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EXTENSIBLE SCALE INTELLIGENT TEXT EDITOR – ExSITE

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INTRODUCTION

ExSITE is a new input file editor and graphical user interface (GUI) for SCALE [1]. It is written in Java and is built on the Netbeans Rich Client Platform, which provides basic functionalities such as a customizable file editor with syntax highlighting and customizable window layouts. This basic framework has been adapted to meet the needs of SCALE users by adding capabilities to create and edit input files, execute SCALE, view text and HTML output, and plot results with Javapeño. ExSITE will be released with SCALE 6.

ExSITE

The user interface for SCALE 5.1, GeeWiz, works exclusively from dialog-driven input generation on Windows computers. To create or modify an input file, the user must know which GeeWiz dialog controls the appropriate information. Some convenient functionality such as global find and replace is not available.

Also, GeeWiz removes all user comments and automatically reformats the input file. In contrast to the concept of dialog-driven input in GeeWiz, ExSITE focuses on the SCALE input file and allows users to directly edit the input file or create a new one. By allowing direct access to the input file, ExSITE provides advanced users greater control over the SCALE input.

ExSITE provides assistance to new or occasional users of SCALE with advanced features. The auto-complete feature of ExSITE allows for a quick lookup of keywords, library names, and SCALE standard composition symbols. The possible legal input values are displayed as the user types in the input file.

ExSITE also provides assistance with syntax coloring and checking as shown in Figure 1. ExSITE uniquely identifies general SCALE keywords, input file specific keywords, text strings, comments, and numbers. Users can customize the color and format of the highlighting as desired. Additionally, ExSITE will scan the input file and underline input errors prior to executing SCALE.
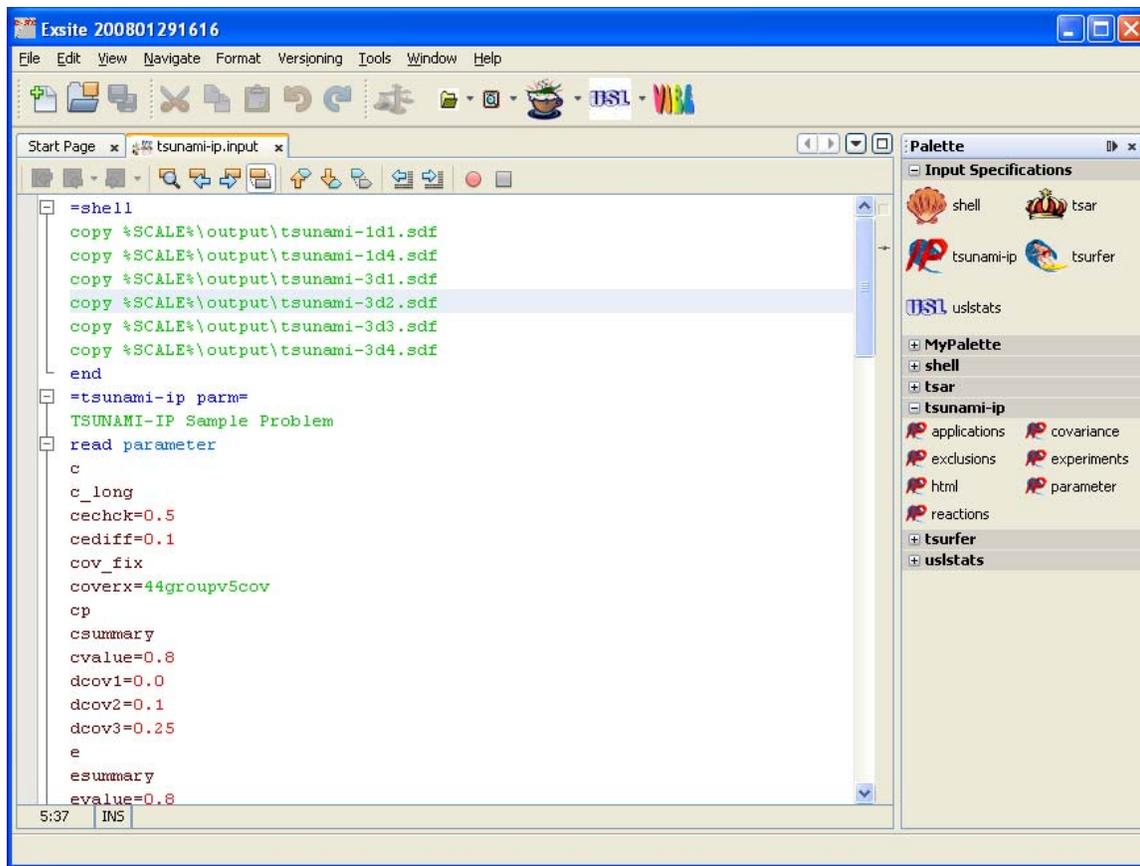
Fig. 1. ExSITE displaying an example input file.

EXSITE LANGUAGES

The input formats supported by ExSITE are defined in XML files that will be distributed with ExSITE but are external to the code itself. The use of external definitions allows the SCALE code managers to add support for new input formats or modify existing specifications. As SCALE evolves to include new features, ExSITE can be updated through the distribution of a new XML file supporting the updated SCALE modules.

COMPONENT PALETTE

To further assist the user, ExSITE provides a component palette where the code input is displayed in dialog boxes, somewhat analogous to GeeWiz input.

The dialog provided by the palette displays the fields and values available for the respective section of the input file. The dialog will also display a short description of each input parameter. Additional assistance can be provided through a help button, which displays a more detailed description of the current input parameter. An example palette dialog is shown in Figure 2.

SCALE EXECUTION

Users can execute SCALE locally or remotely from ExSITE. Multiple jobs can be executed simultaneously, and multiple versions of SCALE can be configured within a single ExSITE session. The user can define numerous SCALE configurations that define a host machine for running SCALE, the SCALE version to execute, and any runtime arguments for SCALE. Any input file can be used with any configuration file.

ExSITE allows the user to simultaneously run as many instances of SCALE as desired.

Each execution of SCALE is displayed in a status window. The window provides the user with visual updates when SCALE finishes or encounters an error.

ADDITIONAL FEATURES

ExSITE provides additional features to assist the user. ExSITE provides a button to launch the Javapeño data visualization package. If a "Run SCALE" configuration has been used with an input file, then Javapeño will open the corresponding data files for plotting.
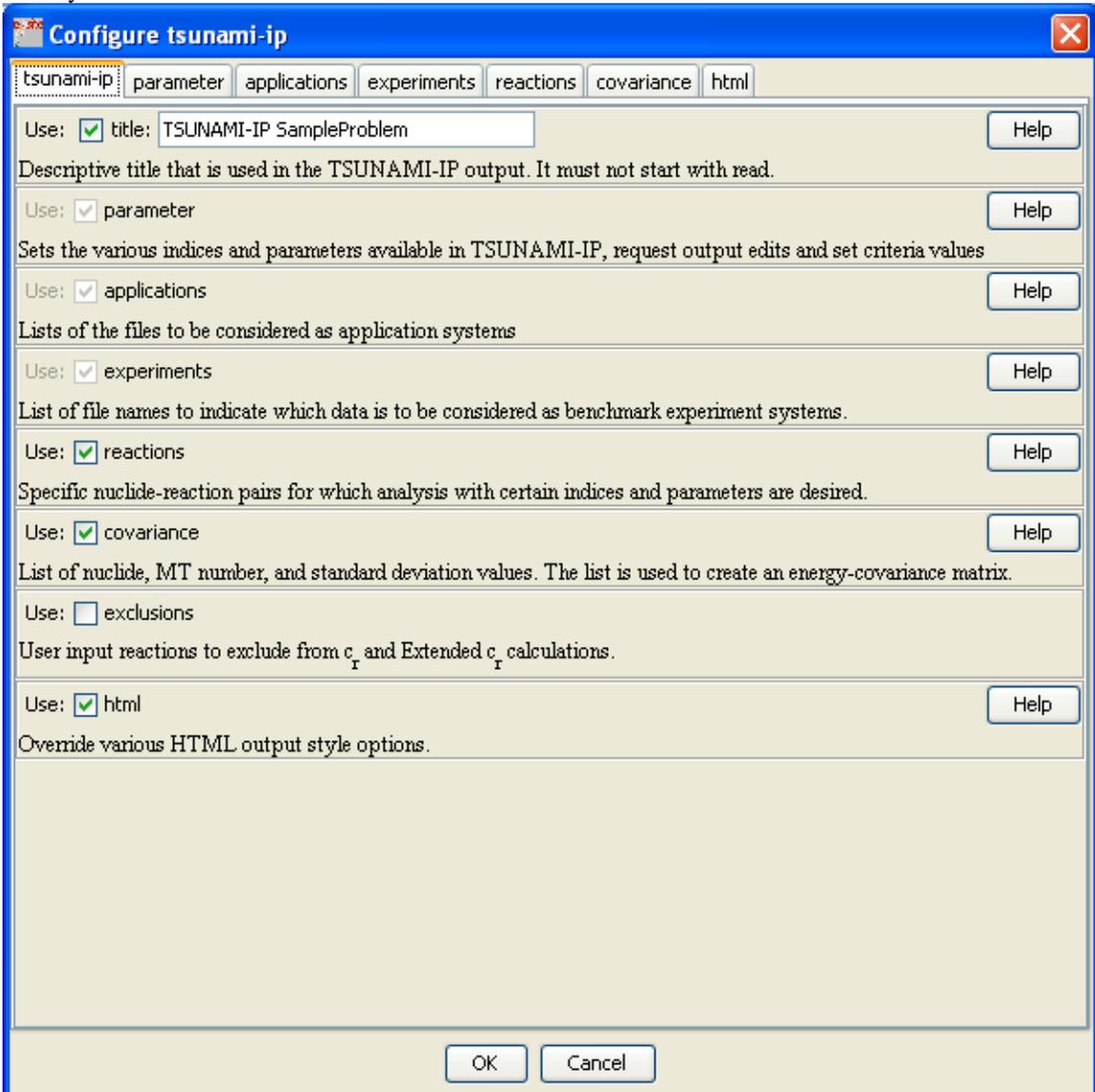

Fig. 2. Example palette dialog.

ExSITE also provides the user with the ability to execute arbitrary commands on a remote machine via SSH. This allows the user to check the status of remote machines before running SCALE or to monitor the progress of a job.

ExSITE allows the user to view SCALE output. After creating a "Run SCALE" configuration, the user can click on the View Output" button and the SCALE text output file will open inside ExSITE. A "View HTML Output" button is also provided to open the output in the user's default browser.

CONCLUSIONS

ExSITE is a new input file editor for SCALE. It allows direct access to the SCALE input file for rapid editing by expert users, yet provides guidance to the user through its dialog boxes and auto-complete features.

ExSITE allows the user to execute SCALE locally or remotely, and multiple jobs can run be simultaneously, even using multiple versions of SCALE. Any input file can be used with any run configuration. ExSITE provides the user with multiple options to view the output of the jobs. These features will be presented in a live demonstration.

ACKNOWLEDGMENTS

REFERENCES

1. *SCALE: A Modular Code System for Performing Standardized Computer Analyses for Licensing Evaluation,* ORNL/TM-2005/39, Version 5.1, Vols. I-III, Oak Ridge National Laboratory, Oak Ridge, Tennessee, November 2006. Available from Radiation Safety Information Computational Center at Oak Ridge National Laboratory as CCC-732.