**0CACIE Tool #07.2** – ***Tools/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, Plotmtv, Surfer, and Tecplot. Multiple plot files are allowable for Gnuplot, Plotmtv and Tecplot; whereas, Matlab and Surfer only accept a single plot file. Entries not made on the command line will be prompted

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: Read arguments and set flags

FR-2: Read plot files line by line

FR-3: Set node values (number of x,y,z nodes, origins of x,y,z)

FR-4: Set flags to read: x,y,z – direction node positions, node volumes, centered flux variables, intrinsic permeability variables, x,y,z direction flux variables, field variables

FR-5: Read items from FR-4 that were flagged

FR-6: Write plotmtv output file

FR-6-i: prompt user for plot-file variables

FR-6-ii: Write three-dimensional contour files

FR-6-ii-a: Write x,y,z grid data

FR-6-ii-b: Write plot control structures

FR-6-ii-c: Write field-plot data

FR-6-iii: Write two-dimensional contour files

FR-6-iii-a: Write x,y,z grid data

FR-6-iii-b: Write plot control structures

FR-6-iii-c: Write field-plot data

FR-6-iv: Write line plot files

FR-6-iv-a: Write x,y,z grid data

FR-7: Write output file. Must be Surfer, Matlab, Gnuplot, or Tecplot

FR-8: Close PLOT and OUT files (end of FR-2)

FR-9: If plot package is Gnuplot, write gnuplot scripts for each reference node variable

FR-10: 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 name

Output file name

Plot file name(s)

Options:

Tecplot or Gnuplot title option

Tecplot or Gnuplot time stamp option

Gnuplot grid resolution option

Gnuplot grid x-resolution option

Gnuplot grid y-resolution option

Flip x and y axes option

Outputs:

Formatted input files for Gnuplot, Plotmtv, and Tecplot

OR  
Formatted input file for Matlab and Surfer

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-4 |  |  |
| FR-5 |  |  |
| FR-6 |  |  |
| FR-6-i |  |  |
| FR-6-ii |  |  |
| FR-6-ii-a |  |  |
| FR-6-ii-b |  |  |
| FR-6-ii-c |  |  |
| FR-6-iii |  |  |
| FR-6-iii-a |  |  |
| FR-6-iii-b |  |  |
| FR-6-iii-c |  |  |
| FR-6-iv |  |  |
| FR-6-iv-a |  |  |
| FR-7 |  |  |
| FR-8 |  |  |
| FR-9 |  |  |
| FR-10 |  |  |

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.