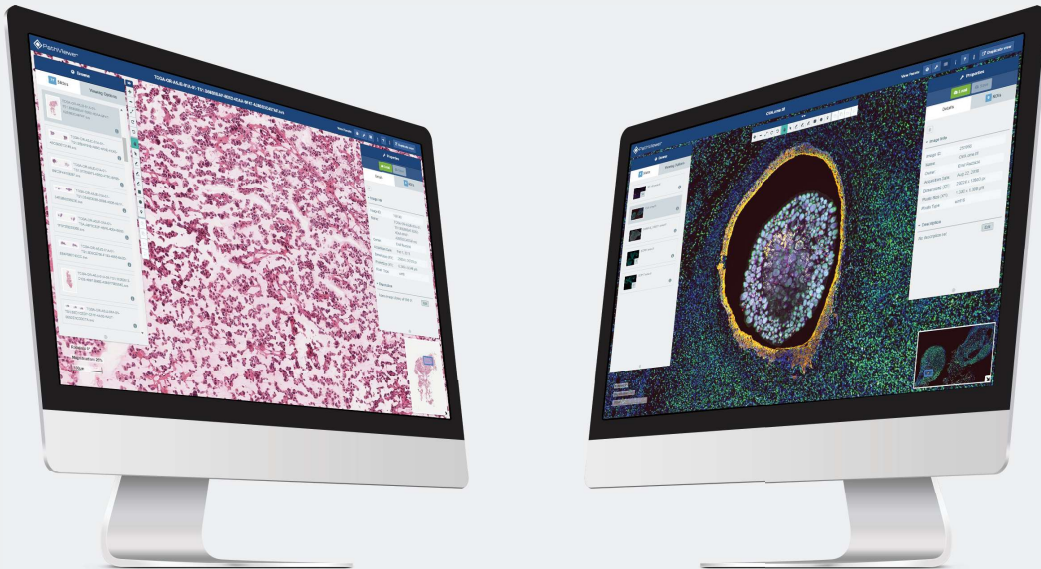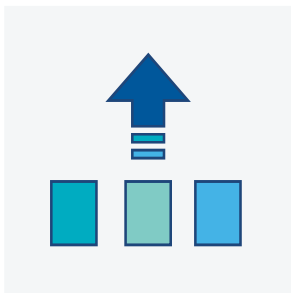# Glencoe SOFTWARE

Solutions for Digital Pathology

Working with Digital Pathology Data is Faster, and Easier Than Ever Before

A Completely Open System that Connects Your Slide Scanners, Your Data Storage System, Your Analysis Tools, and Your Collaborators

Glencoe Streamlines the Digital Pathology Workflow

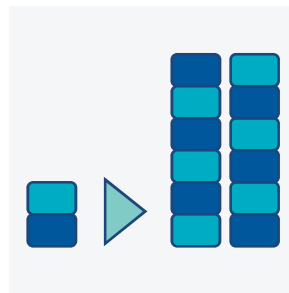### Import and Annotation

Import from your own instrument. Add your own metadata. Connect and organize your H&E and multiplexed images all in one place.
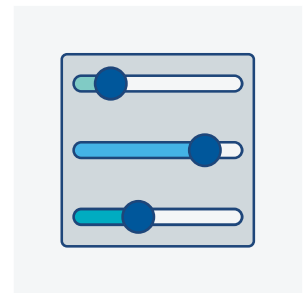
Data Visualization

Multiple magnification options. Drawing and measurement tools for interactive annotations. Fast zooming and rotation. Secure sharing with colleagues.

Scalability

Designed and proven to work with 10s to 100s of TBytes, from 1 to 1000s of users, installed on your systems, or in the Cloud.

Single or Multichannel

Use any number of channels with ease. View, analyze, and understand brightfield, stained slides and also multiplexed biomarkers by fluorescence and other modalities. Unlimited number of channels supported

Integrate and connect your data.

Glencoe's Bio-Formats recognizes, reads and imports data in original formats from multiple instruments. Working with vendors and the community, we have constructed readers for 150+ image file formats, letting you organize and access your H&E and multiplexed slide images (and hundreds of others) all in the same place. Easy annotation of images with experiment, study and case metadata and data is built in.
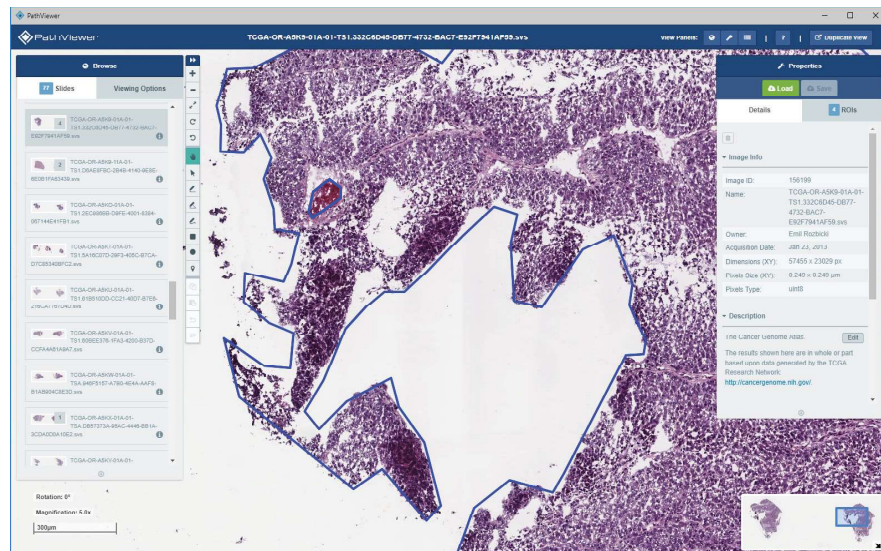
All data, all in one place.

OMERO Plus acts as the central hub for all your data. Users browse, search, view and analyze TByte datasets through secure, high performance connections. OMERO Plus includes OMERO microservices, small modules that accelerate image viewing, analysis, or sharing, so that Glencoe can tune OMERO Plus to your use case and needs.

Figure 1

Powerful Visualization, all in a portable, secure web app

PathViewer is a powerful web app, that supports interactive visualization of multi-dimensional slide images. Designed with and for pathologists, PathViewer includes powerful interactive annotation tools that let a user draw, record, and securely share annotations. The same interface also displays results from analyses, so users can view, edit and share automatic results as well.

Glencoe's recent extensions to PathViewer include GRID, which enables web-based visualization of multiple slides in the same web browser window, and sophisticated annotation markup so slides and annotations can be linked to other data and on-line resources-- ELNs, other databases, or other OMERO Plus data are all possible

PathViewer connects to OMERO Plus, so data access is always secure and under control. Annotations and default viewing parameters created by different users are always held separately, and access to annotations and settings from a different user is always under secure control. This power and flexibility make PathViewer and OMERO Plus ideal for use in collaborative research, clinical, and educational environments--in any academic, industrial and commercial institution. *(See Figure 1.)*
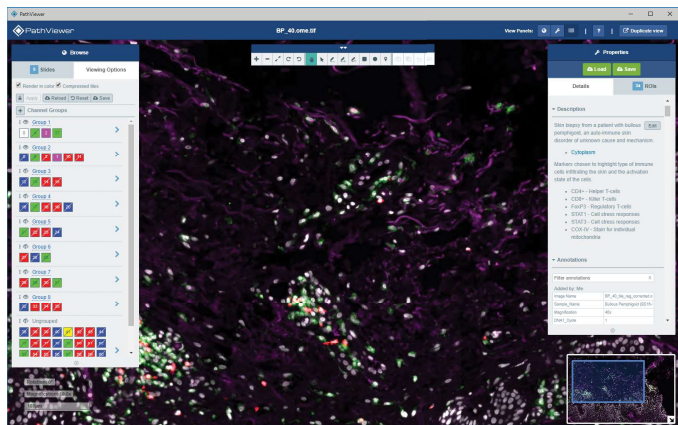
Figure 2

Analysis that fits your workflow

PathViewer is built on top of OMERO Plus, which provides an Open API to connect you and your data to the analysis tools of your choice: CellProfiler™, Jupyter notebooks, OpenCV all work. If you wish to write your own plugins, analysis tools or client applications, Java, C++, Python, MATLAB® Tensorflow and PyTorch are all supported. Computer vision and deep learning workflows at your fingertips. Glencoe provides customized analysis integration on your cluster, in the cloud, always web accessible, always secure. *(See Figure 2.)*

Share your discovery with confidence knowing your data is secure

OMERO Plus lets you securely share your data with colleagues, allowing them to see exactly what you see and add their own analyses and comments, all through a secure multi-user platform. OMERO Plus is the heart of the platform, and provides industry-grade secure connections to all your slide images, metadata and analytics. PathViewer supports shareable URLs-- you can share the exact same view of a slide with a colleague, inviting them to review and add their own annotations. If desired, guest access can be enabled, allowing external users access to the data you want to share. *(See Figure 3.)*
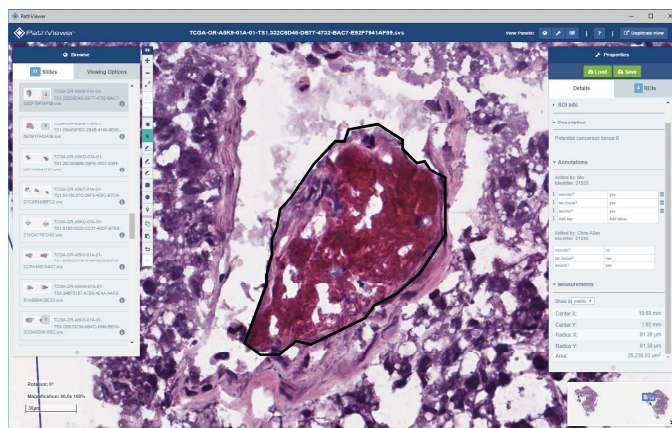

Figure 3

Data In, Data Out...
Downloadable for Your Own Use

Bio-Formats, OMERO Plus and PathViewer can support TBytes of data, but you are never locked in, and your data is always accessible, and if necessary downloaded for your own use. Slide images in OMERO Plus are always stored in their original format, as they were written by your slide scanner. Bio-Formats reads the native formats on the the fly-- never writing a new copy or format-- ensuring efficient use of data storage. You can always access the original data, either on your data storage system, or through OMERO Plus. And, if you want to convert from a proprietary to an open format-- OMERO Plus will let you download either, or even both!

Do you have challenges working with imaging data at scale? Get in touch! For more information, contact us at info@glencoesoftware.com

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