

## NEW FEATURES IN V14.0

ModelVision is a flexible workshop full of tools for solving a wide range of exploration problems that use potential field data. Importantly, you need to understand what the tools do to get the most out of the ModelVision. We often get requests to simplify the everyday tasks of modelling and inversion but the request may be focussed on a particular exploration problem that has the potential to compromise other aspects of ModelVision. We get around this problem with the introduction of Wizards that make assumptions about the workflow and problem you are trying to solve. Examples include the Strata Tool, AutoMag, Extrusion Wizard and Custom Tiling.

Release 14 has a new Target Wizard that simplifies many of the tasks associated with 3D modelling, inversion, regional management active data point selection and model management. We are excited about this new wizard because it can reduce precision modelling time by 50 to 90 percent.

These release notes include descriptions of the changes to and new features in Release 14 of ModelVision:

- Target Wizard
- New tutorial on the Target Wizard
- Joint inversion for the general polyhedron body type
- View menu improvements
- New polygon feature tools for REMCAL, Target Wizard and Extrusion Wizard
- Global map fit improvement
- New system info report
- REMCAL dialog improvements
- Fixes for reported problems

We encourage you to try the new features especially the Target Wizard which will boost your productivity if you are an experienced user and make it easier to run modelling and inversion if you are an infrequent user.



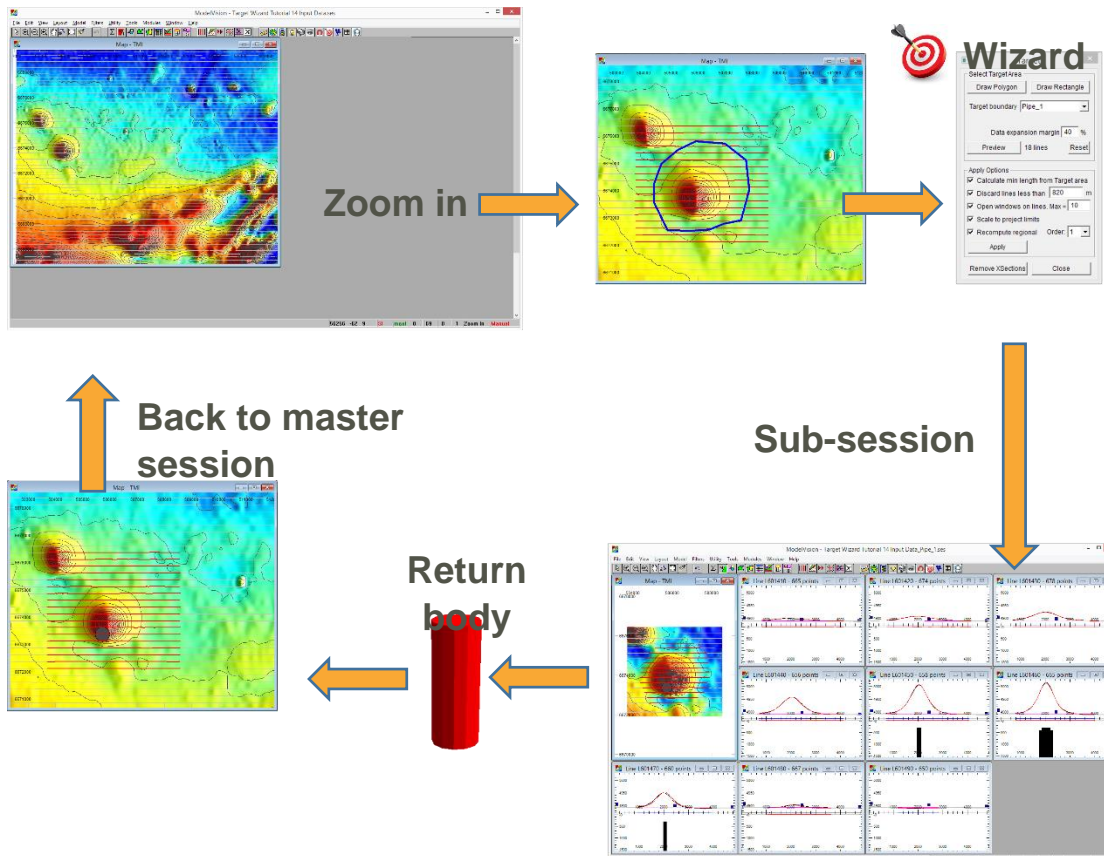
### New Target Wizard makes 3D inversion simple to use

For a long time we have been working on methods to make 3D modelling and inversion easier to manage for small and large surveys. The relationship between the regional field which is calculated across the full line lengths and the active points used for inversion made it difficult to work on large surveys in a single session. The easiest way to manage this problem in previous releases was to use the Clip Project cookie cutter to reduce the line lengths to a suitable buffer around the target anomaly or anomaly group. This process eventually creates a series of small session files, each having its own model.

The new Target Wizard combines all these steps into a simple workflow that reduces the time to run complex models anywhere in a survey to a few minutes per target. In addition it streamlines the process of setting up the regional, activating the data points, opening the windows, tiling the windows and computing the initial response. When you finish the modelling of the target, the new bodies are appended to the master model and control is returned to the master session.

The image below illustrates the steps involved in the process for modelling and inverting the data over an intrusive pipe like body. Essentially they include the following stages:

- Zoom to the area of interest
- Open the target wizard dialog
- Draw a polygon around the anomaly
- Activate the wizard and open the anomaly sub-session
- Insert a starting model into the map (or section)
- Run the inversion (standard or joint)
- Return to the master session which appends the new mode



*Example Target Wizard 3 minute workflow illustration for intrusive pipes.*

The act of drawing the polygon around the target anomaly is sufficient to automate the rest of the process so that you can start modelling immediately. There are significant time savings in 2D regional management, activation of lines and data points and the selection of cross-section windows. For magnetic interpretation of pipes, we estimate a time reduction of 80% for precision inversion and magnetization estimation.

You can use the wizard for any of the following modelling and inversion operations:

- Magnetic modelling
- Gravity modelling
- Combined gravity and magnetic modelling
- Standard inversion
- Joint inversion

The procedure is relevant to the following geological objectives:

- Precision depth interpretation of magnetic data
- Physical property estimation for individual targets
- Isolated magnetic anomalies
- Linear magnetic anomalies
- Complex anomaly clusters
- Single anomaly targets
- Anomaly clusters with multiple sources
- Basin modelling with gravity

Each target generates a transient sub-session that simplifies the overheads of managing a full survey and returns control back to the master session along with any new bodies you created. You have the option of keeping the sub-session for later review and possible refinement.

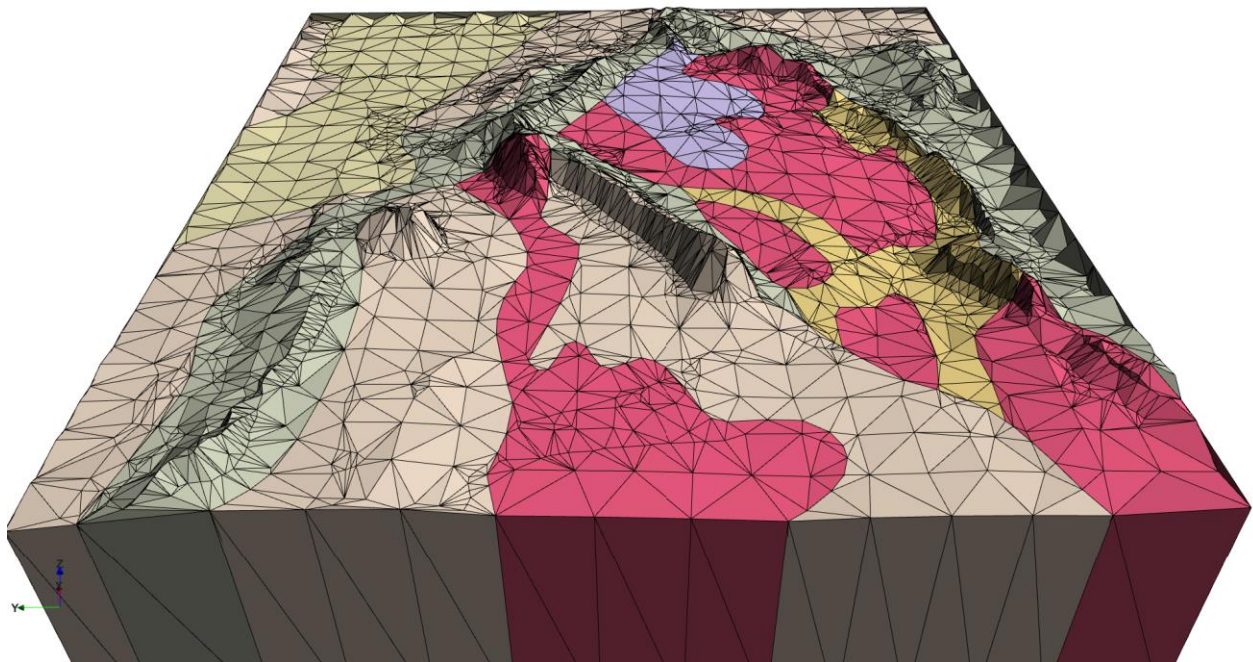
## New tutorial for the Target Wizard

Make sure you try the new Target Wizard with the Tutorial 14 session file. The tutorial has been prepared to work with magnetic data and will quickly teach you how to start and run the Wizard. You will learn the following:

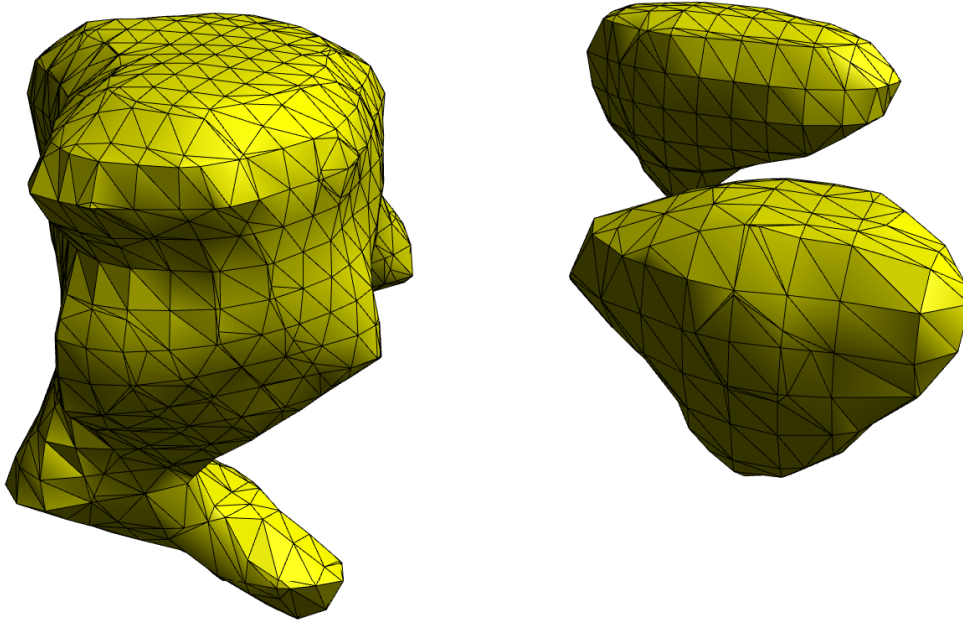
- Preparation for running the Wizard
- Selection of the target anomaly
- Isolation of the data you want to use for inversion
- Automate regional calculation
- Opening of a multi-line sub-session focussed on the target
- Insertion of a starting intrusive pipe
- Inversion of the target body
- Inversion for magnetic remanence
- Return of the new model to the original mast session

## Joint inversion support for the general polyhedron body

The general polyhedron is made up of triangular facets that fully enclose a volume and can be used to define virtually any shape. They can be created by conversion of any other parametric body generated in ModelVision, the 3D Model Generator Wizard or the Create Strata Wizard. You can also import general Polyhedral bodies from other programs such as mine planning packages in 3D DXF, Gemcom BT2, Vulcan, GoCAD Tsurf, Datamine, ESRI TIN and 3D Studio formats. The import tools allow you to assign magnetic and density properties to the bodies.



*Example of a multi-body general polyhedron model.*

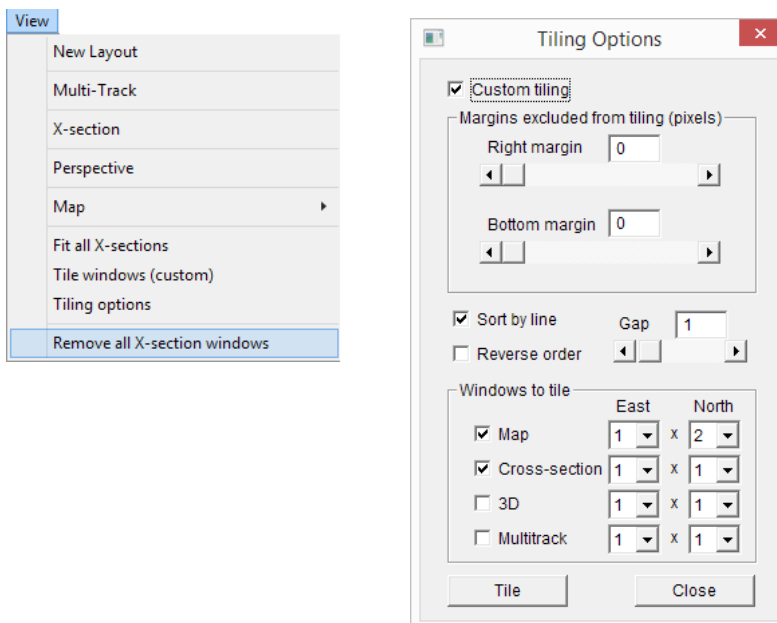


*A general polyhedron model produced from a UBC isosurface volume.*

As long as each solid is imported as a discrete body, joint inversion can be used to invert on the physical properties and X, Y and Z positions of each body. This means that you can invert on magnetic gradiometer data, three component fluxgate data and full tensor gravity data.

### View Menu improvements

The View Menu has been improved with additions to the custom tiling feature and a new option to delete all cross-sections. The automated tiling is also used by the new Target Wizard and we have extended the capabilities so that you can better control the size of the map and 3D Perspective windows relative to the space allocated to each cross-section window.



*View Menu with the new X-section removal tool and the updated tiling options dialog.*

## Other improvements

There is a new polygon feature drawing and management toolset for the Target Wizard, REMCAL and 3D Model Generator. Polygons are named and managed internally when created by these tools and can be reused when needed.

The area of the upper surface of circular and elliptic pipes has been added to the body properties dialog. This improvement has been made at the request of diamond explorers.

The global map fit to data extents now excludes invisible bodies. This was required for the Target Wizard where the sub-session may contain all bodies, but the data extents covered only a small section of the complete project.

A new system information report has been created to replace the original "Letter" utility. The report can be cut and pasted into a support request email.

The magnetization units in the REMCAL remanence calculator dialog are included to avoid confusion.

## Fixes

In addition to the major improvements listed above, we have fixed a number of reported ModelVision problems.

ID	Brief Description or Fix
69	AutoMag fails if magnetic modelling is not activated in the Model>Line Control dialog.
92	Setting the line thickness for model and field curves in cross-sections behaved erratically.
140	Standard inversion did not previously work correctly with gravity units gu. It assumed that the units were mgal. It now works with both mgal and gu.
141	The Inversion Parameters table for standard inversion did not always accept the Min and Max values correctly. This fix enable precision control over inversion parameter ranges.
205	The strata model building tool failed if there were too many vertices created in a polygon.
208	If you cancelled the ImportAscii tool while running the Startup Wizard, it forced you to go through the automated steps of displaying the data channels even though none had been imported.
220	AutoMag failed on short lines when the expansion operator exceeded the line length.
221	Joint modelling of gravity and magnetic sections assigned priority to the magnetic channel and prevented access to the gravity regional when switching standard inversion to gravity.
222	There could be a window conflict with the modeless dialogs used by REMCAL, AutoMag, Extrusion Wizard and the Target Wizard that caused a new dialog to be hidden and inaccessible. Existing dialogs will automatically close in this situation.