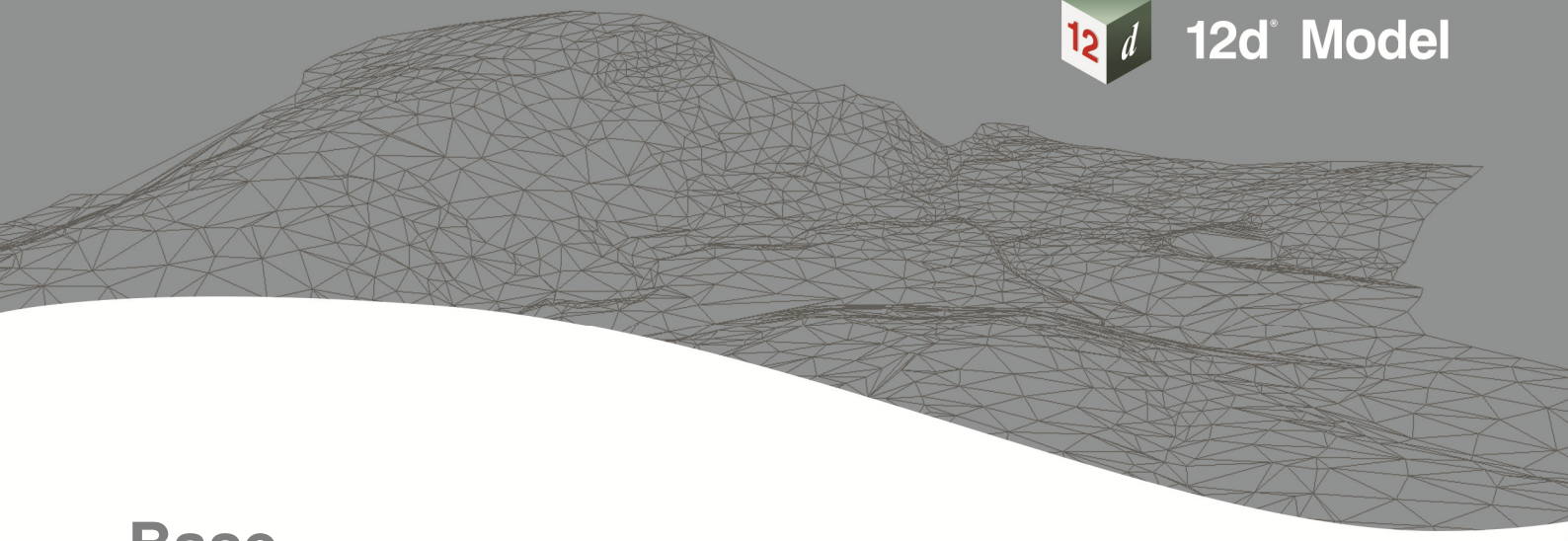


12d® Model

Base

The 12d Model base product was written from the ground up for the civil and surveying market. Work flow follows traditional engineering ideas, making it very easy to learn and use

12d Model Base includes the string types 2d, 3d, 4d, interface, pipe, text, alignment and super to allow accurate civil engineering and survey modelling.

Alignment strings provide independent horizontal and vertical geometry and are created and edited interactively on plan and section views.

12d Model Base includes ability to do simple road and rail designs, building platforms, storage ponds, dams and canals while additional modules are available for more complex work.

12d Model Base contains all the capabilities necessary to produce a digital terrain model (DTM or TIN), including fast triangulation, contouring and sectioning routines. It is graphically interactive (2d and 3d) with intuitive menus to give immediate feedback to the user. 12d Model creates and works with project folders that contain all input, output and associated project data.

Work flow follows traditional engineering ideas, making it very easy to learn and use. New users can be trained within a matter of days and be effective within a matter of weeks namely due to interactive menus with pick options and users not requiring to learn a new coding language for basic to advanced functionality (although that option is available).

A comprehensive suite of coordinate geometry functions is included that are specifically tailored to suit designers, engineers and surveyors. 12d Model Base is reliable and highly stable with small and large datasets and runs well on lower spec machines.

Base includes ability to do simple road and rail designs, building platforms, storage ponds, dams and canals while additional modules are available for more complex work.

Easily Customise Your 12d Model Setup

12d Model comes with standard setup libraries and options. These can be easily customised and edited inside 12d Model using the intuitive menus or outside 12d Model by manipulating text files and XML files.

Examples include setting up and complying with the following standards:

- Naming - to comply with clients, partners or authorities.
- Colours - for surface and sub-surface modelling.
- Mapping – string names for output to other software required.

Intuitive User Interface

Users can modify pre-existing templates with ease through 12d Models user interface. Pick lists and drop down menus mean that users do not have a need to learn programming code to progress with 12d Model at even the most advanced levels.

A Suite of Interactive View Options

Three types of views – plan, section and perspective – can be created by the user for examining, constructing and editing information. All views are automatically linked so that data can be viewed and manipulated using more than one view.

Users also have the option of opening up as many viewing windows as they require and can create multiple versions of the same view type. Examples of view options that users customise include:

- Showing/Hide - strings, tins, points, contours etc.
- Pan and Autopan - highlight the model from various angles.
- Link or Unlink - views to control whether or not a co-relationship exists between views.
- Change Colours - highlight various aspects of the model easily.
- Zoom In or Out – to understand macro and micro views of the model.

The Perspective Open GL View allows users view the model in 3D with drive throughs and orbits. It is a great way to identify problems such as intersecting strings and other errors such as platforms.

Sharing – Enhance Inter-discipline and Inter-departmental Collaboration!

Multiple designers can be working on a project in different areas (or sections) and these can be shared into a project and are not editable. The reverse can also occur where you users can share out their aspect of the model.

This sharing capability is advantageous for designers working on multiple sections of the same project type (i.e. a large highway) or alternatively across different functions of the same project (i.e. survey, earthworks and volumes, road design, drainage etc.).

12d Model has the power of synchronised sharing capability. This is where an update on the network notifies other designers and functions (or 12d Model users) that changes have been made. This can occur through either a manual or automatic sync, depending on your preferred settings.

Easy Adjustments with Recalc Functionality

The 'Rename' feature allows you to simply and easily rename a single model, however, the 'Global Rename' allows you to very quickly and easily rename multiple models at once. A wildcard function can be used to efficiently find the models that you wish to rename.

Users do this for a number of reasons; one may be to easily keep within the naming convention of the entire project. Another reason may be that replacement data has arrived to be imported into the model and users may want to temporarily keep the existing data in case the new data contains any errors (and thus it would have to be re-supplied).

For users to effectively keep a history of a project, 12d Solutions recommend the practice of writing out a project file, rather than renaming and keeping a history of raw data only.

Easily Access String Information Using the 'String Info Table'

When Users can pick any string and/or point in any model and the String Info Table will list all of the required data of that particular string in context to the model. Users can understand where the string is exactly on the model and this information can be very useful to quickly make adjustments when error checking.

Additionally, users can create construction strings and CAD style commands without having to open another program. Users can easily join, reverse and break strings as well as edit their various commands for use in any project.

Easily Customise View Settings and Save as Many Views as Your Processor Can Handle!

Users can completely customise the views available and can have multiple iterations of the same view type with the ability to turn on or off whatever is required including contours, flow arrows etc.

This allows users to achieve whatever they require in the view with the complete ability to define and manipulate what is needed out of a view to be able to visually understand the model better.

This too can help with error checking, however, is more of a function that understands that each individual views designs differently, work differently and need to make sense of a model from a real world perspective. View customisations give users the power better understand the model.

Rasters

Raster images can easily be imported so that designers can have a real world view in understanding what is located on the surface of any given point, such as power lines or roads.

12d Model also easily handles ECW files (or coordinated image files) and users also have the ability to turn image files on or off inside the model quickly.

TINs and Super TINs

Multiple TIN is short for Triangulated Integrated Network and this is where triangles are used to create a surface. 12d Model has one of the fastest triangulation engines in the world where an area of 3km x 700m can be triangulated in a second!

Ultimately 12d Model is respected by users due to its ability to create large and stable surfaces, quickly.

A Super TIN is where a user has the ability to get two triangulations and join them together in order of priority e.g. a survey TIN and a design TIN. The design TIN will take priority and combination contours can be produced. A Super TIN can be referenced so that volumes can be calculated.

Super TINs are generally project specific and at this stage cannot be shared, whereas a TIN is a function and can be easily modified, copied and shared with other users. TINs can be quickly updated as data changes through a simple re-triangulation.

'TINs Contour' are the final contours for outputting to a visualisation and are also a function that automatically updates as data changes. 'TINs Drape' gives users the ability to drape 3D strings onto a surface and drop in the TIN levels. 'Check Breaklines' identifies errors and breaks in TINs.

Civil Design in 12d Model

Multiple There are a few fundamental or key areas when designing in 12d Model.

- An alignment is required with both horizontal and vertical geometry
- A template is create to create (for example) a road profile
- Users then decide where to put the template via a ‘Many Templates File’ (MTF)
- Templates can be created or modified as required easily. Templates that are used often can be easily added to the MTF.
- The ‘Apply Many’ then applies the strings to the control line and allows users to easily apply updates in the model (including tadpoles or slopes). This is the final step in producing all of your strings.

Boxing

Boxing is a design of your sub-surface (or everything below the natural surface). This includes sub-grade material and helps define the sub-surface to understand volumes for cutting or filling and can be designed in layers where the strings above are used as a reference. This is especially useful with bulk earthworks.

Reporting, Plotting & Documentation

Automate and streamline the plotting process by creating documentation directly from a 3D project. 12d Model can quickly and easily create output reports of any of the data in any of the views and this functionality increases as a greater number of modules (products) are purchased.

Plots can be output in a variety of formats (including DWG & DXF). Plot parameters are provided for tailoring long and cross section plots. Final quality plots are produced from 12d Model, including title blocks, true type fonts, line styles and symbols.

Roads and Highways

12d Model's design option is the smarter solution for the design, modification and maintenance of Road and Highway projects.

Enjoy advanced 3D tools to design local and major roads, intersections, roundabouts, highways, interchanges and much more.

Ports and Dredging

12d Model is the solution for port infrastructure and dredging, easily managing the very large datasets and complex volume calculations often required by these projects.

A complete range of flexible and customisable volume calculation tools allow teams to extract and present the information quickly and easily.

Land Development

12d Model is the most versatile solution for the creation of sustainable land development projects, including residential, commercial and industrial developments, recreational areas, landfills, and agriculture projects.

Easily manage all aspects of your land development project from earthwork quantities, road design utilities and drainage design.

Airport Infrastructure

12d Model provides a solution for the design, construction and analysis of new airports, as well as the upgrade and maintenance of existing runways and airport infrastructure.

Easily manage large airport infrastructure projects and share data across multi-disciplinary teams.

Rail

12d Track has been specifically designed for the survey, design and construction of light, heavy and high speed rail projects.

Extensive railway tools in 12d Track allow the rail designer to quickly and easily design their projects. These options are built on the existing 3D modelling and design tools available in 12d Model.

Mining Infrastructure

12d Model's powerful set of exploration, site investigation, survey and analysis tools are crucial for the initial design, construction and ongoing operation of mining projects.

Comprehensive tools for the survey, design and construction of access roads, railways, earthworks and services allow for the coordinated design and management of mining infrastructure from within 12d Model.

Drainage, Sewer and Utilities

12d Model provides comprehensive tools for the design, analysis and optimisation of stormwater and sewer projects using rational, dynamic (hydrograph) and 2d drainage methods.

Powerful clash detection management allows for efficient 3D modelling of service networks such as gas, electricity, telecommunications and water prior to construction.

Surveying

12d Model is a complete surveying package providing the tools to manage all facets of surveyed data including LIDAR, topographical, as-built, conformance, traversing, geodetics, data mapping, labelling and much more.

The 12d Field option runs on a ruggedized tablet and gives the user access to full 12d Model functionality, allowing you to take the entire project into the field with the most comprehensive pick-up and set-out tools.

Oil and Gas

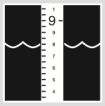
12d Model assists with the design, construction and mapping of oil and gas pipelines, original site exploration and the wide range of infrastructure required for oil and gas projects.

Accurate 3D modelling and the ability to share data between users allow teams to quickly and easily coordinate designs.

Construction

12d Model is the ultimate software for construction with powerful set-out options, direct interfaces to machine control and detailed conformance reporting and auditing.

Manage 3D data and control volumes, quantities and progress claims with 12d Model. Set-out your project and undertake conformance and as-built surveys live on-site using 12d Field.



Rivers, Dams and Hydrology

12d Model handles very large datasets and interfaces with a wide range of analysis packages, making it perfect for flood studies and the management of rivers and dams.

12d has partnered with industry leading analysis software, allowing users to apply 2D drainage analysis from within 12d Model.

Environmental

12d Model's ability to handle very large datasets combined with flexible and comprehensive 3D analysis and modeling tools make it perfect for a wide variety of environmental projects.

Existing workflows can adopt 12d Model easily as it allows users to directly interface with GIS systems and most software packages and file formats.

Why Choose 12d?

- **Powerful data processing & intelligent functionality.**
- **Modular, easy to update & completely customisable.**
- **Seamless integration with major industry software and hardware.**
- **Used in over 55 countries worldwide.**
- **Friendly support & training from industry experts.**

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