Agilent

Oligo Pro II

User Manual

Notices

Document Information

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In This Guide

Agilent has prepared this manual as a technical reference for the Oligo Pro II systems.

This document includes system overviews, analytical methods, maintenance procedures, software operation, troubleshooting guide, and instrument shutdown procedures. Additional information includes literature references, instrument specification and utility requirements, parts and supply lists, product specification sheets, and system warranty information.

This document is intended for use by technical personnel that are proficient with analytical instrumentation operation and upkeep. A certain level of training and expertise is assumed and fundamentals are not addressed herein. Procedures are presented in a step-by-step format using photos and screen captures. If questions remain after reviewing a given topic or procedure, please contact your corresponding Agilent Sales/Service Representative.

2 Oligo Pro II System Overview

This chapter gives an instrument overview.

1 Oligo Pro II Software – File Menu

This chapter describes the Oligo Pro II software in more detail on the commands of the File menu.

3 Oligo Pro II Software – Admin Menu

This chapter describes the Oligo Pro II software in more detail on the commands of the Admin menu.

4 Oligo Pro II Software – Utilities Menu

This chapter describes the Oligo Pro II software in more detail on the commands of the Utilities menu.

5 Oligo Pro II Software – Help Menu

This chapter describes the Oligo Pro II software in more detail on the commands of the Help menu.

6 Oligo Pro II Software – Operation Tab

This chapter describes the Oligo Pro II software in more detail on the Operation tab.

7 Oligo Pro II Software - Run Status Tab

This chapter describes the Oligo Pro software in more detail on the Run Status tab.

8 Oligo Pro II Software – Sample Name Entry

This chapter provides information on how to enter the sample names in the Oligo Pro II software.

9 Oligo Pro II Capillary Array

This chapter explains the essential operational parameters of the capillary array.

10 Appendix

This chapter provides a Quick Start Guide and additional information on part numbers, maintenance procedures, and system settings.

Content

1 Oligo Pro II Software – File Menu

This chapter describes the Oligo Pro II software in more detail on the commands of the File menu.

About this Software

The Oligo Pro II system employs proprietary software for operation and data analysis.

This software is preloaded on the instrument and checked prior to shipment as part of the instrument verification.

System Requirements

The software is run using a Windows 10 PC with the following requirements:

Table 1 Minimum computer requirements

Type	Specification
Processor	Intel Core i5 - 8500
SVGA Video	Minimum Resolution 1024 X 768
Memory	4 Gigabytes (1 x 4 GB) DDR4-2666
Available Hard Disk Space	500 Gigabytes
USB Serial Ports	6 ports (2 instrument, keyboard, mouse)
Network	If not using a local database, a network connection to the database server host is desired.

System Installation

To install the Oligo Pro II software:

1. Contact your corresponding Agilent Service Representative to request the software.
2. Navigate to **Oligo Pro II Installer > setup.exe**, and double-click **setup.exe**.

   OR

   Use the appropriate downloaded .exe to perform the installation.
3. Follow the setup instructions provided by the installation wizard. The default installation directory is C:\Agilent\ Oligo PRO II.

Opening the Oligo Pro II Software

1 To log into the software, select the Oligo Pro II software icon (**Figure 1**).

Figure 1 Oligo Pro II software icon

There are two levels of users available:

- **Administrator**: The administrator login has enhanced access to functions such as allowing the user to edit separation methods.
- **User**: The user login has restricted access that allows only routine operation of the instrument.

2 To log into the Oligo Pro II software, type **Administrator** or **User** into the **User ID** field of the login window (**Figure 2**).

3 Enter your password.

The first time you log in, the password information is left blank.

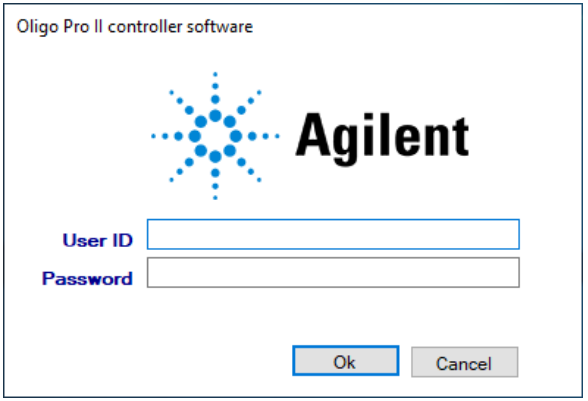


Figure 2 Login menu

4 Click **OK**.

The main screen opens.

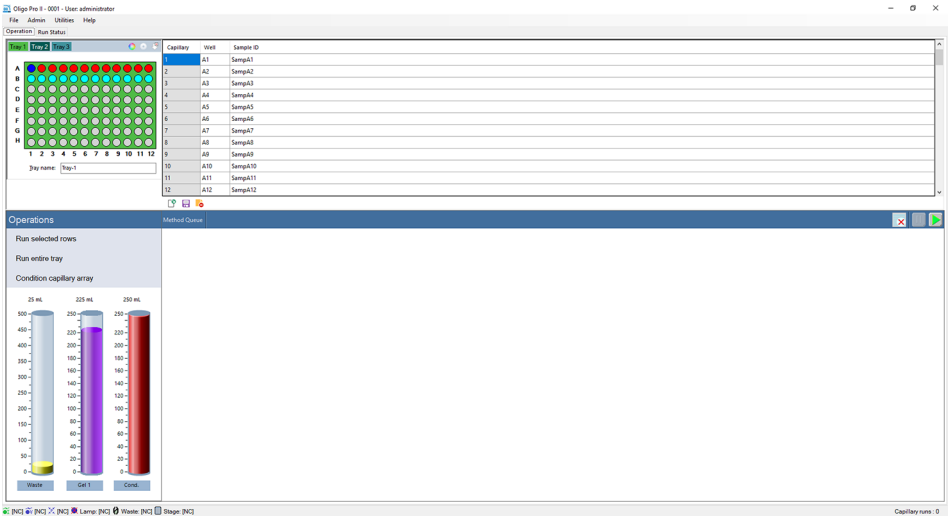


Figure 3 Oligo Pro II software main screen

More information about the **User** and **Administrator** functions within the software are discussed in a later chapter.

A password can be set for the system during the Agilent training and installation period at your facility or by using the **Change Password** command of the **Admin** menu described in section **"Change Password"** on page 38.

The first time you log into the Oligo Pro II software, a database is displayed indicating where the application is connected.

The database connection can be changed before logging in by clicking **Browse** next to the database field.

The login information is used in event and error logging to aid in controlling access to the system, tracking usage and monitoring changes to the system.

Every time you log into the Oligo Pro II software, you begin on the main screen (**Figure 3**).

Main Screen Toolbar

The main screen toolbar is located at the top of the Oligo Pro II software main screen as seen in **Figure 3**.

File Menu

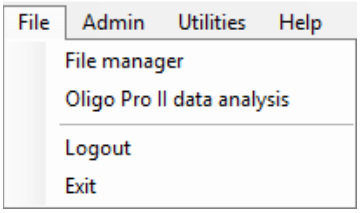


Figure 4 File menu functions

File Manager

The **File manager** command allows electropherogram data to be examined within the Oligo Pro II software environment.

Files are normally analyzed using the Oligo Pro II Data Analysis software, which is covered in the *Oligo Pro II Data Analysis Software User Manual*.

The file manager also enables you to correct the capillary alignment for an individual data file.

Select the **File manager** command to open a file browser and to navigate to a data file. Once a file is selected, the file manager window opens (**Figure 5**).

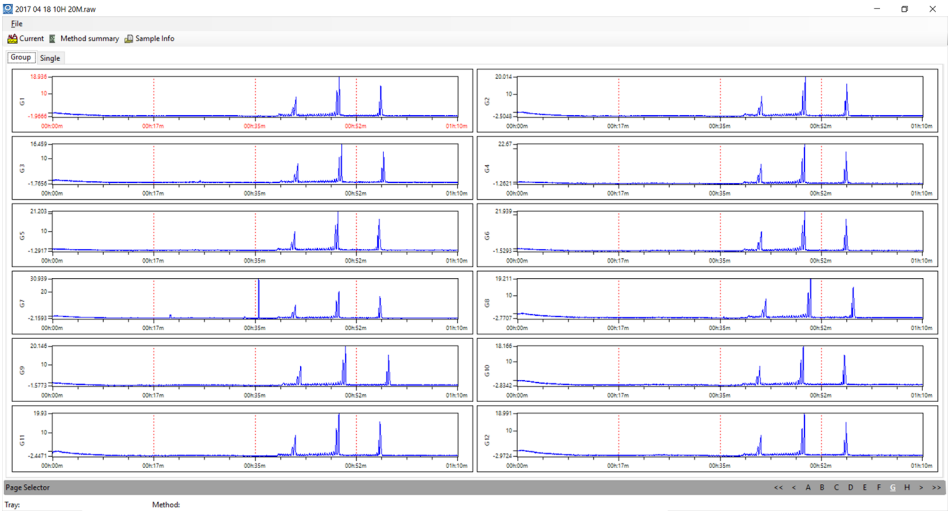


Figure 5 File manager window

Table 2 lists the functions of the file manager screen.

Table 2 File manager – file functions

Field	Description
Open	Opens a file browser to navigate to desired data file.
Cap. Alignment	Allows you to view and manipulate the capillary alignment for the data file opened only. Capillary alignment from a file is discussed in section **"Capillary Alignment"** on page 47.
Print	Allows you to print the twelve electropherograms to a page.
Exit	Closes the File manager window.

Table 3 lists the **Current**, **Method summary**, and **Sample info** toolbar functions.

Table 3 File manager toolbar options

Field	Description
Current	Displays the current of the separation during the analysis.
Method summary	Shows a summary of the method that was used for the separation.
Sample Info	Shows the sample names input for the separation file.

Once the data file is opened in the file manager, the data can be viewed in groups of 12 (by row) when the **Group** tab is selected. A page selection is located at the bottom of the screen allowing for navigation of all rows in a plate (assuming 96-capillary array data is chosen).

To view a single electropherogram at a time, either left-click twice on the desired well or select the **Single** tab. A page and well selection is located at the bottom of the screen allowing for navigation of all rows and wells in the plate.

Electropherogram data can be panned, zoomed in, or zoomed out of by right-clicking on the chart and selecting the function of interest.

Oligo Pro II Data Analysis

Selecting this command will open the Oligo Pro II data analysis software.

Logout

The **Logout** command allows you to log out of the Oligo Pro II software and to log in as a different user.

After logout, the login menu opens (**Figure 2**).

Exit

The **Exit** command closes the Oligo Pro II software. Alternatively, you can exit the program by selecting the red **X** on the top right corner of the main screen.

2 Oligo Pro II System Overview

This chapter gives an instrument overview.

About the System

The Oligo Pro II system is a multiplexed capillary electrophoresis (CE) instrument for performing automated, high throughput separation and quantification of single-stranded nucleic acids. Separation is achieved by applying an electric field through a narrow bore (75 µm i.d.) fused silica capillary array filled with various conductive gel matrices designed to sieve DNA/RNA molecules of a specific size range. When a high voltage is applied to the capillary array, injected DNA/RNA migrates through the gel matrix as a function of length or size, with smaller sized fragments eluting faster than larger sized fragments.

At a point toward the far end of the capillary array, detection of the separated DNA/RNA is achieved by UV absorption spectroscopy. By monitoring the relative UV absorption as a function of time during the CE separation, digital electropherograms representative of the DNA/RNA content of 12, 24, or 96 samples are collected in a single experimental run.

Configured Oligo Pro II System Dimensions

This chapter provides a basic overview of the Oligo Pro II system hardware and operation. **Figure 6** shows an external view of a fully configured Oligo Pro II system, which has a compact footprint of 40” on the bench top with a weight of 82 lbs (37 kg).

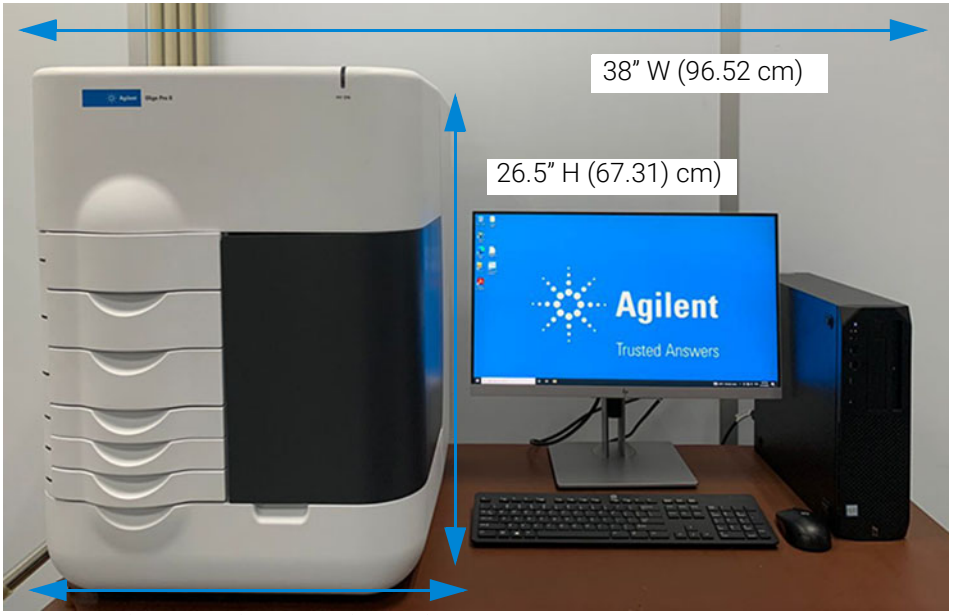


Figure 6 Configured Oligo Pro II system with computer workstation

Oligo Pro II System Connections

The back of the Oligo Pro II instrument contains the communications panel where necessary connections are made to the instrument computer and electrical outlet for operation (**Figure 7** and **Figure 8**).

NOTE

The use of a double-conversion surge protection or uninterrupted power supply (UPS) device is highly recommended. Contact the corresponding Agilent Sales/Service representative for specific recommended models.

A minimum of three standard electrical wall outlets should be available to connect the instrument, computer and accessories, although a power strip can be used in place of separate wall outlets if needed.

Each connection is labeled on the PC. The various connections between the system and the Oligo Pro II instrument are summarized below:

- From the Oligo Pro II System:
  - Two USB cables to PC USB
  - Power cord to grounded electrical outlet
- From the PC:
  - Two USB connections to the Oligo Pro II system

NOTE

The order/location of connections is critical and the locations have been identified on the computer.

  - Power cord to grounded electrical outlet
  - Connection to monitor, keyboard, mouse etc.

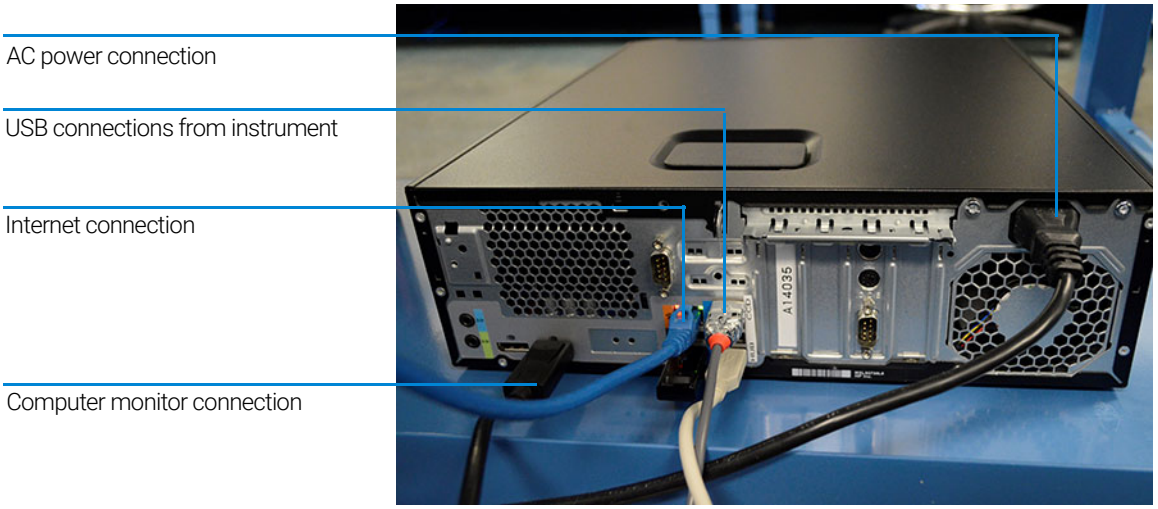


Figure 7 Back panel computer connections

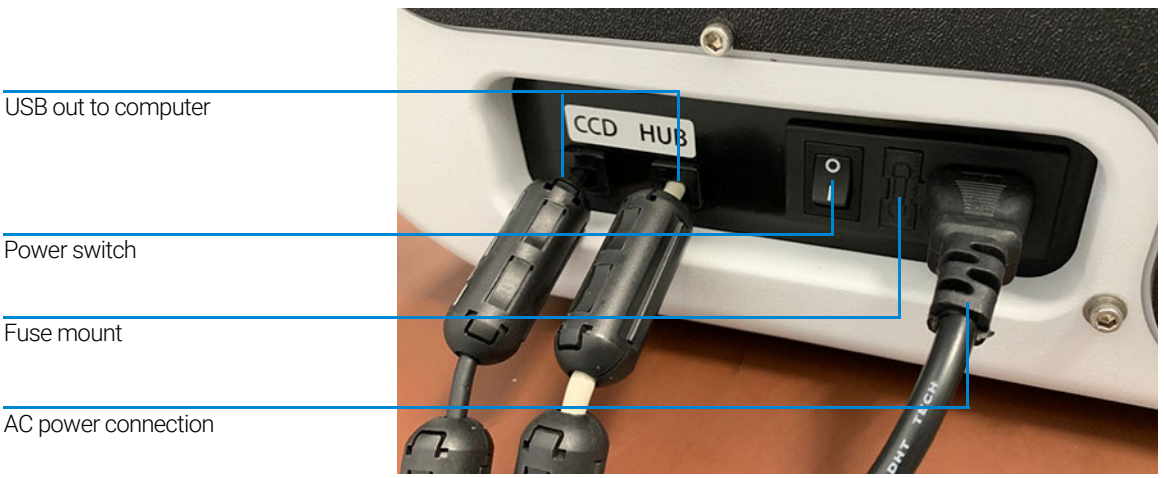


Figure 8 Back panel Oligo Pro II instrument connections

Oligo Pro II External Cabinet

There are three primary points of access to the inside of the Oligo Pro II system: the top compartment, the side compartment access door, and the drawers (6 total) (**Figure 9**).

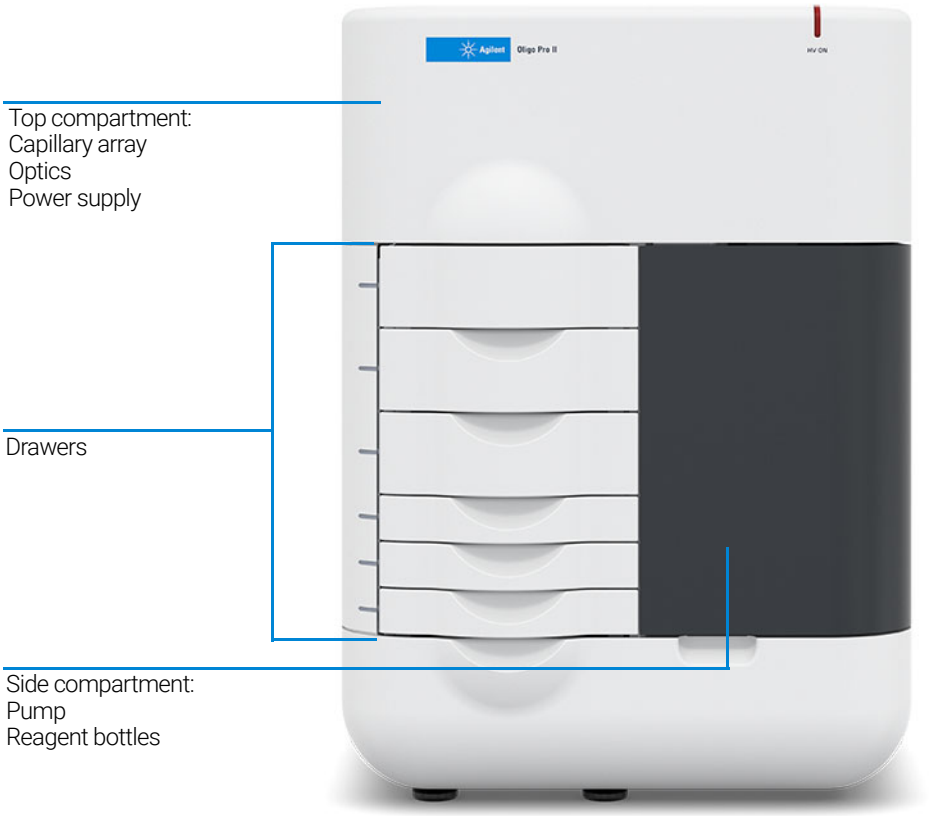


Figure 9 Entry points of the Oligo Pro II System

Top Compartment

The top compartment provides access to the optical detection platform and a capillary array cartridge. A non-accessible compartment on the back of the instrument contains the high voltage power supply and electronics that are connected to the array cartridge and safety interlock system. The safety interlock system shuts off the high voltage in case this door is opened while the instrument is running.

The capillary array cartridge is a replaceable, modular component of the Oligo Pro II system. You can easily exchange the capillary array cartridge. This process is explained in **Chapter 4**, “Oligo Pro II Software – Utilities Menu”.

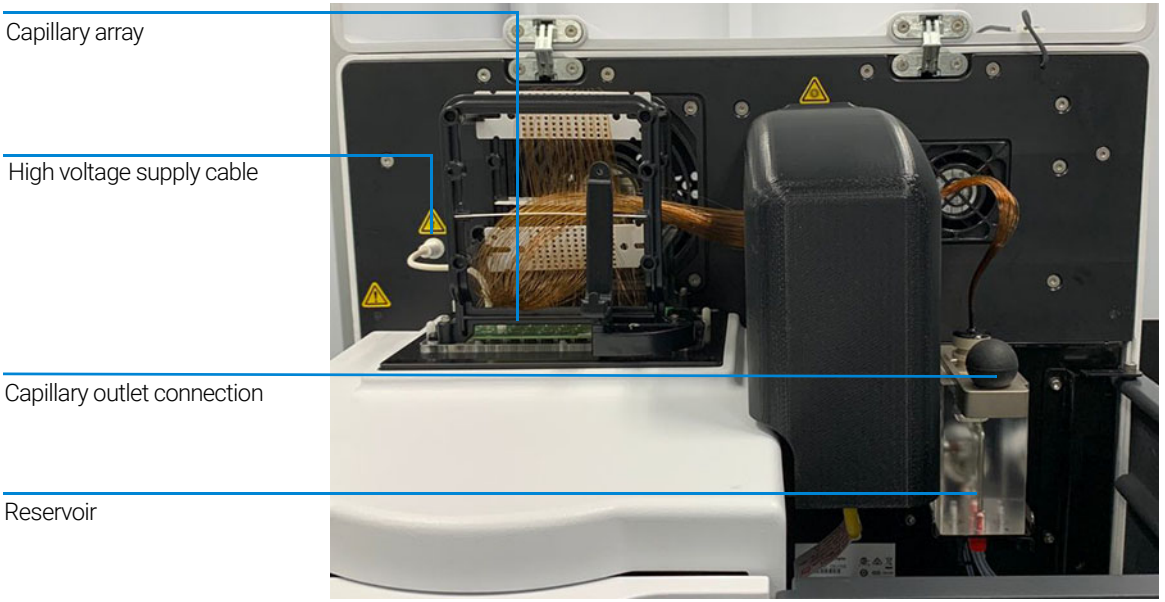


Figure 10 Oligo Pro II main unit top compartment open

Side Compartment

The side compartment allows access to the high pressure pump, syringe, waste bottle, conditioning solution, and gel solution.

The High-Pressure Syringe Pumping system provides automated flushing and filling of the capillary array with conditioning solution and separation gel, providing pressurization of the capillaries up to 280 psi.

Two different solutions are fed to and pumped through the capillary array during routine operation:

- **Capillary Conditioning Solution**
- **Separation Gel** (gel 1)

The appropriate solution is selected for pumping by way of a 6-way distribution valve.

The system also contains a waste bottle, which collects solutions pumped via the waste line from the capillary array reservoir during the filling process.

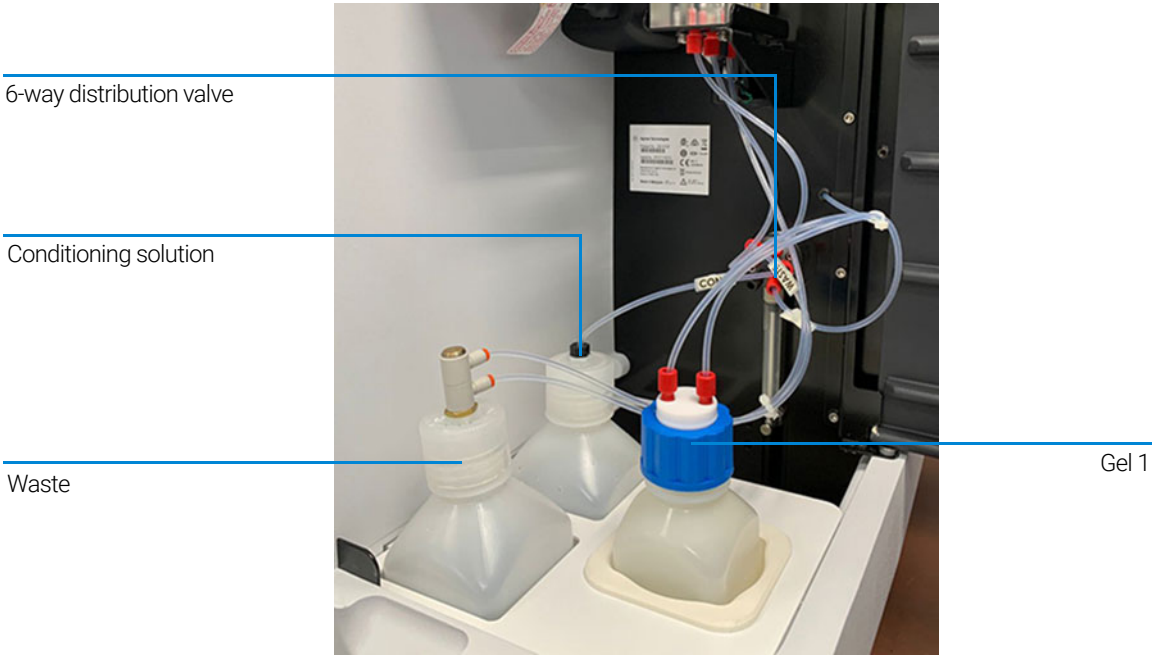


Figure 11 Side door compartment

The four fluid line connections inside the Oligo Pro II system are:

- *Gel line* from syringe pump to gel bottle (gel 1 or gel 2)
- *Conditioning fluid* from *syringe pump* to *conditioning fluid*
- *Overflow waste line* from *syringe pump* to *waste bottle*
- *F-port line* from *syringe pump (6-way valve)* to *F-port*

Drawers

The Oligo Pro II system front-panel drawers provide an external interface for loading *Buffer*, *Waste*, *Rinse*, and *Sample 96-Well Plates* into the system.

- *Buffer drawer* (top drawer): This location is used for the inlet buffer tray used during the CE separation.
- *Waste drawer* (second drawer from top): This location is used for loading the waste tray.
- *Rinse drawer* (third drawer from top): This location is used for loading the rinse tray.
- *Sample drawer 1*(fourth drawer from top): This location is used for sample plate number 1.
- *Sample drawer 2* (fifth drawer from top): This location is used for sample plate number 2.
- *Sample drawer 3* (sixth drawer from top): This location is used for sample plate number 3. It is also used for a 96-well plate containing sample storage solution.

Drawer Status

Status	Description
Buffer and Waste Drawers are interlocked	When any of the top two drawers are open, the high-voltage (for electrophoresis) will automatically shut off.
Rinse, Sample Drawers 1, 2, and 3 are not interlocked	Sample trays can be exchanged while the instrument is in operation.

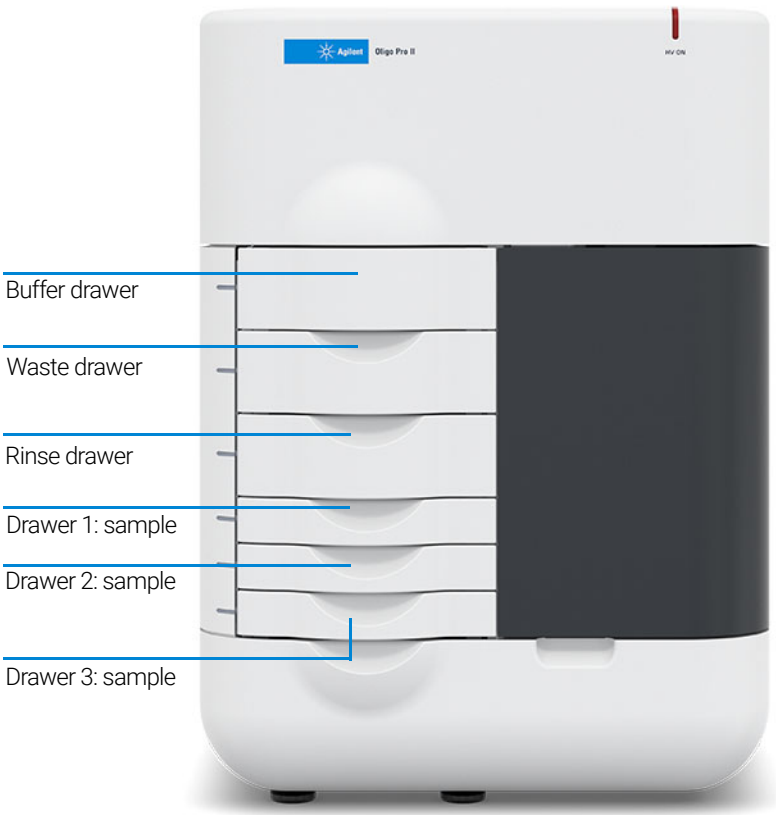


Figure 12 Instrument drawer positions

Oligo Pro II System Loading and Orientation of 96-Well Plates

The Oligo Pro II system is a multiplexed CE system containing a capillary array, which is designed to interface directly with an entire plate of a standard 96-well plate footprint.

Each capillary of the array corresponds to a specific well for a given row in the 96-well sample plate. For example, the capillary array orientation is indexed such that capillary #1 corresponds to Well A1 and capillary #96 = H12.

NOTE

Well A1 of the 96-well plate should always be oriented to the back left location of the instrument drawer to ensure that the sample well location is correctly assigned and reported in the software.

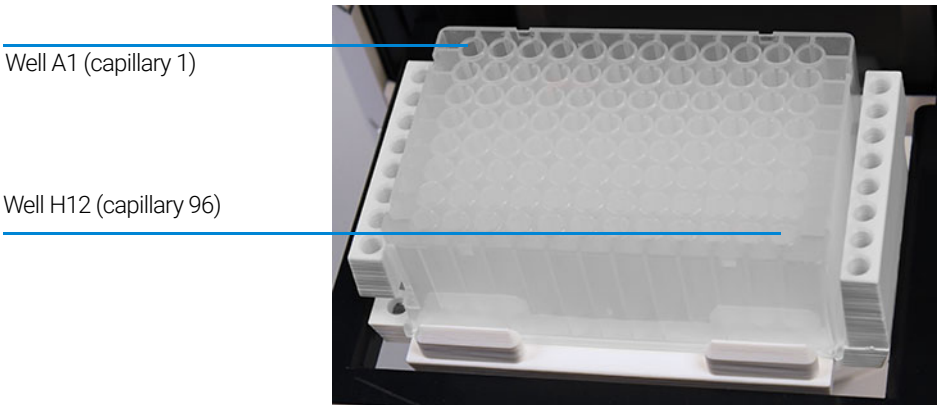


Figure 13 Proper orientation when loading 96-well buffer and sample plates for a 96-capillary system

Each drawer location houses a tray carrier containing alignment pins for ensuring proper alignment of the 96-well plate when placed against the capillary array.

The Oligo Pro II system has been designed to operate using specific dimensions and styles of plates.

Plates with similar dimensions may be used, but capillary damage may occur with the use of poor-quality PCR plates.

For a list of compatible PCR plates please refer to **"Compatible Plates for the Oligo Pro II System"** on page 120.

Oligo Pro II Loading Samples

NOTE

The Oligo Pro II system requires a minimum volume of 20 µL/well in the sample plate for proper injection.

When preparing sample plates for repeated use, a volume of 30 µL/well with a 20 µL (one drop) mineral oil overlay is recommended.

Check the wells of the sample plate/s after pipetting to ensure that there are no air bubbles trapped in the bottom of the wells. The presence of trapped air bubbles can lead to injection failures.

Air bubbles can be removed from the plates by introducing a brief centrifugation step prior to placing the plates into the tray carrier.

3 Oligo Pro II Software – Admin Menu

This chapter describes the Oligo Pro II software in more detail on the commands of the Admin menu.

Admin Menu

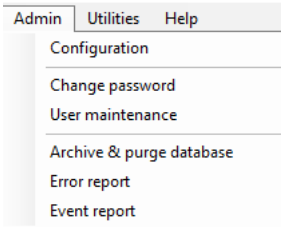


Figure 14 Admin menu commands

Configuration

The **Configuration** command opens the **Configurations** dialog, where the administrator modifes **Security Settings**, **Device Settings**, **Bottle Volumes**, and **Email** parameters for the system.

In the **Security Settings** tab, the administrator can modify the login requirements for all users (**Figure 15**).

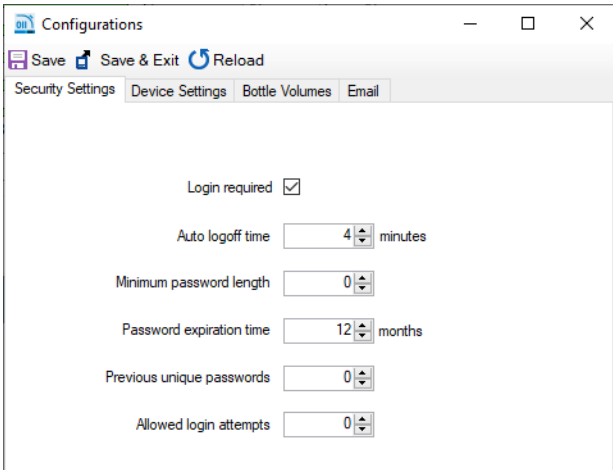


Figure 15 Configuration settings - Security settings tab

A summary of the parameters in the **Security Settings** tab is provided in **Table 4**.

Table 4 Configuration – Security Settings tab functions

Configuration Option	Range	Description
Login required	True or false	If true: User must log into the application. If false: No login is required for user level access.
Minimum password length	0 to 12	The password must exceed this number of characters
Maximum number of login attempts	0 to 12	If a user attempts to log in with an invalid password, after this many attempts: • That user ID is made inactive and the error logged • The failed login attempt is recorded in the event log • The application is shut down
Time to change passwords	0 to 36 months	A password (login ID and signature) will expire after the set number of months. If set to zero, there is no password expiration.
Auto logoff time	0 to 30 minutes	If the application is left unattended for length of time, the current user will be logged off. If set to zero, there is no automatic logoff.
Number of previous passwords	0 to 4	When a user changes their password, they may not select from this number of previously used passwords. If set to zero, there is no previous used password restriction.

The **Device Settings** tab allows modification of the device settings.

The settings should be updated whenever a new capillary array cartridge is installed (**Figure 16**).

A summary of the configuration options in the **Device Settings** tab is provided in **Table 5**.

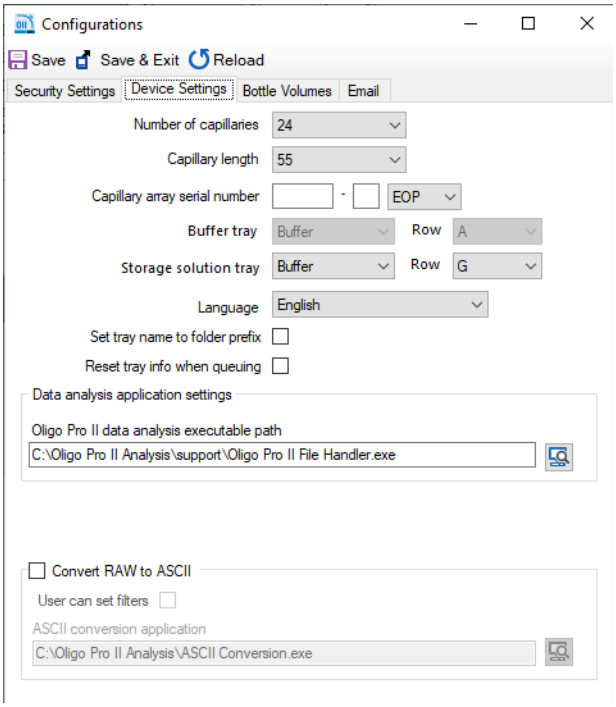


Figure 16 Configuration settings - Device settings tab

Table 5 Configuration – Device Settings tab functions

Parameter	Access Level	Description
Number of capillaries	Administrator	Values: 12, 24 or 96 Note, selecting 12 when a 96-capillary array is installed may cause hardware issues and ruin the array.
Capillary length	Administrator	Value: 55 Note that this length refers to the effective length of the capillaries in use and uses those methods only.
Capillary array serial number	Administrator	Text field. Maximum length 14 characters.
Buffer tray	Administrator	Buffer tray selection is locked to Buffer Row A.
Storage solution tray	User	Allows for the selection of tray and row for the storage solution tray.
Language	User	Allows the user to select language for the software (default is english).
Language file	Administrator	Allows the user to change the language of the software by selecting the appropriate (.csv) language file. (Example: Chinese, English and German)
Set tray name to folder prefix	Administrator	Allows the user to automatically set the tray name to the folder prefix.
Reset tray info when queuing	Administrator	Automatically resets tray information when queuing multiple runs.
Save	Administrator	Saves the chosen settings.
Reload	Administrator	Reloads the previously saved settings.

The **Bottle Volumes** tab allows modification of the reagent bottle volumes (**Figure 17**).

The gel 1, gel 2, conditioning, and waste bottles can be set from 50 mL to 5000 mL by entering the appropriate volume of the container used in the system.

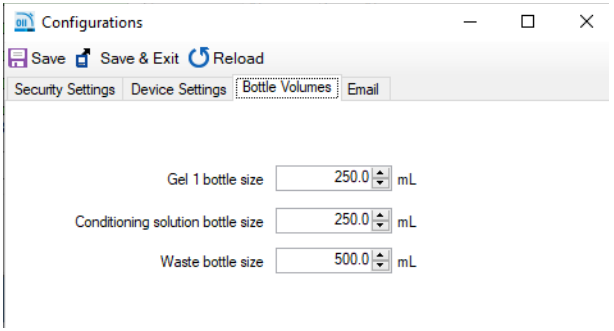


Figure 17 Configuration settings - Bottle volumes tab

The **Email** tab allows the user to set up e-mail settings (**Figure 18**).

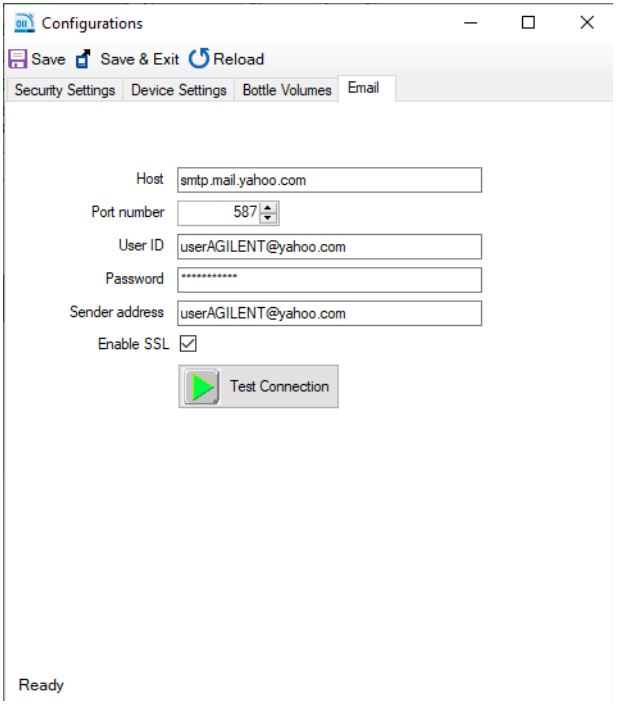


Figure 18 Configuration settings - Email tab

Information on the **Host**, **Port number**, etc. may be found at the e-mail source or with the local site information technology administrator. For example yahoo.com offers an e-mail settings page as shown in **Figure 19**.

NOTE

After inputting all the desired e-mail settings, select **Test Connection** (green arrow) to ensure a positive test. If the test is not positive or passed, the parameters are not set correctly.

NOTE

After passing the connection test, click **Save**.

Figure 19 Example outgoing mail settings

Change Password

The command **Change password** opens the window shown in **Figure 20**.

Changing the password is accessible to all users.

Password requirements:

- Maximum password length is 40.
- Password can contain letters or numbers.
- Passwords are case insensitive.

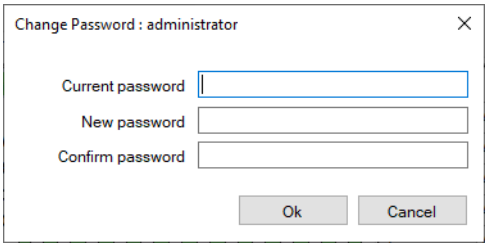


Figure 20 Change password menu

User Maintenance

The command **User maintenance** opens the **User Maintenance** window (**Figure 21**).

In this window, the administrator can add, delete, and modify all users that can access the Oligo Pro II software.

1 To edit the settings, select the pencil icon .

2 After editing, and if all entries are acceptable to the user, select the check mark .

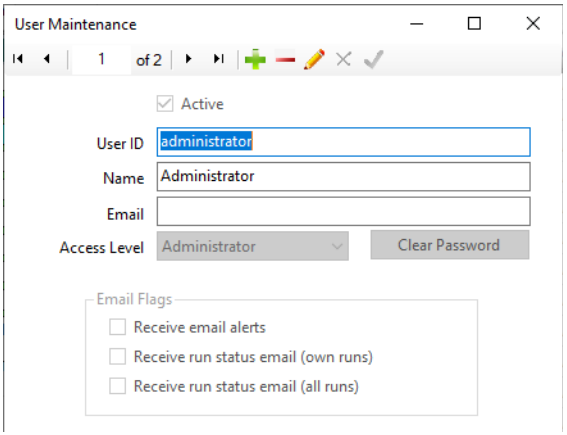


Figure 21 User Maintenance window

A summary of the parameters in the **User Maintenance** window is provided in **Table 6**.

Table 6 User maintenance window parameters

Field	Description
User ID	User ID for login or signature. This ID must be unique for the system.
Access Level	Set the user access level to user or administrator.
User Name	The full name of the user.
Email	Users email address (optional).

Table 6 User maintenance window parameters

Field	Description
Active	Select the check box to activate the user and its user ID. If cleared: The user ID cannot be used.
Clear Password	Sets the users login password to blank. If a minimum password length has been set, the user will need to change their password on login.

Archive and Purge Database

The **Archive & purge database** command is used to maintain the event and error log database.

Event and error logs are saved in the database and can be retrieved for advanced troubleshooting.

This function allows the user with administrative rights to back up the data for future use in a different location or on an external storage device.

Event Report

The **Event report** command provides a tabular report of the audit trail of the events that have occurred in the Oligo Pro II software.

Selecting **Event report** from the **Admin** menu opens the **Select Date Range** window where the user can select **Use all dates** or **Use selected date range** (Figure 22).

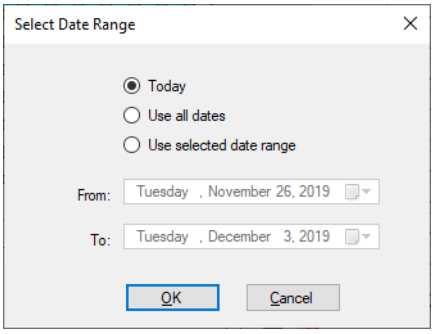


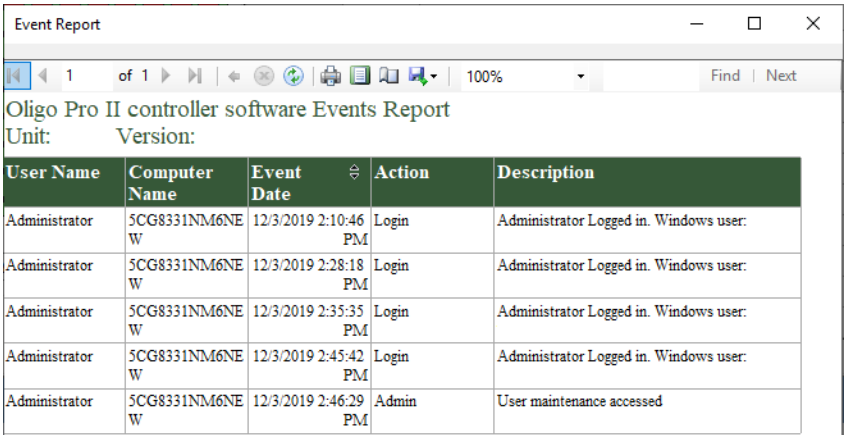
Figure 22 Select Date Range window

Users with both **Administrator** and **User** level access can view the **Event Report**.

The **Event Report** contains the following information for each event log item:

- User name: user who was logged in
- Computer name: network name of the computer where the event occurred
- Event date
- Event code action
- Description

After selecting the appropriate date range in the **Select Date Range** window and selecting **OK**, an **Event Report** is generated (Figure 23).



User Name	Computer Name	Event Date	Action	Description
Administrator	5CG8331NM6NEW	12/3/2019 2:10:46 PM	Login	Administrator Logged in. Windows user:
Administrator	5CG8331NM6NEW	12/3/2019 2:28:18 PM	Login	Administrator Logged in. Windows user:
Administrator	5CG8331NM6NEW	12/3/2019 2:35:35 PM	Login	Administrator Logged in. Windows user:
Administrator	5CG8331NM6NEW	12/3/2019 2:45:42 PM	Login	Administrator Logged in. Windows user:
Administrator	5CG8331NM6NEW	12/3/2019 2:46:29 PM	Admin	User maintenance accessed

Figure 23 Event Report example

The icons along the top of the **Event Report** follow standard Windows function nomenclature and are summarized in **Figure 25**.

Table 7 Event report icons and descriptions

Icon	Description
1 of 10	Page section
	Back to parent report
	Stop rendering (i.e. stop report generation)
	Refresh
	Print
	Print layout
	Page setup
	Save
100%	Zoom

Error Report

The **Error report** function is used for advanced troubleshooting.

Selecting the command **Error report** from the **Admin** menu opens the **Select Date Range** window where you can select **Use all dates** or **Use selected date range** (Figure 24).

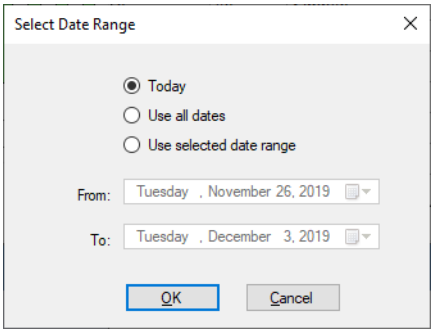


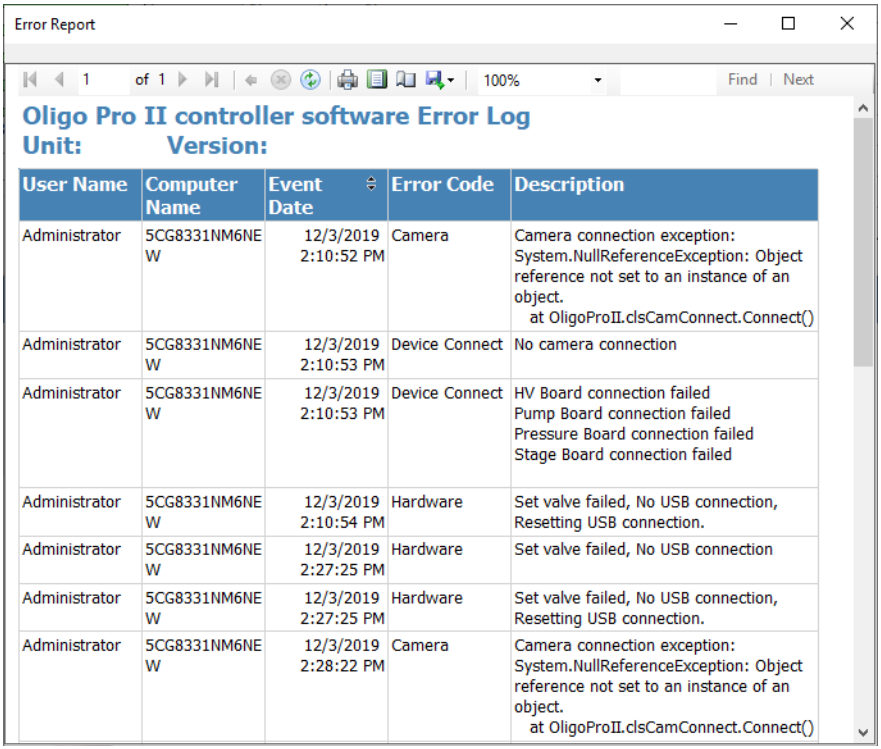
Figure 24 **Select Date Range** window.

The **Error Report** captures the following information:

- Software exceptions and hardware errors detectable by the software
- User name: the user who was logged in when the error occurred
- Computer name: network name of the computer where the error occurred
- Event date
- Error code
- Description

After selecting the appropriate date range in the **Select Date Range** window and selecting **OK**, an **Error Report** is generated (Figure 25).

The icons along the top of the **Error Report** follow standard Windows function nomenclature and are summarized in Table 7.



User Name	Computer Name	Event Date	Error Code	Description
Administrator	5CG8331NM6NEW	12/3/2019 2:10:52 PM	Camera	Camera connection exception: System.NullReferenceException: Object reference not set to an instance of an object. at OligoProII.clsCamConnect.Connect()
Administrator	5CG8331NM6NEW	12/3/2019 2:10:53 PM	Device Connect	No camera connection
Administrator	5CG8331NM6NEW	12/3/2019 2:10:53 PM	Device Connect	HV Board connection failed Pump Board connection failed Pressure Board connection failed Stage Board connection failed
Administrator	5CG8331NM6NEW	12/3/2019 2:10:54 PM	Hardware	Set valve failed, No USB connection, Resetting USB connection.
Administrator	5CG8331NM6NEW	12/3/2019 2:27:25 PM	Hardware	Set valve failed, No USB connection
Administrator	5CG8331NM6NEW	12/3/2019 2:27:25 PM	Hardware	Set valve failed, No USB connection, Resetting USB connection.
Administrator	5CG8331NM6NEW	12/3/2019 2:28:22 PM	Camera	Camera connection exception: System.NullReferenceException: Object reference not set to an instance of an object. at OligoProII.clsCamConnect.Connect()

Figure 25 Error Report window

4 Oligo Pro II Software – Utilities Menu

This chapter describes the Oligo Pro II software in more detail on the commands of the Utilities menu.

Utilities Menu

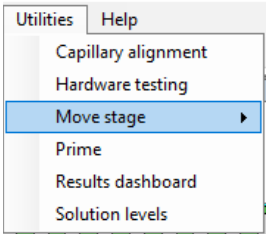


Figure 26 Utilities menu commands

Capillary Alignment

Capillary alignment is required when a new capillary array is installed. It may also be performed when the instrument capillary alignment is not correct. The sign of such an incorrect alignment is low peak intensities even when the sample concentration is high.

When **Capillary alignment** is selected from the **Utilities** menu, the **Capillary Alignment** screen opens.

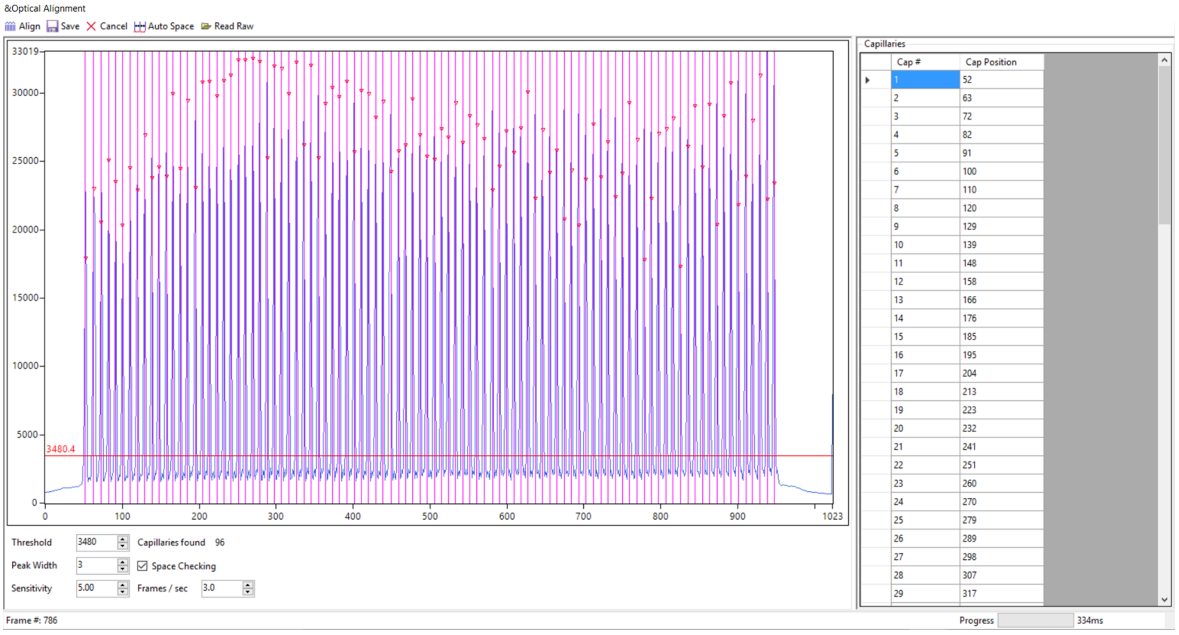


Figure 27 Capillary Alignment screen

Capillary Alignment From Real-Time Window

1 Manually select the red line threshold and drag it up to the desired level.

2 From the toolbar, select **Align**.

3 If you have not selected all capillaries, move the threshold and realign them. Perform the realignment until the capillaries are aligned.

4 Keep the following settings:

- Peak width: 3
- Sensitivity: 5.0
- Select the **Space Checking** check box
- Enter 1 frame/sec.

5 Click **Save**.

Capillary Alignment From File

1 From the toolbar of the **Capillary Alignment** window, select **Read Raw**.

2 Navigate to the location of the raw file using the Windows prompts.

The default saved location of raw data is:
C:/Agilent/Data/(Date: YYYY MM DD)/(Time: XXH XXM).

3 Select the latest Raw file.

4 The *Align from File* window opens (**Figure 28**), allowing the user to align the capillaries from the selected run file. The toolbar of the *Align from File* window is discussed in **Table 8**.

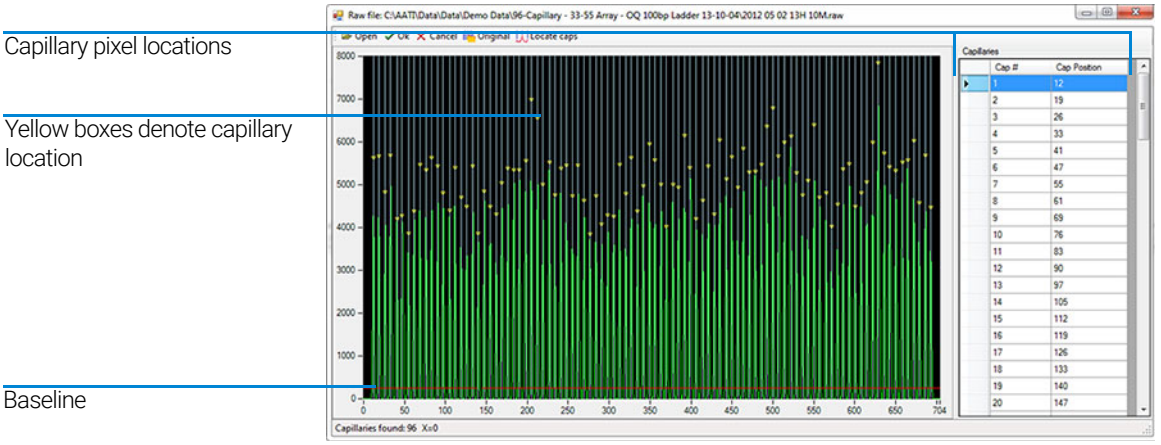


Figure 28 Align from file window for 96-capillary system

Table 8 Align from file toolbar functions

Icon	Description
Open	Opens a new file
Ok	Accepts Changes to the file (i.e. Capillary locations)
Cancel	Cancels any actions and closes the file
Original	Locates the Original Capillary Positions used when the selected file ran.
Locate caps	Locates the capillaries based on peak positions in the selected open file. Note: Move the red baseline up so that only the peaks of interest are integrated and not noise from the baseline.

5 Left-click the red baseline and draw it upwards from the bottom of the graph but not above the top of capillary peaks, as shown in **Figure 28**.

6 Select **Locate caps** from the toolbar in the *Align from file* window.

This will locate the capillary peaks and place a yellow box at the apex of the selected capillaries denoting the capillary pixel location.

The bottom left corner of the screen states the number of capillaries found. This should be 12 or 96 depending on the configuration of the instrument and type of array in use.

If necessary, adjust the capillary positions:

- To manually adjust the capillary position, left-click the white line dissecting the capillary and drag it left or right to the desired location.
- Should the number be off due to too many or too few capillary positions, redraw the red baseline and repeat this step.
- To insert or delete a capillary position, right-click on the black area of the graph or the capillary pixel location table to the right of the graph.
- Right-clicking on the graph area also allows for zooming in or out on the graph

7 Once the desired number of capillaries is located, select **Ok** from the *Align from file* toolbar. This will save any changes made to the capillary alignment and close the *Align from file* window, returning you to the **Capillary Alignment** screen.

8 Select **Save** from the Capillary Alignment window.

From this point forward the instrument will use these saved pixel locations for all future runs.

Hardware Testing

The command **Hardware testing** is available to users with administrator privileges and is used for troubleshooting the instrument.

The **Hardware testing** command from the **Utilities** menu opens the **Hardware Testing Screen** as seen in Figure 29.

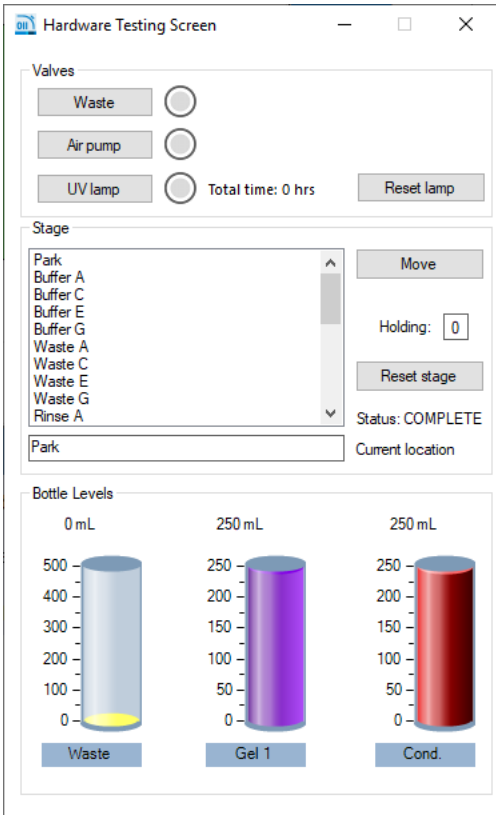


Figure 29 Hardware testing screen

An overview of the functions available in the **Hardware Testing Screen** is listed in Figure 29.

Table 9 Functions of the Hardware Testing Screen

Function	Description
Valves > Waste	Select to open the valve. Clear to close the valve. The status of the valve is indicated by an open/filled circle in the status bar, respectively.
Valves > Air pump	Select to open the valve. Clear to close the valve. The status of the valve is indicated by an open/filled circle in the status bar, respectively.
Valves > UV lamp	Always ON
Stage > Move	Moves the tray to the selected position.
Stage > Reset stage	Allows the user to reset the stage position should a drawer be opened before the stage finishes its movement. Available on instrument serial numbers 2600, and higher.
Bottle Levels	Gives a visual indication (simulation based on calculated usage) of the amount of reagents available in the system.

Move Stage

Allows the user to move the stage to the selected location. See **Table 10** for details.

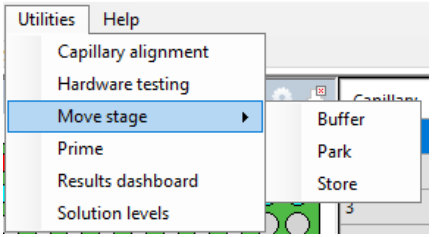


Figure 30 Stage movement options

Table 10 Stage movement descriptions

Icon	Description
Buffer	Picks up the buffer tray from the buffer drawer and holds it against the capillary array.
Park	Places the current tray being held back into its respective drawer and moves the instrument platform to the bottom of the instrument allowing for buffer replacement.
Store	Places the current tray being held back into its respective drawer and picks up the storage solution tray to hold it against the capillary array.

Prime

The **Prime** function allows the user to prime any of the three available reagent bottle line should a new solution be added to the instrument or bubbles be found in the reagent bottle lines.

Selecting the **Prime** function from the **Utilities** menu opens the **Prime** window as seen in Figure 31. The **Prime** functions are discussed in Table 11.

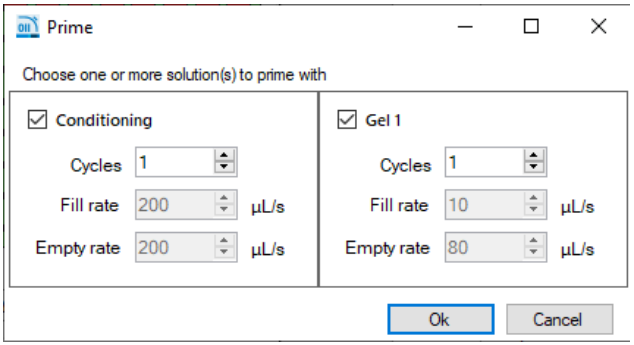


Figure 31 Prime window

Table 11 Functions of the Prime window

Function	Description
Fluid selected	Allows the user to select which reagent line or combination of lines to prime (**Conditioning** and/or **Gel 1**).
Cycles	Refers to number of cycles (1-10) of the syringe to complete. One cycle is generally sufficient.
Fill rate	Allows the user to adjust the **Fill rate** up and down 0-1000. Gel should not be pulled from the gel bottle at a rate above 10 µL/s.
Empty rate	Allows you to adjust the **Empty rate** up and down 0-1000. Gel should not be pushed higher than 20 µL/s.

Solution Levels

Allows the user to adjust the volumes added to the reagent bottles and adjust the waste bottle level when emptied.

The Oligo Pro II software tracks the solution levels as the instrument is used. This ensures that the instrument has enough fluids for all of the planned runs.

If the solution levels are low, the software will issue a warning and ask the user to adjust the solution levels before it can proceed with a separation.

Selecting the **Solution levels** command from the **Utilities** menu opens the **Check Solution Volumes** window (Figure 32).

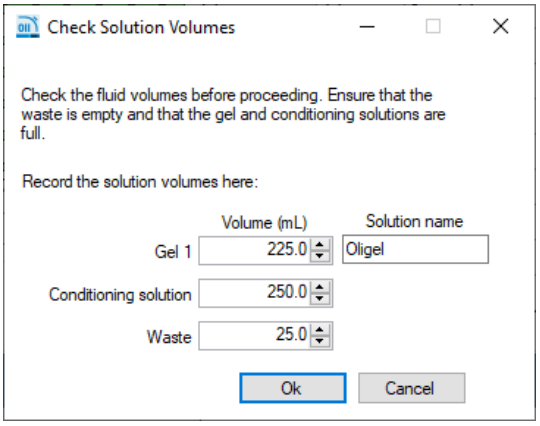


Figure 32 Check solutions volumes window

1 When solutions are refilled, open this window and enter the correct solution levels (mL) for each container.
   - **a** Use the up and down arrows or enter the solution level in each entry field to adjust solution levels.
   - **b** To save changes to solution levels, select **Ok**.

NOTE

For the program to run correctly (i.e. to issue the correct warning), it is important that you enter the solution levels into the program every time that new solutions are placed onto the instrument.

5 Oligo Pro II Software – Help Menu

This chapter describes the Oligo Pro II software in more detail on the commands of the Help menu.

Help Menu

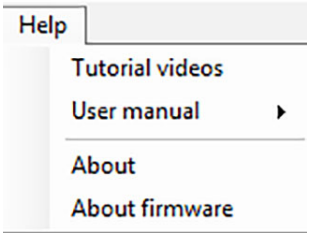


Figure 33 Help menu commands

Tutorial Videos

Selecting **Tutorial videos** opens a folder containing videos made to help you with topics such as *Placing an array on the Fragment Analyzer* and *Performing a Capillary Alignment*.

User Manual

Navigating to the command **User manual** opens a drop-down list of every chapter of the user manual.

About

The **About** command opens an **About Oligo Pro II** window displaying the version number of software, hardware serial number, and copyright information.

About Firmware

The **About firmware** command opens an **About Firmware** window displaying the voltage, pump, and motion control.

Check for Updates

This will check for software updates.

6 Oligo Pro II Software – Operation Tab

This chapter describes the Oligo Pro II software in more detail on the Operation tab.

Operation Tab Overview

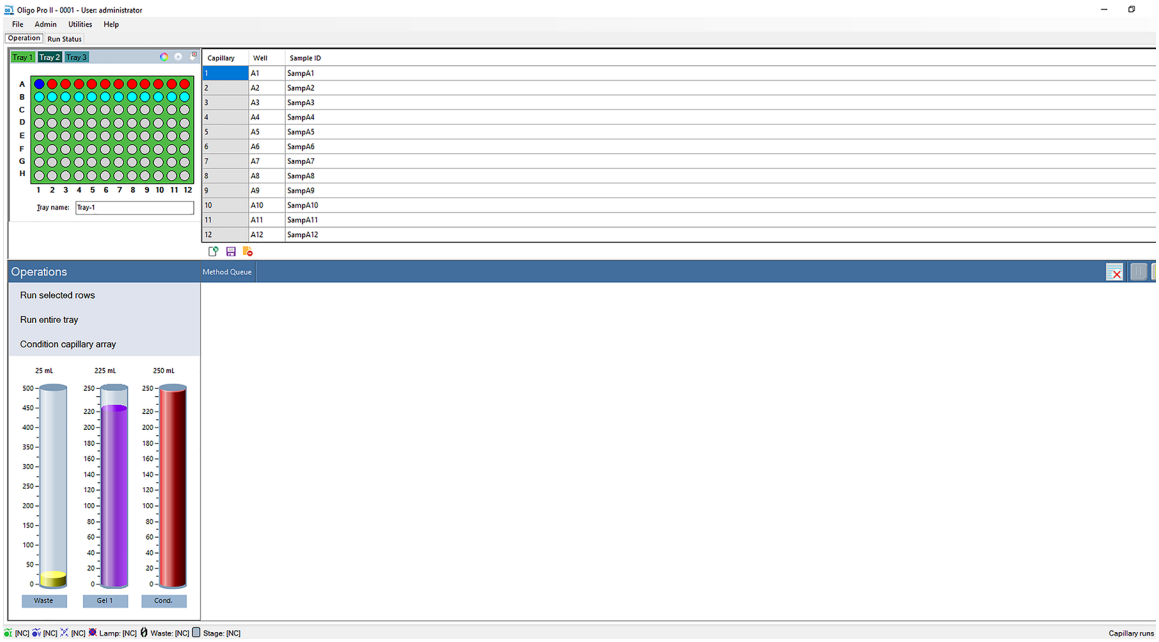


Figure 34 Oligo Pro II software main screen

Tray Selection and Sample ID

Select the sample tray to be used from either the **Sample Tray** drop-down list or the colored tab tray selection, depending which configuration is set (**Figure 35**).

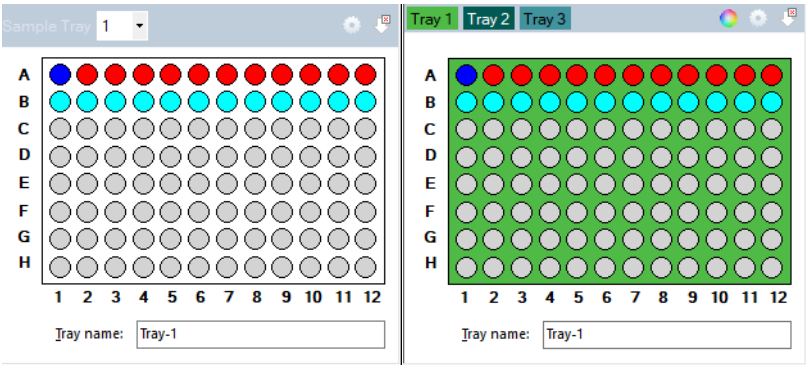


Figure 35 Classic drop-down tray selection (left) or colored tab tray selection (right)

1 In the tray window, select .

The **Visual preferences dialog** window opens (**Figure 36**).

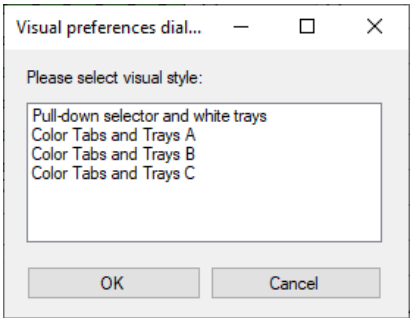


Figure 36 **Visual preferences dialog**

2 Choose between the sample tray drop-down list or the colored tab tray selection (**Figure 35**).

3 If you use the colored tab tray selection window, select to change the color of each sample tray in the **Color selection** window.

4 To select a row from the 96-well plate depicted in the sample and sample tray selection window, left-click once in that row (**Figure 35**). To select a new row, left-click on another row.

5 To clear a row selection, select  (**Figure 35**).

The **Tray name** field of the selection window allows you to input a name for the tray being run (**Figure 35**). You can also click in this field and use a bar code scanner to import sample names for the plate being run.

Enter sample information in the **Sample ID** section of the main screen (**Figure 37**). For a 96-cap system, you must select each row individually to manually enter data (rows A-H). You can also save or load sample names and information using .txt or .csv files. These functions are discussed in **Table 12**.

Capillary	Well	Sample ID
1	A1	SampA1
2	A2	SampA2
3	A3	SampA3
4	A4	SampA4
5	A5	SampA5
6	A6	SampA6
7	A7	SampA7
8	A8	SampA8
9	A9	SampA9
10	A10	SampA10
11	A11	SampA11
12	A12	SampA12

Figure 37 Sample information editor

Table 12 Sample information editor functions

Item	Description
Load from file	Loads sample names from a .txt or .csv based file.
Save tray	Saves the information entered for an entire sample tray.
Reset tray	Resets the entire sample tray to the default **Sample ID** settings.

Experimental Run Controls and Adding to Queue

The Oligo Pro II software provides pre-loaded default methods for both capillary array conditioning and experimental methods for each analysis kit offered by Agilent.

The experimental run controls shown in **Figure 38** shows the controls available for **Run selected rows**, **Run entire tray**, and **Condition capillary array**. These options are discussed below.

Reagent levels of the bottles are also shown.

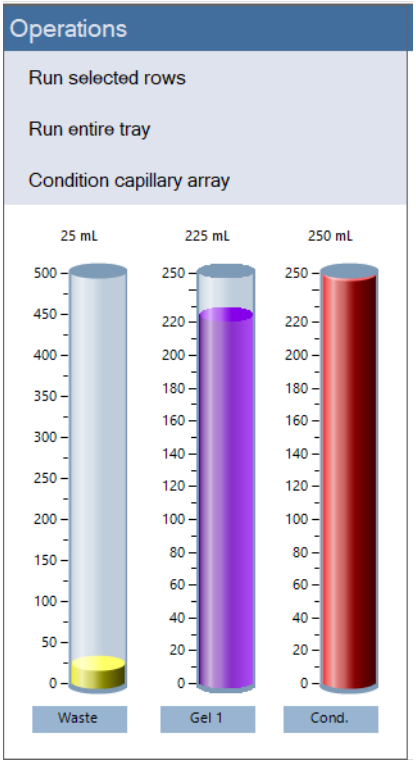


Figure 38 Experimental run controls

Run Entire Tray

Selecting **Run entire tray** opens the **Separation Setup** window (**Figure 39**). Select a method using the drop-down list (**Figure 40**).

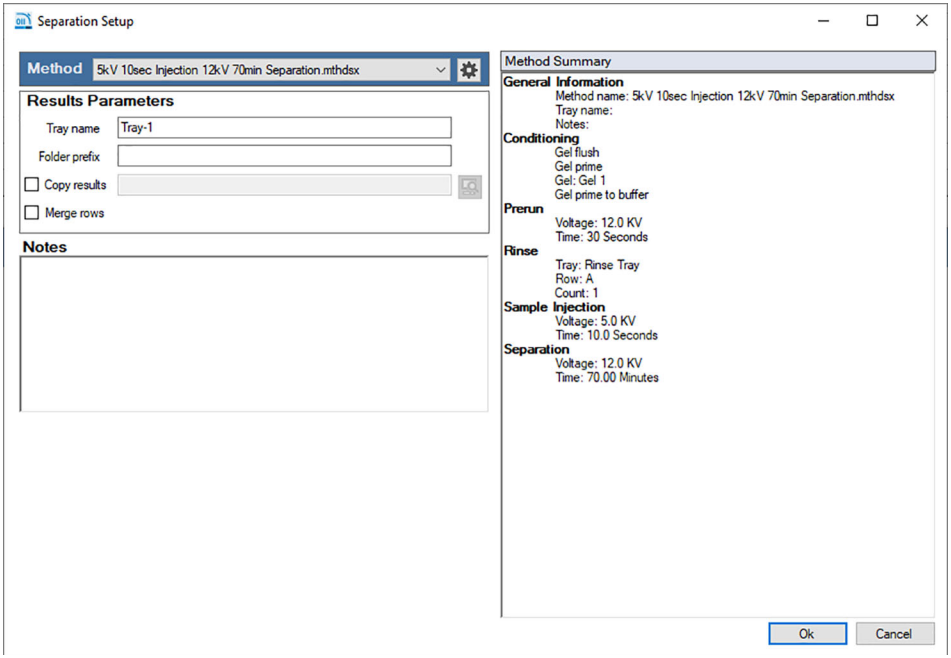


Figure 39 Run entire tray window

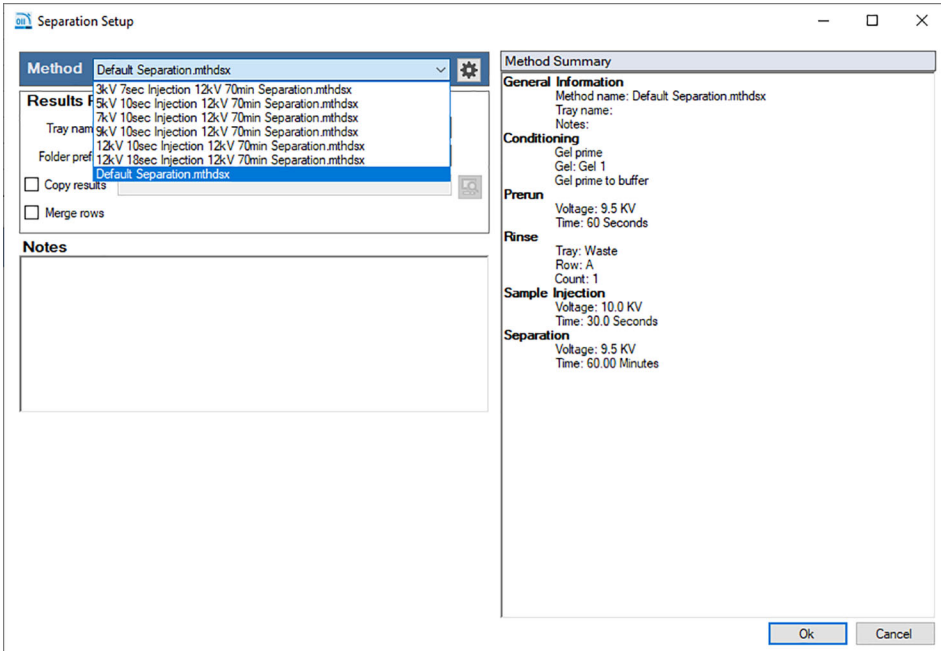


Figure 40 Separation setup window with method drop-down list expanded

The functions of the **Separation Setup** window are discussed in **Table 13**.

Table 13 Separation Setup window functions

Item	Description
Method	Select a method from the drop-down list (**Figure 39**).
Tray name	The **Tray name** is shown as input by the user on the main screen or the default name appears.You may edit this field by typing in the provided field.
Folder prefix	The folder prefix allows you to add a prefix to the folder name where the results files will be written.
Copy results /copy path	The default directory location for the data is C:\Agilent\Data. Select **Copy results**, and click **[...]** to navigate to a different location where you want to copy the saved data.
Notes	Allows to add any additional information you may require for a set of samples.
Merge rows	When using a 12- or 24-capillary array, select this option to merge several runs for data analysis.

After choosing an appropriate method from the drop-down list and providing appropriate notes, copy paths, etc., select **Ok** to add the chosen method to the method queue, select or **Cancel** to close the window.

The settings icon in the top of the **Separation Setup** window opens the method editor window (**Figure 41**). Here, you can define a new method, or edit the existing method prior to executing a run.

In the method editor window, select a method from the drop-down list. To create a new method, select **File > Save as** and save as the new method with a unique name. If you want to edit and save the existing method, select **Save** to accept the changes and close the window. To edit the current method for the current run without permanently saving the method, select **OK**.

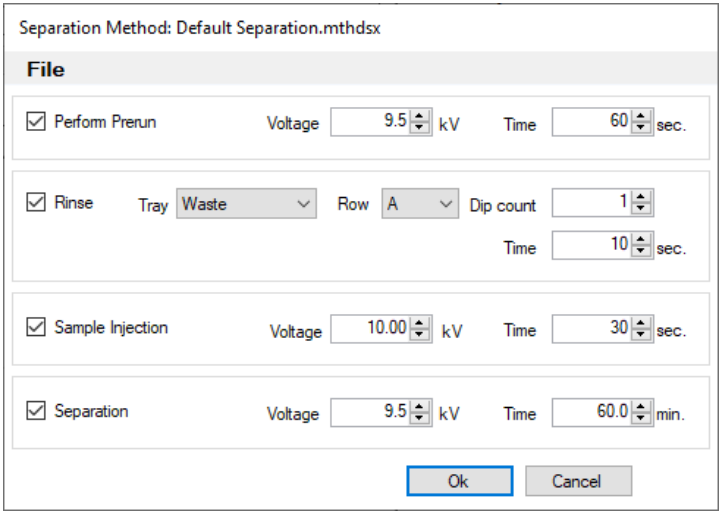


Figure 41 Method editor window

The method editor window allows for customization of the run parameters for a CE separation.

Select the check box next to the individual parameters to enable different steps and parameters. The individual parameters are discussed in **Table 14**.

Table 14 Method editor window functions

Item	Description
Perform Prerun	A short pre-run is recommended to normalize the gel inside the capillaries.
Rinse	The rinse option allows you to dip into the selected position rinsing the capillary tips and electrodes between the pre-run and sample injection. The **Tray** position, **Row**, and **Dip count** can be altered as well.
Sample Injection	Define the **Voltage** and **Time** for the voltage injection.
Separation	Define the **Voltage** and **Time** of the CE Separation.

Condition Capillary Array

Selecting **Condition capillary array** opens the **Select Conditioning Method** window (**Figure 42**). Select a method using the drop-down list (**Figure 43**).

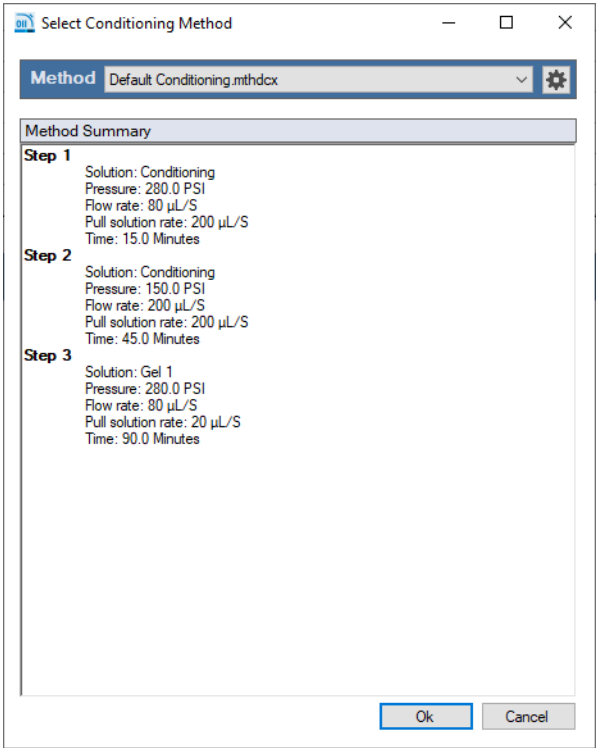


Figure 42 Select Conditioning Method window

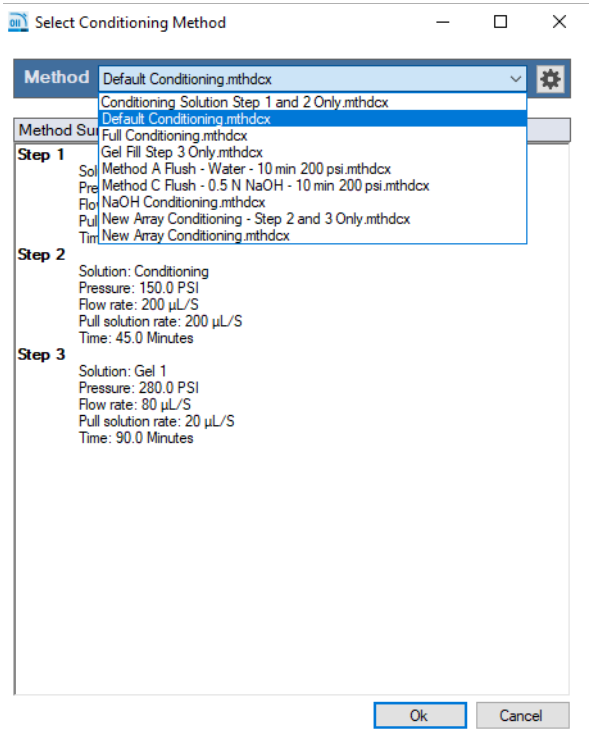


Figure 43 Select Conditioning Method window with method drop-down list expanded

After choosing an appropriate method from the drop-down list, select **OK** to add the chosen method to the method queue, or **Cancel** to close the screen.

Select  to open the condition capillary array method editor window, which allows the user with administrator privileges to define a new conditioning method, or to edit the existing method prior to executing a run. The conditioning method editor window is shown in **Figure 44**.

Users with user level are allowed to view the method parameters of the selected file in the **Method Summary**.

To create a new method, select **File > Save as** and save as the new method with a unique name. If you want to edit and save the existing method, select **Save** to accept the changes and close the window. To edit the current method for the current run without permanently saving the method select **OK**.

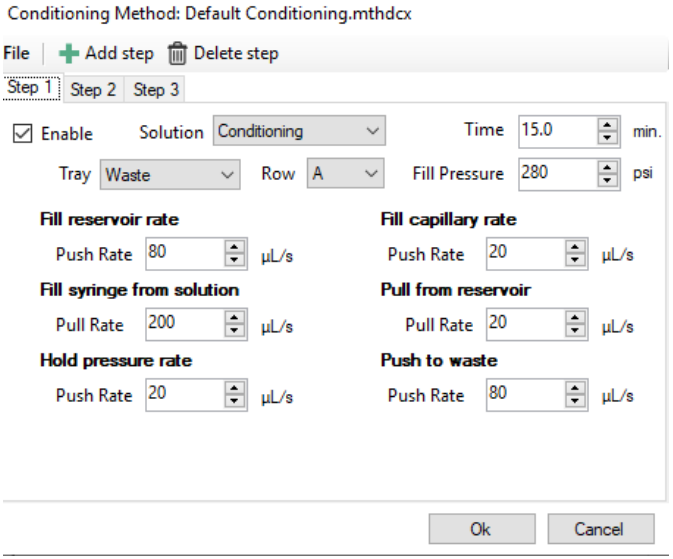


Figure 44 Condition capillary array method editor

The condition capillary array method editor window allows for customization of the run parameters for a CE separation. The individual parameters are discussed in **Table 15**.

Table 15 Condition capillary array method editor window settings

Item	Description
Step 1, 2, or 3	Enables/disables the step to be used.
Time	Total time of the conditioning step.
Fill pressure	Maximum fill pressure. This should be set < 300 psi:
Solution	Select **Conditioning** solution or **Gel 1** reagent bottles for use.
Fill reservoir rate	The rate at which the syringe fills the reservoir.
Fill capillary rate	The rate at which the syringe fills the capillaries. This should be no greater than 10 µL/s for a gel, and up to 200 µL/s for capillary conditioning fluid.
Time	Total time of conditioning step.
Fill syringe from solution	The rate at which the syringe fills from the selected solution.
Pull from reservoir	The rate at which the syringe pulls liquid from the reservoir. For the Oligo Pro II system this should never exceed 30 µL/sec.
Hold pressure rate	The rate at which the syringe will pressurize the capillaries to maintain pressure.
Push to waste	The rate at which the syringe will empty to waste.
Tray	Select the tray to pump into when conducting the conditioning. Always pump to buffer tray when pushing gel through capillaries to avoid drying the capillary tips.

Method Queue

Once a sample tray has been selected, sample names are entered into the **Sample ID** field. When **Add to queue** has been selected, the chosen method is shown in the method queue (**Figure 45**).

Figure 45 shows three sample runs chosen from sample trays 1, 2, and 3 followed by a pause in the method queue and a priming method.

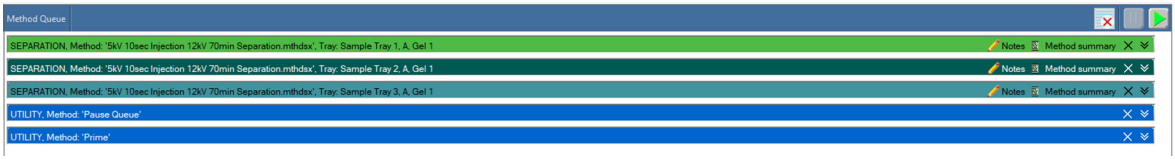


Figure 45 Method queue

A **Pause** or **Prime** can be inserted into the method queue by selecting the method queue area of the screen. When **Insert Prime** is selected, the **Prime** window opens, prompting the user to choose the bottle location to prime from a drop-down list (**Figure 46**).

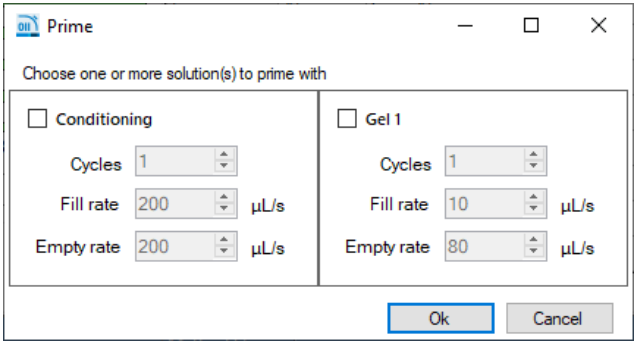


Figure 46 Prime window

Methods loaded into the method queue can be moved up or down based on the user's needs by left-clicking on the method and dragging it to the desired location in the queue.

To view the parameters for the separation method in the method queue, select **Method summary** next to the separation method. A summary of the method will appear, as shown in **Figure 47**.

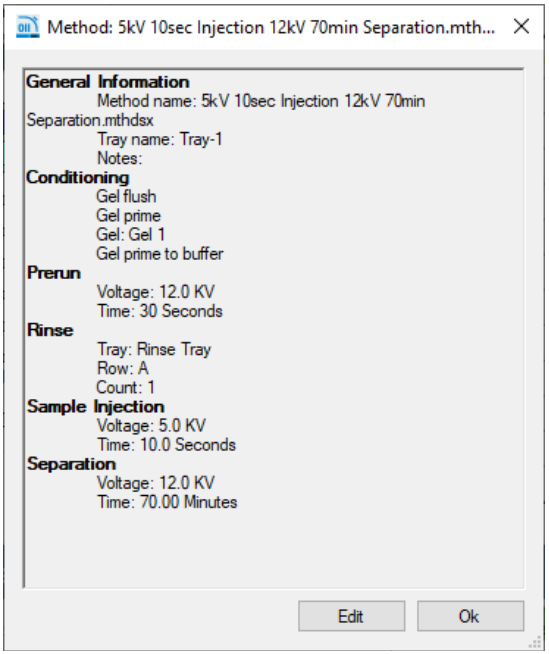


Figure 47 Method summary window

Select **Edit** from the Method summary window allows you to make final changes to the method if desired.

To cancel only the separation method in the queue, select **X** next to the separation method.To delete all items in the queue, select from the method queue run control toolbar.

To expand the method and show a detailed summary, select the down arrows next to the separation method.

There are three run controls for the method queue: **Clear the Method Queue**, **Pause the Method Queue**, and **Start the Method Queue**. These run controls are shown in Table 16.

Table 16 Method queue run controls

Icon	Description
Clear 	Clears all separation methods, pauses, and primes from the queue.
Pause 	Pauses the method queue. The current method running will still complete. To restart the queue select the start icon.
Start 	Starts the method queue. Once started the top method will disappear and the screen will switch to the run status tab. The next method will move up in the queue.

7 Oligo Pro II Software - Run Status Tab

This chapter describes the Oligo Pro II software in more detail on the Run Status tab.

Run Status Tab Overview

Once **Start**  has been selected (for more information, refer to **Chapter 6**, “Oligo Pro II Software – Operation Tab”), the display will switch from the **Operation** tab to the **Run Status** tab.

Stage Movement Animation

Whenever the stage moves from one position to another, the animation shows where the Oligo Pro II stage is moving to/from (**Figure 48**). This provides a real-time view of what is happening.

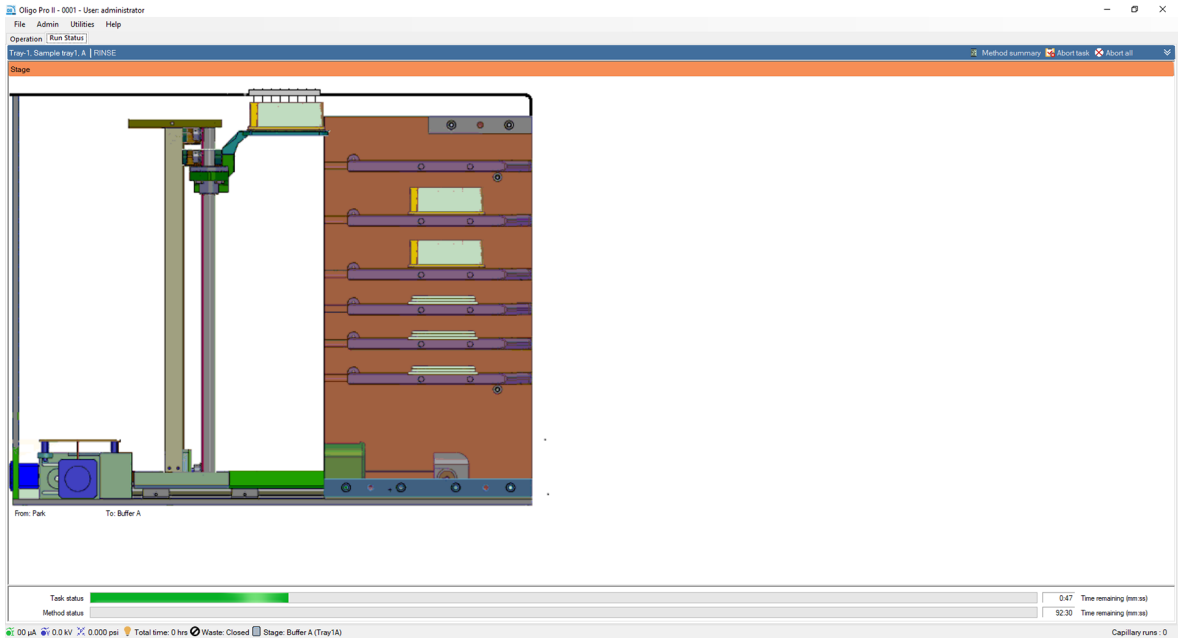


Figure 48 Stage movement animation

Conditioning Animation

When the Oligo Pro II instrument is pumping conditioning solution or gel, the animation in **Figure 49** is shown. The animation gives a real-time view of exactly what the instrument is doing during a conditioning and/or gel/fill sequence.

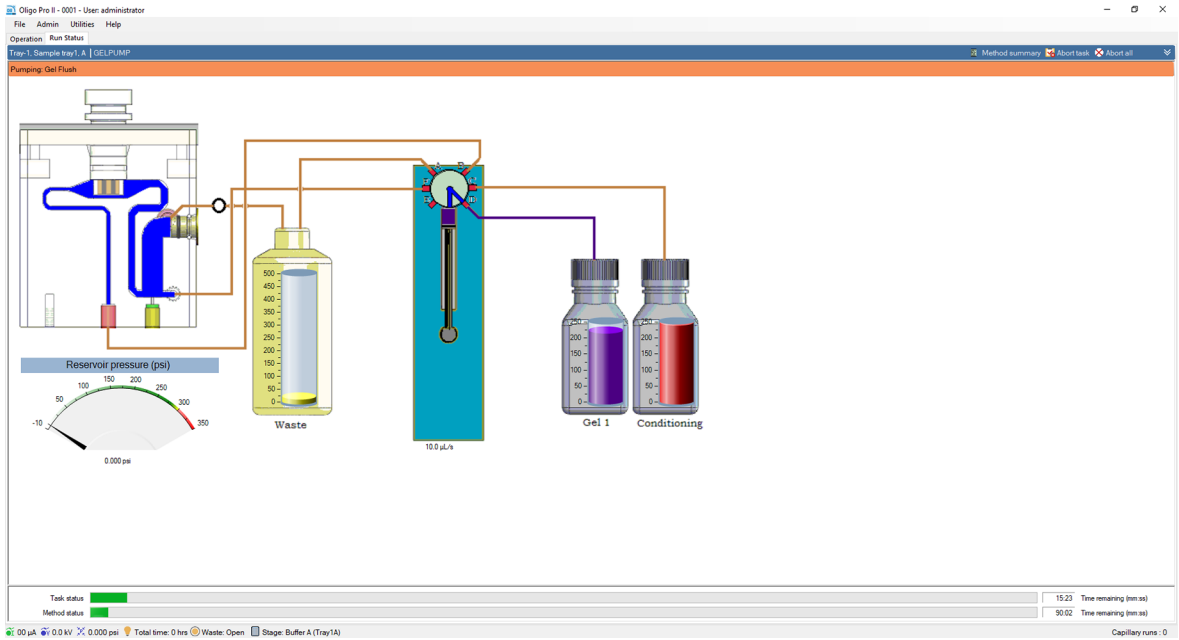


Figure 49 Conditioning animation

Pre-Run / Injection View

When the Oligo Pro II instrument is completing a pre-run or injection, the screen in **Figure 50** is shown.

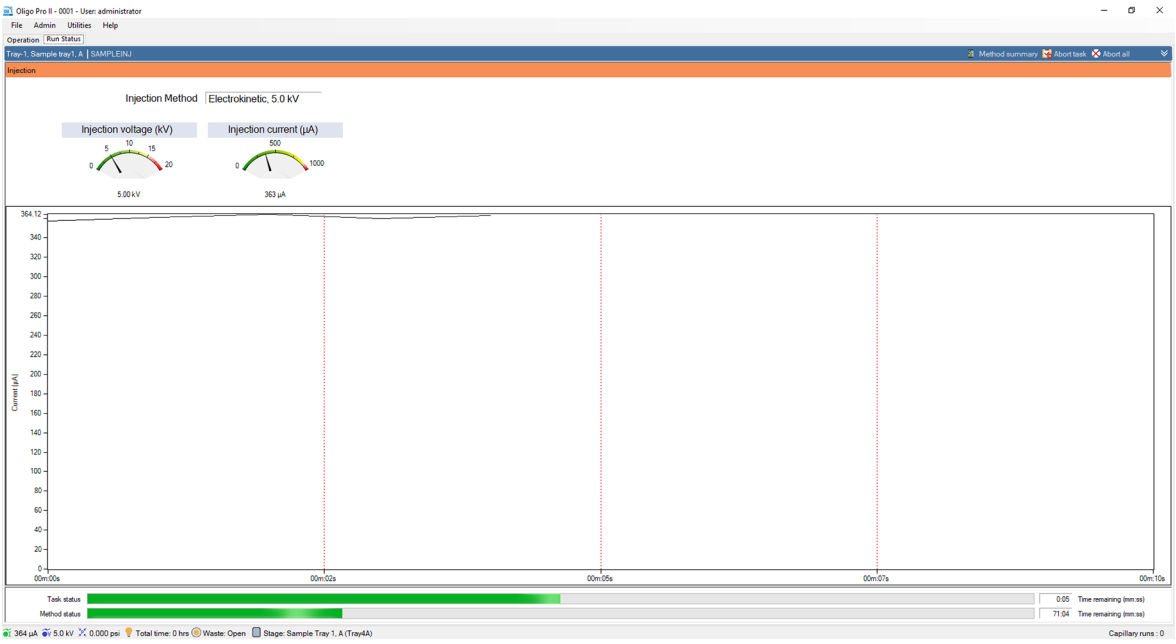


Figure 50 Pre-run/injection screen

Real-Time Separation View

When the Oligo Pro II instrument starts the separation, the screen shows the real-time view of the separation (**Figure 51**).

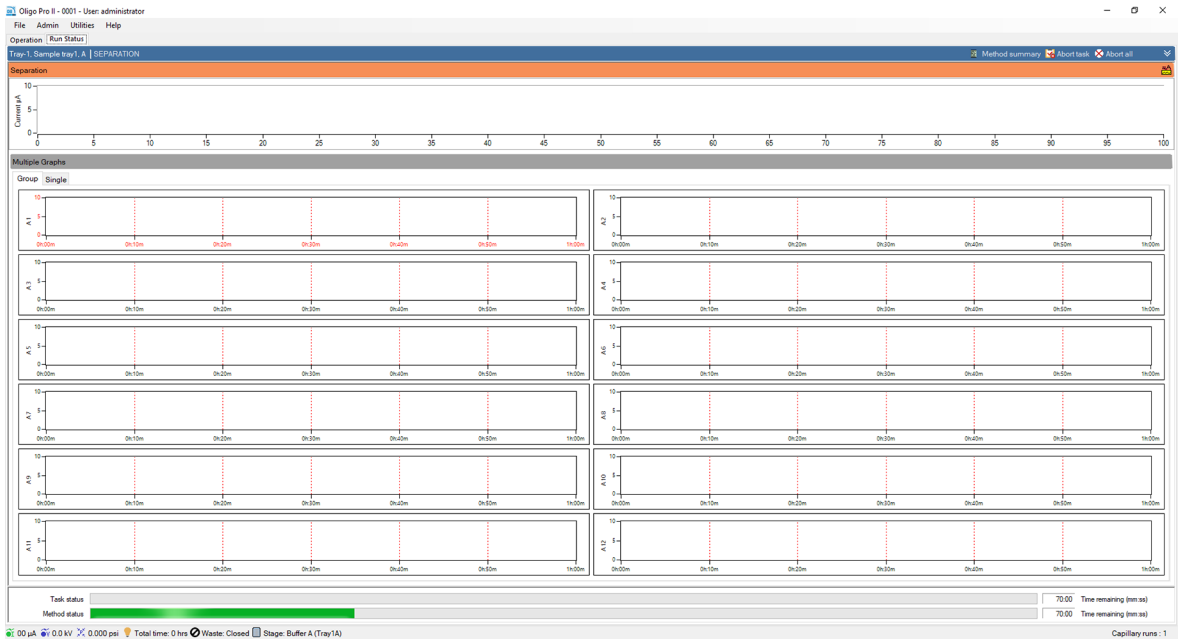


Figure 51 Real-time separation window

The **Group** tab at the top shows the run in a group of 12 electropherograms. The **Single** tab shows individual electropherograms.

When a 96-capillary system is running, you can select between rows of a group on the bottom left of the electropherograms by select the corresponding letter of the row. When viewing the **Single** tab, you can also select the well number to view.

Other options available from the **Run Status** tab are discussed in **Table 17**.

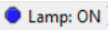
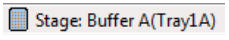
Table 17 Run status tab options

Icon	Description
	Opens a popup window showing the method summary for the current method being run.
	Aborts only the individual task being done, i.e. stage movement, pumping, or injection.
	Aborts the entire method being run and begins the next method in the queue. If no methods are found, the stage returns to the storage position. When selected, a window asks to verify if you really want to abort.
	Shows the current for the separation being performed.
Task status	Shows the status bar and time left for each individual task being accomplished, i.e. stage movement, pumping, or injection.
Method status	Shows the status bar and time left for the entire method to complete.

Status Bar

The bottom bar of the Oligo Pro II software shows a real-time status bar containing important information about the instrument status. These functions are discussed in **Table 18**.

Table 18 Instrument Status Information

Icon	Description
	Left-clicking on this icon will show the voltage level for the last 5 minutes.
	Left-clicking on this icon will show the current level for the last 5 minutes.
	Left-clicking on this icon will show the pressure level for the last 5 minutes.
	The blue circle denotes high voltage present and states that the LED is on. If the circle is grey, the LED is turned off and the message reads LED **OFF**.
	Denotes if the waste valve is open or closed.
	Denotes the location of the stage at that point in time.

8 Oligo Pro II Software – Sample Name Entry

This chapter provides information on how to enter the sample names in the Oligo Pro II software.

Sample Name Entry

Entering Sample Names Manually

1 From the **Operation** tab, select the tray number, the desired row, and the sample cell.

2 In the field **Sample ID,** enter the desired sample names.

3 Save the file as a .txt or .csv using the save functions (**Figure 52**).

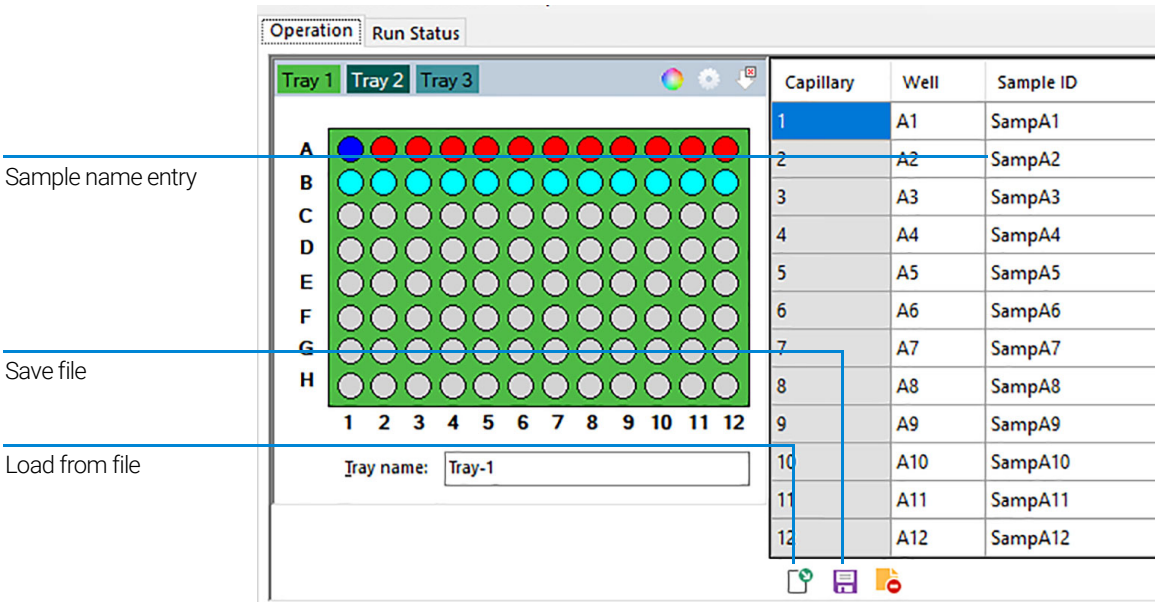


Figure 52 Manual sample entry

Importing Sample Names

✔ The files must be available in .txt or .csv file format.

✔ The data format must comply with the format described below in order for the system to read the files correctly.

1 In the **Operation** tab, select **Load from file** to load a set of saved or previously created sample names.

- For a .txt file, a single column of sample names are used (**Figure 53**)

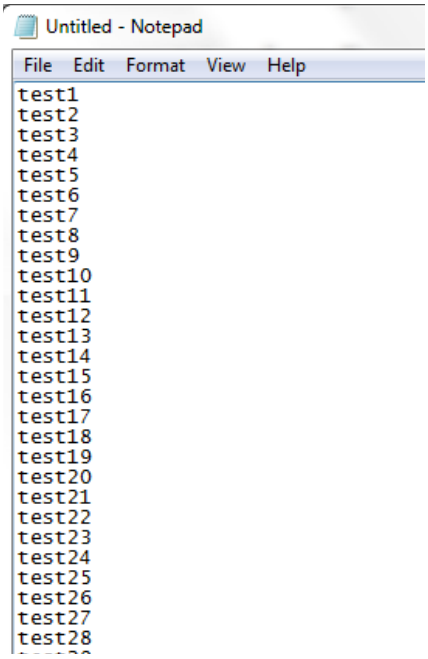


Figure 53 txt file format (single row of names—no well numbers or row numbers)

- For a .csv file, the format is row number, well number, and sample name (**Figure 54**).

	A	B	C	D	E	F
1	1	A1	SampA1			
2	2	A2	SampA2			
3	3	A3	SampA3			
4	4	A4	SampA4			
5	5	A5	SampA5			
6	6	A6	SampA6			
7	7	A7	SampA7			
8	8	A8	SampA8			
9	9	A9	SampA9			
10	10	A10	SampA10			
11	11	A11	SampA11			
12	12	A12	SampA12			
13	13	B1	test1			
14	14	B2	test2			
15	15	B3	test2			
16	16	B4	test4			
17	17	B5	test5			
18	18	B6	test5			
19	19	B7	test7			
20	20	B8	test8			
21	21	B9	test9			

Figure 54 .csv file format: row number, well number, sample name

Importing Sample Names Using a Bar-Code Reader

For the purposes of sample name import, a bar code reader is equivalent to a keyboard. When a bar-code is read, the program searches the *Samples* folder for a name that is identical to the bar-code. If a name is found, then the file (and the corresponding sample names) is imported.

1 Place the sample name files into the C:/Agilent/Samples folder. If a folder does not exist, create a new *Samples* folder (**Figure 55**). The sample name file can be either a .txt file or .csv file (using the formats described in section **"Importing Sample Names"** on page 85). The sample name files are created by the user, or automatically by a LIMS system.

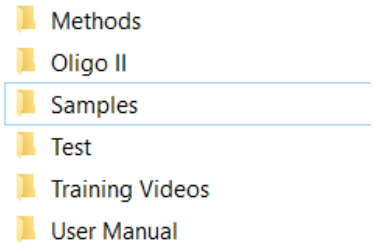


Figure 55 Samples folder

It is critical that the name of the file is identical to what is read by the bar-code reader.

Example:

In **Figure 56**, the name associated with the bar-code is 00060065.

Figure 56 Bar code 00060065

Thus, the .csv file or .txt file must be given the file name 00060065 and placed in the *Samples* folder (**Figure 59**).

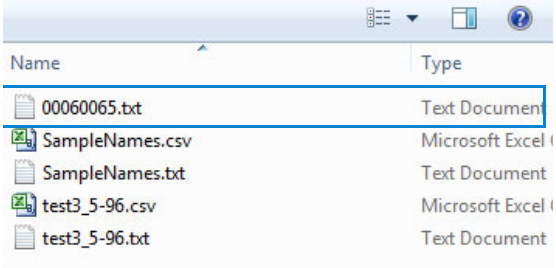


Figure 57 File name 00060065

2 In the field **Tray name** of the **Operation** tab, highlight the tray name with the mouse cursor (**Figure 58**).

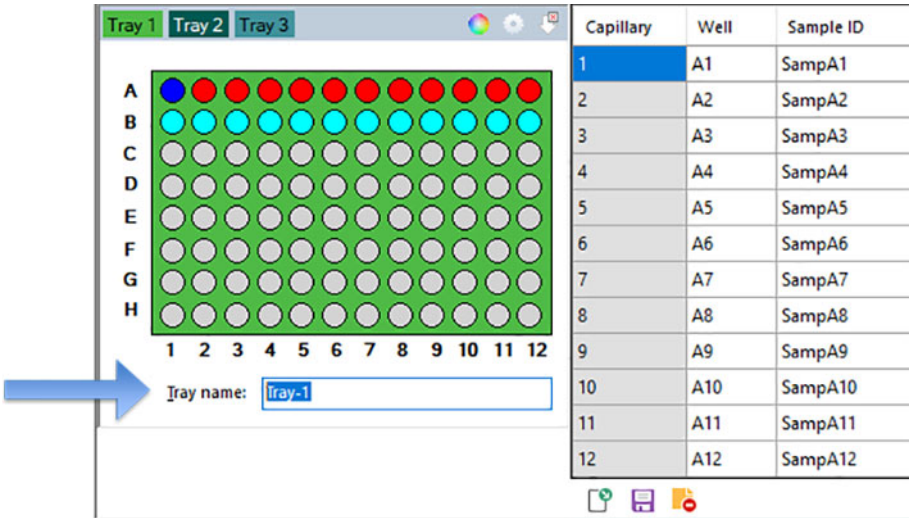


Figure 58 Highlighted tray name

3 Use the bar-code reader to scan the bar-code on the plate.

The names are automatically imported (**Figure 59**).

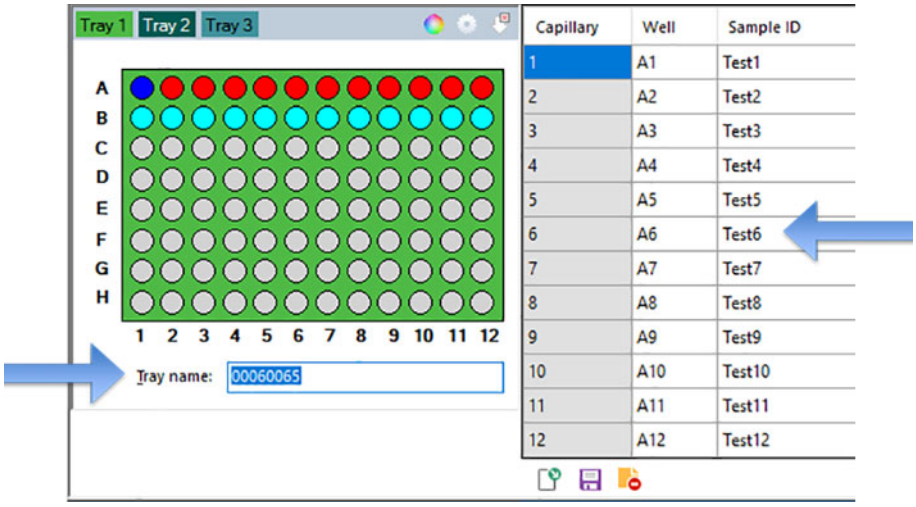


Figure 59 Imported sample names

9 Oligo Pro II Capillary Array

This chapter explains the essential operational parameters of the capillary array.

Capillary Array Parts

The Oligo Pro II instrument capillary array allows for direct parallel injection and separation of 12, 24, or 96 samples at once.

The capillary array cartridge is located in the upper compartment of the instrument and accessed by opening the instrument hood.

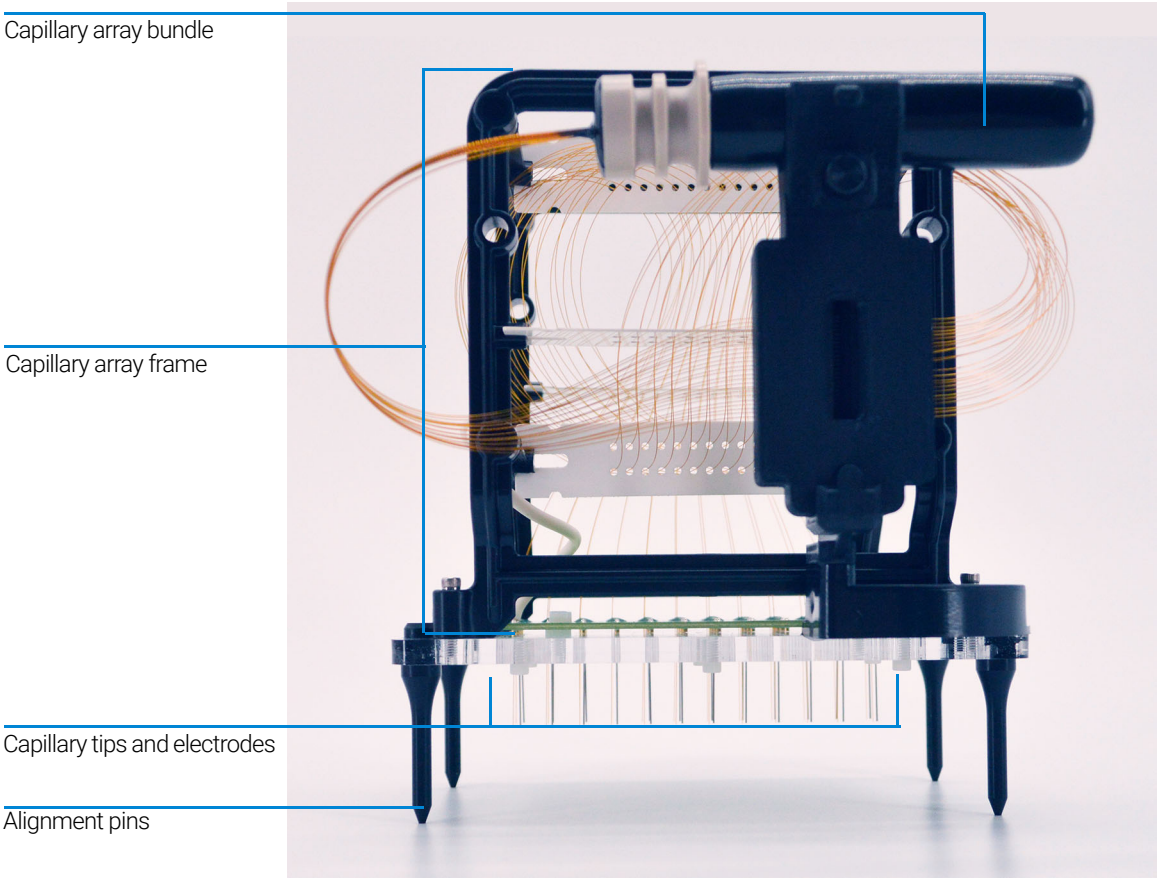


Figure 60 Capillary array parts (12-capillary array shown)

Removal of the Capillary Array

This section provides a guideline to remove a capillary array cartridge from the Oligo Pro II instrument.

Before proceeding with the capillary array removal, got to **Utilities > Move Stage** and select the **park** icon to place the stage into the park position and ensure all trays have been returned to their corresponding drawers.

1 Open the top hood of the instrument.

Figure 61 Oligo Pro II instrument, top with hood open.

2 Unplug the white high voltage supply cable for the top front panel and place in the holder of the capillary array frame.

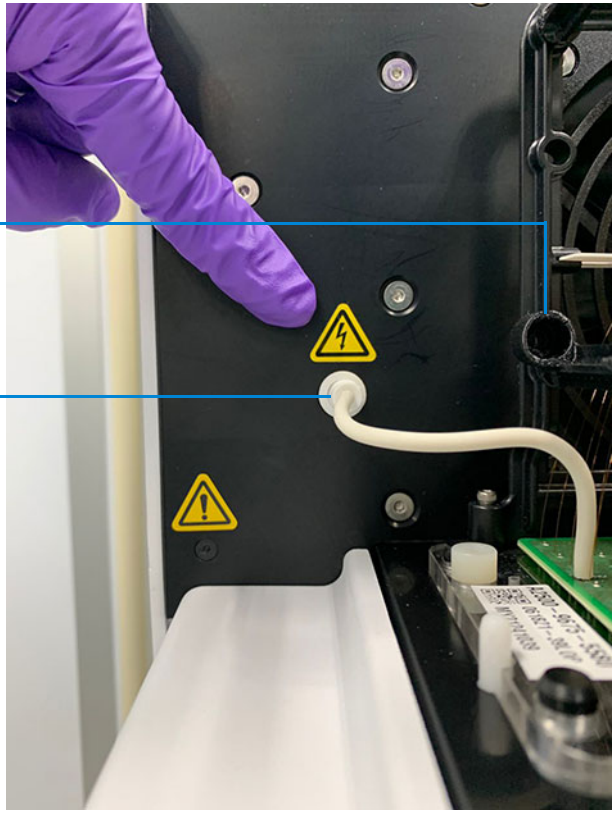


Figure 62 Instrument top compartment – high voltage supply cable

3 Remove the window guard.

NOTE

Avoid looking directly at the light.

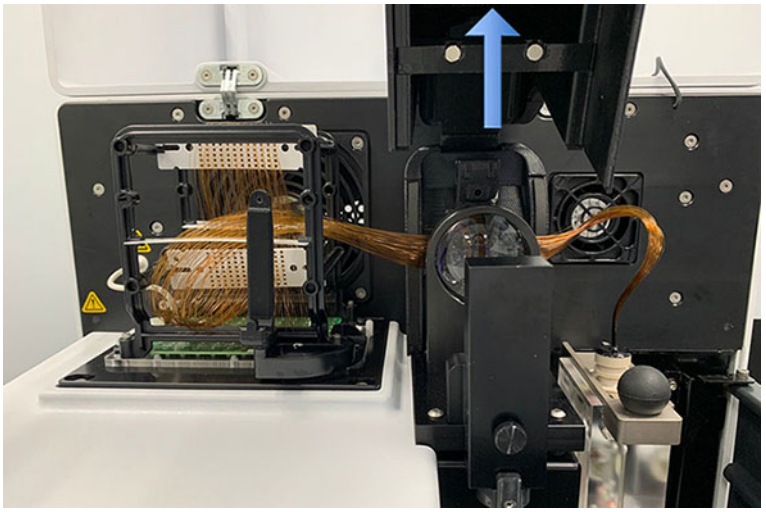


Figure 63 Instrument top compartment – window guard removal

4 Pull out the capillary reservoir connector slide.

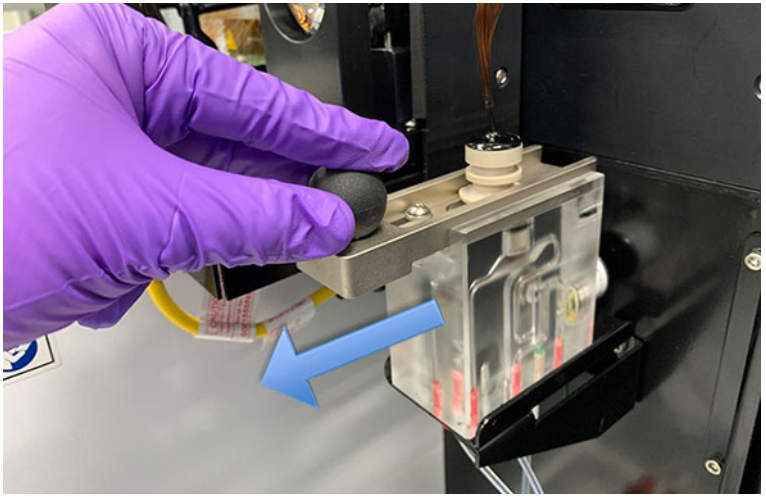


Figure 64 Instrument top compartment – capillary reservoir connector slide

5 Use the capillary reservoir connector tool to loosen the capillary array bundle by prying up on the bundle.

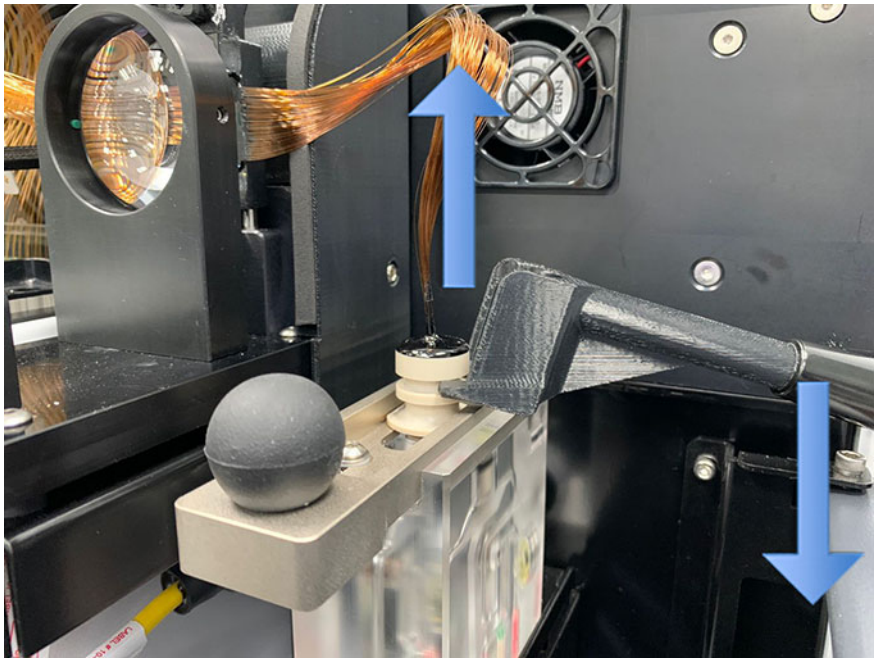


Figure 65 Instrument top compartment – capillary reservoir connector tool

6 Remove the capillary array bundle by pulling up gently.

NOTE

Avoid pulling up hard as to not break any capillaries.

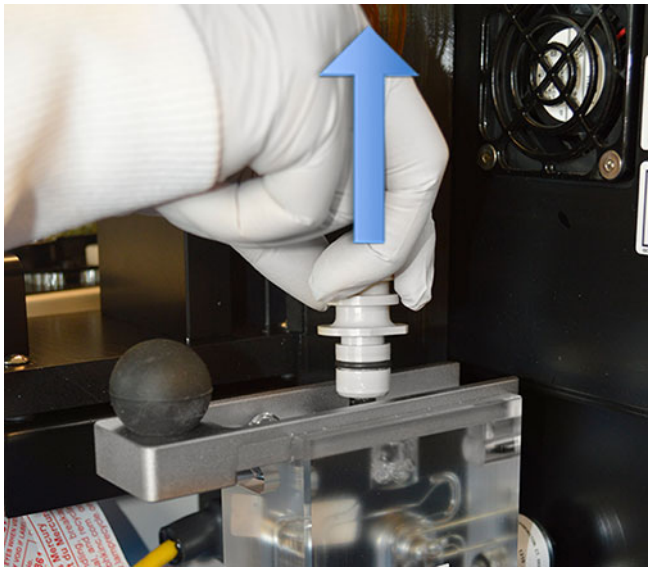


Figure 66 Instrument top compartment – capillary array bundle removal

7 Carefully insert the protective cover over the capillary bundle.

Figure 67 Instrument top compartment – installing protective cover

8 Place the capillary array bundle on the top holder of the capillary array window.

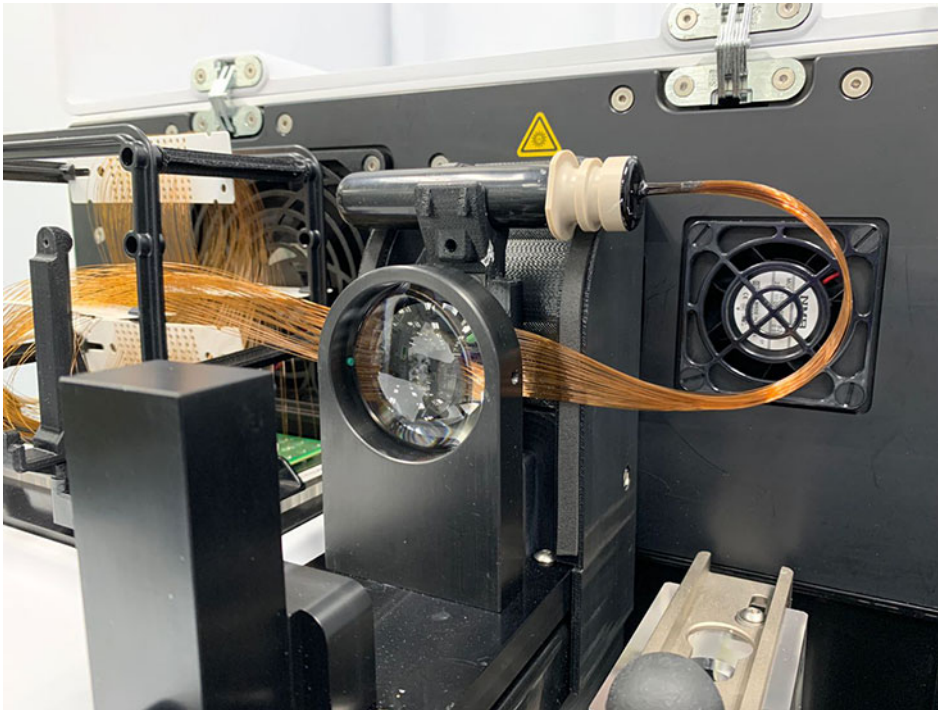


Figure 68 Instrument top compartment – storing covered capillary array bundle

9 Remove the capillary array window from the window holder.

NOTE

Do not press on or touch the capillaries.

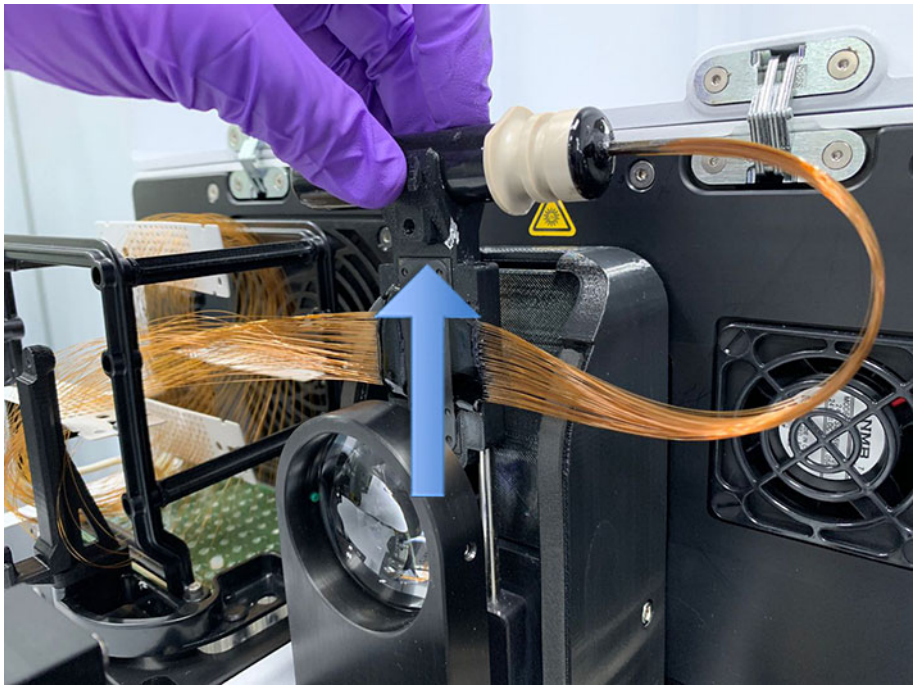


Figure 69 Instrument top compartment – remove capillary array window

10 Flip the array window after removal so that the capillary array bundle goes from the right to the left side of the array frame.

11 Attach the array window to the capillary array frame using the attachment screw.

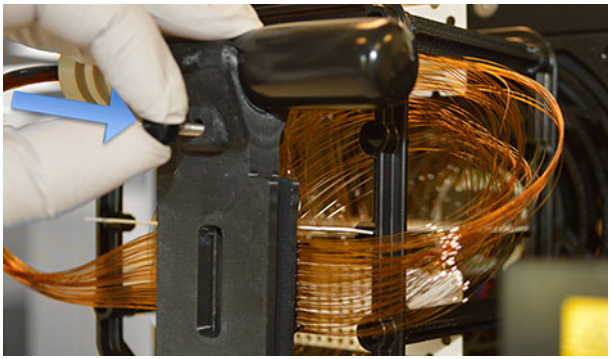


Figure 70 Instrument top compartment – attach array window to capillary array frame

12 Use the provided hex wrench to remove the two white screws holding the capillary array in place.

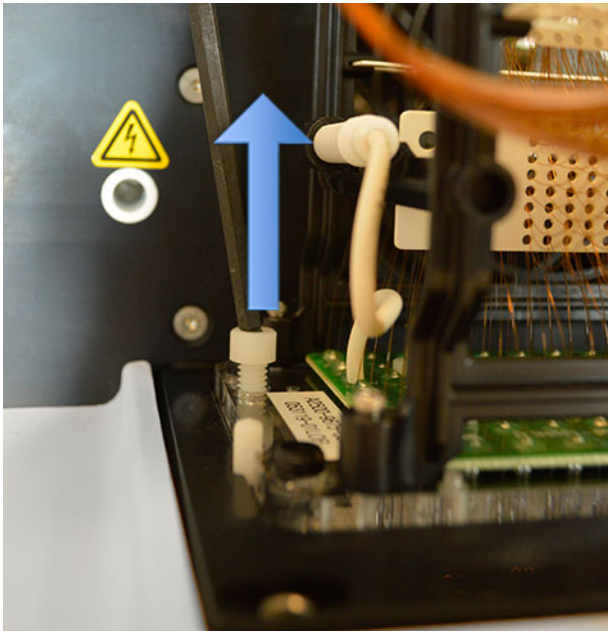


Figure 71 Instrument top compartment – array attachment screw removal

13 Carefully lift the array straight up to remove it from the Oligo Pro II instrument.

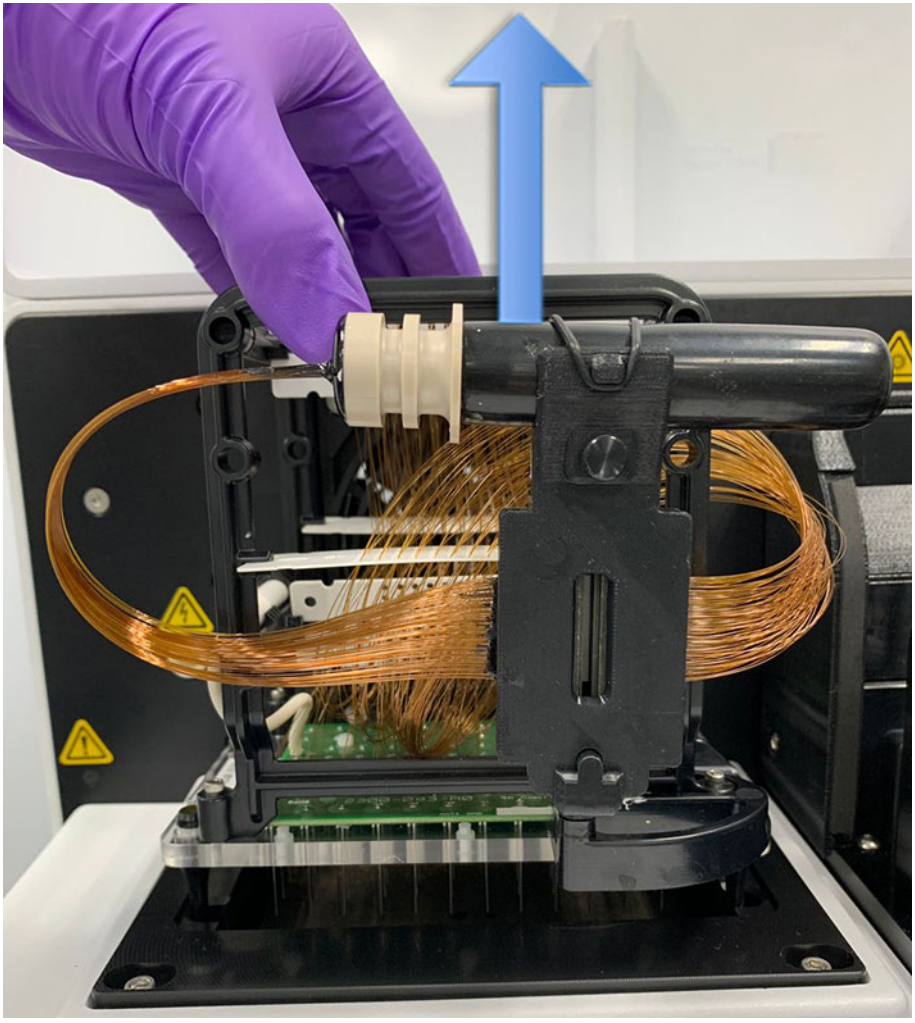


Figure 72 Instrument top compartment – capillary array removal

Once removed from the instrument, the capillary array cartridge is ready for disposal or storage.

Unpacking a New Capillary Array

This section provides a guideline of the steps required to physically unpack a new capillary array from the shipping container and packaging.

NOTE

Save the original packaging when receiving a new capillary array cartridge. This packaging is necessary for proper shipment of a capillary array in the event of a return.

1 Open the capillary array shipping box and remove the foam cover.

Figure 73 Capillary array shipping box – open box and remove foam cover

2 Remove packaged array from shipping box.

Figure 74 Capillary array shipping box – remove packaged array

3 Remove plastic shipping cover from the capillary array.

NOTE

Take care not to break capillaries or touch the array window when removing packaging.

Figure 75 Capillary array shipping box – remove plastic shipping cover

4 Unwind the rubber band securing the capillary array bundle to the capillary array window.

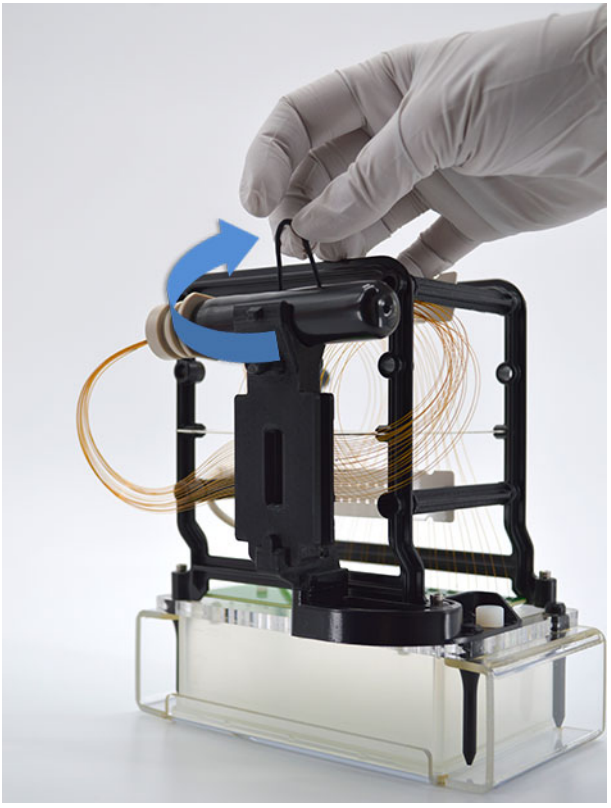


Figure 76 Capillary array shipping box –rubber band removal

5 Use the provided hex wrench to remove the two white screws securing the array to the shipment frame.

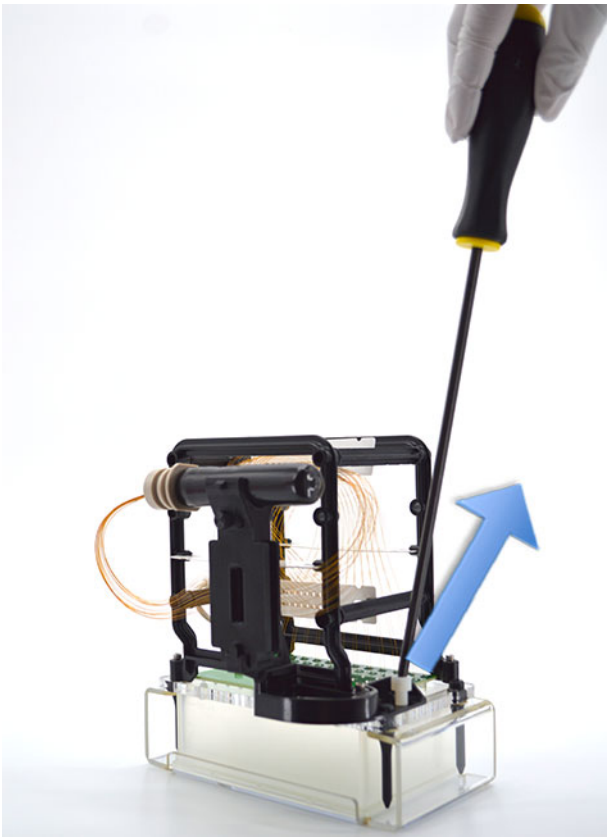


Figure 77 Capillary array shipping box – shipment frame screw removal

6 Carefully lift the array straight up to remove it from the shipment frame.

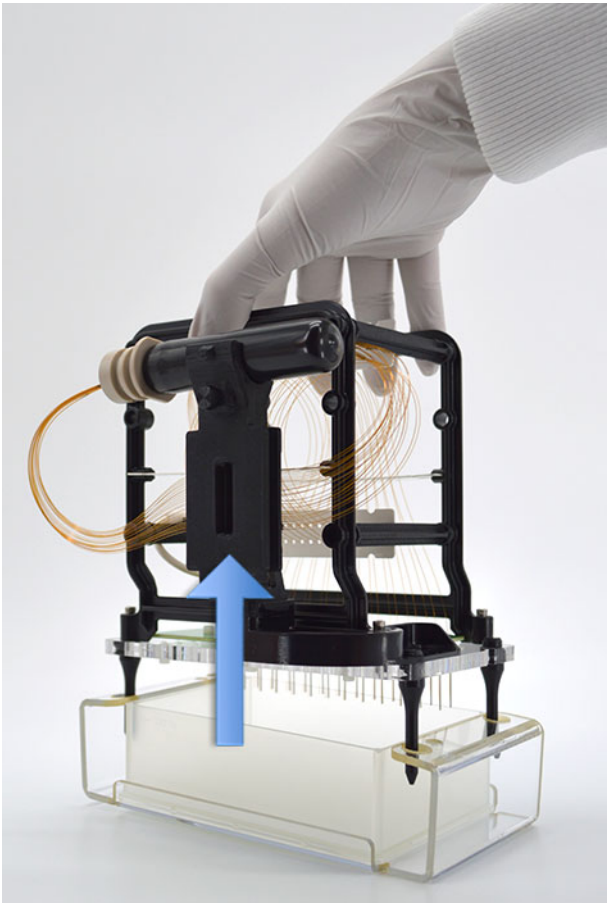


Figure 78 Capillary array shipping box – remove array from shipment frame

Capillary Array Installation

This section will provide a pictorial guide of the steps required to physically install a capillary array cartridge into the Oligo Pro II instrument.

Before proceeding with installation ensure the instrument is in the **park** position. If it is not in the **park** position, got to **Utilities > Move Stage** and select the **park** icon to place the tray being held back into its drawer and move the stage into resting position.

1 Open the top hood of the instrument.

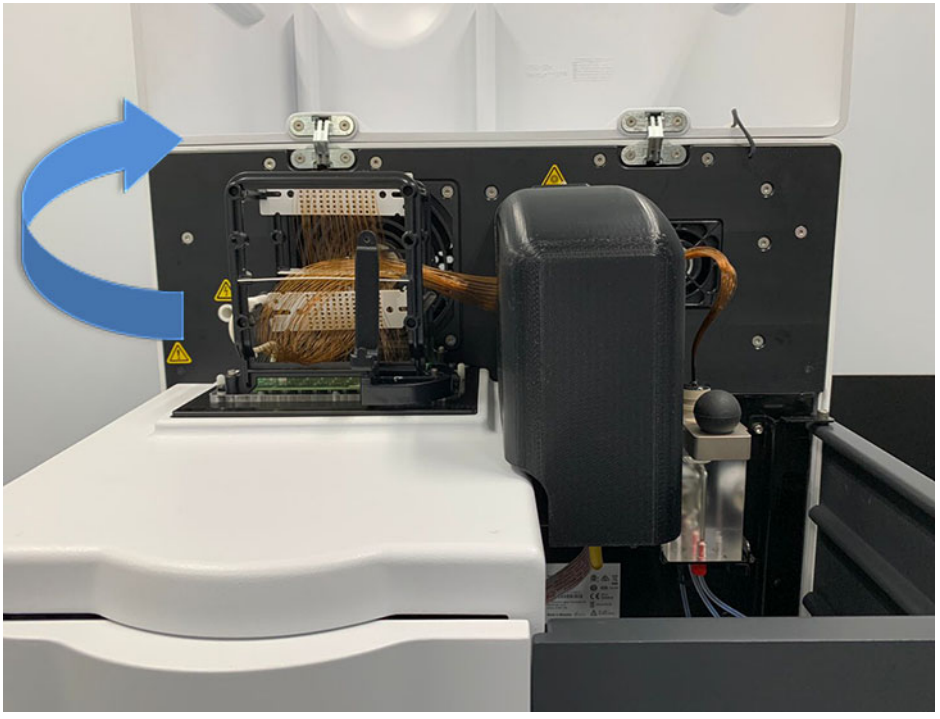


Figure 79 Oligo Pro II instrument top compartment

2 Carefully place the capillary array into the top compartment of the instrument with the array window facing out.

The four alignment pins should align with the alignment holes in the instrument.

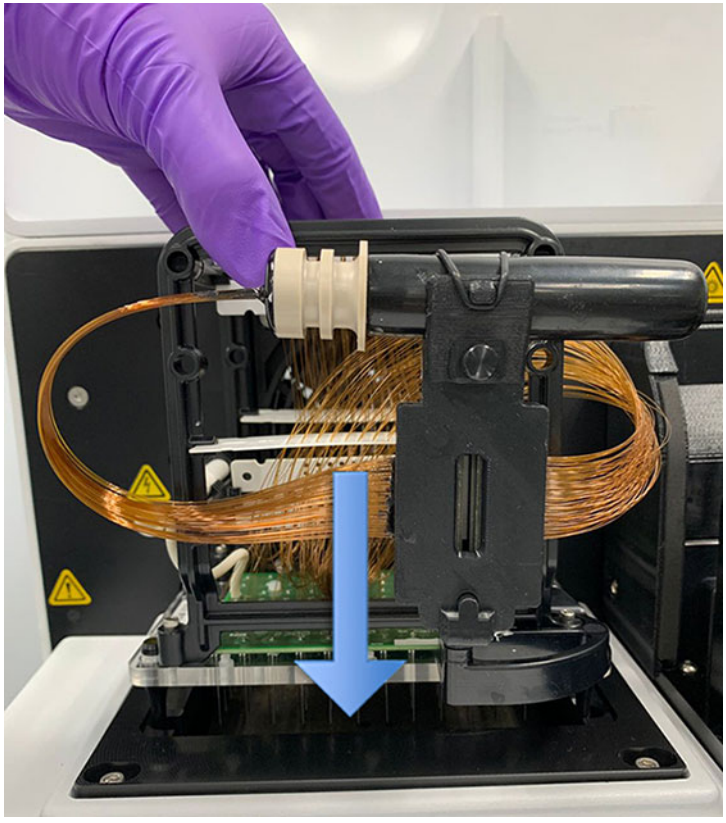


Figure 80 Instrument top compartment – capillary array installation

3 Use the provided hex wrench to install the two white screws holding the capillary array in place.

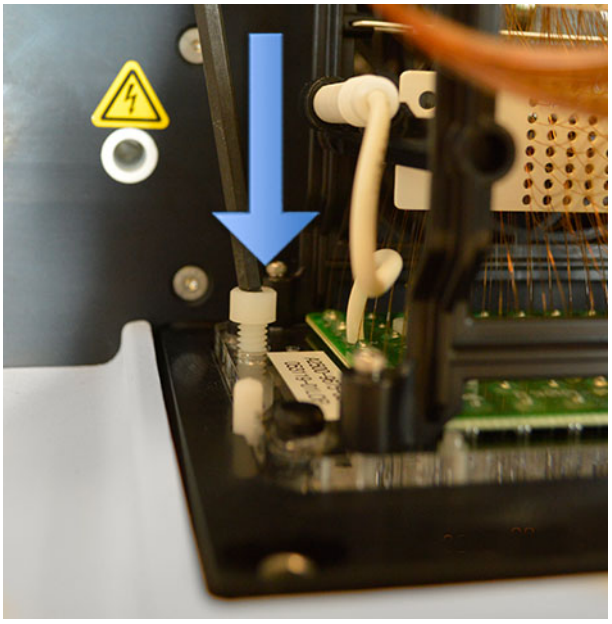


Figure 81 Instrument top compartment – array attachment screw installation

4 Remove the array window attachment screw.

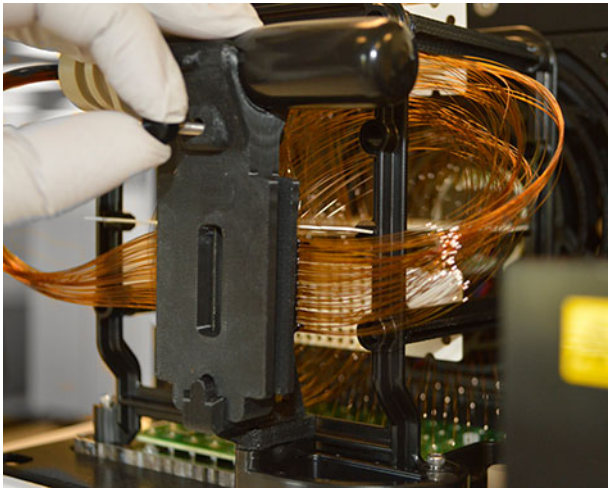


Figure 82 Instrument top compartment – remove array window

5 Carefully flip the array window so that the capillary array bundle goes from the left to the right side of the instrument.

6 Position the capillary array window onto the loading bars and firmly slide it down into place.

NOTE

Do not press on or touch the capillaries.

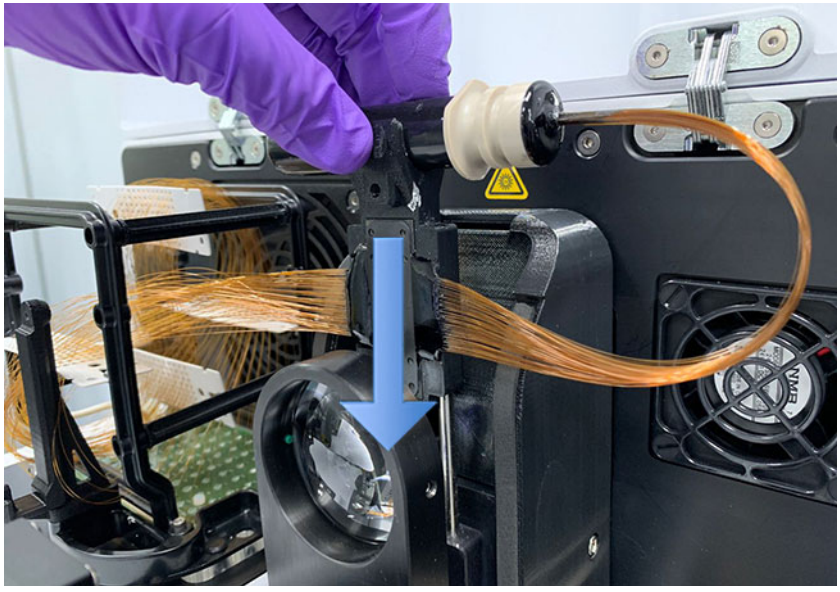


Figure 83 Instrument top compartment – array window placement

7 Remove the capillary array bundle from the top holder of the capillary array window.

Figure 84 Instrument top compartment – capillary array bundle removal

8 Carefully remove the protective cover from the capillary bundle and place it back on the holder on top of the window.

Figure 85 Instrument top compartment – removing protective cover

9 Install the capillary array bundle by firmly pushing the capillary array bundle into the reservoir opening until a distinct click is heard.

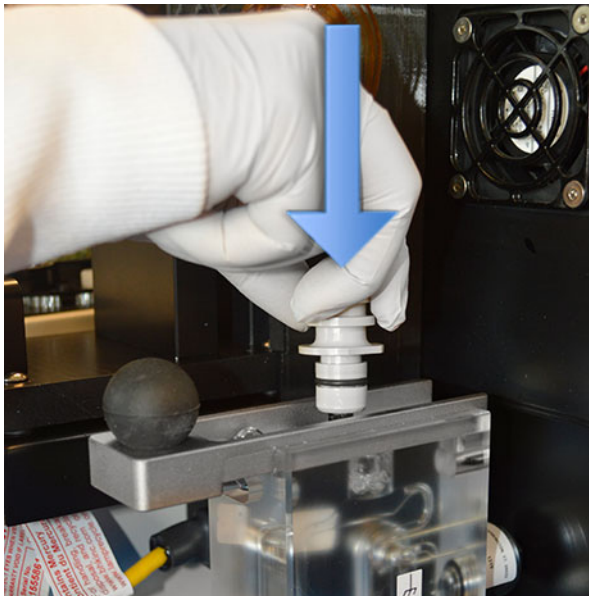


Figure 86 Instrument top compartment – capillary array bundle installation

10 Push in the capillary reservoir connector slide to secure the capillary array bundle.

NOTE

If this step is not followed, the capillary array bundle will be damaged upon pressurization.

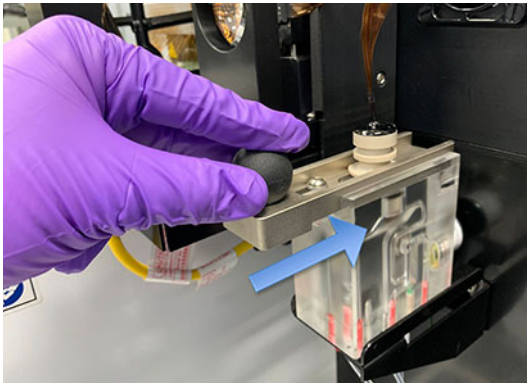


Figure 87 Instrument top compartment – capillary reservoir connector slide

11 Place the window guard over the array window.

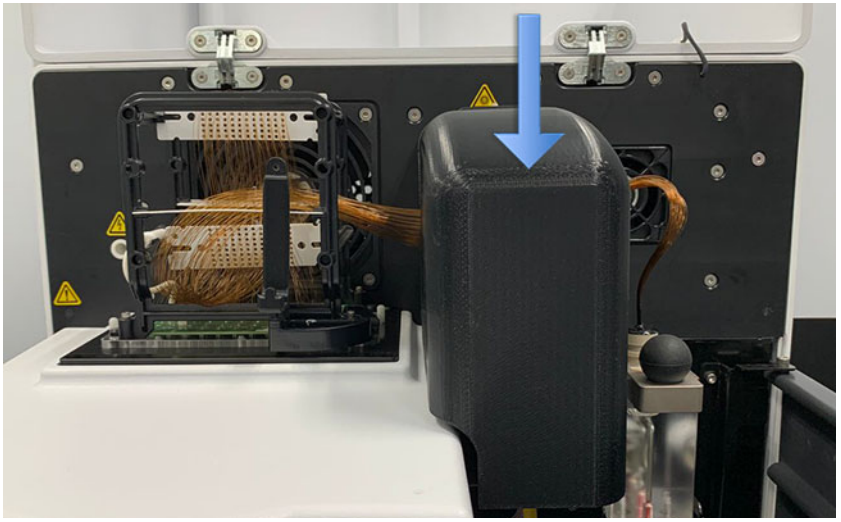


Figure 88 Instrument top compartment – window guard placement

12 Remove the high voltage cable from the array frame holder and firmly push it into the high voltage cable connection.

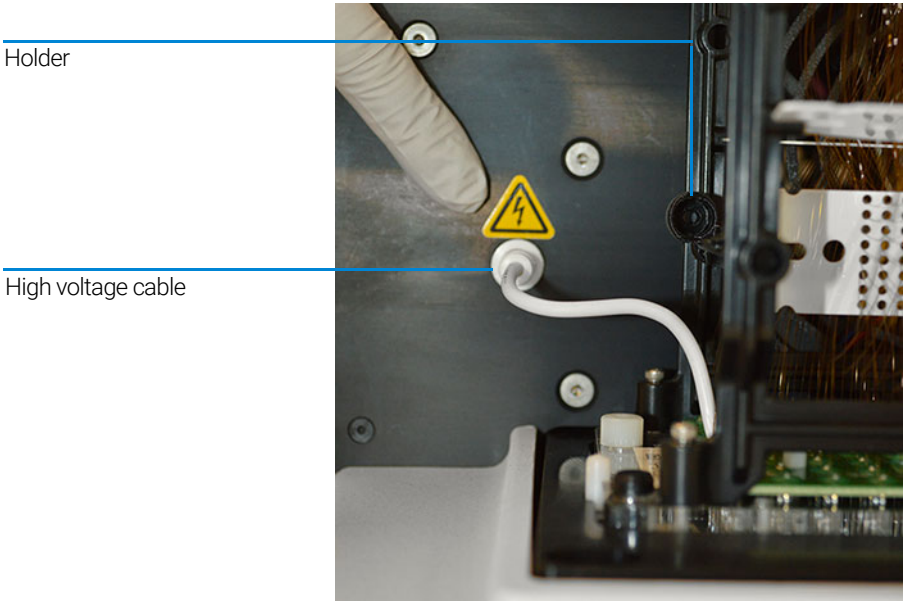


Figure 89 Instrument top compartment – high voltage supply cable

13 Close the reagent door and top hood of the instrument.

Figure 90 Oligo Pro II instrument

After installing an array, the Oligo Pro II requires a capillary alignment as described in **Chapter 4**, “Oligo Pro II Software – Utilities Menu”.

10 Appendix

This chapter provides a Quick Start Guide and additional information on part numbers, maintenance procedures, and system settings.

Permissible Characters

The following tables show which characters are permissible (**Table 19**) and not permissible (**Table 20**) for a file name.

Table 19 Permissible characters for a file name

Characters	
~	`
!	@
#	$
%	^
&	(
)	_
-	+
=	{
}	[
]	;
’	.

Table 20 Non-permissible characters for a file name

*	|
\	:
”	‘
<	>
?	/

Preventative Maintenance Schedule

Daily Maintenance

- ✔ Empty the waste bottle and waste tray.
- ✔ Replace the inlet buffer in the buffer tray position.
- ✔ Replace DI water in rinse tray when applicable.
- ✔ Ensure there is conditioning solution in the conditioning solution bottle location.
- ✔ Ensure there is gel in the gel bottle location.
- ✔ Replace the capillary storage solution and plate weekly.

Monthly Maintenance

- ✔ Replace the buffer and waste plates with new ones.
- ✔ Replace the gel and conditioning solution bottles with new ones.

As Needed to Restore Separation Performance

- ✔ Perform full conditioning with conditioning solution and gel.

CAUTION

Liquid reagent spills

Spilled liquid reagent inside or on the instrument impacts instrument operation and performance and can lead to long term instrument damage.

- **Promptly and thoroughly clean any spills.**

Capillary Array Window Cleaning

1. Open the side door and hood of the Oligo Pro II system.
2. Remove the bundle end of the capillary array using the capillary array bundle removal tool. Place bundle in provided protective cover.
3. Remove the capillary array window from the capillary array window holder. Do not touch the array window.
4. Place a paper tower behind the capillary array window as shown in **Figure 91**.

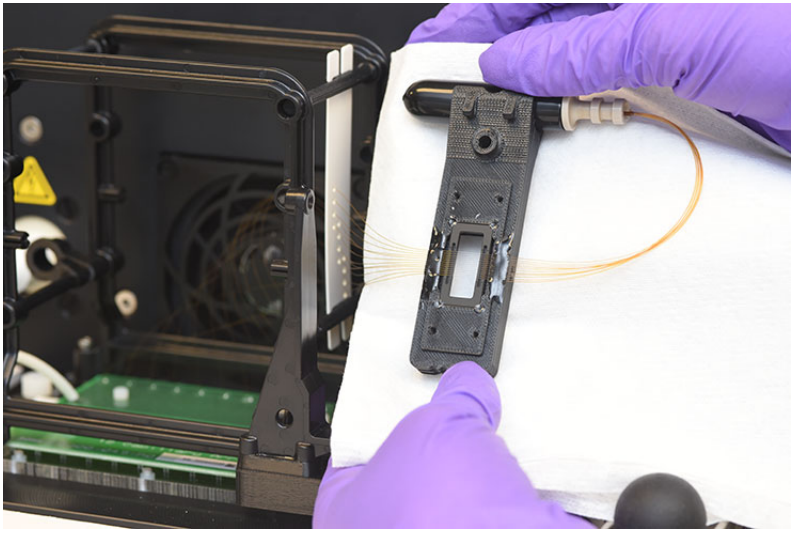


Figure 91 Capillary array window with paper towel behind

5. Use a spray bottle filled with molecular grade ethanol, gently spray the Capillary Array Window.
6. Use a small nylon paintbrush to gently brush the capillaries in one direction while they are still wet. Alternatively, use a Kim-Wipe to blot the array window dry.
7. Reinstall the capillary array window and bundle.
8. Perform a separation on the Oligo Pro II system.
9. Realign the capillaries when finished by navigating to **Utilities** > **Optical Alignment**.

Oligo Pro II Quick Start Guide

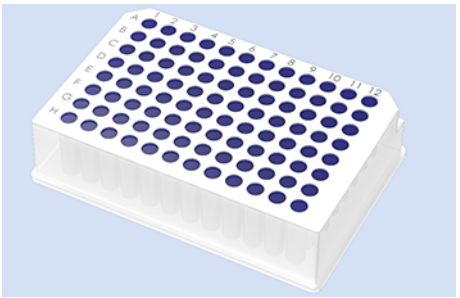
This Quick Start Guide assumes that the Oligo Pro II system has been conditioned previously and does not require a full conditioning.

Preparing System for Separation

1 Ensure there is enough Gel for a separation.
- 96 Capillary System - Minimum of 10 mL
- 12 Capillary System - Minimum of 5 mL

Note that the Oligo PRO II System uses 5 mL of Gel for each 96 cap method separation or 2.5 mL for each 12 cap method.

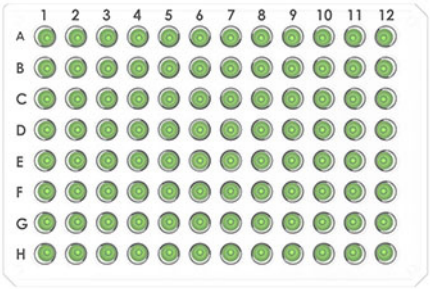
2 Place a 1X Inlet Buffer in the Buffer Tray position.



- 96 Capillary System - All Rows 1.0 mL
- 12 Capillary System - Row A only 1.0 mL

3 Place a 96-Deep Well Tray filled with 1.0 mL diH_2O per well in the Rinse Tray position.

4 Load Sample Tray into the Sample 1, 2, or 3 positions, minimum of 20 µL/well.

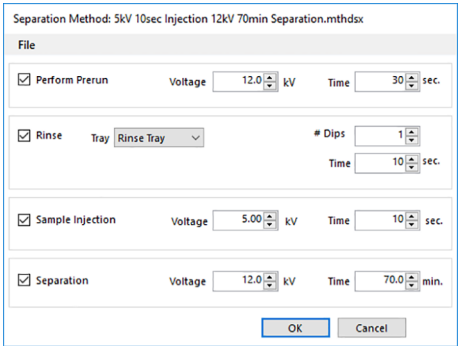


Recommended sample concentration is between 1 - 5 µM diluted in diH_2O.

Loading a Run in the Oligo Pro II Software

1 Select **Run Selected Group** (12 cap) or **Run Entire Tray** (96 cap) from the main screen of the Oligo Pro II software.

2 Select the Method to run from the drop-down menu or alter injection/run settings using the Method Editor.



- Sample injection voltage and time can be adjusted to increase or decrease sample load.
- Sample separation voltage and time can be adjusted to increase/decrease separation time.

Note that a 12 kV separation for 70 minutes will give n-1 resolution through 60nt.

3 Select **OK** to add the method to the Method Queue.

4 Select to start the Method.

Compatible Plates for the Oligo Pro II System

Buffer/Waste/Rinse Plates

The Oligo Pro II system uses a specific deep 96-well plate (1.2 mL) supplied by Fisher Scientific (Part #AB0787) for the buffer, waste, and rinse plate. This specific plate must be used with the instrument (three plates are supplied upon installation).

Standard 1.2 mL deep well, half height, or square well 1.2 mL 96-well plates should not be used as buffer/waste/rinse plates with the Oligo Pro II system, as damage to the capillary array will occur

Table 21 List of Buffer/Waste Plate

Item	Vendor / Part #	Description
Buffer/ Waste Deep 96-Well Plates	Fisher Scientific #AB0787	Abgene 96-Well 1.2 mL Polypropylene Deepwell Storage Plate, case of 50
Buffer/ Waste Deep 96-Well Plates	Agilent #M5340-50003	Abgene 96-Well 1.2 mL Polypropylene Deepwell Storage Plate, case of 50

Full Skirt Sample Plates

The Oligo Pro II system has been designed to work exclusively with full skirted PCR plates. This instrument is shipped with a set of special plate adapters: **M1300-109 - DRAWER ADAPTER-FULL SKIRT 96 WL MPLATES**.

NOTE

The Oligo Pro II will not function properly with semi-skirted or non-skirted plates.

Table 22 List of Sample Plates

Item	Vendor / Part #	Description
Eppendorf full skirt plates	Fisher Scientific #E0030129512	Eppendorf twin.tec 96 Well LoBind PCR Plates, Skirted
BioRad Hard Shell plates	BioRad #HSP9601	Hard-Shell 96-Well PCR Plates, low profile, thin wall, skirted, white/clear

NOTE

The use of PCR plates with different dimensions to the above recommended plates could lead to decreased injection quality and consistency. Damage to the capillary array cartridge tips is also possible.

In This Book

This user manual contains information about the Oligo Pro II software.

The user manual describes the following:

- system overview,
- requirements and installation,
- software menu commands,
- software tabs,
- capillary array,
- sample name entry.

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