open the 'Annotations' panel.

⇨ The |Annotations| button turns red.

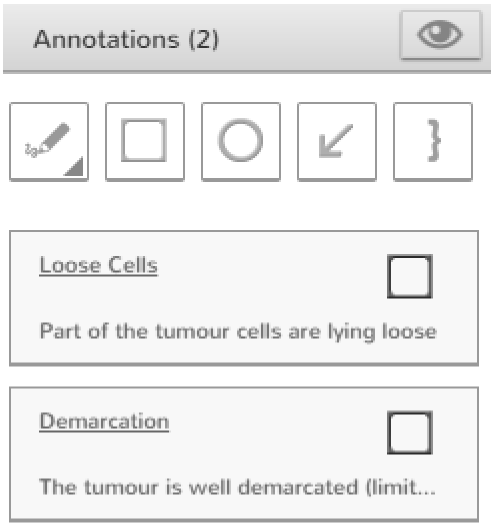


Fig. 52: 'Annotations' panel

⇨ The current annotations will be listed down the left hand panel in annotation boxes.

- ► Click the |Eye| to view all annotations on the slide.

- ► Click the |Info| button to see what user created the annotation and when.
- ► Click anywhere on the annotation box to expand the text and navigate to the region of interest and at the drawn magnification.

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Using Measurement Tools

The |Measure| button shows a number on the top right corner to indicate the number of measurements saved for the current slide. When the measure button is clicked, the |Measure| button turns red and the 'Measurements' panel opens. In this panel you can:

- start an linear measurement (ruler tool),
- start an area measurement (freeform polygon),
- edit saved measurements and
- view saved measurements.

Creating Measurements

► Navigate to the region of the slide you wish to measure and at the desired magnification.

► Click the |Measure| button.

⇨ The 'Measurements' panel opens.

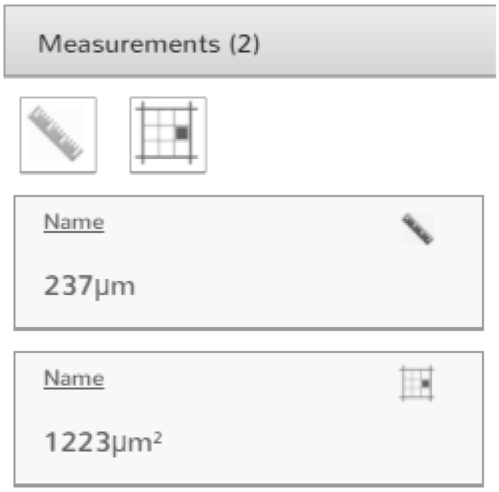

Fig. 53: 'Measurements' panel

► Select the applicable type of measurement: linear or area measurement.

► Click on the slide and drag the mouse to draw the measurement.

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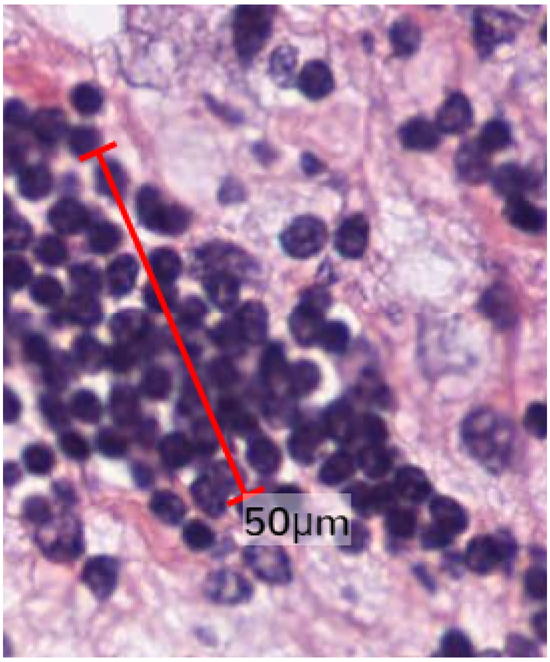

Fig. 54: Linear measurement

⇨ The linear measurement shows the length in mm or microns of the line.

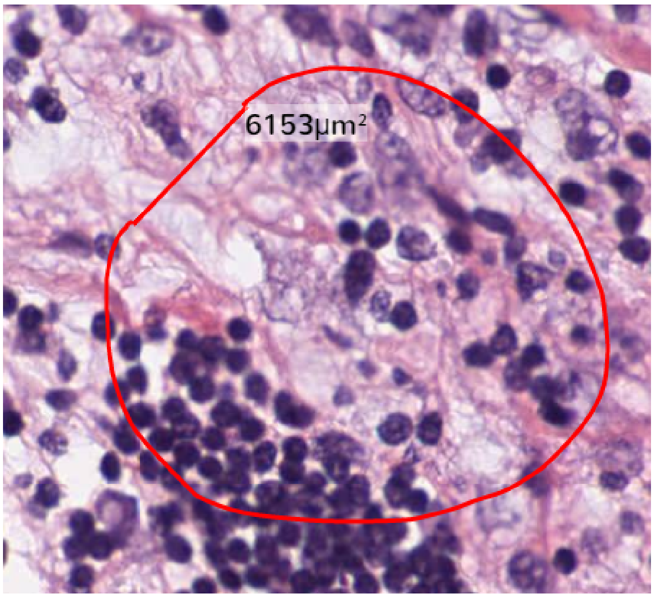

Fig. 55: Area measurement

⇨ The area measurement shows the area of the region drawn.

► If you wish to redraw the measurement at any time, release the mouse and click on a new region to redraw.

► Click the |Save| button to save the measurement to the slide or click |Cancel| to remove the measurement.

⇨ The newly created measurement is listed down the left hand panel.

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Editing Measurements

- ► Click the |Measure| button.
- ⇨ The 'Measurements' panel opens.
- ► Select the measurement you want to edit.
- ► Click |Edit| to adjust the name, description or dimensions of the measurement.
- ► When OK, click |Save| button to save the changes to your measurement.

Viewing Saved Measurements

- ► Click the |Measure| button.
- ⇨ The 'Measurements' panel opens.
- ► Click anywhere on the measurement box to expand the text and navigate to the region of interest and view the saved measurement.
- ► Click |Info| to see what user created the measurement.

Creating Manual Cell Counts

Create a manual cell count

- ► Click the |Abacus| button to create a new count.
- ► Enter the name of the count in the Name Field, e.g. Nuclear Count.

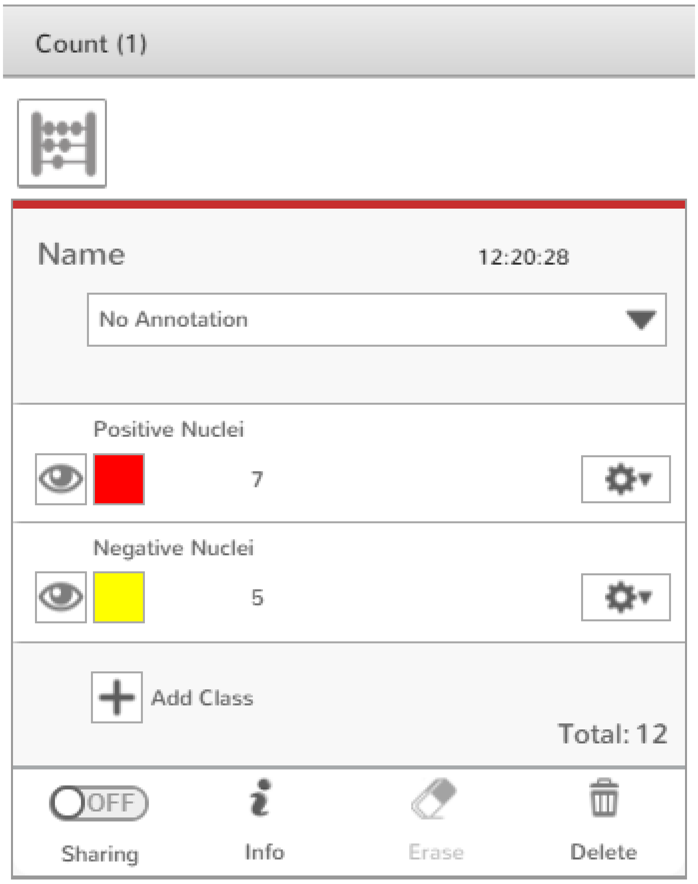

Fig. 56: Creating a manual cell count

- ► If you wish to count within a specific area, select a previously drawn annotation from the dropdown.
- ► Click |+ Add Class| to create a new class.
- ► Enter a name for the class and select a color.
- ► Click on a class then move the mouse onto the virtual slide and add spots.
- ⇨ Crosshairs will be visible.
- ► Single-click with the left mouse key to start counting the cells/objects.
- ► Click on another class to switch between classes.
- ► Use |CTRL| and left-mouse key to move to a new area on the viewer while the counter is active.
- ► Click the action cog to edit or delete a class.
- ► Click |Erase| to activate the eraser to remove specific spots on the viewer.
- ⇨ The counts will automatically update and save every 10 seconds, the clock in the top right indicates the last save time.
- ► Click |Save| to save manually.
- ⇨ The total count will appear in the bottom right corner.

Deleting a cell count

- ► Click |Delete| to remove the entire cell count e.g. "Nuclear Count2.

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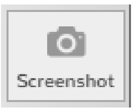
Working with Screenshots



► Click the |Screenshot| button to open the screenshot drawer.

► Select the applicable type of screenshot:
- Click |Whole| to captures the whole area visible on screen.
- Click |Draw| to open the pen tool and draw around the area of interest.

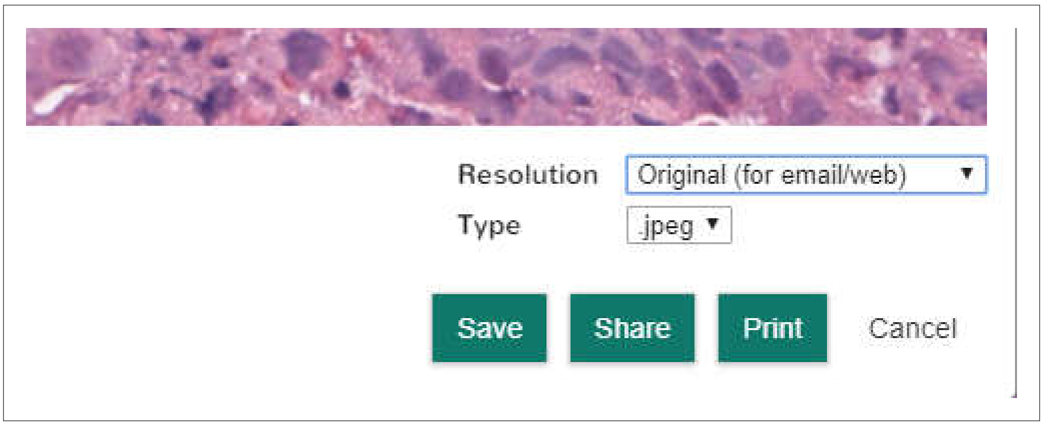
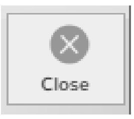


Fig. 57: Screenshot options

► Select the resolution (Original, medium or high) and output type (JPEG or PNG) for the screenshot.

► Click the applicable button to proceed:
- Click |Save| to export the screenshot as a JPEG/PNG to your desktop.
- Click |Share| to copy and paste the link to the screenshot via email/chat.
- Click |Print| to send the screenshot directly to a printer.
- Click |Cancel| to close the window.

Closing the Viewer



► Click the |Close Slide| button to exit the viewer from the browser tab and return to the main application.

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5 TMA

Xplore's add on research module-TMA, supports scoring of both whole slide scans or separated cores.

- You can step from one core to another, pause and restart scoring, with Xplore always keeping track of where you are on the TMA.
- You can create virtual TMA's, allowing multiple users to score selected cores across multiple recipient blocks in a single study.

TMA is only available for users with the TMA module installed. For more information, contact your representative.

TMA Workflow

The TMA workflow consists of the following steps:

1. Create a TMA study if you want to use cores of a single TMA block.
   Or create a **virtual** TMA study if you want to use cores from multiple TMA blocks.
   - Add a map matching the number of TMA cores on a slide.
   - Import core identifiers and metadata.
   - Add slides.
   - Add scoring criteria, by using scoring templates with questions.
2. Score the TMA study.
3. Viewing TMA scoring results.
4. Optionally, export the TMA results.

Users with Manager rights can create map and scoring templates, that can be used by all users, see chapter "Managing TMA Templates" on page 68.

Creating TMA Studies

► Create a folder or choose an existing folder in which to create your TMA Study.

► Click the |Create TMA Study| button to start the TMA Study Wizard.

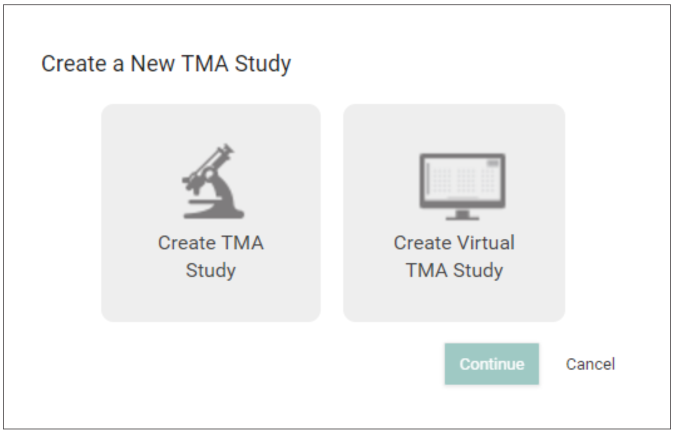

Fig. 58: TMA Study Wizard

- ► Click |Create TMA Study| if you want to use cores of a single TMA block or click |Create Virtual TMA Study| if you want to use cores from multiple TMA blocks.
- ► Enter your TMA Study name in the 'Name' field.
- ► Optionally enter a study description.
- ⇨ A new TMA study has been created. You can now add a TMA map, slides and scoring criteria to your study.

Adding a TMA Map

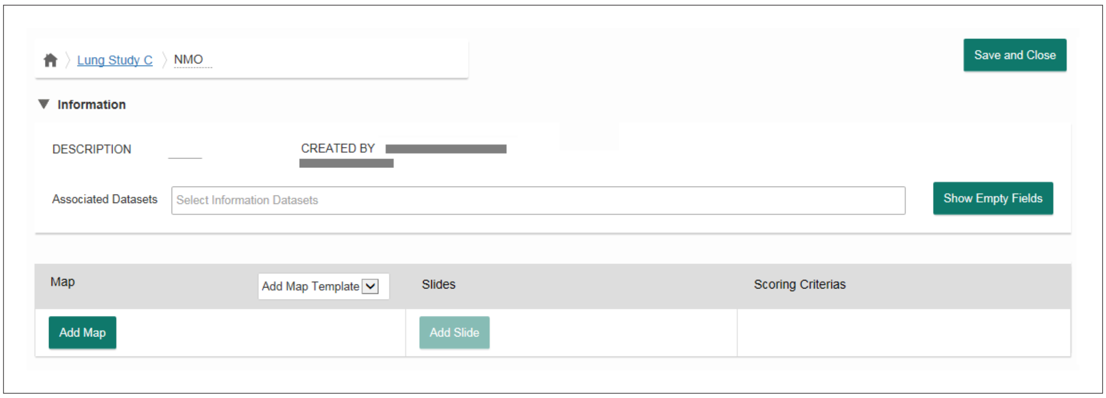

Fig. 59: Adding a map

- ► Select a map template from the dropdown “Add Template Map” if you want to use an existing map template for your study.

  OR
- ► Click |Add Map| to create a new TMA map for your study.
  - Enter your map name in the 'Name' field.
  - Define the row and column type: alphabetic or numeric.
  - Click into the grid where you wish your map to start e.g. A1 .
  - Enter the number of rows and columns.
  - Click |Draw| to create the map.
  - Click on the core once with the left mouse button to change to unoccupied (grey), twice to change to control (red).
  - Click |Save and Close|.

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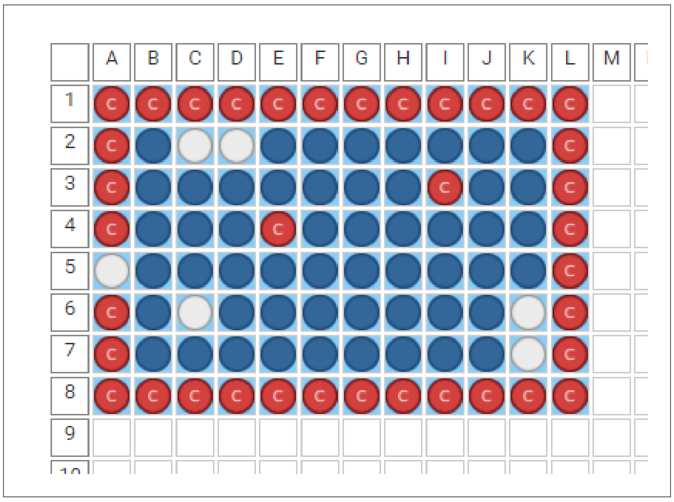


Fig. 60: TMA map

⇨ A map has been added to your TMA study.
You can now proceed with importing data.

⇨ You can edit or delete the map by clicking the corresponding buttons.

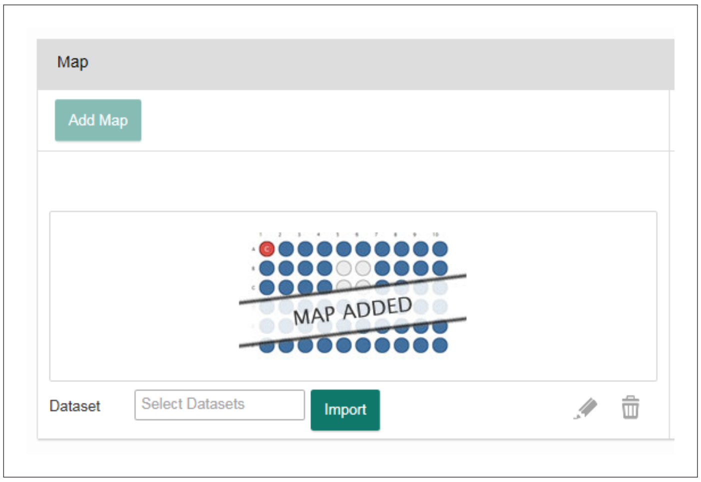


Fig. 61: TMA map added

Importing Datasets

You can use dataset values to import core identifiers and/or metadata.

► Select on or more datasets from the dropdown menu.

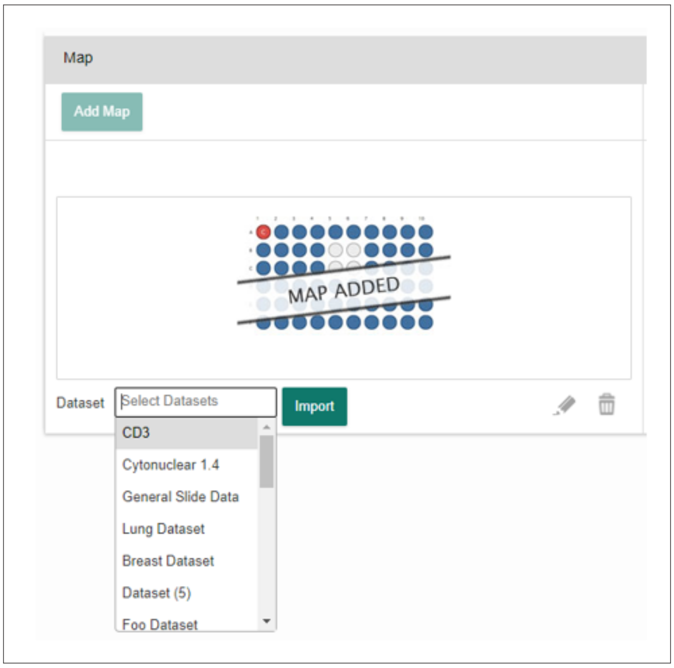


Fig. 62: Selecting the dataset (example)

► Make sure that your import file is in CSV format and matches with one or more associated datasets. The import file must contain row and column headers.

	A	B	C	D	E	F	G
1	**ID**	**Column**	**Row**	**Age**	**AgeAtDiax**	**Gender**	**Country**
2	Liver1	A	1				
3	Liver2	B	1				
4	CID-12345	C	1	36	36	Female	UK
5	CID-12346	D	1	45	42	Female	UK
6	CID-28187	E	1	69	68	Female	UK
7	CID-18732	F	1	75	75	Female	UK

Fig. 63: Example of an import file with metadata

► Click |Import| to import the CSV file.

► Browse to the CSV file.

► Click |Import|.

⇨ After a successful import, the core identifiers and/or metadata will be visible in the grid.

⇨ If the import fails, the detected issues are listed in the 'Results' panel.

Adding Slides to a TMA Study

► Click the |Add Slide| button to add a slide (or slides) to the TMA study.

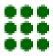
Fig. 64: Add Slide

► Select your slides from the 'Image Library'

⇨ After import the selected slides will be visible in the study.

► Click the Stain field to alter the name of the stain.

- Optionally, click |Dearray| to identify the core positions on the slide.

⇨ 

The |Dearray| button changes into |Edit Dearray| and the indicator changes into green.

- Optionally, click |Magnifier| to open the slide in the Viewer.

Left Hand Menu Tools

Use the tools in the left hand menu to adjust the cores.

Slide:

- Auto De-array: use the auto dearray tool to automatically detect cores on the slide.
- Rotate: rotate the slide 90/180 or 270 degrees.
- Flip vertical: flip the slide on the vertical axes.
- Horizontal: flip the slide on the horizontal axes.

Grid:

- Spacing: Manually adjust the vertical and horizontal spacing of the cores.
- Move Core: Manually move/adjust a single TMA core.
  Press CTRL and left mouse key to select multiple cores.
- Move All: Manually move/adjust all the TMA cores.
- Rotate Left: Rotate and shift the whole grid to the left.
- Rotate Right: Rotate and shift the whole grid to the right.
- Resize Cores: Make the cores smaller or larger.

Double Click on a core to mark it as missing.

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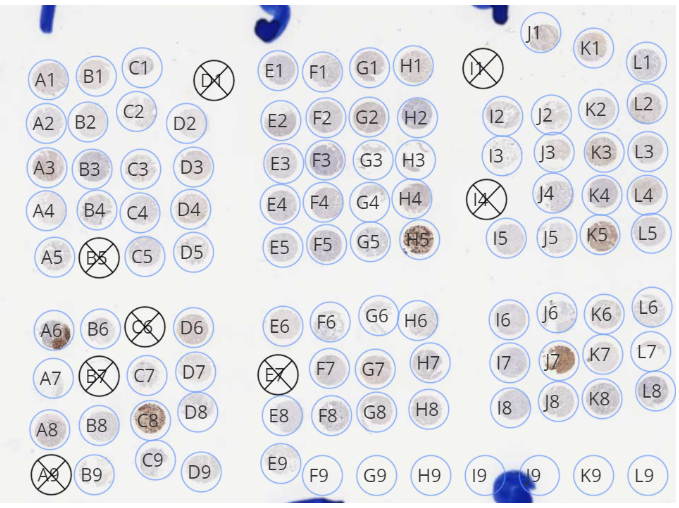

Fig. 65: De-array TMA cores

Adding Scoring Criteria

There are three options for creating/assigning the scoring criteria.

- From the "Select Scoring Template for All" dropdown you can apply a Scoring Template to **all stains** in the study.

  OR

- From the "Select Scoring Template" dropdown you can apply a Scoring Template to **a single stain** in the study.

  OR

- Click the |Add Scoring Criteria| button to generate scoring questions on the fly.

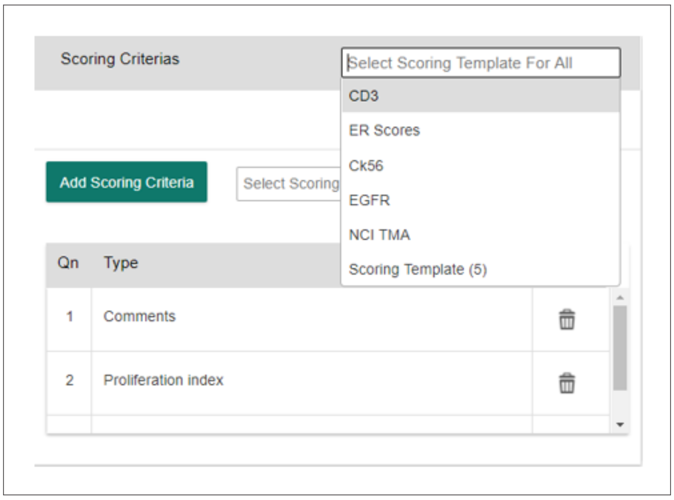

Fig. 66: Adding Scoring Criteria

- Click |Save and Close| to save changes.

⇨ You are now ready to score the TMA.

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Scoring TMA Studies

- To score a TMA study browse to the folder where the TMA Study is located and click the action cog to start the TMA Scoring.

  OR

- Click into the study folder and click |TMA Scoring|.

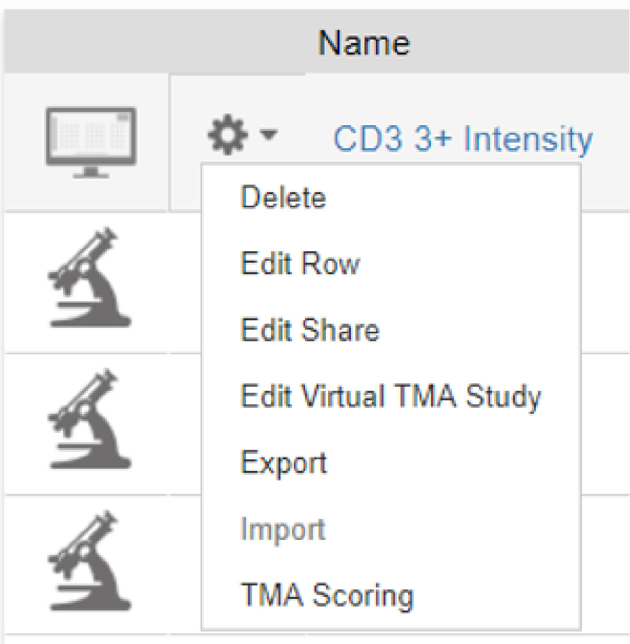
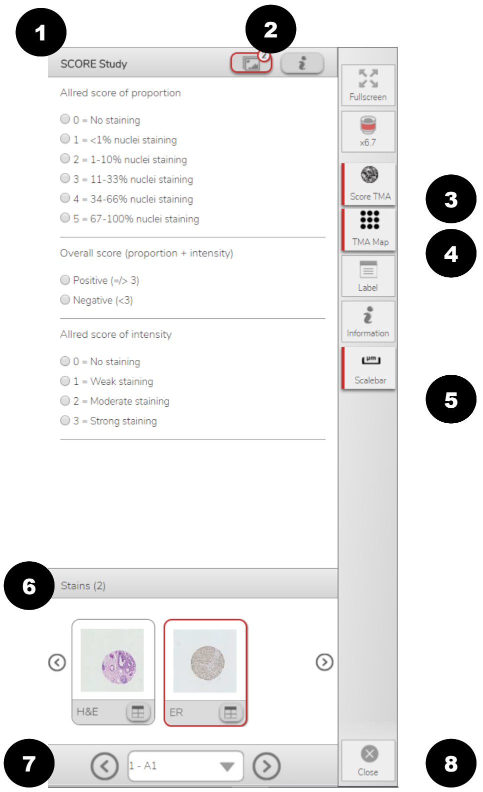


Fig. 67: TMA Scoring

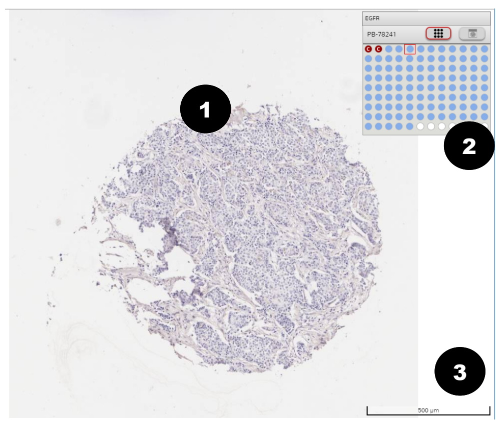
⇨ The 'TMA Scoring' panel opens.

- Answer the questions for each TMA core.
  The left side of the panel enables you to navigate within the study. It shows the study and scoring information. The right side of the panel enables you to view the TMA core.



Legend	Explanation
1	TMA Study Name.
2	Show/Hide the slide panel.
3	Information panel to show/hide your metada-ta.
4	|Score TMA| button to show/hide the question panel.
5	|TMA Map| button to show the TMA map in the viewer.
6	Slide panel. The number in brackets reflects the total number of slides/stains in a study. Use the arrows to move back and forth through the different stains. The stain name is shown beneath the thumb-nail image.
7	Core navigation: Use the arrows to navigate back and forth through the core positions. Use the dropdown menu to navigate to a spe-cific core position.
8	Click Close Slide to exit the study. Your answers will be saved each time you click next or previous.

Tab. 7: TMA study and scoring information



Legend	Explanation
1	You can navigate and zoom the TMA core.
2	You can use the map: • to view core identifier or position e.g. A1. The red box outline will highlight the current core displayed. • to view the original TMA Slide Thumbnail by clicking the thumbnail button. • to view the scoring status for that core. When all questions have been answered for a core, it's color will change from light blue core into dark blue.
3	The scale bar will adjust on zoom.

Tab. 8: Viewing a TMA core

Viewing Cores Side by Side

You can view up to four cores side by side in the viewer. If a study has multiple stains you will see the 'Stains panel' at the bottom of the scoring panel.

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► Click the grid button from the selected stain to start side by side viewing.

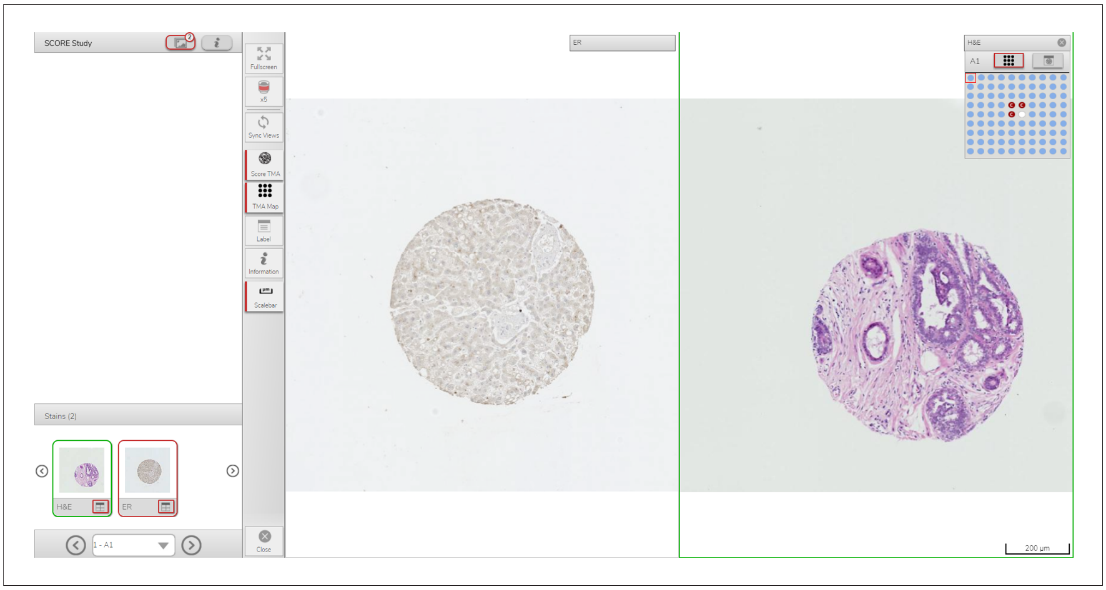

Fig. 68: Side by side viewing

⇨ The active stain will be highlighted in green in both the thumbnail and the viewer.

► Click this button to synchronise the panning and magnification of the stains side by side.

► Click the main thumbnail to return to standard full-screen mode.

OR

► Use the X from the map/thumbnail in the active window to close the stain.

Viewing TMA Scoring Results

► Click into the Study then Stain level to see the scores associated with that stain name.

	ID	PARENT	OWNER	DATE CREATED	ROW	COLUMN	CORE TYPE	CORE STATUS	STAIN
	A1	cTMA 1B - 2009-10-16 08.41.4	[illegible]	[illegible]	1	A	Test	Occupied	H&E
	B1	cTMA 1B - 2009-10-16 08.41.4	[illegible]	[illegible]	1	B		Missing	H&E

Fig. 69: Viewing TMA scoring results

⇨ The grid will show:

- Core Position and ID (if imported)
- Core Type and Core Status
- All Stains in the study and associated scoring criteria
- Responses from all scorers
- Any metadata associated with the study

Exporting TMA Results

► Browse to the study which contains the results you want to export and click |Export| button in the top right actions area.

Fig. 70: Exporting TMA results from study view

OR

- ► Browse to the folder that contains the results you want to export and click the action cog to export the results of all scored cores.

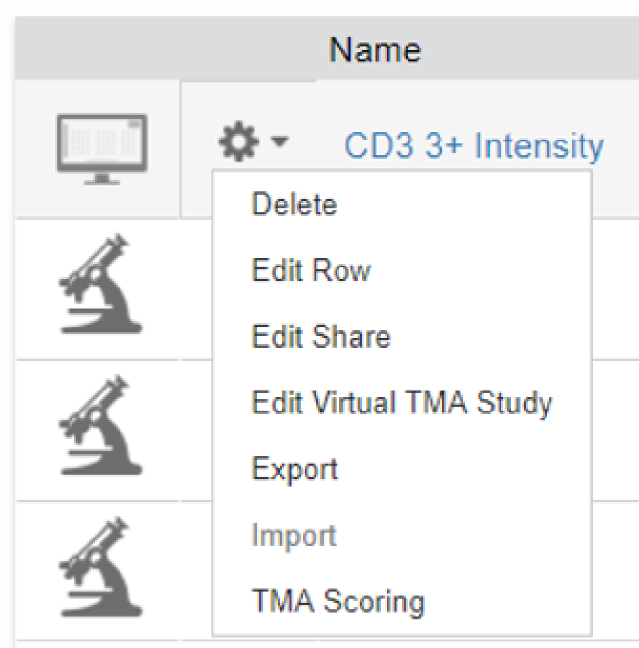

Fig. 71: Exporting TMA results from folder view

⇨ Results will be exported into Excel in CSV or TSV format.

The export will include:

- Core Position and ID (if imported)
- Core Type and Core Status
- All Stains in the study and associated scoring criteria
- Responses from all scorers
- Any metadata associated with the study

Creating Charts for TMA

Whe one or more TMA study has been created, you can create a chart using the data of the TMA study. See chapter “Creating Charts” on page 33, for more information about creating charts.

Sharing TMA Studies

Just like sharing folders, you can share TMA studies, see chapter “Sharing Folders” on page 26.

- ► To access studies that other users have shared with you, browse to the 'Folders shared with me' tab.

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With **read access** to a shared folder you are able to:

- View the TMA slide(s),
- Score the TMA study,
- View your own scores from the grid under the relevant stain,
- Export only your own scores in the results to CSV/TSV format.

With **read/write access** to a shared folder you are able to:

- Edit the TMA study,
- View the TMA slide(s),
- Score the TMA study,
- View all scores from the grid under the relevant stain,
- Export all scores in the results to CSV/TSV format.

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6 Manager Permissions

Managing Datasets

Introduction to Datasets

Users with manager rights can create custom datasets. These datasets can be assigned to folder(s) and/or slide(s) by all users.

Fig. 72: 'Datasets' page

Please note that:

- The fields are the column headers which appear in the Xplore data grid.
- Datasets can be applied to multiple folders and/or slide(s).
- There is no limit on the number of datasets a user can create in Xplore.
- There is no limit on the number of fields which can be assigned to a dataset.
- Datasets are fully searchable in Xplore:
  - by dataset name,
  - by field name and / or
  - by the value of the field.

Creating a Dataset

Creating an empty dataset

- ► Click on your user name in the top right corner of the screen.
- ► Select |Manage Account| and |Datasets and Barcodes|.
- ► Click |Add Dataset|.
- ► Enter a name for your dataset: e.g. ER –Lung Cancer Study Dataset.
- ► If applicable, click on the Barcode check box to enable barcode reading for this dataset.

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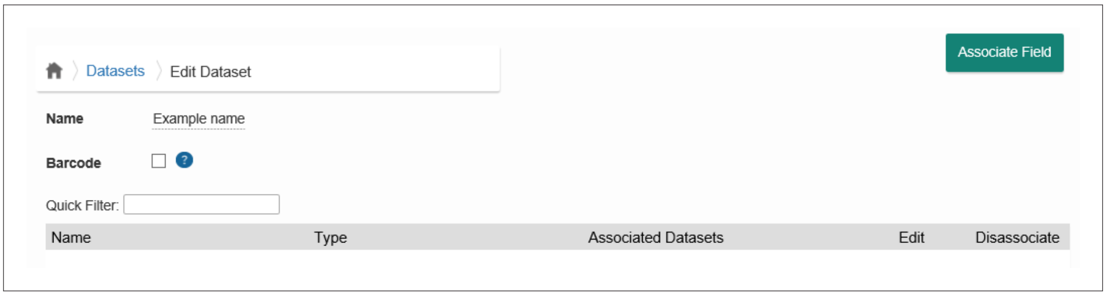

Fig. 73: Add dataset (Example)

► Click on the text the 'Datasets' left of the Home icon to return to the 'Datasets' page.

⇨ Your new dataset has been added to the list of datasets.

To fill the dataset, you can select one of following options:

- Create and associate new fields to your dataset(s).
- Associate existing fields to your dataset.

Creating and associating new fields to your dataset

► From the 'Datasets' page, click on the 'Fields' tab to start creating your fields.

► Click the |Add Field| button.

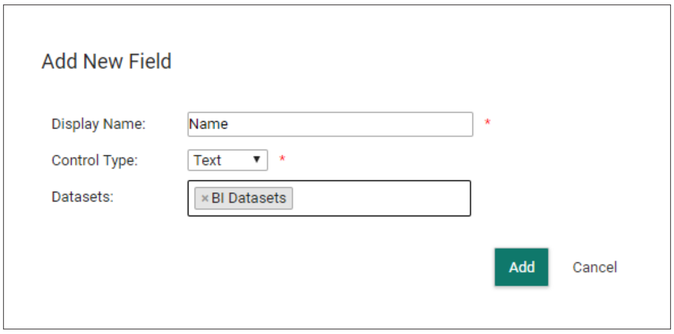

Fig. 74: 'Add New Field' panel

► Enter a value for the display name e.g. Stain Name.

► Choose the control type from the dropdown: Text, Number or Date.

► Click into the 'Datasets' area to associate your field with one (or more) datasets.

► Click |Add| to save and click |Add Field| again to continue adding your fields.

► When you have completed adding fields, click on the text the 'Datasets' left of the home icon to return to the 'Datasets' page.

⇨ The number of fields in the 'Field Count' column has been updated automatically to match the newly associated fields.

Associating existing fields to your dataset

► From the 'Datasets' page, select the dataset to which you want to associate fields.

► Click the |Associate Field| button.

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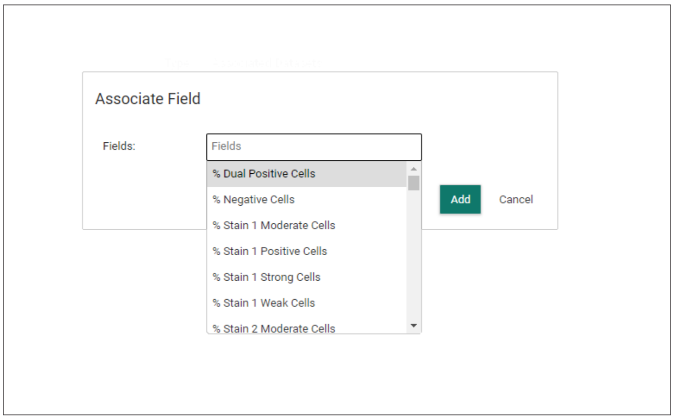

Fig. 75: 'Associate Field' panel

- ► Click in the field to select a field from the dropdown list.
- ► Click |Add| to save.
- ⇨ The new field appears in the list of fields for the dataset.
- ⇨ On the 'Datasets' page, the number of fields in the 'Field Count' column has been updated automatically to match the newly associated fields.

Please note that:

- On the 'Edit dataset' page you can use the Quick Filter to check if a certain field is already in the list of associated fields.
- If a field already exists it will not be duplicated but automatically associated with multiple datasets (if applicable).
- You cannot delete a field once it has been associated with a dataset.
- You cannot rename a field once created or change the field type.

Tip: If you make a mistake, disassociate all datasets for the field then delete the field and add again.

Barcode Support

Datasets can be enabled for barcode reading. Supported barcode types include Datamatrix, QR and PDF-417. Contact your manager for enabling barcodes for your institution. Barcode reading is currently available for Whole Slides, not TMA. To enable a dataset for barcode reading:

- ► Open the dataset page
- ► Click the Barcode checkbox

Fields in a Barcode dataset need to be configured in the order they are expected when reading a dataset. Make sure to associate dataset fields in the order they are expected in the barcode. Given there are one or more datasets that have been configured for barcode reading, when the user is adding slides, there is a new dropdown menu to choose the barcode dataset for your slides. As a slide is added to a folder, the barcode will be read, and the dataset field(s) will be updated to show the barcode data.

Barcode Error Messages

The following messages may appear if you are adding slides and there is an issue reading the barcode.

Error message	Possible solution
No barcode on the slide	Make sure there is a barcode on the label.
User session has timed out	Missing or invalid authentication. Please refresh your page and try again.
No label on the slide	Make sure there is a label on the slide.
Dataset does not match the barcode	Make sure that the dataset fields match with the barcode information.
Unable to read barcode	Barcode identified, but could not be read / contains invalid characters.
Unsupported barcode type	Make sure to use a supported barcode type.
There was a problem initializing the barcode reader service.	Contact support, see chapter "Support Information" on page 79.
Barcode service not installed	Contact support, see chapter "Support Information" on page 79.

Tab. 9: Barcode related error messages

Managing TMA Templates

Users with Manager rights can create two types of TMA templates:

- Map templates
- Scoring templates

Creating Map Templates

- ► Click on your user name in the top right corner of the screen.
- ► Select |Manage Account| and |Map Templates|.
- ► Click the |Add Templates| button.

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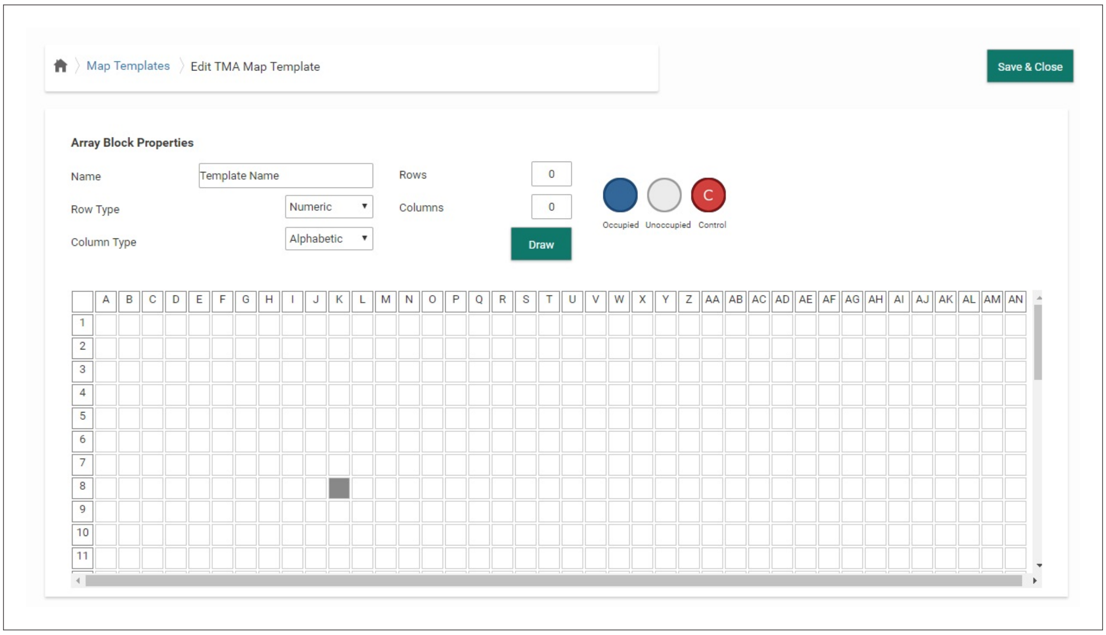

Fig. 76: Array block properties

- ► Enter your template name in the 'Name' field.
- ► Define the row and column type: alphabetic or numeric.
- ► Click into the grid where you wish your map to start e.g. A1 .
- ► Enter the number of rows and columns.
- ► Click |Draw| to create the map.

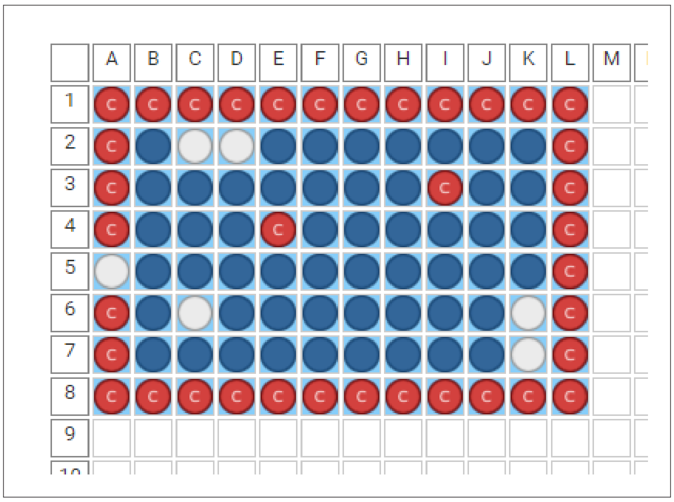

Fig. 77: TMA map

- ► Click on the core once with the left mouse button to change to unoccupied (grey), twice to change to control (red).
- ► Click |Save and Close| to save your map template.

Creating Scoring Templates

The workflow for creating a TMA scoring template consists of three main steps:

1. Creating an empty scoring template.

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2. Adding questions to the Question Bank.
3. Filling the template by associating questions with the scoring template.

Creating a scoring template

► Click on your user name in the top right corner of the screen.

► Select |Manage Account| and |Scoring Templates|.

Fig. 78: Overview of scoring templates

► Click the |Add Scoring Template| button.

► Enter your template name in the 'Name' field.

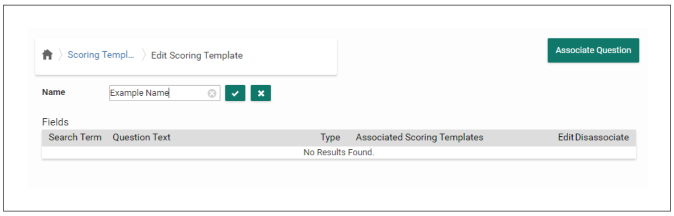

Fig. 79: Creating a scoring template

► Click the 'Scoring Template' link in the navigation bar to return to the list of scoring templates.

⇨ Your new scoring template is now visible in the list of scoring templates.

Adding questions to the Question Bank

► Click the 'QUESTION BANK' tab.

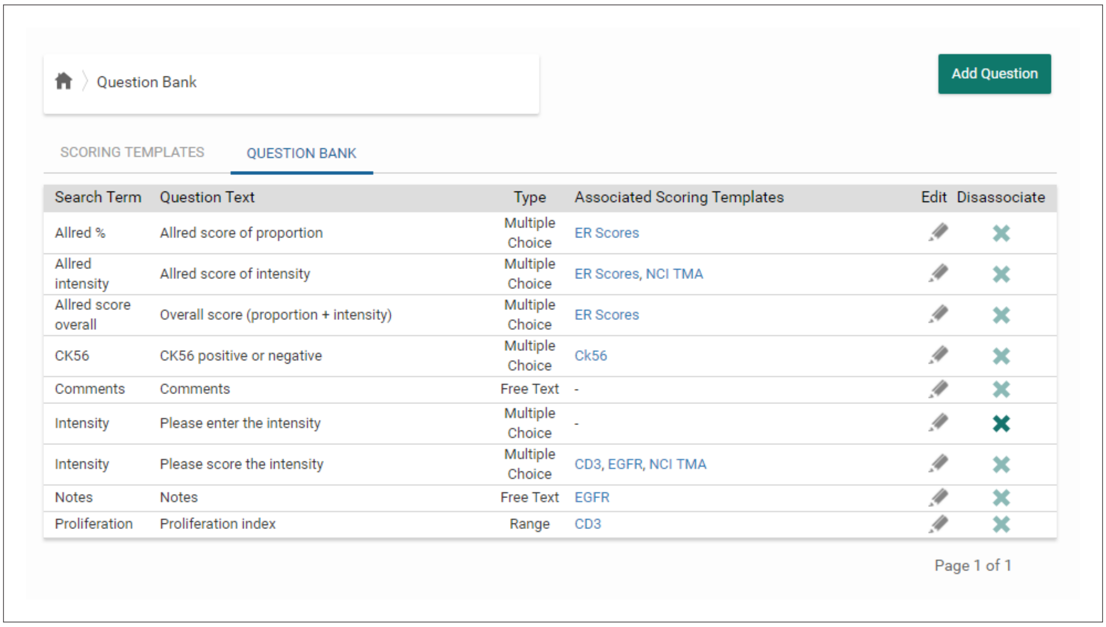

Fig. 80: Question bank overview

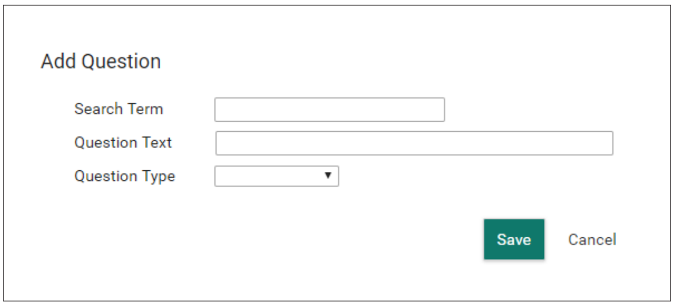

Fig. 81: Adding a question

- Click |Add Question| and enter the search term, question text and question type.
  Search Term: This is the generic keyword which you will use when searching for responses e.g. “Intensity”.
  Question Text: This is the friendly text displayed to users undertaking scoring e.g. “Please enter the intensity”.
  Question Type: Choose from a range of answer options; Free Text, Multiple Choice or a Numeric Range.
- For multiple choice questions click the |Add Answer| button to add a series of answer choices.

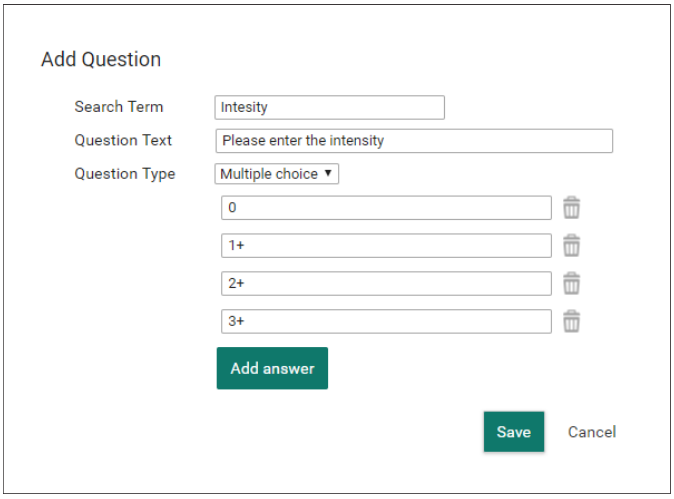

Fig. 82: Adding a multiple choice question

- For range questions enter the minimum and maximum numeric range.
- Click |Save| to save your questions and view your questions in the Question Bank.

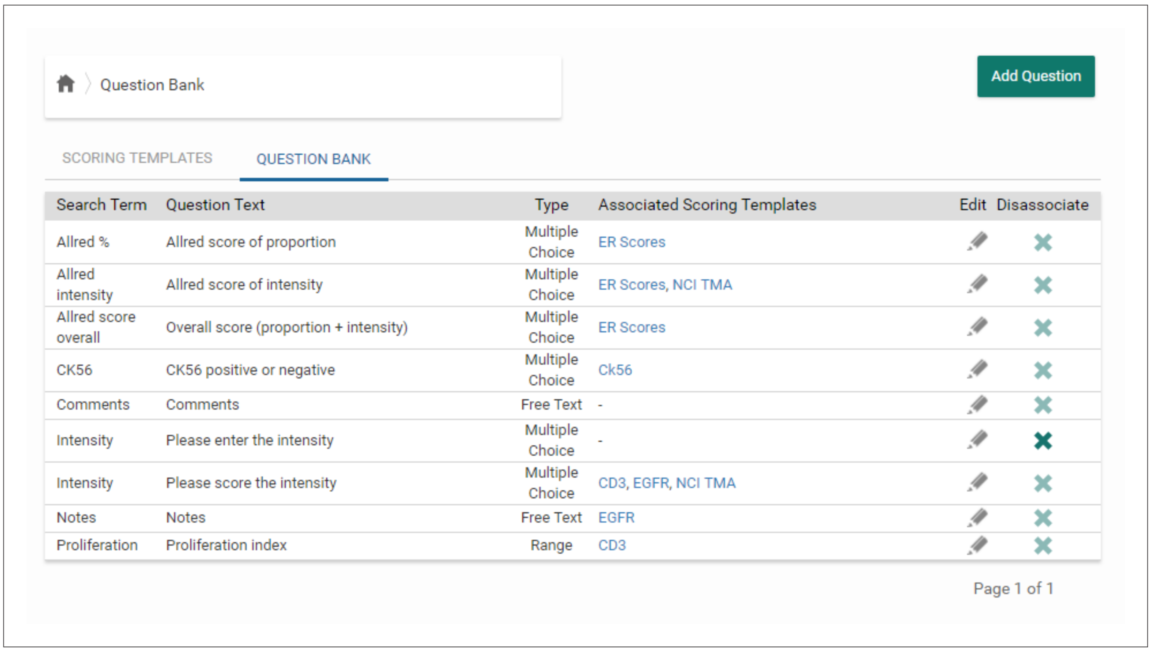

Fig. 83: Question Bank overview

Associating questions with the scoring template

- Navigate to the 'SCORING TEMPLATES' tab.
- Click the |Edit| button in the row of the template that you want to edit.
- Click the |Associate Question| button.

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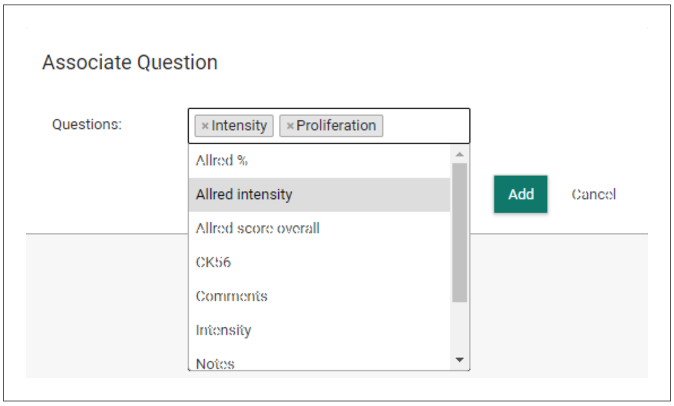

Fig. 84: Associating questions

- ► Select all questions from the dropdown menu that you want to associate with this scoring template.
- ► Click the |Add| button.
- ⇨ Detailed information of the associated questions will visible in the list.

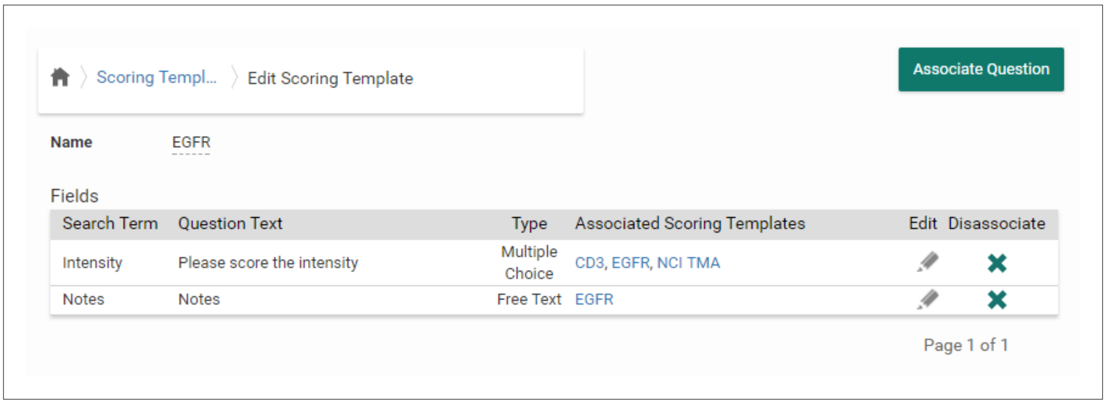

Fig. 85: Scoring template with associated questions

- ► To remove a question from a scoring template click the “Disassociate” button.
- ► When ready, click the 'Scoring Template' link in the navigation bar.
- ⇨ Your changes including the newly associated questions will be visible in the overview of scoring templates.

Editing TMA Templates

Once created, scoring templates can be edited. Example given, new questions can be added or currently associated questions can be removed from the scoring template.

- ► Navigate to the applicable template overview.
- ► Click the |Edit| button in the row of the template that you want to edit.
- ► After changing your template, click |Save and Close|.

Deleting Map Templates

- ► Navigate to the 'Map Templates' page.
- ► Click the |Delete| button in the row of the template that you want to delete.

⇨ The deleted map template will be removed from the list of available map templates and it will not be available for new TMA study.

⇨ Maps previously created from the deleted map template will be unaffected and still be available in existing TMA studies.

Disabling Scoring Templates

You can disable a scoring template, but not delete.

To disable a scoring template:

► Navigate to the 'Scoring Templates' page, see on page 69.

► Click the |Enabled| check mark in the row of the template that you want to disable.

⇨ The check mark will change into to a cross.

⇨ Disabled scoring templates will not be available for new TMA studies.

⇨ You can select the disabled scoring templates and enable it again. No associated data will be deleted. Existing TMA studies using questions derived from a disabled scoring template will remain unaffected.

Servers

Users with Manager rights can add, edit and delete connections to servers.

► Click on your user name in the top right corner of the screen.

► Select |Manage Account| and |Servers|.

⇨ The 'Servers' page opens.

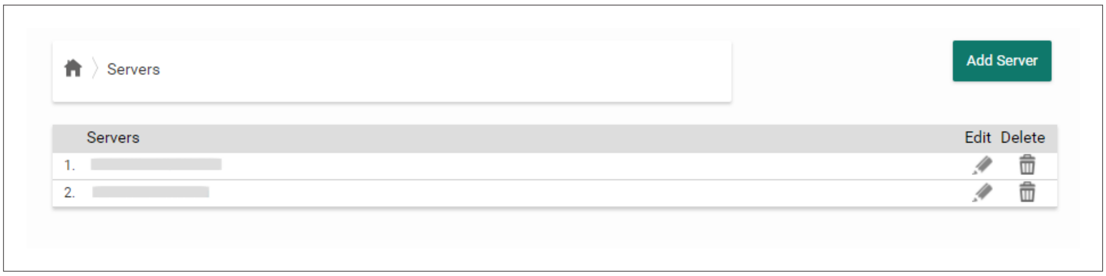

Fig. 86: 'Servers' page

To add a new server:

► Click the |Add Server| button to add a new server connection.

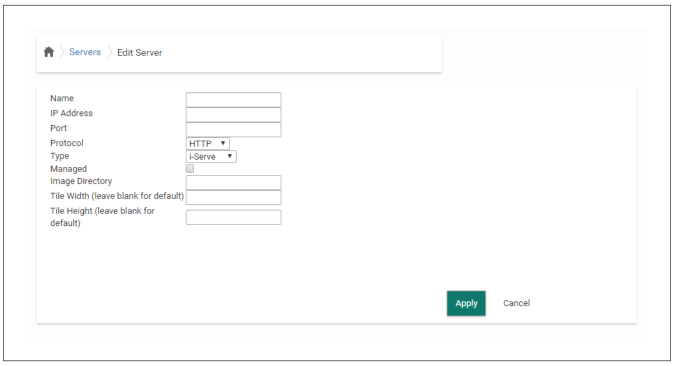

Fig. 87: Server details

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- ► Fill the fields and click |Apply|.

To edit an existing server connection:

- ► Click the pencil icon of the server connection you want to edit.
- ► Make the required changes and click |Apply|.

To delete a server connection:

- ► Click the trash can icon of the server connection you want to delete.
- ⇨ A warning pop up will show.
- ► Confirm or cancel the action.

CAUTION

After clicking the |Delete| button you can not undo this action.

All data that is used directly from the server is no longer available and deleted from the study.

System Settings

Users with Manager rights can customize password requirements and set the date format from the 'Settings' page.

- ► Click on your user name in the top right corner of the screen.
- ► Select |Manage Account| and |Settings|.
- ⇨ The 'Settings' page opens.

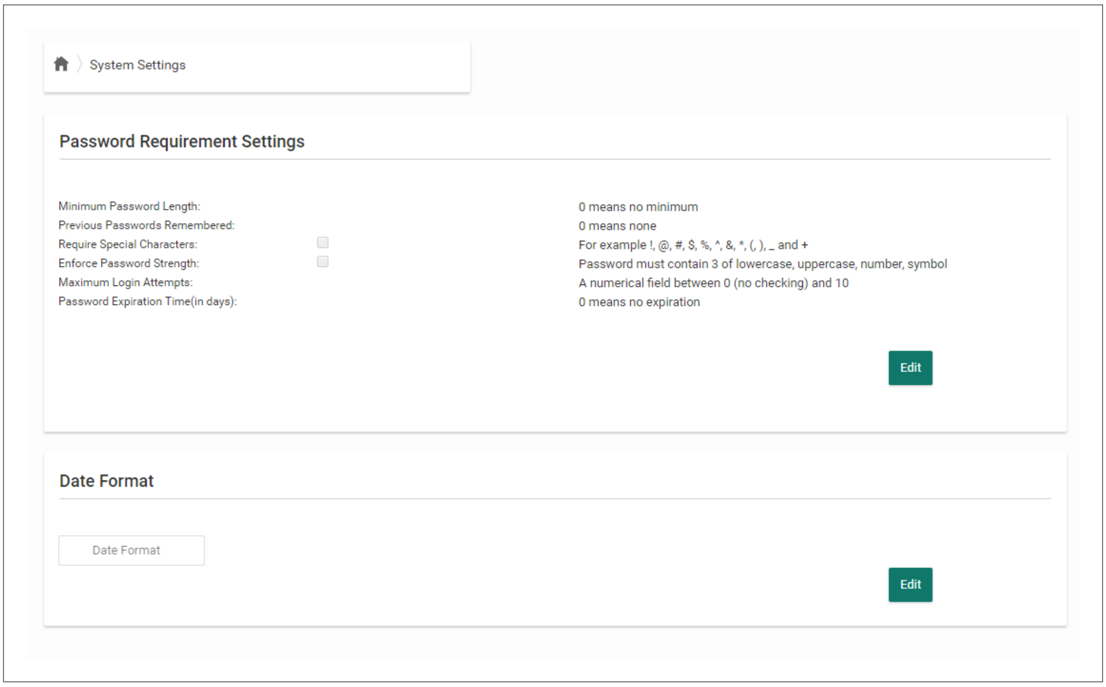

Fig. 88: e

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► Click the |Edit| button in the upper part of the screen to customize the password requirements to your organization's need. By default all password requirements are disabled.

Requirement	Explanation
Minimum Password Length	Minimum number of characters for the password.
Previous Passwords Remembered	The number of previous passwords that the system remembers and cannot be reused for new passwords.
Require Special Characters	When this tickbox is checked, the password must contain at least one special character. For example !, @, #, $, %, ^, &, *, (,), _ and +.
Enforce Password Strength	When this tickbox is checked, the password must contain at least 3 of the following 4 character types: • Lower case alphanumeric [a-z] • Upper case alphanumeric [A-Z] • Number [0-9] • Special Characters
Maximum Login Attempts	The maximum number of login attempts before the account is automatically disabled. Enter a numerical field between 0 (no checking) and 10.
Password Expiration Time (in days)	The number of the days after which the password expires.

Tab. 10: Password requirements

► When your are done with customizing the passwords requirements, click |Apply|.

► Click the |Edit| button in the lower part of the screen to customize the date format to your organization's need.

► Click the |Date Format| button and select the desired date format from the list.

► Click |Apply| button.

⇨ The password requirements and/or date format are customized. The new settings will be applicable for all users.

User Administration

Users with Manager rights can add, edit, disable and delete user accounts. Xplore enables an export of the user account data.

► Click on your user name in the top right corner of the screen.

► Select |Manage Account| and |Users|.

⇨ For each user the username, email address, user type, date created and last logged in date are shown.
You can use the last known login date to verify that no unwanted access has occurred to the account since the last login of the user.

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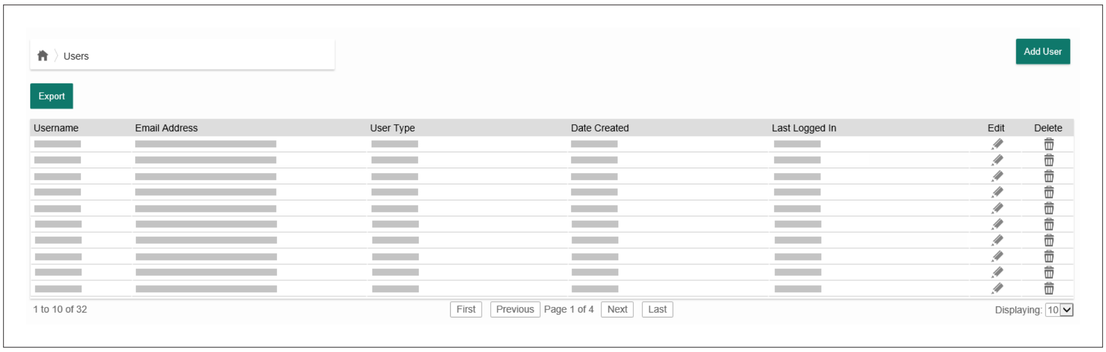

Fig. 89: 'Users' page

To add a new user:

► Click the |Add User| button to add a new user.

► Enter the user name for the new user.

► Select the applicable user type from the dropdown menu.
- User will have read/write access to personal folders.
- Manager will have read/write access to all folders.

► Optionally, select the security question and enter security answer.

► Enter the email address.

► Optionally, enter the account start date and account expiry date.

► Enter the first name, last name of the new user.

► Click |Apply|.

⇨ Xplore creates a new user account.

⇨ The user will be added to the list of users.

To edit a user account:

► Display the user account that you want to edit.

► Click the user name or the corresponding |Edit| button.

► Edit the user account, e.g. adjust the user name, user email address or expiry date.

► Click |Apply|.

⇨ The user account will be adjusted.

To disable a user account:

► Display the user account that you want to disable.

► Click the user name or the corresponding |Edit| button.

► Check the |Disable User| tick box.

⇨ The user account will be disabled. The user will not be able to log in.
You can select the disabled user account and enable it again.

⇨ No associated data will be deleted.

To delete a user account:

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- ► Display the user account that you want to delete.
- ► Click the corresponding |Delete| button.
- ⇨ A confirmation message *'Clicking |Delete| will delete this user and everything associated with this user. Are you sure you wish to continue?'* is shown.

CAUTION

After clicking the |Delete| button you can not undo this action.

NOTICE

If a user has left the organization and you want to deny access to Xplore for this user, consider disabling the user account in stead of deleting.

- ► Click |Delete| to remove the user account and associated data.
- ⇨ The user account and associated data will be deleted. The user will not be able to log in.
- ⇨ The user account is removed from the list.

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7 Support Information

Reporting a Problem

To access the Xplore support:

- Without logging in: Click on the |Report a Problem| button at the bottom of the login page. When logged in: Click your user name in the top right corner of the screen and select |Report a Problem|.
- Click on ‘Submit a ticket'.

  or
- Send an email to support@pathxl.com.

⇨ You will be assigned a ticket ID and receive an auto response to acknowledge your ticket has been received.

⇨ A support engineer will respond to your query within 4 hours.

⇨ All tickets tracked and you are notified automatically of any status change in the ticket .

Service hours

Service core business hours are Monday through Friday between hours 9.00 am and 5.30 pm (GMT/ BST).

Priority	Description
1	Service non-functional with high impact on Customer operations.
2	Service functional but with impact on Customer operations. System possibly unavailable to large number of users or is experiencing performance issues.
3	Minor problems with very low impact on Customer operations.
4	Cosmetic and documentation errors.
5	Change request.

Tab. 11: Priority codes

Maintenance Agreement

Subject to agreement on the priority code of the fault, Philips Digital Pathology Solutions will use all reasonable endeavours to respond to and fix (including by means of a workaround, temporary fix or emergency bypass procedures) faults within the target timescales listed in the table.

Priority	Response Times	Target Resolution Times
1	Within 1 normal working hour	Next working day
2	Within 2 normal working hours	3 working days
3	Within 4 normal working hours	Next release

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Priority	Response Times	Target Resolution Times
4	Within 5 working days	Subsequent release
5	Within 5 working days	Agreed with customer

Tab. 12: Response and target resolution times

Service hours

Service core business hours are Monday through Friday between hours 9.00 am and 5.30 pm (GMT/ BST).

Priority	Description
1	Service non-functional with high impact on Customer operations.
2	Service functional but with impact on Customer operations. System possibly unavailable to large number of users or is experiencing performance issues.
3	Minor problems with very low impact on Customer operations.
4	Cosmetic and documentation errors.
5	Change request.

Tab. 13: Priority codes

Maintenance Agreement

Subject to agreement on the priority code of the fault, Philips Digital Pathology Solutions will use all reasonable endeavours to respond to and fix (including by means of a workaround, temporary fix or emergency bypass procedures) faults within the target timescales listed in the table.

Priority	Response Times	Target Resolution Times
1	Within 1 normal working hour	Next working day
2	Within 2 normal working hours	3 working days
3	Within 4 normal working hours	Next release
4	Within 5 working days	Subsequent release
5	Within 5 working days	Agreed with customer

Tab. 14: Response and target resolution times

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8 Security

Security Requirements

Security for Xplore should be provided on workstation and server level.

Access control on workstation level

Restrict access to Xplore software to authorized users only:

- Customizable on/off: a user log-on/log-off procedure is required to gain access to Xplore.
- Access to the Xplore is granted according to a customizable list of authorized users.

Access control on server level

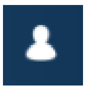
The server, used for the installation of the Xplore software, must be placed in a location where it is not accessible for unauthorized people.

Company security policy

To safeguard the integrity of and the data stored on it, the data security policy of the company must include guidance for the following security aspects:

- Use of unauthorized software.
- Use of strong passwords, automatic screen locking, and an account lockout policy.

My Account



Click the icon to view and/or update your user profile. For security reasons change your password on a regular basis.

Customer’s Role in the Product Security Partnership

Philips recognizes that the security of Philips products is an important part of your facility's security strategy. However, these benefits can only be realized if you implement a comprehensive, multilayered security strategy to protect information and products from external and internal threats.

Following industry-standard practice, your strategy should address physical, operational and procedural security, risk management, security policies and contingency planning. The practical implementation of technical security elements varies by site and may employ a number of technologies.

As with any computer-based product, protection must be provided such that firewalls and/or other security devices are in place between the server with the Xplore software installed on it and any externally accessible systems. Although the Xplore incorporates state-of-the-art protection mechanisms to protect it against the intrusion of malware by the presence of anti-virus software, a remote possibility remains that an Xplore part can become infected. Product

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safety remains guaranteed in all circumstances, but the user might notice unfamiliar product behavior and/or performance. If this happens repeatedly, the user is advised to contact the service representative to have the Xplore checked and, if necessary, to remove the malware.

Additionally, the following 'Security Best Practices' are advised:

- Physical security (make sure that unauthorized persons do not enter the room of the workstation with access to the Xplore software alone).
- Configure company firewall and keep it in shape.
- Guard the network security in routers, switches, and domains (e.g. VLAN, NAT).
- Always clean up exported files after use.
- Make sure that hard disks of disposed/upgraded hardware are properly erased or (preferably) destroyed.
- Media control (issue regulations on handling slides, CD's, use of USB storage devices etc.).
- Train personnel in not leaving applications open unattended.
- Train personnel in not leaving their Windows sessions unattended.
- Train personnel against social engineering.
- Give each user their own account.
- Change when applicable any shared account when a user of the Xplore software leaves (e.g. because of lay off or changed responsibilities).
- Delete the account when any user leaves (e.g. because of lay off or changed responsibilities).
- Consider Windows screen lock for administrators, service engineers and other users of the Xplore software.
- Provide a mechanism on the workstation with access to the Xplore software that is able to create an Audit Trail record as soon as the antivirus software detects malicious behavior. Please be aware of the fact that malware can have a negative impact on the information you are processing.

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9 Technical data

Installation Specification

The Xplore software can be installed using multiple hardware configurations. It is possible to install Xplore solutions on a single box or to split them over multiple pieces of hardware. When using a single box solution, Philips Digital Pathology Solutions recommends to install using VMWare ESXi 5.x. This allows the control of hardware resources per application to maximise utilization.

Minimum and recommended specifications are listed in this section. The table 'Base Components' provides you with a check list of the total components (both hardware and software) that are required for the complete installation. The tables 'Hardware Breakdown' and 'Software Breakdown' shows how you can split the resources up, using virtualisation, physical machines, or a combination of both.

Minimum Specifications

Components	Specification
OS Version	ESXI 6.x / Windows Server 2012 onward (64BIT)
Database	Microsoft SQL Server 2014 onward Standard Edition
Application Server	IIS 8
Processor Threads	20 Intel Threads
Processor Speed	2.2GHz +
Memory	56GB
OS Storage	500GB Usable RAID
Network Card	1GbE Network Card
OS Disk Type	SSD
Database Disks	SSD
DataStore Disks Type	SAS 10K
GPU (iSyntax requirement)	Standard GPU

Tab. 15: Base Components

Component	CPU Thread Allocation	RAM Allocation	GPU Enabled	OS Storage
Image Server	12	20GB	Yes	100GB *
Xplore	4	12GB	No	200GB
MSSQL	4	24GB	No	200GB

** Actual storage requirements will vary based on the number of slides that will be hosted. For large volume of data, Philips recommends attaching a SAN to the virtualised server and mounting directly into the ImageServer.*

Tab. 16: Hardware Breakdown

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Component	Components Required
Image Server	Windows Server 2012, IIS 8
Xplore	Windows Server 2012, IIS 8, SQL tools
MSSQL	Windows Server 2012, SQL Server 2014 Standard

Tab. 17: Software Breakdown

Recommended Specifications

Components	Specification
OS Version	ESXI 6.x / Windows Server 2012 onward (64BIT)
Database	Microsoft SQL Server 2014 onward Standard Edition
Application Server	IIS 8
Processor Threads	24 Intel Threads
Processor Speed	2.2GHz +
Memory	72GB
OS Storage	500GB Usable RAID
Network Card	1GbE Network Card
OS Disk Type	SSD
Database Disks	SSD
DataStore Disks Type	SAS 15K
GPU (iSyntax requirements)	Standard GPU

Tab. 18: Base Components

Component	CPU Thread Allocation	RAM Allocation	GPU enabled	OS Storage
Image Server	16	24GB	Yes	100GB *
Application Server	4	16GB	No	200GB
MSSQL	4	32GB	No	200GB

** Actual storage requirements will vary based on the number of slides that will be hosted. For large volume of data, Philips recommends attaching a SAN to the virtualised server and mounting directly into the ImageServer.*

Tab. 19: Hardware Breakdown

Component	Components Required
Image Server	Windows Server 2012, IIS 8
Application Server	Windows Server 2012, IIS 8, SQL tools
MSSQL	Windows Server 2012, SQL Server 2014 Standard

Tab. 20: Software Breakdown

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Supported File Formats

Description	Supported format
Data import	
Image files	*svs, *.ndpi, *.mrxs, *.scn, *.czi, *.rts, *.vsi, *.tiff, *.biff , *.sqlilte, *qptff, *.jpeg, *.png.
Documents attached to folders	*xls, *.xlsx, *.xlsm, *.csv, *.docx, *.docm, *.doc, *.rtf, *.txt , *.pdf, *.ppt, *.pptx, *.jpg, *.jpeg, *.png, *.bmp, *.tiff
Barcode	Datamatrix, QR, PDF-417
Import to folder or study	*tsv, *.csv
Data export	
Export from folder or study	*tsv, *.csv
Export of search results	*tsv, *.csv
Image export	
Charts	*png, *jpg, *.svg, *pdf
Screenshots	*png, *jpg
TMA Cores	*png, *jpg

Tab. 21: Supported file formats

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Glossary

CSV
Comma Separated Values

ID
Identifier

JPEG
Joint Photographic Experts Group; a standard method of compressing photographic images

OS
Operating System

PNG
Portable Network Graphic

SQL
Structured Query Language

TMA
Tissue Micro Array

TSV
Tab Seperated Values

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