Byosphere® Admin
Web Client Manual

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5.0

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Contents

Introduction

The Protein Metrics Byosphere® Admin Web Manual covers the Web Admin Client portion of the Byosphere System. The Byosphere system is a server repository where Protein Metrics analyses are generated, viewed, and managed and related files are stored.

The Byosphere system include two portals:

- The **Byosphere Web Client** is accessible through a web browser. Supported web browsers include Google Chrome, Mozilla Firefox, Microsoft Edge, and Apple Safari. For more information about the Byosphere Web Client, see **Byosphere 03 Web Client Manual.pdf**.

- The **Byosphere Byos Client** allows access to Byosphere through a modified Protein Metrics Byos® application. It is through Byosphere Byos Client that analysis actions are performed, and where sample raw files are processed to generate Protein Metrics project files. For more information about Byosphere Byos Client, see **Byosphere 01 Byos Client Manual.pdf**.

Byosphere System Architecture

The general overview of the Byosphere system begins with its overall architecture, presented in the following diagram:
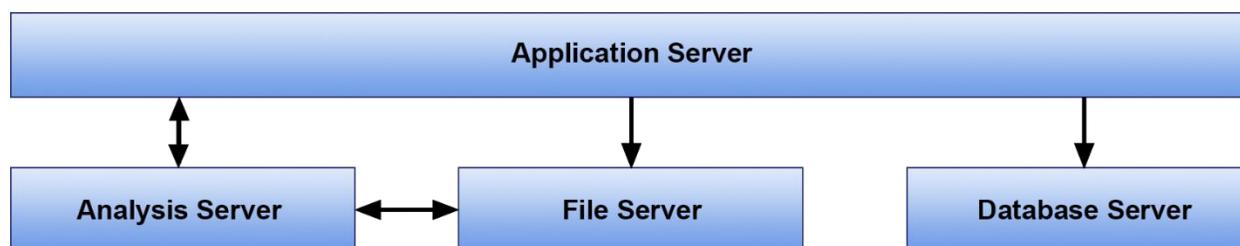

Figure 1: Byosphere architecture

The Byosphere Server is composed of 4 logical servers:

- **Application Server** - handles all client requests. It is backed by a Database Server, a File Server, and an Analysis Server for performing server-side processing.

- **Database Server** - persists relational data and can optionally be backed by a slave database for redundancy and fail-over.

- **File Server** - persists documents.

- **Analysis Server** - is used to perform server-side processing which can generate analyses and reports.

The four servers can be hosted on one of the following supported platforms:

- Amazon Web Services (AWS) – For details, see **Byosphere AWS Admin Manual.pdf**

- On-premises (On-Prem) – For details, see **Byosphere On-Prem Admin Manual.pdf**

- Microsoft Azure – For details, see **Byosphere Azure Admin Manual.pdf**

Byosphere Admin Web Pages

The Byosphere Admin Web Client consists of ten distinct pages or work areas: API Tokens, Deletions, External Data Sources, Jobs, Licenses, Metadata, Modules, Notifications, Users, and User Groups.
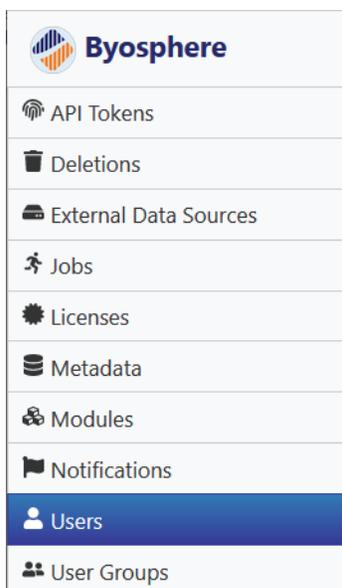
Figure 2: The ten pages: API Tokens, Deletions, External Data Sources, Jobs, Licenses, Metadata, Modules, Notifications, Users, and User Groups.

Each Admin page represents a set of related functions:

- The **API Tokens** page is used to generate credentials that are not subject to session or inactivity timeouts. These tokens are used for long-running automated processes; for instance, to authenticate service-oriented clients such as the Automation client. They cannot be used to login to the Byosphere Admin Web Client, the Byosphere Web Client or the Byosphere Byos Client.

- The **Deletions** page contains files and folders deleted by Users. User deletions are "soft deletes"; these records can be restored in this page by an Administrator. Administrators can perform "hard deletes"; when an Administrator deletes a file or folder, the record cannot be restored.

- The **External Data Sources** page configures Byosphere to recognize network drives that contain MS sample files for use in creating analyses through the Byosphere Byos Client.

- The **Jobs** page is used by the Administrator to prioritize and cancel queued and running jobs and to view a record of jobs that were run previously.

- The **Licenses** page loads and manages Byosphere Licenses and assignment of Product and Role Entitlements to individual Users. Entitlements activate Privileges needed by many features in the Byosphere Web Client and the Byosphere Byos Client.

- The **Metadata** page is used by the Administrator to create Metadata Definitions for assigning values to Metadata fields in server files and Query Folders for organizing metadata searches. Both features are found in the Byosphere Byos Client.

- The **Modules** page is used to configure Modules with specialized features in the Byosphere Web Client and the Byosphere Byos Client, such as signing states and transitions for the Regulatory Module. Modules are enabled by License Entitlements.

- The **Notifications** page is used by the Administrator to configure notifications in regards to how they are sent and to whom they are sent, with applied filters where supported.

- The **Users** page is used by Administrators to create and manage User accounts for the Byosphere Web Client and Byosphere Byos Client. Administrators can also create additional Administrator accounts.

- The **User Groups** page is used by Administrators to create and manage User Groups containing Users and assigned specific Privileges.

Byosphere Privileges

User Types

Byosphere distinguishes three kinds of User types, or privilege names: End Users (all Users are End Users by default), Super Users and Administrators. Super User and/or Administrator privileges can be added to End Users.

- **End Users** who are not also Super Users or Administrators are the primary Users of the Byosphere Web Client and Byosphere Byos Client. They include scientists, analysts, and technicians. Any created account is automatically an End User.

- **Super Users** are Users of the Byosphere Web Client and Byosphere Byos Client with no restrictions on actions they can perform or folders they can access. Unlike End Users, Super Users can create folders at the root level. Super Users must first populate the new installation with folders at the root level and assign User Groups with Users and Privileges (see next section). Otherwise, users will log into an empty workspace with no available folders in which to manage data. Super Users, who are not also Administrators, cannot log into the Byosphere Admin Web Client. The system requires at least one Super User to create the folders at the root level.

- **Administrators** can access the Byosphere Admin Web Client to manage User access and Privileges in the Byosphere Web Client and Byosphere Byos Client. This includes managing User accounts and User Privileges. Administrators do not automatically have special access to the Byosphere Web Client and Byosphere Byos Client. They can also be assigned as Super Users, or more narrowly as authorized Users by assigning themselves to User Groups with appropriate Privileges. The system requires at least one Administrator to manage Users, User Groups and Deletions.

User Privileges

There are four kinds of Privileges that the Users described above can be assigned that enable access to folders, files and their functions in the Byosphere Web Client and Byosphere Byos Client:

- **Viewer** - Users given Viewer Privileges to a folder can only view files in that folder and view reports for Protein Metrics project files. Viewers cannot edit, delete, move or download files or folders.

- **File Editor** - Users given File Editor Privileges to a folder can add, edit, move, download and delete any files in that folder. They cannot manage the assigned folder or sub-folders. File Editors must also be given Viewer Privileges to the same folder so they can view the files they manage.

- **Folder Editor** - Users given Folder Editor Privileges to a folder can edit, move, and delete that folder, and add sub-folders under it. They cannot manage files in the folders unless they are also given File Editor Privileges. Folder Editors must also be given Viewer Privileges to the same folder so they can view the folders they manage.

- **Analyst** – Users given Analyst Privileges to a folder can process, or analyze, sample files to create Protein Metrics projects. Analysts must also be given Viewer and File Editor Privileges to the same folder so they can view and manage the source sample files and resulting project files.

Privileges and Users are assigned to User Groups in the Byosphere Admin Web Client. User Groups are then assigned to folders in the Byosphere Web Client by Folder Editors or Super Users. For example, a project folder might be assigned two User Groups: one called Management includes the Team Lead and their supervisor with Viewer Privileges. The other called Project X Analysts includes all team members who process data for that project. Project X Analysts would be assigned Viewer, File Editor and Analyst Privileges. If they were also assigned Folder Editor Privileges, they could create sub-folders to store files

under the primary project folder. These sub-folders could also be assigned the Management User Group, as needed.

To assign the same User a different set of Privileges to separate folders, that User must be in multiple User Groups with the different Privilege sets. Then, the different User Groups are assigned to the separate folders.

Privileges are not assigned to files directly. Users in a User Group assigned to a folder have uniform Privileges to all files in the folder. To separate access Privileges among files, place them in different folders with different User Groups.

The Users and Privileges in a User Group are not inherited by the sub-folders of a folder. Sub-folders are assigned User Groups independently. When a new sub-folder is created, the User Groups assigned to the parent folder are checked by default to simplify propagating Users and Privileges among sub-folders. However, when the User Groups of one folder are edited, the User Groups of the parent folder or sub-folders are unaffected.

First Administrator Login

After the Byosphere server has been setup, the Byosphere Admin Web Client can now be accessed. The web address format depends on whether the server is secured or unsecured. For a secured Byosphere server, the Byosphere Admin Web Client format is:

```
https://<Public DNS>/admin
```

For an unsecured Byosphere server, the Byosphere Admin Web Client format is:

```
http://<ENT Public DNS>:5000/admin
```

In both case cases, the Byosphere Web Client address leaves off "`/admin`". For example, a secured Byosphere Admin Web Client server could be:

```
https://myapp.mycompany.com/admin
```

And the Byosphere Web Client server would be:

```
https://myapp.mycompany.com
```

The first step to enabling the Byosphere system is to create an Administrator account. Protein Metrics will supply a one-time username and login to initialize the Byosphere Admin Web Client. Currently, the first login credentials are:

- email: admin@proteinmetrics.com

- Password: pmi123

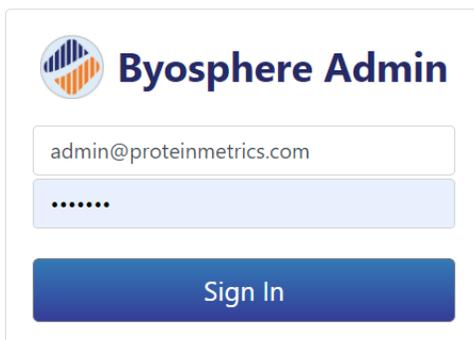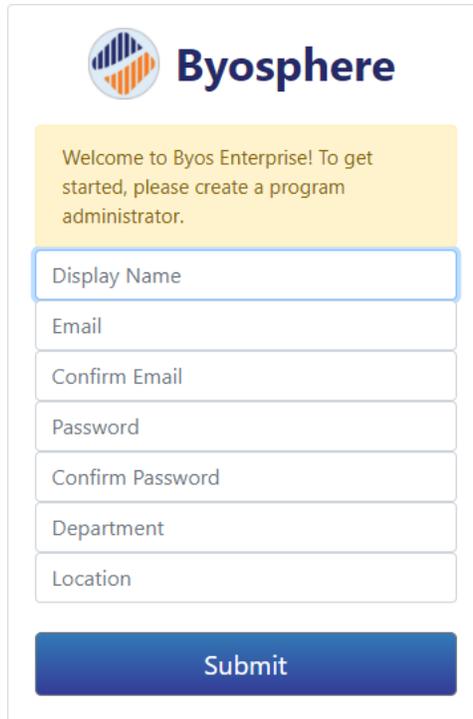Login with these credentials, or the username and password supplied by Protein Metrics:


Figure 3: Login with one-time user account

After this login, that account will not work again. A screen appears to create an Administrator account:

Figure 4: Create an Administrator account

Complete the Administrator **Display Name** (first and last name), **Email** and confirmation, **Password** and confirmation (minimum 6 characters), **Department** and **Location**. All fields require entries. When the entries are complete, click **Submit**. The new Administrator can now log into the Byosphere Admin Web Client.
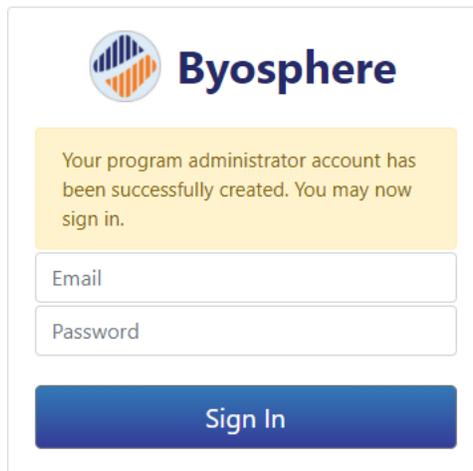
Figure 5: Administrator login

The system requires at least one active Administrator. Therefore, Administrator cannot remove the Administrator role from their own account or make their account inactive unless there exists another active Administrator account. Doing so would leave the Byosphere Admin Web Client with no means to login.

Single Sign-On

With **Single Sign-On** (SSO) enabled, Administrator and User credentials are not managed by Byosphere, but by a third-party identity provider, such as Active Directory. Byosphere uses SAML 2.0 for SSO, which can be configured to any identity provider. The account email used by the identity provider must match an existing Byosphere email account. Administrators and Users would then login with these email accounts but also with their passwords from their identity provider service, not with the passwords managed by Byosphere.

When SSO is enabled, entry of the <server address>/admin URL brings up a link to begin the login:
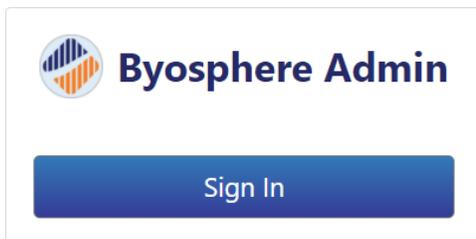

Figure 6: SSO-enabled login

Click **Sign In**. The login screens that follow depend on the identify provider. The examples below use Active Directory, managing Microsoft Windows accounts:
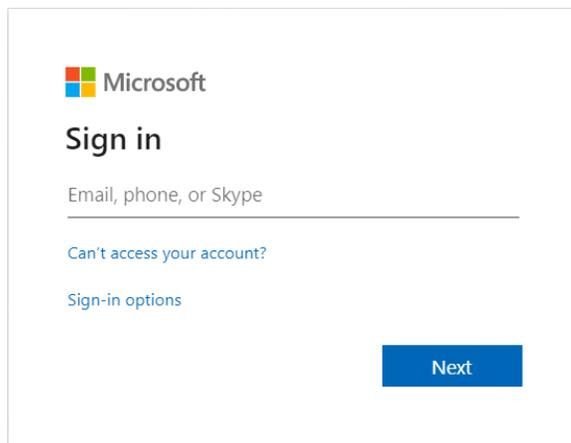

Figure 7: Enter the Byosphere email account

Enter the email address shared by Byosphere and the account managed by the identity provider. In this example, click **Next** to move to the Password screen:
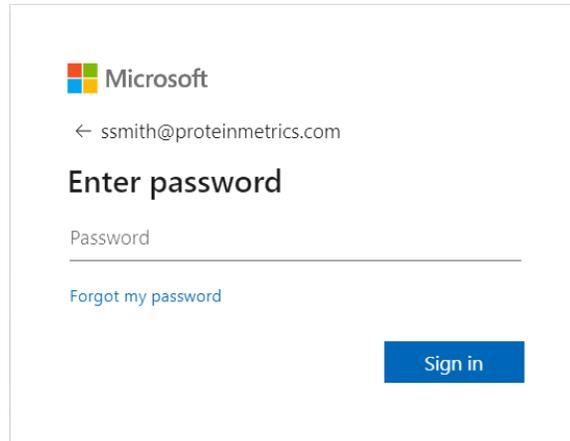
Figure 8: Enter the identity provider (not Byosphere) account password

Enter the password for the account managed by the identity provider, not the password managed by the Byosphere account). In this example, click **Sign In**:
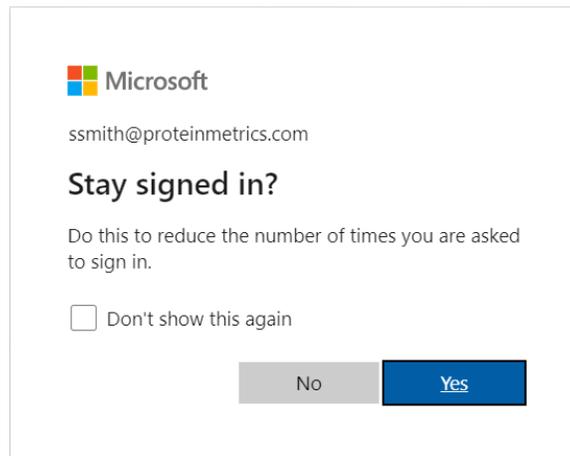

Figure 9: For Microsoft Window choose, whether to remain logged in

In this example, the Administrator can choose to click **Yes** to remain signed in when closing and reopening Byosphere Web Client, or to click **No** to log out when closing the web browser.

API Tokens Page

The **API Tokens** page creates special tokens used as credentials for long-running automated analyses and report generations such as the PMI Automation Client. These credentials are not subject to session or inactivity timeouts, so the automated processes are not interrupted. Accounts associated with these tokens cannot be used to login to the Byosphere Admin Web Client, the Byosphere Web Client or the Byosphere Byos Client

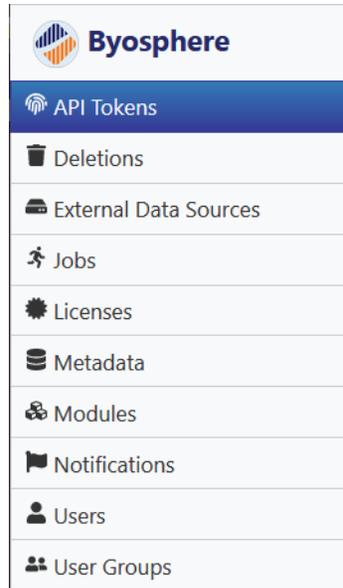To manage API Tokens, click **API Tokens** in the left panel:

Figure 10: API Tokens page in the left pane

The table of API Tokens is displayed in the main panel:

Figure 11: API Tokens table

The API Tokens table contains the following columns:

- **Actions** shows icons representing actions that can be performed on created Tokens.

- **Token** is the value generated for the Token. This value is input during the setup of the Automation Client to allow continuous, uninterrupted use of the account.

- **User** displays the User account associated with the Token. Automated analysis and report generation jobs done through the token will be attributed to the User, i.e., that User's name will display in the Created By field for the created records.

- **Notify** displays the list of Users who will receive email notifications when automated analysis and report generation jobs have completed.

- **Description** is a free-entry field to describe how the token will be used.

- **Created By** and **Created On** display the Administrator who created the Token and the date and time it was created.

To create a Token, click the **Add** button. The **Add Token** dialog opens:
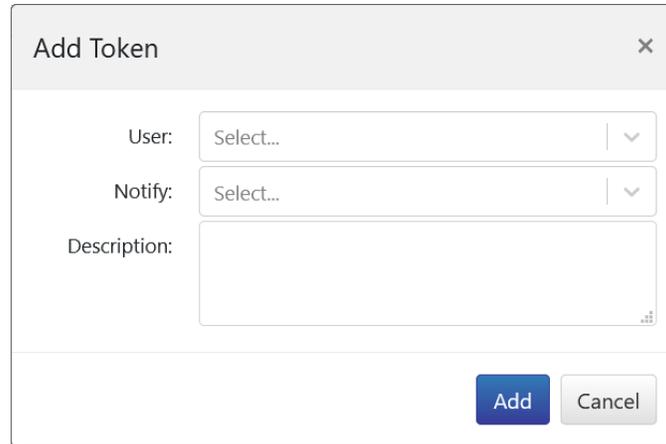
Figure 12: Add API Token

Entries are required for the **User** and **Notify** entries. An entry in the **Description** cell is optional. The Users available for selection in the User and Notify cells are created in the **User** section described below. Click **Add** to create the Token.

To edit an existing Token, click the ✎ button in the **Action** column. The **Edit Token** dialog opens:
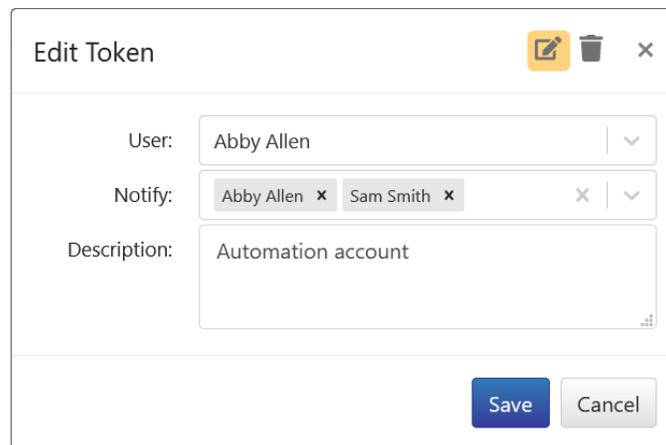
Figure 13: Edit API Token

Any of the fields can be modified. Recall that the User and Notify cells cannot be completely cleared. To save the changes, click **Save**.

To delete a Token, click the 🗑 button at the top right of the Edit Tokens dialog. The dialog changes to the **Delete Token** confirmation dialog:
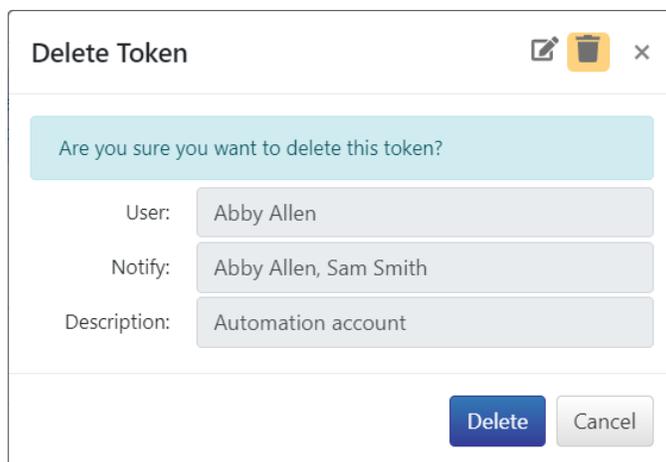
Figure 14: Delete API Token

Click **Delete** to complete the deletion.

Note: API Token User accounts are recommended for use with both the Byosphere Analysis Server and for the Automated Uploader to avoid timeouts in those processes.

Deletions Page

The **Deletions** page collects folders and files that were deleted by Users. Users cannot permanently delete records. By retaining them in this page, deleted files, and folders containing files can be restored by an Administrator. Unwanted files and folders can also be permanently deleted by an Administrator.

To manage deletions, click **Deletions** in the left panel:
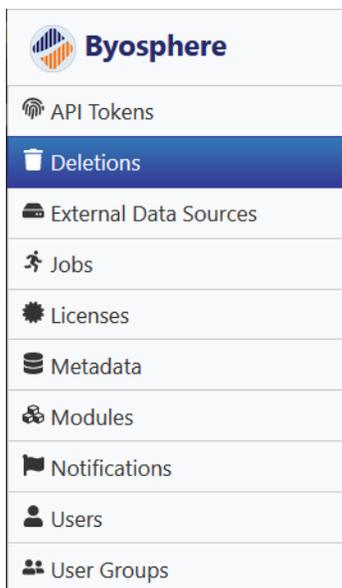
Figure 15: Deletions page in the left panel

The list of user-deleted files and folders are displayed in a table in the main panel:

Figure 16: Deletions table

The Deletions table contains the following columns:

- **Folder** displays the folder that the record was deleted from.

- **Doc Type** designates whether the record was a file or folder. Note that the files in the deleted folder are not displayed separately.

- **Doc Name** displays the assigned name of the deleted record. In the case of files, this is not necessarily the same as the file name.

- **Deleted On** is the date and time that the record was deleted.

- **Deleted By** is the User who deleted the record (not always the User who created the record). Recall that only User Groups with File Editor Privileges can delete files and only User Groups with Folder Editor Privileges can delete folders.

To permanently delete one of more files or folders, check the records in the first column and click **Delete**. A confirmation message will warn that the records will be deleted permanently:
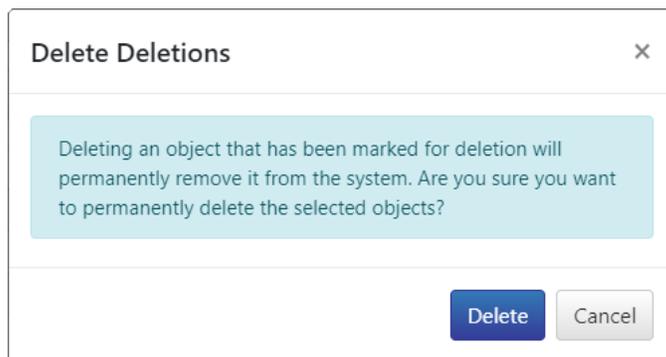
Figure 17: Permanently Delete Confirmation

Note that the Deletion table can contain files that were deleted first and the folders that contained them deleted after that. If the folder is permanently deleted, the deleted file that was in that folder is permanently deleted as well.

To restore one of more files or folders, check the records in the first column and click **Restore**. A message will confirm that the records will be restored to the Byosphere Web Client:
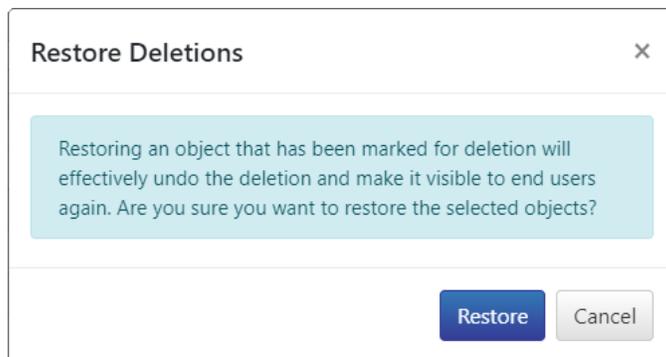
Figure 18: Restore Deletions Confirmation

As before, if a folder is restored, files that were independently deleted will be restored as well. **Note**: When data is restored while Users are logged in, they will need to collapse and re-expand the parent folder of restored folders or files to refresh the folder hierarchy and File table.

External Data Sources Page

The **External Data Source** (EDS) page is used to configure shared network drives that contain MS and trace data outside of the Byosphere server. Once configured, Users can generate analyses in the Byosphere Byos Client using archived MS sample and trace data on the mapped network drive. **Note**: Managed networks such as Dropbox that require a user login may not be accessible from the Byosphere account used to create server analyses. Ensure that the mapped network drive is available to the Byosphere Analysis Server User account.

To manage External Data Sources, click **External Data Sources** in the left panel:
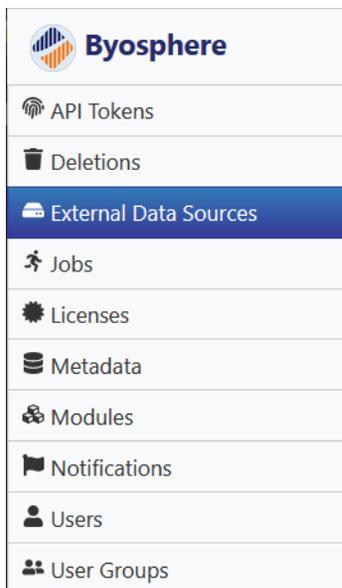
Figure 19: External Data Sources page in the left panel

To add a new EDS mapping, click Add in the right pane. The Add EDS dialog opens:

Figure 20: Add EDS mapping

Name refers to the display name for the top-level EDS directory that appears in Byosphere. This does not need to correspond to an actual directory.

Path shows the exact path of the network directory to access in Byosphere. All files and folders in this path will be accessible in an EDS folder named for the Name entry. To access EDS data, Byosphere Users, the Byosphere Analysis Server User account, the Automation User account, and any API Token User accounts must all have access to the same data in a parallel folder tree. Instructions for editing the EDS path are found in the **Byosphere Byos Client Startup** section of the **Byosphere 01 Byos Client Manual.pdf**.

A **Description** is optional. Click **Add** to create the mapping. The record then appears in the EDS table:

Figure 21: EDS table with added EDS mapping

Note: Users must logout and login again to see changes to EDS access. After logging in, the User will see EDS folders and files under the **EDS** tab when selecting MS files and Trace files:
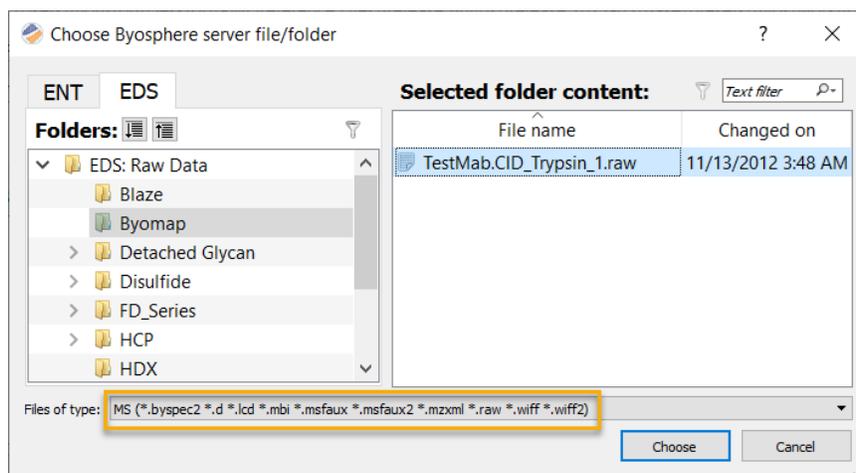
Figure 22: Mapped EDS sample data accessed in Byosphere Byos

The network MS and Trace files do not contain the Byosphere *.pacq extension, so they are filtered by their MS file or Trace file extensions. **Note**: no other workflow files can be accessed in the EDS domain.

To edit an EDS mapping, click the ✎ icon to the left of the record. The **Edit EDS** dialog opens:

Figure 23: Edit EDS mapping

To delete an EDS mapping, click the 🗑 icon at the top right and click **Delete**:

Figure 24: Delete EDS mapping

To see the history of an EDS mapping, click the ☰ icon to the left of the record to open the **EDS History**:

Version ↑↓	Name ↑↓	Path ↑↓	Description ↑↓	Changed By ↑↓	Changed On ↑↓	Change ↑↓
1	Raw Data	P:\PMI-Demo\Managed\rawData	Dropbox data	Jim Houston	2021-04-05 17:40:14	Add

Figure 25: EDS History

Click the back button ← at top left to return to the EDS table.

Jobs Page

The **Jobs** page is used to manage queued and running jobs and to view a record of jobs that were run previously.

To manage Jobs, click **Jobs** in the left panel:
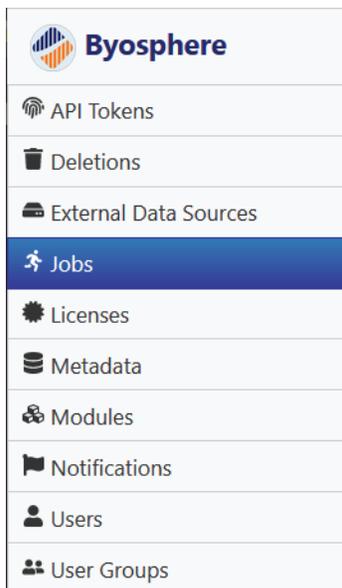
Figure 26: Jobs page in the left panel

The current set of running and queued jobs is displayed in the Active Jobs table:

Figure 27: Active Jobs table

By default, jobs with status Queued are set to run in the order that they were submitted. To change the run order, click the ✎ button. The **Edit Job** dialog opens:

Figure 28: Edit Jobs for queue priority

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All Jobs have **Priority** set to **Low** initially. Jobs set to **Medium** priority will run before unedited jobs in the queue. Jobs set to **High** priority will run before both Medium and Low priority queued jobs. Click **Save** to set the new priority.

To cancel a queued or running job, click the ✖ button. The **Cancel Job** dialog opens to confirm the action:
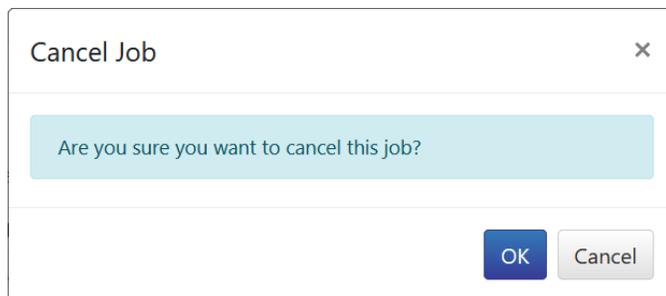
Figure 29: Cancel Job for running and queued jobs

Click **OK** to cancel the queued or running job. The canceled job is removed from the Active Jobs table. In the **Jobs** tab of the Byosphere Byos Client and the **Jobs** page of the Byosphere Web Client, the status of the job is changed to **Canceled**.

Note: Super Users are also enabled to cancel queued and running jobs in the Jobs page of the Byosphere Web Client. To cancel a queued or a running job, a Super user can click the ✖ button to the left of the job:

Jobs

Action	ID ↑↓	Name ↑↓	Status ↑↓	Type ↑↓	Submitted By ↑↓
✖	1899	AD952-C-Degly-Try_RP11-RC5.blgc	Running	Analysis	Jing Li
✖	1900	SysSuit-RC5.bymd	Queued	Analysis	Jing Li

Figure 30:

The **Completed** tab in the Jobs page displays a count of jobs displayed by status for each day of a week:

PROTEIN METRICS

Figure 31: Job counts by day across a selected week

The **Completed** jobs appear at the bottom (green). Above them are the **Canceled** jobs (yellow). The **Failed** jobs are at the top (pink). To change the week, click the dropdown after the date and choose a new week starting date. To view job counts by month or year, click the dropdown after **Week** and select the time unit:
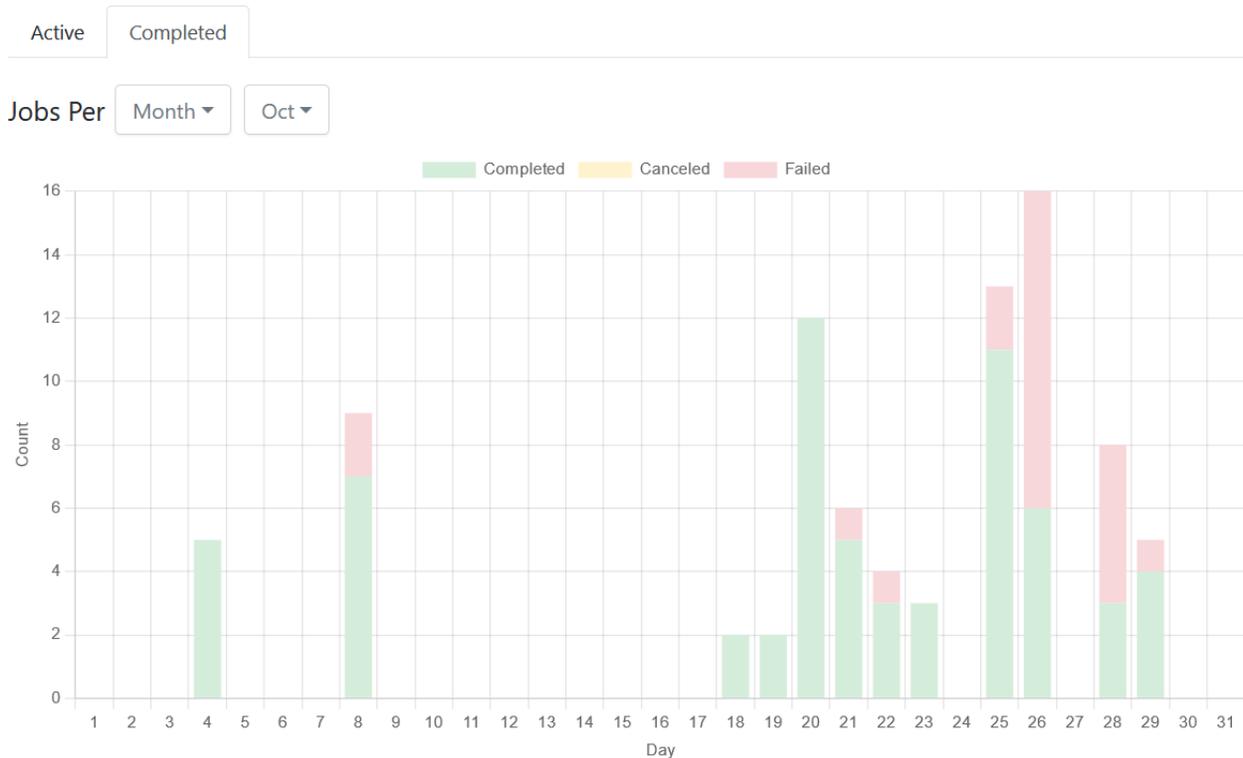
Figure 32: Job counts by day across a selected month
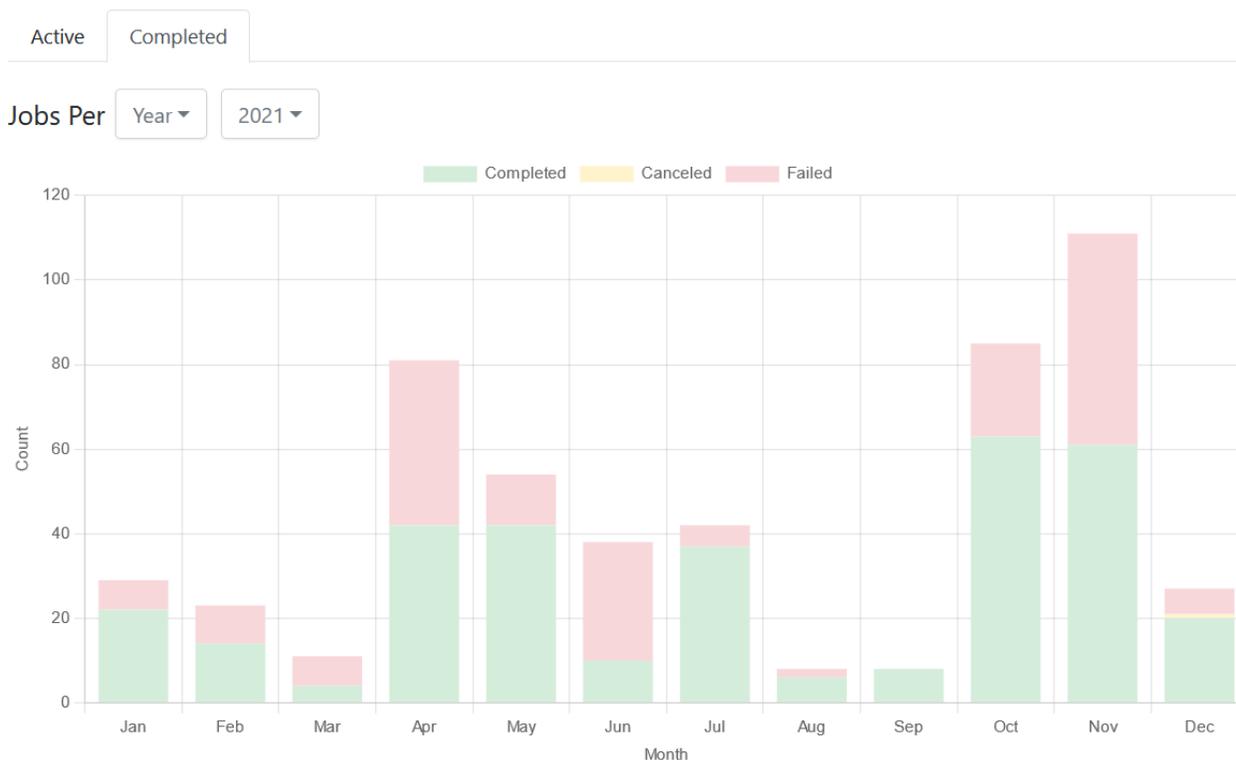
Figure 33: Job counts by month across a selected year

Licenses Page

The **Licenses** page controls User Privileges and access to the various components of the Byosphere system. To manage Licenses, click **Licenses** in the left panel:
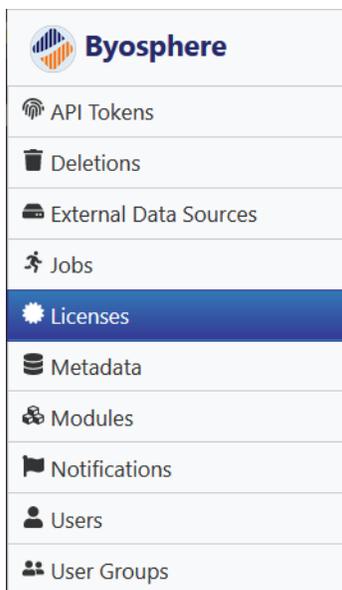
Figure 34: Licenses page in the left panel

![PROTEIN METRICS]

The **Licenses** section manages Byosphere License Keys which define the product set and the total number of Users who can be assigned to available Role and Product Entitlements. Byosphere Licenses are independent from PMI-Suite product Licenses. To add a Byosphere License, click **Add**:

Figure 35: Add License

Online License Management

There are two **Methods** available to add an activated Byosphere License. The **Online** method is the more direct but can only be used if the Byosphere server is connected to the Internet. Select the Online Method, enter the License Key sent by Protein Metrics, and enter the Company name:

Figure 36: Add License online

Click **Add** to add the License. The License is validated remotely and added to the list of available Licenses:

Actions	ID	Key	Term	Starts On	Expires On	Support Expires On
✎ ☰	4	1i0pACRaxonjx4L7GHEE	Termed	2021-03-31	2022-03-30	

Figure 37: License added to the Licenses table

Multiple Licenses can be added, and they are additive. That is, new products available in additional Licenses appear on the Product list and additional counts are added to existing counts.

Occasionally, a License is updated by Protein Metrics, for example, to extend the expiration date. The updated License needs to be synchronized by the Administrator to pick up these changes. To synchronize a License, click the ✎ icon at left of the License Key. The **Synchronize License** dialog opens:
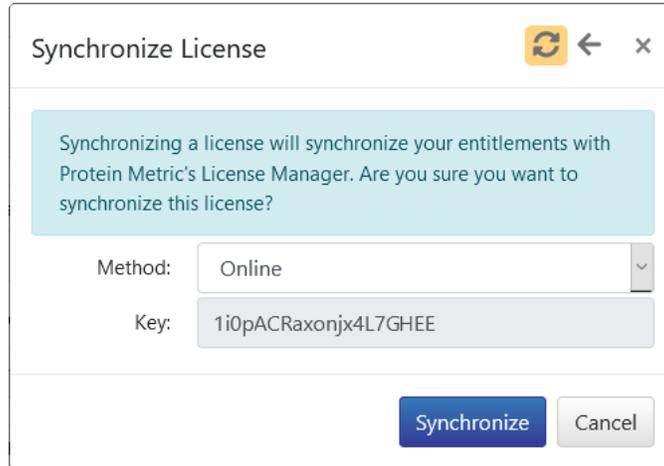
Figure 38: Synchronize License online

For the Online method, simply click **Synchronize**. The License is updated with the latest version:
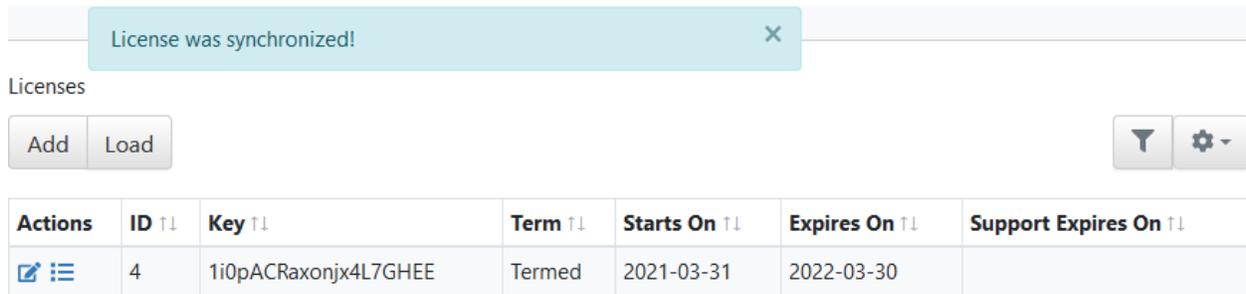
Figure 39: License updated through synchronize

On occasion, a Byosphere License may need to be returned. for example, if the Byosphere server is moved to a new host system, the License must be returned from the old system before it can be added to the new system. To return a Byosphere License, click the ✎ icon at left of the License Key and click the ← icon at the top right. The **Return License** dialog opens:
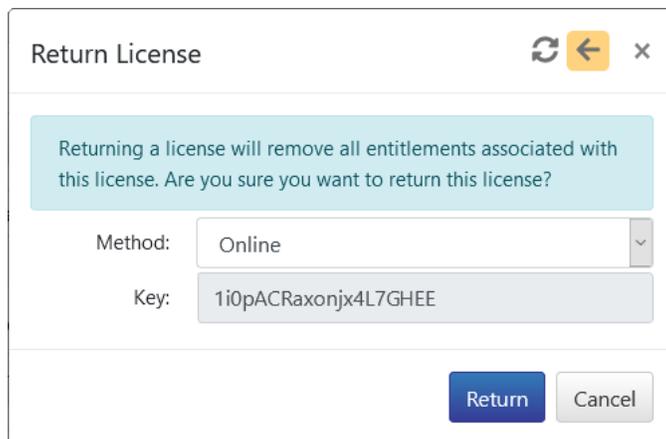
Figure 40: Return License online

For the Online method, simply click **Return**. The License is returned remotely and the License is removed from the Licenses table:

Figure 41: License returned and removed

To see the history of a License, click the ⊟ icon at left to open the **License History**:

Figure 42: License History

Offline License Management

If the Byosphere server is isolated from the Internet, the **Offline** method is used to manage Licenses. In Offline License Management, Byosphere generates a "request" file, which is then sent to Protein Metrics on another machine (with Internet access). In return, Protein Metrics returns a "response" file, which is loaded on Byosphere to complete the License action.

To add a License offline, click **Add**, Select Method **Offline**, enter the License Key sent by Protein Metrics, enter the Company name, and click **Add**. A Save As dialog permits you to save the offline License activation request file activate.lar to a download directory, and an activation dialog is displayed:

Figure 43: Instructions for offline License activation with link

Open the **License Manager portal** link https://lm.proteinmetrics.com. Copy the activate.lar file to a portable media device. On a computer that is connected to the Internet, open the link to the Offline License Manager:
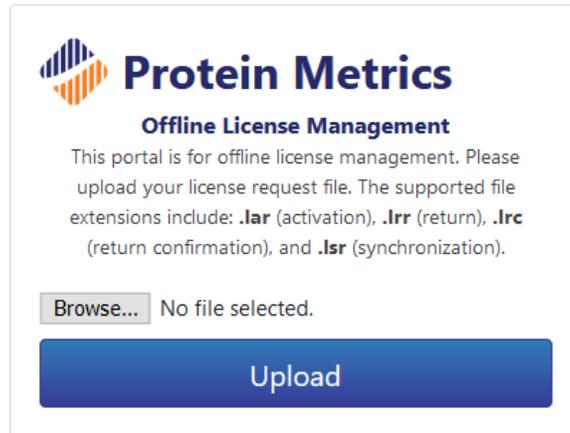
Figure 44: Offline License Manager

Click **Browse**, select the copied activate.lar file and click **Open**. The file name is displayed in the License Manager:
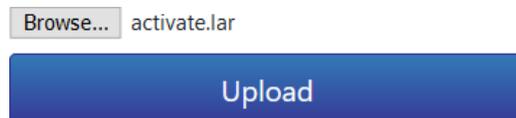
Figure 45: Offline License Manager with loaded response file

Click **Upload**. The response file activate.larr is downloaded, which contains an encrypted key. Copy this file to the portable medium and return to the Byosphere server. In the Licenses page of the Admin Web Client, click **Load**:
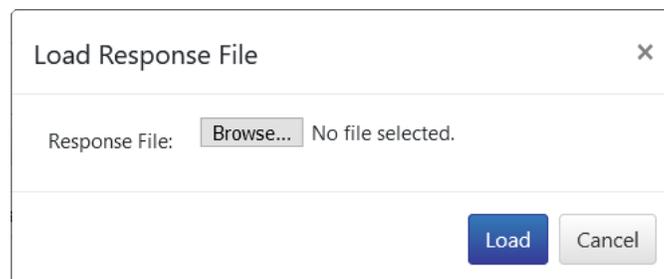
Figure 46: Offline Load Response File dialog

Click **Browse**, select the activate.larr file, click **Open**, and click **Load**. The validated License is added to the Licenses table.

To **synchronize** a License offline, click the ✎ icon at left of the License Key, Set Method as **Offline**, and click **Synchronize**. The License synchronize request file synchronize.lsr is downloaded. Save the **License Manager portal** link and copy the synchronize.lsr file to a portable medium.

On a computer that is connected to the Internet, open the link to the Offline License Manager. Click **Browse**, select the copied synchronize.lsr file and click **Open**. Click **Upload**. Copy the downloaded response file synchronize.lsrr to the portable medium and return to the Byosphere server. In the Licenses page of the Admin Web Client, click **Load**. Click **Browse**, select the synchronize.lsrr file, click **Open**, and click **Load**. The License is updated.

To **return** a License offline, click the ✎ icon at left of the License Key and click the ← icon at the top right, Set Method as **Offline**, and click **Return**. The License return request file return.lrr is downloaded. Save the **License Manager portal** link and copy the return.lrr file to a portable medium.

On a computer that is connected to the Internet, open the link to the Offline License Manager. Click **Browse**, select the copied return.lrr file and click **Open**. Click **Upload**. Copy the downloaded response file return.lrrr to the portable medium and return to the Byosphere server. In the Licenses page of the Admin Web Client, click **Load**. Click **Browse**, select the return.lrrr file, click **Open**, and click **Load**. The License is removed from the Licenses table.

Returning a License offline generates the file return_confirm.lrc. This needs to be sent to Protein Metrics to complete the return. The file allows Protein Metrics to acknowledge that the License was returned and is now available to be added to a different Byosphere server system.

To complete the License return, copy the downloaded return_confirm.lrc file to a portable medium. On a computer that is connected to the Internet, open the link to the Offline License Manager. Click **Browse**, select the copied return_confirm.lrc file and click **Open**. Click **Upload**. A successful License return message appears:
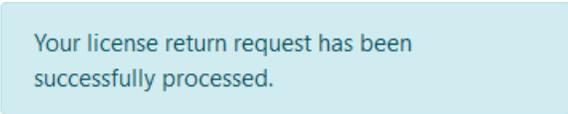
Your license return request has been successfully processed.

Figure 47: Offline License return request successful

License Entitlements

Once a Byosphere License is added, a collection of **Entitlements** is added to the Licenses page. There are three kinds of Entitlements:

- **Module Entitlements** enable specialized features in the Byosphere system. Currently, the **Regulatory** and **SDK** Modules are available in Byosphere. Module Entitlements are set by the License itself and are not editable in the License page. For more information, see the **Modules Page** section.

- **Product Entitlements** enable access to the Protein Metrics products defined by the License. Specific product Entitlements give assigned Users the rights to generate analyses to create Protein Metrics projects and reports on the Byosphere server, and to upload local project files while generating reports on the server.

- **Role Entitlements** enable User Privileges within the User Groups that are assigned to folders. Users must have the **Contributor** Role to use any assigned Product Entitlements. Care should be taken to ensure that Users have the Role Entitlement necessary to access the features they are expected to use.

The list and count of Entitlements depend upon the Byosphere License:

Entitlements

	Action	Type ↑↓	Name ↑↓	Count ↑↓	License IDs ↑↓	Status ↑↓
☐		Module	Regulatory	1/1	6	
☐		Module	SDK	1/1	6	
☐ 📝		Product	Automated Processor	1/1	6	
☐ 📝		Product	Byonic	22/30	6	
☐ 📝		Product	Byos	24/30	6	
☐ 📝		Product	Chromatogram Analysis	24/30	6	
☐ 📝		Product	De Novo Analysis	21/30	6	
☐ 📝		Product	Intact Analysis	24/30	6	
☐ 📝		Product	Peptide Analysis	23/30	6	
☐ 📝		Product	Preview	23/30	6	
☐ 📝		Product	HDX	21/30	6	
☐ 📝		Product	Intact-IntaBio	4/30	6	
☐ 📝		Product	HRIM	4/30	6	
☐ 📝		Product	Oligonucleotide	5/30	6	
☐ 📝		Role	Advanced Viewer	9/30	6	
☐ 📝		Role	Contributor	27/30	6	

Figure 48: Entitlements table showing three types of Entitlements

The Entitlements table contains the following columns:

- The checkbox allows the addition or removal of Users to multiple Entitlements at once.

- **Action** shows icons representing actions that can be performed on Entitlements.

- **Type** displays the three kinds of Entitlements: Module, Product and Role.

- **Name** displays the name of the Entitlement. For Product Entitlements, the name shows the Protein Metrics product.

- **Count** displays the number of Users assigned to the specific Entitlement, followed by the total number of Entitlements allowed. For example, twenty-four Users currently have Entitlements for Intact Analysis, and six additional Users can be assigned to this product. Modules always display a Count of **1/1**.

- **License IDs** identifies the License for the Entitlement. This can be useful if more than one License was added.

- **Status** displays errors when an Entitlement is out of compliance with the License. For example, an error will be displayed if the product count for a License is downgraded below the number of assigned Users.

There are two ways to assign one or more Users to Entitlements. To assign Users to a specific Entitlement, click the 📝 icon to the left to open the **Edit Users** dialog:
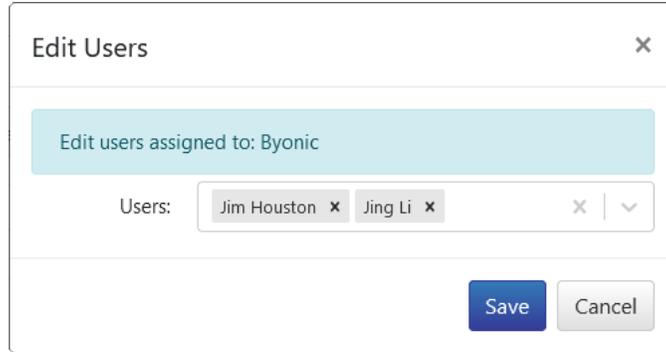
Figure 49: Edit Users for an Entitlement

Users can be added or removed in this dialog. To remove a User from the Entitlement, click the **x** following the User's name. To remove all of the Users in this Entitlement, click the **X** to the right of the **Users** cell.

To add Users to the Entitlement, click the dropdown arrow at the right of the **Users** cell and select the Users to be added:
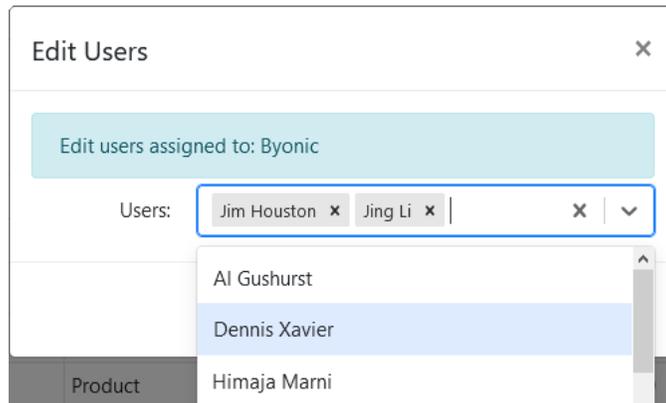
Figure 50: User assignments dropdown

Type into the **Users** entry box to restrict the dropdown list to User names containing that string. Click **Save** to save the edited User assignments.

To add one or more Users to multiple Entitlements, check each of the Entitlements to be modified, and click **Add Users**. This opens the **Add Users** dialog:
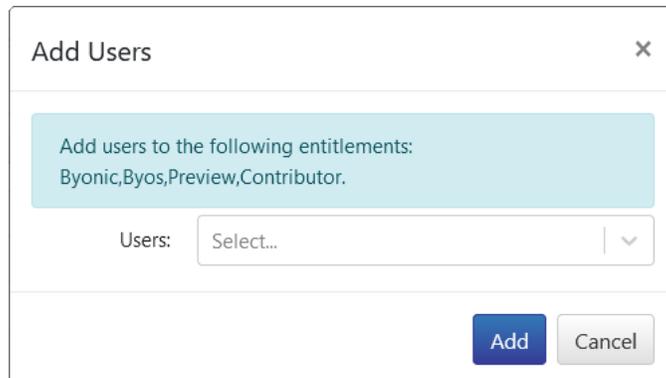
Figure 51: Add Users to an Entitlements

Click the dropdown arrow and select the Users to add:
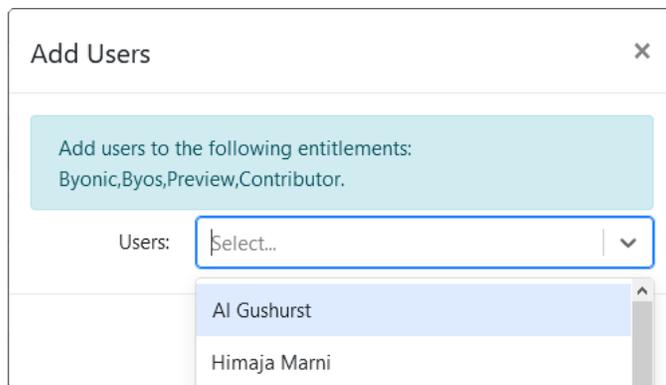
Figure 52: Assign Users to add

After all Users are assigned, click **Add** to save the User assignments. If a User is already assigned to some of the checked Entitlements, the User will not be added again.

To remove one or more Users from multiple Entitlements, check the Entitlements to modify and click **Remove Users**. In the **Remove Users** dialog, click the dropdown arrow and select the Users to remove:
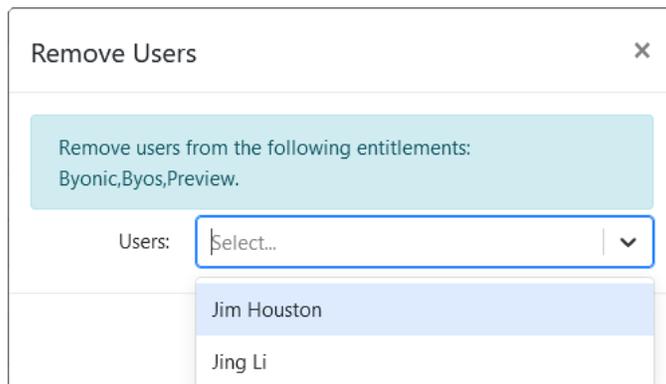
Figure 53: Assign Users to remove

The User list includes all Users assigned to at least one of the checked Products or Roles. After all Users are chosen for removal, click **Remove** to remove those User assignments from the collection of checked Entitlements.

As described above, Role Entitlements give access to folder Privileges and product features. There are two kinds of Roles:

Figure 54: Role Entitlements

- **Advanced Viewer** allows the assigned Users the File Editor Privilege in User Groups assigned to specific folders. Advanced Viewers can add, edit, delete, and move files in those folders. If the License includes the Regulatory Module, Advance Viewers can sign projects in those folders where Signatures are enabled (see the **Regulatory Tab - Signatures** section for details). Advanced Viewers also have access to Deep Query Dashboards. Advanced Viewers cannot be Folder Editors or Analysts, and thus cannot generate analyses.

- **Contributor** allows assigned Users any Privileges in User Groups assigned to specific folders: Viewer, File Editor, Folder Editor and Analyst. Thus, Contributors can generate analyses and reports for uploaded projects. Users with the Contributor role can also use Deep Query Dashboards and Intact Web Analysis. A Super User must also be given a Contributor Entitlement.

Note: Do not assign Users to both the Advanced Viewer and Contributor Roles. While this duplication will not impact the Users, it will tie up Role Entitlements that could be assigned to other Users,

Note: The Viewer Privilege does not require a Role Entitlement. Any Byosphere User who is a Viewer in a User Group assigned to a folder can view and download files, and open project reports in that folder, regardless of Entitlement assignments.

Note: The Analysis Server User requires no Product or Role Entitlements. The Automated Uploader User requires all Product Entitlements and the Contributor Role Entitlement.

Since User Group Privileges must be activated by Entitlements, changes to either of these records should be validated. To validate Entitlements and User Groups associations, click **Validate** at the top right of the Entitlements table. A list of all validation errors is displayed, grouped by Users:

License issues were detected. Certain privileges require that a user be assigned a role to activate the privilege. For instance, the Folder Editor privilege requires that the user be assigned the Contributor role in order to activate that privilege. To resolve the issue, you can assign the Contributor role to that user, or you can remove the user from the User Group that is granting that privilege. Similarly, product entitlements require the Contributor role. For more information on licensing and assigning entitlements, please see the help system.

License Issues:

User ↑↓	User Group ↑↓	Privilege ↑↓	Issue ↑↓
Dennis Xavier	AnalystUG	Analyst	Analyst privilege requires Contributor role
Dennis Xavier	AnalystUG	File Editor	File Editor privilege requires Advanced Viewer or Contributor role
Jing Li		Super User	Super User privilege requires Contributor role
Sejal maru			Advanced Viewer and Contributor roles assigned to same person
Sweta agrawal	FolderEdUG	Folder Editor	Folder Editor privilege requires Contributor role
Yashpal Gohil			Contributor role required for Peptide Analysis, Intact Analysis products

Figure 55: Examples of Entitlement/User Group validation errors

Entitlement/User Group validation errors and their resolutions include:

- **Advanced Viewer and Contributor roles assigned to same person** – If the User is intended to have any Analyst and/or Folder Editor Privileges, or is intended to be a Super User, remove the Advanced Viewer Entitlement. If the User is a File Editor only, remove the Contributor Entitlement.

- **Analyst privilege requires Contributor role** – If the User will be generating analyses, add the Contributor Entitlement. If not, remove the User from any User Group that includes the Analyst Privilege.

- **Contributor role required for <product list> products** – If the User will be generating analyses in the specified products, add the Contributor Entitlement. If not, remove the User from the Product Entitlements.

- **File Editor privilege requires Advanced Viewer or Contributor role** – If the User is intended to have any Privileges beyond File Editor, add the Contributor Entitlement. If the User is intended to have only the File Editor Privilege, add the Advanced Viewer Entitlement. If the User is intended to be a Viewer only, remove the user from all User Groups that are not Viewer-only.

- **Folder Editor privilege requires Contributor role** - If the User will be editing folders, add the Contributor Entitlement. If not, remove the User from any User Group that includes the Folder Editor Privilege.

- **Super User privilege requires Contributor role** - If the User is intended to be a Super User, add the Contributor Entitlement. If not, edit the User record in the Users page to uncheck the Super User Privilege.

Click the back button ⬅ at top left to return to the Licenses page. After performing needed edits to resolve conflicts, click the Validate button again to ensure all Privilege conflicts are resolved. In general, if a User experiences unexpected access or Privilege problems, it is worthwhile to apply the Validate function to locate conflicts between Entitlement and User Group Privileges.

Metadata Page

The **Metadata** page is used to create Metadata Definitions for assigning values to Metadata fields in server files and Query Folders for organizing metadata searches. Both features are found in the Byosphere Byos Client.

To manage Metadata Definitions and query folders, click **Metadata** in the left panel:
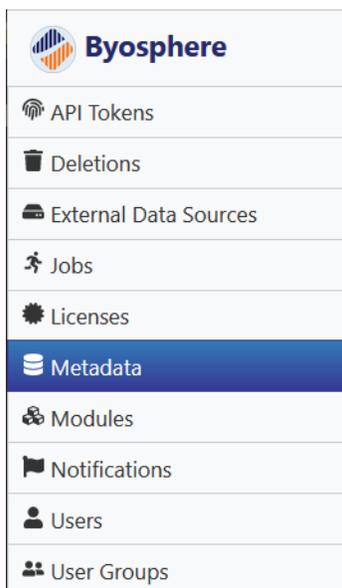

Figure 56: Metadata page in the left panel

There are two kinds of Metadata: **Reserved** and **Custom**. Reserved Metadata use predetermined definitions. The Byosphere server is prepopulated with a collection of reserved Metadata definitions with the **Status** values **Active** or **Inactive**, representing terms that are shown or hidden, respectively:

Actions	Type ↑↓	Field ↑↓	Alias ↑↓	Storage ↑↓	Filter Order ↑↓	Description ↑↓	Validation ↑↓	Vocabulary ↑↓	Status ↑↓
✎ ☰	Reserved	instrument	Instrument	string	1				Active
✎ ☰	Reserved	molecule	Molecule	string	1				Active
✎ ☰	Reserved	project	Project	string	1				Active
✎ ☰	Reserved	sample	Sample	string	1				Active
✎ ☰	Reserved	activity	Activity	string	1				Inactive

Figure 57: Metadata Definitions table

To expose or hide a Metadata term, edit its definition, and change the status to **Active** or **Inactive**. The display name (**Alias**) and several other properties can be edited or added but the database name (**Field**) and datatype (**Storage**) cannot be edited for Reserved definitions.

Custom Metadata can be created using any definition. To create a new custom Metadata Definition, click **Add**:

Figure 58: Add Metadata Definition dialog

The Metadata Definition includes the following parameters:

- **Storage** (required) – the datatype for the data stored to the metadata field. Options include:
  - **datetime** – a date and time in the format YYYY-MM-DD hh:mm:ss (using a 24-hour clock)
  - **integer** – only numerals and the negative sign (-) are accepted
  - **real** - only numerals, the decimal (.) and the negative sign (-) are accepted
  - **string** – any character is accepted

- **Field** (required) – a unique internal name for the Metadata field. Note that the system will prepend the name with the characters "`c_`" so the Metadata can be distinguished as a custom definition. Note also, the text entered into Field can only contain lower case letters and underscores.

- **Alias** (required) – a display name for the Metadata.

- **Filter Order** – indicates the display order of the Metadata fields available to filter search results in the Search page of the Byosphere Web Client:
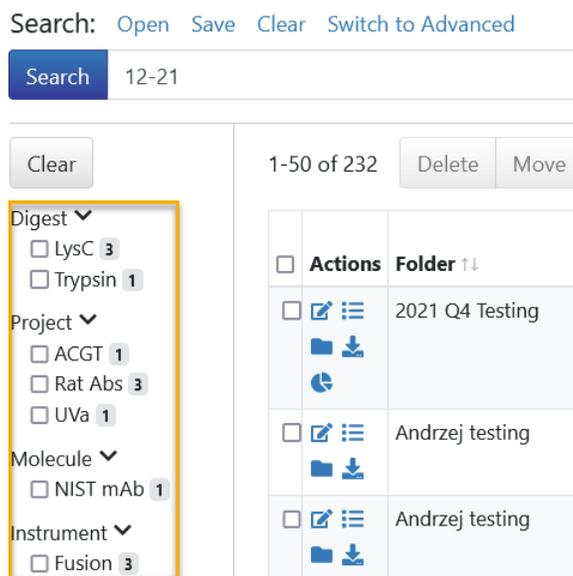

Figure 59: Metadata field filter search result order

Metadata with Filter Order values of **1** are displayed first. Field names with the same Filter Order are displayed alphabetically. To turn off display of an active Metadata field, use Filter Order **0**.

- **Description** – a description of the field for benefit of Administrators; Note that a mouse click and hold over the three diagonal lines enables the user to enlarge or reduce the entry box:

Figure 60: Expanding the entry windows

- **Validation** – A URL link used to validate entry content or syntax

- **Vocabulary** – A controlled vocabulary of allowed terms. A vocabulary is entered as a single string, with the terms separated by commas, for example:
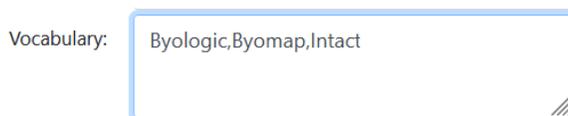

Figure 61: Entry of Vocabulary terms

The example above does not allow for null values, thus all file uploads with metadata will include a value for this field. To include a null value as the default value, enter a comma before the first term, for example:

```
,Byologic,Byomap,Intact
```

In this example, entry of one of these terms is optional and the default will upload no value to the metadata field.

Note: Avoid trailing or leading spaces as they will become part of the vocabulary term.

- **Status** – Whether the Metadata field is **Active** (visible to the user) or **Inactive** (hidden from the user). Note that Metadata Definitions cannot be deleted.

Click **Add** to generate the new custom Metadata Definition. The record is added to the Metadata Definitions table:

| Definitions | Query Folders | | | | | | | | |

Actions	Type ↑↓	Field ↑↓	Alias ↑↓	Storage ↑↓	Filter Order ↑↓	Description ↑↓	Validation ↑↓	Vocabulary ↑↓	Status ↑↓
✎ ☰	Custom	c_technician	Technician	string	4	Technician who completed the scan.			Active
✎ ☰	Reserved	instrument	Instrument	string	3				Active
✎ ☰	Reserved	molecule	Molecule	string	2				Active
✎ ☰	Reserved	project	Project	string	1				Active

Figure 62: Added Custom Metadata to Metadata Definition table

To edit a Metadata Definition, click the ✎ icon to the left of the record. The **Edit Metadata Definition** dialog opens:

Figure 63: Edit Metadata Definition dialog

Note that for Reserved Metadata, the Storage and Field parameters are not editable and so will be grayed out. Edit the desired fields and click **Save** to preserve the edits.

To view the edit history for a Metadata Definition, click the ☰ button. The Metadata Definition table is replaced by a Metadata Definition History table:

Version ↑↓	Type ↑↓	Field ↑↓	Alias ↑↓	Storage ↑↓	Filter Order ↑↓	Description ↑↓	Validation ↑↓	Vocabulary ↑↓	Status ↑↓	Changed By ↑↓	Changed On ↑↓	Change ↑↓
1	Custom	c_expected_mass	mass	integer	1				Active	Sree Paruchuri	2021-12-06 19:22:52	Add
2	Custom	c_expected_mass	mass	real	1				Active	Sree Paruchuri	2021-12-06 19:24:16	Edit

Figure 64: Metadata Definition History table

The Metadata Definition History table includes all the fields described previously, along with the Administrator who edited the Metadata Definition record, the date and time of the change and the nature of the change. Click the back button ← at top left to return to the Metadata Definition table.

Active Metadata fields are available to populate with values in the Byosphere Byos Client. Metadata field values can be added to analyses as part of job submissions and to any file as part of file uploads. Populated Metadata fields can be viewed in the Byosphere Web Client in the File table. The Metadata field columns are hidden by default; to show the Metadata fields, users click the Toggle Columns button above the File table and check the fields to display. Metadata is also available for advanced searching in the Search page. See the **Byosphere 02 Byos Client Manual.pdf** for more details.

Query Folders can be assigned a collection of queries tailored to the user's privileges. To create a Query Folder, click **Add**:

Figure 65: Add Metadata Query Folder

Assign a unique name to the folder, In **User Groups**, select one or more User Groups, which contain one or more users (see the User Groups Page section for more details). Click **Add** to create the Query Folder. The new record will display in the Query Folder table:

Actions	Name ↑↓	User Groups ↑↓	Created By ↑↓	Created On ↑↓
✎ ☰	Viewer Queries	Viewer	Jim Houston	2021-11-29 21:04:09

Figure 66: Metadata Query Folder table

To edit a Metadata Query Folder, click the ![edit icon] icon to the left of the record to open the **Edit Query Folder** dialog:

Figure 67:Edit or delete a Query Folder

Change the Name and/or User Group set and click **Save**. To delete a Query Folder, click the ![trash icon] icon in the Edit Query Folder dialog, and click **Delete**.

To view the edit history for a Metadata Query Folder, click the ![list icon] button. The Query Folder table is replaced by a Query Folder History table:

Figure 68: Metadata Query Folder History

The Query Folder History table includes all the fields described previously, along with the Administrator who edited the Metadata Query Folder record, the date and time of the change and the nature of the change. Click the back button ![back button] at top left to return to the Query Folder table.

Modules Page

The **Modules** page is used to configure Modules which expose specialized features in the Byosphere Web Client and the Byosphere Byos Client,

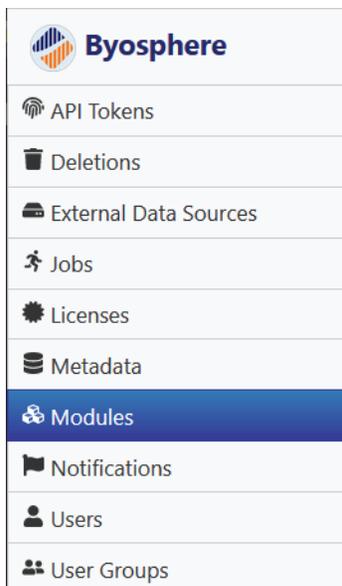To manage Modules, click **Modules** in the left panel:

Figure 69: Modules page in the left panel

Modules are enabled as License Entitlements. If no Module Entitlement is present, the page will appear blank. Currently, only the **Regulatory** Module is available for Byosphere. The Regulatory tab is used to configure project signatures - changes of state authorized by designated Users using passwords.

Regulatory Tab - Signatures

The **Regulatory** tab configures the signing behavior available for Protein Metrics project files that contain online reports. The tab contains two sections: **Signature States** and **Signature Transitions**. The default Regulatory Signature States and Signature Transitions (between the three states) are shown below:

Signature States

Actions	ID ↑↓	Name ↑↓	Locked ↑↓	Description ↑↓
✎ ☰	1		No	Unsigned.
✎ ☰	2	Signed	Yes	Signed.
✎ ☰	3	Approved	Yes	Approved.

Signature Transitions

Actions	ID ↑↓	Name ↑↓	Starting State ↑↓	Ending State ↑↓	Comment Required ↑↓	Restricted To ↑↓	Notify ↑↓	Description ↑↓
✎ ☰	1	Sign		Signed	No			Sign a document.
✎ ☰	2	Approve	Signed	Approved	No			Approve a document.
✎ ☰	3	Reject	Signed		No			Reject a document.

Figure 70: Modules – Regulatory tab for Signature configuration

This combination of Signature States and Transitions shown above can be illustrated as follows:
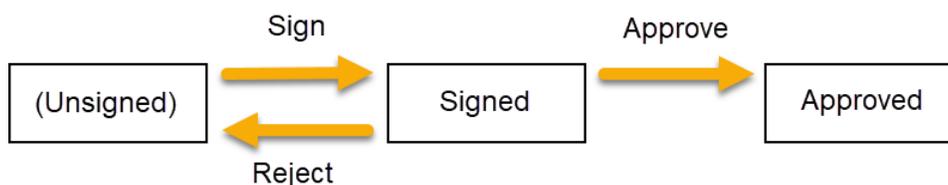

Figure 71: Workflow for default Signature States and Transitions

1. Files begin in the "unsigned" state (with no Signature State value in the File table) and they can be edited, moved or deleted.

2. If signing is enabled, unsigned project files can employ the **Sign** action to put them into the **Signed** state (Signature State = Signed). These documents cannot be edited, moved or deleted.

3. Once in the Signed state, the document has two signature options available to it. The **Reject** transition returns the document back to the unsigned state.

4. Alternatively for documents in the Signed state, the **Approve** transition moves the document to the **Approved** state, (Signature State = Approved). Documents in this state also cannot be edited, moved or deleted.

5. Once in the Approved state, a document cannot change state because there is no transition from the Approved state, either forward or backward.

Signature States

Signature States apply exclusively to Protein Metrics analysis projects with reports. They represent states of project review or approval by designated signers, who use their logins to move a document from one state to another.

The Signature States table contains the following columns:

*   **Actions** shows icons representing actions that can be performed on created Signature States.

*   **ID** is an identifying value generated for the Signature State.

*   **Name** is the name of the state but is also displayed in the Signature State column of the File table in the Byosphere Web Client. **Note**: The Name for the "unsigned" state should be left blank; otherwise, all unsigned files will display a value in this field.

*   **Locked** determines whether documents in that state can be modified (edited, moved or deleted) or not. **Note**: The "unsigned" state should be unlocked; otherwise, all unsigned files will be read-only.

*   **Description** is a free-entry field to describe the Signature State for the Administrator's benefit. The description does appear in the Byosphere Web Client UI.

To edit an existing Signature State, click the ✏ icon to the left of the state record to open the Edit State dialog:

Figure 72: Edit Signature State

Modify any values and click **Save**.

To create a new Signature State, click the **Add** button above the Signature State table to open the Add State dialog:

Figure 73: Add Signature State

Enter a Name, a Locked setting and optionally, a Description and click **Add**. The new state is added to the Signature State table:

Figure 74: Edited Signature States table

To delete a Signature State, click the ✎ icon to the left of the State record, click 🗑 at the top right to open the Delete State dialog:
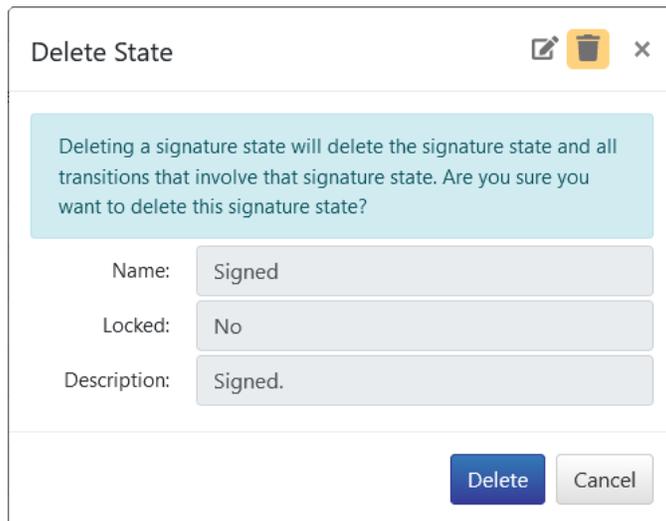
Figure 75: Delete Signature State

Click **Delete** to delete the Signature State. There are several points to be made regarding the deletion of Signature States:

- Any Signature Transitions that used the deleted Signature State as either the starting or ending state will also be deleted.

- The "unsigned" Signature State can be edited but not deleted.

- If any documents use a specific Signature State, that Signature State cannot be deleted in the Admin Web Client.

- The ID used by the deleted Signature State is not reused in later records.

To view the history of a Signature State, click the ☰ icon to the right of that record:

Signature State History: 2

Version ↑↓	Name ↑↓	Locked ↑↓	Description ↑↓	Changed By ↑↓	Changed On ↑↓	Change
1	Signed	true	Signed.	FileEdUser	2021-03-29 15:37:39	Add
2	Signed	false	Signed.	Dhrumil	2021-04-16 05:17:47	Edit
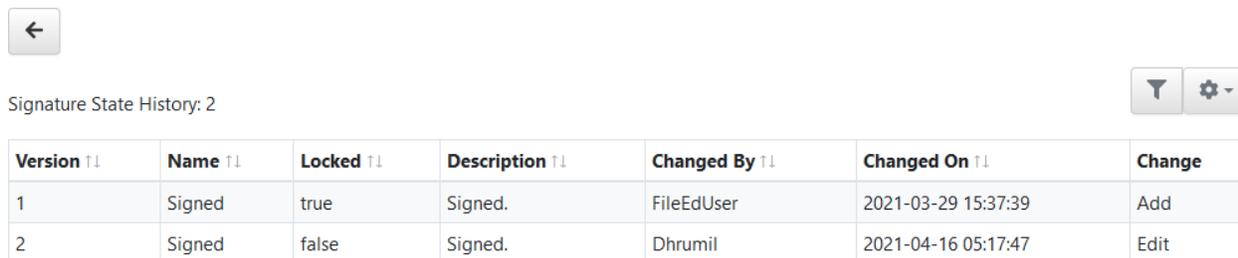
Figure 76: Signature State History

Click the back button ← at top left to return to the Modules page.

Signature Transitions

As described above, **Signature Transitions** determine how one state can change to another.

The Signature Transition table contains the following columns:

- **Actions** shows icons representing actions that can be performed on created Signature Transitions.

- **ID** is an identifying value generated for the Signature Transition.

- **Starting State** is the Signature State that a document has before the transition. If the document is starting in the unsigned state, leave this entry blank.

- **Ending State** is the Signature State that a document has after the transition. If the document is ending in the unsigned state (when transitioning in reverse), leave this entry blank.

- **Comment Required**, if **Yes**, the transition cannot be completed unless the signer enters a comment.

- **Restricted To** lists the User accounts that can apply the transition. Those signers must have File Editor Privileges in the User Groups assigned to the relevant folders, and they must have either one of the Role Entitlements to use the transition. If left blank, the transition is available to all Users with a Role Entitlement and File Editor Privileges in folders where signatures are enabled.

- **Notify** lists the Users accounts who are notified by email when the transition occurs. These Users do not require Privileges or Role Entitlements. They only require Byosphere accounts.

- **Description** is a free-entry field to describe the Signature Transition for the Administrator's benefit. The description does appear in the Byosphere Web Client UI.

To edit an existing Signature Transition, click the ✏ icon to the left of the Transition record to open the Edit Transition dialog:
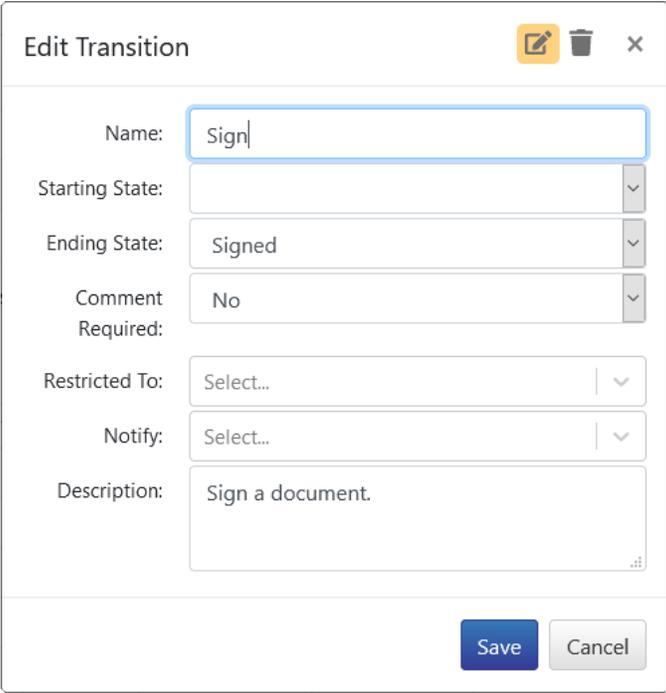
Figure 77: Edit Signature Transition

To add Users to the **Restricted To** or **Notify** fields, click the dropdown arrow at the end of the field and select the User to add:
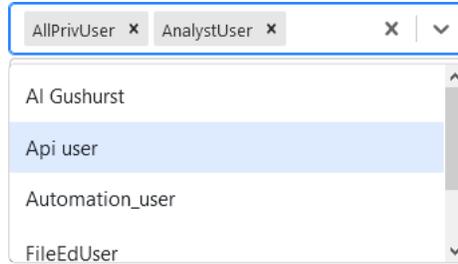
Figure 78: Add Users to Signature Transition fields

To remove Users from **Restricted To** or **Notify**, click the **x** after the name. Modify all desired values and click **Save**.

To add a Signature Transition, click **Add** at the top left of the Signature Transition table to open the Add Transition dialog:

Figure 79: Add Signature Transition

Adding Signature Transitions for a new Signature State depends upon where that state is situated relative to existing states. If the new state is appended to the end of the existing states, a Signature Transition is added to move from the former last state to the new last state. For example, if the Signature State QAed (created above) is to be added after the Approved state, the added Signature Transition would appear as:

Figure 80: Add QA Signature Transition at the end

This transition makes QAed the last available Signature State. As such, documents cannot be transitioned out of the QAed state unless a reverse transition is created with Approved as the ending stare, or an ending state is added after QAed.

To insert a new Signature State between two existing states, one Signature Transition must be edited and another added. For example, the new state QAed could be added between the states Signed and Approved. A Signature Transition should be added that moves the document from Signed to QAed:

Figure 81: Add QA Signature Transition after Signed

The Signature Transition Approve needs to be edited to make QAed the Starting State:

Figure 82: Edit QA Signature Transition before Approved

The resulting Signature Transitions table would be:

Signature Transitions

Actions	ID	Name	Starting State	Ending State	Comment Required	Restricted To	Notify	Description
🖉 ☰	1	Sign		Signed	No			Sign a document.
🖉 ☰	2	Approve	QAed	Approved	No			Approve a document.
🖉 ☰	3	Reject	Signed		No			Reject a document.
🖉 ☰	4	QA	Signed	QAed	No			QA a document

Figure 83: Modified Signature Transitions table

To delete a Signature Transition, click the 🖉 icon to the left of the State record, click 🗑 at the top right to open the Delete Transition dialog:

Figure 84: Delete Signature Transition

Click **Delete** to delete the Signature Transition. This will not delete any of the referenced Signature States. **Note**: The ID used by the deleted Signature Transition is not reused in later records.

To view the history of a Signature Transition, click the ☰ icon to the right of that record:

Version ↑↓	Name ↑↓	Starting State ↑↓	Ending State ↑↓	Comment Required ↑↓	Restricted To ↑↓	Notify ↑↓	Description ↑↓	Changed By ↑↓	Changed On ↑↓	Change
1	QA	Signed	Approved	No				Jim Houston	2021-04-22 11:06:39	Add
2	QA	Signed	QAed	No			QA a document	Jim Houston	2021-04-22 11:15:13	Edit

Figure 85: Signature Transition History

Click the back button ← at top left to return to the Modules page.

Notifications Page

The **Notifications** page is used to configure how Notifications are sent and who will receive them. To manage notifications, click **Notifications** in the left panel:
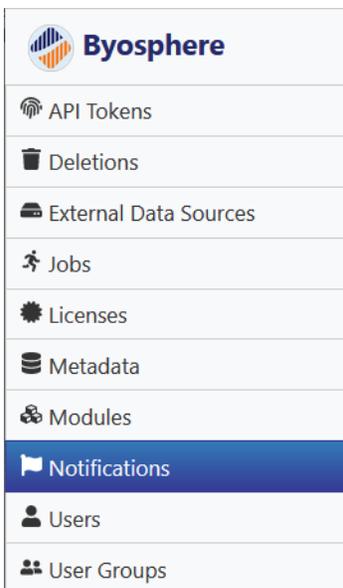
Figure 86: Notifications page in the left panel

Notifications are available for **Document Signing** and for **Job Completion**:

Document Signing Notifications are sent when a project is signed, that is, transitions from one Signature state to another. Document Signing Notifications only apply if the Regulatory Module is enabled. The recipients of these Notifications are set in the **Regulatory** tab of the **Modules** page by selecting one or more account names in the **Notify** field for **Transitions**. To configure Notifications for Document Signing, click the 📝 button at left. The **Edit Document Signing Notifications** dialog opens:

There are three ways that notifications can be sent:

- **API** enables custom Signing Notifications in third party software. Through the API, the notifications sent can be used to perform actions in that software. An appropriate URL path needs to be entered in the **API URL** cell. **Note**: only REST APIs are supported.

- **Application** enables Signing Notifications in the Notifications tab in the Byosphere Web Client.

- **Email** enables Signing Notifications to be sent as emails to the recipients defined in the Modules page, as described above.

Check the sending pathways to enable, add a URL if the API pathway is enabled, and click **Save**.

Job Completion Notifications are sent when an Analysis, Report or other Job completes successfully, fails or is ended for other reasons. The three ways that Job Completion Notifications are sent are the same as for Document Signing Notifications:
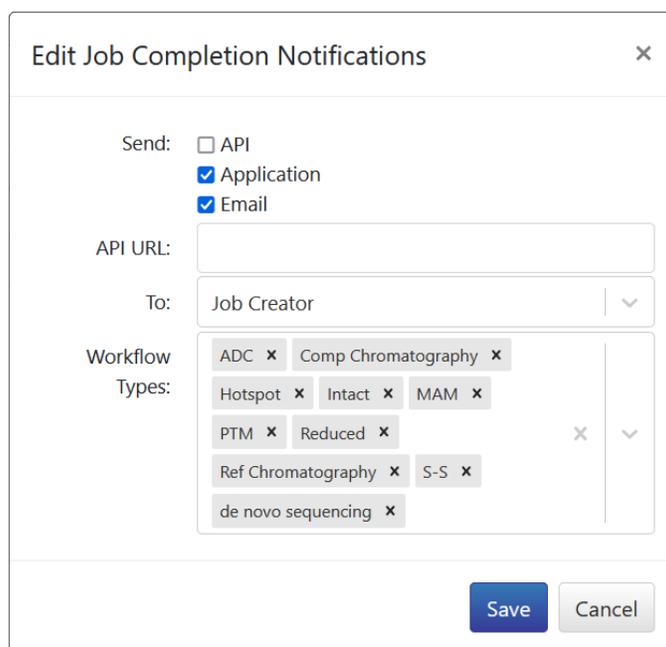
The recipient(s) of Job Completion Notifications are set in the **To** cell, as either the **Job Creator** or as **All users who can view result**. These latter Users are defined as any who have **Viewer** privileges to the server folder where the Job was sent. In addition, Job Completion Notifications can be limited to certain workflows. Click the **x** after any workflows to be removed. Click the down arrow and select any workflows to add. All workflows are enabled by default. Click **Save** after making the desired changes.

Users Page

The **Users** page allows an Administrator to create and manage Users. To manage Users, click **Users** in the left panel:
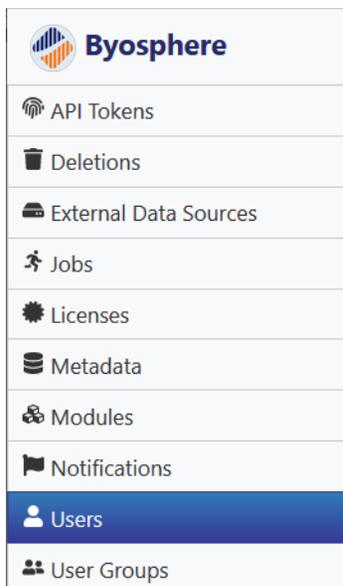
Figure 87: Users page in the left panel

The table of created Users is displayed in the main panel:

Figure 88: Users table

The Users table contains the following columns:

- **Actions** shows icons representing actions that can be performed on created Users.

- **Display Name**, typically the User's first and last name, is the name displayed in the Byosphere Web Client when the User is logged in. This is also the name displayed in user-specific fields, such as Created By, Changed By and Deleted By.

- **Email** displays the email of the User. A valid email is required for a created User to be able to log into the Byosphere Admin Web Client or Byosphere Web Client.

- **Department** and **Location** are required fields that can be any string.

- **Privilege Names** are described in the **User Types** section above. All Users have basic User access, which allows them to log into the Byosphere Web Client and Byosphere Byos Client; where the Privileges column is blank, the User is a basic End User.

- **Status** can be "Active" or "Inactive". Users cannot be deleted since files and folders created by those Users need to reference an existing User. When set to Inactive, the User can no longer log into the Byosphere Web Client or Byosphere Byos Client.

To create a User, click the **Add** button. The **Add User** dialog opens:

Figure 89: Add User dialog

Entries are required for the **Display Name**, **Email**, **Department** and **Location**. As noted above, Display Name is usually the first and last name of the new User. **Status** can be either Active or Inactive. Check **Privileges: Administrator** to give the User an Administrator access to the Byosphere Admin Web Client. Check **Super User** to give the User unlimited access to the Byosphere Web Client and Byosphere Byos Client, and to allow the User to create folders at the root level. To limit the User to Privileges assigned through User Groups, leave these unchecked. Click **Add** to create the User.

Once created, an email is sent to the new User with a link to create a password. After setting a password, the User can log into either to the Byosphere Web Client or to Byosphere Byos Client.

To edit an existing User, click the ✎ button in the first column. The **Edit User** dialog opens:
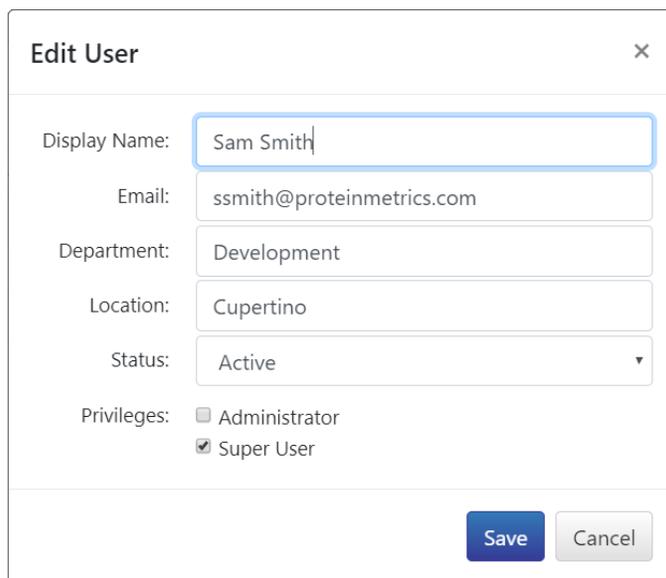
Figure 90: Edit User dialog

Any of the fields can be modified. Recall that Users cannot be deleted. To remove a User's access to the Byosphere system, set Status to Inactive. To save the changes, click **Save**.

To view the edit history for a User, click the ≣ button in the first column. The Users table is replaced by a User History table:

←

User History: Sam Smith   ▼ ⚙▾

Version ↑↓	DisplayName ↑↓	Email ↑↓	Department ↑↓	Location ↑↓	Status ↑↓	Privileges ↑↓	Changed By ↑↓	Changed On ↑↓	Change ↑↓
1	Sam Smith	ssmith@proteinmetrics.com	Development	Cupertino	Active	Super User	John Jones	2020-04-08 08:25:56	Add
2	Sam Smith	ssmith@proteinmetrics.com	Development	San Francisco	Active		John Jones	2020-04-15 08:26:08	Edit
3	Sam Smith	ssmith@proteinmetrics.com	Development	San Francisco	Inactive		John Jones	2020-04-21 08:56:25	Edit

Figure 91: User History

The User History table includes all the fields described previously, along with the Administrator who edited the User record, the date and time of the change and the nature of the change. Click the back button ← at top left to return to the Users table.

Virtual Client Support

Byosphere Virtual Client enables Byosphere Web Client to host VM (virtual machine) remote instances of Byosphere Byos for extremely fast performance when opening large projects with large sample files. Virtual Client instances reside on the Byosphere server host, enabling direct contact over a very fast network. Each user account is assigned an instance, which persists from their last session when they login again. For details about configuring Byosphere Virtual Client on the Byosphere server, see the **Byosphere Virtual Client Configuration Admin Manual.**

Activate the VM Feature

Once Byosphere Virtual Client has been configured on the server, it needs to be activated from the Users page of the Byosphere Web Admin app. The **Activate Virtual Client VMs** button should appear at the top:

Add	Activate Virtual Client VMs						▼ ⚙▾

Actions	Display Name ↑↓	Email ↑↓	Department ↑↓	Location ↑↓	Privilege Names ↑↓	Status ↑↓
✎ ≣ ✿	Abby Allen	aa@proteinmetrics.com	Dev	Pleasanton	Administrator, Super User	Active

Figure 92: When Virtual Client support is enabled, the Activate Virtual Client VMs button appears

Click **Activate Virtual Client VMs**, enter the Launch Template ID for the VM instance found in the AWS EC2 Console (the Launch template ID of the launch template you created in the Create Machine image and Launch template section of the Virtual Client Manual) and click **Activate.**
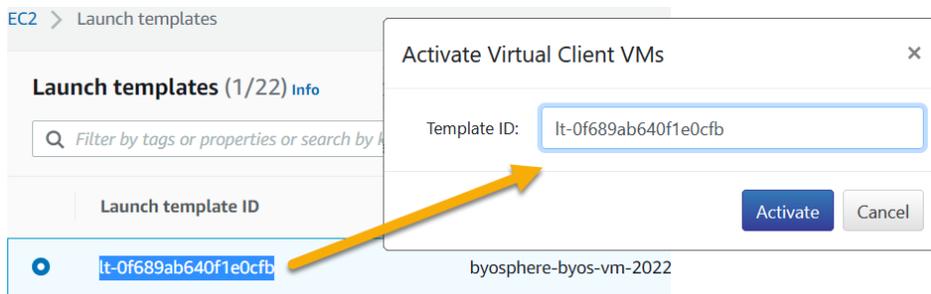
Figure 93: Activate Virtual Client VMs

A Virtual Client image containing Byosphere Byos will be created for each user account automatically. Note that this process can take over an hour to complete. Once completed, the **Activate Virtual Client VMs** button will be replaced with **Deactivate Virtual Client VMs** and an extra **VM Status** column will be added to the table:

Figure 94: When Virtual Clients are activated, the button changes to **Deactivate** and the **VM Status** column appears

VM Status shows the status of the image for each user. As each Virtual Client image is created individually, VM Status will change from **running** to **stopping**, and finally to **stopped**. When users start the Virtual Client feature, the status changes to **running** again. After logout or timeout, the status returns to the stopped state. The instances automatically shut down to save hosting costs.

Note that accounts assigned API Tokens (e.g., the Analysis and Automation Servers), and inactive users will not have Virtual Client images associated with them.

To terminate the Virtual Client instances, click **Deactivate Virtual Client VMs**. This is needed if the version of Byosphere Byos on the source image needs to be updated, or the image system needs to be updated for other reasons (e.g., security patches).

It is important to note that **Deactivate Virtual Client VMs** will remove *all* users in the VM, as well as any associated content. If you wish to deactivate an individual's VM, you must set the user as **Inactive** under the **Edit User** dialog.
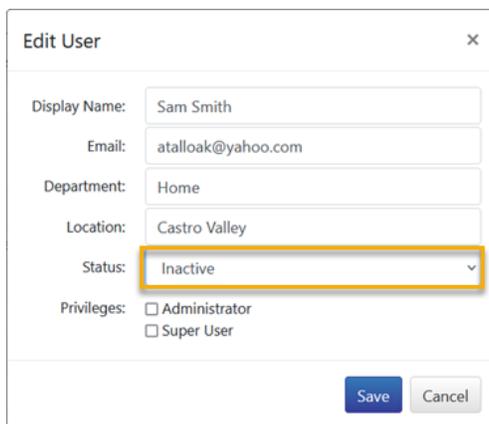
Figure 95: Edit User Status set to "Inactive"

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User Groups Page

The **User Groups** page allows an Administrator to create and manage User Groups. User Groups contain lists of Users and Privileges which when assigned to folders in the Byosphere Web Client, restrict the Users access and privileges to those folders.

To manage User Groups, click **User Groups** in the left panel:
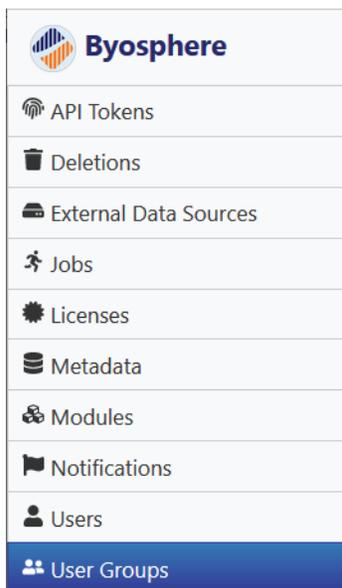
Figure 96: User Groups page in the left panel

A table of created User Groups is displayed in the main panel:

Actions	Name ↑↓	Users ↑↓	Privilege Names ↑↓	Created By ↑↓	Created On ↑↓
📝 ☰	AllPrivUG	Jim Houston, Jing Li, Himaja, Sree Paruchuri, AnalysisServer	Analyst, File Editor, Folder Editor, Viewer	Jim Houston	2020-10-26 04:31:49
📝 ☰	AnalystUG	AnalystUser	Analyst, File Editor, Viewer	Jim Houston	2020-10-26 04:19:37
📝 ☰	DennisGRP	Dennis Xavier	Folder Editor, Viewer	Dennis Xavier	2021-02-01 00:33:57
📝 ☰	FileEdUG	FileEdUser, sweta agrawal	File Editor, Viewer	Jim Houston	2020-10-26 04:21:06
📝 ☰	FolderEdUG	FolderEdUser, Himaja Marni	Folder Editor, Viewer	Jim Houston	2020-10-26 04:29:38

Figure 97: User Groups table

The User Groups table contains the following columns:

- **Actions** shows icons representing actions that can be performed on created Users.

- **Name** is the name assigned to the User Group. This name identifies the User Group that can be assigned to a folder created or edited by a Folder Editor.

- **Users** displays the list of Users assigned to the User Group.

- **Privilege Names** displays the list of Privileges assigned to the User Group.

- **Created By** and **Created On** display the Administrator who created the User Group and the date and time it was created.

To create a User Group, click the **Add** button. The **Add User Group** dialog opens:

Figure 98: Add User Group dialog

Name should be descriptive text that identifies the members of the User Group and their Privileges. Neither the Users nor their Privileges are displayed to the Folder Editor when assigning a User Group to a folder. Click in the **Users** cell to display a drop-down list of all active Users:
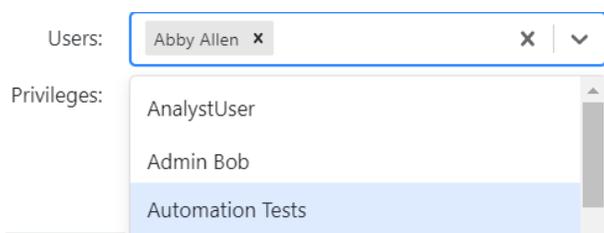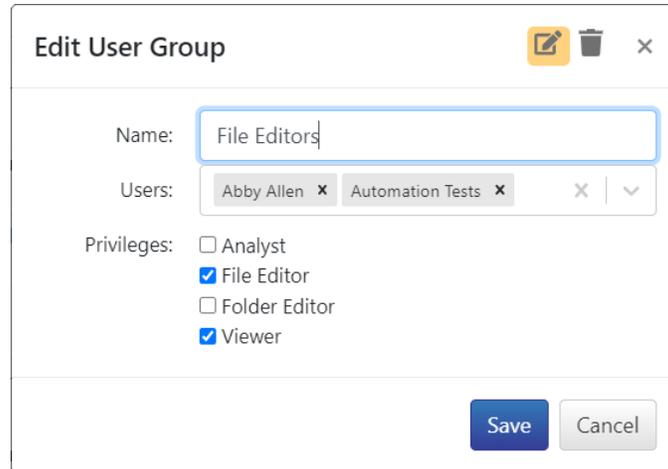

Figure 99: The active Users dropdown

Select Users from the drop-down list and they are added in the Users cell. Alternatively, type the first letters of a User's name to filter by that name and then select it. Multiple Users can be added. Click the **x** after an added User's name to remove it from the User Group. Click the **X** to the right of the cell to remove all User names. At least one User must be included in the User Group.

Privileges list the available Privileges to assign the User list. Descriptions of these Privileges are given in the **User Privileges** section above. Recall that Privileges are independent, not additive: the Folder or File Editor Privileges also requires the Viewer Privilege; the Analysis Privilege also requires the File Editor and Viewer Privilege. Click **Add** to create the User Group.

As described in the **License Entitlements** section, most Privileges require Users to have Role Entitlements. The File Editor Privilege requires that Users have either the Advanced Viewer or the Contributor Role. Folder Editor and Analyst Privileges require that Users have the Contributor Role. Users who are only Viewers do not need either the Advanced Viewer or the Contributor Role.

To edit an existing User Group, click the ✎ button. The **Edit User Group** dialog opens:

Figure 100: Edit User Group dialog

Edit the name, assign or unassign Users and/or assign or unassign Privileges. To save the changes, click **Save**.

To delete a User Group, click the 🗑 button at the top right of the Edit User Group dialog. The dialog changes to the **Delete User Group** confirmation dialog:
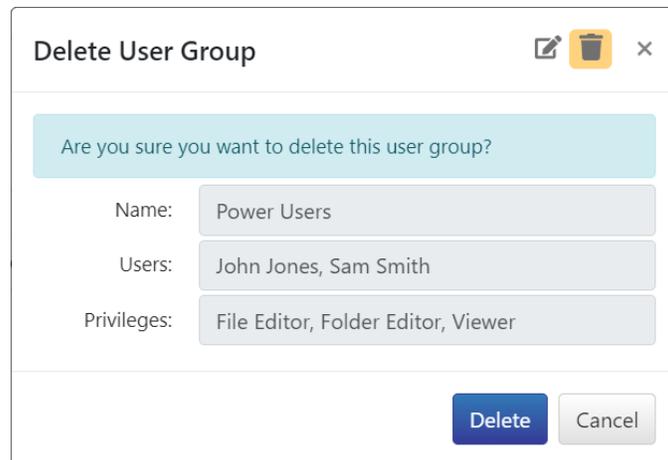
Figure 101: Delete User Group dialog

Click **Delete** to complete the deletion. Note that a User Group cannot be deleted if it is assigned to any folders in the Byosphere Web Client. In that case, a Super User or a Folder Editor who is also a member of that User Group must remove the User Group from all folders. Afterwards, an Administrator can delete it.

To view the edit history for a User Group, click the ≡ button. The User Group table is replaced by a User Group History table:

Figure 102: User Group History

The User Group History table includes all the fields described previously, along with the Administrator who edited the User Group record, the date and time of the change and the nature of the change. Click the back button ← at top left to return to the User Groups table.

Table Management

The Deletions table, the Users table, the User Groups table and the History tables can all be sorted and filtered by column. Individual table columns can be hidden or restored. The behavior for all of the tables is the same.

Sort by Column

Tables can be sorted by each column, descending or ascending. To sort a column descending, click the pair of arrows behind the column header. The down arrow is displayed in black and the table is sorted by those column values in descending order:

Figure 103: User Group History table sorted by Version, descending

To sort ascending, click the column header a second time.

Filter by Column

Tables can be filtered by each column for entered text. To filter the values in a column, click the ▼ button. Entry boxes appear below the column headers. Enter the value to filter in the box below the appropriate header and only the rows containing that value are displayed:

Figure 104: User Group History table filtered by "Users contains Jones"

To filter by additional column values, enter those values in the appropriate entry boxes. The rows that contain all the filter strings in their corresponding columns are displayed. To display all rows again, delete all filter strings. To remove the filter entry boxes, click the ▼ button again.

Show and Hide Columns

Unwanted columns can be hidden. To change which columns are displayed, click the [⚙▾] button. A dropdown displays all the columns with checked boxes. To hide columns, uncheck those column headers:

Figure 105: Hide table Columns

To show hidden columns, click the [⚙▾] button again and recheck the headers to show.

Set Up the Byosphere Web Client

After Users and User Groups have been created (including at least one Administrator and one Super User), the Byosphere Web Client can be initialized. Recall that the web address for the Byosphere Web Client is the same as the Byosphere Admin Web Client, without "/admin". Specifically:

- `https://<Public DNS>` (for a secured server)

- `http://<ENT Public DNS>:5000` (for an unsecured server)

`To initialize the` Byosphere Web Client, a Super User must log in. When the Super User account was created, that User received an email from the Byosphere email server (see the **Configure Email** section of the server platform Byosphere Admin manual). The email contains a link to access the Byosphere Web Client in the default web browser. The link opens a welcome screen in Byosphere Web Client:

Figure 106: The emailed link prompts the Super User to set a password

To set a password, enter the same sting in both cells with a minimum of six characters and click **Submit**. The User is then prompted to login. Upon login, the Super User is presented with an empty Browser, but with action buttons at the top left:
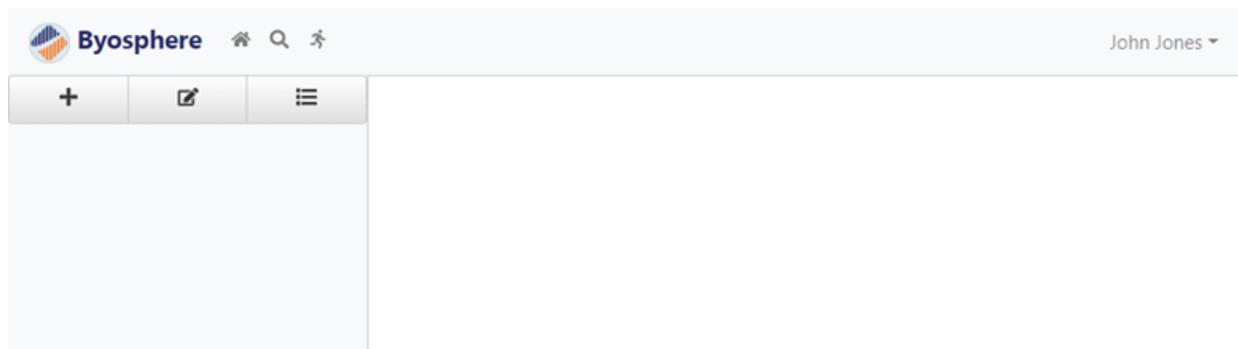
Figure 107: Initial Byosphere Web Client screen upon first login

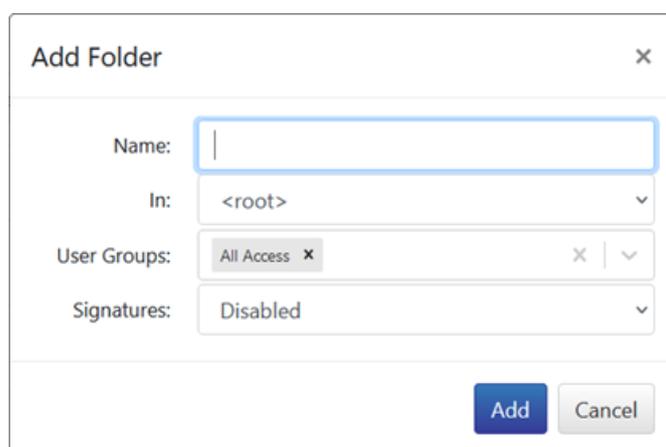To add a folder, click the ✚ button below the logo. The **Add Folder** dialog opens:

Figure 108: Add Folder dialog

Enter the folder name after **Name**. All of the User Groups created by the Administrator are displayed. Check the User Groups with the appropriate Users and Permissions and click **Add**. Repeat the Add Folder steps for all required root level folders. To create sub-folders, select the parent root folder and perform the Add Folder steps.

When the Super User has created all the root folders, the Byosphere Web Client is ready for use by the greater user base.