GNDStk Documentation

Release 1.0

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CHAPTER 1

INTRODUCTION & PRIMER

1.1 Introduction

1.1.1 Description

Los Alamos National Laboratory's GNDS Toolkit, or GNDStk, has been designed first and foremost to provide a powerful, intuitive, and flexible C++ language API for interacting with Generalized Nuclear Database Structure data.

We begin by providing basic and cleanly-designed classes in which GNDS data are stored. Next, we support a robust and flexible I/O system for reading from, and writing to, both the XML and JSON file formats. Support for more file formats is anticipated in the future, as GNDS becomes more widely used.

While GNDStk is *one* library, from which you can use any functionality you wish to at any time, we consider it conceptually to consist of roughly three major parts: basic constructs and I/O; a "core" interface, and a higher-level interface that will also be equipped with Python bindings for users who wish to take advantage of them. Let's say a bit more about all of these elements.

BASICS

Here we have the basic requisite data structures and functions, as well as flexible and easy-to-use GNDS file I/O capabilities. Along with these also come, of course, the numerous and sundry utilities needed for their implementation. Some of the utilities, e.g. those for generating diagnostic messages such as warnings and errors, may be of value in their own right to our users. We'll therefore provide some documentation of how selected utility constructs work, without distracting us from our focus on GNDStk's major, most interesting capabilities.

CORE INTERFACE

The heart of GNDStk lies in its Core Interface. Consider this interface to *include* the basics as described above, while adding to them a powerful, flexible, and highly user-programmable suite of *data query* and *creation* capabilities that can be used to great effect by themselves

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