The Db2 Server Alternatives

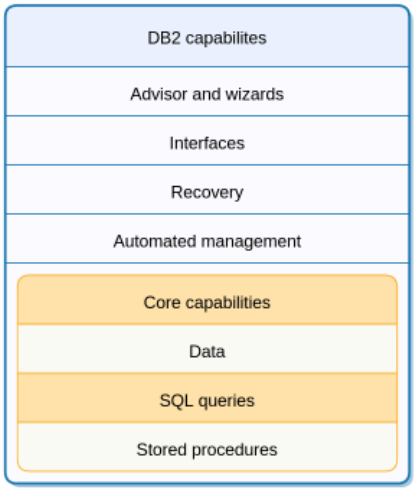
Objectives

The Db2 Server Alternatives

In this module you will look at the platforms on which Db2 can be installed and how Db2 data is accessed. You will also be introduced to Db2 storage concepts and the types of storage management associated with table spaces.

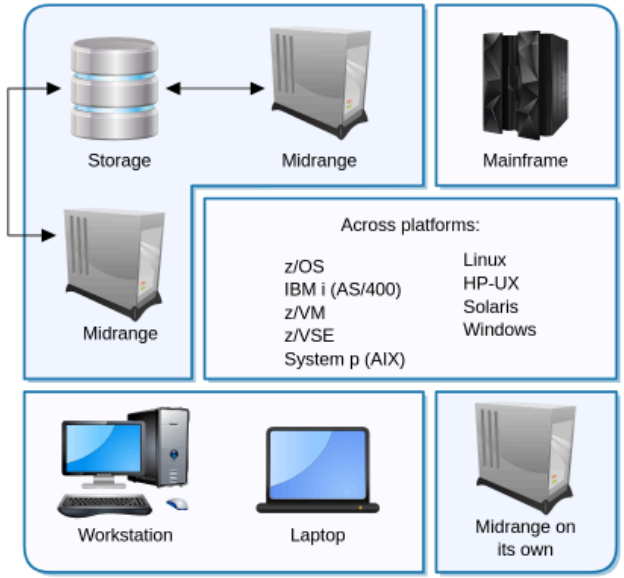
After completing this module, you will be able to:

- Identify the Platforms on Which Db2 Can be Installed
- Describe How Db2 Data Can be Accessed
- Describe Storage Methods Used by Db2



Db2 is a complete relational database management system providing an open and flexible range of capabilities on a wide variety of platforms.

As well as data storage and manipulation, Db2 provides many extra features such as advisors and wizards, self-management and recovery features, and easy interfaces to web and programming tools.

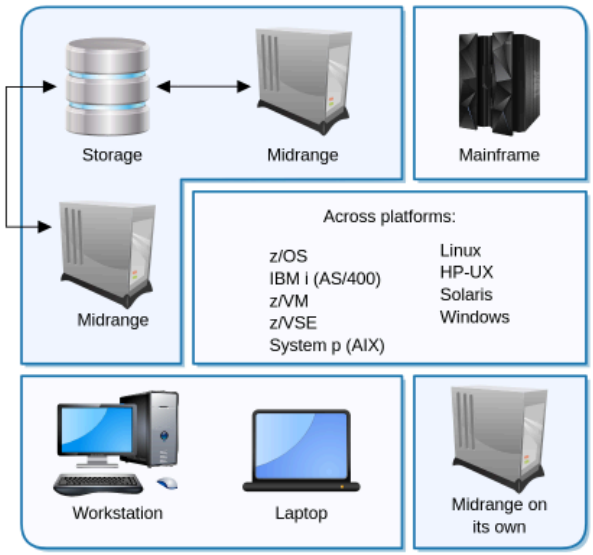


The DB2 Express Edition is an entry-level database system for small to medium-sized businesses.

In some of the platforms that Db2 supports there are a number of Db2 server editions with each providing a solution for an organization's data processing requirements.

The example shown here are the server editions available for Db2 for Linux UNIX and Windows.

Mouse-over these items for a description of the environment it supports.



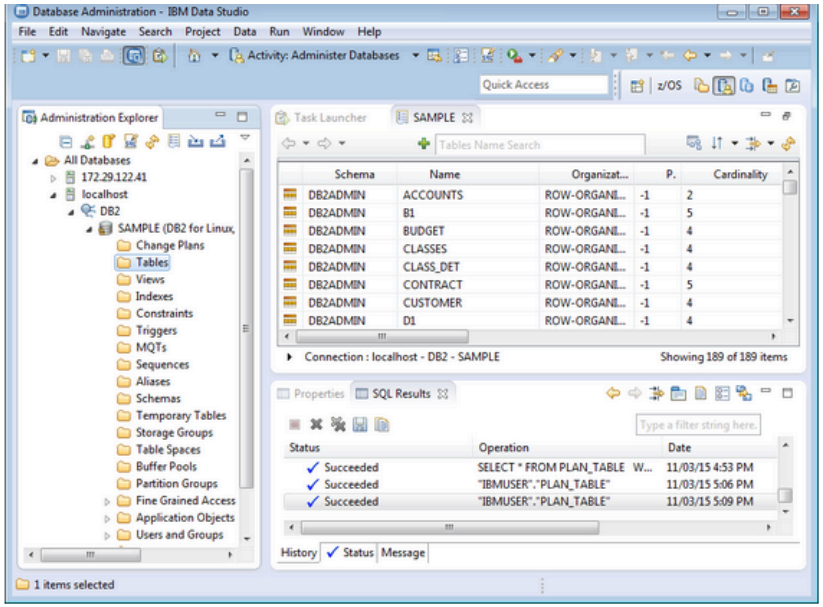
Unstructured data such as audio, video or images

XML data

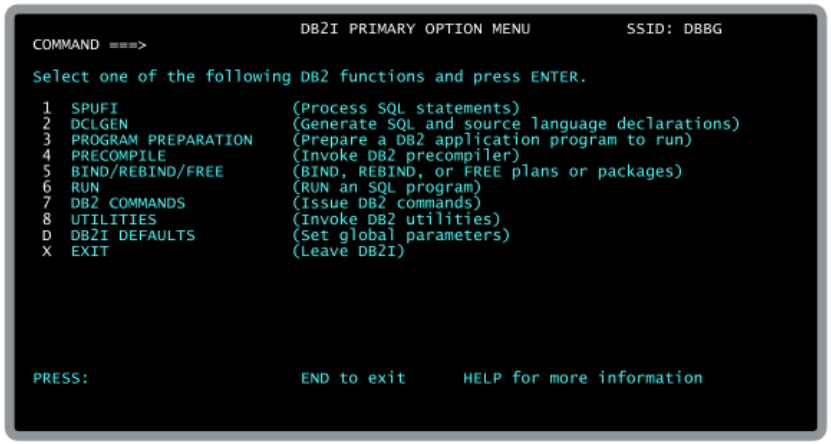
User-defined data

The type of information that Db2 databases have been able to store has evolved throughout the years to the point where it can now handle not only character and numerical strings but also:

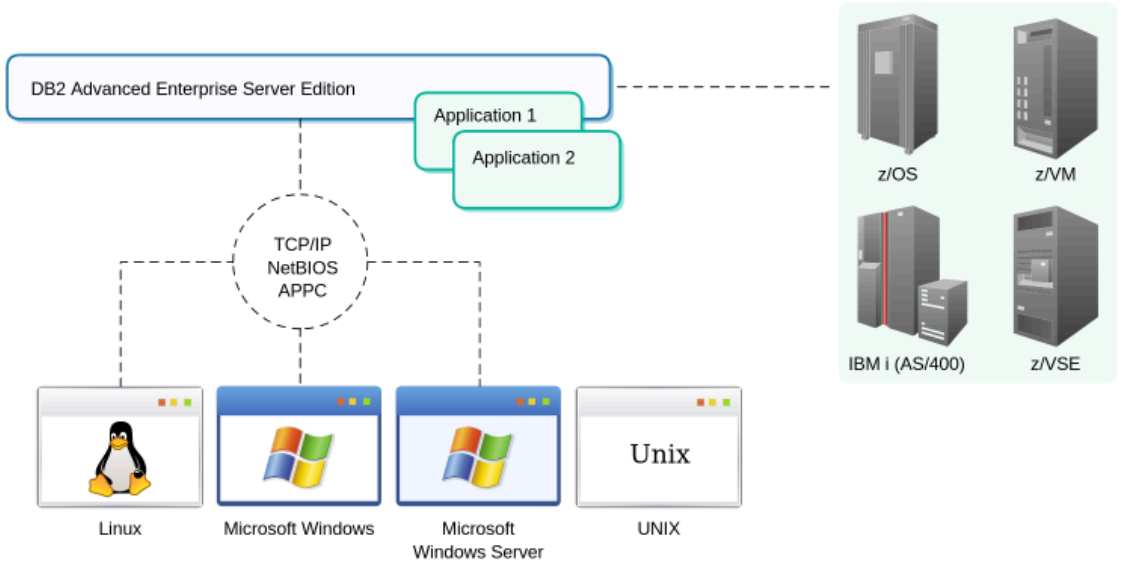
- unstructured data such as audio, video, or images
- XML data
- user-defined data, which is based on an existing data type



IBM provides a free GUI interface to administer and manage Db2 databases. This utility called the IBM Data Studio, runs on Linux, UNIX and Windows platforms and can administer local and remote Db2 databases across a range of platforms.

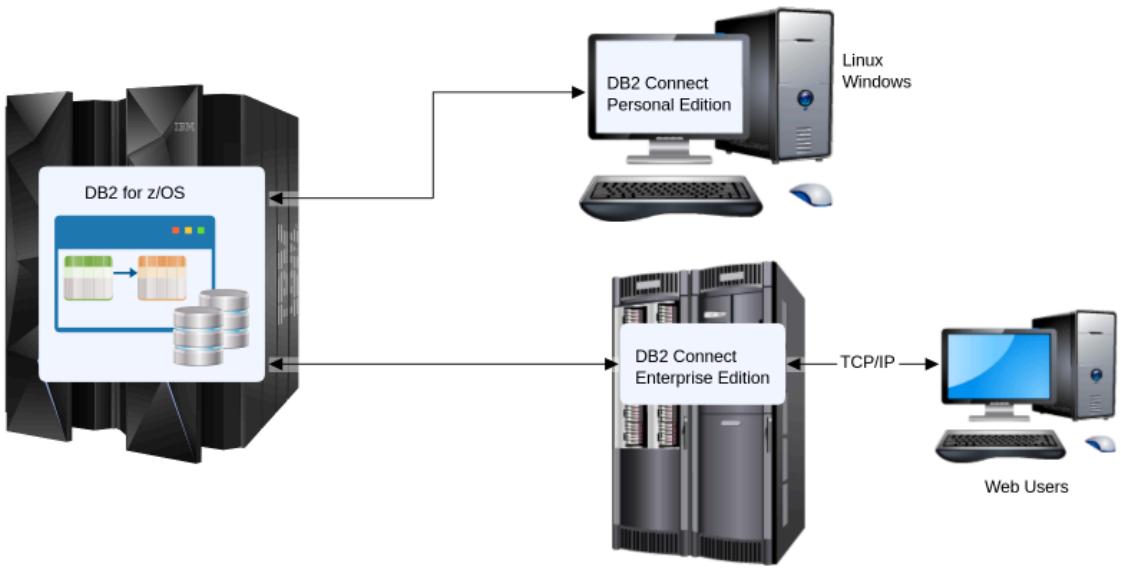


z/OS, z/VM, z/VSE, and System i systems also provide their own native utilities for managing Db2.



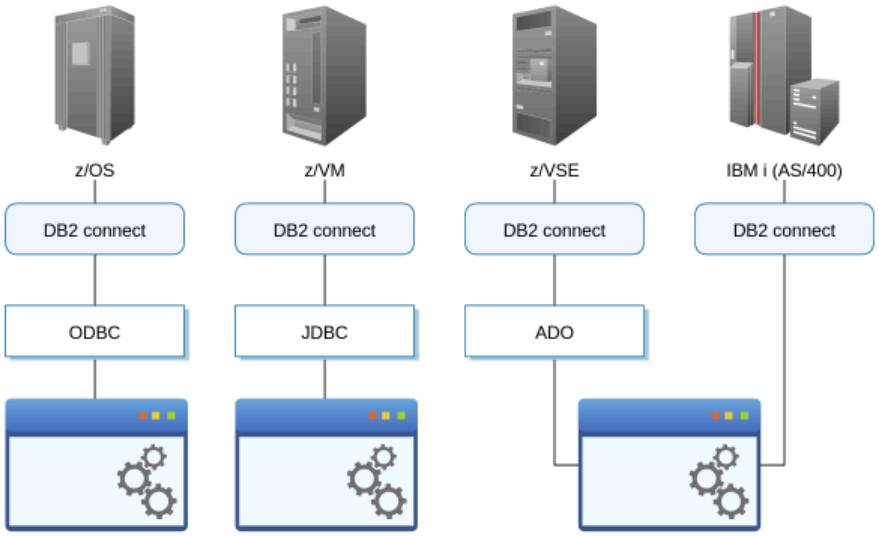
In the environments shown here, Db2 is often used with local or native applications.

These Db2 implementations can be managed using local management applications, or GUI software such as IBM Data Studio.



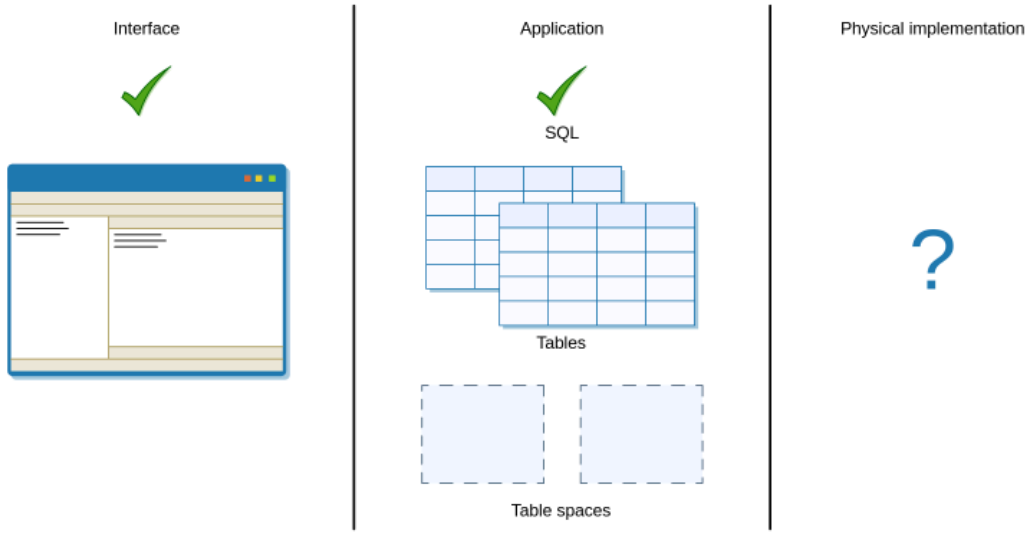
Db2 data in Windows, UNIX, and Linux can be accessed from any other Db2 system on any other platform. This is achieved using a standard architecture called the standard Distributed Relational Database Architecture (DRDA).

For Db2 systems on z/OS, z/VM, z/VSE, and IBM i (AS/400), additional software called Db2 Connect is required. Db2 connect can exist in two formats: as a single point of connection server supporting numerous workstations and a variety of applications, or as a Db2 Connect client that uses the DRDA protocol to connect directly to the mainframe Db2 database.



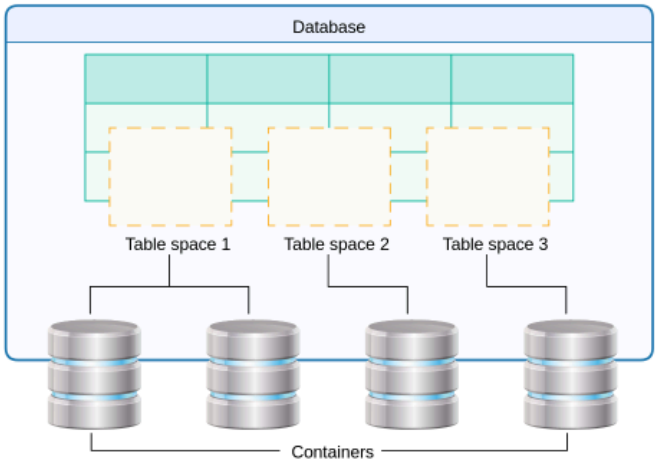
Db2 Connect enables a client server and web applications to use industry standard APIs like ODBC, ADO, OLE DB, JDBC, SQLJ, Db2 CLI, and embedded SQL to access Db2 data.

Click **Play** to see how applications access Db2 through different APIs.



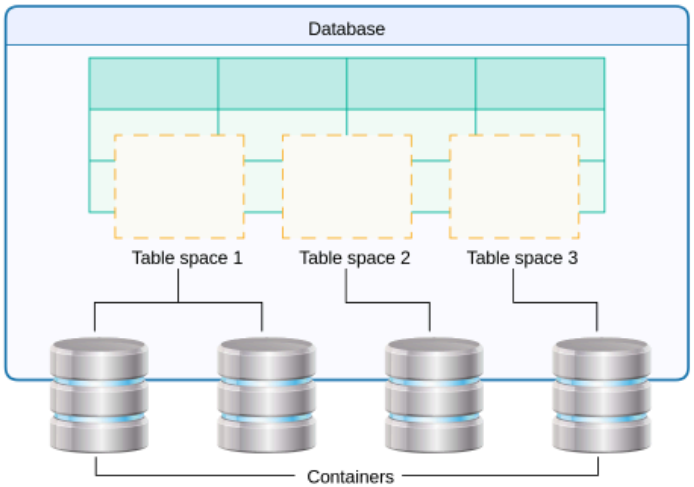
Db2 provides a common interface and a set of languages and concepts across its many platforms. The main difference between the platform versions of Db2 is how they physically implement storage.

In this section, you will see how Db2 LUW manages database storage.



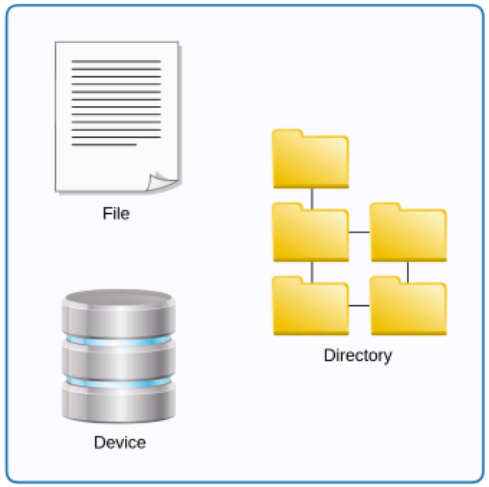
Db2 storage facilities are based on the concept of table spaces. A table space is a physical storage model that represents the connection between a database and a table stored within the database.

A table space enables you to assign the location of tables to a container.



A container may be a directory name, a device name, or a file name. There is a one-to-many relationship between a table space and a container.

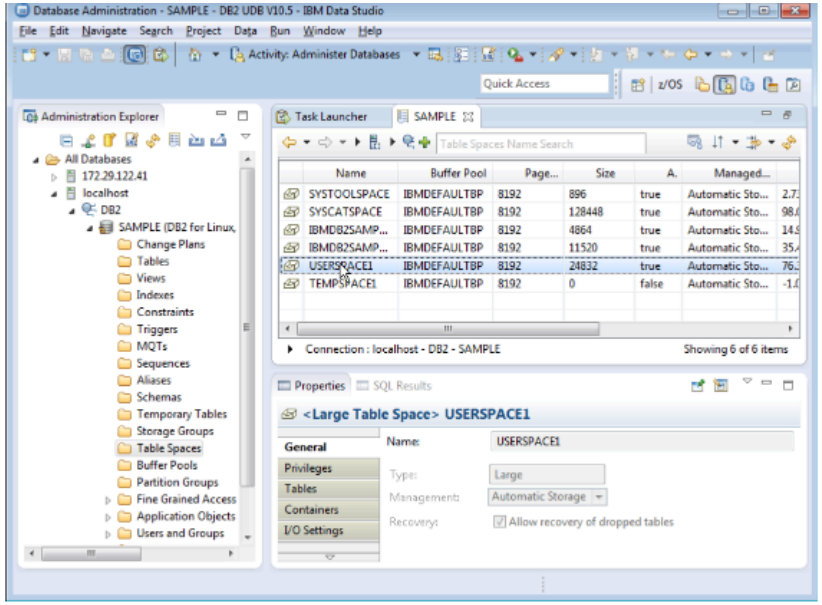
As shown in the diagram, a table space may span many containers.



In Db2, the term 'container' describes the allocation of physical space. A container can be a:

- File
- Directory
- Device

In an SMS managed environment, containers are represented as directories. When using devices to store table data, it is a good idea to locate containers on different disks to increase the effectiveness of Db2 parallel processing.



IBM Data Studio can be used to create, view, and modify containers.

Click Play to see how to view containers using IBM Data Studio.

Db2 table space containers must be defined, managed, and maintained. New containers must be added if the table space fills up, and unused ones removed.

There are three ways to manage table spaces:

- Systems managed (SMS)
- Database managed (DMS)
- Automatic

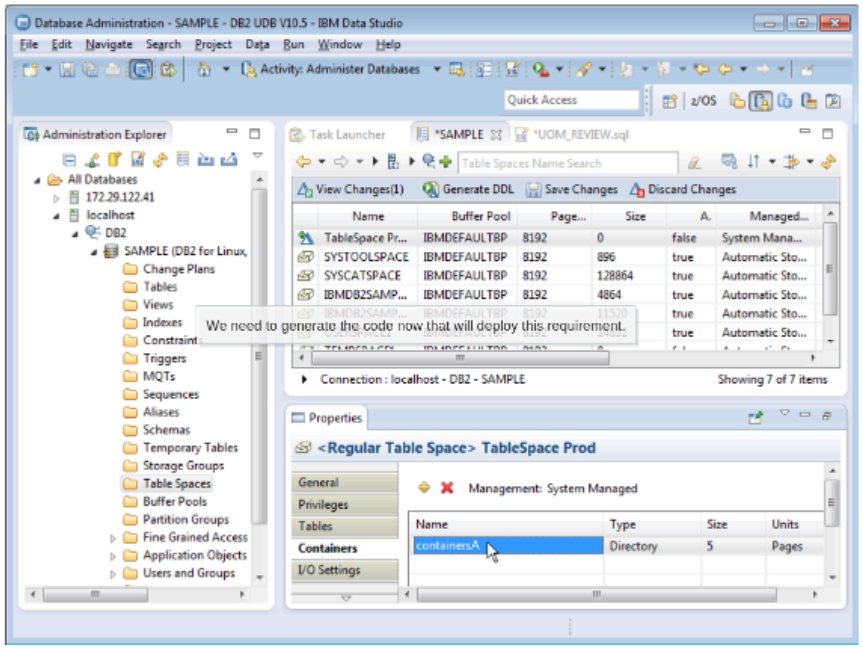
Systems Managed (SMS)

- Controlled by operating system
- User defines directories
- Cannot alter once created
- Easier to maintain
- Can affect performance

Systems Managed Space (SMS) is where Db2 container storage is managed by the operating system.

The user can define the directory where the files will reside. The operating system will then automatically create and delete files in this directory as needed.

SMS is generally easier to maintain, at the expense of performance. SMS values cannot be altered once created.



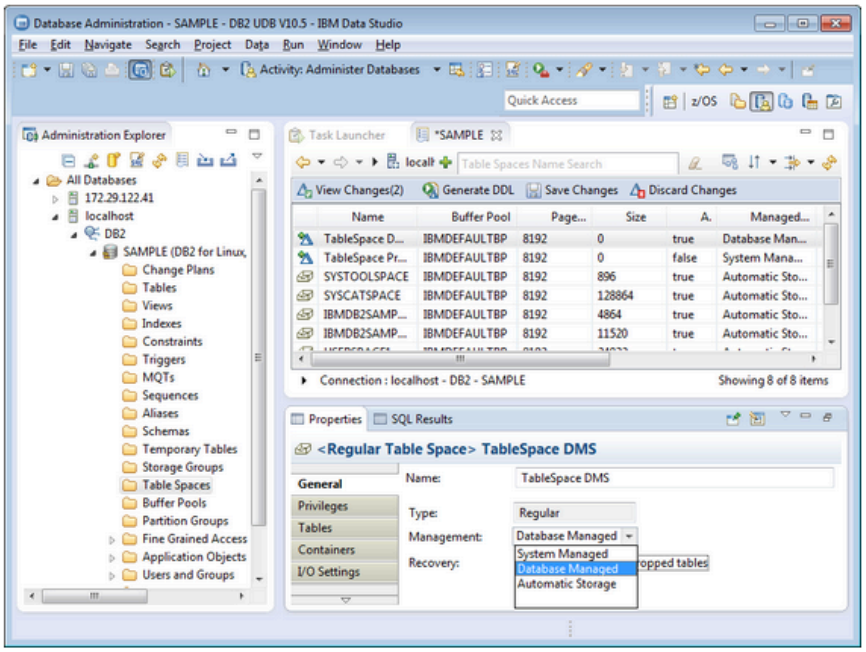
Click Play to see how an SMS managed table space can be created using IBM Data Studio.

Database Managed (DMS)

DB2 controlled
User defines files or devices
Can alter once created
Harder to maintain
Better performance

Database Managed Space (DMS) is where Db2 container storage is managed by Db2. The user must manually define individual files or devices where the files will reside.

DMS generally requires more maintenance, while providing improved performance. DMS values can be altered once created.

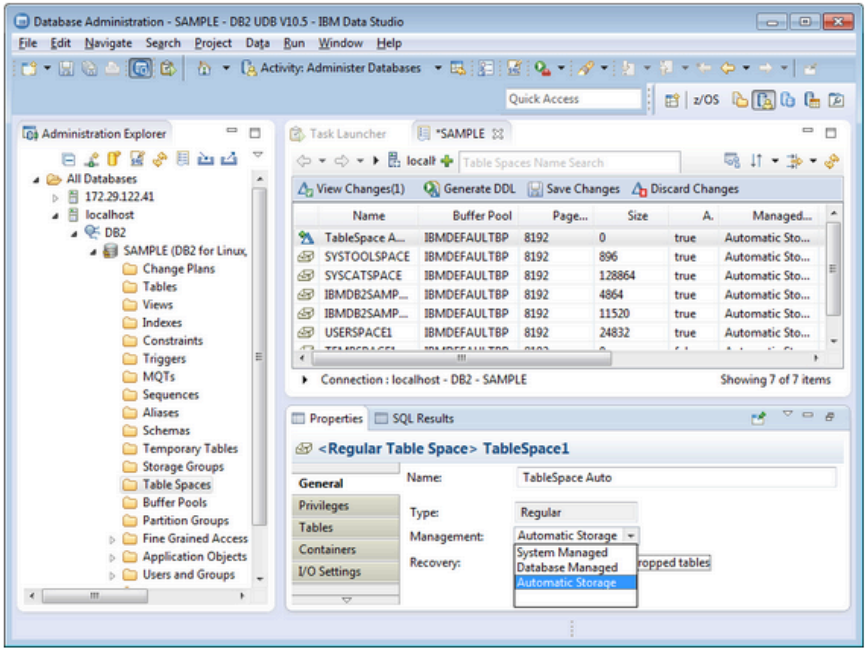


A DMS managed table space is created in much the same way as discussed previously, except that this option is selected from the Management drop down box.

Automatic

- Easiest to set up and maintain
- Recommended by IBM for most applications
- Similar performance to DMS

As the name suggests, automatic table space management ensures that when containers need to be created or extended that this task is performed automatically by the database manager. This type of table space management is the default if SMS and DMS are not specifically defined.



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Summary

The Db2 Server Alternatives

In this module you looked at the platforms on which Db2 can be installed and how Db2 Connect can be used to access Db2 database data. You were also introduced to Db2 storage concepts and the types of storage management associated with table spaces.

You should now be able to:

- Identify the Platforms on Which Db2 Can be Installed
- Describe How Db2 Connect Allows Access to Db2 Data
- Describe Storage Methods Used by Db2