ZT Scan DIA Best Practices

Introduction

Some experimental conditions and samples that are used with ZT Scan DIA methods might cause the data files to be large.

Note:

- We recommend that different computers be used for acquisition and data processing.
- We do not recommend that data be processed or reviewed during acquisition.

Acquisition

The SCIEX Workstation+ has 2 TB of disk space. This disk space might be filled in 48 hours when ZT Scan is used.

Recommendations for Local Acquisition

- Acquire a single sample with ZT Scan to see the file size, and then calculate the quantity of disk space that will be required for the full batch.
- Find the disk space that is available on the computer. If the available space is not sufficient, then move data to a data archive location to make space available.

  Note: Microsoft Windows and the installed applications use approximately 0.5 TB of disk space. To calculate the quantity that is available for acquisition data, subtract this quantity from the total disk space available.

- Make backup copies of the data regularly, and then delete the data from the acquisition computer.

  Note: Move the data to an external hard drive, a network-attached storage (NAS) device with more than 20 TB, or a local server.

Recommendations for Network Acquisition

- Make sure that the system configuration meets these minimum requirements:
  - Port speed: 1 GB/s
  - Network speed and latency: GB switch network with a sustained latency of less than 5 ms
  - Destination storage system: Write speeds of 140 MB/s and read speeds of 50 MB/s

- Destination storage size: 60 TB

Note: If the cloud is used for long-term storage, then we recommend the use of local (on-premises) storage before the files are uploaded.

Note: The bursting transfer from the acquisition computer to the network (destination) storage location might increase to a maximum of approximately 135 MB/s.

- Make sure that the network location is configured correctly. Refer to the document: *SCIEX OS Software Laboratory Director Guide*.
  - For information about the network security requirements for network acquisition, refer to the document: *SCIEX OS Software Laboratory Director Guide*. This document is in the `Install\ProductSpecificDocumentation` folder in the installation package for the SCIEX OS software.
  - SCIEX Professional Services can supply consulting support for installation, configuration, and testing of network acquisition.
- During initial system configuration, submit three test samples to the queue to make sure that acquisition and transfer of one sample completes before acquisition of the next sample starts.

Processing

Recommendations for Proteomics Processing

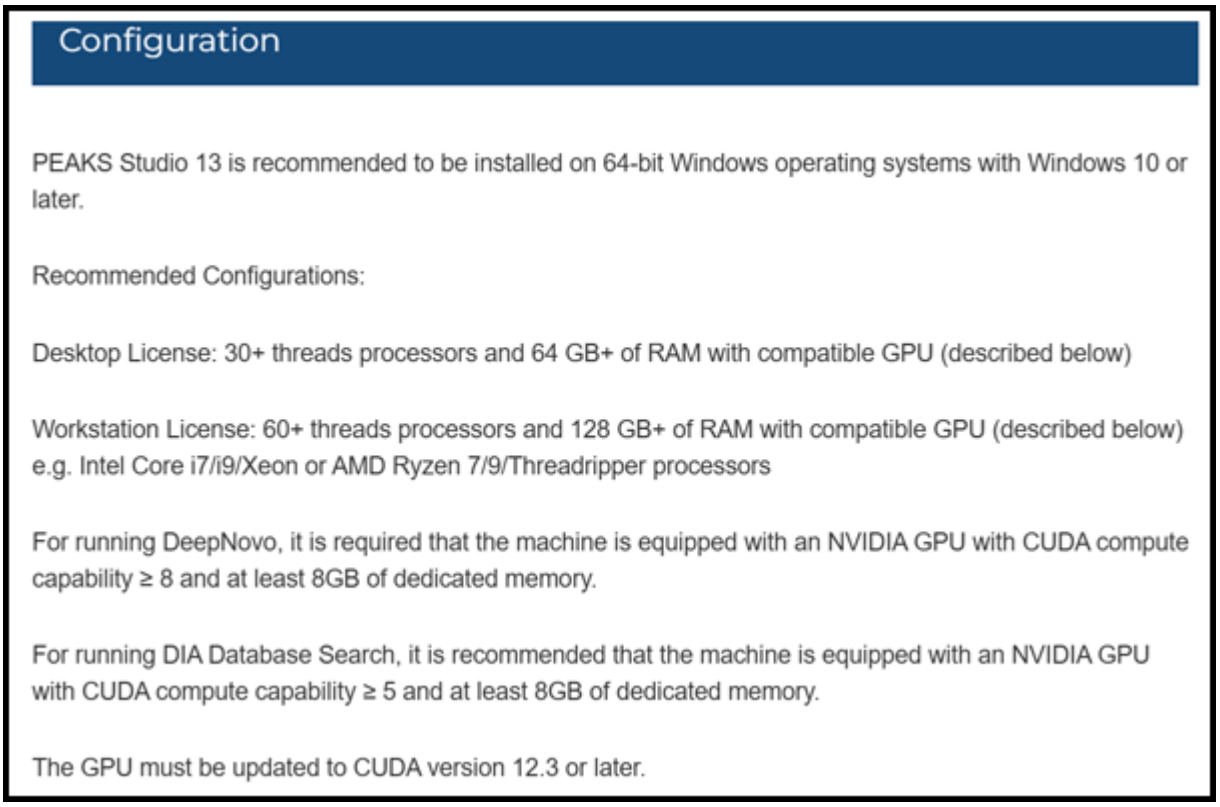
To process proteomics data that was acquired with ZT Scan DIA, use the PEAKS Studio software from Bioinformatics Solutions Inc (BSI) or the DIA-NN software.

PEAKS Studio Software

Supply a dedicated processing computer. For the recommended computer configuration, go to BSI. An example configuration for the PEAKS Studio software 12.5 is shown in the figure that follows. For more information, contact support@bioinfor.com.

Note: At this time, SCIEX does not sell a computer configuration that meets the requirements of the PEAKS Studio software.

Figure 1 PEAKS Studio Configuration



DIA-NN Software

Supply a dedicated processing computer. For computer recommendations, go to https://github.com/vdemichev/DiaNN/discussions/1292. The computer for the DIA-NN software must meet these minimum requirements:

- CPU: AMD 7/9/Threadripper (for example, Dell T7960)
- RAM: 128 GB +

There are no specifications for GPU capability, but we recommend that the computer meet the GPU requirements for the BSI Workstation.

Recommendations for Metabolomics Processing

To process metabolomics data that was acquired with ZT Scan DIA, use the Analytics workspace in the SCIEX OS software or the MS-DIAL software

SCIEX OS Software

- Supply a dedicated processing computer with a minimum of 64 GB RAM (128 GB recommended).
- Make sure that sufficient disk space is available on the C: drive. If required, then delete files that are not used.
- If out of memory exceptions occur, then increase the **Maximum size (MB)** for the virtual memory to the maximum available.

Note: Windows Administrator rights are required to do this task.

Tip! To increase the size of virtual memory, do this:

1. Push **Windows Key+R**.

   The Run dialog opens.
2. Type `sysdm.cpl`, and then push **Enter**.
3. Go to the Advanced tab.
4. In the Performance section, click **Settings**.
5. Go to the Advanced tab.
6. In the Virtual memory section, click **Change**.
7. Make sure that the **Automatically manage paging file size for all drives** check box is not selected.
8. Select the drive where the virtual memory is kept. This is usually the C: drive.
9. Select **Custom size**, and then set the **Maximum size (MB)**.
10. Click **OK** until all of the dialogs are closed.
11. If required, then start the computer again.

MS-DIAL Software

For the requirements for the MS-DIAL software, go to MS-DIAL.

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