

Sci Ed Software

Software for the Molecular Biologist

Using Clone Share in Clone Manager

The Clone Share data store system provides for the sharing of molecule files between users of the Clone Manager desktop software. It also allows users to share and view molecule information with the Clone Manager viewer apps running on smart phones and tablets.

Clone Share can be hosted on cloud data storage services, such as Microsoft OneDrive, or on our SciEd Web Share application running as a web server on a local computer. More information about these hosts is given below. If using a cloud service, you will need a user account. This account can be your personal account on the cloud platform and this will enable you to access your molecules from your windows desktop and your smart phone. Or the account can be a newly created account for your lab or research group. In this case, you will not be using the email function but will use the account to share molecules within your research group.

The Clone Manager desktop application can load molecules and use them for cloning or analysis operations. In addition to loading molecule files from the local file system, molecules can be loaded from the Clone Share system where the molecules are stored at a remote location and available for multiple computers or devices to load, view and edit. Any molecule loaded from Clone Share is available for any operation that the desktop software can perform. Molecules can be edited and saved to either the local file system or to the Clone Share system.

The Clone Manager Viewers are small, compact apps running on Android smartphones and tablets, and the Windows Store. Their purpose is to provide a convenient and portable method of viewing molecule information. Since they are able to access molecules stored using the Clone Share system, you can view your molecules when you are not in your office or in the lab.

A set of tutorials are available that cover the setup and usage of sharing in the Clone Share system. These are available in the documents section of our website.

Clone Manager Desktop

The desktop application runs on the Microsoft Windows operating system and provides the full viewing, editing, cloning and analysis capabilities of Clone Manager. Molecules can be loaded from Clone Share data stores using the *File*, *Clone Share* main menu. In wizards, molecules can be loaded by clicking the down arrow option on buttons and selecting Clone Share. In either case, the main Clone Share dialog box will appear and provide access to loading and saving molecules as well as management functions that can be used to organize and access your molecule data.

The dialog consists of 4 areas:

Toolbar buttons: Add, Edit, Remove, Move Up and Move Down. These buttons are used to manage the available Clone Shares. Use the Add button to add an additional Clone Share. The Edit button will show you the current definition of the share and optionally allow you to make any changes. The Remove button will remove the selected share. Note that removing a share does not delete the molecules contained in the share but only removes your access to those molecules. Move Up and Down allow you to reorder the list of available shares so that your most used shares are at the top and easiest to use.

Bottom panel: contains action buttons but is also used to display any error messages that may occur.

Left panel tree display: shows the shares that are available to use. You can add shares by clicking the toolbar Add button. Use the other toolbar buttons to make any changes to the display. You can also right click an item in the tree display to add a folder (see Advanced options, below) which allows you to organize your molecules into categories.

Right panel list display: shows the list of folders and molecules available in the Clone Share selected in the left panel tree display. If you have more than one share defined then you can click the node in the left panel tree display to select which one you want to use and the contents of that share will appear in the right panel list.

The following paragraphs provide more details of how to perform operations using the Clone Share system. You will want to create one, or more, connections to data stores located on remote servers.

Create a share: Click the first toolbar button (tooltip = Add Clone Share) to open the connection dialog box. Select the source where the data is stored and enter any required information for the connection. For example, select Microsoft OneDrive and select the log in account. For the first connection, you will select 'New account' and you will be prompted to log in to the account you want to use. Typically, the cloud service will tell you that certain permissions are being requested. In addition to basic account information (your account name but not your password or other private information), Clone Manager needs access to your data files in order to be able to read and write molecule files. Now enter the name of the share that you want to use. To connect to an existing share, you can click the Lookup hyperlink to get a list of shares that have already been defined (click the Reset hyperlink to remove the selection list of existing shares and allow you to type in a new share name). If this is the first time you are connecting to a cloud service, or you enter a share name that does not already exist, then you will be prompted to create a new share. For cloud data services, shares are created as sub-folders under the main root folder called SciEdDataStore. For the SciEd Web Share only an administrator can create a new share.

Edit a connection: This can be used to rename the display of the share. This can also be used to update or enter the log in credentials for accessing the SciEd Web Share. Click the second toolbar button (tooltip = Edit Clone Share).

Remove a connection: If you no longer want to use a Clone Share, you can remove the connection using the third button of the toolbar (tooltip = Remove Clone Share). When you confirm that you want to remove the connection, the connection will be removed. This does not delete the data in the share – it simply removes your ability to access the data. If you are removing the last connection to a particular source, you may be prompted to log off from the service.

Using a Clone Share: The main dialog box is divided into two parts. The left panel shows all of the Clone Share connections that you have defined. The right panel shows the contents of the Clone Share selected in the left panel. You can navigate by selecting items in either the left or right panels and the displays will update accordingly. Items are shown with either a folder or molecule icon. Click on a folder icon to open that folder. Click on a molecule icon to open, load or select that molecule. Note that the label is a short descriptive name for the molecule and is used to enable you to know which molecule to select – it may not be the actual or official name of the molecule that will display on graphic maps and Clone Manager windows. If the name of an item is long, the display will be truncated to fit in the space available. The full name can be displayed as a tooltip by hovering your mouse cursor over the name. When saving molecules to a Clone Share it is recommended to use short names that have a distinctive beginning.

Saving to Clone Share: To save the active molecule to a Clone Share, click menu *File, Clone Share, Save to*. If necessary, use the left and right panels to navigate to where you want to save your molecule. The bottom panel contains a data entry box with the label that will be used to save your molecule. This label will default to the actual name of the molecule but you can change it if you want to save several versions of the same molecule. Note that this label is only used for display within the Clone Share dialog and does not change the actual name of the molecule as it will be displayed within Clone Manager. It is a good idea to use a short name. Long names will be truncated in the display but you can see the full name by hovering your mouse over the item.

Upload Multiple Molecules to Clone Share: If you have a set of files stored on your local computer, you can quickly upload the whole set to Clone Share using the Multiple File Converter located on the *File, Other Tools* menu of Clone Manager. Select the option 'Molecule files – Upload to Clone Share' and select the folder(s) or file(s) using the toolbar on the right. On the next page of the wizard, use the Browse button to select where you want to save your molecules.

Power options (left panel): Use the mouse right click to bring up a menu to allow creating a folder. You can enable in place editing of the Clone Share display name by selecting a share and clicking the left mouse button a second time.

Power options (right panel): Use the mouse right click to bring up a menu to allow renaming, moving and deleting an item. For some operations it is possible to select multiple items using the control or shift keys.

Connection maintenance: This is an advanced option that can be used to run a validation process on the active Clone Share. To start the process, select the clone share in the left panel and click the second toolbar button to edit a connection and then click the Maintenance hyperlink at the bottom of the dialog. While the process is running, do not access the data store from another device. When the maintenance completes, a brief message will appear showing the result.

Clone Manager Viewers

These viewers are cross platform apps that run on a variety of devices including Android, iPhone, iPad and Windows Store. Viewers are used to view molecules and provide the basic functions associated with the molecule viewer window in the Clone Manager desktop application. Most molecule information can also be edited to allow updating annotations for the molecule and features. Sequence and restriction enzyme site information cannot be edited in the current version.

When the viewer app is first installed, it will create a personal store on the local device and will include some sample content that will enable you to explore the capabilities of the viewer. This personal store is private and cannot be seen by any other device. To share molecules between devices and the Clone Manager desktop app, you will want to create external Clone Share(s) on remote server(s) as described below. The following examples assume you are using a Clone Share on a remote service to enable sharing between users and devices.

A powerful function of the viewers is the ability to organize molecule files into collections. These collections can be used to group together molecules used for a similar purpose to allow rapid access. Removing a molecule from a collection does not delete the referenced molecule, so collections can be used as a fluid shortcut to group work in progress. To facilitate sharing between devices, or with colleagues, you should create a Clone Share connection to a remote service and use it to store your molecules and collections.

For example, you can use collections to group all of the molecules used by a particular project. Similarly, each researcher could create a collection to quickly access the files that they use frequently. A molecule can be added to multiple collections and any changes made will be available to anyone using that molecule from any collection or device. If you are using a remote Clone Share, then the changes will be available to anyone from any collection or device.

The viewer apps can be installed by opening your device's app, or play, store and searching for 'SciEd Clone Manager Viewer'. You can then select the option to install the app. The installation will create a personal data store on the device and will create a sample collection of molecules. These can be used to explore the capabilities of the viewer. The following paragraphs explain the basic organization of the viewer and how to create a connection to a remote Clone Share for sharing molecules with the Clone Manager desktop application.

The main display is divided into three bands. At the top is the menu and options buttons. Options are context sensitive and provide functions for adding or editing items among other options. Next is the display for current location and includes quick navigation options. The main panel displays the contents of the current location using 3 icons to distinguish the type of item such as a share connection source, folder or document. Collections are represented by an icon with 3 overlapping documents and contain a group of items. For molecule collections, the group consists of references to the actual molecules which allows important molecules to be contained in multiple collections and used for multiple projects. Click on an icon to navigate to that item.

Viewer apps enable you to access molecules created and shared from the Clone Manager desktop app. To access molecules shared with the Clone Share system, you will need to tell the viewer where the data is stored. Use the navigation buttons to move to the 'Home' location. You will see one, or more, icons showing the current sections that you have access to. To add a new section, select the option for

'Manage Sections' using the '...' options button (Android or Windows). Click the plus icon to add a new connection. Select the source, such as Microsoft OneDrive, and enter the name that was used to create the shared data location. You can use the folder icon to lookup the names of already defined shares. User name is required if the source requires authentication. Selecting 'new account' will enable you to log in with your account name and password. Click the OK button to connect.

The viewer's display of molecules is logically organized into two views: collections and files. You can toggle between the two views using the toggle icon or the options menu. The files view shows the actual molecules and is what is shown in the Clone Manager desktop app. The collections view allows you to facilitate and organize quick access to groups of molecules with a similar purpose.

Collections allow you to add references to actual molecule files. A reference, or link, can be given a name and a comment that describes its purpose. Both fields can be used for searches. You can open a link by clicking the plus expander button and the display will change to show the contents of the referenced molecule.

The display of molecule information can be seen either by navigating the files view or by expanding an entry in the collections view. You can select to show four aspects of the molecule. The Info aspect shows basic descriptive information about the molecule and has an option to show the graphic map of the molecule. The notes aspect allows you to enter more details about the molecule and is the same information as shown in the Notes field of the info tab of the Clone Manager desktop app. The sequence aspect shows the full sequence of the molecule. Click the format button in the aspect bar to select how the sequence should be displayed. The features aspect shows a list of the features including name, type and location. The selected feature is shown in expanded detail and includes an edit button. The edit button can also be used to view more detailed information about features that contain GenBank annotations including qualifiers and exon joins.

Administrative functions are available on the main menu 'Settings'. You can change the size of text and buttons to make them more readable on your device. Occasionally, you can also select maintenance on a data store to perform a data validation operation.

Clone Share Sources

Both the Clone Manager desktop and viewer apps can read and write molecules to Clone Shares hosted on a variety of sources. Clone Share sources can be either cloud-based data storage services, such as Microsoft OneDrive, or our Sci Ed Web Share which is hosted on one of your local servers. Since Clone Share is designed to facilitate sharing of important reference molecules, the access philosophy is 'read often' and 'modify occasionally'. Clone Share is not designed for scenarios where multiple people are frequently, and concurrently, modifying molecules. Clone Share is designed for sharing stable reference molecules that everyone can use. Presentation of your molecule data is identical no matter which Clone Share source you are using.

Cloud data storage services differ in the details of their implementation with regard to authentication to permit a user to access the data. All require a user account, which is often an email account, and all require a password to allow access to the data. Different services differ in how you enter your user account name and password. The user account name you use to create your Clone Share data store can be either a personal account which enables you to share your molecules between your personal devices. Or you can create a new account and share the log in information with your lab or research group to

enable sharing of molecules within your group. Cloud-based Clone Shares permit all users to read and write molecule files.

To create a new user account for a cloud service, use your web browser to access the cloud service's website (e.g. onedrive.com or google.com) and select the option to create a new account. The new account will have a user name for logging in to the service (e.g. mylab@outlook.com or mylab@gmail.com) and a password to restrict access to those people you share this information with. As always, passwords should be stored securely to prevent unauthorized people from accessing your data.

The SciEd Web share is usually installed on a local server by your network administrator. It can be configured for open, or guest, access which does not require a user name and password. It can also be configured for secure access that requires a user name and password. You can also give some users read-only permission which is useful if external users need to use your molecules but should not be able to change them (example: a student teaching class or a collaborator in another university). More details are available in the appropriate products page or in the User Documentation section.

Summary

The Clone Share system provides a powerful mechanism for the sharing of molecules between users and devices. The viewer apps provide a portable means of accessing shared molecules. New features will continue to be added. We encourage you to send an email to support@scied.com to tell us what capabilities you would like to see in future updates.