

Applied Biosystems® 3500/3500xL Genetic Analyzer

with 3500 Series Data Collection Software 3

Catalog Number 4405186, 4405187

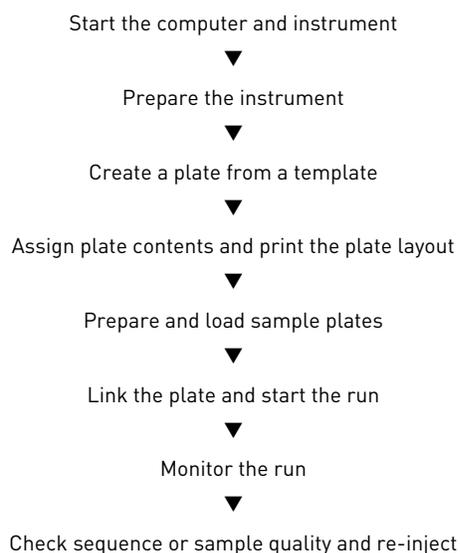
Pub. No. 100026299 Rev. A

Note: For safety and biohazard guidelines, refer to the “Safety” appendix in the *3500/3500xL Genetic Analyzer with Data Collection Software 3 User Guide* (Pub. no. 100025036). Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

This Quick Reference assumes that a Life Technologies technical representative has installed the instrument, that spatial and spectral calibrations have been run, and that an install check has been run.

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Workflow



Start the computer and instrument

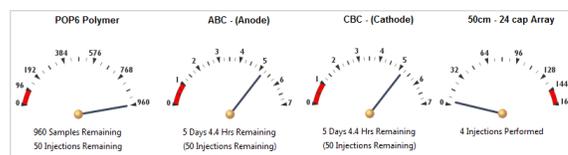
1. Power on the computer and monitor, but do not log in to the Windows® operating system.
2. Power on the instrument.
3. Log on to the Windows® operating system, then wait ~1 to 2 minutes until the  Server Monitor icon is displayed in the Windows® taskbar.



4. Select **Start ▶ Programs ▶ Applied Biosystems ▶ 3500 ▶ 3500**, then log in to the software.

Prepare the instrument

1. In the Dashboard, ensure that consumables are not expired and adequate injections remain for consumables.



2. Check that buffer levels are at the fill lines.
3. Set the oven temperature, then click **Start Pre-heat**.
We recommend that you pre-heat the oven for at least 30 minutes before you start a run if the instrument is cold.
4. Check the pump assembly for bubbles and run the Remove Bubble wizard if needed.

About plate templates

The software includes plate templates that you can use as a starting point to create a plate (sequencing examples shown). Plate template names reflect the run module associated with the plate. The run module contains data collection settings.

	Seq_Std_BDTV3.1_xL-POP7	Sequencing	For the analysis of the Sequencing Install Standard (BigDye Terminator v3.1...
	Std_Seq_xL-POP6	Sequencing	For read lengths of 600 bp or greater and a run time of 2 hours - 24 capill...
	Std_Seq_xL-POP7	Sequencing	For read lengths of 850 bp or greater and a run time of 2 hours - 24 capill...

The plate templates provided include:

- **Assay** – Includes an instrument protocol (dye set and run module) and primary analysis protocol needed to collect data and basecall (sequencing) or sizecall (fragment analysis) a sample.
- **File name convention** – Determines the naming of data files.
- **Results group** – Determines location of data files.

You can also create your own plate templates, and can include sample information in the plate template if needed.

Create a plate from a template

1. In the Dashboard, click **Create Plate From Template**, select a template, then click **Open**.



2. Enter plate details.



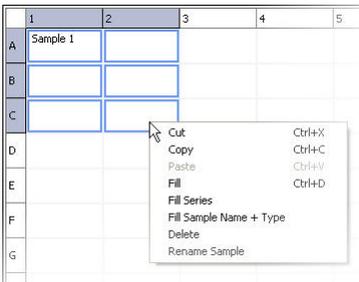
3. Click Save.

4. Click Assign Plate Contents.

Assign plate contents and print the plate layout

1. Click a well, type a sample name, then press Enter.

You can also select multiple wells, then right-click and use the Fill options to name multiple wells (to use Fill Series, type a number as the last character of the named well).



2. At the bottom-right of the Assign Plate Contents screen, expand the Customize Sample Info pane, then select wells and specify sample types.



3. As needed, change the assay, file name convention, or results group for the plate.

To use the internal standard normalization feature for fragment or Human Identification (HID) data, select an assay that contains a sizecalling protocol or a QC protocol that specifies an internal standard normalization size standard.

4. Click View Plate Grid Report to print the plate layout.

To save the report electronically (.pdf), print the report and select CutePDF Writer as the printer.

Prepare and load sample plates

1. Pipet samples into the plate according to the plate layout you printed in "Assign plate contents and print the plate layout" on page 2.

8-capillary: 96-well plate

Cap	3	4	5	6	7	8	9	10	11	12		
A	1	3	4	5	6	7	8	9	10	11	12	
B	2	3	4	5	6	7	8	9	10	11	12	
C	3	3	4	5	6	7	8	9	10	11	12	
D	4	3	4	5	6	7	8	9	10	11	12	
E	1	2	3	4	5	6	7	8	9	10	11	12
F	1	2	3	4	5	6	7	8	9	10	11	12
G	1	2	3	4	5	6	7	8	9	10	11	12
H	1	2	3	4	5	6	7	8	9	10	11	12

24-capillary: 96-well plate

Cap	1	2	3	4	5	6	7	8	9	10	11	12
A	1	2	3	4	5	6	7	8	9	10	11	12
B	2	3	4	5	6	7	8	9	10	11	12	13
C	3	4	5	6	7	8	9	10	11	12	13	14
D	4	5	6	7	8	9	10	11	12	13	14	15
E	1	1	1	2	2	2	3	3	3	4	4	4
F	1	1	1	2	2	2	3	3	3	4	4	4
G	1	1	1	2	2	2	3	3	3	4	4	4
H	1	1	1	2	2	2	3	3	3	4	4	4

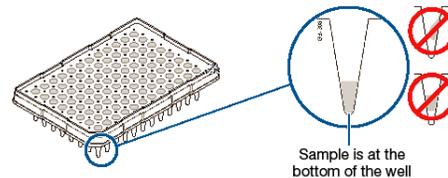
24-capillary: 384-well plate

Cap	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A	1	3	2	3	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15	
B	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
C	3	5	3	5	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15	
D	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16	
E	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
F	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
G	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
H	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
I	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
J	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
K	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
L	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
M	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
N	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
O	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
P	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16

2. Briefly centrifuge the plate.

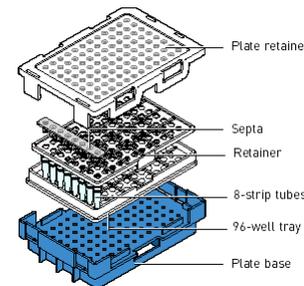
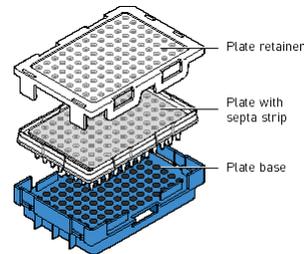
3. Verify that each sample is positioned correctly in the bottom of its well.

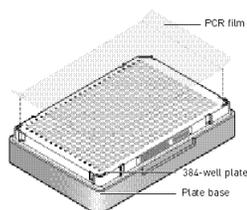
IMPORTANT! If the contents of any well contain bubbles or are not located at the bottom of the well, briefly centrifuge the plate, remove the plate from the centrifuge, and verify that each sample is positioned correctly in the bottom of its well.



4. Store the plate on ice and protected from light until you prepare the plate assembly and load the plate in the instrument.

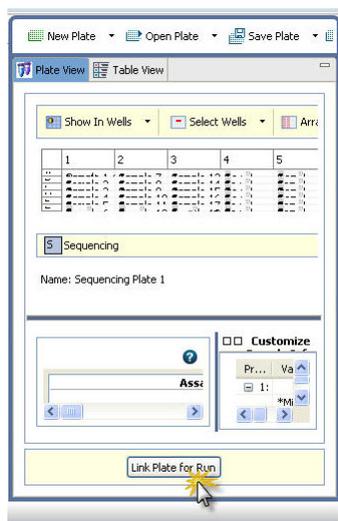
5. Prepare the plate assembly on a clean, level surface. Wear gloves when handling septa. Do not heat plates that are sealed with septa.





Link the plate and start the run

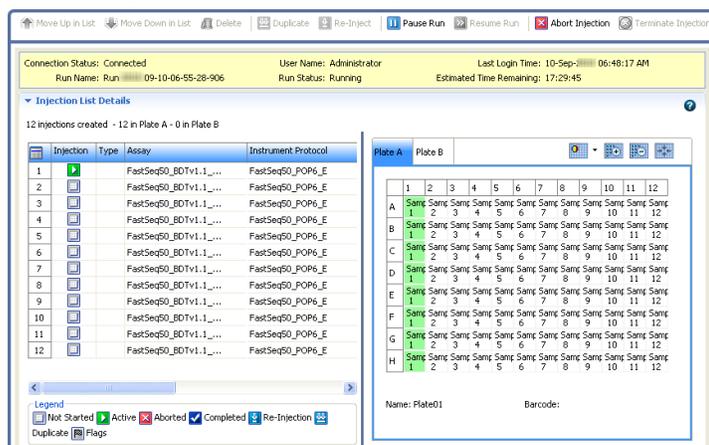
1. In the Assign Plates for Run screen, select Position A or B (the position in which you loaded the plate in the instrument), then click **Link Plate for Run**.



2. In the Load Plates for Run screen, click **Start Run**.

Monitor the run

The Monitor Run screen is automatically displayed when you click Start Run. The current injection is highlighted in green in the plate view. The injection list is linked to the plate view.



1. Click an injection to select the associated wells in the plate view.

Daily instrument maintenance tasks

Clean the assemblies, anode buffer container, and cathode buffer container, and ensure that the outside of the assemblies is dry.

IMPORTANT! Wear appropriate protection, including gloves, laboratory goggles, and coat whenever you work with the fluids used on this instrument, or parts that may come into contact with these fluids.

IMPORTANT! Use only the cleaning agents listed in this guide. Use of cleaning agents not listed in this manual can impair instrument function.

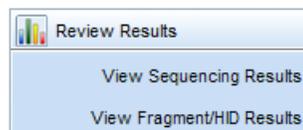
For details and additional maintenance information, refer to the user guide.

A selected injection is highlighted in green in the plate view.

2. Place the mouse pointer over a well to display sample details.
3. As needed:
 - Edit the injection list to re-inject, change injection order, or delete injections
 - Pause, or resume a run
 - Use the Flag Summary Table to review failed samples

Check sequence or sample quality and re-inject

1. Click an option under Review Results in the left navigation pane.



2. Display results for the currently running plate:
 - **Sequencing:** Select one or more samples, then click **Open Trace** to display the data in the Trace pane.
 - **Fragment/HID:** Select one or more samples to display sample plots and sizing information. By default, fragment samples are displayed. Click **HID samples** if you are running HID samples.
 3. Review traces or sample plots.
- If the sequence or sample quality falls below the user-specified quality thresholds (set in the Basecalling, Sizing, or QC protocols), a flag is displayed for the sample.
4. Before the run completes, you can select a sample or injection, then click **Re-inject**.

Note: A re-injection physically re-injects all samples in the capillary array. You can specify whether to collect data for all or only selected samples in the array.

Task	Frequency
Click Refresh , then check consumables on the Dashboard - Refer to the gauges on the Dashboard to see the status for anode buffer container, cathode buffer container, and polymer.	Before each run
Visually inspect the level of fluid inside the anode buffer container and the cathode buffer container. The fluid must line up with the fill line.	
Ensure that the CBC septa are properly seated on the container.	
Ensure that the plate assemblies are properly assembled.	
Align the holes in the plate retainer with the holes in the septa to avoid damaging capillary tips.	
Ensure that the plate assemblies and the cathode buffer container are positioned on the plate deck properly. They should sit securely on the deck.	
Ensure the array locking lever on the capillary array is secured.	Daily or before each run
Check for bubbles in the pump block and channels. Use the Remove Bubble wizard to remove bubbles.	
Check the loading-end header to ensure that the capillary tips are not crushed or damaged.	
Ensure that the pump block is in pushed back position.	Daily
Clean the instrument surfaces of dried residue, spilled buffer, or dirt.	
Check for leaks and dried residue around the buffer-pin valve, check valve, and array locking lever. If leaks persist, contact Life Technologies.	

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