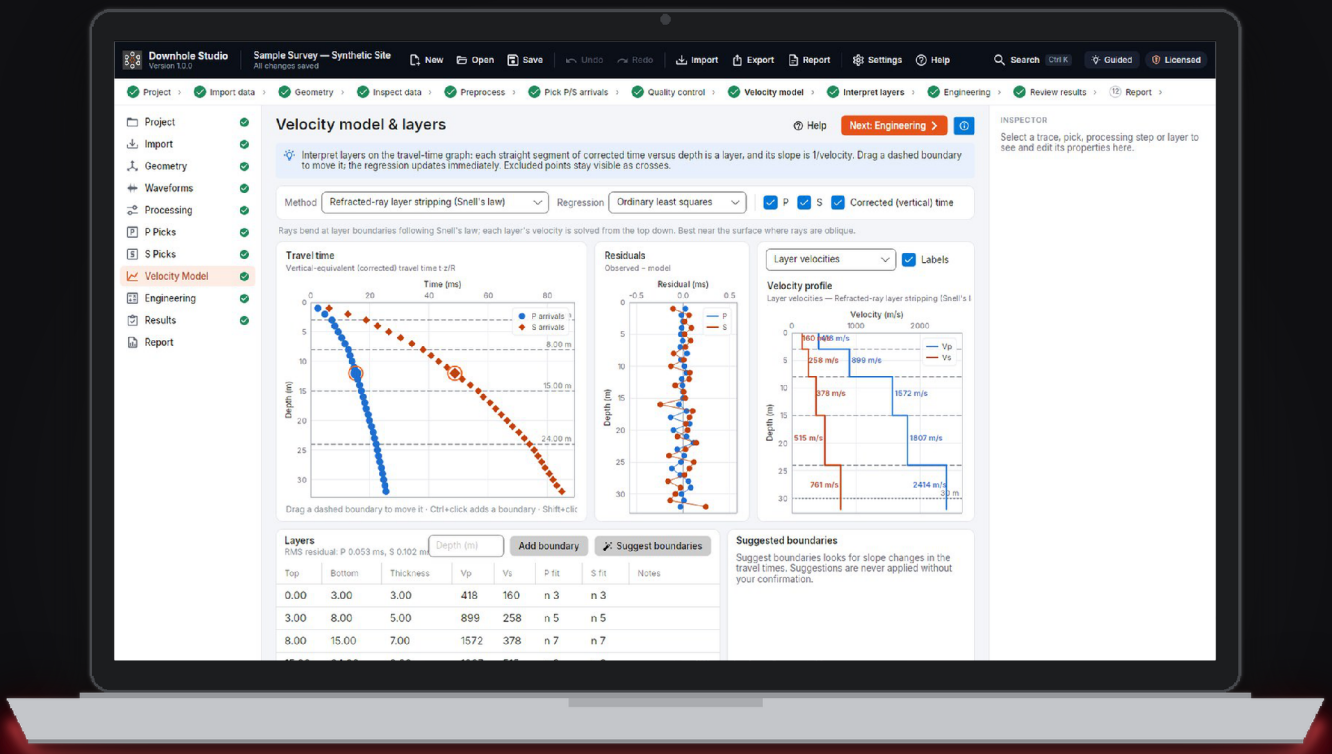
QUAKELOGIC

DATASHEET

QUAKEX · DOWNHOLE SEISMIC ANALYSIS SOFTWARE

Downhole Studio

Windows desktop software for downhole seismic testing: from SEG-2 borehole records through validated import, explained P and S picking and four velocity methods to elastic moduli, Vs30 and a branded report.



IMPORT

SEG-2 rev. 1

validated before acceptance

PICKING

AIC · STA/LTA · MER

explained confidence scores

VELOCITY

4 methods

regression to refracted-ray

OUTPUT

Vs30 · moduli · PDF

Excel, CSV and JSON audit

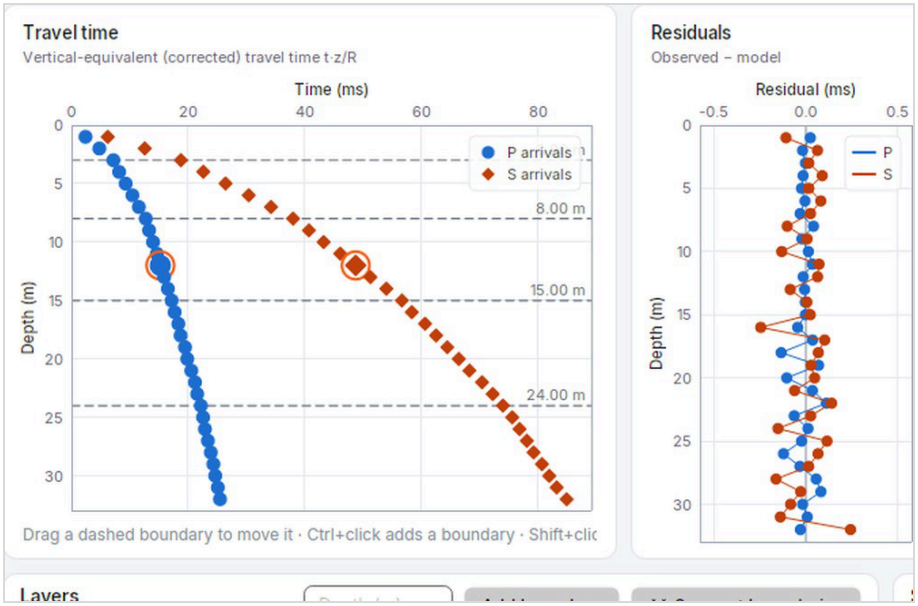
CUSTOMER SATISFACTION 100% GUARANTEED

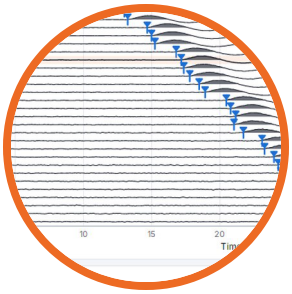
Software developed in the USA by QuakeLogic Inc.

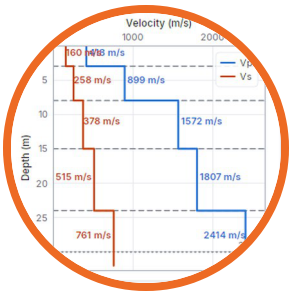
Roseville, California · sales@quakelogic.net · products.quakelogic.net

Downhole Studio

DOWNHOLE SEISMIC ANALYSIS · WINDOWS DESKTOP







FROM FIELD RECORDS TO A DEFENSIBLE VS PROFILE

Downhole Studio is Windows software for downhole seismic testing, developed in the USA by QuakeLogic Inc. It takes SEG-2 records from a borehole survey through validated import, non-destructive processing and trigger correction, explained P and S picking, layer interpretation with four velocity methods, elastic moduli and Vs30 to a branded report. Raw data are never modified, every step is recorded, and the complete history travels with the project file.

- Validated import: every file is inspected before it is accepted, and corrections are applied only when the analyst approves them.
- Picks you can explain: each automatic pick carries a confidence score built from signal quality, sharpness and agreement.
- Honest results: density is never assumed, Vs30 is never silently extrapolated and invalid moduli are withheld and flagged.
- Client-ready output: branded PDF reports, full-precision Excel tables, figures and an audit record from one project file.

STANDARD FEATURES »

- SEG-2 import with validation
- Byte-exact raw data archive
- Channel profiles & geometry
- Live borehole diagram
- Non-destructive processing
- Butterworth & notch filters
- Reference trigger correction
- AIC, STA/LTA & MER pickers
- Explained pick confidence
- S+ / S− difference traces
- Polarization & rotation
- Four velocity methods
- Robust Huber regression
- Suggested layer boundaries
- Moduli with explicit density
- Vs30 & custom intervals
- Automatic quality control
- Branded PDF report
- Excel, CSV, PNG, SVG export
- Undo, snapshots, scenarios

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KEY FEATURES

- **Inspected import.** Every SEG-2 file is checked before import: sample rates, missing channels, duplicates and depth order. Questionable data are never repaired silently.
- **Byte-exact archive.** Original records are kept byte-for-byte with SHA-256 checksums; every processing step works on a copy and can be switched off, edited or undone.
- **Trigger correction.** Trigger delay and shot-to-shot jitter are corrected from reference-geophone onsets, keeping raw and corrected times side by side.
- **Explained picking.** P and S arrivals are picked with AIC, STA/LTA or modified energy ratio, and each confidence score is explained: SNR, sharpness, agreement and consistency.
- **Shear-wave confirmation.** Opposite-direction shots, (S+ – S–)/2 difference traces, polarization analysis and per-depth rotation, applied only on request.
- **Layer model.** Regression, pseudo-interval, true-interval or Snell's-law refracted-ray layer stripping, with draggable boundaries and BIC boundary suggestions.
- **Engineering parameters.** Poisson's ratio and moduli only with explicit density, and Vs30 from measured depth only; extrapolation is labelled everywhere.
- **Reporting.** A QuakeLogic-branded PDF report with methodology, QC, figures, tables and the full processing history, ready for review.

PRODUCT FEATURES

Data import
SEG-2 rev. 1, 16/32-bit integer and 32/64-bit float, either byte order; files or whole folders

Geometry
Ground or collar depth reference; independent P and S offsets; depth assignment by order or file; channel profiles

Processing & trigger
Mean/trend removal, taper, Butterworth and notch filters, AGC, balance, polarity, shifts, resampling; trigger correction

Picking
AIC, STA/LTA, MER; confidence scores; keyboard-driven review; S+ / S– comparison; cross-correlation checks

Velocity model
OLS or Huber layer regression, pseudo- and true-interval, refracted-ray stripping; BIC boundary suggestions

Engineering
Vp/Vs, ν, G, E, K; measured, constant or labelled empirical density; Vs30 and custom intervals

Outputs
Branded PDF report, Excel and CSV tables, PNG / SVG / PDF figures, JSON audit record, .dhsx project

For more information about the features, specifications and licensing of DOWNHOLE STUDIO, please contact QuakeLogic.

SOFTWARE CONFIGURATION

COMPONENT	CONFIGURATION
Application	Native Windows desktop application (64-bit)
Analysis engine	Built in; runs locally, no cloud service
Project file	.dhsx: original records, interpretation, history
Raw data	Kept byte-for-byte with SHA-256 checksums
Editing model	Undo / redo, snapshots and scenarios
Saving	Atomic save with backup copy; recovery copies
Instrument profiles	QuakeLogic 3C Borehole and custom profiles
Interface modes	Guided and Expert; light and dark themes
Help	Built-in user guide (F1) and command palette
Sample project	Complete synthetic survey with a known answer
Updates	Signed, verified in-app updates
Licensing	Per computer; offline activation key; licence transfer between computers

SYSTEM REQUIREMENTS & DATA

SPECIFICATION	VALUE
Operating system	Windows 10 (21H2 or later) or Windows 11, 64-bit
Memory	8 GB RAM recommended
Disk space	About 200 MB plus projects
Administrator rights	Not required (per-user installation)
Internet	Not needed (activation and use are offline)
Seismic input	SEG-2 rev. 1; 16/32-bit integer, 32/64-bit float
Report and tables	PDF; Excel (.xlsx) and CSV at full precision
Figures	PNG (any pixel size), SVG, PDF; clipboard
Audit record	JSON: files, processing, picks, methods, version

INCLUDED WITH EVERY LICENCE

DELIVERY & INSTALLATION

Digital delivery of the Windows installer with SHA-256 checksums, a START HERE guide and a quick-start and activation guide. No administrator rights required.

TRAINING

Narrated, captioned training video of the complete workflow, and a field guide with borehole, source and recording procedure and a printable field log.

LICENCE & SUPPORT

Written licence agreement (EULA) issued by QuakeLogic Inc. Email support at support@quakelogic.net, answered within three business days.

DOCUMENTATION

Built-in user guide, user guide and brochure PDFs, a methods and validation report, and example field records with a known true model.

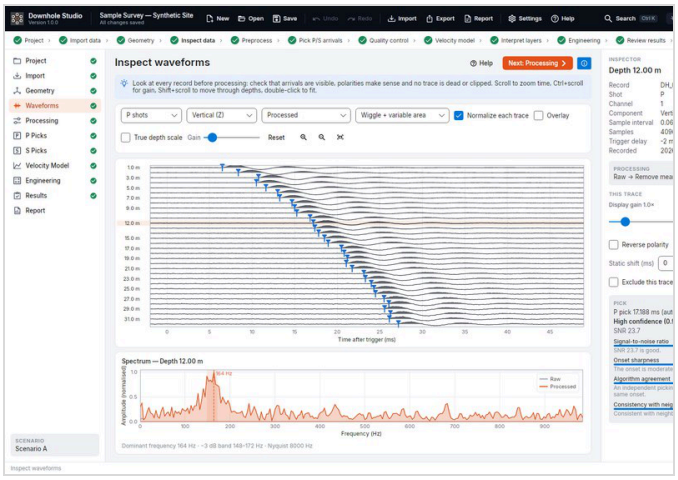
TECHNICAL SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Platform	Windows 10 (21H2+) or 11, 64-bit desktop
Memory / disk	8 GB RAM recommended; about 200 MB
Installation	Per-user setup, no administrator rights
Seismic format	SEG-2 revision 1, either byte order
Sample types	16/32-bit integer, 32/64-bit float
Not supported	20-bit packed (code 3), reported
Channel layout	Vertical, X, Y, reference; saved profiles
Depth reference	Ground surface or collar with stick-up
Filters	Butterworth HP / LP / BP, notch; causal or zero-phase
Other steps	Detrend, taper, AGC, balance, shift, resample
Trigger	Subtract reference onset or align to median
Pickers	AIC, STA/LTA, modified energy ratio
S-wave tools	S+ / S– difference, stacking, rotation
Correlation	Opposite shots and adjacent depths

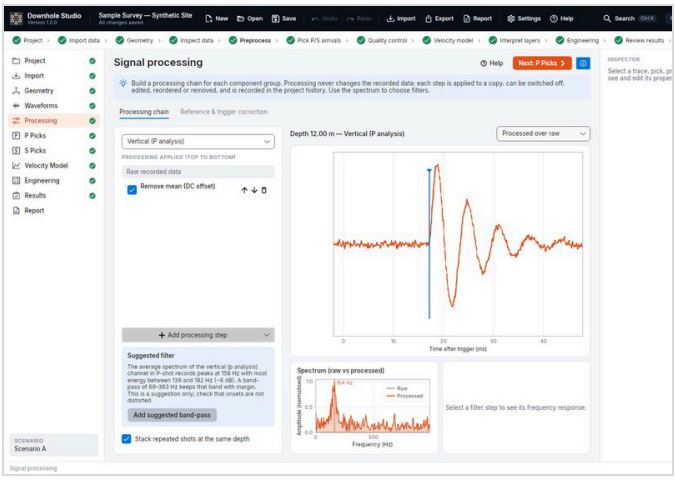
SPECIFICATION	DESCRIPTION
Ray geometry	Straight-ray correction or Snell's law
Velocity methods	Layer regression, pseudo- and true-interval, refracted-ray
Regression	Ordinary least squares or Huber (robust)
Layer suggestion	Piecewise-linear segmentation, BIC
Elastic properties	Vp/Vs, ν, G, E, K per layer
Density	Measured, constant, Gardner or Brocher
Vs30	Measured depth only; extrapolation labelled
Quality control	Automatic checks; Good / Review / Incomplete
Report	Branded PDF with processing history
Exports	XLSX, CSV, PNG, SVG, PDF, JSON audit
Editing	Undo / redo, snapshots, scenarios
Safety	Atomic save, backup copy, recovery
Licensing	Per computer; offline activation key, no internet needed
Validation	87 / 87 checks; Vs30 within 0.2–1.2 %

Images are representative. Specifications describe the standard Downhole Studio configuration, version 1.0.0.

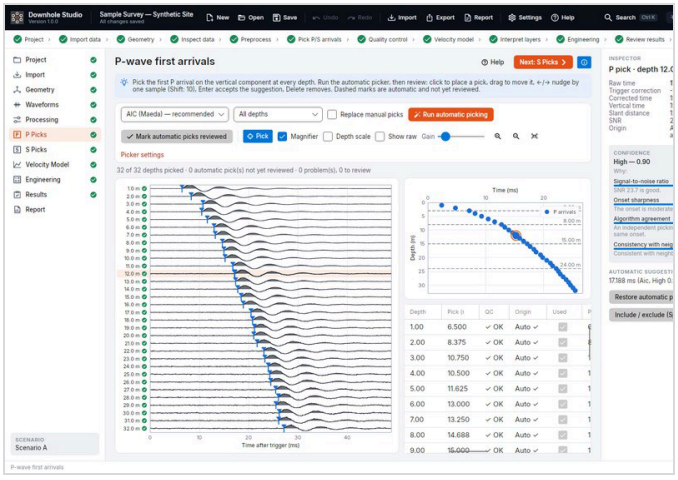
APPLICATION WORKSPACES



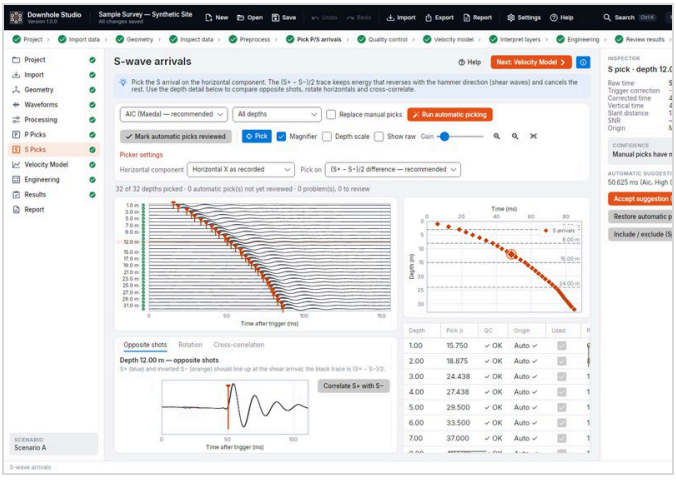
INSPECT WAVEFORMS



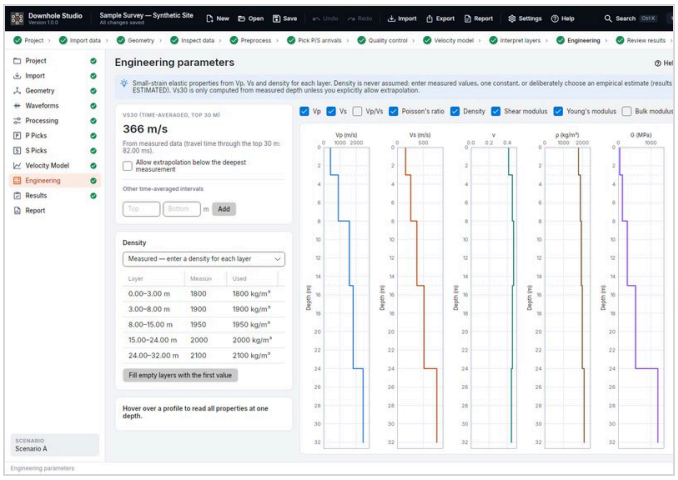
SIGNAL PROCESSING



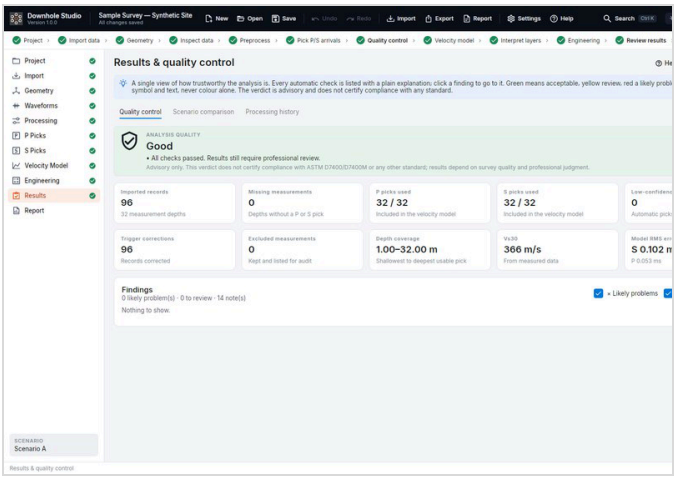
P-WAVE FIRST ARRIVALS



S-WAVE ARRIVALS



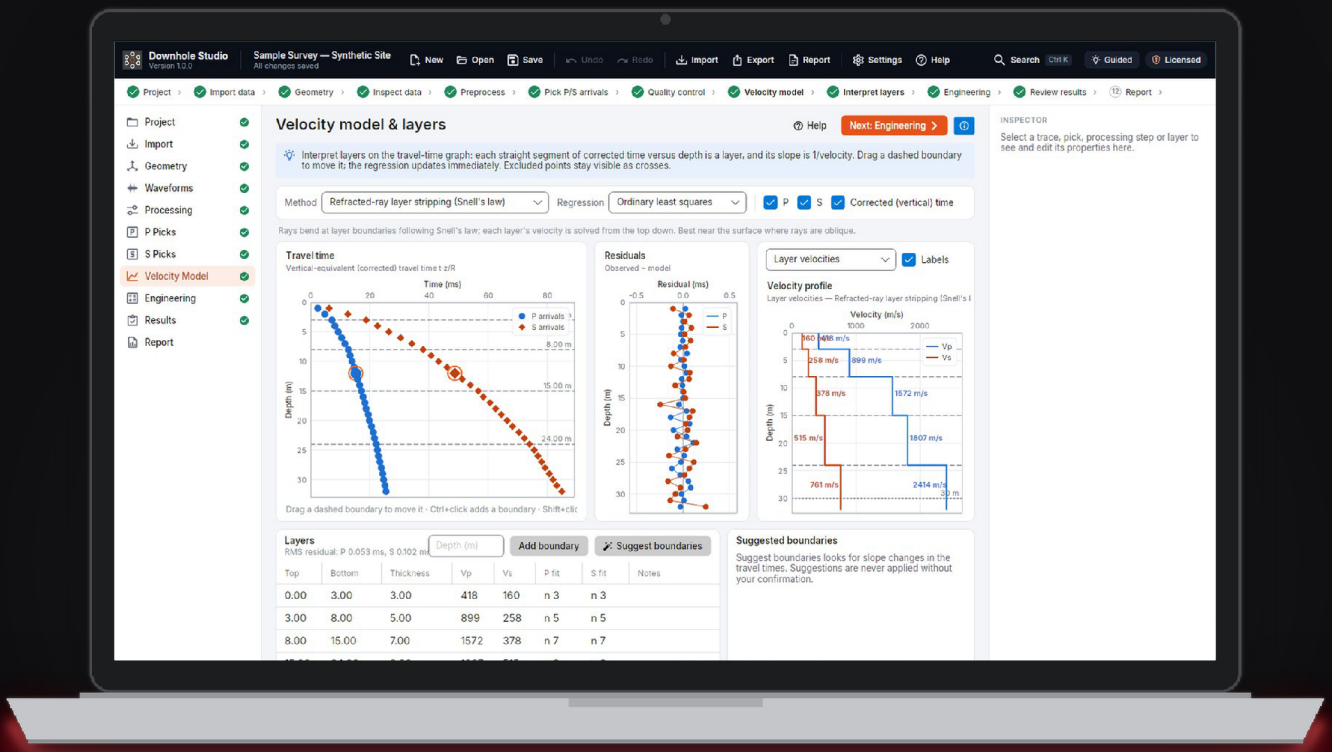
ENGINEERING PARAMETERS



RESULTS & QUALITY CONTROL

Screens are representative and show the example dataset supplied with Downhole Studio.

QUAKELOGIC



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Reply within 3 business days

VIEW PRODUCT

Scan for the Downhole Studio product page.

QuakeLogic Inc. is a California-based engineering and technology company. Downhole Studio is developed, published and supported in the USA by QuakeLogic Inc., committed to quality and customer satisfaction through reliable solutions and dependable support.

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