What's Happening...

waterRIDE™

WorleyParsons
resources & energy

Following on from the last edition, recent project work has highlighted the need for waterRIDE™ project builders to appreciate what contributes to the display time of their waterRIDE™ views.

In this fairly technical newsletter we draw upon our experience of the impact of the different types of waterRIDE™ water surfaces (TIN's, Grids, Composite files, and Hybrids) on screen refresh times.

waterRIDE™ Surfaces – How Fast is Fast?

waterRIDE™ is heavily focussed on end-user experience, especially display speed.

Many factors affect the drawing speed of any given waterRIDE™ view, including how a water surface is drawn.

waterRIDE™ supports a range of water surface *frameworks* including:

- Grids: *.wrr files (both orthogonal and rotated)
- Triangulated Irregular Networks (TIN's): *.wrb files
- Hybrid (or "Mapping on-the-fly grids): *.wrm
- Composite Files (*.wrc)

Grid based datasets typically come from finite difference hydraulic models and are very fast to display.

waterRIDE™ maximises display speed at the expense of system memory. For extremely large grid models (in excess of 250,000,000 cells), beta testing is currently underway on our "infinite grid" approach, providing rapid draw times irrespective of grid size, without consuming system resources.

TIN based datasets typically come from finite element and finite volume models, where "flexible meshes" are used. However, some grid-based (finite difference) models such as TUFLOW provide outputs on a TIN framework.

TIN based waterRIDE™ surfaces generally provide smoother looking surfaces at the expense of slower computations and display time (although the unique *surface smoothing* option available for grids somewhat negates this advantage).

For small TIN's, the difference in display time compared to an equivalent grid is negligible.

As TIN's become larger, the display time increases to substantially longer than the equivalent grid.

One TUFLOW user had a TIN (default output) that took 1 minute to display, whilst the equivalent grid took only 2 seconds!

For large TIN framework surfaces, it may be worthwhile considering converting the base framework to a grid.

Hybrid or "on-the-fly" mapping files (*.wrm) allow a TIN water surface to be dyanimcally overlayed onto a gridded DEM base.

In this case, the base grid is used to maintain rapid display times, whilst the water surface remains as a TIN.

Hybrid/Mapping "on-the-fly" files are particularly useful when a coarse TIN is overlaid onto a finer gridded DEM (as total file sizes can be kept considerably smaller).

Composite files (*.wrc) virtually combine a number of independent water surfaces at display time.

As such, the display time of composite files is dependent on the display time of each water surface making up the composite dataset.

The following table provides an indicative speed guide for the types of surfaces we have encountered.

waterRIDE™ Framework	Speed (Small Surface) <25,000,000 cells	Speed (Large Surface) <150,000,000 cells	Speed (Huge Surface) 250,000,000+ cells
Grid	✓✓✓✓✓	✓✓✓✓	✓✓
TIN	✓✓✓✓	✓✓	✗
Hybrid (mapping "on-the-fly")	✓✓✓✓	✓✓✓	✓
Composite	-	-	-
Infinite Grid*	✓✓✓	✓✓✓	✓✓✓

* Feature available in future release

2015 Floodplain Management Association National Conference - Brisbane

Once again waterRIDE™ is proud to be the Silver Sponsor of the upcoming FMA national conference in Brisbane (19th – 22nd May). We have a trade booth and look forward to catching up with users at the event.

Unfortunately, the change of date of the New Zealand Stormwater Conference (which coincides with the above) means that we are unable to attend that event this year.

waterRIDE™ v7.10 Released

Those with active Annual Maintenance Plan subscriptions will have received notifications of the release of v7.10 of waterRIDE™ FLOOD Manager and Viewer.