Validate XP User Manual

A Guide to the
Setup and Operation of the
Validate XP For The Expedite
Synthesizer

Genomic Technologies Inc.

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Validate XP Software

The Validate XP Software controls one or multiple Expedite Synthesizers. The software allows the user the ability to edit and store sequence information.

The next section is an introduction to the Validate XP software.

Accessing the Software

The software is initiated by double clicking on the **Validate XP** icon within the *Genomic Technologies* group. Your Windows operating system can be further optimized by creating and icon for this program directly on the Desktop or status bar for easier access. The startup screen will appear as the system loads into memory. Clicking on the startup screen will reveal the Validate XP Software Main Screen.

There are several areas of the screen to take note of.

- **The set of pull down menus** at the top of the screen. These menus work much the same as any pull down menus in a Windows application. The menus give the user access to a variety of other screens that can set default synthesis parameters, edit sequences, etc.

- **The lower portion side of the screen is reserved for status.** The two status boxes will provide real time information about what is going on with columns one (The left box) and column two (the right box) for the instrument that the mouse pointer is currently moved over.

- **The center part of the screen shows a representation of the EXPEDITE SYNTHESIZER**. Double clicking on these images will allow access to the column load screen where the user can further double click on column images to load them with the desired sequence. Alternatively, the user can use the Windows drag and drop feature to load previously edited and saved sequence files (ending with SEQ) to the column position. Normally these column access screens will provide access to two columns however, if the system is equipped with an expansion module there may be additional columns available.

  The synthesizer images on the main screen can also be used to initiate the download of loaded sequence information to the Expedite synthesizers. This is simply done by right clicking one time on the instrument image.

  If the user clicks in the area of the display area of the image during the run, the trityl histogram will appear.

Setting Up the Program (Program Setup)

There are a variety of parameters, which are user configurable through the Program Setup. Access this tabbed dialog box by selecting **FILE** from the main menu and slide down to **Program Setup**.

The initial setup should involve typing in the Organization and user names. Once the Organization or Company name is entered it is a good idea to save the program setup and exit out of the Validate XP software. This will allow the software to register the Company name and then when you restart the software any optional features, which are specific to your software license, can be installed.

Options TAB

There are a variety of Options that are selectable from the Options tab. Each option has Tip-Tag Help, a bit of text that will appear above the option when you hover the pointer over the option. This help text will describe what the importance of each option is.

Most of these options can be left at there default conditions however, there are two that we should make note of.

The first is the one marked **Choose Protocol During Load**. This option should be selected if you want to select protocol files created by the Expedite PC protocol editor software and exported as binary files. If this option is not selected that the system will not download protocol information, which is a faster download, and the Expedite will automatically select the default protocol selected via the Expedite keypad under the Expedite Profile submenu.

The second option to make note of is the Start At Instrument option. This option should be selcted to provide the safest operation of you synthesizer. It will require the user to physically press the START button on the Expedite to initiate

the run. Selecting this option eliminates the possibility of the synthesizer beginning to pump reagent until the user is ready.

Database Tab

The Database tab allows the user access to the file location and format for the database information, which is saved after every run completes.

Trityls TAB

This tab allows access to several options and parameters involving the trityl acquisition.

Configuration TAB

The display configuration should always remain on Multi-Indstrument. The Expedite COMM Port selector box allows access to the comm port the the system will use to communicate to the Expedites. This should correspond to the port that the Seq Level card is set to or to the 9-pin port that the RS422-RS323 adapter is plugged into.

Alternatively, the user can select the TOOLS menu from the main page and select **LOOK For Expedite COMM Port** as a means for the system to determine by itself which port the Expedites are connected to.
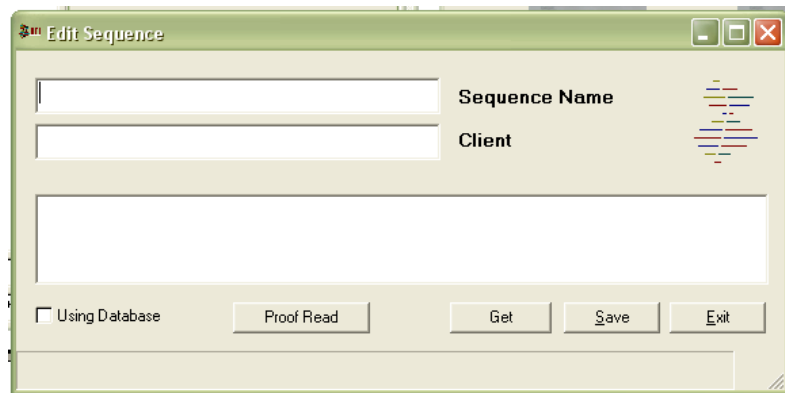
Sequence Editing

Editing a Sequence

The user invokes the sequence editor by clicking on the Sequence under the EDIT menu from the main screen

The sequence editor is very simple to use. There are boxes for the user to type the sequence name, client name and the actual sequence. The client name is useful if your laboratory does any billing.

The sequence files can be read by any standard editor program and are easily imported to a variety of spreadsheet programs. The Genomic Technologies Sequence Editor requires the user to name the sequence. This is not the file name so the name is not limited to eight characters. This is the name that will appear on the main screen when the synthesis is running. When all the data is entered, the user must save the sequence. Select save and a save dialog box will appear. The default sequence directory is the SEQ directory in the program directory, although the user can store the sequence in any directory within the computer or any drive located on a network if your computer is networked. Type the name of the sequence. A date form of sequence naming can be useful for laboratories that process many sequences. Press CR or select exit or cancel to go back to the Sequence Editor and continue editing additional sequences. If the user tries to exit the Editor without saving the sequence a caution window will appear indicating that the sequence should be saved.

The user can only work on one sequence at a time and can choose **New** for a blank template.

The Sequence Editor is equipped with a **Proof Reader.** This feature is useful for long sequences. The Proof Reader will speak through the PC speaker although this sound not very good. A sound card will enhance this feature quite dramatically.

The Sequence Editor supports the full set of **Cut, Copy and Paste** commands that come with most Windows applications.

Save your sequence and exit.

Preparing for a Synthesis

Loading A Synthesis

As mentioned above, to begin the sequence load procedure, access the column load form by double clicking on an Instrument Image on the main Screen. Then double click the column image to invoke a sequence load dialog box. Use the common Windows file dialog box to locate the directory where the desired file is located. Select the sequence from the directory listing by double clicking on it or highlight it with a single click and press enter or click **OK.** Next choose the protocol desired and finally the 5' DMT condition. These file directory locations will be remember the next time you load a sequence and protocol for more efficient loading.
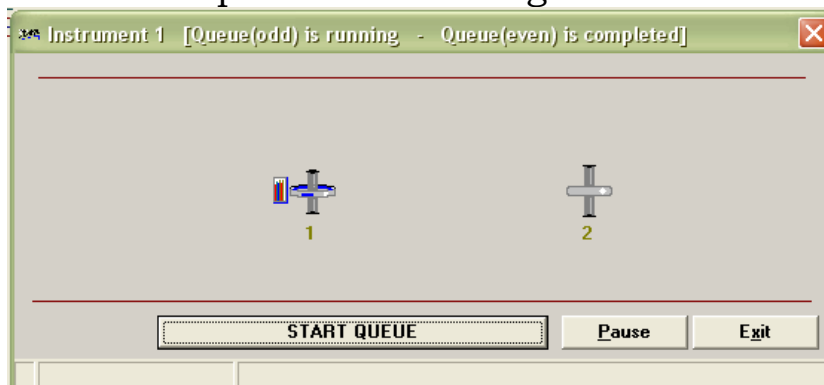
Another way to load a sequence to a column position is by using the drag-and-drop method. Open a Windows Explorer window. Use the Explorer window to locate the directory with the sequence file then click on the sequence you want and while holding down on the left mouse button drag the sequence file over to the column location. Let go of the mouse button. The protocol selection window should open followed by the DMT condition box. Make these selections to complete the sequence load.

Prepare the column reactor according to the appropriate SOP and install it onto the synthesizer by connecting the column inlet and column outlet fluid lines.

Priming Reagents

Prime the reagents through the Expedite according to the synthesizers instructions and then load a column into the appropriate position.

Starting a Run

The run is initiated by right clicking on an Instrument Image which initiates the download process, if the Start At Instument OPTION is not selected then the Expedite will immediately start pulsing when the download is completed.

During a Run

Monitoring Performance By Trityl
If the synthesizer is equipped with a trityl monitor then the software acquire the trityl data as it is collected by the Expedite. This data can be displayed by accessing the column screen as was done during the load process but this time clicking on the little trityl icon next to the column image will bring up the trityl histogram data. Alternatively, the user can click on the top right section of the Instrument image during a run to bring up a double trityl histogram for the two columns running on that Instrument.
The status of any instrument can be viewed by moving the mouse pointer over the particular Instrument of interest. This data is displayed in the two boxes at the bottom of the main screen. There is also communication data that is visible in the lower status bar.

Completing A Run

Upon completion of the run, the column image will be changed and a double bar will now appear across the column.

Print out a synthesis report and trityl report(if installed) for documentation and include these with the run documents.

Clicking the Access Run Reports under the Reports Menu on the main screen can access these reports. A listing off all runs will be displayed on the left side. Double clicking on the run in the list will display any data for that run in the window on the

right. There are several button at the lower right that will print out a variety of preformatted run reports, including, the standard Synthesis Run report, A Performance report that will calculate the stepwise yield separately, for each monomer used in the synthesis. The History Chromatogram, Sensor and Reagent report are not available for the Validate XP.