

The Pros and Cons of 8 Popular Databases

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Databases store information and its contents can be everything from product catalogs to repositories of customer information. For information to be easy to access, use and understand, database management systems are required. Database management systems can help sort information as well as link databases to each other and provide reports about changes and trends in the information in databases.

In this post, we'll go over some of the most popular databases currently used and outline the pros and cons of each.

What to Look for in a Database?

Although database management systems all perform the same basic task, which is to enable users to **create, edit and access information in databases**, how they accomplish this can vary. Additionally, the features, functionality, and support associated with each management system can differ significantly.

When comparing different popular databases, you should consider how user-friendly and scalable each DBMS is as well as how well it will integrate with other products you're using. Additionally, you may want to take into account the cost of the management system and the support available for it.

Database management engines also need to be able to **grow with your organization**. Small businesses may only need limited features or have small amounts of data to manage, but requirements can grow substantially over time, and switching to another database management system can be a hassle.

There are a number of popular databases systems available - both paid and free. To help you decide which management system might be right for you or your organization, check out the list below of 8 popular databases.

A List of 8 Popular Databases

1. Oracle 12c

ORACLE[®] 12^c DATABASE

It's no surprise that [Oracle](#) is consistently at the top of lists of popular databases. The first version of this database management tool was created in the late 70s, and there are a number of editions of this tool available to meet your organization's needs.

The newest version of Oracle, 12c, is designed for the cloud and can be hosted on a single server or multiple servers, and it enables the management of databases holding billions of records. Some of the features of the latest version of Oracle include a [grid framework](#) and the use of both physical and logical structures.

This means that physical data management has no effect on access to logical structures. Additionally, security in this release is excellent because each transaction is isolated from others.

Pros

- You'll find the latest innovations and features coming from their products since Oracle tends to set the bar for other database management tools.
- Oracle database management tools are also incredibly robust, and you can find one that can do just about anything you can possibly think of.

Cons

- The cost of Oracle can be prohibitive, especially for smaller organizations.
- The system can require significant resources once installed, so hardware upgrades may be required to even implement Oracle.

Ideal for: Large organizations that handle enormous databases and need a variety of features.

2. MySQL



[MySQL](#) is one of the most popular databases for web-based applications. It's freeware, but it is frequently updated with features and security improvements. There are also a variety of paid editions designed for commercial use. With the freeware version, there's a greater focus on speed and reliability instead of including a vast array of features, which can be good or bad depending on what you're attempting to do.

This database engine allows you to select from a variety of storage engines that enable you to change the functionality of the tool and handle data from different table types. It also has an easy to use interface, and batch commands let you process enormous amounts of data. The system is also incredibly reliable and doesn't tend to hog resources.

Pros

- It's available for free.
- It offers a lot of functionality even for a free database engine.
- There are a variety of user interfaces that can be implemented.
- It can be made to work with other databases, including DB2 and Oracle.

create incremental backups.

- There is no built-in support for XML or OLAP.
- Support is available for the free version, but you'll need to pay for it.

Ideal for: Organizations that need a robust database management tool but are on a budget.

3. Microsoft SQL Server



As with other popular databases, you can select from a number of editions of [Microsoft SQL server](#). This database management engine works on cloud-based servers as well as local servers, and it can be set up to work on both at the same time. Not long after the release of Microsoft SQL Server 2016, Microsoft made it available on Linux as well as Windows-based platforms.

Some of the standout features for the 2016 edition include temporal data support, which makes it possible to track changes made to data over time. The latest version of Microsoft SQL Server also allows for [dynamic data masking](#), which ensures that only authorized individuals will see sensitive data.

Pros

- It is very fast and stable.
- The engine offers the ability to adjust and track performance levels, which can reduce resource use.
- You are able to access visualizations on mobile devices.
- It works very well with other Microsoft products.

Cons

- Enterprise pricing may be beyond what many organizations can afford.
- Even with performance tuning, Microsoft SQL Server can gobble resources.
- Many individuals have issues using the SQL Server Integration Services to import files.

Ideal for: Large organizations that use a number of Microsoft products.

4. PostgreSQL



[PostgreSQL](#) is one of several free popular databases, and it is frequently used for web databases. It was one of the first database management systems to be developed, and it allows users to manage both structured and unstructured data. It can also be used on most major platforms, including Linux-based ones, and it's fairly simple to import information from other database types using the tool.

This database management engine can be hosted in a number of environments, including virtual, physical and cloud-based environments. The latest version, PostgreSQL 9.5, offers larger data volumes and an increase in the number of concurrent users. Security has also been improved thanks to support for both DBMS_SESSION and

- This database management engine is scalable and can handle terabytes of data.
- It supports JSON.
- There are a variety of predefined functions.
- A number of interfaces are available.

Cons

- Documentation can be spotty, so you may find yourself searching online in an effort to figure out how to do something.
- Configuration can be confusing.
- Speed may suffer during large bulk operations or read queries.

Ideal for: Organizations with a limited budget that want the ability to select their interface and use JSON.

5. MongoDB



Another free database that also has a commercial version, [MongoDB](#) is designed for applications that use both structured and unstructured data. The database engine is very versatile, and it works by connecting databases to applications via MongoDB database [drivers](#). There is a comprehensive selection of drivers available, so it's easy to find a driver that will work with the programming language being used.

Since MongoDB wasn't designed to handle relational data models, even though it can, performance issues are likely to crop up if you attempt to use it this way. However, the database engine is designed to handle variable data that isn't relational, and it can often work well where other database engines struggle or fail.

MongoDB 3.2 is the latest version, and it features new pluggable storage engines. Documents can also now be validated during updates and inserts, and the text search functions have been improved. A new partial index capability also may allow for improved performance by shrinking the size of indexes.

Pros

- It's fast and easy to use.
- The engine supports JSON and other [NoSQL](#) documents.
- Data of any structure can be stored and accessed quickly and easily.
- Schema can be written without downtime.

Cons

- SQL is not used as a query language.
- Tools to translate SQL to MongoDB queries are available, but they add an extra step to using the engine.
- Setup can be a lengthy process.
- Default settings are not secure.

6. MariaDB



This database management system is free, and like many other free offerings, [MariaDB](#) also offers paid versions. There are a variety of plug-ins available for it, and it's the fastest growing open source database available.

The database engine allows you to choose from a variety of storage engines, and it makes great use of resources via an optimizer that increases query performance and processing. It's also highly compatible with MySQL, and it is a drop in replacement with exact matching of commands and APIs because many of the developers of MySQL were involved in its development.

Pros

- The system is fast and stable.
- Progress bars let you know how a query is progressing.
- Extensible architecture and plug-ins allow you to customize the tool to match your needs.
- Encryption is available at network, server and application levels.

Cons

- The engine is still fairly new, so there's no guarantee further updates and versions will be forthcoming.
- As with many other free database engines, you have to pay for support.

Ideal for: Organizations looking for an affordable MySQL alternative.

7. DB2



Created by IBM, [DB2](#) is a database engine that has NoSQL capabilities, and it can read JSON and XML files. Unsurprisingly, it's designed to be used on IBM's iSeries servers, but the workstation version works on Windows, Linux and Unix.

The current version of DB2 is LUW is 11.1, which offers a variety of improvements. One, in particular, was an improvement of [BLU Acceleration](#), which is designed to make this database engine work faster through data skipping technology. Data skipping is designed to improve the speed of systems with more data than can fit into memory. The latest version of DB2 also provides improved disaster recovery functions, compatibility, and analytics.

Pros

- Blu Acceleration can make the most of available resources for enormous databases.
- It can be hosted from the cloud, a physical server or both at the same time.
- Multiple jobs can be run at once using the Task Scheduler.
- Error codes and exit codes can determine which jobs are run via the Task Scheduler.

Cons

- The cost is outside of the budget of many individuals and smaller organizations.
- Third party tools or additional software is required to make clusters or multiple secondary nodes work.

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8. SAP HANA



Designed by SAP SE, [SAP HANA](#) is a database engine that is column-oriented and can handle SAP and non-SAP data. The engine is designed to save and retrieve data from applications and other sources across multiple tiers of storage. Along with being able to be hosted from physical servers, it can also be hosted from the cloud.

Pros

- It supports SQL, OLTP and OLAP.
- The engine reduces resource requirements through compression.
- Data is stored in memory, reducing access times, in some cases, significantly.
- Real-time reporting and inventory management are available.
- It can interface with a number of other applications.

Cons

- The licensing cost is high for SAP HANA even for those used to paying for enterprise software.
- SAP HANA is still a relative newcomer, and patches and updates are frequent to the point of being annoying.

Ideal for: Organizations that are pulling data from applications and aren't under a terribly constrained budget.

Summary

There are multiple popular databases to choose from, which means that you're basically guaranteed to find one that will fit your needs. Thanks to the fact that there are a number of excellent free options, individuals and small organizations will still be able to find a database management tool that meets their criteria. On the other hand, if your organization requires a more feature-intensive solution, there are also many paid database solutions available.

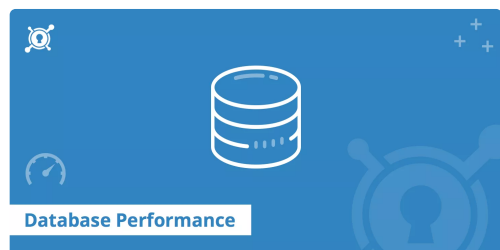
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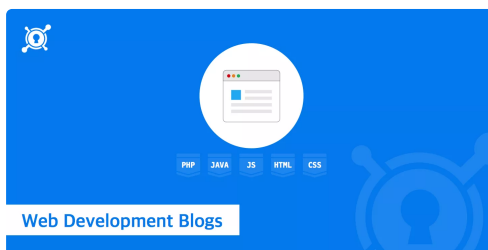
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