

ACID (Atomicity, Consistency, Isolation, and Durability) provides a set of guarantees when working with a DBMS. While most relational DBMS are ACID compliant, the implementation of this compliance can vary.

Atomicity ensures that all parts of a transaction are completed or none at all. Partial failures are not allowed.

Consistency, or referential integrity, ensures that data remains accurate and reliable, adhering to predefined rules. Unlike the other priorities, consistency is not intrinsic to the DBMS itself. Instead, the application calling the database relies on the atomicity and isolation properties of the database to maintain consistency.

Isolation is a guarantee that concurrently running transactions should not interfere with each other. This is arguably the most important property because a DBMS can often have different default isolation levels, which may need to be changed based on what is needed for your application.

Finally, durability is a guarantee that changes made by a committed transaction must not be lost.