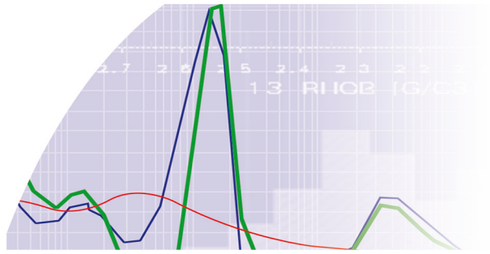
HARDWARE REQUIREMENTS

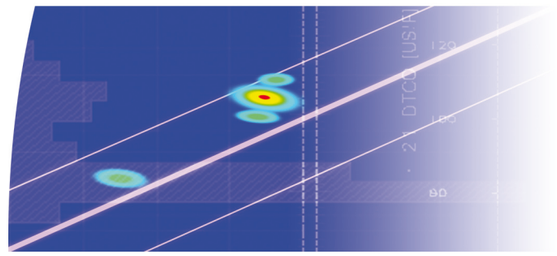
We no longer publish a minimum hardware requirement for running the program as any machine running Windows will be able to run LogIC.

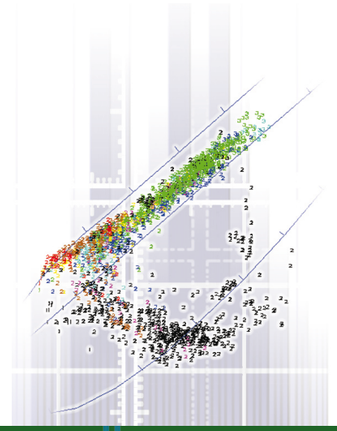
However, we have found extending the memory capacity of your machine to roughly equal that of the data files you might be using (commonly approaching 1Gb) will aid smooth operation.



EVALUATING LogIC

Trying LogIC for a period of time is easy. Please call us for installation of a full version of the program. A simple software protection key allows us to extend the evaluation period for as long as you need. When you wish to purchase LogIC, we simply send you a new, long-term code.

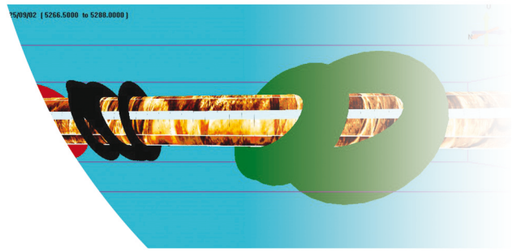




LogIC is a complete analysis, display and petrophysical database system for professional geologists, petrophysicists and engineers. Easy to learn and quick to use, LogIC nevertheless offers comprehensive functionality to cover the most taxing reservoir problems.

SUPPORT AND MAINTENANCE

An annual maintenance charge covers telephone, e-mail and fax support for LogIC, and includes all program updates. We are engaged in an active and continuous development program. User group meetings are held to discuss problems and consider new applications. We can also provide individual, in-house training programmes designed especially for your company's requirements.



Logicom E&P Limited developed LogIC software to perform in an operational setting where communicating answers, often quickly, is essential. Developed by working geologists and petrophysicists to meet their requirements in the real world of exploration and production, LogIC evolved with an emphasis on speed, flexibility and output quality.

LogIC is a tool for developing and testing ideas, and communicating them effectively. This characteristic makes LogIC the perfect platform for NMR, acoustic waveform and image log applications.

For more information on LogIC or any of our other products and services please call Joe Pumphrey, Kenny Tilley or Iain Stott at:
Tel: +44 (0) 1296 655511
Fax:+44 (0) 1296 301860
E-mail: support@logicomep.com

Logicom E&P Limited
Westcott Farm House,
Westcott, Aylesbury,
HP18 ONX,
United Kingdom
Tel: +44 (0) 1296 655511
Fax: +44 (0) 1296 301860
Email: support@logicomep.com,
Web: www.logicomep.com

LOGICOM E&P

LogIC

LOGICOM E&P

LogIC RUNS ON ANY MACHINE RUNNING THE WINDOWS OPERATING SYSTEM

PROGRAM FEATURES

INPUT FACILITIES

- Standard format input from:
  DLIS (RP66), LIS, LAS versions 1, 2 and 3, ASCII files
- Digitization of well-logs, graphs, cross-plot overlays, maps, and pictures.
- Core data, RFT, DST, CST and directional survey (TVD) data loading from from ASCII file, XL Spreadsheet or keyboard

DLIS and LIS reading include customisable data curve selection criteria, auto-store and batch facilities. Data files may also be output in LAS, LIS or DLIS format.

DATA MANIPULATION AND STATISTICS

- Listing, merging and joining of data files.
- Depth shifting of logs and cores (block and stretch-and-squeeze methods).
- Many single channel functions such as interpolation, cumulation, differentiation, normalisation, standardisation, translation, matching.
- Interactive algebraic manipulation of all channel data
- Filtering, by moving average, median, modal and low-pass methods.
- Single channel, bivariate, multivariate and robust multivariate statistical analysis.
- Cluster analysis, fuzzy logic and other facies identification tools.

ZONATION AND ANALYSIS

Analysis is done on a zone-by-zone basis. You may define any number of zones in a single well. Each zone can be assigned different analysis parameters, providing the facility to process geologically complex sequences in one go. Each data level can be analysed by several methods in a single pass. Assigning different equations and methods offers the flexibility to compare and contrast interpretations with minimum effort. For example, LogIC is ideal for developing moving T2 cutoffs for improved Sw interpretation, and also for customising equations for better permeability predictions.

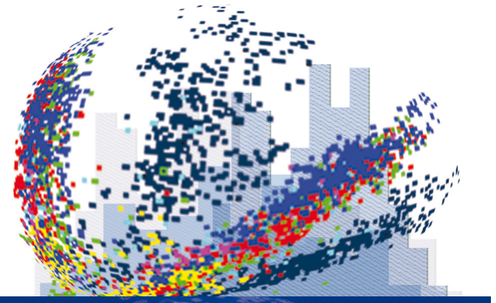
A basic philosophy of LogIC is that all the parameters, methods and plot definitions used by the program are stored in "object oriented" parameter files. This approach has a number of useful applications:

- Parameter files are associated with a well. Specifying the well means that the data set, analyses and presentations are fully defined.
- When a new well is drilled, methods and plot formats used on a nearby or analogous well can be quickly and effortlessly loaded for first pass analysis. In many cases the new data can be processed in minutes.
- Instead of simply storing the analytical results, LogIC retains, in the parameter files, the means by which those results are obtained. This approach makes it easy to track the processing strategy used for the well.

All standard, and many esoteric analytical methods for clay content, porosity and water saturation are available on LogIC. A multi-mineral option provides a complex mineralogy analysis using the matrix inversion method.

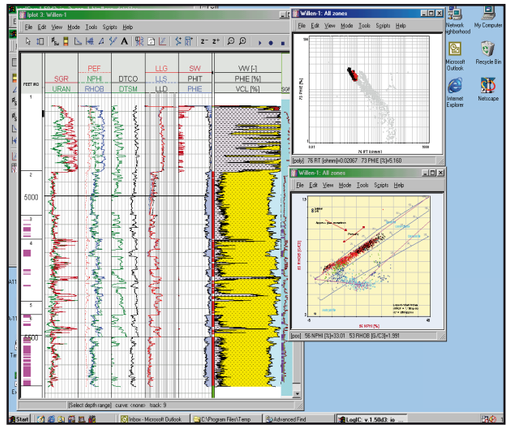
In addition to the standard analysis methods, users can customise existing equations, or add new ones, using the "command interpreter". The command interpreter operates both in addition to, and independently of, the normal analysis. It includes standard mathematical functions, conditional processing (IF statements) and access to many of the normal analysis procedures. In practice, the command interpreter allows users to perform virtually any analysis or data manipulation conceivable.

Analytical results are presented as continuous curves of porosity, water saturation, and other information. LogIC furnishes zone-by-zone summaries of net-pay, net-to-gross ratio, hydrocarbon pore volume, as well as averaged channel data over the entire zone, or over the net-sand and net-pay intervals. The zone summaries can be viewed on screen, printed as hardcopy, or made an integral part of log-plot presentation.



Further facilities include:

- Automatic calculation of commonly used parameters such as Rw from SP, Rwa, m, n, and p, neutron density separation, apparent matrix density, transit time and neutron porosity and many others.
- Calculation of bottom-hole temperature and mud properties by various methods.
- Environmental corrections for all common tools used by the leading logging contractors. Invasion corrections by tornado chart and other methods.
- Sensitivity studies for investigation and graphical representation of the influence of changes in cutoff criteria and petrophysical parameters (such as Rw) on the analysis results.
- Fully interactive Sw/Height modelling, permeability prediction and curve reconstruction.
- Computation of two-way-times from check-shot surveys or other data.
- Analytical results, petrophysical properties and channel statistics may be mapped and contoured in LogIC's quick-look mapping facility.
- Batch analysis and plotting provides the facility for processing an unlimited number of wells, without user interaction. A simple control file manages processing. Directives can be placed in the control file to modify petrophysical and other constants, so that extensive sensitivities can be run and plotted while the user pursues other activities.



CROSS-PLOTS, LOG PLOTS & OTHER GRAPHICS

The quality of plotted output - principally log-plots, cross-plots, and cross-sections- is one of the most impressive aspects of LogIC. All plots may be output to Windows printers (including PDF drivers), Zeh and Microsoft compatible CGM files, and other formats.

The principle features are:

Cross-plots:
- Histograms, scatter plots, density plots and line plots
- Z-axis (symbols) and c-axis (colour) allow 4 dimensional plotting
- Background mapping contours and shades frequency or fourth axis data
- Point discrimination
- Fully interactive definition, annotation and editing
- Regressions and set operations
- Interactive editing of petrophysical and lithological corner points
- Splom plots, which are a grid of cross-plots, to allow rapid assimilation of large amounts of complex data

Log-plots:
- Depth index may be any data channel, including measured depth, vertical depth and two-way time
- Display textural data for scale-independent annotation
- Display of data as images (electric and other), VDL, waveform, dip/azimuth, flags, profiles etc.
- Comprehensive options for the display of geological zones and geological events (such as bio-strat data)

- Display of cored intervals, RFT and DST data. The full data also may be listed at the base of the plot
- Optional listings at the base of the plot of the analysis results, petrophysical data, analysis methods etc. - in fact all the data parameters in the analysis
- Incorporation in the plot of external text files
- Log-plots and cross-plots are programmatically linked, allowing cross-reference between data in different displays.

COLLAGE

Collage is an editing and drawing module for the display of multiple well plots on one cross-section diagram. LogIC users can pick geological zones, and/or events, which may be tied across wells. Wells plots may be aligned on structural position or on geological boundaries. Numerous shading and annotation options provide a CAD-like flexibility which, allied with the powerful LogIC well plotting facilities, furnish a formidable tool for the geologist. Typical Collage plots range from cross-sections, designed to tell a simple story, to highly detailed plots for extensive comparisons between wells.