**CACIE Tool #14.1** – ***eSTOMP/plotTo.pl***

**Version** **1.0**

**QA**: **TEST** or **NA** or **QA**

1. **Description and Purpose**

One or two paragraphs describing the tool’s function and purpose.

This perl program transforms STOMP plot file(s) into formatted input files for Gnuplot, Matlab, Surfer, and Tecplot. Multiple plot files are allowable for Gnuplot and Tecplot; Whereas, Matlab and Surfer only accept a single plot file.

1. **Functional Requirements**

The functional requirements of the tool will be documented in this section. Each requirement will have an ID, such as: FR-N, where N starts at 1 and increments for each Functional Requirement. Each of the Functional Requirement IDs will have a corresponding test ID listed in the RTM.

FR-1: Determine command line arguments and prompt user if necessary

FR-2: Loop over plot files

FR-3: Loop over lines in plot file

FR-3-i: Set the number of x, y, and z direction nodes

FR-3-ii: Set the x, y, z origin

FR-3-iii: Time stamp

FR-3-iv: A character string was found, set flags (read in x, y, or z direction / read node volume / read node-centered flux variables / read intrinsic permeability variables / read x, y, or z direction flux variables / read field variables)

FR-3-v: Read x, y, or z direction node positions

FR-3-vi: Read node volumes

FR-3-vii: Read x, y, or z direction variables

FR-3-viii: Read field variable

FR-4: Write output file. Must be Surfer, Matlab, Gnuplot, or Tecplot

FR-5: Close PLOT and OUT files (end of FR-2)

FR-6: If plot package is Gnuplot, write gnuplot scripts for each reference node variable

FR-7: If wrote Gnuplot scripts, close GNU

1. **Software Requirements Specifications**

The software requirements specification of the tool will be documented in this section.

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1. **Software Design Description**

The software design description of the tool will be documented in this section. The results of a Code Walkthrough with an independent third party will be summarized in this section.

Arguments:

Plotting package option (Gnuplot, Matlab, Surfer, or Tecplot)

Output file name

STOMP plot file name

Options:

-help: The help window

-x: Prompt for gnuplot grid resolution factor

-t Prompt for Gnuplot or Tecplot title

-ts Use time stamp for Gnuplot or Tecplot zone names

1. **Requirements Traceability Matrix**

A requirements traceability matrix for the tool will be documented in this section. At a minimum, the matrix will include IDs of: Functional Requirements and the corresponding Acceptance Test, along with an indication of the test result (Pass/Fail).

Table 1 presents the requirements traceability matrix for the plotto tool.

| **Table 1. plotTo Tool Requirements Traceability Matrix** | | |
| --- | --- | --- |
| **Functional Requirement** | **Acceptance Test** | **Test Result (Pass/Fail)** |
| FR-1 |  |  |
| FR-2 |  |  |
| FR-3 |  |  |
| FR-3-i |  |  |
| FR-3-ii |  |  |
| FR-3-iii |  |  |
| FR-3-iv |  |  |
| FR-3-v |  |  |
| FR-3-vi |  |  |
| FR-3-vii |  |  |
| FR-3-viii |  |  |
| FR-4 |  |  |
| FR-5 |  |  |
| FR-6 |  |  |
| FR-7 |  |  |

1. **Test Plan and Cases**

The test plan for the tool will be documented in this section. Each test will have a unique ID and criteria for determining if the test result is pass or fail. The TEST ID will be referenced in the RTM and ATR. An installation test, labeled **IT-1**, will be used by the Tool Runner to confirm the version of the tool being used is running correctly before launching it with the user’s parameters.

The Unit Testing done on the tool will be documented here, also.

The test plan for the plotTo tool is as follows.

| **Table 2. plotTo Tool Test Plan** | | |
| --- | --- | --- |
| **TEST ID** | **Test Case** | **Test Result (Pass/Fail)** |
| IT-1 | Installation Test |  |
| ATC-X |  |  |
| ATC-X |  |  |

1. **Acceptance Test Report**

The test report will state whether the tool is qualified for use, summarize test case results, and report all resolved incidents and resolution of unresolved incidents.

1. **User Guide**

A guide for using the tool will be documented in this section.