NextSeq 550Dx Instrument Software Customer Release Notes

NextSeqDx System Suite Installer

NextSeqDx Operating Software

NextSeqDx Service Software

Local Run Manager

Real-Time Analysis

Universal Copy Service

DMA Driver

Firmware

For NextSeq 550Dx Instrument (Diagnostic Mode)

April 3, 2023

Introduction

These Software Release Notes detail new features, optimizations, defect repairs, and known issues for the Illumina NextSeq 550Dx Sequencing System. Contact your field representative to schedule a software upgrade.

For more information on the NextSeq 550Dx, see the NextSeq 550Dx Instrument Reference Guide (document # 1000000009513) available on the [NextSeq 550Dx Instrument support pages](#).

I.   Illumina NextSeqDx System Suite v1.5.2

- **Release Date**: March 19, 2023

Software Application	Version
NextSeqDx Operating Software (NOS)	1.5.1
NextSeqDx Service Software (NSSDx)	1.5.1
Local Run Manager	3.2.1
Real-Time Analysis (RTA)	2.9.5
Universal Copy Service	2.7.3 *
DMA Driver	4.5.3
Firmware	2019.2.0

* Indicates change from previous release

OPTIMIZATIONS

- This version of UCS 2.7.3
    - Now runs, by default, as standard user (LocalService – minimum privileges on the local computer and presents anonymous credentials on the network).
    - Ensures secure communication by binding the instrument to localhost.

KNOWN ISSUES

- Intermittent control software launch failure due to UCS service not started.

II.   Illumina NextSeqDx System Suite v1.5.1

- **Release Date**: May 2022

Software Application	Version
NextSeqDx Operating Software (NOS)	1.5.1 *
NextSeqDx Service Software (NSSDx)	1.5.1 *

Local Run Manager	3.2.1 *
Real-Time Analysis (RTA)	2.9.5
Universal Copy Service	2.7.2 *
DMA Driver	4.5.3
Firmware	2019.2.0

* Indicates change from previous release

NEW FEATURES

- Updated NOS and NSSDx to v1.5.1.
    - Enabled ability to reset Air Filter reminder in Service Software.
    - Updated NOS and NSS to .NET 4.7.2.
    - Enhanced Proactive features and settings.
- Updated LRM to v3.2.1.
    - **OPTIMIZATIONS**
        - Updated end of life LRM components (Postgres, RabbitMQ, Erlang OTP, jQuery).
        - Included bundled version of supported Chromium v93.
    - **DEFECT REPAIRS**
        - For users with account management disabled and an inactive time of more than 120 minutes, there is now a session expiration notification to refresh.
        - User can now specify the location for the audit export file.
        - Fixed an issue related to a requeue of an "Analysis Stopped" run.
        - Requirement added for an administrator to set up a temporary password to unlock an account.
    - **MODULE UPDATES**
        - For NOS v1.5 Local Run Manager compatible modules, refer to the Local Run Manager Module Selector page: https://customprotocolselector.net/selectors/LRM-module-selector/Content/Source/FrontPages/LRM-module-selector.htm.
- Updated UCS to v2.7.2.

OPTIMIZATIONS

- Error message enhancement for 322 cycles run.
- Unload consumables when user selects power options.
- Maintenance log file to track wash history.
- Software prompt for First Time Setup results is displayed before rather than after sequencing completes.
- Added On-Instrument BaseSpace Sequence Hub Connectivity Test.

DEFECT REPAIRS

- Improved flow rate test calculation.

KNOWN ISSUES

- Intermittent control software launch failure due to UCS service not started.

III.   Illumina NextSeqDx System Suite v1.4.0

- **Release Date**: April 2021

Software Application	Version
NextSeqDx Operating Software (NOS)	1.4.0 *
NextSeqDx Service Software (NSSDx)	1.4.0 *
Local Run Manager	3.1.0 *
Real-Time Analysis (RTA)	2.9.5
Universal Copy Service	1.6.3 *
DMA Driver	4.5.3
Firmware	2019.2.0

Indicates change from previous release

NEW FEATURES

- Updated NOS and NSSDx to v1.4.0
    - If available, run description is displayed in the run selection screen.
    - Enabled support for 10 base pairs (bp) indexing.
- Updated LRM to v3.1.0
    - Added user account security questions for easier password recovery.
    - Renamed settings
        - "Manage Library Prep Kits" → "Manage Kits".
        - "User Management" → "Account Management".
    - Added tabs for "Library Prep Kit" and "Index Kit".
    - Simplify "My Account" page layout.
- Updated UCS to v1.6.3.

OPTIMIZATIONS

- Cybersecurity enhancements.
    - Strong user password enforcement.
    - Data integrity check for data copied for secondary analysis.
    - Increased security of database.
    - Only allow secure HTTPS communication.

DEFECT REPAIRS

- Addressed issues related to copying run data to the final output location.

KNOWN ISSUES

- Instrument does not notify user to perform a required restart if an unrecoverable error during wash occurs.

IV. Illumina NextSeqDx System Suite v1.3.3

- **Release Date**: August 2021

Software Application	Version
NextSeqDx Operating Software (NOS)	1.3.3 *
NextSeqDx Service Software (NSSDx)	1.3.3 *
Local Run Manager	1.5.2
Real-Time Analysis (RTA)	2.9.5
Universal Copy Service	2.5.0 *
DMA Driver	4.5.3
Firmware	2019.2.0

Indicates change from previous release

NEW FEATURES

- Updated NOS and NSSDx to v1.3.3 to support UCS v2.5.0.
- Updated UCS to v2.5.0.

OPTIMIZATIONS

- Improved the file copy performance and reliability with the update to UCS v2.5.0.

DEFECT REPAIRS

- None.

KNOWN ISSUES

- Instrument does not notify user to perform a required restart if an unrecoverable error during wash occurs.

V.   Illumina NextSeqDx System Suite v1.3.1

- **Release Date**: September 2020

Software Application	Version
NextSeqDx Operating Software (NOS)	1.3.1 *
NextSeqDx Service Software (NSSDx)	1.3.1 *
Local Run Manager	1.5.2
Real-Time Analysis (RTA)	2.9.5
Universal Copy Service	1.4.2
DMA Driver	4.5.3
Firmware	2019.2.0 *

* Indicates change from previous release

NEW FEATURES

- Updated NOS and NSSDx to v1.3.1.
- Updated firmware to v2019.2.0 to align with NextSeq RUO mode software and prevent a potential Bit Error Rate (BER) issue.

OPTIMIZATIONS

- Improved the retry logic when low Signal-To-Noise Ratio (SNR) is encountered during focus model generation. This reduces the chances of unnecessarily disabling a camera.

DEFECT REPAIRS

- None.

KNOWN ISSUES

- Instrument does not notify user to perform a required restart if an unrecoverable error during wash occurs.

VI. Illumina NextSeqDx System Suite v1.3.0

- **Release Date**: March 2019

Software Application	Version
NextSeqDx Operating Software (NOS)	1.3.0 *
NextSeqDx Service Software (NSSDx)	1.3.0 *
Local Run Manager	1.5.2
Real-Time Analysis (RTA)	2.9.5
Universal Copy Service	1.4.2
DMA Driver	4.5.3
Firmware	2018.2.0 *

* Indicates change from previous release

NEW FEATURES

- Updated NOS and NSSDx to v1.3.0.15.
- Updated firmware to v2018.2.0.
- Added compatibility for v2.5 flow cells.
- Allow RUO flow cells to be used for manual post-run wash.

OPTIMIZATIONS

- Added additional instrument performance metrics.
- Updated error messaging when a flow cell is not compatible with other consumable components.

DEFECT REPAIRS

- Fixed an issue where mid throughput flow cells were causing errors during post run wash.
- Fixed an issue where the consumable RFIDs were not marked as used if power failure occurred.
- Fixed an issue where LED exposures were not being logged.
- Fixed an issue where flow cell temperature was not appropriately logged.
- Fixed an issue where retry logic was not logged.

KNOWN ISSUES

- Instrument does not notify user to perform a required restart if an unrecoverable error during wash occurs.

VII.   Illumina NextSeqDx System Suite v1.2.0

- **Release Date**: October 2017

Software Application	Version
NextSeqDx Operating Software (NOS)	1.2.0
NextSeqDx Service Software (NSSDx)	1.2.0
Local Run Manager	1.5.2
Real-Time Analysis (RTA)	2.9.5
Universal Copy Service	1.4.2
DMA Driver	4.5.3
Firmware	2017.6.0

Release History

Revision	Release Reference	Originator	Description of Change
00	N/A	N/A	Initial version
01	N/A	N/A	Change formatting, remove Germline Variant and Somatic Variant Modules since they are not part of the software system suite, and add versions 1.2.0 and 1.3.1 release details for completeness
02	CN 1058292	A Wang	Update with versions 1.3.3 and 1.4.0 releases
03	CN 1068999	K. Johnson	Update with version 1.5.1 release
04	CN 1084690	D. Du	Update with version 1.5.2 release