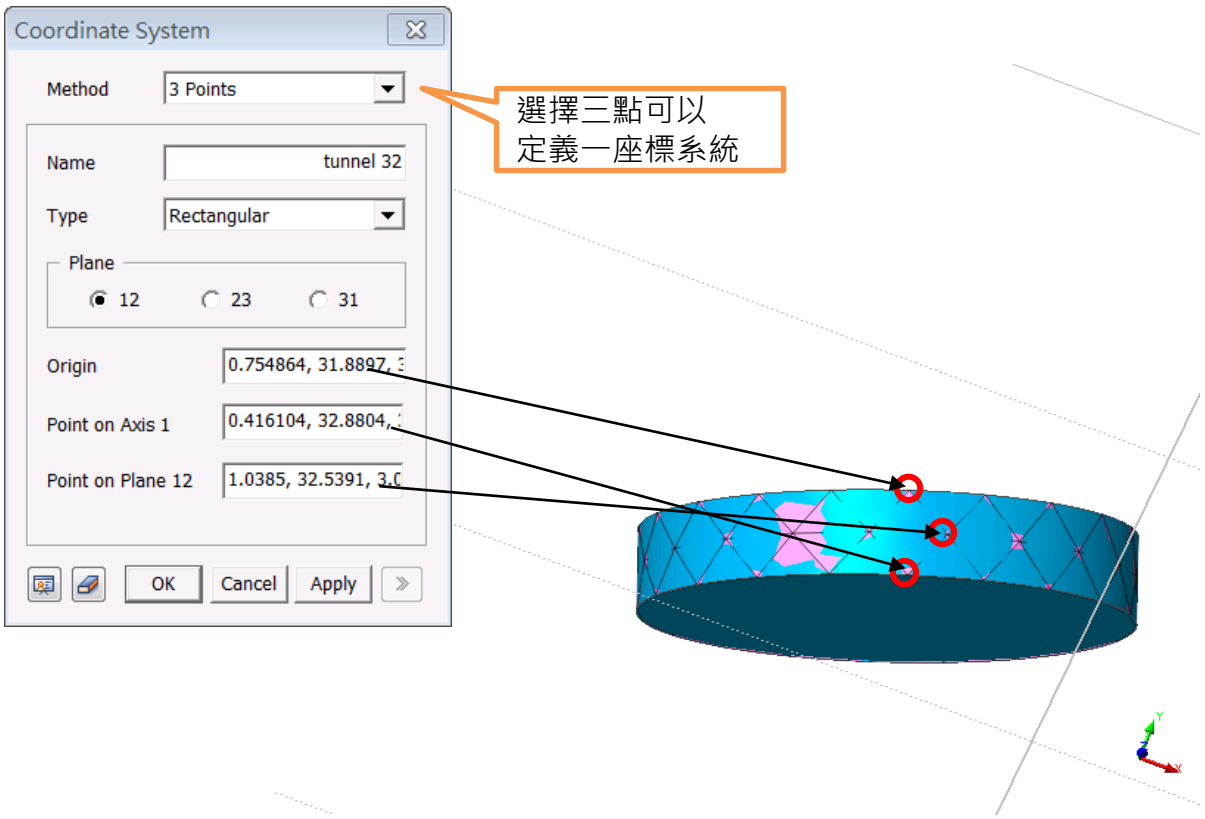
Q 如何正確顯示3D模型中隧道版元素的輸出座標系統

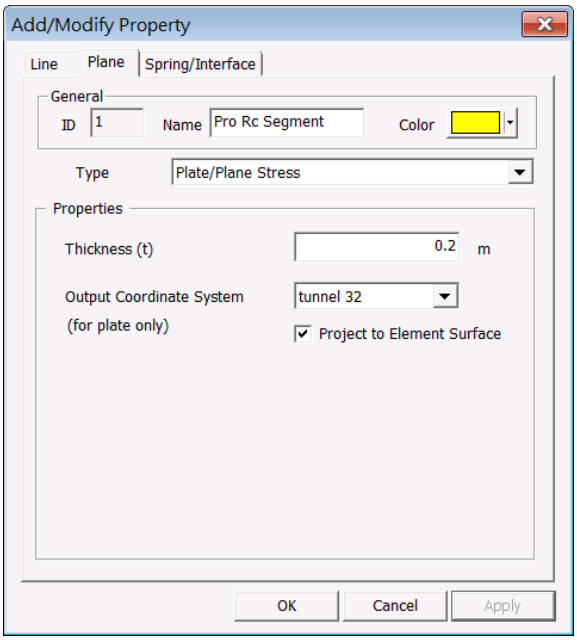
A

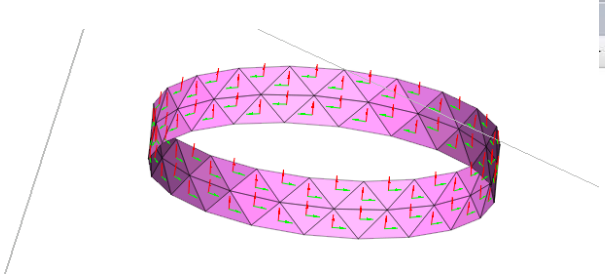
3D隧道模型中如果使用版元素，其元素座標系混亂，如何觀看版元素結果，使得有一致性可以擷取到適當的版元素受力結果？

如果隧道的方向與Global座標系統不一致時，可使用Model>Coordinate System指令定義一組新的座標系統。

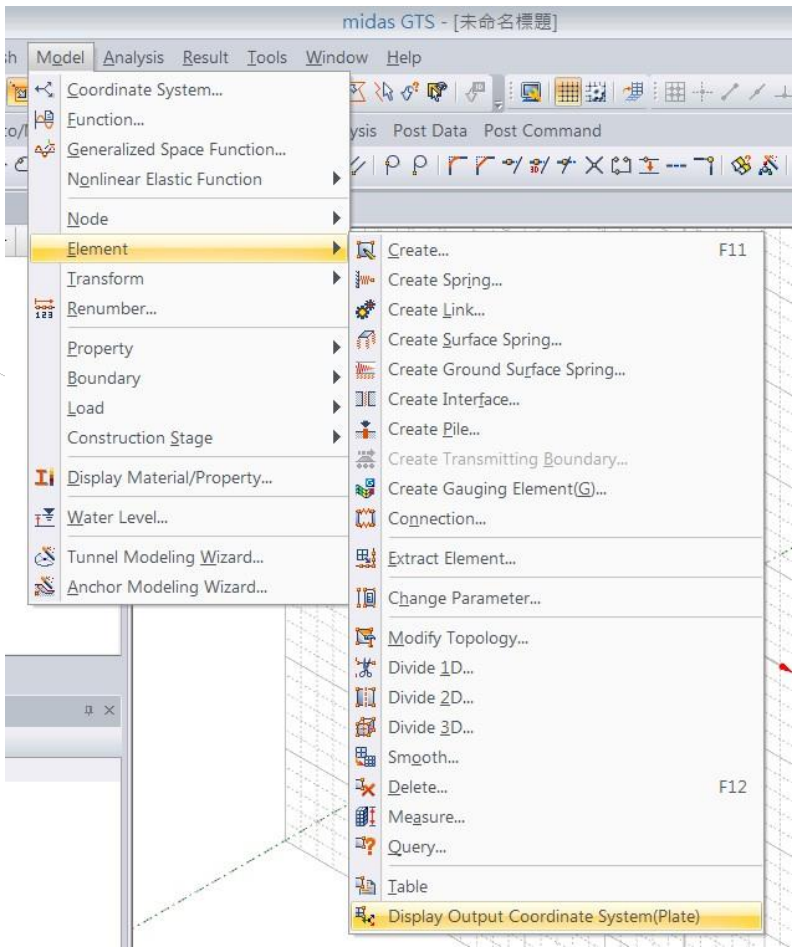


跑完分析後Model>Property>Property(Plate)將output coordinate system選自訂之tunnel 32，並勾選”Project to Element Surface”選項，如果重新跑分析時，須注意將Output Coordiate System切換至Element Csys

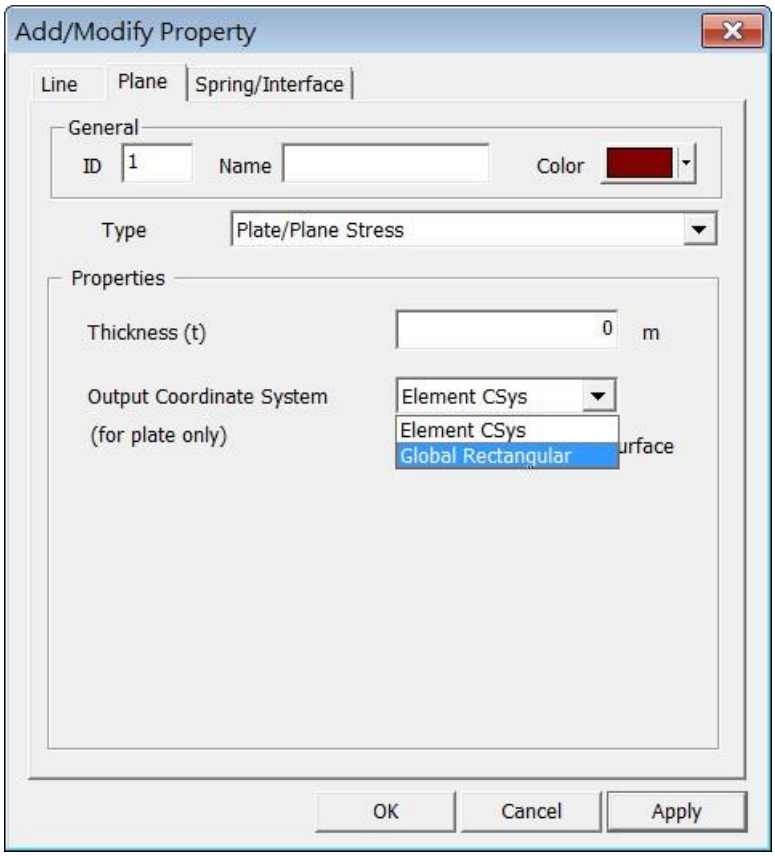




Model>Element>Display Output Coordinate System(Plate) 可顯示輸出座標系

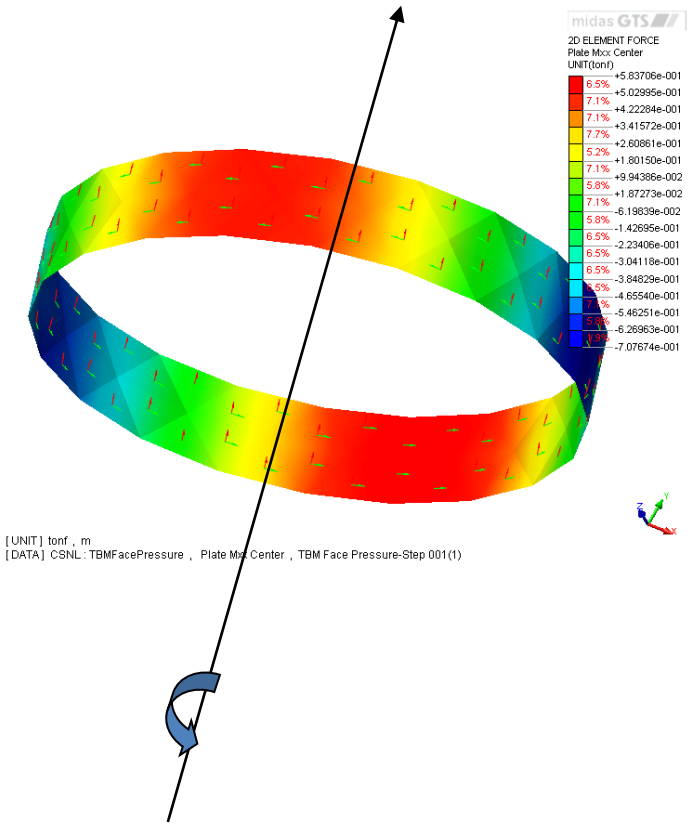


如隧道方向與Global座標系一致時，可直接設定Output Coordiate System為Global Rectangular即可。



如何觀看版元素的方向，可參考On-Line Help中的解釋。

將x軸調整為軸向後，各項plate force results即為on-line help所述之方向。



Mxx 繞x軸旋轉之moment

Tunnel Lining

For tunnel lining, specify the X axis aligned with the tunnel axis and make sure that the Z axis is not coplanar with any of the plate elements. In this case, plate force results will have the following meaning:

Fxx = axial force, Fyy = circumferential force, Fxy= in-plane shear force

Qzx = out-of-plane shear between rings, Qyz = out-of-plane shear in ring

Mxx = bending moment along tunnel axis, Myy = bending moment in ring