

# VUV Plugin for GC Image

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## Prerequisites:

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- **64-bit Operating System**
    - A 64-bit OS is required to use the VUV Plugin.
  - **GC Image Release 2.6 or later**
    - Download the latest release at: <https://www.gcimage.com/gcxgc/downloads.html>.
  - **LabVIEW Runtime Engine 2017 64-bit**
    - This can be installed from the installer found at <https://www.ni.com/en-us/support/downloads/software-products/download.labview.html#310821>.
  - **Activated VUV Software License**
    - Contact VUV Analytics to obtain a software license and VUV Analytics software activation to run the plugin.
  - **VGA Viewer** (only required for *Tools > VUV Tool*)
    - The VUV Analytics' **VGA Viewer** program and all its prerequisites.
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## Installation

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### Install LabVIEW Runtime

1. Obtain the LabVIEW Runtime installer by going to <https://www.ni.com/en-us/support/downloads/software-products/download.labview.html#310821>.
2. Select **Windows**, **2017 SP1**, **64-bit**, and **Runtime** from the drop-down menus. Click **Download** to download the installer.



# LabVIEW

LabVIEW is systems engineering software for applications that require test, measurement, and control with rapid access to hardware and data insights.

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## DOWNLOADS

Supported OS <sup>?</sup>	<div>Windows</div>	<a href="#">View Readme</a>
Version <sup>?</sup>	<div>2017 SP1</div>	
Application Bitness <sup>?</sup>	<div>64-bit</div>	
<p><b>Note:</b> Unless you require the additional memory provided by the 64-bit option, NI recommends that you download the 32-bit version. <a href="#">Learn More</a></p>		
Included Editions <sup>?</sup>	<div><input type="radio"/> Base, Full, Professional</div> <div><input checked="" type="radio"/> Runtime</div>	
Language <sup>?</sup>	English	
Driver Software Included <sup>?</sup>	No	

## LabVIEW 2017 SP1 Runtime

Release Date  
5/17/19

[> Supported OS](#)

[> Language](#)

[> Checksum](#)

**DOWNLOAD**

File Size  
350.48 MB

- Unarchive the downloaded zip file and double-click the **setup.exe** file inside to start the installation. Run through the installation process. The installer may require you to restart your computer to finish the installation.

## Add the VUV Plugin to GC Image

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

## Prepare the VUV Software License for the VUV Plugin

- If you do not have a VUV software license, contact VUV Support [support@vuvanalytics.com](mailto:support@vuvanalytics.com) to request one.
- Once you have a valid VUV software license, follow the steps in the **Import a VUV License** section to import the license for use with the VUV Plugin in GC Image.

# Using the VUV Plugin

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There are three parts of the VUV Plugin for GC Image: the VUV Reader, the VUV Tool, and the VUV Help. The following sections will go over each of these.

## VUV Reader

### 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.

## VUV Tool

The VUV Tool is used to link the data viewed in the GC Image software to the VUV VGA Viewer software. To use this tool, you will need to install the VUV VGA Viewer software from VUV Analytics.

## 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)

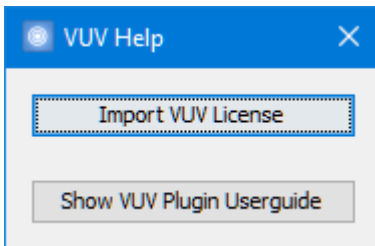
1. Open an **MS View** of the desired spectrum using the **MS** cursor mode.
2. Click the **Refresh** button in the **VUV Tool** window and select the **Open MS** radio button.
3. Now use the drop-down box to select a **MS View** dialog title then click the **View Spectrum** button.

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.

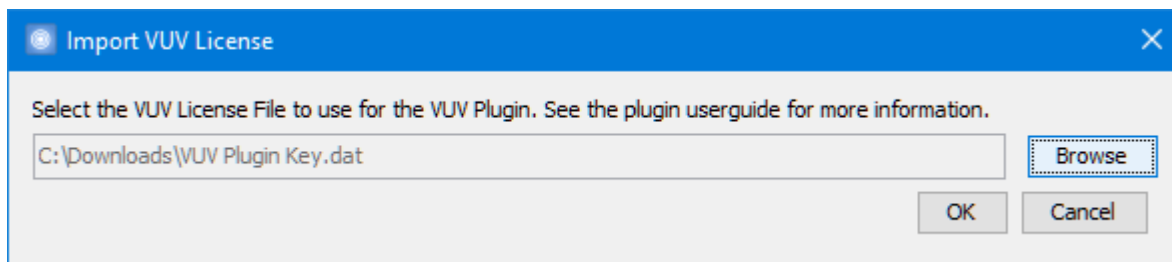
## VUV Help

VUV Help can be used to access the user guide for the VUV Plugin, as well as import the VUV License required to use the VUV Plugin.



## Import a VUV License

1. Open the VUV Help dialog from **Tools > VUV Help**.
2. Click the **Import VUV License** button to open the Import VUV License dialog.



3. Now, click the **Browse** button to open a file chooser for selecting the VUV License **.dat** key file. If you do not have a VUV Software License, contact VUV Support [support@vuvanalytics.com](mailto:support@vuvanalytics.com) to request one.
4. Press **OK** to import the VUV License, which creates a copy of the license file for use with the VUV Plugin.

## Open the VUV Plugin User Guide

1. Open the VUV Help dialog from **Tools > VUV Help**.
2. Click the **Show VUV Plugin Userguide** button to open the VUV Plugin user guide. This will open the PDF document in the default PDF viewer for your computer.

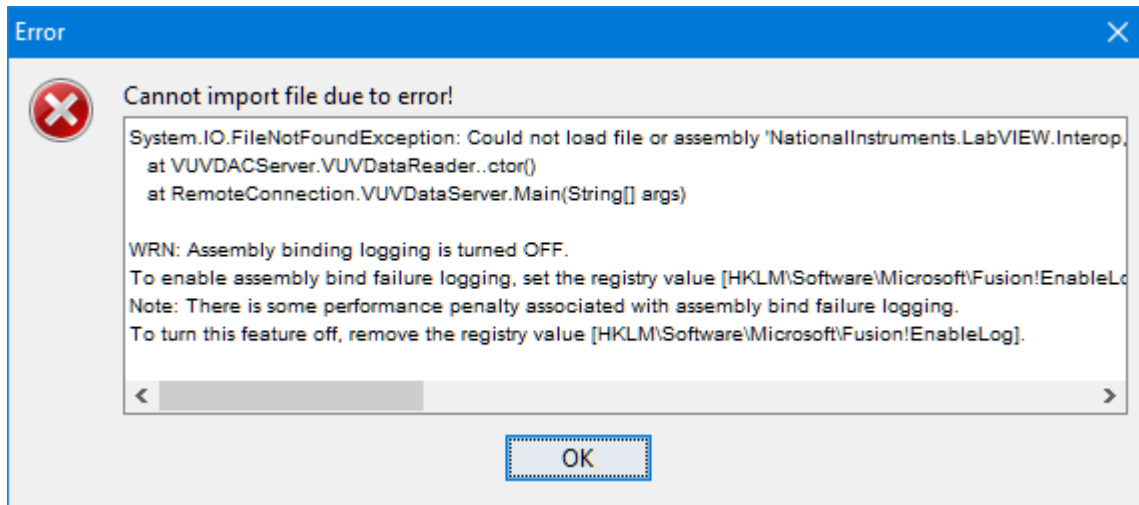
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## Troubleshooting

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## LabVIEW Runtime not installed

If LabVIEW is not installed, or the correct version is not installed, the following error message will be shown. Follow the steps in the **Install LabVIEW Runtime** section to download and install the correct version of the LabVIEW runtime.



## VUV Software License Missing

If there is no VUV Software license prepared for the plugin, the following error message will be shown. If you have a valid key file, make sure it is located inside the data directory of the VUV plugin folder (e.g. `C:\GC Image\GC Image 2.9r3 GCxGC-HRMS (64-bit)\bin\plugin\vuv.plugin\data`). Follow the steps in the **Prepare the VUV Software License for the VUV Plugin** section to get a new license key file and correctly install it.

