



# GeoFit™ DATABASE FEATURES

GeofitDatabaseFeatures\_WHP\_ALL\_20181008\_REV00

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## Revision History

Documents are reviewed annually to ensure relevance to the systems and process that they define.

Rev	Date	Originator/Reviser	Dept	Reason for Change
0.0	10 - 2018	Dryer, J.		
0.0				

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# Database Features

We are very proud of the GeoFit database. It is in its fifth iteration with intensive testing at each stage pointing the path to improvements. Based on one of the most widely-used public databases with a development history of almost 30 years, we have added enhancements to increase speed and have created an oilfield-based schema allowing organization (country, field region, well, wellbore), searching and manipulation using industry-familiar terms.

We believe our users are looking for the following features, which we provide:

1. Economy - The database infrastructure should not burden the expense of the total system.
2. Speed - The delay in getting data into the database, and more importantly, the speed of retrieval should support high-speed data utilization in workflows, data visualization and data transport.
3. Extensibility - The database should be capable of supporting thousands of objects and objects should be capable of encompassing objects of terabyte size. Data storage is stretched before size restrictions are encountered, so that resource planning is moved into the database management.
4. Multi-user, searchable, object-relational database to ensure comprehensive user access. ACID-compliant (atomicity, consistency, isolation and durability) to ensure that a database transaction is completed in a timely manner.
5. Flexibility - The underlying database management system supports storage of binary large objects, such as reports, pictures, sounds and video. It includes most SQL:2008 data types, including INTEGER, NUMERIC, BOOLEAN, CHAR, VARCHAR, DATE, INTERVAL, and TIMESTAMP. It has native programming interfaces for C/C++, Java, .Net, Perl, Python, Ruby, Tcl, ODBC, among others.
6. Security - Proven user authentication and object access controls support our comprehensive Permissions scheme. Data storage can be encrypted if additional protection is desired.
7. Safety - Data is stored redundantly in multiple copies in widely separated locations. Each redundant copy is continually examined for data integrity and restored from other copies if a failure is detected. The system is designed to protect the data if two of the multiple locations simultaneously die. Data durability is eleven nines, giving an average annual loss of .i2 objects per petabyte of data per year<sup>1</sup>. Data availability is four nines.

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<sup>1</sup> [https://wasabi.com/blog/11-nines-durability/?utm\\_referrer=https://www.google.com/](https://wasabi.com/blog/11-nines-durability/?utm_referrer=https://www.google.com/)

<b>Limit</b>	<b>Value</b>
Maximum Database Size	Unlimited
Maximum Table Size	32 TB
Maximum Row Size	1.6 TB
Maximum Field Size	1 GB
Maximum Rows per Table	Unlimited
Maximum Columns per Table	250 - 1600 depending on column types
Maximum Indexes per Table	Unlimited

We believe that a central database containing data to which all users have access is the best system for the following reasons.

1. There is consistency and version control. Multiple copies subject to different editing are avoided and all users see the same data.
2. The single repository can concentrate efforts to secure the repository against attack and storage failures.
3. A central depository avoids the unnecessary storage of multiple object copies, lowering the data storage costs.