Introduction

This article provides a list of online learning resources for DB2 for Linux, UNIX, and Windows. The DB2 Information Center is also a good source of information. Many of the items listed below are published as articles on IBM developerWorks or as IBM Redbooks™. This list is intended for customers, consultants, and other technical specialists who simply want to learn more about DB2 database administration topics such as installation, migration, administration, monitoring and tuning, high availability, database porting, and problem determination. The topics are organized under the following headings:

- Installation and migration
- Administration
- Monitoring and tuning
- Native XML support
- High availability
- Linux platform
- Windows platform
- Porting
- Problem determination
- Certifications

Installation and migration

DB2 Deployment Guide

- Type: Redbook
- Level: Intermediate
- Date: October 2008
- Focusing on the DB2 V9.5 deployment methodology, this IBM® Redbooks® publication provides general guidance and serves as a reference resource for DB2 based solution deployment. These techniques and considerations are also applicable to other recent versions of DB2 for LUW.

Storage, I/O, and DB2
http://www.ibmdatabasemag.com/dbadmin/showArticle.jhtml?articleID=211300267

- Type: Article
- Level: All
- Date: Oct 2008
- Network storage overview. Deploying DB2 on network storage. A generic storage configuration that should result in good performance for most DB2 database deployments in NAS or SAN environments.

DB2 migration portal

- Type: Technote
- Level: All
- This migration portal contains a list of all the available migration roadmaps, migration guides, and information and resources related to migration to a new release of DB2 products and migration of software that uses DB2 database products such as DB2 Data Warehouse, DB2 Content Manager, and SAP systems.

DB2 Version 9.5 for Linux, UNIX, and Windows translated manuals
http://www-1.ibm.com/support/docview.wss?uid=swg27009728

- Type: Website
- DB2 9.5 product manuals in Portable Document Format (PDF) in all supported languages. English versions of the DB2 9.5 product manuals in PDF format are also available.

New to DB2?

- Type: Wiki
- This "New to DB2" document provides you with a good foundation about DB2 in the least time possible. Topics include: Introduction, DB2 system overview, Installing DB2, Connecting to a database, Basic sample programs, and DB2 documentation

Compare the distributed DB2 9.5 data servers

- Type: Article
- Level: Introductory
- Date: November 2007
- In a side-by-side comparison table, author Paul Zikopoulos makes it simple to understand the basic licensing rules, functions, and feature differences between the members of the distributed IBM DB2 9.5 data server family.

Which distributed edition of DB2 9.5 is right for you?

- Type: Article
- Level: Introductory
- Date: May 2008
- Learn the details on what makes each edition of IBM DB2 for Linux, UNIX, and Windows unique. The author lays out the specifications for each edition, outlines licensing considerations, and describes some interesting things customers are doing with each edition of DB2. This popular article has been rewritten for the DB2 9.5 release and is current as of the date of publication.

Which DB2 9.5 client connectivity option is right for you?

- Type: Article
- Level: Introductory
- Date: April 2008
- Description and differentiation of client connectivity options with DB2 v9.5.

Installing IBM DB2 UDB Express Edition transparently with your application

- Type: Article
- Level: Introductory
- Date: June 2003
- DB2 UDB Express lets you use this handy response file method of installing DB2, which makes it easy to deploy DB2 UDB Express and which also lets you embed DB2 installation in your own application program. This article describes the complete DB2 response file installation process on Linux and Microsoft Windows (the platforms on which DB2 UDB Express is offered).

Set up DB2 Enterprise 9 on a Linux virtual machine using VMware ESX Server

- Type: Article
- Level: Introductory
• Date: March 2007
• This article introduces the VMware Infrastructure components and walks you through setting up DB2® Enterprise 9 on a 64-bit Linux® virtual machine using the VMware ESX Server product.

**Setting up DB2 for UNIX and Linux on NFS mounted file systems**

• Type: Article
• Level: Introductory
• Date: September 2006
• With IBM DB2 9 for Linux and UNIX, you can now run DB2 from NFS mounted code. While there are clear advantages to this configuration, such as simplified maintenance and decreased overall disk usage, there are a number of issues and potential problems to consider. This article takes you through the considerations and walks you through the manual steps that are necessary to properly set up DB2 9 to run from NFS mounted code.

**Administration**

**Best practices for DB2 for Linux, Unix, and Windows**

• Type: Article
• Level: All
• Date: May - Oct 2008
• These Best Practice papers present advice on the most optimal ways you can use DB2 to satisfy key business data processing needs. These papers are authored by leading experts in IBM’s development and consulting teams, and have been extensively tested. Each Best Practice paper is designed to provide practical guidance for the most common DB2 9.5 product configurations. By applying these recommendations, you may improve the value of your DB2 data servers and align yourself with IBM’s technical direction for DB2.

**How multithreaded architecture works in DB2 9.5**

• Type: Article
• Level: Intermediate
• Date: July 2008
• New multithreaded capabilities were introduced in DB2 9.5 for Linux, UNIX, and Windows, codenamed “Viper 2.” Learn how these new capabilities affect you if you regularly monitor processes or threads, if you need to understand how much memory your database is using, or if you want to simplify mission-critical tasks such as backup, restore, and roll forward. You'll learn how these changes affect configuration parameters, and gain knowledge of the new technology in DB2 9.5.

**DB2 Security and Compliance Solutions for Linux, UNIX, and Windows**

- **Type:** Redbook  
- **Level:** Intermediate  
- **Date:** March 2008  
- **In this IBM Redbooks publication we discuss the existing and new DB2 security features introduced in DB2 9.5 for Linux, UNIX, and Windows. These enriched DB2 security features provide you with the capability to protect your data and comply with regulatory requirements.**

**What's new in DB2 Viper**

- **Type:** Article  
- **Level:** Introductory  
- **Date:** February 2006  
- **DB2 Universal Database for Linux, UNIX, and Windows is providing a new query language, new storage technology, new indexing technology, and other features to support XML data and its inherent hierarchical structure. But don't worry, all of DB2's traditional database management features remain, including its support for SQL and tabular data structures. Explore Viper's new XML technology and learn why IBM now considers DB2 a "hybrid" or multi-structured database management system (DBMS).**

**Understanding the advantages of DB2 9 autonomic computing features**

- **Type:** Article  
- **Level:** Intermediate  
- **Date:** November 2007  
- **The self tuning memory manager (STMM) is a revolutionary memory tuning feature that was first introduced in IBM DB2 9. The STMM eases the task of memory configuration by automatically setting optimal values for most memory configuration parameters, including buffer pools, package cache, locking memory, sort heap, and total database shared memory. When STMM is enabled, the memory tuner dynamically distributes the available memory among the various memory consumers. This article explains the function of the STMM, teaches you to enable the feature, and also discusses how STMM can bring real benefits to your business environment.**

**Understanding global variables in DB2 Version 9.5**

- **Type:** Article  
- **Level:** Intermediate  
- **Date:** November 2007  
- **Discover how to maximize the flexibility of a relational database system using IBM DB2 Version 9.5 global variables. DB2 V9.5 introduces the concept of global variables that help you freely build a complex system within a relational database where information can**
be shared between SQL statements on the same sessions, or can be accessed by SQL statements defined and contained within the database system. With the help of global variables, all of this can be done without any requirement for application logic to support this transfer of information. The purpose of this article is to explain this new feature and how to use it to exploit its potential. Whether you are a seasoned DBA or you're just starting out, you will find helpful information about global variables.

**DB2 best practices for basic design, performance, and manageability**


- **Type:** Article
- **Level:** Introductory
- **Date:** September 2007
- Over the past few years, much has been written about DB2 design and implementation best practices. There are many books, along with dozens of articles, that provide insight into how DB2 should be designed and integrated into applications. To provide some basic guidance for customers and business partners entering this maze, this article compiles a list of arguably the best practices to be considered during design and implementation of your application using IBM DB2 technology. The intended result of this article is a more effective and efficient DB2 implementation. This article is not intended to provide detailed performance best practices for existing DB2 customers and independent software vendors (ISVs).

**Introducing DB2 9: DB2 9 unveiled**


- **Type:** Article
- **Level:** Introductory
- **Date:** July 2006
- IBM has continually led the data management industry with the release of innovative technology starting with Information Management System (IMS) in the 1960s, invention of relational database model and Structured Query Language (SQL) in the 1970s, DB2 for the mainframe in 1980s, and now with DB2 9, a new generation of data server that fundamentally transforms the way information is managed as a strategic asset within the business. This version of DB2, probably the most significant DB2 release ever, takes data services to new levels by lowering costs, delivering greater agility, and improving business insight, making DB2 9 an essential ingredient of the information as a service infrastructure.

**New features in DB2 Viper 2 to help your business grow**


- **Type:** Article
- **Level:** Introductory
- **Date:** June 2007
- As organizations grow, systems and database administrators face many challenges; among them being how to increase the capacity of the database, how to store more data effectively, and how to manage privileges and authorities for a growing numbers of users. This article
shows how you can leverage three important features in DB2 Viper 2 to overcome these challenges: the new redesigned redistribute utility, enhancements to row compression, and database roles.

The DB2 DBA Checklist

- Type: Article
- Level: Introductory
- Date: August 2006
- Just like your car, a database requires some checks to keep it running optimally. This document is broken down into checks or tasks that should be run at different intervals to do just that.


- Type: Article
- Level: Introductory
- Date: June 2007
- DB2's autonomic capabilities lighten the load of the DBA and enable you to maximize performance. This article demonstrates how to enable and configure automatic statistics collection, monitor automatic statistics collection progress, and detect errors. It also provides an overview of automatic statistics collection processing to help you understand how and when automatic statistics collection determines when to collect statistics on a table. This article is the first of a two-part series on autonomic table maintenance in DB2.

Automatic table maintenance in DB2, Part 2: Automatic table and index reorganization in DB2 for Linux, UNIX, and Windows

- Type: Article
- Level: Intermediate
- Date: July 2007
- The autonomic capabilities of IBM DB2 for Linux, UNIX, and Windows lighten the load of the DBA and enable you to maximize performance. This article demonstrates how to enable and configure automatic reorganization, monitor automatic reorganization progress, and detect errors. It provides an overview of the automatic reorganization processing to help you understand how and when this automatic feature determines that reorganization of a table or index is required, and what type of reorganization will be performed. Finally, a set of reorg best practices is presented. This article belongs to a two-part series on autonomic table maintenance in DB2.

DB2 9: Row compression and large RIDs
This article describes the impact of large row IDs (RIDs) on the row compression feature in DB2 for Linux, UNIX, and Windows. Both large RIDs and row compression features were introduced in DB2 9. Row compression can significantly reduce the average row size, but when not using large RIDs, you are limited by the regular tablespace limits of 255 rows per page. By examining a simple test case of the table ORDERS from the TPCH database, you'll see how using large RIDs can circumvent the limits on the number of rows per page, a relevant factor for optimizing the benefits of row compression.

Row compression in DB2 9

Row compression is a new feature of IBM DB2 9 that yields storage capacity savings. This article examines the storage savings and performance impact of this feature. It describes the workload characteristics and environments in which row compression will thrive, as well as providing general guidelines that you can follow to efficiently use this feature.

Introducing DB2 9, Part 1: Data compression in DB2 9

Reduce storage requirements, improve I/O efficiency, and provide quicker access to data from disk with the advanced data compression in IBM DB2 9 "Venom" technology. This article takes a look at how it works, explains the benefits, and shows sample results of space savings. For more information on the new features of DB2 9, read other articles in the series.

Introducing DB2 9, Part 2: Table partitioning in DB2 9

Improve performance and achieve greater scalability and easier management by using table partitioning, a feature of DB2 9 (formerly codenamed "DB2 Viper." As tables grow in size, it may be easier to manage your data in chunks or by limited ranges. This article takes a quick look at the basics of table partitions and gives you insight into the benefits of this capability. For more information on the new features of DB2 9, read other articles in the series.

Introducing DB2 9, Part 3: Self-tuning memory in DB2 9
Tuning your database memory and buffers for optimum performance is effortless with the new self-tuning memory management feature in DB2 9 (formerly codenamed "DB2 Viper"). It automatically configures database memory settings and adjusts them dynamically during run time to optimize performance and improve administrator productivity. Take a look at how it works, explore the benefits, and see the results of this feature in a benchmark setting. For more information on the new features of DB2 9, read the other articles in the series.

Introducing DB2 9, Part 4: Autonomic and other enhancements in DB2 9

DB2 partitioning features

Get started with IBM DB2 Test Database Generator

Prepopulation script generator for DB2
Learn about a utility that you can use to create prepopulation scripts for DB2 from existing data in tables. The utility can also be used to create insert scripts. Sample code for the utility is included in this article.

**Database Cloning**
http://www.db2mag.com/story/showArticle.jhtml?articleID=193105319

This article shows different options for cloning a database.

**Introduction to DB2 9 database recovery**

A tried and tested backup and recovery strategy is essential in preventing data loss. A database can encounter any number of problems, including power interruptions, storage media failure, and application crashes. Each of these can result in a database failure and each failure requires a different recovery action. This tutorial introduces the backup and recovery capabilities in IBM DB2 for Linux, UNIX and Windows. In addition, it presents a step-by-step approach showing how to recover data in various failure scenarios.

**IBM DB2 Recovery Expert for Multiplatforms V2 Usage Guide**

IBM DB2 Recovery Expert for Multiplatforms provides an enhanced data recovery solution that enables more precise recovery operations while reducing disruption during the recovery process. DB2 Recovery Expert creates and maintains additional recovery assets that you can use for intelligent analysis of both DB2 and DB2 Recovery Expert assets to find the most efficient recovery path. DB2 Recovery Expert facilitates the process of rebuilding your database assets, such as tables, indexes, and data, to a specified point-in-time, often without taking the database or the business operations offline.

**Backup and restore SQL schemas for DB2: A library for logical schema-level backup, restore, copy, and drop**

A tried and tested backup and recovery strategy is essential in preventing data loss. A database can encounter any number of problems, including power interruptions, storage media failure, and application crashes. Each of these can result in a database failure and each failure requires a different recovery action. This tutorial introduces the backup and recovery capabilities in IBM DB2 for Linux, UNIX and Windows. In addition, it presents a step-by-step approach showing how to recover data in various failure scenarios.
• Date: February 2006
• This article provides logical schema-level backup, restore, copy, and drop schema procedures for IBM DB2 for Linux, UNIX, and Windows. The procedures handle all common SQL objects and their properties, including privileges, statistics, and sequence/identity states. Use these procedures to greatly simplify deployment and upgrades of ISV applications that use schemas to modularize their products.

Technical tip: Secure DB2 communications using OpenSSH tunneling

• Type: Article
• Level: Introductory
• Date: April 2007
• Follow the steps outlined in this article to use SSH for secure communication between IBM DB2 clients and servers.

DB2 UDB security, Part 1: Understand how user and group accounts interact with DB2 UDB

• Type: Article
• Level: Introductory
• Date: August 2005
• Granting database access, authorities, and privileges to users and groups is one of the primary means of ensuring the security of your data. This article describes the different user and group accounts that are needed to install and work with DB2 UDB, Version 8.2. It also introduces the DB2 UDB security model, including user authentication, user and group authorization, and super users.

DB2 UDB security, Part 2: Understand the DB2 security plug-ins

• Type: Article
• Level: Introductory
• Date: December 2005
• Learn about the DB2 UDB security plug-ins, a new feature introduced in Version 8.2. This article explains what the security plug-ins accomplish and teaches you how to enable and write your own security plug-ins.

DB2 UDB security, Part 3: Security plug-ins using the GSS-API security mechanisms (SPKM / LIPKEY)

• Type: Article
• Level: Introductory
• Date: December 2005
• DB2 UDB provides a framework for writing customized security plug-ins that administrators can use for DB2 UDB authentication. This framework, introduced with DB2 UDB V8.2, also
supports plug-in authentication based on Generic Security Service Application Programming Interface (GSS-API).

**DB2 UDB security, Part 4: Understand how authorities and privileges are implemented in DB2 UDB**

- Type: Article
- Level: Introductory
- Date: January 2006
- A series of articles about DB2 UDB V8.2 security features would not be complete without a discussion of the different administrative authority levels and privileges.

**DB2 UDB security, Part 5: Understand the DB2 audit facility**

- Type: Article
- Level: Introductory
- Date: March 2006
- One of the lesser known but powerful components of IBM DB2 Universal Database for Linux, UNIX, and Windows (DB2 UDB) is the audit facility. The audit facility is an invaluable resource for security-conscious DBAs that need to monitor database events such as failed access attempts, database object modifications, and user validation with minimal effort. Learn about the DB2 audit facility, its purpose, how to use and configure it with the db2audit command, and get tips for using it effectively.

**DB2 UDB security, Part 6: Configure Kerberos for authentication on DB2 UDB for Linux, UNIX, and Windows**

- Type: Article
- Level: Intermediate
- Date: March 2006
- Using Kerberos for authentication provides a central repository for user IDs (or principals), thus centralizing and simplifying principal or identity management. Learn how to set up a single Kerberos realm environment for DB2 Universal Database for Linux, UNIX, and Windows (DB2 UDB) and configure DB2 to use Kerberos authentication.

**DB2 security, Part 7: Object ownership management for DB2 9**

- Type: Article
- Level: Intermediate
- Date: August 2006
- Just like managing authorities and privileges in a database, managing database object ownership can be problematic if the company has a high turnover. This article introduces a
new IBM® DB2® 9 feature that lets you transfer ownership, and an orphan ID concept to help you to cope with the object ownership management nightmare.

**DB2 security, Part 8: Twelve DB2 security best practices**


- Type: Article
- Level: Introductory
- Date: July 2006
- With the escalating number of publicized system security breaches, administrators must constantly be on the lookout for security holes in their systems so that their company does not become the next public embarrassment. Security is a large topic, and can be applied at various levels in a system architecture. This article, part eight of an eight-part series, focuses on twelve security best practices that database administrators (DBAs) and developers can follow to ensure the highest level of security in DB2® for Linux®, UNIX®, and Windows®. These practices should complement other proactive security measures being applied at the other system levels.

**DB2 security, Part 10: Deploy customized security plug-ins in DB2 9**


- Type: Article
- Level: Intermediate
- Date: October 2006
- Security plug-ins bring new versatility to your database security setup in IBM® DB2® 9. Read this article to determine what should be tested before deploying your own customized security plug-ins. Accompanying this article, there is a security plug-in loader program for AIX® 64 bit, Linux® AMD 64 bit, Linux AMD 32 bit, Linux IA 32 bit, and Sun Solaris 64 bit operating system platforms. This loader enables the reader to perform sanity testing on the security plug-in code before hooking up with DB2 for further testing. This article also discusses how to take advantage of the new enhancements to the security plug-in infrastructure in DB2 9.

**Implement larger RIDs in an SAP environment with DB2 9**


- Type: Article
- Level: Intermediate
- Date: February 2007
- DB2 9 for Linux, UNIX, and Windows supports larger record identifiers (RIDs) than prior versions, significantly extending the previous tablespace size limit. What can this new feature do for you? Learn how using larger RIDs can greatly improve space utilization on your data pages. In this article, you'll also look at related DB2 9 enhancements, such as the increased size of the data object pool page and the slot identifier.

**Conveniently create new versions of your database objects**

Do you want to duplicate your database objects grouped by a schema in order to create a test system on a new database? Do you wish to create a new version of your objects within the same database? Or do you need to alter your tables by dropping columns, altering data types, or changing the nullability attribute of a column? DB2 9 for Linux, UNIX, and Windows® introduces some nice extensions like the ADMIN_COPY_SCHEMA procedure, the DB2MOVE utility with the COPY action and some ALTER TABLE statement enhancements. These new functions make it very convenient to create new copies of a database schema and its associated database objects.

**Monitoring and tuning**

**DB2 self-tuning memory manager log parser**

Starting in IBM DB2 for Linux, UNIX, and Windows 9, a new memory tuning feature, self-tuning memory manager (STMM), simplifies the task of memory configuration by automatically setting values for several critical memory configuration parameters. This article introduces a simple tool to parse the STMM log files to simplify the task of monitoring the decisions made by the memory manager.

**Understand column group statistics in DB2**

With column group statistics in IBM DB2 for Linux, UNIX, and Windows (DB2), the optimizer can determine a better query access plan and improve query performance when there is a correlation between multiple equality local predicates or equality join predicates. In this article, learn all about how to use column group statistics.

**Influence query optimization with optimization profiles and statistical views in DB2 9**

Learn about enhancements in IBM® DB2® 9 for Linux®, UNIX®, and Windows® that enable you to influence the default query optimization behaviour. This capability is particularly useful when you are tuning classes of SQL queries that are not performing as expected, even
though you have tuned your queries using the best practices. New techniques now make it possible to overwrite the optimizer behaviour and improve your query performance.

**Comparing real-time cardinality to the optimizer cardinality estimates A tool to aid in tuning queries**

- Type: Article
- Level: Advanced
- Date: December 2005
- Evaluating real-time cardinality in DB2 UDB instead of the estimated cardinality in the access plan can help DBAs make various decisions to improve query performance. Here are all the details to create count queries to evaluate real-time cardinalities at certain operators in an access plan.

**DB2 Performance Expert for Multiplatforms V2.2**

- Type: Redbook
- Date: March 2006
- DB2 Performance Expert (PE) for Multiplatforms V2.2 is a workstation-based performance analysis and tuning tool for managing a heterogeneous mix of DB2 systems with a single end-user interface. DB2 PE simplifies DB2 performance management by providing you with the ability to monitor applications, system statistics, and system parameters using a single tool. This IBM Redbook provides an overview of the architecture of DB2 Performance Expert. We highlight key considerations in planning DB2 PE V2.2 for your environment and provide a step-by-step installation and configuration guide. We discuss, in detail, the DB2 PE V2.2 functions and features. Recommendations and tips for DB2 performance tuning are also introduced. Finally, we discuss some of the commonly encountered problems faced by a DBA when managing a DB2 environment, and describe how the tool can be used to diagnose and resolve these performance problems.

**Analyzing lockwait situations in DB2 for Linux, UNIX, and Windows**

- Type: Article
- Level: Intermediate
- Date: July 2007
- When several DB2 users access a database concurrently, lockwait situations can cause bad response times. Lockwaits tend to be temporary in nature and thus hard to catch. Nevertheless, when lockwait situations occur, it is the database administrator's responsibility to determine the cause of the lockwait times. This article demonstrates, by example, how to use the db2pd and db2pdcfg utilities for DB2 for Linux, UNIX, and Windows to accomplish that task.

**Diagnose and resolve lock problems with DB2 for Linux, UNIX, and Windows**
This article discusses lock waits, deadlocks, and escalations, and tells you how to monitor them, and what to do about them using DB2® for Linux, UNIX, and Windows. Sample monitoring scripts are included.

Understanding locking in DB2 Universal Database

The how and why of locking in DB2 is one of its least understood features. This article walks through an example of a common locking scenario and explains what locks are held and why.

Enhance performance using connection concentrator in DB2 Universal Database, Version 8

Learn how the connection concentrator adds performance advantages to DB2 UDB. This article describes how the connection concentrator works as well as how and when to use it. This article also includes performance tuning and troubleshooting tips.

DB2 best practices for basic design, performance, and manageability

Over the past few years, much has been written about DB2 design and implementation best practices. There are many books, along with dozens of articles, that provide insight into how DB2 should be designed and integrated into applications. To provide some basic guidance for customers and business partners entering this maze, this article compiles a list of arguably the best practices to be considered during design and implementation of your application using IBM DB2 technology. The intended result of this article is a more effective and efficient DB2 implementation. This article is not intended to provide detailed performance best practices for existing DB2 customers and independent software vendors (ISVs).

DB2 UDB ESE V8 non-DPF Performance Guide for High Performance OLTP and BI
http://www.redbooks.ibm.com/abstracts/SG246432.html
• This IBM Redbook provides detailed information on implementing high-performance OLTP and BI applications in DB2 UDB ESE V8 environments involving AIX and Windows 2000 platforms. It is aimed at a target audience of DB2 application developers and database administrators (DBAs).

**Basic Performance Tuning**


- Type: Article
- Level: Introductory
- Date: 3rd Quarter 2003 - 1st Quarter 2004
- DB2 Universal Database (UDB) version 8.1 for Linux, UNIX, and Windows can exist in environments ranging from simple, stand-alone systems to complex combinations of servers and clients running on a variety of platforms. Regardless of the environment, users tend to care most about one issue: the performance of the database applications. Just what is performance, and how can you improve it?

**Performance Monitoring, It's a Snap(shot)**


- Type: Article
- Level: Introductory
- Date: 2nd Quarter 2004 - 4th Quarter 2004
- To improve database performance, you must first identify where performance is suffering and have some idea what to do to improve it. That's where the performance monitoring tools in DB2 for Linux, UNIX, and Windows come into play.

**DB2 UDB OLTP tuning illustrated with a Java program**


- Type: Article
- Level: Intermediate
- Date: Aug 2005
- This article explains step-by-step techniques that you can follow to monitor and tune an IBM DB2 database server. Using the supplied sample Java program "PERFORMER," you can learn these hands-on techniques, and experiment with various scenarios on your own system, using the Java program to simulate a workload executing SQL against a database. Many factors can affect the performance of a database server. This article focuses on how to tune some of the important DB2 UDB configuration parameters, and shows you the steps to capture and fix "bad queries."

**Tuning DB2 SQL Access Paths**

- Type: Article
- Level: Introductory
- Date: January 2003
- Database guru Craig Mullins explains the basics of access paths and join methods, and then shows you how you can use tools such as Explain to monitor and tune your SQL performance.

Native XML support

DB2 pureXML Enablement Wiki
http://www.ibm.com/developerworks/wikis/display/db2xml/Home

- Type: Wiki
- The DB2 XML (pureXML) wiki is a site designed to help you come up to speed quickly on DB2’s XML technology. You’ll find links to many tutorials, reference papers, and other resources that explore DB2’s support for managing, storing, and querying XML data.

Overview of new DB2 Version 9.5 pureXML enhancements

- Type: Article
- Date: November 2007
- This article describes IBM ® DB2® version V9.5 pureXML™ enhancements and new features for Linux, Unix and Windows.

Firing up the hybrid database
http://www.db2mag.com/story/showArticle.jhtml?articleID=167100937

- Type: Article
- Level: Introductory
- Date: Q3 2005
- IBM’s new hybrid DB2 puts the full power of a relational engine to work on a truly native XML store.

Native XML support in DB2 UDB

- Type: Conference paper
- Level: Introductory
- The major relational database systems have been providing XML support for several years, predominantly by mapping XML to existing concepts such as LOBs or (object-)relational tables. The limitations of these approaches are well known in research and industry. Thus, a forthcoming version of DB2 UDB is enhanced with comprehensive native XML support. *Native* means that XML documents are stored on disk pages in tree structures matching the XML data model. This avoids the mapping between XML and relational structures, and the
corresponding limitations. The native XML storage is complemented with XML indexes, full XQuery, SQL/XML, and XML schema support, as well as utilities such as a parallel high-speed XML bulk loader. This makes DB2 a true hybrid database system that places equal weight on XML and relational data management.

15 best practices for pureXML performance in DB2 9

- Type: Article
- Level: Intermediate
- Date: October 2006
- DB2 9 introduces pureXML support, which means that XML data is stored and queried in its inherent hierarchical format. To query XML data, DB2 offers two languages, SQL/XML and XQuery. Additionally, DB2 9 has sophisticated XML indexing capabilities and support for XML Schema validation. While most existing performance guidelines for DB2 also apply to XML data, this article provides additional XML-specific performance tips.

Exploit XML indexes for XML query performance in DB2 9

- Type: Article
- Level: Intermediate
- Date: November 2006
- DB2 9 provides pureXML storage and offers XQuery and SQL/XML as query languages. XML indexes are essential for high query performance, but their usage for query evaluation depends on how query predicates are formulated. This article presents a set of guidelines for writing XML queries and creating XML indexes in a consistent manner so that indexes speed up your queries as expected. Also learn what to look for in XML query execution plans to detect performance issues, and find out how to fix them. A downloadable "cheat sheet" summarizes the most important guidelines.

DB2 9 XML performance characteristics

- Type: Article
- Level: Intermediate
- Date: January 2007
- Learn about the performance and scalability characteristics of a simulated securities brokerage transaction processing environment using DB2 9 XML, IBM POWER5+, AIX 5.3, and TotalStorage DS8100. This scenario includes use of the FIXML schema, a financial industry standard.

A performance comparison of DB2 9 pureXML and CLOB or shredded XML storage

- Type: Article
- Level: Intermediate
• Date: December 2006
• Like other databases, the DB2 V8 XML Extender offers two storage and access models for XML: XML documents can be stored intact as unparsed text in CLOB columns, or they can be mapped and shredded to a set of relational tables. Both options have known performance limitations. The new pureXML technology in DB2 9 seeks to overcome these limitations by storing and querying XML in its inherent hierarchical format. This article describes a series of measurements to characterize the cases in which pureXML does or doesn't provide a performance benefit, and to quantify the performance difference to CLOB or shredded storage.

**XML full-text search in DB2**  

• Type: Article  
• Level: Intermediate  
• Date: June 2006  
• With the support of natively storing XML documents, IBM DB2 9 takes an evolutionary step towards a hybrid database system. XQuery, a new primary language in DB2, allows for optimally working with XML. However, XML also often contains large portions of text that are not easily searchable with XQuery. To efficiently search these unstructured parts of the documents, DB2 provides a full-text search solution. This article focuses on the basics of DB2 text search, including text index creation and administration. This article also explores specific features of DB2 full-text search, such as searching for keywords or phrases in the XML document structure with fuzzy search, proximity search, and stemming.

**High availability**

**High Availability and Scalability Guide for DB2 on Linux, UNIX, and Windows**  

• Type: Redbook  
• Date: October 2007  
• This IBM Redbooks publication describes DB2 high availability functions and features, focusing on High Availability Disaster Recovery (HADR) in the OLTP environment. The book provides a detailed discussion of HADR, including setup, configuration, administration, monitoring, and best practices.

**DB2 Universal Database and the Highly Available Data Store**  

• Type: Article  
• Level: Intermediate  
• Date: October 2003  
• Critical database applications demand a robust strategy for preventing data loss and guaranteeing high availability of your data store. This article surveys your options for high availability on Linux, UNIX, and Windows platforms.
Licensing distributed DB2 9.5 data servers in a high availability environment

- Type: Article
- Level: Introductory
- Date: May 2008
- Are you trying to ensure you're licensing your DB2 servers correctly in a high availability environment? Don't have the time nor the will to read through the announcement letters, PLETs, or your licensing sheets? Authors Paul Zikopoulos and Leon Katsnelson explain it all in plain English.

Linux platform

DB2 memory and file cache performance tuning on Linux

- Type: Article
- Level: Intermediate
- Date: September 2005
- Memory utilization and file caching are related elements that affect performance and are important to consider when tuning a database system. This article summarizes the DB2 UDB features specific to Linux for best utilizing these important system resources.

Leverage data partitioning for scalability and high performance on Linux Configure DB2 UDB ESE V8.2 with the Database Partitioning Feature on SUSE Linux Enterprise Server

- Type: Article
- Level: Intermediate
- Date: January 2006
- Learn the ins and outs and explore the performance and scalability advantages of the IBM DB2 UDB Data Partitioning Feature (DPF). Then, walk through the steps to install and configure DB2 with DPF on SUSE Linux Enterprise Server. Learn also important concepts and design considerations to jumpstart your DPF installation in the SUSE Linux Enterprise environment.

Up and Running with DB2 for Linux
http://www.redbooks.ibm.com/abstracts/SG246899.html

- Type: Redbook
- Date: March 2003
- Linux is one of the fastest-growing server operating platforms within the past few years. DB2 Universal Database has long been known for its technology leadership. This IBM Redbook is an informative guide that describes how to effectively integrate DB2 Universal Database (UDB) with SuSE and Red Hat Linux operating systems. This book provides both introductory and detailed information on installing, configuring, managing, and monitoring DB2 UDB in a Linux environment.
DB2 Integrated Cluster Environment Deployment Guide

- Type: Redbook
- Date: December 2004
- The IBM DB2 Integrated Cluster Environment for Linux is a completely integrated, high-performance, and pre-tested solution that incorporates best-of-breed software, hardware, and services. This IBM Redbook provides you with the technical details of the DB2 Integrated Cluster Environment. This publication also covers the new autonomic features of DB2 UDB V8.2 and system tools monitoring. It describes components and possible configurations of a high-availability solution, and provides implementation details of a failover protection in an DB2 Integrated Cluster Environment. Lastly, it discusses scalability in the DB2 Integrated Cluster Environment, including some guidance in planning for the growth of a business and database. It also examines a number of scaling strategies in more detail and provides the steps involved in scaling a database.

DB2 ICE -- Scaling Data with Linux Clusters
http://www.db2mag.com/story/showArticle.jhtml?articleID=51000442

- Type: Article
- Date: Quarter 4, 2004
- DB2 was the first major commercial database to add support for Linux clusters, which first appeared in December 2000. In 2003, IBM introduced the DB2 Integrated Cluster Environment (ICE), an integrated database solution that includes DB2 UDB software and IBM servers running Enterprise Linux distributions from Red Hat or SuSE/Novell.

Windows platform

DB2 UDB V8.2 on the Windows Environment

- Type: Redbook
- Date: October 2004
- IBM DB2 Universal Database Version 8.2 is another significant jump in DBRM technology. It delivers new features to address the ever-increasing demands and requirements of information management customers. This redbook is an update of DB2 UDB Exploitation of the Windows Environment (SG24-6893), with a focus on DB2 UDB Version 8.2 functions and features.

DB2 UDB Exploitation of the Windows Environment
http://www.db2mag.com/showArticle.jhtml?articleID=51000442

- Type: Redbook
- Date: March 2004
- This IBM Redbook describes how to effectively implement DB2 UDB V8.1 with Microsoft Windows 2000 operating systems. It is intended for anyone who needs both an introduction and detailed information on installing, configuring, and managing DB2 UDB on Windows.
Scaling DB2 UDB on Windows Server 2003
http://www.redbooks.ibm.com/abstracts/SG247019.html

- Type: Redbook
- Date: November 2003
- This IBM Redbook is designed as an informative guide to scaling DB2 UDB V8.1 with Windows Server 2003. It is intended for database and system administrators who need both an introduction and detailed information on scaling DB2 UDB on Windows Server 2003.

Porting

DB2 for Linux, UNIX, and Windows V9.5 Application Porting Guide

- Type: Document
- Level: Introductory
- Date: November 2007
- IBM DB2 Database for Linux, UNIX, and Windows Version 9.5 introduces a number of features that greatly simplify the task of migrating applications from other relational database vendors to DB2. These features are described in this document.

IBM DB2 Migration Toolkit
http://www.ibm.com/software/data/db2/migration/mtk/

- Type: Website
- The IBM DB2 Migration Toolkit helps you migrate from Oracle (versions 8i, 9i, and 10g), Sybase ASE (versions 11 through 15), Microsoft SQL Server (versions 7, 2000, and 2005), Sybase SQL Anywhere v9, Informix (IDS v10), and MySQL versions 4 and 5 to DB2 UDB V8.1, DB2 V8.2, and DB2 9 on Windows, UNIX, and Linux, and DB2 iSeries including iSeries v5r4. The DB2 Migration Toolkit is available in English on a variety of platforms, including Windows 2000, Windows XP, AIX, Linux, HP/UX, and Solaris.

New capabilities for migrating to DB2 and Informix in IBM Migration Toolkit 1.4.9

- Type: Article
- Level: Introductory
- Date: January 2007
- January is a time of celebrating change, and there has been much change in the IBM Migration Toolkit (MTK) that deserves celebration, too! The latest release of IBM’s free migration toolkit, MTK 1.4.9, includes many new features that make migrating to your favorite IBM database even easier -- support for more DB2® features, migration support for Oracle PL/SQL to IBM Informix® Dynamic Server (IDS), Oracle’s UTL_FILE package, and more. Read on for a summary of these improvements.

Move data using the IBM DB2 Migration Toolkit

- Type: Article
- Level: Intermediate
- Date: November 2004
- Was your application recently ported to IBM DB2 on Linux, UNIX, or Windows? Do you want to move data from an existing deployment of Oracle or SQL Server to DB2? Learn how to do this using the IBM DB2 Migration Toolkit.

**Oracle to DB2 Conversion Guide for Linux, UNIX, and Windows**
http://www.redbooks.ibm.com/abstracts/SG247048.html

- Type: Redbook
- Date: August 2007
- DB2 Universal Database (DB2 UDB) has long been known for its technology leadership. This IBM Redbook describes how to migrate the database system from Oracle to DB2 UDB Version 8.1 on AIX, Linux, and the Microsoft Windows platform. This guide presents the best practices in migration strategy and planning, migration tools, and practical migration examples. It is intended for technical staff who are involved in an Oracle to DB2 UDB conversion project.

**DB2 Viper 2 compatibility features**

- Type: Article
- Level: Intermediate
- Date: July 2007
- Porting an application with CONNECT BY, NVL, or other vendor specific SQL to DB2? Do not despair. DB2 Viper 2 for Linux, UNIX, and Windows understands. This article describes syntax and semantics added to DB2 to speak that other tongue.

**Leverage your Oracle 10g skills to learn DB2 9.1 for Linux, UNIX and Windows**

- Type: Article
- Level: Introductory
- Date: November 2006
- If you're a database specialist interested in growing your DB2 9 skills, there's a good chance that you've already developed database skills with another relational database product somewhere along the way. Recently updated for the latest versions of DB2 and Oracle, this article shows you how to use your current knowledge of Oracle 10g to quickly gain skills in IBM DB2 9 for Linux, UNIX, and Windows.

**Comparing DB2 materialized query tables and Oracle materialized views**

- Type: Article
Familiarize yourself with IBM DB2 materialized query tables (MQTs) in a side-by-side comparison with Oracle materialized views. See, also, how the DB2 optimizer uses MQTs.

**Microsoft SQL Server to IBM DB2 UDB Conversion Guide**

- Type: Redbook
- Date: August 2006
- This redbook provides advice and recommendations for converting Microsoft SQL Server databases and applications to IBM DB2 UDB. This Redbook focuses on the technical considerations and methodology involved in performing the conversion. It provides information about the differences between SQL Server and DB2 UDB, including product architectures, data types, SQL language, database objects (tables, indexes, stored procedures, triggers, and more), and administrative features. It also discusses application programming conversion considerations. This Redbook demonstrates the use of migration tools, while addressing the areas where tools are unable to provide conversion assistance and providing solutions for those areas.

**MySQL to DB2 UDB Conversion Guide**

- Type: Redbook
- Date: May 2004
- DB2 Universal Database (DB2 UDB) has long been known for its technology leadership. This IBM Redbook describes how to migrate the database system from MySQL to DB2 UDB Version 8.1 on Linux, and how to convert applications to use DB2 UDB instead of MySQL.

**Migrate from MySQL or PostgreSQL to DB2 Express-C**

- Type: Article
- Level: Introductory
- Date: June 2006
- This article to show how easy it is to migrate from MySQL/PostgreSQL to DB2 Express and Express-C.

**Leveraging MySQL skills to learn DB2 Express: DB2 versus MySQL administration and basic tasks**

- Type: Article
- Level: Intermediate
- Date: February 2006
- Does your database environment require you to have cross-database skills? If you already know MySQL, you can use many of the skills you already have to learn DB2® Express. This
article, the first in a series on leveraging your MySQL skills to learn DB2, starts you out with a comparison of administrative tasks, data types, SQL, locking, and more.

**Problem determination**

**Collecting data for DB2 Abend**
http://www-01.ibm.com/support/docview.wss?uid=swg21326400

- Type: Technote
- Level: Intermediate
- Date: November 2008
- What information should be collected when I experience an abend (crash) of my DB2 instance/database? Collecting this information before calling IBM support will help you understand the problem and save time analyzing the data.

**New options for analyzing lock timeouts in DB2 9.5**

- Type: Article
- Level: Intermediate
- Date: April 2008
- With DB2® 9.5, the options for lock timeout analysis have been significantly enhanced so that lock timeout analysis becomes even more simple. This article explores those new lock timeout reporting capabilities and examines the additional information that can be collected to determine the reason for a lock timeout occurrence.

**Analyzing lockwait situations in DB2 for Linux, UNIX, and Windows**

- Type: Article
- Level: Intermediate
- Date: July 2007
- When several DB2 users access a database concurrently, lockwait situations can cause bad response times. Lockwaits tend to be temporary in nature and thus hard to catch. This article demonstrates, by example, how to use the db2pd and db2pdcfg utilities for DB2 for Linux, UNIX, and Windows to accomplish that task.

**DB2 wiki**

- Type: Wiki
- The purpose of this wiki is to provide technical information about using DB2 on Windows/Unix/Linux platforms. Of course, this is not intended to be a replacement for the DB2 Information Center. In this wiki, we provide you with some additional information and we deliver the information in a slightly less formal manner.

**Determining performance problems with DB2 Java applications**

• Type: Article
• Level: Intermediate
• Date: August 2007
• One of the daily challenges facing application developers and database administrators is dealing with performance issues. While many performance issues lie with database servers, some are associated with the client application. This article brings insight into diagnosing and isolating performance problems from the application client perspective. You'll learn how to troubleshoot performance problems that occur with Java applications running against IBM DB2 for Linux, UNIX, and Windows databases. Once you understand the source of your performance issues, you'll be on the path to a solution.

Demystifying FFDC Data
http://www.db2mag.com/db_area/archives/2003/q1/sanders.shtml

• Type: Article
• Date: Quarter 1, 2003
• Don't let cryptic First Failure Data Capture (FFDC) information scare you. FFDC is one of DB2's most useful diagnostic tools.

What's Your Problem?
http://www.db2mag.com/showArticle.jhtml?articleID=17700355

• Type: Article
• Date: Quarter 1, 2004
• Analyze it automatically with db2support. IBM DB2 administrators have a real challenge on their hands when trying to succinctly describe their system configuration to IBM support for problem resolution. After all, there are many configuration parameters and database characteristics to describe. The db2support command, introduced in DB2 version 7.2 FixPak 4, helps DBAs quickly gather the DB2 installation information that will help with problem resolution and documentation.

The db2pd tool

• Type: Article
• Level: Introductory
• Date: April 2005
• In Version 8.2, IBM DB2 introduced a new tool for monitoring and administrating DB2 databases and instances called db2pd. Use this tool to keep track of transactions, tablespaces, table statistics, dynamic SQL, and all your configuration settings. It's handy for troubleshooting, problem determination, performance tuning, and more.

Certifications

DB2 9 Database administration 731 certification prep series

- Type: Tutorial
- Date: 2006
- If you know DB2 9 and can perform intermediate to advanced level administrative tasks, you may benefit from becoming an IBM Certified Database Administrator. This series of seven tutorials is designed to help you prepare for the DB2® 9 for Linux®, UNIX® and Windows® Database Administration (Exam 731) certification exam to attain the certification "IBM Certified Database Administrator - DB2 9 for Linux, UNIX and Windows." These tutorials provide a solid base for each section of the exam. However, you should not rely on these tutorials as your only preparation for the exam.

DB2 9 Application Development 733 certification prep series

- Type: Tutorial
- Date: 2007
- The IBM Certified Application Developer certification confirms to others that you are an intermediate or advanced level DB2 for Linux, UNIX, and Windows application developer and shows that you have strong skills in all common programming tasks as well as embedded SQL programming, ODBC/CLI programming, or Java programming. This series of nine free tutorials is designed to help you prepare for the DB2 for Linux, UNIX, and Windows Application Development certification exam (Exam 733). Each tutorial includes a link to a free DB2 for Linux, UNIX, and Windows trial download. These tutorials provide a solid base for each section of the exam. However, you should not rely on these tutorials as your only preparation for the exam. You can take the tutorials online, or download a PDF.
Related topics

- Download a free trial version of DB2 Enterprise 9.
- Now you can use DB2 for free. Download DB2 Express-C 9, a no-charge version of DB2 Express Edition for the community that offers the same core data features as DB2 Express Edition and provides a solid base to build and deploy applications.
- Visit the developerWorks resource page for DB2 for Linux, UNIX, and Windows to read articles and tutorials and connect to other resources to expand your DB2 skills.
- Learn about DB2 Express-C, the no-charge version of DB2 Express Edition for the community.

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