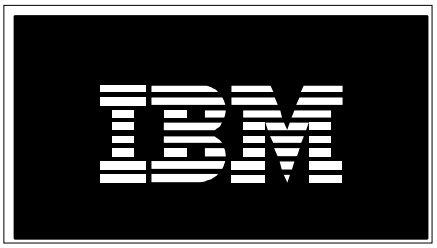

DB2 for i Frequently Asked Questions

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1. What is DB2 for i?

DB2 for i is the relational database management system (RDBMS) that is built into the IBM i Operating System that runs on IBM's Power Systems. It is an extensible, high performance, scalable database that adheres to industry standards while leveraging the IBM i architecture to maintain its value proposition of lower total cost of ownership.

2. Do I need to buy DB2 for i?

DB2 for i is built into IBM i at no additional charge. This includes the core database management system, the SQL/Query engine, storage management, security, and more. There are several features that you can add onto the core database functionality, including products for analytics or application development.

3. What level of IBM i supports DB2 for i?

DB2 for i is not relevant to a specific OS (Operating System) level, but rather, built into the OS at all levels. There is only one RDBMS within IBM i. The current level of DB2 for i is Version 7 Release 3 (7.3). The functionality of DB2 for i will differ with each version/release of IBM i, as new enhancements are introduced with each new version. In addition, mid-release updates are also provided through "technology refreshes."

4. How does DB2 for i compare to DB2 for Linux/Unix/Windows (LUW)?

All the DB2 family members share common attributes (like SQL Standard syntax support and some tools), but also differ in their optimization for the specific platform and operating environments, and differ in packaging and in some administrative areas. At any point in time, feature/function differences may exist as well, depending on delivery schedules and market requirements.

SQL Syntax is very common across the DB2 products. To see more details about the common SQL supported by DB2, refer to http://www.ibm.com/developerworks/data/library/techarticle/db2common/.

Version/Release naming will differ because, as mentioned above, DB2 for i follows the IBM i version/release numbering scheme, and not the DB2 LUW version/release scheme (you should not assume a comparison of version/release is a reflection on functional equivalency).

Because DB2 is included as part of IBM i, packaging is obviously different, whereas DB2 for Linux/Unix/Windows is a common code base that can be installed on many different operating systems and platforms.

Graphical tools to administer the database are provided as part of an administration component of IBM i, whereas DB2 LUW's administrative tools are separate components from the OS.

5. Is DB2 for i "optimized" for SAP?

Yes. For many years, there has been a joint development team between DB2 for i and SAP. In addition to this joint team, the SAP and DB2 development teams work very closely together through a single IBM focal point, ensuring requirements from SAP are translated into compatible features across our DB2 portfolio. This ensures that requirements that are implemented in DB2 for Linux/Unix/Windows will be implemented in a consistent manner in DB2 for i and vice versa.

Some of the specific features added to DB2 for i to optimize for SAP include:

- Enhanced SQL Performance Analysis
- SAP specific SQL optimization techniques
- Increased Table Limits
- High Availability enhancements to improve SAP upgrade processes
- Improved Memory Management
- Improved Data Warehousing features

More DB2 features that are designed to meet SAP future needs are already being developed for the next release and still more items for are planned for the following release.

6. Do I need DB2 Connect to connect my Linux, Unix, or Windows clients to DB2 for i?

The answer is that DB2 Connect can be used, but it is not necessarily a requirement. DB2 Connect can be used to connect applications from those environments to any DB2 server via ODBC, .NET, JDBC, or using CLI/DRDA interfaces. So if the only connectivity required is from Windows or Linux, to DB2 for i (no other DB2 family member), you might consider the IBM i Access for Windows middleware (ODBC, OLE DB, .NET) or Java Toolbox JDBC drivers available at no charge with the IBM i operating system. However, DB2 Connect also includes additional programmer productivity features through .NET (Visual Studio) or PHP (Zend Studio) plug-ins for DB2. DB2 Connect can also be used for DB2 data "federation", such as the ability to join data from two DB2 (or Informix) databases with a single SQL statement.

7. Does DB2 for i support data warehousing?

Yes, absolutely. Several attributes are critical to building and maintaining a data warehouse for analytical applications. Scalability is a key attribute, and DB2 for i is a leader in database limits (how big things can get). Performance of large, complex queries is another attribute of a data warehouse platform, and DB2 for i's advanced cost based optimizer, unique columnar like indexing technology, parallel processing and in-memory architecture are just some of the features to drive performance in a warehouse environment. Finally, you need tools to build the data warehouse and analyze data, and for that, IBM offers the DB2 Web Query family of products, or you can choose from many of the open systems tools in the marketplace.

8. Other database systems tout the ability to do tasks in parallel or to partition data for better performance. Can DB2 for i do that?

Yes. DB2 for i introduced parallel database functionality, also known as SMP (Symmetric Multi-Processing) capability in V3R1 (1995), and has enhanced those functions significantly since

then. The DB2 for i SMP feature is an operating system add-on that can significantly improve performance of database tasks by breaking the processing across multiple CPUs. By doing this, SMP optimizes the available resources to complete the database task in a cost-effective manner.

It should be noted that other databases use the notion of "data partitioning" to address performance issues. Because these databases do not employ **single-level storage** (single-level storage is a fundamental design point of IBM i), they are restricted on how much space they can address. Furthermore, they cannot effectively use all the processors on a single box for a single unit of work. Database partitions enable them to overcome both problems.

Because of Single-Level Storage, and the ability for near-linear scalability in an SMP environment, "data partitioning" as it is called in other database management systems is not required, and this also reduces the amount of technical resource required to manage the partitioned environment. For IBM i customers interested in data partitioning, a technical review is highly recommended.

9. DB2 for i DBAs are not readily available in the inventory of available skills in the marketplace. I can find lots of DBAs for other database products. Wouldn't an investment in one of these other databases be a better solution?

Availability of DBA skills on the marketplace is a subject that requires some further investigation. For instance, keep in mind that (a) many typical DBA tasks required in other database products are not required on DB2 for i, (b) DBAs have many skills that are transferable to DB2 for i, and (c) the DBA "community" has evolved because of the need for this specific skill on other database management systems.

Some examples of typical DBA tasks on other database systems include creation and monitoring of tablespaces, logs, and cache area disk usage, re-balancing of indexes, running utilities to gather statistics, and partitioning of data. The IBM i architecture and sophisticated cost-based optimizer of DB2 for i automates these processes.

In addition, many of the skills of a DBA are common across all relational databases, including DB2 for i. This includes knowledge of SQL, relational data modeling, indexing, and query optimization. With the exception of query optimization, learning these skills on DB2 for i is a matter of learning new user interfaces. Query optimization knowledge can be obtained through offerings from the DB2 for i Lab Services Team at http://ibm.biz/SQLPerf.

10. Does DB2 for i require a DBA?

Not in the traditional sense. The DB2 for i Lab Services Team has coined the term "Database Engineer" or DBE, and suggests that this is a role critical to any DB2 for i shop to fully leverage and maintain DB2 for i. A DBE will be more of a developer than administrator, and spend more of their time with DB2 for i doing data modeling, SQL coding, developing indexing strategies, and SQL optimization. If the application is SQL based, this is a critical element to ensuring appropriate design and SQL optimization. A person with an understanding of SQL optimization is highly recommended to fully leverage the benefits of DB2 for i.

11. What are DDS and RPG? Am I really using DB2 or a flat file system?

DB2 for i has many programming and operational interfaces available for application developers, DBAs, and operations/support personnel. However, the database engine is still the same regardless of the interface being used. With this architecture, you actually have MORE flexibility in how you use the database and what skills are available in the marketplace to help develop or support applications.

DDS (Data Description Specifications) provide one option to define database tables and indexes. These are sometimes thought of as "flat files" but in most cases they are fully relational, but just not defined with SQL. RPG is a common programming language in the IBM i world and often these applications access the data, not with SQL, but with record level reads and writes. These interfaces, commonly referred to as "native" interfaces, were in place before SQL became an industry standard and continue to be used heavily in an IBM i environment. However, these legacy interfaces have effectively been stabilized from a development perspective, and for over a decade now all new function and enhancements have been to the SQL world in DB2 for i.

12. Should I be moving from DDS and record level access to SQL?

The DB2 for i Lab Services team would recommend you consider this strongly. The reasons for doing this are plentiful, including:

- Flexibility in enhancing your applications for new areas, such as XML processing
- Performance of SQL over record level access
- Moving of business rules into DB2 rather than at the application layer for better security, better data integrity, and removal of dependence on monolithic application code.
- Take advantage of SQL skills in the marketplace

13. How big of a project would this be?

The DB2 for i Lab Services has developed a strategy that allows you to move at your own pace with minimal impact to your applications or environment. A phased approach for "database modernization" allows you to start small with zero impact to applications, continuing onto more advanced phases where you essentially replace the record level access with SQL I/O routines and you're on your way.

Learn more about database modernization here.

14. Where can I go for help with DB2 for i?

The DB2 for i Lab Services Team is a set of senior consultants that have years of in-depth experience working with DB2 for i and clients to provide skills transfer, design and implementation guidance and consulting around everything DB2 for i. Popular offerings from the Center include:

- Database Performance Assessments
- SQL Performance Workshop
- Database Modernization Workshop
- Advanced SQL Workshop
- DB2 Web Query Getting Started Workshop
- DB2 for i Analytics Discovery Workshop

- Row and Column Level Security Design and Implementation Workshop
- Very Large Database (VLDB) and Limits to Growth Workshop

To contact the DB2 for i Lab Services Team, send an email to QU2@us.ibm.com.

For additional information about DB2 for i:

http://www-03.ibm.com/systems/power/software/i/db2/index.html

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When referring to storage capacity, 1 TB equals total GB divided by 1000; accessible capacity may be less.

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