Release Notes
3500 Series Data Collection Software 3 Version 3.1
“For Research Use Only. Not for use in diagnostic procedures.”
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IMPORTANT: Please use updated version of these Release Notes and the User Bulletin available now at www.lifetechnologies.com/datacollection3_1
This document has gone through critical updates. Use this document only if this freshly downloaded from above URL link.

TABLE OF CONTENTS:
- Software Overview
- Delete/Move InjectionData Folder before Starting the Upgrade
- Upgrading from previous Software 2.0 to Software 3.1
- Upgrading from previous Software 3.0 to Software 3.1
- Features in 3500 Series Data Collection Software 3.1
- System Requirements
- Special Considerations
- Software Limitations

SOFTWARE OVERVIEW

Life Technologies / Applied Biosystems 3500 Series Data Collection Software 3, Version 3.1 is intended to be used with the 3500 Series Genetic Analyzer System. This is for Research Use Only and not for use in diagnostic procedures.

During the initial launch of the software a license key must be entered to enable the appropriate features of the software.

Software System Description: The Applied Biosystems 3500 Series Data Collection Software 3, Version 3.1 is an integrated software designed for data collection, primary analysis and quality control of samples. The 3500 Series Data Collection Software 3, Version 3.1 has an intuitive, easy to use workflow that includes a Dashboard, a left hand Navigation task pane for the Main workflow, a built-in Library (Datastore) and a Maintenance workflow. The Main workflow consists of Plate Setup, Load Plate, Run and Review results functionality. The Maintenance workflow consists of Spatial and Spectral calibrations, Install Check, Wizards workflow and planned maintenance notifications.

The 3500 Series Data Collection Software 3, Version 3.1 includes Security, Audit and Electronic-Signature (E-Sig) features to enable customers to comply with 21 CFR Part 11 requirements.
Delete/Move InjectionData Folder before Starting the Upgrade

The 3500 DCS3.1 installer will migrate your entire datastore folder, by default. However moving many gigabytes of data has the potential to slightly compromise the improved performance of your new software.

Delete/Move File(s)

- D:\Applied Biosystems\3500\datastore\mdcsystemdata\InjectionData
  Delete/move out all files and subfolders
UPGRADING FROM PREVIOUS DC SOFTWARE 2.0 TO DC SOFTWARE 3.1

NOTE: If you are NOT upgrading from Software 2.0, SKIP this entire section.

Updating 3500 Series Data Collection Software 2 (DC2) to 3500 Series Data Collection Software 3, Version 3.1 (DCS3.1)

1. **Important!** Unlike earlier versions, DCS3 needs all four RFID consumables (anode and cathode buffer, polymer and capillary array) physically mounted onto the instrument before first launch of the software. Failure to do so will initiate RFID read/write errors which may only be cleared by uninstalling/reinstalling the software. **NOTE:** with DCS3.1, if you need to place RFID consumables after first launch of software, it is expected to work.

2. **Important:** Any files in the D:\AppliedBiosystems\3500 directory will likely be deleted during 'unistall' of current DCS2. Manually Back up all subfolders/data in 3500 that you need (eg. Sample files, archive folders, data etc.) by copying the subfolders out outside of D:\AppliedBiosystems folder.

Additionally Datastore folder MUST be backed up by using the Programs and Features and uninstall 3500 Data Collection Software Option using steps mentioned later.

3. **Important:** If the SAE (security) module is enabled in the v2 software it must be disabled before proceeding with the upgrade. If DCS 2 software is not running, launch it. In the Tools menu select the Security item and click the Disable System Security:

4. Exit the current DCS 2 window (click the red X button)

5. On your PC, if other windows applications are active, quit all open applications.

6. Bring up the Server Monitor by clicking on the triangle in the bottom tray:

7. Right click on the Server Monitor icon: and click Exit on the menu.

8. Make sure Instrument door is closed, power off 3500 Instrument.
9. Go to Control Panel > Programs and Features; select **3500 Series Data Collection Software v2.0** and click on Uninstall

10. This will start uninstallation process for Data Collection 2.0 software. Click Yes.
11. You must backup your existing data store folder so you have access to it for migration and when needed. Also back up your sample files.
   a. Ensure check mark for datastore and sample (if present) are on. In some cases, only datastore backup option is available.
   b. Create a backup folder on your drives outside of AppliedBiosystems directory. 
      **NOTE: DO NOT BACKUP TO A ROOT DIRECTORY (e.g. C: D: etc). MAKE A SUBFOLDER (e.g. C:\MyDC2Datastore) and BACKUP.**
   c. Browse and point to your backup folder location (eg Desktop\DC2 Or S:\DC2)
   d. Click OK.
12. Click Next

![Image of software uninstallation screen]

13. Click on “Select All”. Make sure ALL 3 checkboxes are selected and Click Next.
14. Click Next, then Click Next again and wait for the un-installation process to start.

15. Click Close
16. Click OK, if you see Files in Use Dialog anytime

![Files in Use Dialog]

17. Wait for Uninstallation process to complete and Restart computer by clicking Finish

![Uninstall Complete]

18. After Restarting the PC; Log into INSTR-ADMIN (Password INSTR-ADMIN)
19. To make sure Data Collection 2.0 was uninstalled correctly, please go to:
   a. Control Panel | Programs and Features and make sure that 3500 Series Data Collection Software v2.0 and Webmethods are not listed.
   b. D:\Applied Biosystems and make sure 3500 folder (and all subfolders) is not present.
   c. Your datastore backup location (e.g. E:\Users\Administrators\Desktop\29th May\DS2) and make sure your backup datastore is there.

20. Navigate to the saved datastore folder (e.g at E:\Users\Administrators\Desktop\29th May\DS2). Confirm the presence of a file named 'datastore.version' (with exact name and extension) at the same level as WizardRunModule folder, see figure below.

If the file is not present, create a new file as below:

**CRITICAL STEP: IF THIS EXACT FILE NAME, EXTENSION AND CONTENT ARE NOT CREATED CORRECTLY, YOUR DATASTORE WILL NOT BE MIGRATED AFTER THE UPGRADE.**

1. Open Notepad.
2. Type in the text **DataStoreVersion: Maui 2.0.0** as shown in the screenshot.
3. **IMPORTANT:** Do not choose the default .txt file extension. Save the file in your datastore backup location (e.g. E:\Users\Administrators\Desktop\29th May\DS2) As datastore.version ensuring that Save as type is: “All Files (*.*)”.
4. If the file extension created is .txt, rename the file as datastore.version.
5. To ensure again, navigate to the saved datastore folder (eg at E:\Users\Administrators\Desktop\29th May\DS2). Confirm the presence of a file named 'datastore.version' (with exact name and extension) at the same level as WizardRunModule folder, see figure below.
21. **DO NOT PROCEED, UNTIL ATHE ABOVE STEP IS COMPLTED SUCCESSFULLY.**

Close all open folders, if needed. Now, Launch the Data Collection 3.1 installer by inserting the CD into the optical drive (if the installer does not launch automatically navigate to the drive and double-click setup.exe):
22. Click Next

23. Click Next. **NOTE:** with DCS3.1, if you need to place RFID consumables after first launch of software, it is expected to work.
24. Click Yes

![Required Setup dialog box](image)

25. After reviewing the License Agreement select the “I accept” button and click Next:

![License Agreement dialog box](image)

26. Click Next to accept the default (e.g. D:\AppliedBiosystems\3500) destination folder

![Choose Destination Location dialog box](image)
27. **CRITICAL**: Must Click Yes to bring in your existing backed up datastore location

![Question window](image)

Do you already have an existing Data store location on the system?

Yes  No

28. **CRITICAL**: Provide the path where your datastore is backed up. Ensure datastore contains file called `datastore.version` (rename file extension to be `.version` and not `.txt`, if needed); Click Next. **IF THIS EXACT FILE NAME, EXTENSION AND CONTENT ARE NOT CREATED CORRECTLY, YOUR DATASTORE WILL NOT BE MIGRATED AFTER THE UPGRADE.**

![Select DataStore Locations](image)
29. Various status messages will be displayed, e.g.: Wait for ~1 minute.

![Setup Status](image)

30. Click Finish. You can remove the installer CD at this point.

![InstallShield Wizard Complete](image)

31. You will see this message (Do not start the server monitor at this time – it will start automatically after the computer boots). Click OK:

![3500 Series Data Collection Software 3 - InstallShield Wizard](image)
32. Perform a ‘**Formal System Restart**’ carefully following steps below to start using the system in a clean known system state.
   a. Power off Computer.
   b. Make sure Instrument Door is closed, power off Instrument.
   c. Wait 1 minute, and then power ON Computer.
   d. Wait until Windows login screen is displayed, **but do not login to Windows**.
   e. Power on the Instrument, wait for front panel GREEN light status of LED
   f. Log into INSTR-ADMIN account (default password INSTR-ADMIN).
   g. Look at the bottom tray wait for Server Monitor to confirm 4 services launched (right click on taskbar icon to see launch states confirmed with 'Y'). Wait approximately for 1 minute. You should see green check mark icon ->
   h. Launch the 3500 Software using the 3500 icon on the desktop or bottom taskbar.

33. Launch the Data Collection software, and you will be prompted to activate the software license:

![Software Activation Image]
34. Enter your license key from your DCS3.1 software kit and e-mail address (or follow the Not Connected to network path) and retrieve your license file from the e-mail and copy onto the computer’s desktop. Click the Browse button and select the license file and click Open.

35. Click the Install and Validate License button:

36. You will get the following verification message. Click OK and then Click Close on the above dialog.
37. When you see Login Dialog, Log in using default User Name: Administrator and default Password: Administrator 1. If the Login Screen is not displayed, skip this steep and proceed.

38. End User License Agreement is displayed. Click Accept.
39. Data Collection dashboard will appear.

![Data Collection Dashboard](image)

40. **This completes the upgrade installation process. A quick check list to confirm a successful upgrade includes:**

- RFID consumables are read and displayed
- Spatial and Spectral calibrations are active from the Spectral Calibrations History view if they are migrated.
- User created Library objects in the previous software are in the new software if there are migrated.
- Check your SAE menu item. Confirm that SAE status from previous configuration is retained. If not, choose the SAE status to the desired status from the SAE menu item. If SAE license is active and if you want SAE to be enabled, you can select the Security menu item and you can now click on the Enable System Security option.

![SAE Enable System Security](image)
UPGRADING FROM PREVIOUS DC SOFTWARE 3.0 TO DC SOFTWARE 3.1

NOTE: If you are NOT upgrading from Software 3.0, SKIP this entire section.

Updating 3500 Series Data Collection Software 3 (DCS3) to 3500 Series Data Collection Software 3, Version 3.1 (DCS3.1)

1. Important! Unlike earlier versions, DCS3 needs all four RFID consumables (anode and cathode buffer, polymer and capillary array) physically mounted onto the instrument before first launch of the software. Failure to do so will initiate RFID read/write errors which may only be cleared by uninstalling/reinstalling the software. NOTE: However, with DCS3.1, if you need to place RFID consumables after first launch of software, it is expected to work.

2. Important: Save License file(s): From your DC Software 3 copy and paste to save typically D:\AppliedBiosystems\3500\configuration\*.lic file(s) on to your PC desktop. [Example file name to save: 3500DataCollection3.0.lic]. Do not move the files, but copy them.

3. Important: Any files in the D:\AppliedBiosystems\3500 directory will likely be deleted during 'unistall' of current DCS3. Manually Back up all subfolders/data in 3500 that you need (eg. Sample files, archive folders, data etc.) by copying the subfolders out outside of D:\AppliedBiosystems folder.

   Additionally Datastore folder MUST be backed up by using the Programs and Features and uninstall 3500 Data Collection Software Option using steps mentioned later.

4. On your PC, if other windows applications are active, quit all open applications.

5. Exit the 3500 Software UI (click the red X button)

6. Bring up the Server Monitor by right clicking on the triangle in the bottom tray:

7. Right click on the Server Monitor icon: and click Exit on the menu.

8. Make sure Instrument door is closed, power off 3500 Instrument.
9. Go to Control Panel > Programs and Features; select 3500 Data Collection Software 3.0 and click on Uninstall.

10. This will start the Data Collection 3.0 uninstall. Click Yes.
11. You must backup your existing data store folder so you have access to it for migration and when needed. Also back up your sample files.
   a. Ensure check mark for datastore and sample (if present) are on. In some cases, only datastore backup option is available.
   b. Create a backup folder on your drives outside of AppliedBiosystems directory.
      NOTE: DO NOT BACKUP TO A ROOT DIRECTORY (e.g. C: D: etc). MAKE A SUBFOLDER (e.g. C:\MyDC3Datastore) and BACKUP.
   c. Browse and point to your backup folder location (eg Desktop\DC3 Or S:\DC3)
   a. Click OK
12. Click OK, if you see Files in Use Dialog anytime

![Image of Files in Use dialog]

13. Wait till uninstallation finishes and Restart the computer

![Image of Uninstall Complete dialog]
14. After Restarting the PC; Log into INSTR-ADMIN (Password INSTR-ADMIN)
15. To make sure Data Collection 3.0 was uninstalled correctly, please go to:
   a. Control Panel | Programs and Features and make sure that 3500 Series Data Collection Software v3.0 is not listed.
   b. D:\Applied Biosystems and make sure 3500 folder (and all subfolders) is not present.
   c. Your datastore backup location (e.g. E:\Users\Administrators\Desktop\29th May\DS3) and make sure your backup datastore is there.
16. Navigate to the saved datastore folder (eg at E:\Users\Administrators\Desktop\29th May\DS3). Confirm the presence of a file named 'datastore.version' (with exact name and extension) at the same level as WizardRunModule folder, see figure below.

If the file is not present, create a new file as below:

**CRITICAL STEP:** IF THIS EXACT FILE NAME, EXTENSION AND CONTENT ARE NOT CREATED CORRECTLY, YOUR DATASTORE WILL NOT BE MIGRATED AFTER THE UPGRADE.

1. Open Notepad.
2. Type in the text **DataStoreVersion: Maui 3.0.0** as shown in the example screenshot.
3. **IMPORTANT:** Do not choose the default .txt file extension. Save the file in your datastore backup location (e.g. E:\Users\Administrators\Desktop\29th May\DS3) As datastore.version ensuring that Save as type is: “All Files (*.*)
4. If the file extension created is .txt, rename the file as datastore.version.
5. To ensure again, navigate to the saved datastore folder (eg at E:\Users\Administrators\Desktop\29th May\DS3). Confirm the presence of a file named 'datastore.version' (with exact name and extension) at the same level as WizardRunModule folder, see figure below.
17. DO NOT PROCEED UNTIL THE ABOVE STEP IS COMPLETED SUCCESSFULLY. Close all open folders, if needed. Now, Launch the Data Collection 3.1 installer by inserting the CD into the optical drive (if the installer does not launch automatically navigate to the drive and double-click setup.exe):
18. Click Next

19. Click on Next. **NOTE:** With DCS3.1, if you need to place RFID consumables after first launch of software, it is expected to work.
20. Click Yes. **NOTE:** With DCS3.1, if you need to place RFID consumables after first launch of software, it is expected to work.

![Required Setup dialog box](image)

21. License Agreement screens comes up; Choose “I Accept the terms of the license agreement”. Then, Click Next.

![License Agreement dialog box](image)
22. Click Next to accept the default (e.g. D:\AppliedBiosystems\3500) destination folder

![Choose Destination Location dialog box](image)

23. **CRITICAL**: Must Click Yes to bring in your existing backed up datastore location

![Question dialog box](image)
24. **CRITICAL**: Provide the path where your datastore is backed up. Ensure datastore contains file called `datastore.version` (rename file extension to be `.version` and not `.txt`, if needed); Click Next. **IF THIS EXACT FILE NAME, EXTENSION AND CONTENT ARE NOT CREATED CORRECTLY, YOUR DATASTORE WILL NOT BE MIGRATED AFTER THE UPGRADE.**

![Select DataStore Locations](image)

25. Click Next

![Setup Type](image)
26. If needed, wait for 30 seconds. Click Next. Start Copying Files.

27. Installation in progress

![Installation Finish Window]

29. The following message screen appears: Click OK. But, do not launch the server monitor at this time. Server monitor will be automatically started as a part of the ‘Formal System Restart’ below.

![Message Screen]
30. Perform a ‘**Formal System Restart**’ carefully following steps below to start using the system in a clean known system state.
   a. Power off Computer.
   b. Make sure Instrument Door is closed, power off Instrument.
   c. Wait 1 minute, and then power ON Computer.
   d. Wait until Windows login screen is displayed, **but do not login to Windows**.
   e. Power on the Instrument, wait for front panel GREEN light status of LED
   f. Log into INSTR-ADMIN account (default password INSTR-ADMIN).
   g. Look at the bottom tray wait for Server Monitor to confirm 4 services launched (right click on taskbar icon to see launch states confirmed w/ ‘Y’). Wait approximately for 1 minute. You should see green check mark icon →
   h. Launch the 3500 Software using the 3500 icon on the desktop or bottom taskbar.

31. Upon starting the 3500 software UI, you will be prompted to activate the software license. Click on the Browse button and point to the main application license file you saved on the desktop in the initial steps (3500DataCollection3.0.lic).

![Image of software activation dialog box]

1. Request license file for Computer ID:
   
   000af74b95818b156d81790

   This ID is unique to the computer and cannot be used to obtain a license file for another computer.

   a. Enter the license key (from CD or email):

   b. Enter your email address:

   c. Is this computer currently connected to the internet?


2. Retrieve the license file from email, then save it to the desktop of this computer.

3. Find the license file:

   ![Browse button]

4. Click **Install and Validate License**

   ![Close button]
32. Select the main application license file you saved on the desktop in the initial steps (3500DataCollection3.0.lic) and then click Open.

![Select License File dialog](image1)

33. Click the Install and Validate License button:

![3500 Series Data Collection Software 3 Software Activation](image2)

34. You will get the following verification message. Click OK and then Click Close on the above dialog.

![3500 Series Data Collection Software](image3)
35. Data Collection software will launch. The first splash screen comes:

36. If SAE is enabled, Login Screens is displayed. Enter Username/Password as Administrator/Administrator1. If the Login Screen is not displayed, skip this step and proceed.
37. End User License Agreement is displayed. Click Accept
38. Dash board is displayed

39. This completes the upgrade installation process. A quick check list to confirm a successful upgrade includes:

- RFID consumables are read and displayed
- Spatial and Spectral calibrations are active from the Spectral Calibrations History View if there are migrated.
- User created Library objects in the previous software are in the new software if there are migrated.
- Check your SAE menu item. Confirm that SAE status from previous configuration is retained. If not, choose the SAE status to the desired status from the SAE menu item. If SAE license is active and if you want SAE to be enabled, you can select the Security menu item and you can now click on the Enable System Security option.
FEATURES IN 3500 Series Data Collection Software 3, Version 3.1

Note: In this section, items that are in **bold** are new in the revision C of these Release Notes

### Changes/Enhancements in DC3.1 compared to DC3.0

- Support for 96 Samples Polymer pouches
- Extension of time on instrument for Polymer (based on temperature), ABC, and CBC from 7 days to 14 days
- Support for 36 cm arrays for enabling sequencing and fragment analysis applications
- Built-in SAE (Security, Audit, E-signature) functionalities with **single** license key
- Bug fixes include:
  - At the time of DCS3.1 installation you do not need to place all RFID consumables. With DCS3.1, if you need to place RFID consumables after first launch of software, it is expected to work.
  - In case of ‘camera state error’ message in the UI, the recovery workaround using ‘formal system restart’ procedure and steps are displayed in the UI dialog.

### Changes/Enhancements in DC3.0 compared to DC2.0

- New Dell Optiplex XE2 PC
- Improved software UI navigation and responsiveness for better ease of use.
- Service monitor which shows more frequent informative status messages.
- Added capability for the user to specify starting well for Spectral Calibrations and Install check runs. This can be used to run a single plate with multiple spectral calibrations.
- Added new Reactivate Instrument Wizard to go with Instrument Shutdown Wizard.
- WebMethods service-oriented architecture(SOA) infrastructure components are replaced with Apache SOA infrastructure components.
- Legacy AutoAnalysis Manager based SeqScape, GM auto-analysis is discontinued and replaced with modern JMS based auto-analysis and new secondary applications can use.
- SAE reports are optimized to work with large number of records.
- Updated instrument run modules to improve polymer leak detection during array fill operations.
- Library Object Filtering: User can now filter library objects using Preferences. For instance, on a 24 cap system, 8 cap library objects can be filtered in the UI.
- User can customized the logo in the Reports through Preferences.
- **File Encryption**: The datastore contents are encrypted for security in DC 3.0 and higher versions. As a result, opening and editing datastore objects/files (eg. Instrument Protocols, Assays, etc. outside of DC software is not supported. Use the DC software to view and edit.
The workaround: Go to Workflow -> "Assign Plate Contents" to import and export plates as text, csv, or xls files that can be edited outside of Data Collection, but users will no longer be able to use xml editors to modify plate records.

### Changes/Enhancements in DC2.0 compared to DC1.0

- 3 Fewer RFID Hard Stops – Shelf-life expirations are now treated as warnings for Anode Buffer, Cathode Buffer, and Polymer
- Windows 7 Professional Service Pack 1 operating system.
- FlexNet licensing introduced
- New Dell Optiplex XE PC with 4GB RAM and 500GB RAID Disk.
- Added Big Dye Direct choice to Basecaller Mobility file selection.
- Basic Fragment Analysis support for 36 cm Array with POP4 and POP7.
- Additional Sequencing Run Modules
  - POP6: FastSeq50 (52 min run time), RapidSeq50 (35 min run time)
  - POP7: FastSeq50 (42 min run time), RapidSeq50 (23 min run time)
- Instrument daemon run by Service Monitor without DOS window which prevents it from being closed accidently.
- Consumable Usage Statistics Report added.
- Notification Log reports can be created (by date range) and printed.
- Added a timer to update Dashboard gauges every 10 minutes.
- Improved Dashboard consumable information display to show days remaining as a decimal value rather than an integer.
- Target EP voltage now properly displaying during run on Sensor Details page.
- Hovering over Offscale flag in Fragment Results view will now display the quality value.
- The Print dialogs now remember the last printer used as default.
- Improved Instrument Error Dialog when reporting fatal instrument errors.
- Improved spatial calibration QC checks and added an additional check for each peak being above a threshold.
- Added Manual Control command to open/close CCD camera shutter.
- Trailing spaces are stripped from Run names.

The 3500 Series Data Collection Software includes the following features:
• **Dashboard**: Gives easy access to common operations. Displays instrument status, overview of usage of each consumable and reminders for scheduled tasks.

• **Spatial and Spectral Calibrations**: Enables instrument calibration for different types of consumables and operating conditions. You can review the calibration results and choose to accept or reject results. Reports can be generated and results can be exported. With the history view, you can view recent calibrations.

• **Install Check for Sequencing**: Install Check verifies that the instrument meets the sequencing read length specifications. Easy to read reports are provided to review Install Checks. Additionally, with the History view, you can review recent records of performed Install Checks.

• **Install Check for Fragment/HID Analysis**: Install Check verifies that the instrument meets the fragment/HID analysis capability and sizing precision. Easy to read reports are provided to review Install Check. Additionally, with the History view, you can review recent records of performed Install Checks.

• **Plate Setup**: Feature rich grid and table style Plate and table views are provided to make plate setup easy. You can assign and create resources such as Assays, File Name conventions, and Result groups, and set well property definitions in one place without having to navigate to different views. You can set convenient defaults for these views in the preferences including default plate type, polymer used, display grid or table view, etc. A variety of features are available to search well contents, to assist in well-to-capillary mapping, to customize how well attributes are displayed, etc. Editing features such as undo, redo, fill, cut, copy, and paste makes plate setup easy.

• **Data Collection and Run Monitoring**: Various views are provided to enable you to easily link plates, monitor the data collection, and manage injection lists. The Link Plates view allows you link plates to the plate A and B positions on the instrument. The Injection list view displays the list of injections to be performed with progress status, instrument protocol used, and primary analysis status. Real-time views (Gel View, Trace View) displays data as it is being collected. The EPT view plots values of various instrument parameters against time. Features such as zooming and detaching are provided for ease of use.

• **Primary Analysis**: After data collection, sample files are generated for each capillary and primary analysis is performed on these samples. Any error/warning flags regarding sample quality are displayed showing the quality information about the injection, sample name and assay used. The primary analysis algorithms (basecalling and sizecalling) remain unchanged from 3500 Series Data Collection Software v1.0.

• **Library Management**: You can easily manage different library items such as plate records, assays, instrument protocols etc. Features are provided to create, edit, delete, export, and import library items. Search and filter features enable you to find items of interest easily.

• **Instrument Maintenance Wizards**: Wizard-style operations are provided to guide you through procedures to maintain the instrument. Wizards are provided for installing the capillary array, removing bubbles from the polymer pump, washing the pump chamber and channels, filling the array with fresh polymer, replenishing the polymer installed on the
instrument, changing the type of polymer, and handling the long term Shutdown of the instrument.

- **RFID Consumables Validation**: RFID (radio frequency identification) consumable validations evaluate the usage and expiry of consumables at various points before and during the instrument run to inform you about the status of the consumables.

- **Calendar functionality**: Applied Biosystems recommended calendar/maintenance tasks (Factory default) such as cleaning the anode buffer and periodically restarting the computer are provided. You can also create custom maintenance tasks using calendar like functionality.

- **Review and Quality Check of Primary Analysis Results**: Primary analysis results are automatically displayed in the View Results screens and can be reviewed using the sequencing results view for sequencing applications. Flags indicate the quality of the results, and sample files created during the instrument run are automatically imported into these views for review. During a run, you can re-inject samples after reviewing the results.

- **Reports for Calibrations and Install Checks**: Easy-to-read reports are provided for spatial and spectral calibrations. Summary and detailed reports are available for all applications.

- **Quality Control Reports** – Results can be displayed using various reports available for sequencing analysis such as: Trace Score, Plate, CRL, CRL Distribution, QV20+ and Signal strength.

- **Preferences**: It is possible to setup system or user level preferences for sequencing reports, plot views, tables, date formats, etc.

- **SAE (Security, Audit and E-Signature)**: The SAE module is a component of the 3500 Series Data Collection Software 3, Version 3.1. System security controls user access to the software. Auditing tracks changes and actions performed by users. E-Signature determines if users are permitted, prompted, or required to provide a user name and password when performing certain actions.

- **Runs on Windows 7 Service Pack 1**: Now supports the Windows 7 operating system with SP1.

- **Integrated Big Dye Direct mobility files**: Take advantage of BigDye Direct chemistry to perform faster and more accurate POP7 sequencing runs.

**SYSTEM REQUIREMENTS**

- Recommended hardware requirements: Intel® Core™2 Duo CPU with 4 GB RAM, 3 GHz processor and 100-200 GB of free hard disk space.

- Software has been tested on a Dell® XE with Intel® Core™2 Duo CPU (3 GHz) with 4 GB RAM.

- Windows 7 Professional Operating System Service Pack 1. Do not install on any other operating system.

- 20-inch Color Monitor (1280 x 1024 resolution or higher).
- The software has been tested with Life Technologies (LT) 3500 Windows 7 SP1 image. Do not use any other software images on the PC.

NOTE: The 3500 Series Data Collection Software 3, Version 3.1 has not been tested on and is not intended for use on a computer with server-type hardware or server operating systems.

SPECIAL CONSIDERATIONS

- The IP address on the PC for instrument communication must be configured on the computer prior to installation of 3500 Series Data Collection Software 3, Version 3.1.
- For installation, you must log into the local computer and have administrator privileges.
- For uninstalling, you must have administrator privileges.

GENERAL TIPS & RECOMMENDATIONS

- Make sure that you install this version of software on a new 3500 instrument computer and activate the license.
- Make sure that you create the user library objects (eg, plates etc) fresh in this version of the software. Old objects from previous versions of software are not compatible with the new software unless they were installed as part of the data migration during installation.
- Before starting a run, ensure that you have write permissions on the target folder to store sample files either on the remote or local computer. If you do not have write permissions, the software cannot save sample data files which will result in potential data-loss.
- It is recommended you perform the weekly task of restarting the computer and instrument, as it may impact performance.
- It is recommended not to rename sample names while the run is in progress as the monitor run screen displays information about these samples. Once the run is completed, then you may rename your samples.
- When copying data from Microsoft Excel and then pasting into the Table view, ensure that the cell selection matches exactly between Excel and the Table view.
- If an error message does not display correctly, it may be necessary to minimize and restore the application to refresh the user interface.
- When printing Sequencing reports, it is recommended that you print only one Sequencing report at a time as these are large files.
• For optimal performance, please copy sample files stored on a network drive to the local computer drive before using them in the 3500 Series Data Collection Software 3, Version 3.1.

• When a run is in progress, it is recommended not to enable or disable audit and E-Signature actions.

• While modifying the “# Signatures required” field in e-signature settings view, make sure you specify a number which is less than or equal to the number of users in the system. Otherwise, you will not be able to continue the E-signature process. As a workaround, you can either reduce the “# Signatures required” or create additional users.

• **Sample files assigned to Mapped Network Drives:** In some cases, based on local network access permission settings, storing to network drives may not work properly. Use UNC name with (\) if network mapped drive access does not work. If the problem persists due to local network settings, you may want to consider storing sample files on local computer. Contact support, if needed.

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**SOFTWARE / SYSTEM LIMITATIONS**

The 3500 Series Data Collection Software 3, Version 3.1 contains the limitations and defects noted below. Please ensure any use of the software takes into consideration these defects.

• Time on instrument for POP7 is supported to 14 days, but only if ambient temperature is limited to 25 degrees Centigrade. This is an exception to our standard support for environmental operating conditions (15 to 30 degrees Centigrade; Refer to Product Insert for Polymer).

• In rare cases ‘camera state error’ message may be seen on the UI, particularly on the first spatial calibration after software installation or array instrument state change. To precede, recovery using ‘**formal system restart**’ procedure, following steps are displayed in the UI dialog and in this document.

• When a run is in progress, do not change the preferences related to instrument settings and sample file locations.

**Installation and Patches**

• “Protocol not found” error occurs when attempting to perform a Sequencing Install check: the error occurs when trying to perform a Sequencing Install check with a 36 cm array with POP-7 using BDT v.1.1 chemistry. To fix, the underlined lines below need to be inserted in the #IQOQ properties section of the display.properties configuration file. To do so, go to D:\Applied Biosystems\3500\configuration and use Word Pad or Notepad to open the display.properties file. In the #IQOQ properties for BDT v.1.1 section, paste or type in the underlined lines in the location indicated below:
# IQOQ properties for BDT v1.1:
BDTv1.1.24.POP6.36=Install_SeqBDTv1.1_36_POP6xl_E
BDTv1.1.18.POP6.50=Install_SeqBDTv1.1_50_POP6_E
BDTv1.1.18.POP7.36=Install_RapidSeq36_POP7_E
BDTv1.1.24.POP7.36=Install_RapidSeq36_POP7xl_E

- In-Lane Normalization Patch Required, if you use normalization: The in-lane normalization factor setting may not function properly in v3.1. The in-lane normalization parameters in the Instrument Protocol were not being applied, instead default values were applied. If you use normalization as a part of HID and RUO workflows, you need to download and apply a Patch called “Software Patch DC 3.1 Normalization updater”. You can download the patch and installation instructions from [http://www.thermofisher.com/sangerpatches](http://www.thermofisher.com/sangerpatches)

- BDD mobility file Patch for Sequence Analysis Software: If you see BigDye Direct mobility error with 3500 data, ensure that you have installed BDD mobility file patches to Sequencing Analysis™, SeqScape™, and Variant Reporter™ that you can obtain from [http://www.lifetechnologies.com/datacollection3_1](http://www.lifetechnologies.com/datacollection3_1) under a section labeled “Sequencing Analysis software download links:”

While you apply this patch to sequence analysis software, you don’t need to apply this patch to Data Collection software.

### Consumables

- If you use consumables beyond their recommended limit, the “suppress future warning” checkbox may not work and you will need to acknowledge the warning when it appears.

- RFID consumables not transferrable between DC versions: Moving RFID consumables from one version of the system to a different version of the system are not supported. This can produce “Checksum Error” in the Dashboard. That is, you cannot move a RFID consumable from a v1.0 system to a 2.0 (or above) system, nor can you move it from v2 to v3.x. However, from the time of DCSv3.1 installation license key activation, a 2-week grace period is initiated during which reagents active on the instrument at the time of the upgrade can be used with DCSv3.1. Once the 2-week grace period ends, the older version of consumables will not work in DCSv3.1.

### General

- **Plate Import supports ASCII characters only**: Plate import now disallows the import of plate records that contain non-ASCII characters. Be careful not to include special symbols or non-visible formatting characters (which can happen when pasting from a formatting text editor such as Word or Wordpad) when editing plate records.

- **'\' Not Supported**: If a plate is exported and then modified to include any ‘\’ characters, then a subsequent import of the file will result in failure with the error message of “… - Failed to parse the file due to an exception: …”

- **Old Version Number Displayed**: In the software reports etc., the version number is incorrectly displayed as v3.0 instead of v3.1. The way to confirm that v3.1 is being used is: Splash Screen displays v3.1
Help | About Software screen displays v3.1
Help | About Software screen displays unique Build ID for v3.1
Verify the version number in the Annotation tag in the ab1 files

- The software only supports default Windows 7 theme, and on other Windows Desktop themes the software may not display properly. It is required that the monitor resolution be set to at least 1280x1024 for viewing the 3500 Series Data Collection Software 3, Version 3.1 interface.

**Co-Install**
- Co-installation of GeneMapper IDX, MicroSeqID is not recommended for optimal performance.

**Upgrade from v1.0 to v3**
- The names of some factory default Instrument Protocols has changed from v1.0 to v3. Previously the protocols that had a dye set associated with them were named with the Instrument Protocol template name and “_1”: e.g. FastSeq50_POP7x1_1. The new names replace the “_1” with the dye set name: e.g. FastSeq50_POP7x1_Z. If you had created your own Instrument Protocols in v1.0 with these new names they will not be imported into the v3 datastore due to the naming collision with the new factory default protocols. If the v1.0 software had been installed on the “S:” drive then the default backup location for the upgrade cannot be used.

- Similar to above, the internal software names of the Sequencing install check is different in v3, as a result, after upgrade to v3 from v2 or v1, in the history view of the install check, Chemistry Type is displayed in the UI as “Unknown”; however, the Install Check data is present and is valid. This is a cosmetic UI display issue and does not impact patient safety or results generation.

- The user preferences related to Plate Setup, Report Settings, and Sequence Settings are not migrated from v1 to v3. These user preferences must be reset after the upgrade.

- The historical Notification Log information is not migrated from v1 to v3. If you wish to maintain a record of the historical data it should be printed on the v1 system before performing the upgrade.

- When the spectral calibrations and install checks are migrated from v1 the data traces are not migrated. Thus, when the calibration or install check is viewed in the History tab the Intensity vs. Scan Number plot will be blank. This is only a cosmetic display issue and the calibration information itself is correct and will be used in subsequent runs. Future calibrations or install checks will display the trace data.

**Upgrade from v2 to v3**
- Assays created in DCv2.0/v1.0 must be recreated in v3.1. When you migrate assays from DCv2.0/v1.0 into v3.1, the designation attribute of the assay is not set. As a result, if you import a sample sheet that contains migrated assay name an error is displayed. Workaround is to delete the migrated assay and re-create them v3.1 and then import the sample sheet.
When you create new instrument protocol using FragmentAnalysis36_POP6XL module for Fragment Analysis with 36cm array POP6 and save the new instrument protocol, the name of the module is displayed incorrectly as “RapidSeq36_POP6xl”, however the content of the module are correct and can be used for FragmentAnalysis36_POP6XL.

After upgrading, BDx templates may not be visible in the UI for making a plate record. Workaround is to create a new template with BDx modules.

After upgrading, if the service monitor and services would not start up after several minutes, restart the system using the “3500 System Start-up Procedure” steps at the end of this document. In rare case of problem persists, back up and re-install the software and ensure that the install/upgrade steps were followed exactly.

When the install checks are migrated from v2 the data traces are not migrated. Thus, when the install check is viewed in the History tab the Intensity vs. Scan Number plot will be blank. This is only a cosmetic display issue and the install check itself is valid. Future install checks will display the trace data.

In rare situations migrating v2 spectral calibration historical data may cause software issues such as failure of wizards to complete. If this occurs delete all files that start with “Run” in the folder D:\Applied Biosystems\3500\datastore\SpectralCalibrations and delete all files in D:\Applied Biosystems\3500\datastore\mdcsystemdata\InjectionDataSpectralCal and its subfolders. It will be necessary to re-run the spectral calibrations for the dye sets in use.

**Calibration/Install Check Injection Position**

- If you select an injection position other than the default (A01) injection position and navigate to a different window and subsequently return to the Calibration/Install Check window the injection position displayed in the UI will be the default (A01). This is just a cosmetic issue and does not reflect the injection position for the run currently in progress.

**Review Results**

- If multiple folders are selected to import sample files and some of the sample files in each folder have invalid checksums, some of these sample files will fail to import or may create an empty entry line. The workaround is to import from a single folder at a time if importing samples with invalid checksums.

- The “Chemistry Standard” Column in Dye Sets view will only get populated after performing a calibration for that Dye Set.

- Duplicating more than 10 plate templates at once may take a long time and it may appear that the application is not responding. Please wait for the busy cursor to reset to a normal state indicating that the operation is completed.

- If the Table Preferences options in the Fragment/HID review results Sample View are modified, the Restore Defaults button does not work. It will be necessary to manually restore the values.

- If the Dye/Sample Peak column in the Sizing Table View is moved in the Table Preference past another column which has numeric values, then if the Export Results to a .csv file is performed then the Dye/Sample Peak data is split into two columns and the subsequent columns are not properly aligned with the column headers. The work around in Excel is to right click the header cell after the Dye/Sample Peak cell, select Insert and select the Shift cells right option.
Recently Run Plates
- The Recently Run plates are displayed with Plate Name and Modified Date. However they are internally sorted by their creation date so editing a plate does not change its position in this list.

Re-injection
- Under some circumstances it is possible to enable the Re-inject button by selecting previously injected wells and then deselecting them. Subsequently selecting empty wells that have no assay associated with them and clicking the re-inject button will generate another injection of the currently active injection.

Preferences
- The system preferences for date and time formats are not applied for the run date and run time, in cases where the File Name Convention includes these attributes.
- The user’s Report Setting, Plate Setup, Run Setup, Sequencing Settings and Instrument Settings preferences are not included in the export/import functionality.

Library Table Preference Settings
- If the Table Preference settings are modified for any Library object the Apply button does not apply the setting. As a work around select Save to Preferences and the setting will be applied.

Assays Which Contain Multiple Instrument Protocols
- An assay which contains multiple Instrument Protocols will not be displayed due to the library filtering. To view these assays the filtering must be disabled. This applies to the library Assay view and to assay selection boxes.

Library Object Searches
- A search for objects that are currently not displayed due to the library filter that is applied will not display any occurrences of that object. It is necessary to remove the filter to display the object.

Plate Cut/Paste Operation
- Sometimes pasting into a plate will not properly overwrite existing data. It may be necessary to delete the existing data before performing the paste operation.
- Sometimes when data is cut from a plate record and pasted into a text editor (e.g. Notepad), incorrect data is pasted. Be sure to check that paste operations have pasted the expected data.

Plate Import
- If a plate is exported and then modified to include any ‘\’ characters, then a subsequent import of the file will fail.
- Plate import now disallows the import of plate records that contain non-ASCII characters. Be careful not to include special symbols or non-visible formatting characters (which can happen when pasting from a formatting text editor such as Word or Wordpad) when editing plate records.
Plate Export

- If a plate is newly created and then exported without first closing the plate, then a subsequent import of the XML file will fail with the error message that file was changed outside the software. The workaround is to first close the plate, then re-open it and perform the export operation.

Importing Sample files from Previous Versions

- Previous versions of sample files have a different checksum algorithm so it is not recommended to import them. If importing a previous version, a checksum mismatch message will be displayed and it may be imported in RUO mode.

Printing / Report

- Table view can’t be directly printed from Data Collection software. If you want to print Table view, you can export to excel, format it and then print it.

- If you wish to print to a pdf file you will need to install the PS2PDF converter which may be downloaded from the link in the CutePDF readme file.

- If the font is changed after a report has been generated it will not print unless the report is closed and regenerated with the new font setting.

- After viewing and closing the spectral calibration report in the History View, the selection in the table may not be retained.

- It is not recommended to view fragment reports with more than 384 samples as this will slow down the software unacceptably.

- Selecting Font Setting Verdana and size 10 in the Modify report settings page may result in some information missing on the report. Returning to the default setting of Arial size 10 will recover this information.

Flag List Tooltip

- If the sample comments field has commas “,” in it the display of the comment in the tooltip within the Flag List may be incomplete. The comment is correctly stored in the sample file, this is just a display issue in the User Interface.

User Security (SAE module)

- Use of any remote desktop sharing applications (windows, VNC etc.) into the instrument computer is not supported. Single user login credentials are required to complete Instrument operation. Using multiple user logins for given instrument operation is not permitted (as an example, if you log in as “INSTR-ADMIN” user to start an instrument operation, use the same user login, to complete the instrument operation). If you have to log in as a different user, let the instrument operation complete and then restart the PC before login as different user.

- When changing security settings for multiple users, the last modified date for the users who are not affected will also change.

- Users whose role denies access to System preference settings are able to modify the Instrument Settings “Suppress consumable warnings” checkboxes and the number of run history records to retain.
**Audit (SAE module)**

- In some cases filtering on the Delete action will not produce any results (For instance, Deleting library objects do not generate any audit records).
- When security settings are imported, all the existing Audit Reasons may not be overwritten.
- When a plate template is modified, the Object Audit History tab will display the object type as “Plate” rather than “Plate Template”.
- The top level check boxes in the Audit Settings/Audit Items do not behave in a standard fashion. Be sure to check the lower level check boxes to verify that the settings are correct.
- If you edit an Audit Reason for Change to be the same as an existing Reason for Change it is possible to get duplicate entries. This is a cosmetic issue.

**E-Signature (SAE module)**

- The E-Signature index list view will display a record for each spatial calibration accepted. If you accept the spatial calibration results twice, then you will see two records in the E-Signature index list view.
- Changes to a User’s e-signature capability will take effect the next time the User logs in. The change will not be reflected while the User remains logged in.

**License Retrieval Web Site**

- When logged onto the license retrieval web site the Reset button does not clear all fields. It will be necessary to manually clear the fields in this situation.

**Instrument Mismatch Dialog**

- If the software is launched and an instrument mismatch dialog is displayed, it comes up under the splash screen and will not be visible unless the 3500 icon is clicked in the lower taskbar. This is a highly unlikely situation, as it would only occur if the wrong software type were installed for a given 3500 instrument.

**Instrument Fatal Error during Autosampler Movement**

- In the extremely rare case of a fatal instrument error occurring during the time the autosampler is moving the usual message box indicating the error may not appear. The 3500 instrument will still transition into the fatal error state as indication by the illumination of the red LED on the front panel. To recover it is necessary to reboot the instrument and PC after repairing the issue that caused the error. Refer to Instrument Communication - 3500 System Start-up Procedure section for more details.

**Norton Anti-virus Software**

- Newer versions of Norton Anti-virus software with the “SONAR” feature will inappropriately remove the 3500.exe file that launches the software. The SONAR feature should be disabled in these versions of Norton Anti-virus.

**Uninstallation with non-Default Datastore Location**
If the software has been installed with the Datastore location pointed to a non-default location, the user will not be prompted to preserve the Datastore during uninstallation. If you wish to preserve your Datastore when uninstalling you must manually back it up.

**Instrument Red Light error on the front panel**

- In extremely rare occasions when the 3500 instrument displays a critical red light error on the front panel, and/or the software displays this error message, restart the instrument and PC using the 3500 start up procedure documented below. While the red light error state is active, continued use of software and instrument will produce unpredictable outcomes and is not recommended. After the start up procedure is completed successfully, the system can be used normally.

**Instrument Internal Buffer Overflow**

- In extremely rare occasions the 3500 instrument is unable to transmit its data to the PC and this results in an error message stating that there was in “Internal Buffer Overflow”. The instrument will then enter a fatal error state (Red Light on instrument panel). In this situation it is necessary to restart the instrument and PC using the 3500 System Start-up Procedure and re-run the samples.

**Instrument Communication - 3500 System Start-up Procedure (to restart instrument and computer)**

1. Power off Computer.
2. Make sure Instrument Door is closed, power off Instrument.
3. Wait 1 minute, and then power ON Computer.
4. Wait until Windows login screen is displayed, but do not login to Windows.
5. Power on the Instrument, wait for front panel GREEN light status of LED
7. Look at the bottom tray wait for Server Monitor to confirm 4 services launched (right click on taskbar icon to see launch states confirmed w/ ‘Y’). Wait approximately for 1 minute. You should see green check mark icon ->
8. Launch the 3500 Software using the 3500 icon on the desktop or bottom taskbar.

**NOTE:** 3500 System Start up procedure **MUST** be used in following cases:

- 3500 instrument is setup for the first time
- If you see a camera state error message in the UI
- Instrument indicates Red Light error
- After using service tools software and after servicing the instrument
- Network communication problems between instrument and PC
- At the end of spatial calibration, if Accept / Reject buttons are not enabled
- Wizards or software operation is taking a longer time than expected.