How alpha function works?

Earthwork · https://mes100.com/docs/how-alpha-function-works/

Motivation

Sometimes the users only want to conduct cut fill calculation at the places where the surveyor points are dense enough. The users might not want to include the parts that are not dense enough because it might not yield the correct ground level interpolation, and thus lead to inaccurate cut fill results on the parts where the surveyor points are sparse.

In such cases, it is far better for the software to return verification errors if the platforms are built on the ground levels that have no sufficient surveyor points.

In MiTS we provide granular control for the users to include and exclude the ground levels, depending on user’s engineering judgement on how dense the surveyor points are necessary in order for accurate cut fill calculation. The sole parameter to control this is called ALPHA property.

Mechanism

To set the alpha setting, user may go to RHS and click on the terrain.

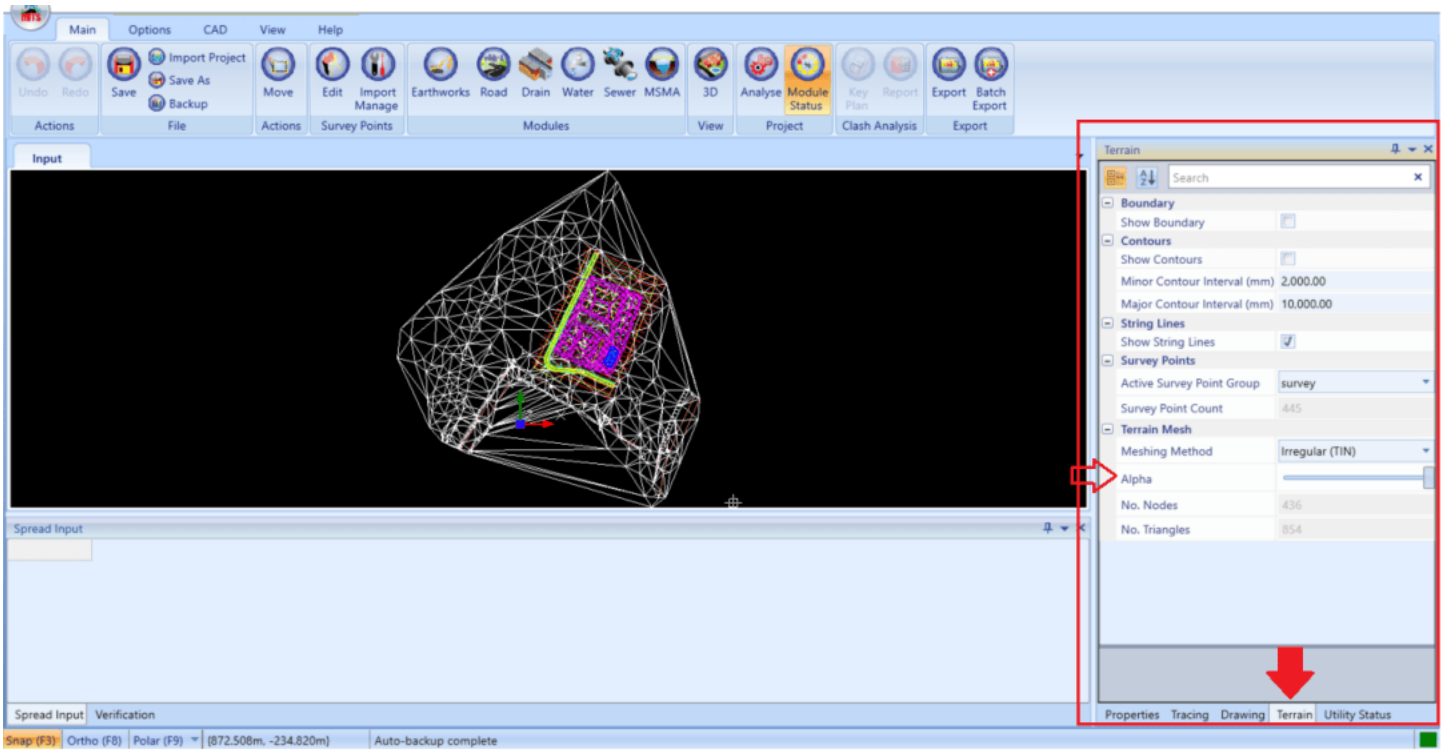


Image 1: RHS terrain alpha function

How do alpha works in MiTS?

It can be simply put as to when you set the alpha to maximum, the software will maximise the survey points boundary (convex hull) by connecting all the side survey points and will provide more area.

This can be seen from the string lines. To enable the string lines, go to RHS > String Lines > tick ‘Show String Lines’

By doing this, when adjusting alpha, user can clearly see how alpha control the survey point boundary (convex hull) generated.

The difference of the alpha setting can be seen from images below:

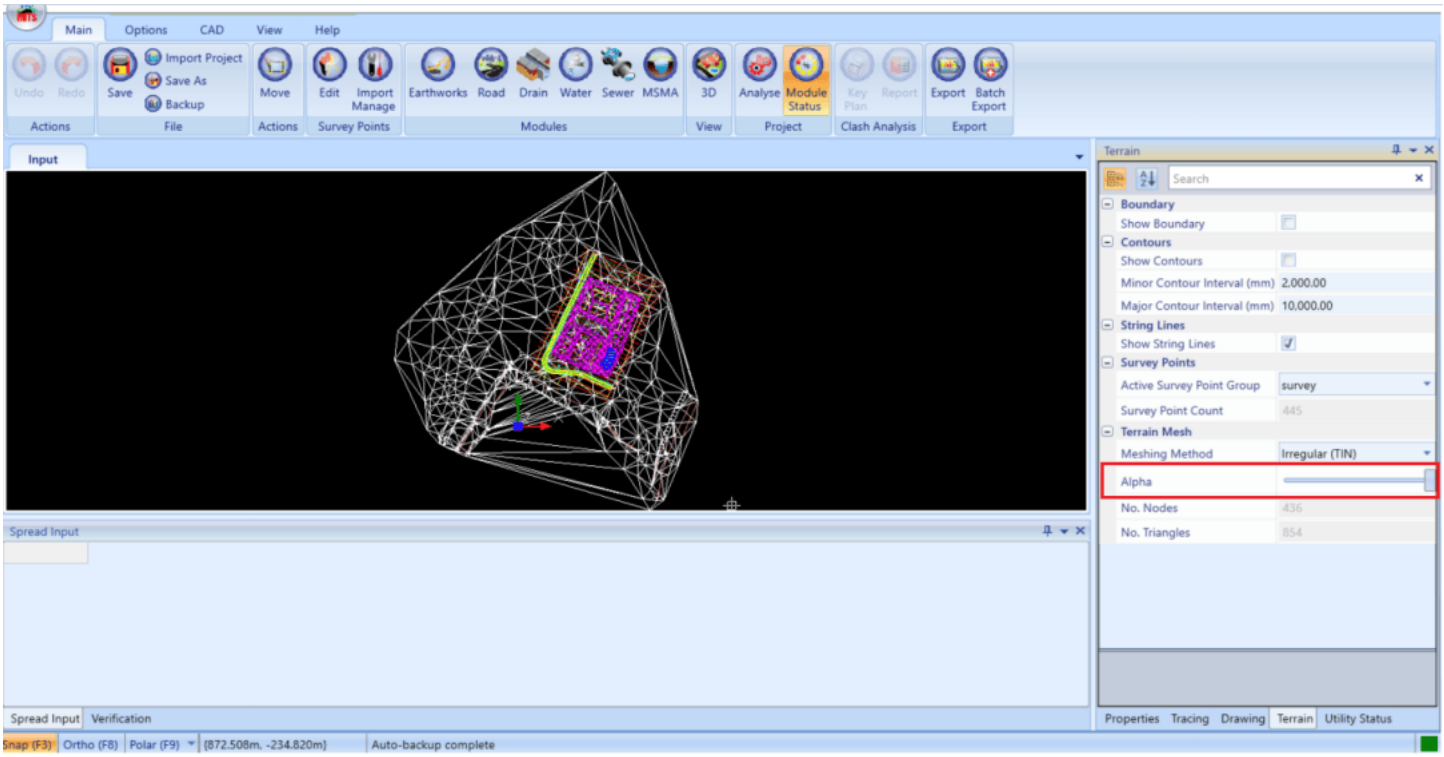


Image 2: alpha set to maximum

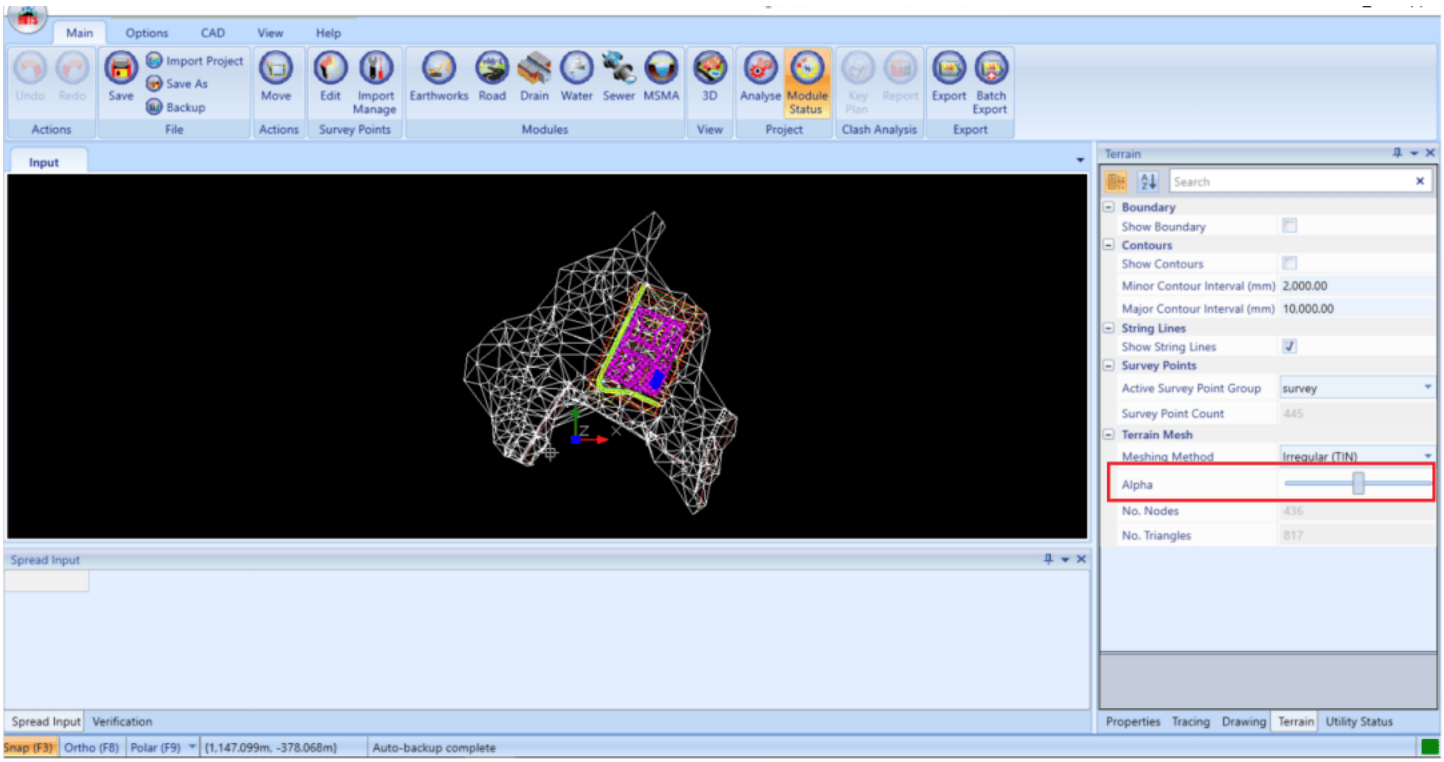


Image 3: alpha set to intermediate

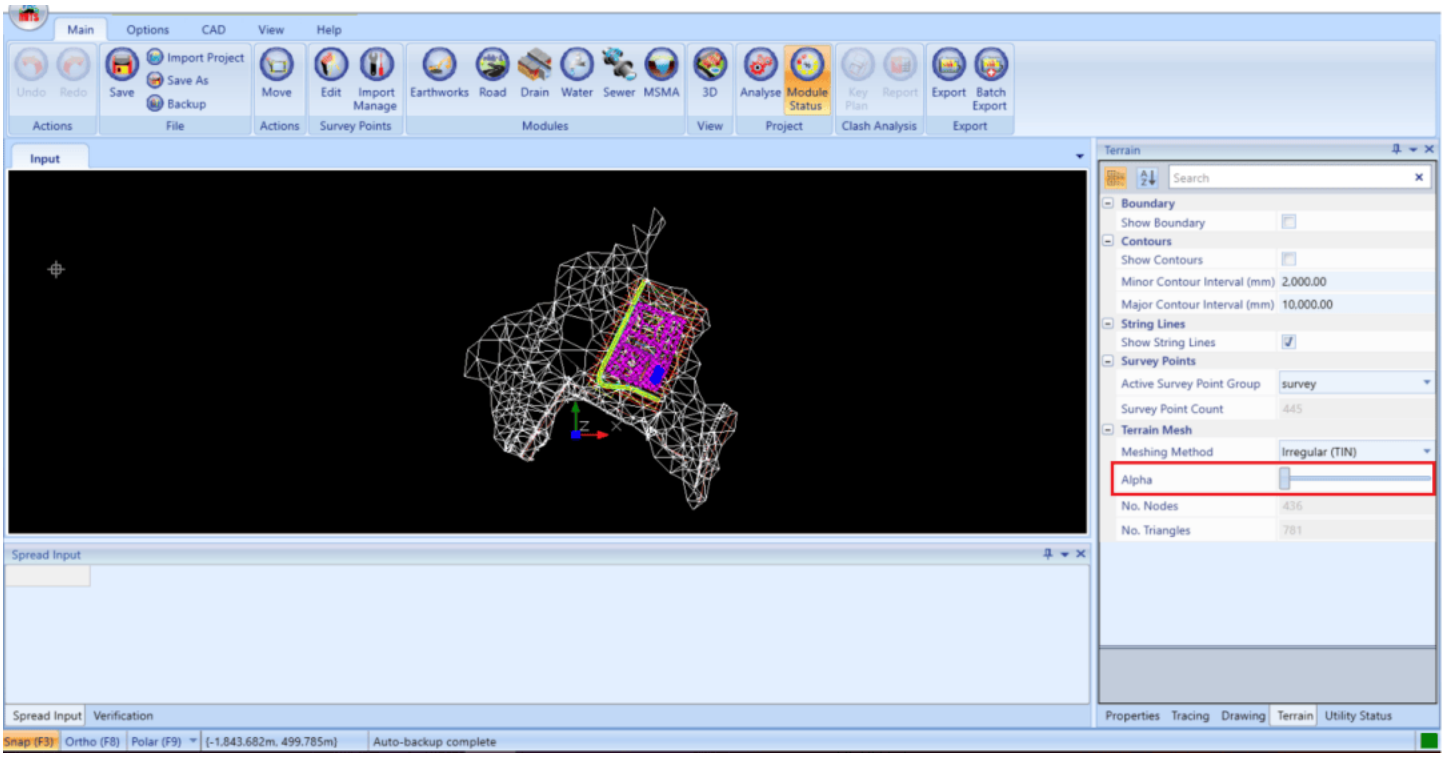


Image 4: alpha set to minimum

Hence, it can be said that for all setting set for alpha, all survey points are used and connected to neighbouring points but the alpha setting was made to enlarge the survey area in order to provide larger boundary.

Also note that the platforms that are built outside the string lines cannot be compared with the ground level, because there are no available interpolated ground level values at those areas.

Embedded media:
https://www.youtube.com/embed/h9yWUZmcoRQ?version=3&rel=1&showsearch=0&showinfo=1&iv_load_policy=1&fs=1&hl=en-US&autohide=2&wmode=transparent&enablejsapi=1

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I'm the Benevolent Dictator for Life for MiTS Software cum Editor of this website. Read more here.

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