What is UnWedge?

*UnWedge* is a 3D stability analysis and visualization program for underground excavations in rock containing intersecting structural discontinuities. Safety factors are calculated for potentially unstable wedges and a variety of supports can be modeled. Use *UnWedge* to quickly create a model, perform a safety factor analysis, place reinforcement and interpret the results. The graphical data interpreter provides a rich set of tools, including 3D animation, for the convenient display of wedges surrounding the excavation.

What's new in *UnWedge*

**New Interface**

*UnWedge*'s upgraded interface provides an easy to use graphical environment for data entry and visualization that greatly simplifies the analysis and design process. *UnWedge* now comes with a drop-down menu for easy switching between different views.

**More Powerful Engine**

Incorporate induced stress around an excavation and analyze its effect on stability using *UnWedge*'s analysis engine based on Goodman and Shi's block theory. Wedge computation is quick and users have the ability to scale and size wedges, as well as locate possible end wedges.

**Probabilistic Analysis**

The new Probabilistic Analysis option is used to add statistical distributions to variables such as joint orientation, joint strength, support properties, as well as field stress properties. Two number generation models and two different sampling methods are included to provide control over the analysis. The new Probability View allows the user to analyze the results and plot desired values on a histogram, cumulative plot, or scatter plot.

**Enhanced Modeling**

New features also include ground surface wedge truncation, advanced DXF importing options, as well as added joint properties. Pseudo-static seismic load and a boundary element stress analysis option that allows users to determine how stress affects the stability of wedges are also available. Scaling of wedges now more accurately reflects the values defined for trace length and persistence, and *UnWedge* will also work to determine the maximum volume wedge with user defined trace lengths.

**Plans & Pricing**

**Single (Personal) License:** Locked to one computer.
- Ownership (Perpetual): **USD $1295** Purchased outright
- Lease: **USD $645/year** Leased annually. Incl. maintenance & upgrades

**Multi (Flexible) License:** Installed on any number of machines. The license file sits on the server.
- Ownership (Perpetual): **USD $1895** Purchased outright
- Lease: **USD $995/year** Leased annually. Incl. maintenance & upgrades

**Maintenance Plan**

To get the most out of your Ownership License of *UnWedge* we recommend the Rocscience Maintenance Plan, purchased annually at 15% of the license cost.

With Maintenance, you get free upgrades to new product versions. You'll never invest in a tool without access to the latest software.

You also get unlimited access to high-quality, timely support from the technical experts at Rocscience.

[Contact us at software@rocscience.com](mailto:software@rocscience.com)
Excavation
- Define/edit opening section
- Import/export .dxf files
- Axis trend/plunge
- Analyze tunnels, caverns, shafts, intersections

Joints
- Orientation (dip/dip direction)
- Import from Dips
- Stereonet view
- Multiple joint combinations
- Joint combination analyzer
- Shear strength (Mohr-Coulomb, Barton-Bandis, Power Curve)
- Waviness
- Joint structure continuity
- Water pressure

Wedges
- Tetrahedral or prismatic wedges using Goodman/Shi block theory
- Perimeter wedges
- End wedges
- Failure modes – falling, sliding, lifting, stable
- Scale wedge size
- Ground surface wedge truncation
- Failure mode filter
- Minimum wedge size filter
- EC7 design standards

Probabilistic Analysis
- Statistical distributions - normal, uniform, triangular, beta, exponential, lognormal, gamma
- Fisher distribution for joint orientations
- Histogram, cumulative, and scatter plots

Viewing Options
- 3D wedge view (orthogonal and perspective views)
- Multi-perspective view
- End wedge view
- Probability view
- Wedge visibility
- Move wedges
- Easily rotate, zoom, pan
- Animation
- Display options

Stress Analysis
- Constant field stress
- Gravity field stress
- Advanced analysis options
- View stress contours

Support
- 2D design views
- Pattern bolting, shotcrete, pressure, spot bolting
- Bolt models – anchored, grouted dowel, cables, Swellex, split sets, user-defined
- Bolt orientation efficiency
- Interactive editing
- Bolt force diagrams

Loading
- Seismic loading
- Field stress
- Pressure
- Bolt force
- Water pressure

Tunnel Axis Plots
- Optimize axis orientation
- Vary trend and/or plunge
- Contour plots or 3D charts
- 2D charts with 3D charts
- User-defined data