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DRAGEN™ ORA Helper Suite v2.0 Software Release Notes

June 19, 2024

Introduction

These release notes detail the key changes for the release of Illumina® DRAGEN™ ORA Helper Suite software which allows for a seamless integration of compressed FASTQ.ORA files into secondary analysis workflows either on a Local environment or on a Remote environment.

Changes are relative to DRAGEN ORA Helper Suite v1.0. The DRAGEN ORA Helper Suite v1.0 is replaced with new version v2.0.

DRAGEN ORA Helper Suite is intended for processing FASTQ.ORA files in environments where secondary analyses are not performed on Illumina DRAGEN secondary analysis software, or environments that do not have access to a DRAGEN v3.8 or later (native ingestion of FASTQ.ORA files is available starting on DRAGEN v3.8).

In a Local environment, FASTQ.ORA files are accessible on the compute node via a filesystem. This includes cloud compute instances with local data or data available via a network file system.

In a Remote environment, FASTQ.ORA files are stored in the cloud (AWS S3 or Azure blob storage) and users want to make them appear locally.

The DRAGEN ORA Helper Suite v2.0 package includes the following components and file:

- the **oraFuse** tool – oraFuse v2.0
- the **ora LD-Preload** tool – ora-ldpreload v2.0
- the **orad** tool – orad 2.7.0
- the **oraHelper** guiding tool
- the reference genome file -refbin v2.0

The following table lists the minimum requirements for the DRAGEN ORA Helper Suite v2.0 software.

Component	Minimum Requirements
System Memory	8 GB RAM
Free Disk Space	From 2 GB to 15 GB depending on how many different specific references are needed for decompression. For human data, 2 GB are required.
Compatible Linux Distribution	• Ubuntu 14.06 or later • CentOS 7 or later • Oracle 8 or later
Internet Connection	An internet connection is required to install the DRAGEN ORA Helper Suite. Once installed, the internet connection is not required unless the DRAGEN ORA Helper Suite is used in a remote environment.

DRAGEN ORA Helper Suite can be downloaded from the ORA support page. For the installation procedure please follow the User Guide.

New Feature and command

- DRAGEN ORA Helper Suite v2.0 can now use FASTQ.ORA files that have been compressed with all supported references. The default human reference is included in the Software and does not need to be downloaded.

  For the use of FASTQ.ORA compressed with other supported references, the correct reference needs to be downloaded from the DRAGEN ORA support site and placed locally. Note: the reference must be the same one as the one used at compression.
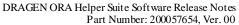
  Once the correct reference is placed locally, no specific command is expected. The software looks automatically for the correct reference.

  The command `oraHelper <*.fastq.ora>` provides information on:
    - which reference has been used to compress
    - the steps to follow to install the correct reference.

  The list below provides the list of supported species/model at the time of this release. The whole database, or reference file for a specific species/model can be downloaded. To see the most up-to-date list of species/model supported check the DRAGEN ORA support site.

Latin name	Common name	Size (GB)
Homo_sapiens	Human	1.3
Homo_sapiens_bisulfite	Human_bisulfite	2.4
Sus_scrofa	Pig	0.80
Gallus_gallus	Chicken	0.34
Oryza_sativa	Rice	0.15
Arabidopsis_thaliana	Arabidopsis thaliana	0.04
Triticum_aestivum	Wheat	4.7
Bos_taurus	Cattle	1.1
Glycine_max	Soybean	0.31
Rattus_norvegicus	Rat	1.1
Zea_mays	Maze	0.71
Danio_rerio	Zebrafish	0.54
Mus_musculus	Mouse	1.1
Caenorhabditis_elegans	Roundworm	0.03

Known limitations

- The oraFuse tool requires root privileges to be installed (the other tools ora LD-Preload and orad can still be installed if no root privileges)

- Multiple users of the same file at the same time are not possible with the oraFuse tool

- The ora LD-Preload library only works with dynamically compiled downstream bioinformatics tools
- Some security tools may interfere with the FUSE driver which will prevent oraFuse from working (e.g. Crowdstrike)
- The ora LD-Preload tool does not work with DRAGMAP. The oraFuse or orad tools can be used with DRAGMAP for dowsntream analysis.

Known issues

- When detecting an error, the ora LD-Preload tool correctly stops and outputs correct error message but does not always output non zero error code
- When user wants to access remote files with oraFuse, but cloud credentials are not set correctly, the software will output a message that is not informative