Tabulate User Guide

Revision 1.0

Revision Date: 2019/10/02

# Introduction

Tabulate is software intended to automate certain types of analyses routinely performed at the University of Missouri Research Reactor (MURR). Tabulate has evolved from a terminal-based program that used the VMS Genie command set into a native Windows-based program that uses the Genie2000 command set through the Windows Component Object Model (COM) server. Due to significant differences between the VMS and COM-server command sets, users who have become accustomed to the VMS version *should not* expect the same experience from the Windows version of Tabulate. Unless explicitly stated to the contrary, any further discussion of Tabulate shall refer to the Windows Tabulate.

# Using Tabulate

In its present form, Tabulate should be considered an analysis engine. It will take various user inputs, including user data, and generate a tabular output in a form that is consistent with the VMS Tabulate output. Users must supply the following pieces of information:

* a nuclide library;
* data sets that will be analyzed;
* an analysis sequence file that defines the types of analyses to perform;
* an output option; and
* an output file name.

Once the above information has been entered into the Tabulate interface, an analysis can be initiated by pressing the “Analyze” button. The program will indicate in the lower left hand corner which file it is currently analyzing if the analysis is proceeding successfully.[[1]](#footnote-1)

In the following subsections, the reasoning behind requiring the additional support files will be developed so that the user has a better understanding of how Tabulate works under the hood.

## Nuclide Library

The nuclide library is a file that contains a listing of individual nuclides that will be used for library-assisted peak searches. Associated with each nuclide are data such as the isotope half-life, alpha/beta/gamma emission energy and probability, natural abundance, and more. The library will have a filename extension of “.NLB” and may comprise standard libraries supplied with Genie2000 or custom libraries built using selections from the standard libraries.

The nuclide library is considered a required input because in almost all cases specific nuclides are sought for the analysis at hand.

In the case where a custom nuclide library is required, one may be created using the Genie2000 helper program “nuclib.exe” Access to “nuclib” can occur in one of two ways:

1. Navigate the Windows start menu to the Genie2000 entry; expand Genie2000 and click on the “Nuclide Library Editor” icon. The “nuclib” program will launch.
2. Launch a Windows run-prompt by holding down the Windows (or CMD) key and simultaneously pressing the “R” key. Type “nuclib” in the prompt input box and press “ENTER”. The “nuclib” program will launch.

For help with “nuclib” please refer to Genie2000 documentation.

## Analysis Sequence

The analysis sequence defines the steps that will be used to analyze a set of user data. To be certain, Tabulate has no inherent ability to perform analyses. The analysis sequence will have a filename extension of “.ASF” and will include all steps used in the analysis, from performing a peak search to requesting nuclide identification. The various algorithms employed in the analysis are predefined within the analysis sequence, as are the options that control those algorithms. The analysis sequence is what lends Tabulate its great flexibility.

The analysis sequence is a required input, since Tabulate does not know what steps the user needs to perform a specific analysis.

An analysis sequence may be created by the user using the Genie2000 helper program “ase.exe”, the Analysis Sequence Editor. Access to “ase” can be accomplished through the Windows command prompt. Launch the run-prompt by holding down the Windows (or CMD) key and simultaneously pressing the “R” key. Once the prompt opens, type “ase” into the input box and press “ENTER.” The analysis sequence editor program will launch. If this fails, contact someone from Computer Support Services and request that the Genie2000 installation be verified.

For help with “ase” please refer to Genie2000 documentation.

## Data Files

The data files contain the raw spectral data that are to be analyzed. Data files will have a filename extension of “.CNF” and will include not only the data, but also calibration information and instrument settings.

Upon pressing the “Insert Files” button on the Tabulate interface, a standard Windows “File Open” dialog will

1. In some instances, the Tabulate program may appear to lock up once an analysis has begun. This is normal. Unfortunately this problem will persist unless the program is re-written with multi-threading support. [↑](#footnote-ref-1)