

NovaSeq X Plus Software Release Notes

NovaSeq X Plus Control Software 1.1.0

Firmware 1.1.5

Image Analysis Gateway 1.10.0

Universal Copy Service 2.8.4

Real-Time Analysis 4.6.2

Illumina Run Manager 1.5.149

Associated with DRAGEN 4.1.7

June 2023

INTRODUCTION

This document details new features, improvements, and known issues for the NovaSeq X Plus Sequencing System Software Suite v1.1.0. This Software Suite improves sequencing robustness and the user experience with improved notifications, warnings, and error messages across workflows including maintenance wash, Firmware upgrade, Illumina Run Manager, Control Software, Instrument Network Configuration, and Initialization.

For more information on the NovaSeq X Plus Sequencing System, see the NovaSeq X Plus Product Documentation available on the [NovaSeq X Plus Sequencing System Support Site - Support Resources - Documentation page](#). Contact your local field service representative to upgrade software to v1.1.0.

The software package includes:

- NovaSeq X Plus Control Software 1.1.0
- Firmware 1.1.5
- Image Analysis Gateway 1.10.0
- Universal Copy Service 2.8.4
- Real-Time Analysis 4.6.2
- Illumina Run Manager 1.5.149
- NovaSeq X Plus recipes 1.1.0

NOVASEQ X PLUS CONTROL SOFTWARE 1.1.0

NEW FEATURES

Hardware Related Fixes

- Board reset
- Registration Failure
- Leak detection
- Thermal Check
- Board dropout
- Networking

Control Software – General

- Pre-Run Checks updated to run in parallel, added better error handling and metrics to increase robustness.
- New side-specific protocol added to safe-state instrument hardware after failed or cancelled Pre-Run Checks.
- Prep kit recipe selection for Illumina Stranded Total RNA and Illumina Stranded mRNA kits corrected.
- Wet AutoDetilt and AutoCenter added to Pre-Run Checks.

- Added support for Manual Mode runs enabling automated local analysis workflow via imported sample sheet.
- Improved Control Software logging functionality.
- Included Low Level Diagnostics logs in Logs.zip for each run.
- Added function that allows user to acknowledge and proceed with a sequencing run if Connectivity checks fail during Pre-Run Checks.
- Enabled non-run Instrument Performance Data functionality.
- Removed TM symbol from all metrics.
- Added non-run TFD file.
- PRC specs are now logged to imf and sent to Proactive.
- Connectivity Tool implemented ground control checks.
- Connectivity Tool implemented link speed indicator.

Control Software – Maintenance Wash

- Maintenance wash user interface and messaging re-worked for improved user experience.
- Added wash states for each side of the instrument which enforce washes and limit sequencing.
- Sipper state updated to leave them in the down position after a maintenance wash.
- Added requirement for customer to perform maintenance wash every two weeks.
- Added a waste pressure check in Maintenance Wash and Wet FLO Pre-Run Checks routines.

Control Software – User Experience

- Improved on screen workflow animations
- Users can now log in on a per side basis.
- Added change account button to the manual run screen.
- Planned runs list now populated top down.
- User can now cancel both sides of the Pre-Run Check.
- Added errors and warnings log to the non-run IMF uploads.

Control Software – Coolant Levels

- Added a new initialization warning for low coolant level in each coolant loop.

Control Software / Service Software – Device States

- Added a number of clear messages for Firmware errors and implemented new key errors for Liquid Chiller Module and board dropouts.

Customer Facing Messages

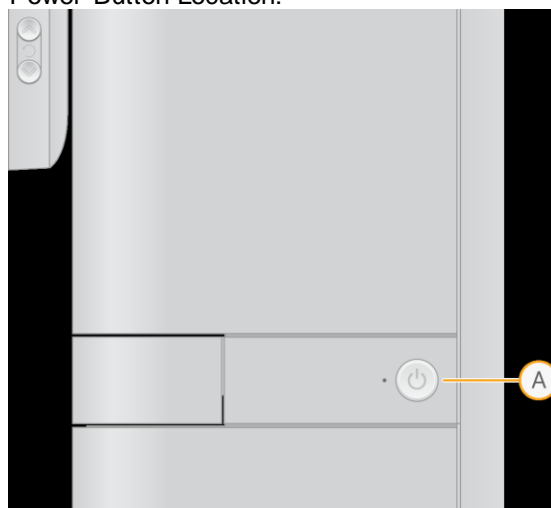
- Added improved error handling and customer facing errors during the initialization routine.

BUG FIXES

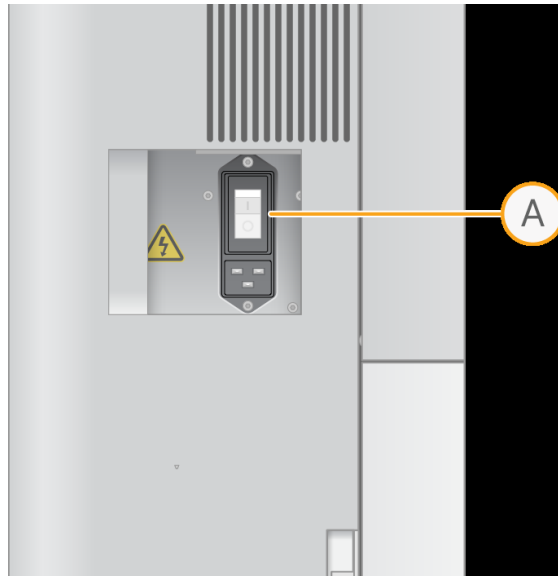
Control Software – User Experience

- Fixed issue that caused Pre-Run Check error “PCI connection check failed CIB reset”.
- Improved sequencing run completion estimate accuracy.
- Run selection screen now allows sorting.
- Fixed a bug where the run was not cleaned up if run creation timed out.
- Fixed a bug where the main menu was not present when navigating back to the control screen.
- Implemented User Interface bug fix to prevent incorrect cancelled status.
- Corrected filter runs search bar.
- Fixed potential improper software shutdown issue. Software shutdowns must always be completed via Control Software only and never be completed via the Operating System.
 - **Procedure to Shut Down or Restart the Instrument**
You can shut down the instrument safely when there are no sequencing runs or secondary analysis in progress. Software messages indicate when to shut down and restart the instrument to resolve an error or warning.
 1. Select the instrument icon to open the global navigation menu.
 2. Select Settings, and then select Shut down.
 3. If the system does not shut down, press and hold the power button on the right side of the instrument for 5 seconds.

Power Button Location:



4. Press the turn off (O) side of the toggle switch on the back of the instrument.
Power Toggle Switch Location:



5. Wait 10 minutes.
 6. Press the turn on (I) side of the toggle switch.
 7. Press the power button on the right side of the instrument.
 8. When the power button pulses, wait 30 seconds, and then press it.
 9. After the operating system has loaded, you can sign into the system.
- Fixed issue that caused run failures after customer selects the Pre-Run Check “Retry” button after Pre-Run Check failure.
 - Fix bug that caused run parameters not to be sent to Instrument Performance Data.

RESOLVED ISSUES

N/A

KNOWN ISSUES

N/A

REAL-TIME ANALYSIS 4.6.2

NEW FEATURES

- Distortion mitigating algorithm implemented.

ILLUMINA RUN MANAGER 1.5.149

NEW FEATURES

- SBC Disk Space now displayed in the user-interface (UI).
- Non-run instrument metrics upload to Proactive
- First time set up enhancements (for instruments not connected to the internet and proxy configurations)
- Runs list loading time improvements.
- Planned runs list sorted in descending order with filtering enabled.

BUG FIXES

- Run status workflow improvements (bug fixes around runs getting stuck in active states)

RESOLVED ISSUES

N/A

KNOWN ISSUES

N/A

INSTRUMENT NETWORK CONFIGURATION

NEW FEATURES

- Added functionality to allow customers to view and renew the TLS cert.
- Created warnings at software initialization for certificates close to expiration (< 30 days)
- Addressed security vulnerability during Instrument Network Configuration NPN package installation.
- Added loading screen during transitions instead of the previously blank screens.
- Added DNS, Gateway, Domain, Routes, & Subnet mask fields to the IP configuration screen in Instrument Network Configuration.
- Added IP address and port field validations and error messaging.
- Added validation to API calls.
- TLS Cert can now be viewed in Instrument Network Configuration.
- Allow modifications of subnet mask.
- Auto-populate IP Configuration tab.
- Added functionality to allow customers to select a network interface as primary and disable network interfaces.

BUG FIXES

N/A

RESOLVED ISSUES

N/A

KNOWN ISSUES

N/A

ASSOCIATED WITH DRAGEN 4.1.7

Note: Existing DRAGEN version will be uninstalled and replaced with DRAGEN 4.1.7 as part of the Control Software 1.1.0 update. Consult the [NovaSeq X Plus Sequencing System Software Downloads](#) page for DRAGEN software and DRAGEN application details.

RELEASE HISTORY

Revision	Release Reference	Originator	Description of Change
00	CN 1089656	J. Cook	Initial Release