

# Clone Manager 11

## SHARING TUTORIALS

This file contains three tutorials for molecule sharing with Clone Manager.

This document is in Portable Document Format (PDF) and can be read with a PDF file reader, such as Adobe Acrobat Reader DC or a web browser, such as Google Chrome or Microsoft Edge.

When viewing the file, you can set the option to display Bookmarks or Contents so that you can see an interactive list of the topics covered. Just click on a bookmark to move to that place in the PDF file

The complete contents of this file can be printed on letter-sized paper (approx. 14 pages). Alternatively, individual tutorials of interest can be printed (each 4 pages).

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## Sharing Molecules with Clone Share

The Clone Share data store system provides for the sharing of molecule files between Clone Manager users. It also allows sharing and viewing molecules 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 available in the documents section of our website (<https://scied.com>).

To get started:

- Run the Clone Manager desktop application
- Click **File, Clone Share, Open from...**
- Define your first Clone Share connection
- The Share Type defines the service used to store your files. In this tutorial we selected OneDrive
- Name of Share is the name used to refer to the share. This should be descriptive of the purpose of the share and what will be stored there. This tutorial will create a share of 'Vectors'
- Click OK to complete setting up the connection

Clone Share Definition

Connection:

Share Type: Microsoft OneDrive

URL: n/a

User name: (new account)

Password: n/a

Share:

Name of Share: Vectors [Lookup](#)

Display as: (optional)

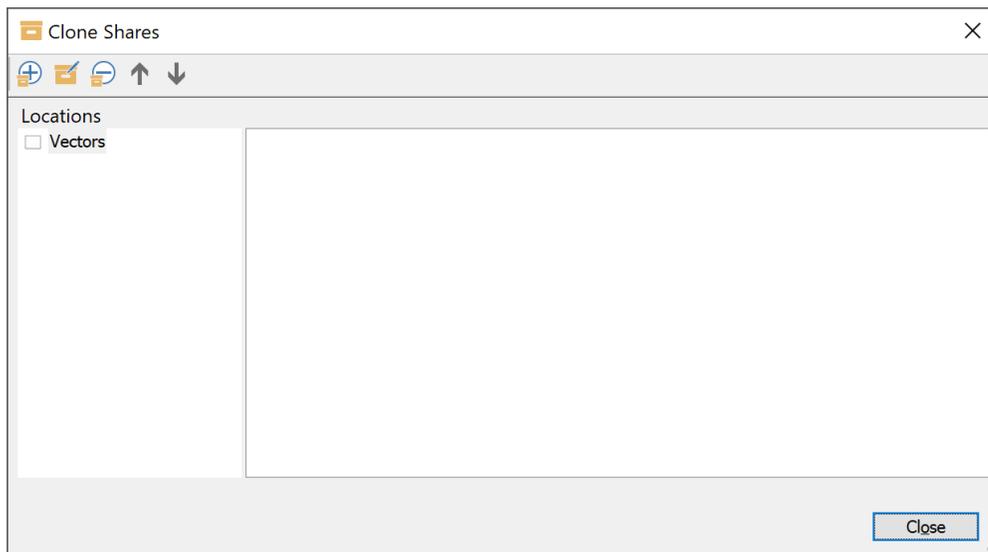
OK Cancel

Cloud data storage services require a user account and secure login. The log in form depends on the cloud service and will either be a popup dialog within Clone Manager or a form in your web browser. In either case you will enter your account name and password. You can use your personal account if you only want to share molecules with yourself. To share molecules with your colleagues, we recommend that you create a new account by clicking the link in the log in form. This will enable you to create a separate account that will only be used for molecule sharing within your group.

This is a secure log in directly with the cloud service and Clone Manager cannot see your password or any other security used by the service.

Since this is our first connection, our share does not yet exist so we will get a prompt to create the share. The main Clone Shares dialog is now visible but does not yet contain any molecules. (If you are

repeating this tutorial, or a colleague has already followed this tutorial, the share will already exist and may have some files already saved.)

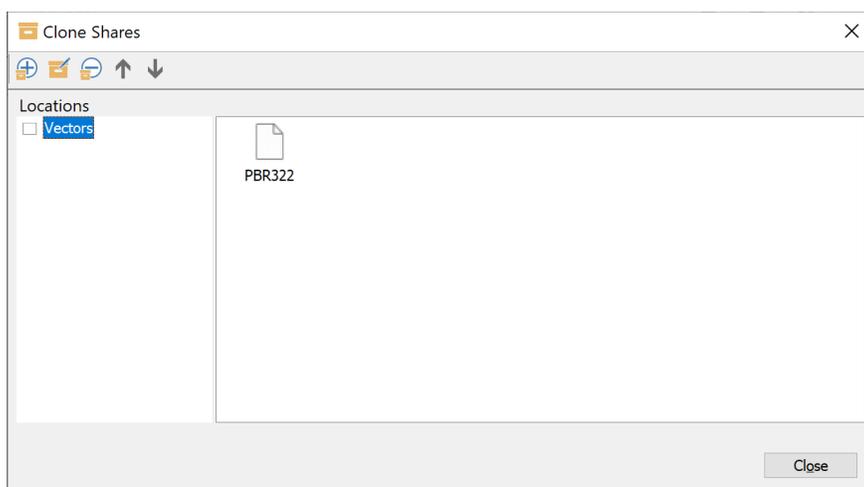


The toolbar provides functions for adding another share, showing the connection details, removing a share and re-ordering the share locations.

The left panel shows the available share connections and the right panel shows the contents, currently empty. Close the dialog.

**Add molecule to the share:** At the main menu for Clone Manager, use the normal file open menu to load a molecule. For this tutorial, we loaded PBR322. Now click menu **File, Clone Share, Save to...** The Clone Shares Save As dialog will appear. It is almost identical to the above dialog but has an edit box at the bottom to enable you to enter a name for the molecule file. Click Save to save the molecule.

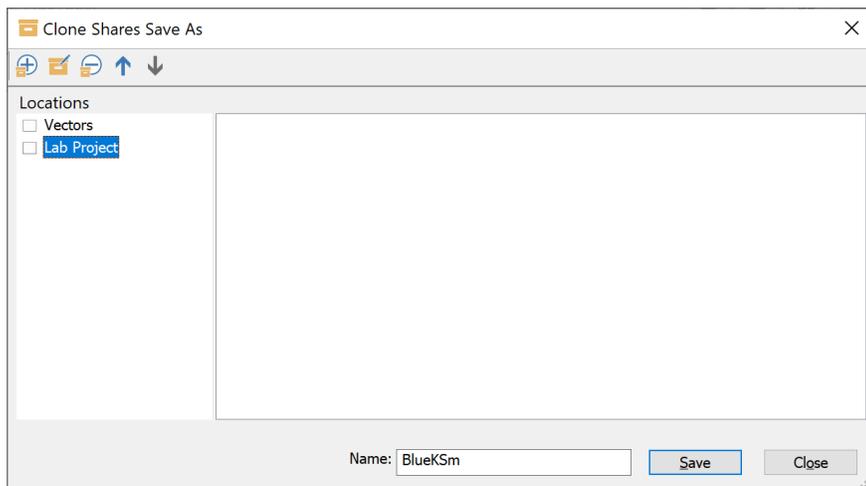
**Create a second connection:** at the main Clone Manager menu select **File, Clone Share, Open from...**



Notice that our PBR322 vector is shown. Click the first toolbar button (tooltip Add Clone Share) to add a second connection definition. Clone Manager assumes that you will be creating a new connection to the

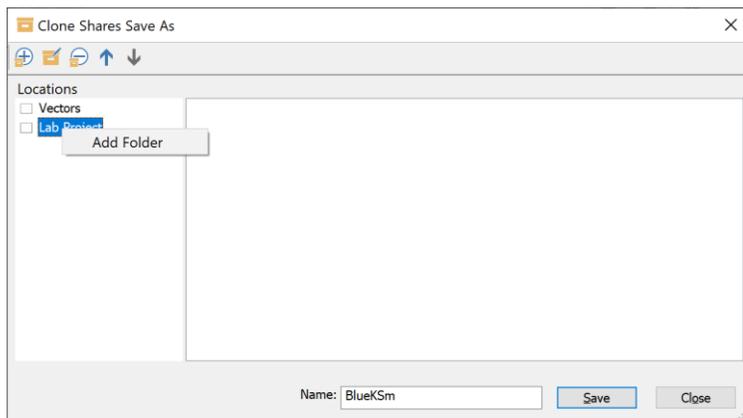
same Clone Share type and reports your login account name since you are already authenticated with that service. Enter a new Share Name, such as Lab Project, click OK and accept the prompt to create a new share.

**Save second molecule:** Back at the main Clone Manager menu, load a second molecule and again select the menu to save this new molecule to the Clone Share.

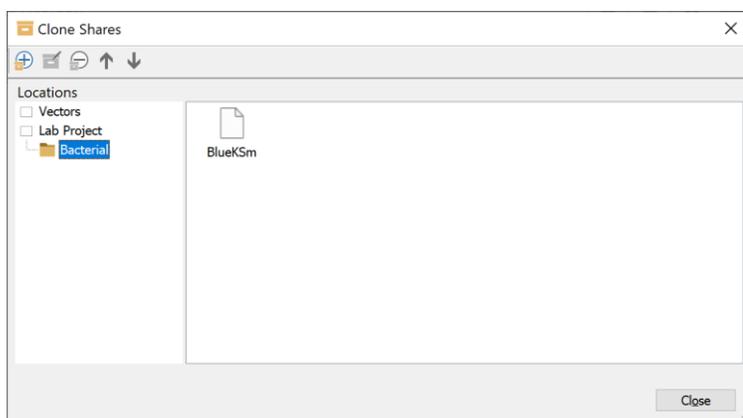


Notice that the left panel shows that you now have two locations available for sharing and you can save the second molecule to either.

**Organize molecules into folders:** Folders allow you to organize your molecules into groups. Right click on the Clone Share location in the left panel and select Add Folder from the popup menu. Type in the name of the folder and press enter. Save the molecule.



Reopen the dialog (File, Clone Share, Open from...)



Notice we have two defined locations for shared molecules. The Lab Project location has a folder called Bacterial and the folder contains a molecule called BlueKSm. In the future, when you want to use BlueKSm, click on the BlueKSm icon. Similarly, to open a folder, click on the folder icon in either the left or right panels.

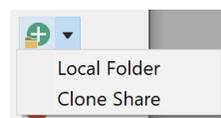
**Move or delete molecules:** right click on a molecule in the right-hand panel and select the menu option. To delete a molecule, you will be asked to confirm the deletion since the removal is permanent. To move a molecule, you will be asked to navigate to where you want to move the molecule to. These operations can also be done for folders, so it is very easy to reorganize the contents of a share.

**Upload multiple molecules:** from the main menu click File, Other Tools, Multiple File Conversion. Select the second option to upload to Clone Share and select the files or folders to upload. On the next page, click the Browse button to select where to upload your files. Note that if you select to upload a folder, the folder will be uploaded with included files and sub-folders preserving the file layout structure. This operation may take some time if a lot of files need to be uploaded, particularly to cloud storage services.

**Lookup available shares:** When you create a new connection, click the Lookup hyperlink. This will load a list of the shares that are already available on the selected share type. Select the one you want from the drop down combobox picker.

**Move multiple molecules or folders:** Hold down the control or shift keys and use the left mouse click to select multiple items in the right-hand panel. Now, right click one of the selected items and choose the option to move.

**Open Clone Share from wizards:** Wizards that allow you to select files or folders can use Clone Shares. Click the drop-down arrow on the +/add toolbar button and select the Clone Share option. This will open the standard Clone Share dialog box and allow you to select a file or folder as appropriate.



**Other options to explore:** The cloud-based Clone Shares described in this tutorial have the limitation that all authenticated users can load and modify any molecule. There are situations, such as a student teaching lab, where you want people to have free access to use a molecule but not let them alter the molecule. The SciEd Web Share system is installed on a local web server and provides the means of controlling access permissions. More detailed information is available in the documents section of our website.

## Using the Mobile Viewers

The mobile viewers are cross platform apps that run on a variety of devices including Android, Apple and Windows Store smart phones and tablets. They can access the same Clone Share data store system used by the Clone Manager desktop application and enable you to view your molecules when you are not at the lab computer. The previous tutorial set up a Clone Share and added some molecules.

This tutorial will explore viewing molecules using the sample molecules provided when the mobile app is installed on your device. The next tutorial will explore sharing molecules between the mobile viewers and the Clone Manager desktop application.

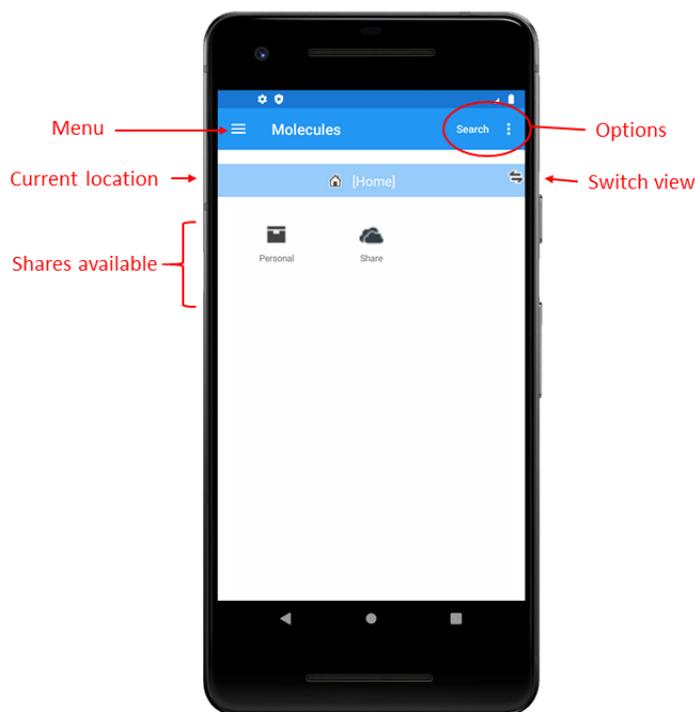
**Installation:** The viewer apps are installed from your device's app, or play, store. On your device, access the appropriate store and search for 'SciEd Clone Manager Viewer'. Now select the option to install and review any notification screens and prompts for access permissions.

**Main display:** When the viewer starts, the display is divided into three bands:

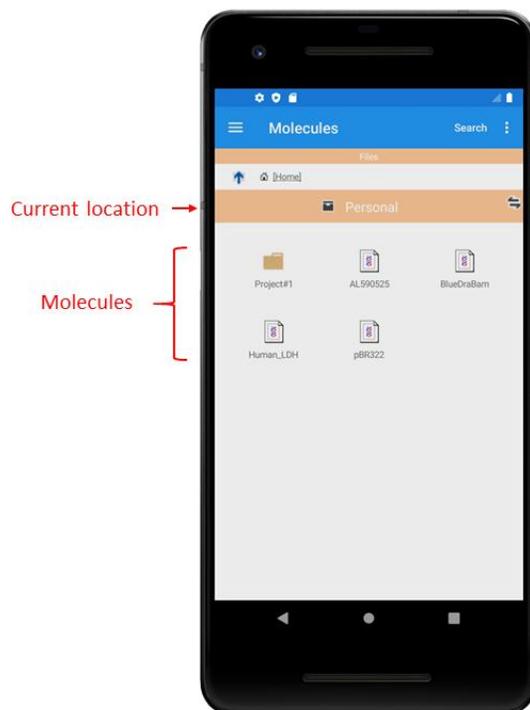
The main panel displays the current location and its contents. The light blue band shows you are at [Home] and two locations are available. The 'Personal' location is located on the device and is private. It is created when you install the app and contains some sample files to allow you to explore options. There is also a second shared location that we set up. It shows an icon of a cloud which is the icon Microsoft uses to identify its OneDrive cloud store. Other cloud store services use different icons. We will explore the main display later.

At the top is a dark blue band that tells you what part of the program you are in. In this case we are looking at the Molecules section. To the right are the options available. The available options depend on what you are viewing and we will explore these later. To the left is the menu icon which allows you to move to other parts of the program.

**Settings:** Click the menu icon at the top left. Select 'Settings'. The most important setting is the size of text and buttons. If your display is not the best size for you and your device, you can adjust the size by changing the scale. The display will adjust so you can see the effect. When you are done, again click the top left menu icon and return to 'Molecules'.



**Switching between Collections and Files views:** Click on the 'Personal' icon to explore your private data. The viewers start in Collections view and this is indicated by the light blue band. Collections allow you to group together molecules with a similar purpose to allow quick selection. Click on the switch view two-way arrow icon at the far right to switch to files view. Notice that there are two orange bands that tell you, you are viewing the actual molecules. The current location shows you are in your 'Personal' data store. The main display shows there are 4 molecules here. We have already created a folder. Folders enable you to organize your molecules. The next part of this tutorial will show you how to create your own folder(s).



**Create a folder:** Click the options icon in the top right (3 vertical dots) and select the option to 'Add Folder...'. Enter a name for your folder and click 'Add'. The folder will be created and opened. For this tutorial, we created a folder called 'Project#1'.

**Navigation bar:** Notice that the navigation bar has updated to show your folder as the current location. Above the orange bar is a breadcrumb display which shows the parents of the current location and allows you to quickly navigate to those locations. You can move up to the current folder's parent by clicking the up-arrow icon.



Tap the up-arrow, or tap Personal, to move back to the prior image. Now click the folder icon to move back to the folder.

**Folder options:** Click the options icon (top right). You can add a folder within the current folder. You can delete or rename the current folder.

**Viewing Molecules:** Navigate back to the 'Personal' data store and click on one of the molecules shown. You are now viewing the details of the molecule.

This view shows 'INFO' about the molecule. Tap the Views picker to change INFO to one of the other views available.

Each view has options that will appear to the right. In the INFO view, the available option allows you to see a graphic map of the molecule. In the Sequence view, you can format the display to show features, enzymes or other information.



The full screen icon allows you to maximize the display of information.

**Viewing Molecule Features:** Select the Features view using the Views picker. The features will be seen in a list. The selected feature is highlighted in a dark orange and is expanded to show more information. To the right are 2 buttons: the pencil button allows you to edit the feature or you can use it to view even more detailed information about the feature. For example, full GenBank annotations and exon-intron join information can be seen in the tabbed dialog box that appears.

**Delete a Molecule Feature:** To delete a feature, select the feature and tap the trashcan icon. You will be asked to confirm the deletion. Deletion is permanent and if this molecule is shared on a remote Clone Share, the shared molecule will be immediately updated to remove this feature.

**Viewing Molecule Formatted Sequence:** Select the Sequence view using the Views picker. The display shows the sequence in blocks of 5 bases. Tap the format icon to change the formatting.



**Molecule Viewing Navigation:** While viewing a molecule you can show the previous molecule by tapping the left arrow image. You can also use the navigation bar to move up to a parent location.

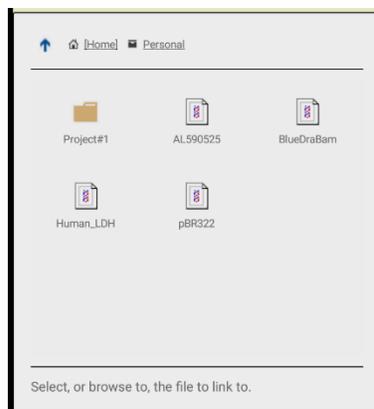
**Collections View:** Collections provide the ability to organize molecule files into groups to allow rapid access to molecules that are used for a similar purpose. Switch back to Collections View using the Options icon (3 vertical dots) at the top right of the display and select 'Show: Collections'. You can also change by navigating to [Home] and using the 'Switch View' icon.

**Create a Collection:** Tap the top right options icon. Select the option 'Add Collection' and enter a name for the collection. In this tutorial we created a collection called LabProject. The current location shows as the collection we just created. Since this is a new collection, it is empty and contains a quick action prompt to 'Add First Item'. You can also add item(s) to the collection using the Option 'Add Item'.

**Add item to a collection:** Tap the option to add an item. A dialog box appears where you can enter the title of the item which will be displayed as the label for the item. You can also enter comments which will be seen when you are viewing the details of the collection item.

Comments are also searchable to allow you to quickly find items. At the top of the screen is a link icon and the message 'Tap to link'. A collection item is a pointer, or reference, to the actual molecule.

When you tap to link, the browse box will appear. At the top is your last position in the Files views (Personal) and the main area shows the content of this location. If the molecule you want to link is not shown here, navigate to where your molecule is stored by tapping any of the icons. Select your molecule by tapping on the molecule icon. You can now tap the 'Accept' button to create your new collection item. Note that the title is set by default to the name of the molecule and the comments are set to the description of the molecule but you can change these.



The display now shows your new collection item. The blue band shows the collection item is called pBR322 and is located in the LabProject collection (icon with 3 overlapping pages) which is located in the Personal data store. The link icon shows where the linked molecule exists.



Tap the '+' icon to the left of the link. This expands the link and you now see the details of the actual molecule. Viewing details of the molecule is exactly the same as described above under Files Viewing Molecules. Tap the '-' icon to collapse the link and return to viewing the collection item.

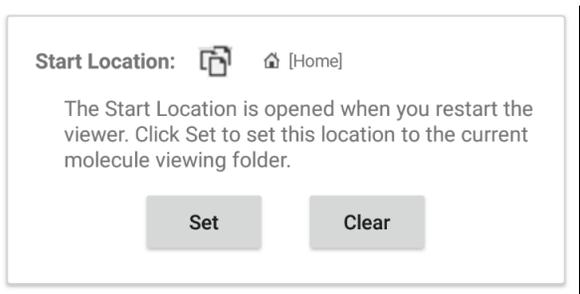
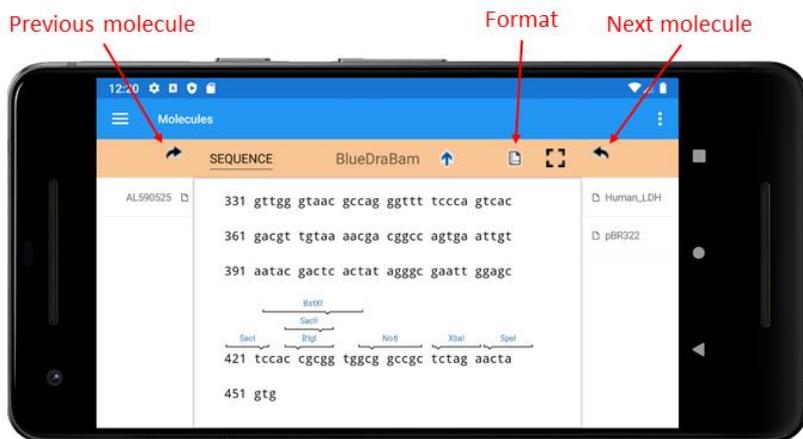
**Rotating your device:** One of the important benefits of smart phones and tablets is that the display can be rotated.

Navigation panels at the left and right allow quickly selecting a different molecule by tapping the molecule label.

This view shows formatted sequence. Full screen uses the entire width of the display and is very useful for viewing annotated sequence.

**Resume viewing:** You can switch away from viewing the mobile app. Your current location is remembered and restored when you reselect the app.

**Setting the start page:** When you close the mobile app your current location is not saved so when you restart the mobile app, it will open to the [Home] page. You can choose to start in a different location. This is particularly useful if you always want to start in a particular page and avoids the need to have to navigate to that location each time you start the app. To set the starting page, navigate to the page you want to use as your start page. Now select the Settings section from the main menu icon. In the Start Location section, tap the Set button.



In the Start Location section, tap the Set button.

## Sharing between desktop and mobile apps

The Clone Manager desktop application provides the full range of analytic functions in addition to the viewing of detailed information about your molecules. The mobile viewers provide a portable means of viewing the information about your molecules. This tutorial builds on the prior two tutorials which covered the Clone Share concept and usage of the mobile viewers. Here we will explore how to enable and use sharing of molecules between the desktop and mobile apps.

To get started:

- Install the Clone Manager desktop application if it is not already installed on your computer.
- Follow the steps in tutorial 1 to create a Clone Share and add some molecules to it
- Install a mobile viewer app on the mobile device of your choice (please refer to tutorial 2 for details on how to install and use the viewer apps).

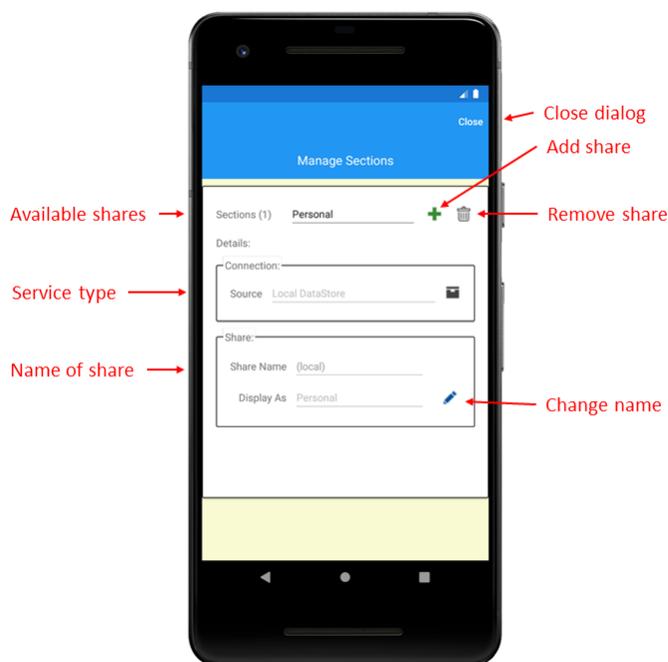
**Configure the mobile app for sharing:** Run the app on your mobile device and tap the options menu (top right, 3 vertical dots icon) and select the option 'Manage Sections'.

Initially there is only one available share. Details about the definition of the share are shown below. Connection shows what type of service is used to host the share. In this case, the Personal section is located on the device itself.

**Add a share:** Tap the '+' icon to add a share. The display updates to allow you to enter the definition of the share to add. Under Service type, tap the picker control to the right of Source, and pick where the share will be hosted. In this tutorial we will pick the Microsoft OneDrive cloud data service since that is what was used in Tutorial 1 and already contains some molecules for sharing.

Cloud data storage services require an account which is specified by a user name. Since this is your first connection, you can leave the setting as 'new account'. Enter the Share Name 'Vectors' since that is the name of the share we set up in the desktop application in tutorial 1.

Tap the 'Add' button at the top right of the display. You will now be asked to login to the cloud data storage service. Each cloud service provides their own log in wizard but all will ask you for your user account name and password (the viewer apps do not see and have no access to your password or any other authentication method used by your cloud data service – if you forget your password you will need to contact the data storage provider).



**Cloud data account username:** Deciding which cloud data storage service to use is your personal preference. You can also choose which account to use for storing your molecule data. You can use a personal account, but it is a good idea to consider creating a new account that you will use solely for molecule storage and sharing. This is particularly important if you will be sharing molecules with other people since you will need to share your account and password with those users. The login dialog presented by the cloud service will provide a link for creating a new account.

**View the contents of the new share:** Tap the close button at the top right and the newly defined share will open. Tap the 'Switch View' icon at the right, or tap Options Show Files, to switch to the files view and see the molecules that were created in tutorial 1. You are now viewing molecules that were created and saved from the Clone Manager desktop application.

**Rename a molecule:** There is a distinction to be made between the label used to identify the molecule in lists and the actual name of the molecule. This allows you to have several versions of a molecule with different annotations but all will display on graphic maps with the correct name. To rename how the molecule will be presented in lists, tap the options menu and select Rename.

**Edit a molecule name:** In tutorial 2 we explored viewing the properties of molecules. This is the primary function of the viewer apps. However, it is also possible to edit the molecule's properties. Select a molecule and tap the top right options icon. Select 'Edit' to open the Molecule Info edit dialog. Here you can make changes to the actual name and description of the molecule. Make a change to the name of the molecule and tap the Accept button at the top right. The INFO view now shows the updated name of the molecule.

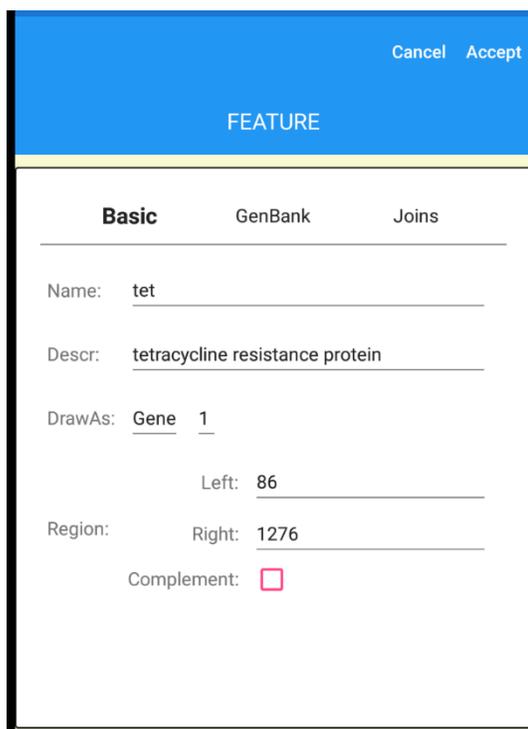
**Edit a molecule's notes:** Select the Notes view and tap the pencil/edit text icon. Add some notes and when done, tap the accept icon button.



**Edit a molecule's feature:** Pick the Features view and select the feature that you want to edit. Tap the pencil/edit icon for the feature.

The first tab contains the basic details of the feature. You can change the name and description. DrawAs allows you to change how the feature will be displayed on graphic maps both in this viewer and also in the Clone Manager desktop app. Region defines the base position and strand of the feature.

Tap the GenBank tab to see the GenBank annotations for this feature, if any. Here you can see, or change, the feature type. The feature type Key can be changed using the picker control (tap on the area to the right of Key). Normally the picker list contains the preferred, or most common, keys but you can tap the control to display all GenBank feature types. The selected feature type determines what qualifiers are valid. You can add

A screenshot of a mobile application dialog titled "FEATURE". At the top right are "Cancel" and "Accept" buttons. Below the title is a tabbed interface with three tabs: "Basic" (selected), "GenBank", and "Joins". Under the "Basic" tab, there are several input fields: "Name:" with the value "tet", "Descr:" with the value "tetracycline resistance protein", "DrawAs:" with a dropdown menu showing "Gene" and "1", "Left:" with the value "86", "Region:" with "Right:" and the value "1276", and "Complement:" with an unchecked checkbox.

Basic	GenBank	Joins
Name:	tet	
Descr:	tetracycline resistance protein	
DrawAs:	Gene 1	
Left:	86	
Region:	Right: 1276	
Complement:	<input type="checkbox"/>	

qualifiers (plus icon) or edit qualifiers (pencil icon) or delete qualifiers (X/delete icon).

If the feature consists of introns and exons, the coordinates of the segments are shown in the Joins tab.

When you have completed your edits, tap the Accept button at the top right.

**Viewing changes in the desktop application:** The changes made in the mobile app are immediately saved to the cloud data storage service. On your desktop computer, open the Clone Manager program and click File, Clone Share, Open to open the Clone Share dialog box. Click on the Vectors share in the left panel. If you renamed your molecule, you will see the new name in the right panel. Tap on the molecule icon to open the molecule. Notice that the name of the molecule shows the changed name you entered when you edited the name. Click on the Info tab and see the changes made to the description and notes. Click on the features tab and see the changes you made to the feature. You have now successfully edited a molecule in the mobile viewer app and shared those changes with the desktop application.

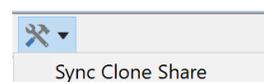
**Viewing changes in the mobile app:** Similarly, changes made in the desktop application can be saved to the Clone Share and be available in the viewer apps. Make some changes to the molecule, for example change the name or description.

An important distinction to be aware of is that the desktop application does not automatically save to the remote data store. The reason for this is that the mobile apps are assumed to be making minor changes to a molecule whereas the desktop application may be making more extensive changes and the changes should only be uploaded when you say the changes are completed.

To save your changes, click the File, Save menu. On your mobile app, select the view corresponding to the change you made in the desktop app. The change will appear after a short delay.

**Synchronizing changes:** When molecule changes are saved to a Clone Share, the changes will propagate to all users of that share. However, the update does not occur immediately and changes may take a few seconds to appear.

In the desktop app, you can force update synchronization by clicking the 'Sync Clone Share' option on the tools drop down toolbar button in the molecule viewer window.



In the mobile viewers, click the top left main menu image and select 'Sync Now'.

**Change synchronization interval and limited cellular data plans:** You can change how quickly changes appear on your devices by changing the delay in seconds between checking for changes to remote Clone Share data. In the desktop application, use File, Preferences, Clone Share. In the mobile apps, select the main menu option 'Settings', 'Sync Clone Share Interval (secs)'. A low number will cause changes to appear more quickly. If remote changes are made infrequently, then you can use a larger number and save cellular data usage charges. Checking for updates only occurs while the mobile app is being viewed.

**Internet access data rates:** Accessing remote storage using the Clone Share system may incur charges from your cell phone provider. Data charges may apply when browsing or loading molecules or saving changes but will also apply for checking for changes that may have been made by other users of a Clone Share. If you are on a limited data plan, we recommend that you set the time interval for update

synchronization to a long time and use the manual 'Synchronizing changes' outlined in the prior paragraphs. In the mobile viewer apps, use the Settings page to set the interval. If you are using the desktop app with a cellular data plan, you can achieve the same objective using File, Preferences, Clone Share.

**Manage Clone Share sections:** Previously, we used the Manage Sections option to add new Clone Share connections to the mobile app. The Manage Sections dialog box can also be used for other management purposes. Navigate to the [Home] location and select option 'Manage Sections'. Currently defined section connections can be selected with the picker control. When you pick a connection, the dialog contents update to show details of the connection including source and name. In the Share box, tap the pencil icon to change the 'Display as' name. Tap on the data entry field and enter a name. Tap the accept icon to the right. Now this share will appear using the new name. This is useful when you have similarly named shares and want to use a distinct name to distinguish them.

When you no longer need a Clone Share connection, you can remove it by tapping the trashcan icon in the upper right. You will be asked to confirm that you want to remove the connection. Note that this action does not delete the data on the remote data store, it simply removes your ability to access the data.

**Cloud verses SciEd Web Share:** Cloud data services provide a convenient and easy to implement method of sharing molecules. However, they have a disadvantage that all users have full access to read and modify molecules. There are many situations, e.g. teaching or a repository of reference molecules, where you want users to be able to read molecules but not alter them. This is the advantage of the SciEd Web Share service. You can explore the capabilities of this method by installing it on a local lab computer or have your IT support department install it on a common server. More information is available in the Documents section of our website (<https://scied.com>) under the topic 'SciEd Web Share',

**More information:** is available in the Clone Share section of the User Documents section at our website (<https://scied.com>).