RIFT TD VERSION 2.0.0.9

Release Notes

April 2016

Previous Release Notes (Ver. 1.2.3.265)

RIFT SOFTWARE

ENHANCEMENTS

Rift TD Version 2.0.0.9 is a major release. The following enhancements are incorporated into this release:

- Significant improvement in deposition model performance, particularly for large models
- Additional beach profile options
- Additional Master Profile shape options
- CSV file import and export
- Deposition boundary enhancements
- Improved data navigation (Ctrl E shortcut)
- Improved file read and write performance
- Bug fixes

More details are provided on the following pages.

We hope that you enjoy this release.

PERFORMANCE ENHANCEMENTS

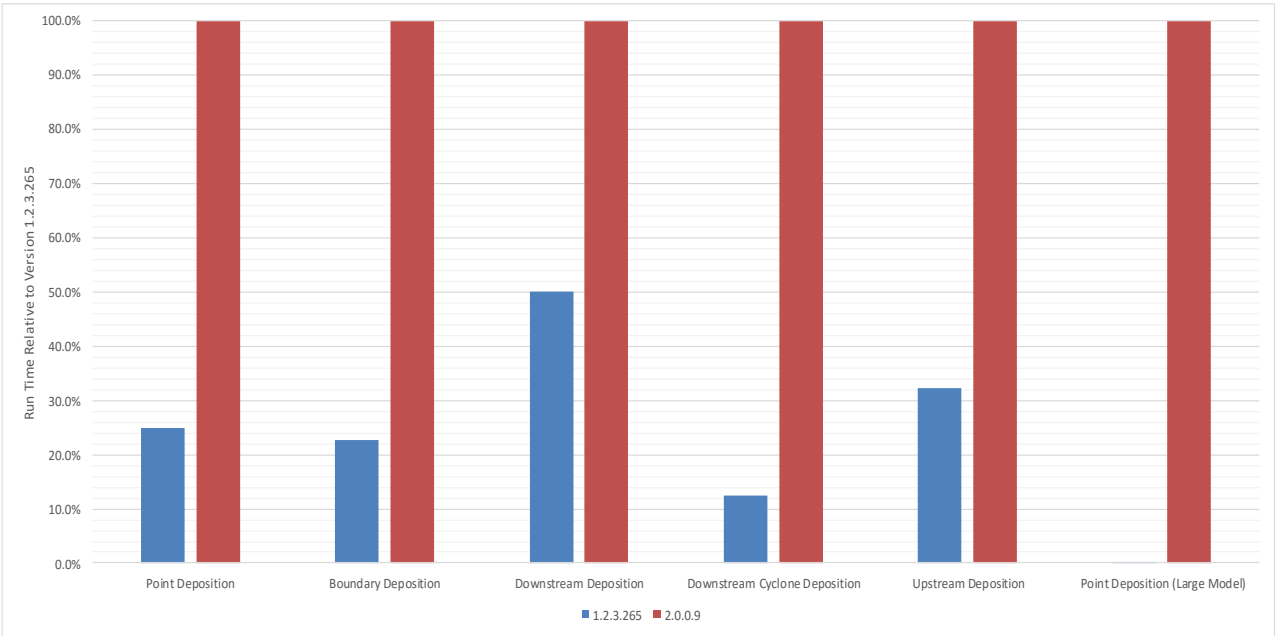
The deposition algorithms have been reworked to provide significant performance enhancements, particularly for large models. In a large point deposition model, comprising more than half a million elements, the run time reduced to 0.2% of that taken by version 1.2.3.265.

We have benchmarked Version 2.0.0.9 against Version 1.2.3.265 using six deposition models

Test	Description	Number of Nodes	Number of Elements
1	Point Deposition	3,976	7,921
2	Boundary Deposition	701	1,378
3	Downstream Deposition	4,740	9,434
4	Downstream Cyclone Deposition	1,860	3,651
5	Upstream Deposition	72,540	144,874
6	Point Deposition (Large Model)	288,357	575,189

All benchmarking was undertaken on a Pentium® Core™ i7—2760QM CPU with 8 GB of RAM. Results are presented below.

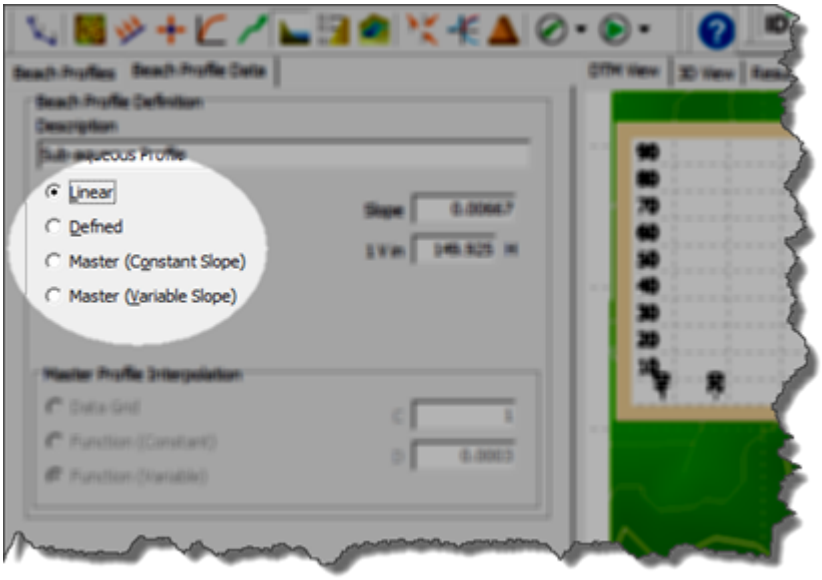
Test	Description	Number of Raise Surfaces	Run Time (seconds)		Time Reduction (seconds)	% Reduction	% of Original Time
			2.0.0.9	1.2.3.265			
1	Point Deposition	9	1	4	3	75.0%	25.0%
2	Boundary Deposition	19	24	106	82	77.4%	22.6%
3	Downstream Deposition	6	3	6	3	50.0%	50.0%
4	Downstream Cyclone Deposition	8	2	16	14	87.5%	12.5%
5	Upstream Deposition	26	255	790	535	67.7%	32.3%
6	Point Deposition (Large Model)	53	242	107,156	106,914	99.8%	0.2%



BEACH PROFILE OPTIONS

Two additional beach profile options are introduced:

- Linear beach profile
- Varying slope Master Profile



For the linear profile the beach is generated at a constant slope. Switching profile types and running a model allows quick comparison of surfaces generated using linear and non-linear profiles.

The **Variable Slope Master Profile** complements the **Constant Slope Master Profile** previously available in Rift TD. This profile type iteratively varies the beach slope based on the beach length.

Variable Beach Slope Equation

$$L = A \cdot e^{B \cdot s}$$

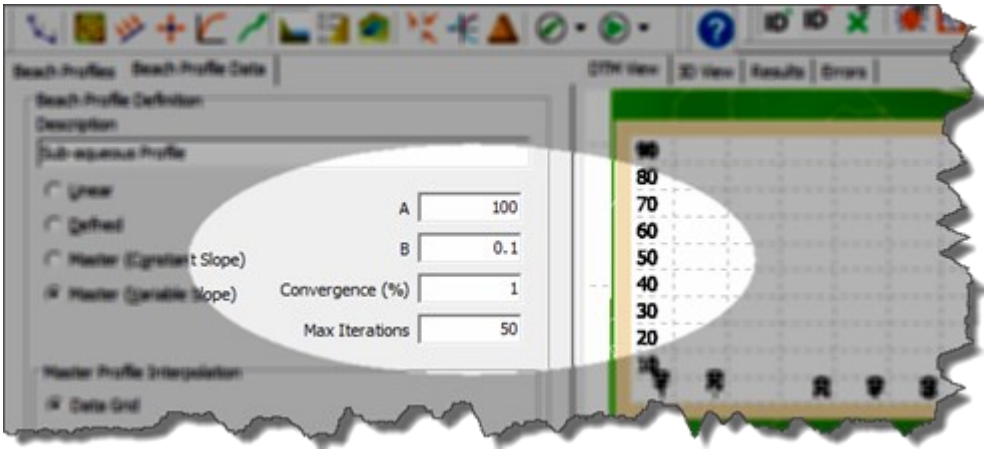
where:

L is the total beach length

s is the beach slope

A is a constant

B is a constant



Parameters to define the beach slope are entered on the Profile Data Tab-sheet. They comprise:

- A— A constant defining the relationship between beach slope and beach length
- B— A constant defining the relationship between beach sloe and beach length
- Convergence— the desired convergence error during iteration
- Max Iterations—the maximum number of iterations to perform

MASTER PROFILE SHAPE OPTIONS

In previous Rift TD versions the Master Profile shape was defined on the Data Grid.

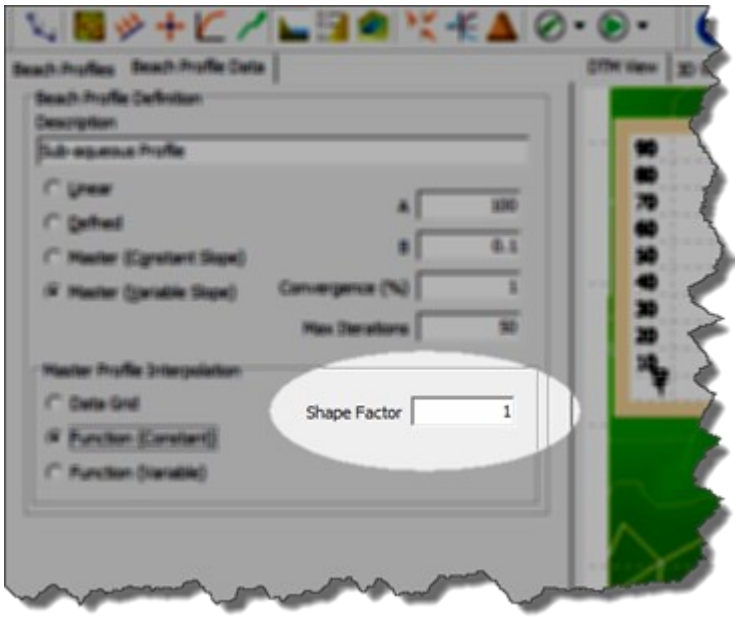
In this release two additional Master Profile Shape Options are introduced, both of which are based on the Blight and Bentel Master Beach Profile Equation (Proceedings of the Institution of Civil Engineering, Jan 1994, "*Master Profile for Hydraulic Fill Beaches*").

Master Beach Profile Equation

$$\frac{y}{H} = \left(1 - \frac{x}{L}\right)^n$$

where :

x is the distance from the beach head
y is the beach elevation at chainage x
L is the total beach length
H is the total beach fall
n is the beach shape factor



The first option is based on a constant Beach Shape factor (*n)*. Enter the n value on the Beach Profile Data Tab-sheet.

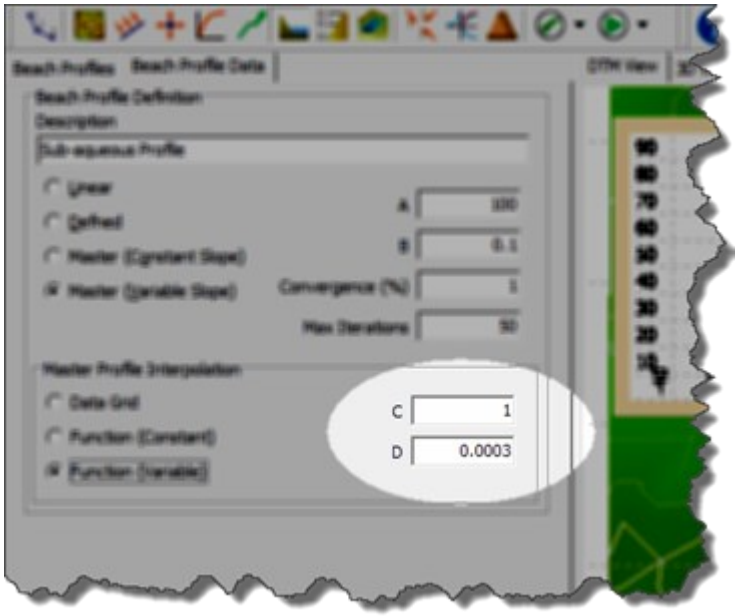
The section option allows the definition of a variable beach slope factor. It is calculated using the variable beach profile shape equation. The beach shape is a function of the beach length and two constants.

Variable Beach Profile Shape Factor Equation

$$n = C \cdot e^{D \cdot L}$$

where:

n is the shape factor
L is the total beach length
C is a constant
D is a constant



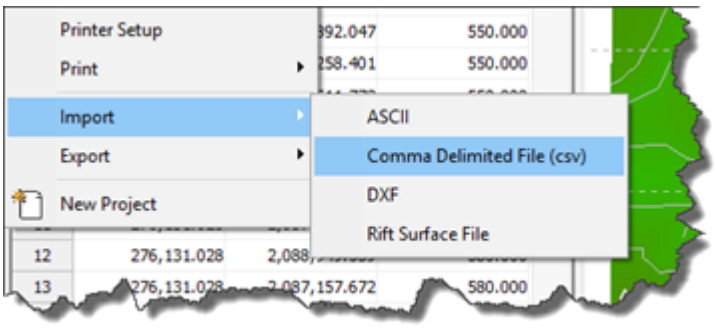
Parameters are entered on the Beach Profile Data Tab-sheet.

COMMA DELIMITED FILE SUPPORT

Version 2.0.0.9 incorporates comma delimited (csv) file import and export support.

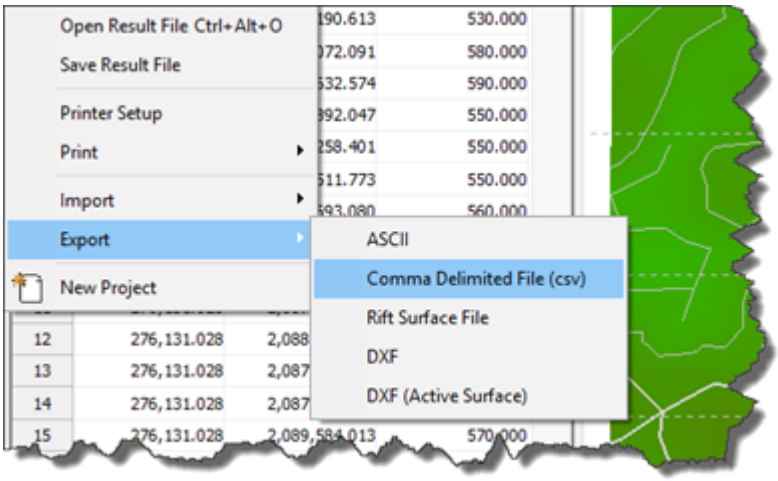
To import a comma delimited file:

- Click File → Import → Comma Delimited File (csv)
- Select a file
- Click Ok

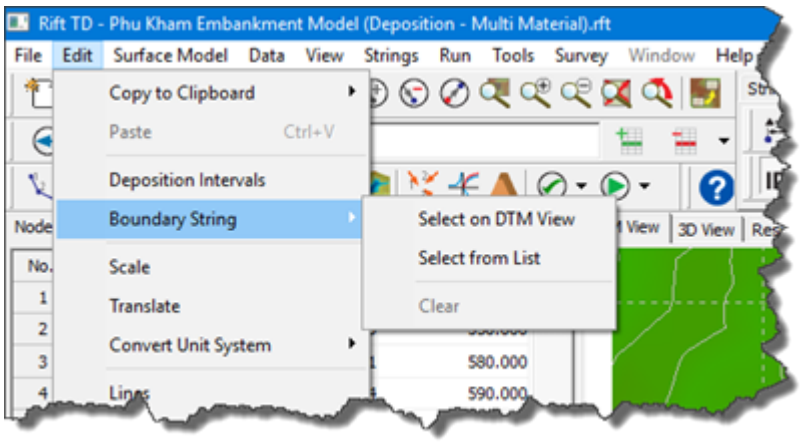


To export a comma delimited file:

- Click File → Export → Comma Delimited File (csv)
- Select a file
- Click Ok



BOUNDARY STRING



Deposition boundaries have been a feature in Rift TD for many years. In previous versions they were however required to be closed. This limitation has been removed in version 2.0.0.9.

To specify a deposition boundary:

- Define a string.
- Click Edit → Boundary String.
- Assign the string as a Boundary String by either:
  - Selecting it on the DTM View; or
  - Selecting it from a list of available strings.

IMPROVED DATA NAVIGATION

The Ctrl E shortcut has been introduced to activate data editing for most data types:

- Deposition lines: Switches between the Data Grid and Deposition Line/Boundary Options Tab.
- Materials: Switches between the Data Grid and Material Beach Definition Tabs.
- Beach Profiles: Switches between the Data Grid and Beach Profile Data Tab.
- Raise Data: Opens the Raise Data Increments Dialog.
- Basin Deposition Results: Opens the Deposition Results Options Dialog.