

## Prerequisites:

- **64-bit Operating System**
  - A 64-bit OS is required to use the VUV Plugin.
- **GC Image Release 2.6** (or above):
  - Download the latest 2.6 release at: <http://www.gcimage.com/gcxgc/downloads.html>.
- **LabVIEW Run-Time Engine 2014 64-bit:**
  - This can be installed through VUV Analytics' **GC Image Plugin** installer, or from the installer found at <http://www.ni.com/download/labview-run-time-engine-2014-sp1/5197/en/>.
- **VGA 100 Viewer** (only required for VUVTool):
  - VUV Analytics' **VGA 100 Viewer** program and all of its prerequisites:
  - LabVIEW Run-Time Engine 2014 32-bit: <http://www.ni.com/download/labview-run-time-engine-2014-sp1/5198/en/>
  - NI-DAQmx Runtime Engine 14 (or later): <http://www.ni.com/download/ni-daqmx-run-time-engine-15.5/6103/en/>
- **VUV Plugin USB Dongle**

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## Add the VUV Plugin to GC Image

1. Unzip **VUV Plugin.zip** . The result should be a folder named **vuv.plugin** .
2. Open **GC Image**.
3. From the menu bar, select **Tools** → **Manage Plugins....**
4. Click the **Import** toolbar button.
5. Browse to and select the **vuv.plugin** folder from step 1.
6. Select **Import Plugin**, then close the **Manage Plugins** dialog.

## Configure the VUV Reader

The wavelength step size can be configured for Full MS data streams.

1. In GC Image, go to **Tools** → **Manage Plugins....**
2. Select the *VUV Reader* plugin from the list.
3. Click the **Configure** toolbar button.
4. Enter the desired *Wavelength Step Size* in nanometers.
  - The value must be a positive decimal number.
  - A value of 0 will default to a step size of 0.2 nm.
  - Using a larger value will decrease memory usage and import time, especially for large files

## Importing VUV Files

1. From the menu bar, select **File** → **Import Image**.
2. Browse to and select the desired VUV **.db** file and click **Open**.

- The file type combo box can be changed to **VUV File (\*.db)** to show only VUV files.
3. If filters are available, select the desired data stream to import.
    - Select **Full MS** to import the complete Multi-spectra data.
    - Select one of the filters to import the filtered chromatogram data.
  4. Configure the import settings using the **Import** dialog.
    - The **Sampling Rate**, **Actual Delay Time**, and **Run Time** will be filled in automatically based on the selected file.
    - The **Modulation Period** should be entered manually.
    - If needed, on the **Advanced** tab set the **Interpolation** to **Linear**.
  5. Press **OK** on the **Import** dialog to import the image.

## Filtering Spectrum Data

During import, the imported spectra data can be filtered using three separate filters in the import dialog:

- **Range Limit:** Filter the spectra using a combination of comma-separated wavelength ranges and values. For example, "145-165,196.5-209.99" will import only the data within the range 145nm to 165nm or 196.5nm to 209.99nm.
- **Threshold Limit:** Filter the spectra using a minimum required intensity value. For example, a threshold limit of "68" will import only the data with intensity values greater than or equal to 68.
- **Ordinal Limit:** Filter the spectra by limiting the number of intensities. This will import only the largest intensity values for each spectrum. For example, an ordinal limit of "250" will import only the largest 250 intensity values for each spectrum.

## Estimating imported file size and required memory

Importing large VUV data files will require an extensive use of RAM and will result in a large file size when saving. You can estimate the required RAM and the resulting file size for importing **Full MS** without using any filters. Note, using mass spectra filters or selecting a filtered data stream can greatly reduce the RAM and file size.

Estimate RAM and file size (where **step\_size** is the *Wavelength Step Size* configuration value) by multiplying the *.db* file size by **0.1/step\_size**.

For importing **Full MS** with large files, a larger *Wavelength Step Size* may be required. A value of **0.5 nm** is recommended.

## Using the VUV Tool

Open the VUV Tool window

1. Import a VUV file using **File** → **Import Image** or open saved VUV data using **File** → **Open Image**.
2. From the menu bar, select **Tools** → **VUV Tool** to open the VUV Tool window.

Using *Location* to view a spectrum

1. Enter valid **Col I** and **Col II** retention time values by using the editable text fields or by selecting a point on the TIC image view.
2. Press the **View Spectrum** button.

Using *Open MS* to view a spectrum (Note: only available in multi-spectral, or MS, images)

1. Open an **MS View** of the desired spectrum using the **MS** cursor mode.
2. Click the **Refresh** button in the **VUV Tool** window and select the **Open MS** radio button.
3. Now use the drop-down box to select a **MS View** title, and click the **View Spectrum** button.

The **Browse** button in the **VUV Tool** window can be used to choose a new file to complete the **VUV View Spectrum** request. Any of the data inside the **VUV Tool** can be changed at any time without affecting the currently open VUV Spectrum. Once the **View Spectrum** button is pressed, the open VUV Spectrum will update to reflect the new data.

Note: A dialog may appear the first time viewing a spectrum asking the user to browse for the **VGA 100 Viewer** program.