

IBM® DB2 Universal Database™



Quick Beginnings for DB2 Servers

Version 8

IBM[®] DB2 Universal Database[™]



Quick Beginnings for DB2 Servers

Version 8

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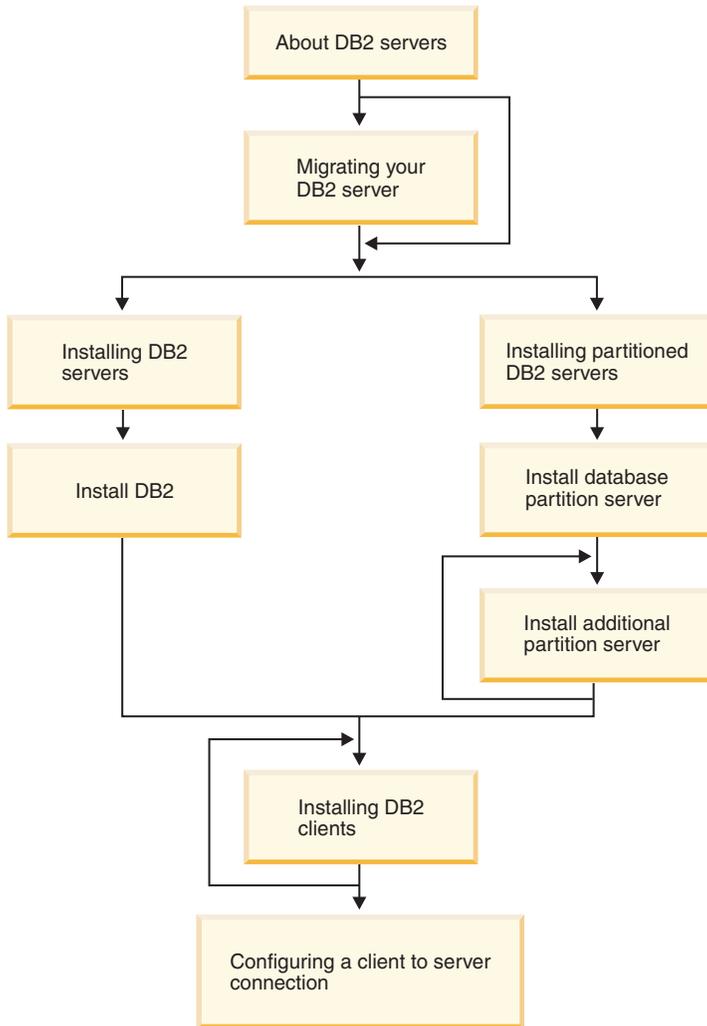
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Part 1. About DB2 servers



This diagram is to be used to help you navigate through this book. It is not intended to represent your specific installation steps. Use the information within this book to create your own specific installation plan.

Chapter 1. DB2 servers

DB2 Enterprise Server Edition

DB2[®] Enterprise Server Edition is a multiuser version of DB2 that allows you create and manage non-partitioned or partitioned database environments. Partitioned database systems can manage high volumes of data and provide benefits such as increased performance, high availability, and failover support. Other features of DB2 Enterprise Server Edition include:

- A data warehouse server and related components.
- DB2 Connect[™] functionality for accessing data stored on midrange and mainframe database systems such as DB2 for iSeries[™] or DB2 for z/OS[™] and OS/390. DB2 Enterprise Server Edition provides support for both local and remote DB2 clients.
- Satellite administration capabilities allowing DB2 ESE to remotely administer DB2 Personal Edition and DB2 Workgroup Server Edition database servers that are configured as satellites. For more information about Satellite capabilities, refer to the satellite administration documentation.

IBM plans to release a DB2 Query Patroller Version 8 that works against DB2 Universal Database Version 8 databases. DB2 Query Patroller Version 8 will deliver enhanced functionality to better manage and control all aspects of query submission. DB2 Query Patroller Version 7.2 or earlier cannot work with DB2 Universal Database Version 8 databases. You can use DB2 Query Patroller Version 7.2, which was shipped with DB2 Warehouse Manager Version 7.2, with DB2 Universal Database Version 7.2 databases.

Related tasks:

- “Installing a DB2 server on Windows” on page 43
- “Installing a partitioned DB2 server (Windows)” on page 87
- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72
- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

DB2 Workgroup Server Edition

DB2[®] Workgroup Server Edition is a multi-user version of DB2. It is designed for use in a Local Area Network (LAN) environment and provides support for both local and remote DB2 clients. DB2 Workgroup Server Edition also includes data warehouse capabilities and can be administered remotely from a satellite control database. For more information about satellite functionality, refer to the satellite administration documentation.

Related tasks:

- “Installing a DB2 server on Windows” on page 43
- “Installing a partitioned DB2 server (Windows)” on page 87
- “Installing database partition servers on participating computers (Windows)” on page 100
- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72
- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Chapter 2. DB2 servers on Windows

Installation overview for DB2 servers (Windows)

This topic provides an installation overview for DB2[®] Enterprise Server Edition (single-partition) and DB2 Workgroup Server Edition on Windows.

Installation overview:

Preparing your environment for installation

Before you install, you must prepare your computer for installation. To prepare your computer, you will:

1. Verify that your computer meets the necessary installation requirements.
2. Ensure that your system has enough memory to run DB2.
3. Ensure that your system has enough disk space for a DB2 installation.
4. Ensure that you have the necessary user accounts for installation and setup. You require one user account for installation and two user accounts for setup. The user accounts required for setup can be created before you install or you can have the DB2 Setup wizard create them for you.
5. If you are installing on Windows[®] 2000 and are planning to use Lightweight Directory Access Protocol (LDAP) to register the DB2 server in LDAP, you will extend the Windows 2000 directory schema so that it can contain DB2 object classes and attribute definitions.

Installing DB2

After preparing your environment, you will install DB2 using the DB2 Setup wizard. DB2 Setup wizard features include:

- A DB2 Setup Launchpad from which you can view installation notes, release notes, and learn about DB2 version 8 features.
- Typical, Compact, and Custom installation types.
- The option to install support for multiple languages
- DB2 Administration Server setup (including DAS user setup)
- Administration contact and health monitor notification setup
- Instance setup and configuration (including instance user setup)
- DB2 tools metadata and data warehouse control database setup.
- Response file creation

Some of these tasks can be deferred until after installation, and performed without using the DB2 Setup wizard. For more information on performing these tasks after installation, see the Related information below.

Recommended: Applying the latest FixPak

After you install DB2 using the DB2 Setup wizard, it is recommended that you apply the latest DB2 version 8 FixPak. DB2 FixPaks are available on the IBM® support site.

Verifying the installation

After you install DB2 using the DB2 Setup wizard and have applied the latest DB2 FixPak, it is recommended that you verify the installation. To verify the installation, you will:

1. Create a sample database using the **db2sampl** command. You can also create a sample database using the First Steps utility, if you choose to install it.
2. Once the sample database has been created successfully, you will run SQL commands to retrieve sample data.

Related concepts:

- “Instance creation” in the *Administration Guide: Implementation*

Related tasks:

- “Initializing a warehouse control database during installation” in the *Data Warehouse Center Administration Guide*
- “Tools catalog database and DAS scheduler setup and configuration” in the *Administration Guide: Implementation*
- “Notification and contact list setup and configuration.” in the *Administration Guide: Implementation*

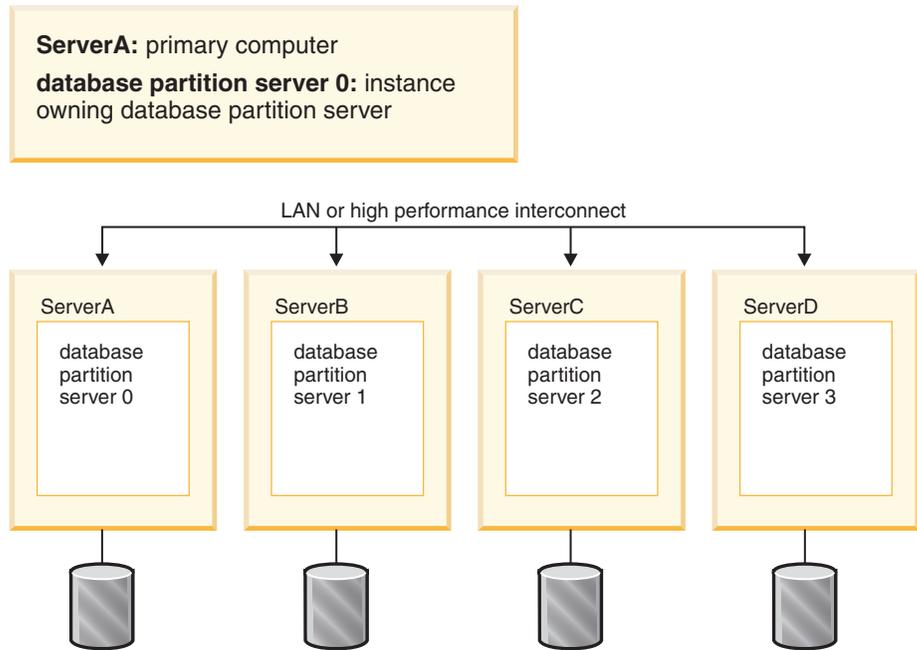
Related reference:

- “Installation requirements for DB2 servers (Windows)” on page 44
- “UPDATE HEALTH NOTIFICATION CONTACT LIST Command” in the *Command Reference*

Installation overview for partitioned DB2 servers (Windows)

The following diagram shows a DB2® Enterprise Server Edition (ESE) configuration with four database partition servers, one per computer. Setup instructions are based on this configuration but can easily be adjusted for partitioned configurations with a fewer or greater number of computers and

database partition servers.



ServerA will be referred to as the primary or instance owning computer. ServerB, ServerC, and ServerD will be referred to as participating computers.

Installation overview:

Preparing your environment for installation

Before you install, you must prepare your environment for installation. In some work environments, the System Administrator will perform these tasks. To prepare your environment, you will:

1. Verify that each computer meets the necessary operating system, memory, and disk requirements.
2. Ensure that all computers belong to the same Windows® domain.
3. Ensure that all computers have consistent time and date settings.
4. Verify that all computers can communicate with each other via TCP/IP.
5. Add a domain user account to the local Administrator group on each computer.
6. Optionally create user accounts for setup. The user accounts required for setup can be created before you install or you can have the DB2 Setup wizard create them for you.
7. If you are installing on Windows 2000 or Windows .NET and are planning to use Lightweight Directory Access Protocol (LDAP) to

register your server in the Active Directory, extend the Windows 2000 directory schema to contain DB2 object classes and attribute definitions.

Installing DB2

After preparing your environment, you will install DB2 Enterprise Server Edition:

1. On the primary server (ServerA), you will install an instance-owning database partition server using the DB2 Setup wizard. The DB2 Setup wizard provides the following features:
 - A DB2 Setup Launchpad from which you can view installation notes, release notes, and learn about DB2 version 8 features.
 - Typical, Compact, and Custom installation types.
 - The option to install support for multiple languages
 - DB2 Administration Server setup (including DAS user setup)
 - Administration contact and health monitor notification setup
 - Instance setup and configuration (including instance user setup)
 - DB2 tools metadata and data warehouse control databases setup.
 - Response file creation. You can save your installation choices to a response file for later installation or to duplicate the installation on another computer.

It is recommended that you create a local administration contact list on the instance owning partition. When the DB2 Administration Server is installed and configured on the other participating computers, it will be configured to use the contact list on the instance owning computer.

Some of these task can be deferred until after installation, and performed without using the DB2 Setup wizard. For more information on performing these tasks after installation, see the Related information below.

2. Once you have installed the instance owning database partition server on the primary computer, you will check the port range that DB2 has reserved for database partition communication. You will then ensure that the identical port range is available on each participating computer.
3. Once you have verified that the required port range is available on each participating computer, you will install database partition servers on participating computers using the DB2 Setup wizard.

Verifying the installation

After your system setup is complete, verifying the installation is recommended. To verify the installation, you will:

1. Create a sample database.
2. Run SQL commands to retrieve information from the sample database and ensure that the sample data has been evenly distributed to all database partition servers.

Related concepts:

- “Instance creation” in the *Administration Guide: Implementation*

Related tasks:

- “Initializing a warehouse control database during installation” in the *Data Warehouse Center Administration Guide*
- “Tools catalog database and DAS scheduler setup and configuration” in the *Administration Guide: Implementation*
- “Notification and contact list setup and configuration.” in the *Administration Guide: Implementation*

Related reference:

- “UPDATE HEALTH NOTIFICATION CONTACT LIST Command” in the *Command Reference*

Chapter 3. DB2 servers on UNIX

Installation overview for DB2 servers (UNIX)

This topic provides an overview of the steps required to install DB2[®] Enterprise Server Edition (single partition) or Workgroup Server Edition on UNIX[®] systems using the DB2 Setup wizard.

Installation overview:

Preparing your environment for installation

Before you install, you must prepare your computer for installation. To prepare your computer, you will:

1. Verify that your computer meets the necessary operating system, memory, and disk requirements.
2. Update kernel parameters to the recommended values (HP-UX, Linux, Solaris Operating Environment). A system restart is required.
3. Mount the installation CD-ROM.

Installing DB2

After preparing your environment, you will install DB2 using the DB2 Setup wizard. DB2 Setup wizard features include:

- A DB2 Setup Launchpad from which you can view installation notes, release notes, and learn about DB2 version 8 features.
- Typical, Compact, and Custom installation types. Installation choices presented to you depend on the type of installation you choose.
- The option to install support for multiple languages
- DB2 Administration Server setup (including DAS user setup)
- Administration contact and health monitor notification setup
- Instance setup and configuration (including instance user setup)
- DB2 tools metadata Setup. Metadata is required for DB2 tools to function.
- Response file creation

Some of these tasks can be deferred until after installation, and performed without using the DB2 Setup wizard. For more information on performing these tasks after installation, see the Related information below.

Installing the latest FixPak

After you install DB2 using the DB2 Setup wizard, it is recommended that you install the latest DB2 version 8 FixPak. DB2 FixPaks are available on the IBM® support site.

Verifying the installation

After you install DB2 using the DB2 Setup wizard and have applied the latest DB2 FixPak, it is recommended that you verify the installation. To verify the installation, you will:

1. Create a sample database using the **db2sample** command. You can also create a sample database using the First Steps utility, if you choose to install it.
2. Once the sample database has been created successfully, you can run SQL commands to retrieve sample data.

Related concepts:

- “Instance creation” in the *Administration Guide: Implementation*
- “Installation overview for a partitioned DB2 server (UNIX)” on page 12

Related tasks:

- “Initializing a warehouse control database during installation” in the *Data Warehouse Center Administration Guide*
- “Tools catalog database and DAS scheduler setup and configuration” in the *Administration Guide: Implementation*
- “Notification and contact list setup and configuration.” in the *Administration Guide: Implementation*
- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

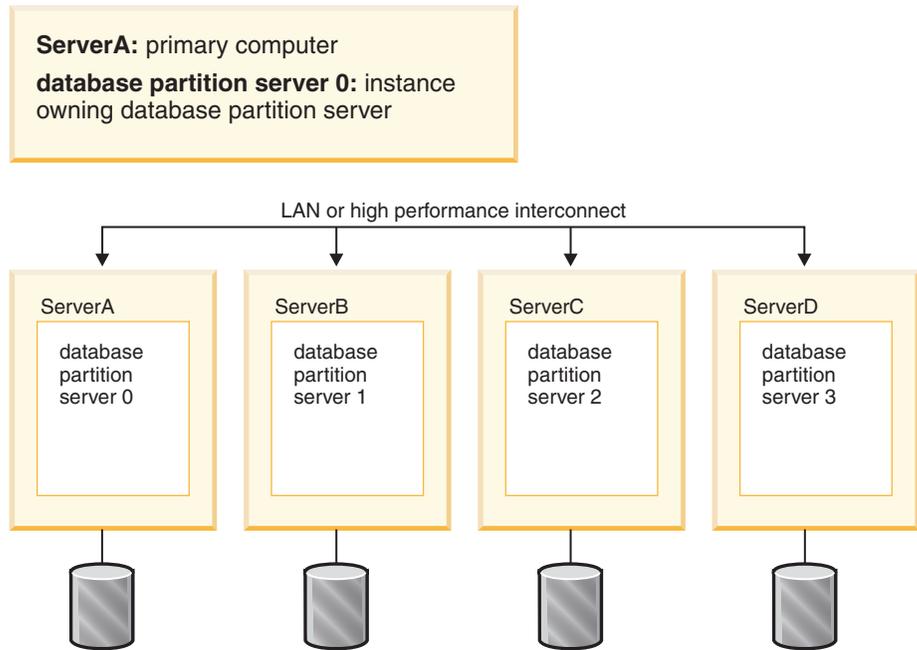
Related reference:

- “UPDATE HEALTH NOTIFICATION CONTACT LIST Command” in the *Command Reference*

Installation overview for a partitioned DB2 server (UNIX)

The following diagram shows a DB2® Enterprise Server Edition (ESE) configuration with four database partition servers, one per computer. Setup instructions are based on this configuration but can be easily adjusted for partitioned configurations with a fewer or greater number of computers and

database partition servers.



ServerA will be referred to as the primary or instance owning computer. ServerB, ServerC, and ServerD will be referred to as participating computers.

Installation overview:

Preparing your environment for installation

Before you install DB2, you must prepare your environment for the installation. In some work environments, the System Administrator will perform these tasks. To prepare your environment:

1. Verify that each computer meets the necessary operating system, memory, and disk requirements.
2. Update kernel parameters on each computer (HP-UX, Linux, and Solaris only).
3. Modify environment settings on each computer (AIX only).
4. Create a DB2 home file system on the primary computer (ServerA) and share it with participating computers (ServerB, ServerC, ServerD). This will be the instance home directory.
5. Create required users and groups on each computer.

Installing DB2

After preparing your environment, you will install DB2 on each computer. It is recommended that you install the instance owning partition first and create a response file which is used to install on the

other computers. This ensures that the same components are installed and configured the same way. However, the other participating computers can also be installed by using the DB2 Setup wizard, making the same component choices and not creating an instance.

It is recommended that you create a local administration contact list on the instance owning partition. When the DB2 Administration Server is installed and configured on the other participating computers, it will be configured to use the contact list on the instance owning computer.

To install DB2 on each computer using the recommended method, you will:

1. Mount the product CD-ROM on the primary computer (ServerA) and copy the contents to a directory on the shared DB2 home file system, where it can be accessed by the participating computers.
2. Install DB2 on the primary computer using the DB2 Setup wizard. The DB2 Setup wizard allows you to select features, create a DB2 instance, specify configuration settings, and create a response file for installing DB2 on participating computers.
3. Save the response file you created with the DB2 Setup wizard to a directory on your DB2 home file system, where it can be accessed by the participating computers.
4. Log on to each of the participating computers and perform a response file installation using the response file you created. The response file and DB2 product CD-ROM contents will be available to the participating computers on the shared DB2 home file system.

Post-installation setup

Once DB2 has been installed on all computers, there are a number of post-installation setup tasks. To setup DB2 after installation:

1. Update the node configuration file (`db2nodes.cfg`). When you install DB2 on the primary computer using the DB2 Setup wizard, you will create a DB2 instance. The information you provide in the node configuration file tells DB2 which database partition servers will participate in the instance.
2. Enable communications between the database partition servers. This requires that you update the `/etc/services` file on each computer.
3. Enable the execution of remote commands. This allows each database partition server to perform remote commands on the other database partition servers. This task must be performed on each computer.

Verifying the installation

After your system setup is complete, verifying the installation is recommended. To verify the installation:

1. Create a sample database.
2. Run SQL commands to retrieve information from the sample database and ensure that the sample data has been evenly distributed to all database partition servers.

Related concepts:

- “Instance creation” in the *Administration Guide: Implementation*
- “Installation overview for DB2 servers (UNIX)” on page 11

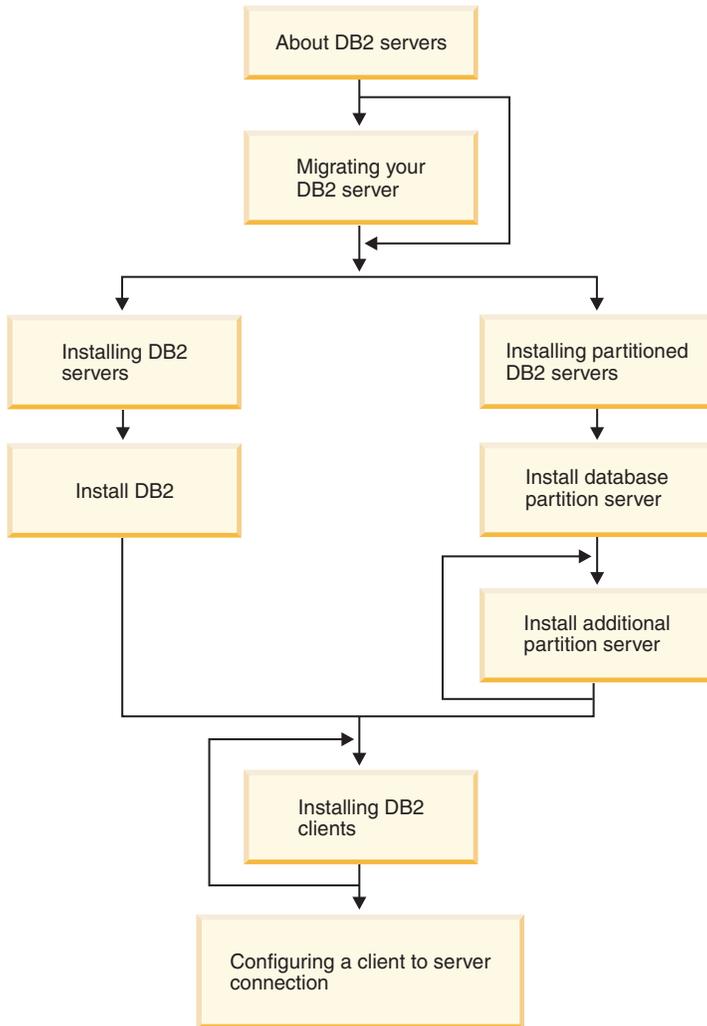
Related tasks:

- “Initializing a warehouse control database during installation” in the *Data Warehouse Center Administration Guide*
- “Tools catalog database and DAS scheduler setup and configuration” in the *Administration Guide: Implementation*
- “Notification and contact list setup and configuration.” in the *Administration Guide: Implementation*
- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Related reference:

- “UPDATE HEALTH NOTIFICATION CONTACT LIST Command” in the *Command Reference*

Part 2. Migrating your DB2 server



This diagram is to be used to help you navigate through this book. It is not intended to represent your specific installation steps. Use the information within this book to create your own specific installation plan.

Chapter 4. Migration considerations

Migration restrictions

You should be aware of the following restrictions before you migrate to DB2 Version 8:

- Migration is only supported from:
 - DB2 Version 6.x or Version 7.x. (All platforms supported in Version 6.x and Version 7.x; Linux must be at Version 6 FixPak 2.)
 - DB2 DataJoiner V2.1.1 32-bit (AIX, Windows NT, and Solaris Operating Environment).
- Issuing the **migrate database** command from a DB2 Version 8 client to migrate a database to a DB2 Version 8 server is supported; however, issuing the migration command from an DB2 Version 6 or Version 7 client to migrate a database to a DB2 Version 8 server is not supported.
- When migrating from DB2 DataJoiner V2.1.1, DB2 Relational Connect is required to support non-IBM data sources.
- Migration between platforms is not supported. For example, you cannot migrate a database from a DB2 server on Windows to a DB2 server on UNIX.
- Migrating a partitioned database system that has multiple computers requires that database migration be performed after DB2 Version 8 is installed on all participating computers.
- Windows allows only one version of DB2 to be installed on a computer. For example, if you have DB2 Version 7 and install DB2 Version 8, DB2 Version 7 will be removed during the installation. All instances are migrated during DB2 installation on Windows operating systems.
- User objects within your database cannot have DB2 Version 8 reserved schema names as object qualifiers. These reserved schema names include: SYSCAT, SYSSTAT, and SYSFUN.
- User-defined distinct types using the names BIGINT, REAL, DATALINK, or REFERENCE must be renamed before migrating the database.
- You cannot migrate a database that is in one of the following states:
 - Backup pending
 - Roll-forward pending
 - One or more table spaces not in a normal state
 - Transaction inconsistent

- Restoration of down-level (DB2 Version 6.x or Version 7.x) database backups is supported, but the rolling forward of down-level logs is not supported.
- Database transactions executed between database backup time and the time DB2 Version 8 migration is completed are not recoverable.
- To migrate a DB2 Version 7 AIX Version 4 64-bit instance:
 - Upgrade your AIX operating system to AIX Version 5:
 1. Upgrade your operating system to AIX Version 5.
 2. Upgrade DB2 Version 7 with DB2 Version 7 FixPak 4 for AIX 5.
 3. Update your instances using the `/usr/lpp/db2_07_01/instance/db2iupdt` command.
 4. Ensure your database continues to work. It is not recommended to proceed directly to the next step without confirming your database works in AIX Version 5 on DB2 Version 7.
 5. Install DB2 Version 8 for AIX Version 5
 6. Migrate your instances using the `/usr/opt/db2_08_01/instance/db2imigr` command.
 - Remain with AIX Version 4:
 1. Drop your instances.
 2. Recreate them as 32-bit instances. You may have to reconfigure your instance parameters.
 3. Install DB2 Version 8 for AIX Version 4.
 4. Migrate your instances using the `/usr/opt/db2_08_01/instance/db2imigr` command.

Related concepts:

- “Migration recommendations” on page 20

Related tasks:

- “Migrating DB2 (Windows)” on page 29
- “Migrating DB2 (UNIX)” on page 33

Migration recommendations

Consider the following recommendations when planning your database migration:

Perform hardware and operating system upgrades separately from DB2® migration

Performing hardware and operating system upgrades separately from DB2 migration allows for easier problem determination should you

encounter migration difficulties. If you upgrade your software or hardware prior to migrating to DB2, ensure that your system is operating acceptably before attempting DB2 migration.

Down level server support

As you move your environment from DB2 Version 7 to DB2 Version 8, if you are in a situation where you migrate your DB2 clients to Version 8 before you migrate all of your DB2 servers to Version 8, there are several restrictions and limitations. These restrictions and limitations are not associated with DB2 Connect; nor with zSeries, OS/390, or iSeries database servers. To avoid the known restrictions and limitations, you should migrate all of your DB2 servers to Version 8 before you migrate any of your DB2 clients to Version 8.

Benchmark DB2 performance

Run a number of test queries before migrating DB2. Record the exact environment conditions when queries are run. Also, keep a record of the **db2expln** command output for each test query. Compare the results before and after migration. This practice may help to identify and correct any performance degradation.

Devise a plan to back out of a migration

There is no utility to reverse a migration. If you must back out of a migration, you might have to remove DB2 Version 8 code from your system, reinstall the previous version of DB2 to recreate back-level instances, and restore your database backups. Should you have to back out of a migration, current database backups and a detailed record of database and database configuration settings are essential.

Migrate to DB2 Version 8 in a test environment

Migrate to DB2 Version 8 in a test environment before migrating your production environment. This practise will allow you to address migration difficulties and make sure applications and tools work properly before committing your production environment to the migration process.

Migrating DataJoiner instances

Before migrating an instance of DataJoiner, DB2 for UNIX, or DB2 for Windows where you are running the Capture or Apply programs for DB2 DataPropagator, be sure to read the migration documentation for DB2 DataPropagator Version 8. You must prepare to migrate your replication environment before you migrate the DB2 or DataJoiner instance. You must also perform steps immediately after the migration of your DB2 or DataJoiner instance. Migration documentation for DB2 DataPropagator Version 8 can be found at the <http://www.ibm.com/software/data/dpropr/library.html> Web site.

Related concepts:

- “Benchmark testing” in the *Administration Guide: Performance*
- “Explain tools” in the *Administration Guide: Performance*

Related tasks:

- “Migrating DB2 (Windows)” on page 29
- “Migrating DB2 (UNIX)” on page 33

Related reference:

- “db2expln - DB2 SQL Explain Tool Command” in the *Command Reference*
- “DB2 Universal Database planned incompatibilities” in the *Administration Guide: Planning*
- “Version 8 incompatibilities between releases” in the *Administration Guide: Planning*
- “Version 7 incompatibilities between releases” in the *Administration Guide: Planning*

Backing up databases before DB2 migration

Before you start the migration process it is recommended that you perform an *offline* backup of your databases. If an error should occur during the migration process, database backups are required for recovery.

This topic does not provide the complete syntax for the backup command. For the complete syntax, refer to the Related reference at the end of this topic.

Prerequisites:

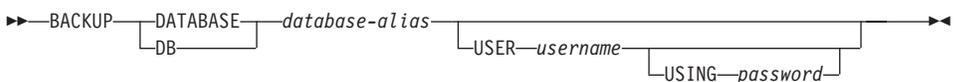
- To backup a database, you require SYSADM, SYSCTRL, or SYSMANT authority.
- Databases must be cataloged. To view a list of all the cataloged databases in the current instance, enter the following command:

```
db2 list database directory
```

Procedure:

Back up each of your local databases using the backup database command:

BACKUP Command



where:

DATABASE *database-alias*

Specifies the alias of the database to back up.

USER *username*

Identifies the user name under which to back up the database.

USING *password*

Is the password used to authenticate the user name. If the password is omitted, the user is prompted to enter it.

Related concepts:

- “System administration authority (SYSADM)” in the *Administration Guide: Implementation*

Related reference:

- “BACKUP DATABASE Command” in the *Command Reference*
- “Space considerations for DB2 migration” on page 23

Space considerations for DB2 migration

This topic provides information about space requirements for DB2 migration.

Table spaces

Ensure that you have sufficient table space for databases you are migrating. System catalog table space is required for both old and new database catalogs during migration. The amount of space required will vary, depending on the complexity of the database, as well as the number and size of database objects. General recommendations:

Table 1. Catalog table space recommendations

Table space	Recommended space
system catalog table space (SYSCATSPACE)	2 x the space currently occupied
temporary table space (TEMPSPACE1 is the default name)	2 x the system catalog table space

To check the size of your table spaces you can use the following commands:

```
db2 list database directory
db2 connect to database_alias
db2 list tablespaces show detail
```

For the system catalog table space, free pages should be equal to or greater than used pages. Total pages for the temporary table space

should be twice the amount of total pages for the system catalog table space. To increase the amount of space to a DMS tablespace, you can add additional containers.

Log file space

You should consider increasing (doubling) the values of *logfilesiz*, *logprimary*, and *logsecond* to prevent log file space from running out. If your system catalog table space is an SMS type of table space, you should consider updating the database configuration parameters that are associated with the log files.

Related tasks:

- “Adding a container to a DMS table space” in the *Administration Guide: Implementation*
- “Migrating DB2 (Windows)” on page 29
- “Migrating DB2 (UNIX)” on page 33

Recording system configuration settings before DB2 migration

It is recommended that you record database and database manager configuration settings before DB2 migration. Configuration records can be used to verify that migration was successful and may also be useful in problem determination, should you encounter post-migration difficulties.

After you have migrated DB2, it is recommended that you compare these records with post-migration settings to ensure that existing settings were migrated successfully.

This topic lists several database commands. For references to complete command syntax, refer to the related reference section at the end of this topic.

Procedure:

1. Save a copy of your database configuration settings. Configuration parameters for a database should be the same on each computer in a partitioned database system. If not, save a copy of the database configuration settings for each partition. You can compare configuration settings before and after migration to ensure that they have been migrated properly. You can retrieve database configuration settings using the **db2 get database configuration for** *database_alias* command. Perform this task for each database you are migrating.
2. Save a copy of your database manager configuration settings. You can retrieve database manager configuration settings using the **db2 get database manager configuration** command.

3. Save a record of the tablespaces for each database you are migrating. You can retrieve a list of tablespaces using the **db2 list tablespaces** command.
4. Save a list of packages for each database you are migrating. You can retrieve a list of packages using the **db2 list packages** command.

Related reference:

- “GET DATABASE CONFIGURATION Command” in the *Command Reference*
- “GET DATABASE MANAGER CONFIGURATION Command” in the *Command Reference*
- “LIST PACKAGES/TABLES Command” in the *Command Reference*
- “LIST TABLESPACES Command” in the *Command Reference*

Changing the diagnostic error level before DB2 migration

For the duration of migration activities, change the diagnostic error level to 4. The diagnostic error level 4 records all errors, warnings and informational messages. This information can be used for problem determination should you encounter migration errors. The `diagpath` configuration parameter is used to specify the directory that contains the error file, event log file (on Windows only), alert log file, and any dump files that may be generated based on the value of the `diaglevel` parameter.

Procedure:

The diagnostic error level can be set in the database manager configuration file using the following command:

```
db2 update dbm configuration using diaglevel 4
```

The `diagpath` parameter can be set in the database manager configuration file using the following command:

```
db2 update dbm configuration using diagpath directory
```

where *directory* is the location you have chosen to store your log files.

Verifying that your databases are ready for migration

This task describes how to use the **db2ckmig** command to verify that your databases are ready for migration.

Prerequisites:

Ensure that the `migration.log`, found in the instance owner’s home directory, contains the following text: Version of DB2CKMIG being run: VERSION 8.

Procedure:

Enter the **db2ckmig** command to verify that databases owned by the current instance are ready to be migrated. The **db2ckmig** command ensures that:

- A database is not in a inconsistent state
- A database is not in backup pending state
- A database is not in rollforward pending state
- Tablespaces are in a normal state

DB2CKMIG command

```
db2ckmig database_alias /l drive:\path\filename  
/e  
/u userid /p password
```

where:

database_alias

Specifies a *database_alias* name of a database to be verified for migration. This parameter is required if the */e* parameter is not specified.

/e

Specifies that all cataloged databases are to be verified for migration. This parameter is required if the *database_alias* parameter is not specified.

/l drive:\path\filename

Specifies a drive, target path and filename to keep a list of errors and warnings generated for the scanned database. The path variable is optional; if you do not specify a path, the path from which you execute the **db2ckmig** command will be used. You must specify a filename.

/u userid

Specifies the user account used to connect to the database. This parameter must be specified if you are logged on as a user without connect authority.

/p password

Specifies the password of the user account used to connect to the database.

The **db2ckmig** command is located in the \db2\Windows\utilities directory on your DB2 version 8 product CD-ROM.

Related tasks:

- “Migrating DB2 (UNIX)” on page 33

Taking a V6 or V7 DB2 server offline for DB2 migration

This task describes how to take your DB2 Version 6 or Version 7 server offline for DB2 migration. Before you can continue with the migration process, you must stop the DB2 license service, stop all command line processor sessions, disconnect applications and users, and stop the database manager.

Prerequisites:

Ensure that:

- Your system meets the installation requirements for DB2 Version 8 before starting the migration process.
- You have SYSADM authority.

Procedure:

To take your system offline:

1. Stop the DB2 license service by entering the **db2licd -end** command.
2. On Windows 2000, the properties of a service can be set so that it restarts if the service fails. If the *restart on failure* option is set for any DB2 services, it must be disabled before proceeding.
3. Stop all command line processor sessions by entering the **db2 terminate** command in each session that was running the command line processor.
4. Disconnect all applications and users. To get a list of all database connections for the current instance, enter the **db2 list applications** command. If all applications are disconnected, this command will return the following message:

```
SQL1611W No data was returned by the Database System Monitor.  
SQLSTATE=00000
```

You can disconnect applications and users by issuing the **db2 force applications** command.

5. When all applications and users are disconnected, stop each database manager instance by entering the **db2stop** command.

Related reference:

- “db2stop - Stop DB2 Command” in the *Command Reference*
- “FORCE APPLICATION Command” in the *Command Reference*
- “LIST APPLICATIONS Command” in the *Command Reference*
- “Installation requirements for DB2 servers (Windows)” on page 44

- “Installation requirements for partitioned DB2 servers (AIX)” on page 111
- “Installation requirements for partitioned DB2 servers (HP-UX)” on page 124
- “Installation requirements for partitioned DB2 servers (Solaris Operating Environment)” on page 147
- “Installation requirements for partitioned DB2 servers (Linux)” on page 135
- “Installation requirements for DB2 servers (AIX)” on page 58
- “Installation requirements for DB2 servers (HP-UX)” on page 62
- “Installation requirements for DB2 servers (Linux)” on page 68
- “Installation requirements for DB2 servers (Solaris)” on page 74
- “Installation requirements for a partitioned DB2 server (Windows)” on page 88

Chapter 5. Migrating DB2 servers (Windows)

Migrating DB2 (Windows)

This topic lists the steps for migrating to DB2 Version 8 on Windows. Migration is required if you have pre-DB2 Version 8 instances and databases you would like to continue using with DB2 Version 8.

Prerequisites:

Ensure that you review:

- Migration recommendations
- Migration restrictions
- Space considerations for DB2 migration

See the Related information at the end of this topic for details.

Procedure:

To migrate DB2:

1. Record configuration settings before DB2 migration.
2. Change the diagnostic error level.
3. Take the DB2 server offline for DB2 migration.
4. Verify that databases are ready for DB2 migration.
5. Back up your databases.
6. *Optional:* If you will be using replication, you must archive all of the DB2 log files.
7. Install your DB2 server:
 - Workgroup Server Edition or DB2 Enterprise Server Edition (single partition)
 - Enterprise Server Edition (partitioned)
8. Migrate databases.
9. *Optional:* Migrate DB2 Explain tables.

Related concepts:

- “System administration authority (SYSADM)” in the *Administration Guide: Implementation*
- “Migration recommendations” on page 20

Related tasks:

- “Recording system configuration settings before DB2 migration” on page 24
- “Changing the diagnostic error level before DB2 migration” on page 25
- “Taking a V6 or V7 DB2 server offline for DB2 migration” on page 27
- “Verifying that your databases are ready for migration” on page 25
- “Backing up databases before DB2 migration” on page 22
- “Installing a DB2 server on Windows” on page 43
- “Installing a partitioned DB2 server (Windows)” on page 87
- “Migrating databases” on page 30
- “Migrating Explain tables” on page 236

Related reference:

- “ARCHIVE LOG Command” in the *Command Reference*
- “Space considerations for DB2 migration” on page 23
- “Migration restrictions” on page 19

Migrating databases

This task is part of the main task of *Migrating DB2*.

Prerequisites:

You require SYSADM authority.

Restrictions:

Migration is only supported from:

- DB2 Version 6.x or Version 7.x. (all platforms supported in Version 6.x and Version 7.x)
- DB2 DataJoiner V2.1.1 (AIX, Windows NT, and Solaris Operating Environment).

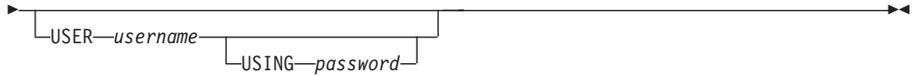
Procedure:

To migrate a DB2 database:

1. Migrate the database using the **db2 migrate database** command.

DB2 MIGRATE DATABASE command

►—MIGRATE—DATABASE—*database-alias*—►
 └─DB─┘



where:

DATABASE *database-alias*

Specifies the alias of the database to be migrated to the currently installed version of the database manager.

USER *username*

Identifies the user name under which the database is to be migrated.

USING *password*

The password used to authenticate the user name. If the password is omitted, but a user name was specified, the user is prompted to enter it.

2. *Optional:* Update statistics. When database migration is complete, old statistics that are used to optimize query performance are retained in the catalogs. However, DB2 Version 8 has statistics that are modified or do not exist in DB2 Version 6 or DB2 Version 7. To take advantage of these statistics, you may want to execute the **runstats** command on tables, particularly those tables that are critical to the performance of your SQL queries.
3. *Optional:* Rebind packages. During database migration, all existing packages are invalidated. After the migration process, each package is rebuilt when it is used for the first time by the DB2 Version 8 database manager. You can run the **db2rbind** command to rebuild all packages stored in the database.
4. *Optional:* Revoke EXECUTE privileges on external stored procedures that contain SQL data access from PUBLIC. During database migration, EXECUTE privileges are granted to PUBLIC for all existing functions, methods, and external stored procedures. This will cause a security exposure for external stored procedures that contain SQL data access which allow users to access SQL objects for which they would not otherwise have privileges. Revoke the privileges by entering the **db2undgp - r** command.
5. *Optional:* Migrate DB2 Explain tables
6. *Optional:* If you recorded configuration settings before migration, you might want to compare pre-migration configuration settings to current configuration settings to verify successful migration. Verify:
 - database configuration parameter settings
 - database manger configuration parameter settings
 - tablespaces records
 - packages records

Related tasks:

- “Recording system configuration settings before DB2 migration” on page 24
- “Migrating Explain tables” on page 236

Related reference:

- “MIGRATE DATABASE Command” in the *Command Reference*
- “LIST DATABASE DIRECTORY Command” in the *Command Reference*
- “db2rbind - Rebind all Packages Command” in the *Command Reference*

Chapter 6. Migrating DB2 servers (UNIX)

Migrating DB2 (UNIX)

This topic lists the steps for migrating to DB2 Version 8 on UNIX.

Migration is required if you have pre-DB2 Version 8 instances and databases you would like to use with DB2 Version 8.

Prerequisites:

Ensure that you review:

- Migration recommendations
- Migration restrictions
- Space considerations for DB2 migration

Procedure:

To migrate DB2:

1. Record configuration settings before DB2 migration.
2. Change the diagnostic error level.
3. Take the DB2 server offline for DB2 migration.
4. Back up your databases.
5. *Optional:* If you will be using replication, you must archive all of the DB2 log files.
6. Install your DB2 server:
 - Workgroup Server Edition or DB2 Enterprise Server Edition (single partition):
 - AIX
 - HP-UX
 - Linux
 - Solaris Operating Environment
 - Enterprise Server Edition (partitioned):
 - AIX
 - HP-UX
 - Linux
 - Solaris Operating Environment

7. Migrate instances.
8. *Optional*: If you have created a DB2 tools catalog and want to use your existing pre-Version 8 scripts and schedules (for the Control Center), you must migrate the DB2 Administration Server.
9. Migrate databases.

Related concepts:

- “System administration authority (SYSADM)” in the *Administration Guide: Implementation*
- “Migration recommendations” on page 20

Related tasks:

- “Recording system configuration settings before DB2 migration” on page 24
- “Changing the diagnostic error level before DB2 migration” on page 25
- “Taking a V6 or V7 DB2 server offline for DB2 migration” on page 27
- “Backing up databases before DB2 migration” on page 22
- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72
- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145
- “Migrating instances (UNIX)” on page 34
- “Migrating the DB2 Administration Server (DAS)” on page 36
- “Migrating databases” on page 30

Related reference:

- “ARCHIVE LOG Command” in the *Command Reference*
- “Space considerations for DB2 migration” on page 23
- “Migration restrictions” on page 19

Migrating instances (UNIX)

This task is part of the main task of *Migrating DB2 (UNIX)*.

You can migrate existing DB2 Version 6 or DB2 Version 7 instances using the **db2imigr** command. Migrating instances is done after installing DB2 Version 8.

The **db2imigr** command does the following:

- Checks cataloged databases owned by the instance to make sure they are ready for migration.
- Runs the **db2icrt** command to create the DB2 Version 8 instance.
- Updates system and local database directories to a Version 8 format.
- Merges the pre-DB2 Version 8 database manager configuration with DB2 Version 8 database manager configuration.

Prerequisites:

You must be logged in as a user with root authority.

Before running the **db2imigr** command, it is recommended:

- That /tmp have up to 70 percent free space. The instance migration trace file is written to /tmp.
- That you run manually and resolve any problems prior to running db2imigr. db2imigr will not migrate as long as db2ckmig finds problems.

Restrictions:

Migration is only supported from:

- DB2 Version 6.x or Version 7.x. (All platforms supported in Version 6.x and Version 7.x; Linux must be at Version 6 FixPak 2.)
- DB2 DataJoiner V2.1.1 (AIX, Windows NT, and Solaris Operating Environment).

Procedure:

To migrate an instance:

1. Migrate instances using the **db2imigr** command:

```
DB2DIR/instance/db2imigr [-u fencedID] InstName
```

where

DB2DIR

is /usr/opt/db2_08_01 on AIX and /opt/IBM/db2/V8.1 on all other UNIX-based operating systems.

-u fencedID

Is the user under which the fenced user-defined functions (UDFs) and stored procedures will execute. This parameter is required only when migrating from a client instance to a server.

InstName

Is the login name of the instance owner.

If you have migrated from a non-partitioned version of DB2 to a partitioned version of Enterprise Server Edition, you must update your instances to a partitioned format using the **db2iupdt** command.

The next step in migrating DB2 on UNIX is to migrate existing databases.

Related reference:

- “db2ckmig - Database Pre-migration Tool Command” in the *Command Reference*
- “db2imigr - Migrate Instance Command” in the *Command Reference*
- “db2icrt - Create Instance Command” in the *Command Reference*
- “db2iupdt - Update Instances Command” in the *Command Reference*

Migrating the DB2 Administration Server (DAS)

The task is part of the larger task of Migrating DB2. If you have created a DB2 tools catalog on your DB2 Version 8 system and want to use your existing pre-Version 8 scripts and schedules (for the Control Center) that were created in the pre-Version 8 DB2 Administration Server (DAS), you must migrate the DAS to Version 8.

On Windows, this migration is done automatically if you created the DB2 tools catalog during the installation of Version 8. If you created the DB2 tools catalog after installation, this migration must be done manually.

On UNIX, this migration must be done manually after the DB2 tools catalog has been created, either during the installation or at a later time.

Prerequisites:

You must have:

- An existing DB2 tools catalog.
- DASADM authority to migrate the pre-Version 8 information into the DB2 tools catalog.

Procedure:

To migrate a pre-Version 8 DAS to the DB2 tools catalog, enter the command:

```
dasmigr previous_das_name new_das_name
```

where *previous_das_name* represents the name of the pre-Version 8 DAS instance, and *new_das_name* represents the name of the new Version 8 DAS.

Related tasks:

USER *username*

Identifies the user name under which the database is to be migrated.

USING *password*

The password used to authenticate the user name. If the password is omitted, but a user name was specified, the user is prompted to enter it.

2. *Optional:* Update statistics. When database migration is complete, old statistics that are used to optimize query performance are retained in the catalogs. However, DB2 Version 8 has statistics that are modified or do not exist in DB2 Version 6 or DB2 Version 7. To take advantage of these statistics, you may want to execute the **runstats** command on tables, particularly those tables that are critical to the performance of your SQL queries.
3. *Optional:* Rebind packages. During database migration, all existing packages are invalidated. After the migration process, each package is rebuilt when it is used for the first time by the DB2 Version 8 database manager. You can run the **db2rbind** command to rebuild all packages stored in the database.
4. *Optional:* Revoke EXECUTE privileges on external stored procedures that contain SQL data access from PUBLIC. During database migration, EXECUTE privileges are granted to PUBLIC for all existing functions, methods, and external stored procedures. This will cause a security exposure for external stored procedures that contain SQL data access which allow users to access SQL objects for which they would not otherwise have privileges. Revoke the privileges by entering the **db2undgp - r** command.
5. *Optional:* Migrate DB2 Explain tables
6. *Optional:* If you recorded configuration settings before migration, you might want to compare pre-migration configuration settings to current configuration settings to verify successful migration. Verify:
 - database configuration parameter settings
 - database manager configuration parameter settings
 - tablespaces records
 - packages records

Related tasks:

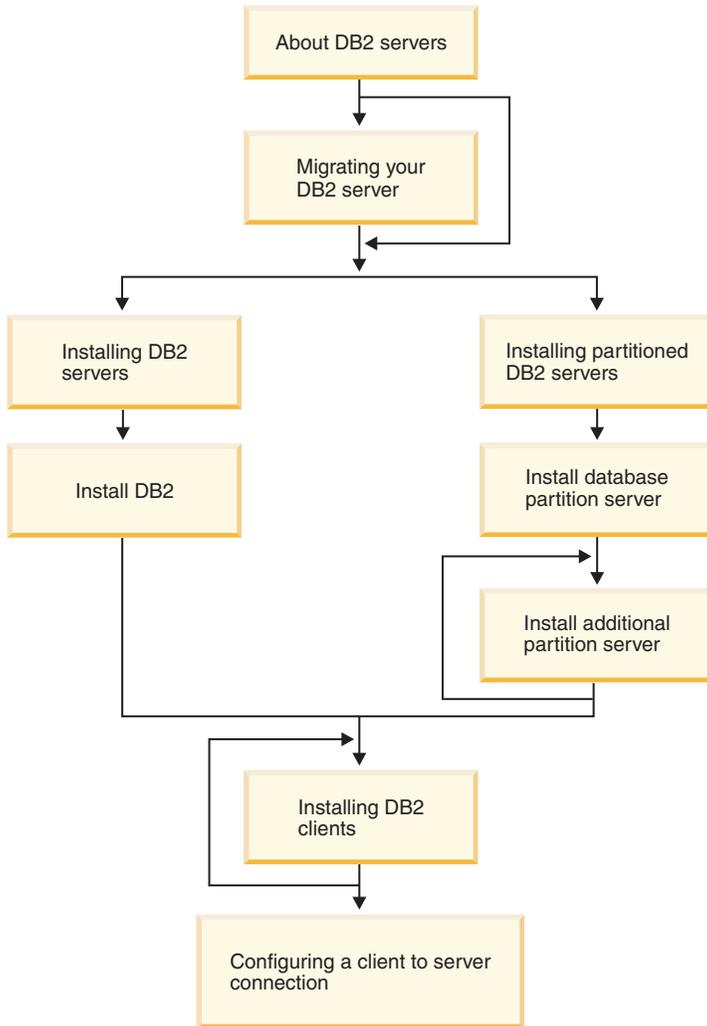
- “Recording system configuration settings before DB2 migration” on page 24
- “Migrating Explain tables” on page 236

Related reference:

- “MIGRATE DATABASE Command” in the *Command Reference*

- “LIST DATABASE DIRECTORY Command” in the *Command Reference*
- “db2rbind - Rebind all Packages Command” in the *Command Reference*

Part 3. Installing DB2 servers



This diagram is to be used to help you navigate through this book. It is not intended to represent your specific installation steps. Use the information within this book to create your own specific installation plan.

Chapter 7. Installing DB2 servers (Windows)

Installing a DB2 server on Windows

This topic outlines the steps for installing a DB2 Enterprise Server Edition or Workgroup Server Edition single-partition database server on Windows.

Prerequisites:

Ensure that your computer meets the following requirements:

- Installation requirements for DB2 servers
- Memory requirements for DB2 servers
- Disk requirements for DB2 servers
- User accounts for installation and setup of DB2 servers

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for DB2 servers prior to beginning the installation.

To install DB2 Enterprise Server Edition or Workgroup Server Edition on Windows:

1. If you are installing on Windows 2000 or Windows .NET and intend to use Lightweight Directory Access Protocol (LDAP) to register the DB2 server in the Active Directory, you must extend the directory schema.
2. Start the DB2 Setup wizard.
3. *Optional:* Apply the latest FixPak.
4. *Optional:* Verify the installation using the Command Line Processor (CLP).
5. *Optional:* Install the DB2 online documentation.

Related concepts:

- “Installation overview for DB2 servers (Windows)” on page 5

Related tasks:

- “Extending the directory schema (Windows 2000 and Windows .NET)” on page 48
- “Starting the DB2 Setup wizard for a DB2 server installation (Windows)” on page 50

- “Applying the latest FixPak” on page 52
- “Verifying the installation using the command line processor (CLP)” on page 53
- “Installing DB2 online documentation (Windows)” on page 54
- “Tools catalog database and DAS scheduler setup and configuration” in the *Administration Guide: Implementation*
- “Notification and contact list setup and configuration.” in the *Administration Guide: Implementation*

Related reference:

- “UPDATE ADMIN CONFIGURATION Command” in the *Command Reference*
- “Installation requirements for DB2 servers (Windows)” on page 44
- “User accounts required for installation of DB2 servers (Windows)” on page 48
- “Memory requirements for DB2 servers (Windows)” on page 46
- “Disk requirements for DB2 servers (Windows)” on page 47

Requirements

Installation requirements for DB2 servers (Windows)

To install DB2, the following operating system, software, and communications requirements must be met:

Operating system requirements

DB2 Workgroup Server Edition runs on:

- Windows NT Version 4 with Service Pack 6a or higher
- Windows 2000. Service Pack 2 is required for Windows Terminal Server.
- Windows XP (32-bit)
- Windows .NET (32-bit)

DB2 Enterprise Server Edition runs on:

- Windows NT Version 4 with Service Pack 6a or higher
- Windows 2000. Service Pack 2 is required for Windows Terminal Server.
- Windows .NET (32-bit and 64-bit)

Hardware requirements

For 32-bit DB2 products, a Pentium or Pentium compatible CPU is required. For 64-bit DB2 products, an Itanium or Itanium compatible CPU is required.

Software requirements

- If you plan to use the Tivoli Storage Manager facilities for backup and restore of your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later. If you are running in a 64-bit environment, you will need Tivoli Storage Manager Client Version 5.1 or later.
- Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 servers and DB2's Java-based tools, such as the Control Center. The DB2 Setup wizard will install the Java Runtime Environment (JRE) Version 1.3.1 if you choose to install DB2 Java-based tools.
- A browser is required to view online help.

Communication requirements

You can use APPC, TCP/IP, MPTN (APPC over TCP/IP), Named Pipes, and NetBIOS. To remotely administer a Version 8 DB2 database, you must connect using TCP/IP. DB2 Version 8 servers, using the DB2 Connect server support feature, support only outbound client APPC requests; there is no support for inbound client APPC requests.

- For TCP/IP, Named Pipes, and NetBIOS connectivity, no additional software is required.
- For APPC (CPI-C) connectivity, through the DB2 Connect server support feature, one of the following communication products is required:

Table 2. Supported SNA (APPC) products

Operating system	SNA (APPC) communication product
Windows NT	<ul style="list-style-type: none">– IBM Communications Server Version 6.1.1 or later– IBM Personal Communications for Windows Version 5.0 with CSD 3– Microsoft SNA Server Version 3 Service Pack 3 or later
Windows 2000	<ul style="list-style-type: none">– IBM Communications Server Version 6.1.1 or later– IBM Personal Communications for Windows Version 5.0 with CSD 3– Microsoft SNA Server Version 4 Service Pack 3 or later
Windows XP	<ul style="list-style-type: none">– IBM Personal Communications for Windows Version 5.5 with APAR IC23490
Windows .NET	Not supported.

- If you plan to use LDAP (Lightweight Directory Access Protocol), you require either a Microsoft LDAP client or an IBM SecureWay LDAP client V3.1.1.
- If you plan to use the Simple Network Management Protocol (SNMP) subagent, you require DPI 2.0 provided by IBM SystemView Agent. SNMP is not supported with DB2 offerings on Windows 64-bit platforms.

Windows (64-bit) considerations

- Local 32-bit applications are supported.
- 32-bit UDFs and stored procedures are supported.
- SQL requests from remote 32-bit downlevel clients are supported.
- DB2 Version 8 Windows 64-bit servers support connections from DB2 Version 6 and Version 7 32-bit clients only for SQL requests. Connections from Version 7 64-bit clients are not supported.

Windows 2000 Terminal Server installation limitation:

You cannot install DB2 Version 8 from a network mapped drive using a remote session on Windows 2000 Terminal Server edition. The available workaround is to use Universal Naming Convention (UNC) paths to launch the installation, or run the install from the console session.

For example, if the directory `c:\pathA\pathB\...\pathN` on a serverA is shared as `serverdir`, you can open `\\serverA\serverdir\filename.ext` to access the file `c:\pathA\pathB\...\pathN\filename.ext` on server.

Related tasks:

- “Installing a DB2 server on Windows” on page 43

Memory requirements for DB2 servers (Windows)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.

- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.

Related tasks:

- “Installing a DB2 server on Windows” on page 43

Disk requirements for DB2 servers (Windows)

The disk space required for DB2 Enterprise Server Edition (ESE) (single partition) or Workgroup Server Edition (WSE) depends on the type of installation you choose. The DB2 Setup wizard provides Typical, Compact, and Custom installation types. This table provides approximate disk space requirements for each installation type.

Table 3. DB2 ESE (single partition) and DB2 WSE disk requirements

Installation type	Minimum disk space
Typical	350 MB
Compact	100 MB
Custom	100 MB

Exact disk space requirements depend on the features installed and the type of disk drive. You may require significantly more space on FAT drives with large cluster sizes.

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Typical installation includes graphical tools such as the Control Center and Configuration Assistant. You can also choose to install a typical set of data warehousing or satellite features.

Compact installation

Only the basic DB2 features and functions are installed. Compact installation does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

The DB2 Setup wizard will provide a disk space estimate for the installation options you select.

Remember to include disk space allowance for required software, communication products, and documentation. In DB2 Version 8, HTML and PDF documentation is provided on separate CD-ROMs.

Related tasks:

- “Installing a DB2 server on Windows” on page 43

Extending the directory schema (Windows 2000 and Windows .NET)

If you plan to use LDAP with Windows 2000 or Windows .NET, you must extend the directory schema to contain DB2 object classes and attribute definitions. You must do this once before you install any DB2 products.

Prerequisites:

Your Windows user account must have Schema Administration authority.

Procedure:

To extend the directory schema:

1. Logon to a domain controller.
2. Run the **db2schex.exe** program from the installation CD with Schema Administration authority. You can run this program with Schema Administration authority, without logging off and logging on again, as follows:

```
runas /user:MyDomain\Administrator x:\db2\Windows\utilities\db2schex.exe
```

where x: represents the CD-ROM letter.

When **db2schex.exe** completes, you can continue with the installation.

Related reference:

- “Installation requirements for DB2 servers (Windows)” on page 44

User accounts required for installation of DB2 servers (Windows)

If you are installing on Windows NT, Windows 2000, Windows XP, or Windows .NET, you require an installation user account and two user accounts for setup. The installation user account must be defined prior to running the DB2 Setup wizard. The setup user accounts (DB2 Administration Server user, and DB2 instance user) can be defined prior to installation or you can have the DB2 Setup program create them for you.

All user account names must adhere to your system naming rules and to DB2 naming rules.

DB2 server user accounts:

Installation user account

A local or domain user account is required to perform the installation.

The user account must belong to the *Administrators* group on the machine where you will perform the installation and must have the following user rights:

- *Act as part of the operating system*

You can perform the installation without these user rights, but the installation program will be unable to validate accounts.

DB2 Administration Server user account

A local or domain user account is required for the DB2 Administration Server (DAS). You can create the DAS user account before installing DB2 or you can have the DB2 Setup wizard create it for you. If you want to have the DB2 Setup wizard create a new domain user account, the user account you use to perform the installation must have authority to create domain user accounts. The user account must belong to the *Administrators* group on the machine where you will perform the installation. This account will be granted the following user rights:

- *Act as part of the operating system*
- *Create token object*
- *Log on as a service*
- *Increase quotas*
- *Replace a process level token*

The DB2 Administration Server (DAS) is a special DB2 administration service used to support the GUI tools and assist with administration tasks on local and remote DB2 servers. The DAS has an assigned user account that is used to log the DAS service on to the computer when the DAS service is started. It is recommended that the DAS user have SYSADM authority on each of the DB2 systems within your environment so that it can start or stop other instances if required. By default, any user that is part of the *Administrator* group has SYSADM authority.

DB2 instance user account

A local or domain user account is required for the DB2 instance. You can create the DB2 instance user account before installing DB2 or you can have the DB2 Setup wizard create it for you. If you want to have the DB2 Setup wizard create a new domain user account, the user account you use to perform the installation must have authority to create domain user accounts. The user account must belong to the *Administrators* group on the machine where you will perform the installation. This account will be granted the following user rights:

- *Act as part of the operating system*
- *Create token object*

- *Increase quotas*
- *Log on as a service*
- *Replace a process level token*

Every DB2 instance has one user that is assigned when the instance is created. DB2 logs on with this user name when the instance is started.

Related concepts:

- “User, userID and group naming rules” on page 259

Related tasks:

- “Installing a DB2 server on Windows” on page 43

Starting the DB2 Setup wizard for a DB2 server installation (Windows)

This task describes how to start the DB2 Setup wizard on Windows. You will use the DB2 Setup wizard to define your installation and install DB2 to your system.

Prerequisites:

Before you start the DB2 Setup wizard:

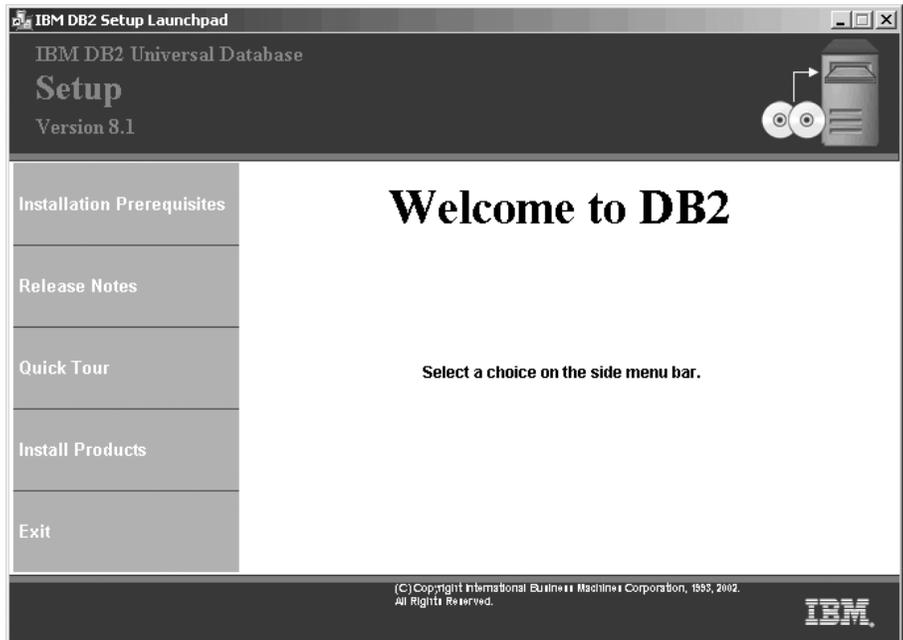
- Ensure that your system meets installation, memory, and disk requirements.
- If you are planning to use LDAP on Windows 2000 or Windows .NET to register the DB2 server in Active Directory, you must extend the directory schema before you install.
- You must have a local *Administrator* user account with the recommended user rights to perform the installation.

Procedure:

To start the DB2 Setup wizard:

1. Log on to the system with the Administrator account that you have defined for DB2 installation.
2. Close all programs so the installation program can update files as required.

3. Insert the CD-ROM into the drive. If enabled, the auto-run feature automatically starts the DB2 Setup launchpad:



From this window, you can view installation prerequisites and the release notes, you can take the DB2 Quick Tour to explore the features of DB2 Universal Database Version 8, or you can proceed directly to the installation. You may want to review the installation prerequisites and release notes for late-breaking information. Select **Install Products** and select the DB2 product to install.

4. The DB2 Setup wizard will determine the system language, and launch the setup program for that language. If you want to run the setup program in a different language, or the setup program failed to auto-start, you can start the DB2 Setup wizard manually.

To start the DB2 Setup wizard manually:

- a. Click **Start** and select the **Run** option.
- b. In the **Open** field, enter the following command:

```
x:\setup /i language
```

where:

- *x*: represents your CD-ROM drive
- *language* is the territory identifier for your language (for example, EN for English).

If the */i* flag is not specified, the installation program will run in the default language of the operating system.

- c. Click **OK**.
5. Once you have initiated the installation, proceed by following the setup program's prompts. Online help is available to guide you through the remaining steps. To invoke the online help, click Help or press F1. You can click **Cancel** at any time to end the installation. DB2 files will only be copied to your computer once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

If you want to verify your installation using the sample database, be sure to install the sample database component under the Getting Started component group. The sample database is included as part of a Typical installation.

For information on errors encountered during installation, see the db2.log file. The db2.log file stores general information and error messages resulting from the install and uninstall activities. By default, the db2.log file is located in the 'My Documents'\DB2LOG\ directory. The location of the 'My Documents' directory will depend on the settings on your computer.

Related tasks:

- “Installing DB2 Personal Edition (Windows)” in the *Quick Beginnings for DB2 Personal Edition*
- “Installing database partition servers on participating computers (Windows)” on page 100
- “Tools catalog database and DAS scheduler setup and configuration” in the *Administration Guide: Implementation*
- “Notification and contact list setup and configuration.” in the *Administration Guide: Implementation*

Related reference:

- “UPDATE ADMIN CONFIGURATION Command” in the *Command Reference*
- “Installation requirements for DB2 servers (Windows)” on page 44
- “Language identifiers (for running the DB2 Setup wizard in another language)” on page 251
- “Memory requirements for DB2 servers (Windows)” on page 46
- “Disk requirements for DB2 servers (Windows)” on page 47

Applying the latest FixPak

Applying the latest FixPak is optionally part of the larger task of installing DB2 products.

A DB2 FixPak contains updates and fixes for bugs (Authorized Program Analysis Reports, or "APARs") found during testing at IBM, as well as fixes for bugs reported by customers. Every FixPak is accompanied by a document, called APARLIST.TXT, that describes the bug fixes it contains.

FixPaks are cumulative. This means that the latest FixPak for any given version of DB2 contains all of the updates from previous FixPaks for the same version of DB2. We recommend that you keep your DB2 environment running at the latest FixPak level to ensure problem-free operation.

When installing a FixPak on a partitioned ESE system, all participating computers must have the same FixPak installed while the system is offline.

Prerequisites:

Each FixPak may have specific prerequisites. See the FixPak README that accompanies the FixPak for more information.

Procedure:

1. Download the latest DB2 FixPak from the IBM DB2 UDB and DB2 Connect Online Support Web site at <http://www.ibm.com/software/data/db2/udb/winos2unix/support>.
2. Each FixPak contains a set of Release Notes and a README. The README provides instructions for installing the FixPak.

Verifying the installation using the command line processor (CLP)

Verifying the installation using the command line processor (CLP) is optionally part of the larger task of *Installing DB2*.

Once you have completed installing DB2, you can verify the installation by creating a sample database and running SQL commands to retrieve sample data.

Prerequisites:

- The Sample Database component must be installed on your system. The Sample Database component is included in a typical installation.
- You require a user with SYSADM authority.

Procedure:

To verify the installation:

1. Log on to the system as a user with SYSADM authority.
2. Enter the **db2sampl** command to create the SAMPLE database.

This command may take a few minutes to process. There is no completion message; when the command prompt returns, the process is complete.

The SAMPLE database is automatically cataloged with the database alias SAMPLE when it is created.

3. Start the database manager by entering the **db2start** command.
4. Enter the following DB2 commands from a DB2 command window to connect to the SAMPLE database, retrieve a list of all the employees that work in department 20, and reset the database connection:

```
db2 connect to sample
db2 "select * from staff where dept = 20"
db2 connect reset
```

After you have verified the installation, you can remove the SAMPLE database to free up disk space. Enter the **db2 drop database sample** command to drop the SAMPLE database.

Related tasks:

- “Verifying the installation of DB2 servers using First Steps” on page 234

Installing DB2 online documentation (Windows)

This task describes how to install the DB2 online documentation using the DB2 Setup wizard on Windows. The DB2 online documentation is installed separately from other DB2 products from its own CD-ROM.

Prerequisites:

Before you start the DB2 Setup wizard:

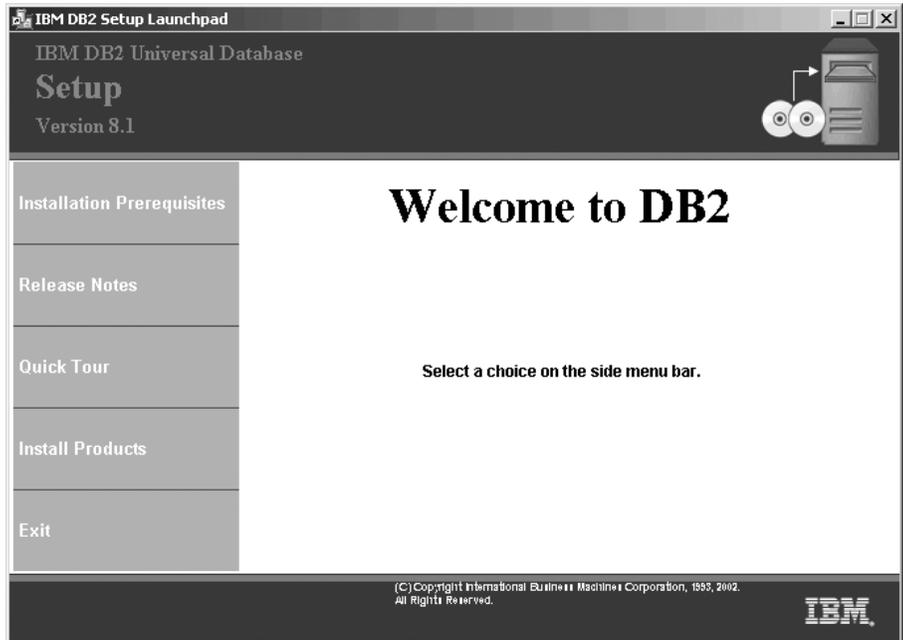
- Ensure that your system meets installation, memory, and disk requirements.
- You must have a local *Administrator* user account with the recommended user rights to perform the installation.

Procedure:

To start the DB2 Setup wizard:

1. Insert the CD-ROM into the drive. The auto-run feature automatically starts the DB2 Setup wizard. The DB2 Setup wizard will determine the system language, and launch the setup program for that language. If you want to run the setup program in a different language, or the setup program failed to auto-start, you can start the DB2 Setup wizard manually.

2. The DB2 Setup Launchpad opens.



From this window, you can view installation prerequisites and the release notes, you can take a Quick Tour to explore the features of DB2 Universal Database Version 8, or you can proceed directly to the installation. You may want to review the installation prerequisites and release notes for late-breaking information.

3. Once you have initiated the installation, proceed by following the setup program's prompts. Online help is available to guide you through the remaining steps. To invoke the online help, click Help or press F1. You can click **Cancel** at any time to end the installation. DB2 files will only be copied to your system once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

For information on errors encountered during installation, see the `db2.log` file. The `db2.log` file stores general information and error messages resulting from the install and uninstall activities. By default, the `db2.log` file is located in the 'My Documents'\DB2LOG\ directory. The location of the 'My Documents' directory will depend on the settings on your computer.

To start the DB2 Setup wizard manually:

1. Click **Start** and select the **Run** option.
2. In the **Open** field, enter the following command:

```
x:\setup /i language
```

where:

- *x*: represents your CD-ROM drive
- *language* is the territory identifier for your language (for example, EN for English).

The */i language* parameter is optional. If it is not specified, the DB2 Setup wizard will run in the same language as your operating system.

3. Click **OK**.

Chapter 8. Installing DB2 servers (UNIX)

Preparing for installation (AIX)

Installing DB2 servers on AIX

This topic outlines steps for installing DB2 Enterprise Server Edition (single partition) or DB2 Workgroup Server Edition on AIX.

Prerequisites:

Ensure that your computer meets the following requirements:

1. Installation requirements for DB2 servers
2. Memory requirements for DB2 servers
3. Disk requirements for DB2 servers
4. Groups and user accounts for DB2 installations

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for DB2 servers prior to beginning the installation.

To install DB2 on AIX:

1. Mount the DB2 installation CD-ROM.
2. Start the DB2 Setup wizard to install DB2.
3. *Optional:* Apply the latest FixPak.
4. *Optional:* Verify the installation using the command line processor (CLP).
5. *Optional:* Install the DB2 online documentation.

Related concepts:

- “Installation overview for DB2 servers (UNIX)” on page 11

Related tasks:

- “Mounting the DB2 CD-ROM (AIX)” on page 61
- “Starting the DB2 Setup wizard for a DB2 server installation (UNIX)” on page 78
- “Applying the latest FixPak” on page 52

- “Verifying the installation using the command line processor (CLP)” on page 53
- “Installing DB2 online documentation (UNIX)” on page 82
- “Creating group and user IDs for a DB2 installation” on page 239

Related reference:

- “Installation requirements for DB2 servers (AIX)” on page 58
- “Memory requirements for servers (UNIX)” on page 59
- “Disk requirements for DB2 servers (UNIX)” on page 60

Requirements

Installation requirements for DB2 servers (AIX)

This topic lists the hardware, operating system, software, and communications requirements for DB2 Enterprise Server Edition and DB2 Workgroup Server Edition.

Hardware requirements

One of:

- IBM RISC/6000
- eServer pSeries

Operating system requirements

DB2 Enterprise Server Edition is available on:

- AIX Version 4.3.3 with maintenance level 9 or later (32-bit)
- AIX Version 5.1.0 with maintenance level 2 or later (32-bit and 64-bit)

DB2 Workgroup Server Edition is available on:

- AIX Version 4.3.3.0 with maintenance level 9 or later (32-bit)
- AIX Version 5L with maintenance level 2 or later (32-bit)

Software requirements

- Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 servers and DB2’s Java-based tools, such as the Control Center.
- If you plan to use the Tivoli Storage Manager facilities to back up and restore your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later.
- A browser is required to view online help.

Communication requirements

You can use APPC, TCP/IP or MPTN (APPC over TCP/IP). DB2 Version 8 servers, using the DB2 Connect server support feature,

support only outbound client APPC requests; there is no support for inbound client APPC requests. You can only use TCP/IP to remotely administer databases.

- For TCP/IP connectivity, no additional software is required.
- For APPC (CPI-C) connectivity, through the DB2 Connect server support feature, one of the following communication products is required:
 - IBM eNetwork Communications Server for AIX V5.0.3
 - Bull DPX/20 SNA/20
- For LDAP (Lightweight Directory Access Protocol) support, you require an IBM SecureWay Directory Client V3.1.1
- If you plan to use the Simple Network Management Protocol (SNMP) subagent, you require DPI 2.0 provided by IBM SystemView Agent.

Installing DB2 products or sharing instance directory on NFS

Currently, we do not support the installation of DB2 products on NFS. Installing DB2 on NFS (for example, NFS mounting `/usr/opt/db2_08_01` or `/opt/IBM/db2/V8.1`) can be error prone and these errors can be difficult to diagnose.

The following configuration is not supported:

- Setting up an instance on a filesystem
- NFS mounting a filesystem from multiple machines, and then run DB2 on these machines using that same instance.

This configuration can cause file locking and performance problems.

Related tasks:

- “Installing DB2 servers on AIX” on page 57

Memory requirements for servers (UNIX)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.

- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.

Related tasks:

- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

Disk requirements for DB2 servers (UNIX)

The disk space required for DB2 Enterprise Server Edition or Workgroup Server Edition depends on the type of installation you choose. The DB2 Setup wizard provides typical, compact, and custom installation types. This table provides an approximate disk space requirement for each installation type.

Table 4. DB2 server disk requirements

Installation type	Required disk space
Typical	450 to 550 MB
Compact	350 to 400 MB
Custom	350 to 700 MB

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Typical installation Includes graphical tools such as the Control Center and Configuration Assistant. You can also choose to install a typical set of data warehousing features.

Compact installation

Only the basic DB2 features and functions are installed. Compact installation does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

The DB2 Setup wizard will provide a disk space estimate for the installation options you select.

Remember to include disk space allowance for required software, communication products, and documentation. In DB2 version 8, HTML and PDF documentation is provided on separate CD-ROMs.

Related tasks:

- “Installing DB2 servers on AIX” on page 57

- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

Mounting the DB2 CD-ROM (AIX)

You must mount the DB2 product CD-ROM before you can start the DB2 Setup wizard.

Procedure:

To mount the DB2 installation CD and copy the contents:

1. Create a directory for the CD-ROM by entering the following command:

```
mkdir /cdrom -p
```

2. Allocate a CD-ROM file system by entering the following command:

```
crfs -v cdrfs -p ro -d cd0 -m /cdrom
```

where `cd0` is the standard representation for the CD-ROM drive.

3. Mount the CD-ROM file system by entering the following command:

```
mount /cdrom
```

Preparing for installation (HP-UX)

Installing a DB2 server on HP-UX

This topic outlines the steps for installing DB2 Enterprise Server Edition (single partition) or DB2 Workgroup Server Edition on HP-UX.

Prerequisites:

Ensure that your computer meets the following requirements:

1. Installation requirements for DB2 servers
2. Memory requirements for DB2 servers
3. Disk requirements for DB2 servers
4. Groups and user accounts for DB2 installations

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for DB2 servers prior to beginning the installation.

To install DB2 on HP-UX:

1. Modify kernel parameters for DB2.
2. Mount the DB2 installation CD-ROM.
3. Start the DB2 Setup wizard to install DB2.
4. *Optional*: Apply the latest FixPak.
5. *Optional*: Verify the installation using the command line processor (CLP).
6. *Optional*: Install the DB2 online documentation.

Related concepts:

- “Installation overview for DB2 servers (UNIX)” on page 11

Related tasks:

- “Modifying kernel parameters (HP-UX)” on page 65
- “Mounting the DB2 CD-ROM (HP-UX)” on page 132
- “Starting the DB2 Setup wizard for a DB2 server installation (UNIX)” on page 78
- “Applying the latest FixPak” on page 52
- “Verifying the installation using the command line processor (CLP)” on page 53
- “Installing DB2 online documentation (UNIX)” on page 82
- “Creating group and user IDs for a DB2 installation” on page 239

Related reference:

- “Memory requirements for servers (UNIX)” on page 59
- “Disk requirements for DB2 servers (UNIX)” on page 60
- “Installation requirements for DB2 servers (HP-UX)” on page 62

Requirements

Installation requirements for DB2 servers (HP-UX)

This topic lists hardware, operating system, software and communication requirements for DB2 servers (HP-UX).

Hardware requirements

HP 9000 series 700 or 800 system

Operating system requirements

DB2 Workgroup Server Edition and DB2 Enterprise Server Edition can run on:

- HP-UX 11i with December 2001 GOLDBASE11i and December 2001 GOLDAPPS11i bundles.

Software requirements

- You will need a Java Runtime Environment (JRE) Version 1.3.1 to run DB2's Java-based tools, such as the Control Center. If you are running in a 64-bit environment, you will need JRE Version 1.4.
- If you plan to use the Tivoli Storage Manager facilities to back up and restore your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later.
- A browser is required to view online help.

Communication requirements

APPC or TCP/IP. You can only use TCP/IP to remotely administer databases.

- For TCP/IP connectivity, no additional software is required.
- For APPC (CPI-C) connectivity, through the DB2 Connect server support feature, HP-UX Version 11.00 requires the following:
 - SNAplus2 Link R6.11.00.00
 - SNAplus2 API R.6.11.00.00

DB2 Version 8 servers, using the DB2 Connect server support feature, support only outbound client APPC requests; there is no support for inbound client APPC requests.

DB2 Version 8 HP-UX 64-bit servers do not support running DB2 Version 7 64-bit local applications.

Installing DB2 products or sharing instance directory on NFS

Currently, we do not support the installation of DB2 products on NFS. Installing DB2 on NFS (for example, NFS mounting /usr/opt/db2_08_01 or /opt/IBM/db2/V8.1) can be error prone and these errors can be difficult to diagnose.

The following configuration is not supported:

- Setting up an instance on a filesystem
- NFS mounting a filesystem from multiple machines, and then run DB2 on these machines using that same instance.

This configuration can cause file locking and performance problems.

Related tasks:

- “Installing a partitioned DB2 server (HP-UX)” on page 122

Memory requirements for servers (UNIX)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.
- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.

Related tasks:

- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

Disk requirements for DB2 servers (UNIX)

The disk space required for DB2 Enterprise Server Edition or Workgroup Server Edition depends on the type of installation you choose. The DB2 Setup wizard provides typical, compact, and custom installation types. This table provides an approximate disk space requirement for each installation type.

Table 5. DB2 server disk requirements

Installation type	Required disk space
Typical	450 to 550 MB
Compact	350 to 400 MB
Custom	350 to 700 MB

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Typical installation Includes graphical tools such as the Control Center and Configuration Assistant. You can also choose to install a typical set of data warehousing features.

Compact installation

Only the basic DB2 features and functions are installed. Compact installation does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

The DB2 Setup wizard will provide a disk space estimate for the installation options you select.

Remember to include disk space allowance for required software, communication products, and documentation. In DB2 version 8, HTML and PDF documentation is provided on separate CD-ROMs.

Related tasks:

- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

Modifying kernel parameters (HP-UX)

Before installing your DB2 for HP-UX product, you may need to update your system’s kernel configuration parameters. You must restart your computer after updating kernel configuration parameters.

Prerequisites:

You must have root authority to modify kernel parameters.

Procedure:

To change a value:

- Enter the **sam** command to start the System Administration Manager (SAM) program.
- Double-click on the **Kernel Configuration** icon.
- Double-click on the **Configurable Parameters** icon.
- Double-click on the parameter that you want to change and enter the new value in the **Formula/Value** field.
- Click on **OK**.
- Repeat these steps for all of the kernel configuration parameters that you want to change.
- When you are finished setting all of the kernel configuration parameters, select **Action --> Process New Kernel** from the action menu bar.

The HP-UX operating system automatically restarts after you change the values for the kernel configuration parameters.

Related reference:

- “Recommended HP-UX kernel configuration parameters” on page 222

Mounting the CD-ROM on HP-UX

Because DB2 Version 8.1 for HP-UX contains several files with long file names, the mount command may fail. The following steps will enable you to successfully mount your DB2 for HP-UX product CD-ROM.

Prerequisites:

Root authority is required to perform this task.

Procedure:

To mount your DB2 for HP-UX product CD-ROM:

1. Log in as a user with root authority.
2. In the /etc directory, add the following line to the pfs_fstab file:

```
/dev/dsk/c0t2d0 mount_point pfs-rrip ro,hard
```

where *mount_point* represents the mount point of the CD-ROM.

3. Start the pfs daemon by entering the following commands (if they are not already running):

```
/usr/sbin/pfs_mountd &  
/usr/sbin/pfsd 4 &
```

4. Insert the CD-ROM in the drive and enter the following commands:

```
mkdir /cdrom  
/usr/sbin/pfs_mount /cdrom
```

where *cdrom* represents the mount point of the CD-ROM.

5. Log out.

Your CD-ROM file system is now mounted. To view the contents of the CD-ROM, place the CD in the drive and enter the **cd /cdrom** command where **cdrom** is the CD-ROM mount point directory.

Preparing for installation (Linux)

Installing a DB2 server on Linux

This topic outlines the steps for installing DB2 Enterprise Server Edition (single partition) or DB2 Workgroup Server Edition on Linux.

Prerequisites:

Ensure that your computer meets the following requirements:

1. Installation requirements for DB2 servers

2. Memory requirements for DB2 servers
3. Disk requirements for DB2 servers
4. Groups and user accounts for DB2 installations

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for DB2 servers prior to beginning the installation.

To install DB2 on Linux:

1. Modify kernel parameters for DB2.
2. Mount the DB2 installation CD-ROM.
3. Start the DB2 Setup wizard to install DB2.
4. *Optional:* Apply the latest FixPak.
5. *Optional:* Verify the installation using the command line processor (CLP).
6. *Optional:* Install the DB2 online documentation.

Related concepts:

- “Installation overview for DB2 servers (UNIX)” on page 11

Related tasks:

- “Modifying kernel parameters (Linux)” on page 70
- “Mounting the DB2 CD-ROM (Linux)” on page 72
- “Starting the DB2 Setup wizard for a DB2 server installation (UNIX)” on page 78
- “Applying the latest FixPak” on page 52
- “Verifying the installation using the command line processor (CLP)” on page 53
- “Installing DB2 online documentation (UNIX)” on page 82
- “Creating group and user IDs for a DB2 installation” on page 239

Related reference:

- “Memory requirements for servers (UNIX)” on page 59
- “Disk requirements for DB2 servers (UNIX)” on page 60
- “Installation requirements for DB2 servers (Linux)” on page 68

Requirements

Installation requirements for DB2 servers (Linux)

This topic lists the hardware, distribution, software, and communication requirements for DB2 Enterprise Server Edition and Workgroup Server Edition (Linux).

Hardware requirements

DB2 Workgroup Server Edition is supported on Intel 32-bit machines.

DB2 Enterprise Server Edition is supported on:

- Intel 32-bit
- Intel 64-bit
- S/390 9672 Generation 5 or higher, Multiprise 3000 or eServer z-Series

Distribution requirements

For Intel 32-bit architecture you require a recent Linux operating system distribution with:

- kernel level 2.4.9 or later
- glibc 2.2.4 or later
- RPM 3 or later

For Intel 64-bit architecture you require one of the following Linux operating system distributions:

- Red Hat Linux 7.2
- SuSE Linux SLES-7

For Intel 64-bit architecture the following software is required:

- gcc 3.0.2
- gcc3 libstdc++ runtime libraries

For z-Series architecture you require one of the following Linux operating system distributions:

- Red Hat Linux 7.2
- SuSE Linux SLES-7

Software requirements

- The IBM Developer Kit for Java 1.3.1 is required for DB2 servers, to use the DB2 Control Center or create and run Java applications, including stored procedures and user-defined functions. Only the IBM JDK is supported.

- If you plan to use the Tivoli Storage Manager facilities for backup and restore of your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later.
- A browser is required to view online help.

Communication requirements

TCP/IP is required to access remote databases.

Installing DB2 products or sharing instance directory on NFS

Currently, we do not support the installation of DB2 products on NFS. Installing DB2 on NFS (for example, NFS mounting `/usr/opt/db2_08_01` or `/opt/IBM/db2/V8.1`) can be error prone and these errors can be difficult to diagnose.

The following configuration is not supported:

- Setting up an instance on a filesystem
- NFS mounting a filesystem from multiple machines, and then run DB2 on these machines using that same instance.

This configuration can cause file locking and performance problems.

Related tasks:

- “Installing a DB2 server on Linux” on page 66

Memory requirements for servers (UNIX)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.
- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.

Related tasks:

- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

Disk requirements for DB2 servers (UNIX)

The disk space required for DB2 Enterprise Server Edition or Workgroup Server Edition depends on the type of installation you choose. The DB2 Setup wizard provides typical, compact, and custom installation types. This table provides an approximate disk space requirement for each installation type.

Table 6. DB2 server disk requirements

Installation type	Required disk space
Typical	450 to 550 MB
Compact	350 to 400 MB
Custom	350 to 700 MB

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Typical installation includes graphical tools such as the Control Center and Configuration Assistant. You can also choose to install a typical set of data warehousing features.

Compact installation

Only the basic DB2 features and functions are installed. Compact installation does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

The DB2 Setup wizard will provide a disk space estimate for the installation options you select.

Remember to include disk space allowance for required software, communication products, and documentation. In DB2 version 8, HTML and PDF documentation is provided on separate CD-ROMs.

Related tasks:

- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

Modifying kernel parameters (Linux)

Before installing DB2, you may want to update Linux kernel parameters. DB2 will automatically raise the IPC limits where necessary. You may still want to raise these limits depending on your particular needs.

Prerequisites:

You must have root authority to modify kernel parameters.

Procedure:

To update kernel parameters:

RedHat and SuSE

Systems using a 2.4.x series kernel have a default value for the message queue parameter (msgmni), which allows only a few simultaneous connections to DB2. Semaphore array parameters also have to be changed for DB2 to run successfully. To check shared memory segment, semaphore array, and message queue limits, issue the **ipcs -l** command.

The following is the output from the the **ipcs -l** command.

```
# ipcs -l

----- Shared Memory Limits -----
max number of segments = 4096           // SHMMNI
max seg size (kbytes) = 32768
max total shared memory (kbytes) = 8388608
min seg size (bytes) = 1

----- Semaphore Limits -----
max number of arrays = 1024            // SEMMNI
max semaphores per array = 250
max semaphores system wide = 128000
max ops per semop call = 32
semaphore max value = 32767

----- Messages: Limits -----
max queues system wide = 1024         // MSGMNI
max size of message (bytes) = 65536
default max size of queue (bytes) = 16384 // MSGMAX
```

Modify the kernel parameters by adding the following entries to the default system control configuration file, `/etc/sysctl.conf`:

```
kernel.msgmni = 512
kernel.sem = 250 128000 32 1024
```

where `max semaphores system wide = max number of arrays x max semaphores per array`. Run `sysctl` with `-p` parameter to load in `sysctl` settings from the default file `/etc/sysctl.conf`.

```
sysctl -p
```

The entries from the `sysctl.conf` file are read during startup by the network initialization script.

On some distributions you may be required to add `sysctl -p` in the one of the system initialization files (for example, `rc.local`) so that kernel parameters are set after each reboot.

Mounting the DB2 CD-ROM (Linux)

Mounting the DB2 CD-ROM (Linux) is part of the larger task of *Installing DB2*.

You must mount the installation CD-ROM before you can run the DB2 Setup wizard.

Prerequisites:

You must logon with a user ID that has root authority.

Procedure:

Many Linux distributions will automatically mount the CD. The mount point is often `/mnt/cdrom` or `/media/cdrom`. If your mount point is `/mnt/cdrom`, enter the following command:

```
mount /mnt/cdrom
```

Some distributions disable execute privileges on CD-ROM devices by default. To mount with execute permission at mount point `/mnt/cdrom`, issue the following command as root:

```
mount -o exec /mnt/cdrom
```

If your CD-ROM was not automatically mounted, enter:

```
mount -t iso9660 -o ro /dev/cdrom /mnt/cdrom
```

where `/mnt/cdrom` represents the mount point of the CD-ROM.

Related tasks:

- “Starting the DB2 Setup wizard (Linux)” in the *Quick Beginnings for DB2 Personal Edition*

Preparing for installation (Solaris Operating Environment)

Installing a DB2 server on Solaris

This topic outlines the steps for installing DB2 Enterprise Server Edition (single partition) or DB2 Workgroup Server Edition on Solaris Operating Environment.

Prerequisites:

Ensure that your computer meets the following requirements:

- Installation requirements for DB2 servers
- Memory requirements for DB2 servers
- Disk requirements for DB2 servers
- Groups and user accounts for DB2 installations
- A filesystem with 2 GB of free space to contain the tar.Z file and the uncompressed installation image (in addition to the software disk requirements).

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for DB2 servers prior to beginning the installation.

To install DB2 on Solaris:

1. Modify kernel parameters for DB2.
2. Mount the DB2 installation CD-ROM.
3. Start the DB2 Setup wizard to install DB2.
4. *Optional:* Apply the latest FixPak.
5. *Optional:* Verify the installation using the command line processor (CLP).
6. *Optional:* Install the DB2 online documentation.

Related concepts:

- “Installation overview for DB2 servers (UNIX)” on page 11

Related tasks:

- “Modifying kernel parameters (Solaris)” on page 77
- “Mounting the CD-ROM (Solaris)” on page 77
- “Starting the DB2 Setup wizard for a DB2 server installation (UNIX)” on page 78
- “Applying the latest FixPak” on page 52
- “Verifying the installation using the command line processor (CLP)” on page 53
- “Installing DB2 online documentation (UNIX)” on page 82
- “Creating group and user IDs for a DB2 installation” on page 239

Related reference:

- “Memory requirements for servers (UNIX)” on page 59
- “Disk requirements for DB2 servers (UNIX)” on page 60

- “Installation requirements for DB2 servers (Solaris)” on page 74

Requirements

Installation requirements for DB2 servers (Solaris)

This topic lists the hardware, operating system, software, and communication requirements for DB2 Enterprise Server Edition or Workgroup Server Edition (Solaris Operating Environment).

Hardware requirements

Solaris UltraSPARC-based computer

Operating system requirements

DB2 Workgroup Server Edition is supported on the following Solaris operating system versions:

- Solaris 7 (32-bit) patch 106327-10
- Solaris 8 (32-bit) patches 108434-03 and 108528-12
- Solaris 9 (32-bit)

DB2 Enterprise Server Edition is supported on the following Solaris operating system versions:

- Solaris 7 (32-bit) patch 106327-10
- Solaris 7 (64-bit) patch 106300-11
- Solaris 8 (32-bit) patches 108434-03 and 108528-12
- Solaris 8 (64-bit) patches 108435-03 and 108528-12
- Solaris 9 (32-bit)
- Solaris 9 (64-bit)

The following patches are also required to support Java:

- Solaris 7 "Recommended & Security Patches" + 107226-17 + 107153-01
- Solaris 8 "Recommended & Security Patches" + 108921-12 + 108940-24

Software requirements

- You will need a Java Runtime Environment (JRE) Version 1.3.1 to run DB2's Java-based tools, such as the Control Center. If you are running in a 64-bit environment, you will need JRE Version 1.4.
- If you plan to use the Tivoli Storage Manager facilities for backup and restore of your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later. If you are running in a 64-bit environment, you will need Tivoli Storage Manager Client Version 4.2.1 or later.

- A browser is required to view online help.

Communication requirements

APPC or TCP/IP. DB2 Version 8 servers, using the DB2 Connect server support feature, support only outbound client APPC requests; there is no support for inbound client APPC requests. You can only use TCP/IP to remotely administer databases.

- For TCP/IP connectivity, no additional software is required.
- For APPC (CPI-C) connectivity, through the DB2 Connect server support feature, you require SunLink SNA 9.1 or later, and SNAP-IX for Solaris V7.02.

Installing DB2 products or sharing instance directory on NFS

Currently, we do not support the installation of DB2 products on NFS. Installing DB2 on NFS (for example, NFS mounting `/usr/opt/db2_08_01` or `/opt/IBM/db2/V8.1`) can be error prone and these errors can be difficult to diagnose.

The following configuration is not supported:

- Setting up an instance on a filesystem
- NFS mounting a filesystem from multiple machines, and then run DB2 on these machines using that same instance.

This configuration can cause file locking and performance problems.

Related tasks:

- “Installing a DB2 server on Solaris” on page 72

Memory requirements for servers (UNIX)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.
- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.

Related tasks:

- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

Disk requirements for DB2 servers (UNIX)

The disk space required for DB2 Enterprise Server Edition or Workgroup Server Edition depends on the type of installation you choose. The DB2 Setup wizard provides typical, compact, and custom installation types. This table provides an approximate disk space requirement for each installation type.

Table 7. DB2 server disk requirements

Installation type	Required disk space
Typical	450 to 550 MB
Compact	350 to 400 MB
Custom	350 to 700 MB

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Typical installation includes graphical tools such as the Control Center and Configuration Assistant. You can also choose to install a typical set of data warehousing features.

Compact installation

Only the basic DB2 features and functions are installed. Compact installation does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

The DB2 Setup wizard will provide a disk space estimate for the installation options you select.

Remember to include disk space allowance for required software, communication products, and documentation. In DB2 version 8, HTML and PDF documentation is provided on separate CD-ROMs.

Related tasks:

- “Installing DB2 servers on AIX” on page 57
- “Installing a DB2 server on HP-UX” on page 61
- “Installing a DB2 server on Linux” on page 66
- “Installing a DB2 server on Solaris” on page 72

Modifying kernel parameters (Solaris)

Before installing DB2 it is recommended that you update your system kernel configuration parameters. Refer to the *Solaris kernel configuration parameters* topic for recommended values.

You must restart your system after modifying kernel parameters.

Prerequisites:

You must have root authority to modify kernel parameters.

Procedure:

To set a kernel parameter, add a line at the end of the `/etc/system` file as follows:

```
set parameter_name = value
```

For example, to set the value of the `msgsys:msginfo_msgmax` parameter, add the following line to the end of the `/etc/system` file:

```
set msgsys:msginfo_msgmax = 65535
```

After updating the `/etc/system` file, restart the system.

Related concepts:

- “*db2osconf - Utility for Kernel Parameter Values Command*” in the *Command Reference*

Related reference:

- “Recommended Solaris kernel configuration parameters” on page 223

Mounting the CD-ROM (Solaris)

Prerequisites:

If you are mounting the CD-ROM drive from a remote system using NFS, the CD-ROM file system on the remote computer must be exported with root access. You must also mount that file system with root access on the local computer.

Procedure:

To mount the CD-ROM on Solaris Operating Environment:

1. Log in as a user with root authority.
2. Insert the CD-ROM into the drive.

3. If the Volume Manager is not running on your system, enter the following commands to mount the CD-ROM:

```
mkdir -p /cdrom/unnamed_cdrom
mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom/unnamed_cdrom
```

where `/cdrom/unnamed_cdrom` represents the CD-ROM mount directory and `/dev/dsk/c0t6d0s2` represents the CD-ROM drive device.

If the Volume Manager (`vold`) is running on your system, the CD-ROM is automatically mounted as:

```
/cdrom/unnamed_cdrom
```

4. Log out.

Your CD-ROM file system is now mounted. To view the contents of the CD-ROM, place the disk in the drive and enter the `cd /cdrom` command where `cdrom` is the CD-ROM mount point directory.

DB2 server installation and setup (UNIX)

Starting the DB2 Setup wizard for a DB2 server installation (UNIX)

This task describes how to start the DB2 Setup wizard on UNIX systems. The DB2 Setup wizard is used to define your installation preferences and install DB2 to your system.

Prerequisites:

Before you start the DB2 Setup wizard

- Ensure that your system meets installation, memory, and disk requirements.
- You require root authority to perform the installation.
- The DB2 product CD-ROM must be mounted on your system.
- The DB2 Setup wizard is a graphical installer. You must have Xwindow software capable of rendering a graphical user interface for the DB2 Setup wizard to run on your machine. Ensure that you have properly exported your display. For example, `export DISPLAY=9.26.163.144:0`.
- If NIS/NIS+ or similar security software is used in your environment, you must manually create required DB2 users before you start the DB2 Setup wizard. Refer to the referenced NIS topic before you begin.
- (Solaris Operating Environment only) You need to have a filesystem with 2 GB of free space to contain the tar.Z file and the uncompressed installation image, in addition to the software disk requirements.

Procedure:

To start the DB2 Setup wizard:

1. Log on to the system as a user with root authority.
2. Refer to the CD-ROM label to ensure that you are using the CD-ROM with your appropriate language.
3. Change to the directory where the CD-ROM is mounted by entering the following command:

```
cd /cdrom
```

where */cdrom* represents mount point of the CD-ROM.

4. See the appropriate section for your operation system:

For AIX, HP-UX and Linux

Enter the `./db2setup` command to start the DB2 Setup wizard.

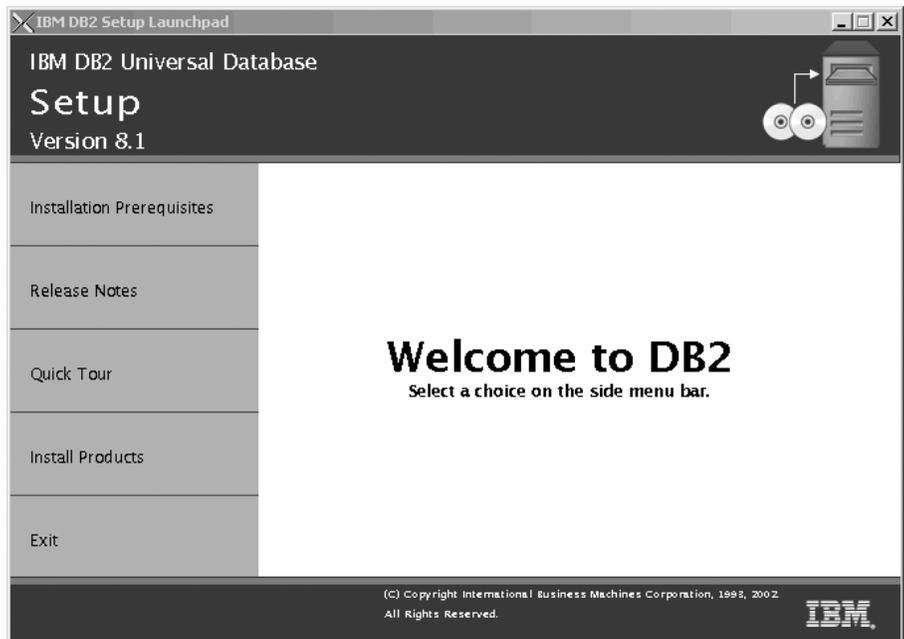
For Solaris Operating Environment

- a. Copy `product.tar.Z`, where *product* represents the product you are licensed to install, to a temporary filesystem.
- b. Enter the following command to start the DB2 Setup wizard:
`zcat product.tar.Z | tar -xf - ; ./product/db2setup` command

For example, if the product name for DB2 Enterprise Server Edition is *ese*, then enter the following command:

```
zcat ese.tar.Z | tar -xf - ; ./ese/db2setup
```

5. After a moment, the IBM DB2 Setup Launchpad opens.



From this window, you can view installation prerequisites and the release notes, you can take a Quick Tour to explore the features of DB2 Universal Database Version 8, or you can proceed directly to the installation. You may want to review the installation prerequisites and release notes for late-breaking information.

Once you have initiated the installation, proceed through the DB2 Setup wizard installation panels and make your selections. Installation help is available to guide you through the remaining steps. To invoke the installation help, click **Help** or press **F1**. You can click **Cancel** at any time to end the installation. DB2 files will only be copied to your system once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

When you have completed your installation, DB2 will be installed in the one of the following directories:

AIX /usr/opt/db2_08_01

HP-UX, Linux, Solaris Operating Environment
/opt/IBM/db2/V8.1

Related tasks:

- “Tools catalog database and DAS scheduler setup and configuration” in the *Administration Guide: Implementation*
- “Notification and contact list setup and configuration.” in the *Administration Guide: Implementation*

Related reference:

- “UPDATE ADMIN CONFIGURATION Command” in the *Command Reference*
- “db2setup - Install DB2” on page 235

Applying the latest FixPak

Applying the latest FixPak is optionally part of the larger task of installing DB2 products.

A DB2 FixPak contains updates and fixes for bugs (Authorized Program Analysis Reports, or “APARs”) found during testing at IBM, as well as fixes for bugs reported by customers. Every FixPak is accompanied by a document, called APARLIST.TXT, that describes the bug fixes it contains.

FixPaks are cumulative. This means that the latest FixPak for any given version of DB2 contains all of the updates from previous FixPaks for the same version of DB2. We recommend that you keep your DB2 environment running at the latest FixPak level to ensure problem-free operation.

When installing a FixPak on a partitioned ESE system, all participating computers must have the same FixPak installed while the system is offline.

Prerequisites:

Each FixPak may have specific prerequisites. See the FixPak README that accompanies the FixPak for more information.

Procedure:

1. Download the latest DB2 FixPak from the IBM DB2 UDB and DB2 Connect Online Support Web site at <http://www.ibm.com/software/data/db2/udb/winos2unix/support>.
2. Each FixPak contains a set of Release Notes and a README. The README provides instructions for installing the FixPak.

Verifying the installation using the command line processor (CLP)

Verifying the installation using the command line processor (CLP) is optionally part of the larger task of *Installing DB2*.

Once you have completed installing DB2, you can verify the installation by creating a sample database and running SQL commands to retrieve sample data.

Prerequisites:

- The Sample Database component must be installed on your system. The Sample Database component is included in a typical installation.
- You require a user with SYSADM authority.

Procedure:

To verify the installation:

1. Log on to the system as a user with SYSADM authority.
2. Enter the **db2sampl** command to create the SAMPLE database.
This command may take a few minutes to process. There is no completion message; when the command prompt returns, the process is complete.
The SAMPLE database is automatically cataloged with the database alias SAMPLE when it is created.
3. Start the database manager by entering the **db2start** command.
4. Enter the following DB2 commands from a DB2 command window to connect to the SAMPLE database, retrieve a list of all the employees that work in department 20, and reset the database connection:

```
db2 connect to sample
db2 "select * from staff where dept = 20"
db2 connect reset
```

After you have verified the installation, you can remove the SAMPLE database to free up disk space. Enter the **db2 drop database sample** command to drop the SAMPLE database.

Related tasks:

- “Verifying the installation of DB2 servers using First Steps” on page 234

Installing DB2 online documentation (UNIX)

This task describes how to install the DB2 online documentation using the DB2 Setup wizard on UNIX. The DB2 online documentation is installed separately from other DB2 products from its own CD-ROM.

Prerequisites:

Before you start the DB2 Setup wizard

- You require root authority to perform the installation.
- The DB2 product CD-ROM must be mounted on your system.
- The DB2 Setup wizard is a graphical installer. In order for it to run on your machine, you must have Xwindow software capable of rendering a graphical user interface.
- A Java Runtime Environment (JRE) must already be installed.

Procedure:

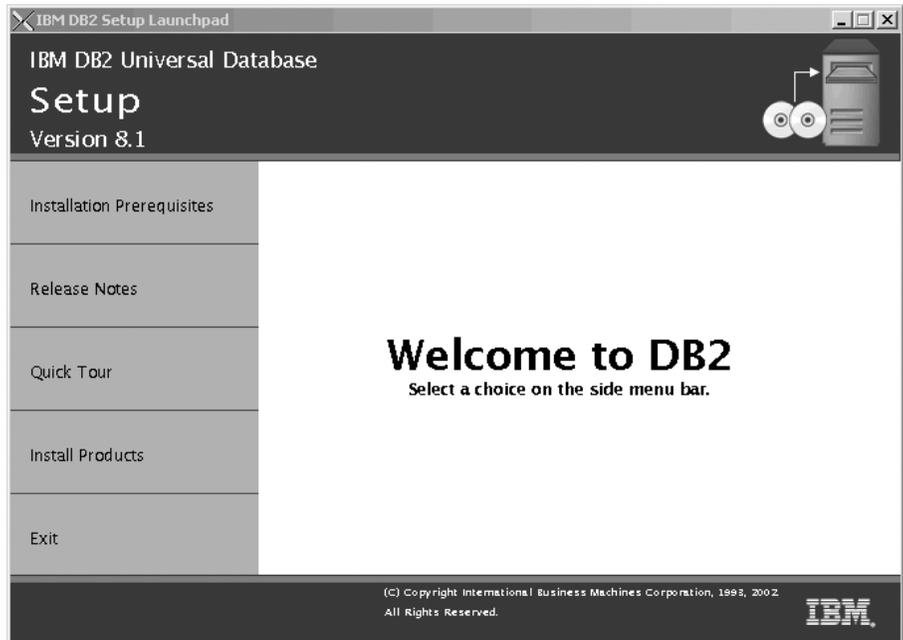
To install the DB2 online information using the DB2 Setup wizard:

1. Log on to the system as a user with root authority.
2. Change to the directory where the CD-ROM is mounted by entering the following command:

```
cd /cdrom
```

where */cdrom* represents mount point of the CD-ROM.

3. Enter the `./db2setup` command to start the DB2 Setup wizard. After a few moments, the IBM DB2 Setup Launchpad opens.



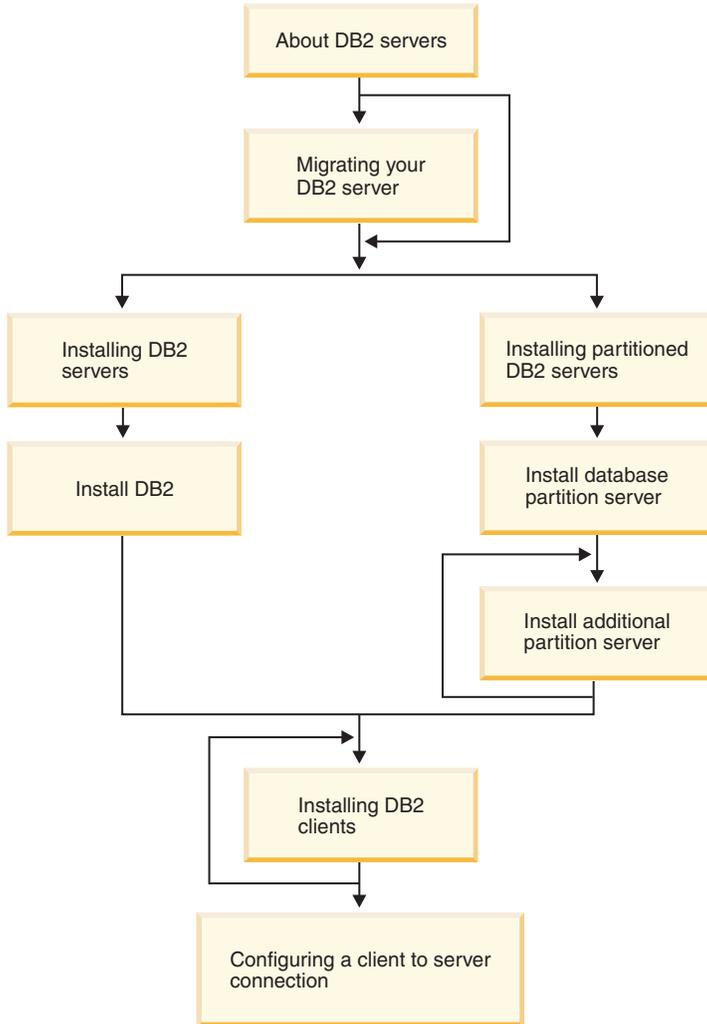
From this window, you can view installation prerequisites and the release notes, you can take a Quick Tour to explore the features of DB2 Universal Database Version 8, or you can proceed directly to the installation. You may want to review the installation prerequisites and release notes for late-breaking information.

Once you have initiated the installation, proceed through the DB2 Setup wizard installation panels and make your selections. Installation help is available to guide you through the remaining steps. To invoke the installation help, click **Help** or press F1. You can click **Cancel** at any time to end the installation. DB2 files will only be copied to you system once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

Related concepts:

- “Installation overview for DB2 servers (UNIX)” on page 11
- “Installation overview for a partitioned DB2 server (UNIX)” on page 12
- “Installation overview for DB2 Personal Edition (Linux)” in the *Quick Beginnings for DB2 Personal Edition*

Part 4. Installing partitioned DB2 servers



This diagram is to be used to help you navigate through this book. It is not intended to represent your specific installation steps. Use the information within this book to create your own specific installation plan.

Chapter 9. Installing partitioned DB2 servers (Windows)

Installing a partitioned DB2 server (Windows)

This topic outlines the steps for installing a partitioned DB2 Enterprise Server Edition database server on Windows.

Prerequisites:

Ensure that your computer meets the following requirements:

1. Installation requirements for partitioned DB2 servers
2. Memory requirements for partitioned DB2 servers
3. Disk requirements for partitioned DB2 servers
4. User accounts for installation and setup of DB2 servers

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for partitioned DB2 servers prior to beginning the installation.

To install a partitioned DB2 server:

1. On Windows NT, install Service Pack 6a or higher. On Windows 2000, if you are using Windows Terminal Server, install Service Pack 2 or higher.
2. Prepare the environment for a partitioned DB2 ESE installation.
3. If you are installing on Windows 2000 or Windows .NET and intend to use Lightweight Directory Access Protocol (LDAP) to register the DB2 server in the Active Directory, you must extend the directory schema.
4. Install the instance owning database partition server.
5. Verify port range availability on participating computers.
6. Install database partition servers on participating computers using a response file.
7. *Optional:* Apply the latest FixPak.
8. *Optional:* Verify the partitioned database server installation.
9. *Optional:* Install the DB2 online documentation.

Related concepts:

- "Installation overview for partitioned DB2 servers (Windows)" on page 6

Related tasks:

- “Preparing the environment for a partitioned DB2 server (Windows)” on page 92
- “Extending the directory schema (Windows 2000 and Windows .NET)” on page 48
- “Installing the instance owning database partition server (Windows)” on page 95
- “Verifying port range availability on participating computers” on page 99
- “Installing database partition servers on participating computers (Windows)” on page 100
- “Applying the latest FixPak” on page 52
- “Verifying a partition database server installation (Windows)” on page 104
- “Installing DB2 online documentation (Windows)” on page 54

Related reference:

- “User accounts required for installation of DB2 servers (Windows)” on page 48
- “Disk requirements for a partitioned DB2 server (Windows)” on page 91
- “Installation requirements for a partitioned DB2 server (Windows)” on page 88
- “Memory requirements for a partitioned DB2 server (Windows)” on page 90

Requirements

Installation requirements for a partitioned DB2 server (Windows)

This topic lists the installation requirements for a partitioned DB2 server on Windows.

Operating system requirements

DB2 Enterprise Server Edition runs on:

- Windows NT Version 4 with Service Pack 6a or higher (32-bit and 64-bit)
- Windows 2000. Service Pack 2 is required for Windows Terminal Server.
- Windows .NET (32-bit and 64-bit)

Hardware requirements

For 32-bit DB2 products, a Pentium or Pentium compatible CPU is required. For 64-bit DB2 products, an Itanium or Itanium compatible CPU is required.

Software requirements

- If you plan to use the Tivoli Storage Manager facilities for backup and restore of your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later. If you are running in a 64-bit environment, you will need Tivoli Storage Manager Client Version 5.1 or later.
- Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2's Java-based tools, such as the Control Center. The DB2 Setup wizard will install the Java Runtime Environment (JRE) Version 1.3.1 if you choose to install DB2 Java-based tools.
- DB2 ESE provides support for host connections.
- A browser is required to view online help.

Communication requirements

You can use TCP/IP, Named Pipes, NetBIOS, and MPTN (APPC over TCP/IP). To remotely administer a Version 8 DB2 database, you must connect using TCP/IP. DB2 Version 8 servers, using the DB2 Connect server support feature, support only outbound client APPC requests; there is no support for inbound client APPC requests.

- For TCP/IP, Named Pipes, and NetBIOS connectivity, no additional software is required.
- For APPC (CPI-C) connectivity, through the DB2 Connect server support feature, one of the following communication products is required:

Table 8. Supported SNA (APPC) products

Operating system	SNA (APPC) communication product
Windows NT	<ul style="list-style-type: none"> – IBM Communications Server Version 6.1.1 or later – IBM Personal Communications for Windows Version 5.0 with CSD 3 – Microsoft SNA Server Version 3 Service Pack 3 or later
Windows 2000	<ul style="list-style-type: none"> – IBM Communications Server Version 6.1.1 or later – IBM Personal Communications for Windows Version 5.0 with CSD 3 – Microsoft SNA Server Version 4 Service Pack 3 or later
Windows .NET	Not supported.

- If you plan to use LDAP (Lightweight Directory Access Protocol), you require either a Microsoft LDAP client or an IBM SecureWay LDAP client V3.1.1.

- If you plan to use the Simple Network Management Protocol (SNMP) subagent, you require DPI 2.0 provided by IBM SystemView Agent. SNMP is not supported with DB2 offerings on Windows 64-bit platforms.

Windows (64-bit) considerations

- Local 32-bit applications are supported.
- 32-bit UDFs and stored procedures are supported.
- SQL requests from remote 32-bit downlevel clients are supported.
- DB2 Version 8 Windows 64-bit servers support connections from DB2 Version 6 and Version 7 32-bit clients only for SQL requests. Connections from Version 7 64-bit clients are not supported.

DB2 Administration Server (DAS) requirements

A DAS must be created on each physical machine for the Control Center and the Task Center to work properly.

Windows 2000 Terminal Server installation limitation

You cannot install DB2 Version 8 from a network mapped drive using a remote session on Windows 2000 Terminal Server edition. The available workaround is to use Universal Naming Convention (UNC) paths to launch the installation, or run the install from the console session.

For example, if the directory `c:\pathA\pathB\...\pathN` on a serverA is shared as `serverdir`, you can open `\\serverA\serverdir\filename.ext` to access the file `c:\pathA\pathB\...\pathN\filename.ext` on server.

Related tasks:

- “Installing a partitioned DB2 server (Windows)” on page 87

Memory requirements for a partitioned DB2 server (Windows)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required. In a partitioned database environment, the amount of memory required for each database partition server depends heavily on your configuration.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.

- Memory requirements will be affected by the size and complexity of your database system.
- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.
- Memory requirements in a partitioned environment may be affected by system design. Demand for memory on one computer may be greater than the demand on another.

Related tasks:

- “Installing a partitioned DB2 server (Windows)” on page 87

Disk requirements for a partitioned DB2 server (Windows)

The disk space required for a DB2 Enterprise Server Edition (ESE) depends on the the type of installation you choose. The DB2 Setup wizard provides Typical, Compact, and Custom installation types. This table provides an approximate disk space requirements for each installation type.

Table 9. DB2 Enterprise Server Edition disk requirements

Installation type	Minimum disk space
Typical	350 MB
Compact	100 MB
Custom	100 MB

Exact disk space requirements depend on the features installed and the type of disk drive. You may require significantly more space on FAT drives with large cluster sizes.

Typical installation

DB2 ESE is installed with most features and functionality, using a typical configuration. Typical installation Includes graphical tools such as the Control Center and Configuration Assistant. You can also choose to install a typical set of data warehousing features.

Compact installation

Only the basic DB2 features and functions are installed. Compact installation does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

The DB2 Setup wizard will provide a disk space estimate for the installation options you select.

Remember to include disk space allowance for required software, communication products, and documentation. In DB2 Version 8, HTML and PDF documentation is provided on separate CD-ROMs.

Related tasks:

- “Installing a partitioned DB2 server (Windows)” on page 87

Preparing the environment for a partitioned DB2 server (Windows)

This topic describes the steps required to prepare your Windows environment for a partitioned installation of DB2 Enterprise Server Edition.

Restrictions:

Each participating computer must have the same operating system. For example, you cannot have a partitioned database system that includes both Windows NT and Windows 2000 operating systems.

Procedure:

To prepare your Windows environment for installation:

1. Ensure that the primary computer and participating computers belong to the same Windows domain.

Windows NT

Check the domain that computer belongs to using the Network dialog, accessible through the Control Panel.

Windows 2000 or Windows .NET

Check the domain that computer belongs to using the System Properties dialog, accessible through the Control Panel.

2. Ensure that time and date settings on the primary computer and participating computers are consistent. To be considered consistent, the difference in GMT time between all computers must be no greater than 1 hour.

System date and time can be modified using the Date/Time Properties dialog, accessible through the Control Panel. You can use the `max_time_diff` configuration parameter to change this restriction. The default is `max_time_diff = 60`, which allows a difference of less than 60 minutes.

3. Ensure that all participating computers can communicate with each other using TCP/IP:
 - a. On one participating computer, enter the **hostname** command, which will return the hostname of the computer.

- b. On another participating computer, enter the following command:

```
ping hostname
```

where *hostname* represents the hostname of the primary computer. If the test is successful, you will receive the output similar to the following:

```
Pinging ServerA.ibm.com [9.21.27.230] with 32 bytes of data:
```

```
Reply from 9.21.27.230: bytes=32 time<10ms TTL=128
```

```
Reply from 9.21.27.230: bytes=32 time<10ms TTL=128
```

```
Reply from 9.21.27.230: bytes=32 time<10ms TTL=128
```

Repeat these steps until you are sure that all participating computers can communicate with each other using TCP/IP. Each computer must have a static IP address.

If you are planning to use multiple network adapters, you can specify which adapter to use to communicate between database partition servers. Use the **db2nchg** command to specify the netname field in the `db2nodes.cfg` file after the installation is complete.

4. During the installation you will be asked to provide a local or domain user account that will be used by the DB2 Administration Server (DAS) to log on to the system and to start itself as a service. You can define a user now or have the DB2 Setup wizard create one for you. If you want to create a new domain user using the DB2 Setup wizard, the account used to perform the installation must have authority to create domain users.
5. On the primary computer, where you will install the instance owning partition, you must have a domain user account that belongs to the local *Administrators* group. You must add the same user account to the local *Administrators* group on each participating computer. This user must have the *Act as part of the operating system* user right. You will log on as this user when you install DB2.
6. Ensure that you install DB2 to the same drive on each participating computer. For example, do not install DB2 on the c: drive of the instance owning database server, on the d: drive of a database partition server, and on the j: drive of another database partition server. Install DB2 on the c: drive of instance owning database server and install DB2 on the c: drive of any other participating database partition servers.
7. During the installation you will be asked to provide a domain user account to be associated with the DB2 instance. You can define a user now, or you can have the DB2 Setup wizard create a new domain user for you. If you want to create a new domain user using the DB2 Setup wizard, the account used to perform the installation must have authority to create

domain users. The instance user domain account must belong to the local *Administrators* group on all the participating computers and will be granted the following user rights:

- *Act as part of the operating system*
- *Create token object*
- *Increase quotas*
- *Log on as a service*
- *Replace a process level token*

Related concepts:

- “DB2 system administrator group (Windows)” on page 241

Related tasks:

- “Granting user rights (Windows)” on page 238

Related reference:

- “db2nchg - Change Database Partition Server Configuration Command” in the *Command Reference*

Extending the directory schema (Windows 2000 and Windows .NET)

If you plan to use LDAP with Windows 2000 or Windows .NET, you must extend the directory schema to contain DB2 object classes and attribute definitions. You must do this once before you install any DB2 products.

Prerequisites:

Your Windows user account must have Schema Administration authority.

Procedure:

To extend the directory schema:

1. Logon to a domain controller.
2. Run the **db2schex.exe** program from the installation CD with Schema Administration authority. You can run this program with Schema Administration authority, without logging off and logging on again, as follows:

```
runas /user:MyDomain\Administrator x:\db2\Windows\utilities\db2schex.exe
```

where x: represents the CD-ROM letter.

When **db2schex.exe** completes, you can continue with the installation.

Related reference:

- “Installation requirements for DB2 servers (Windows)” on page 44

Installing the instance owning database partition server (Windows)

This task describes how to install the instance owning database partition server on the primary computer using the DB2 Setup wizard.

Prerequisites:

Before you install the instance owning database partition server:

- Ensure that your system meets installation, memory, and disk requirements.
- If you are planning to use LDAP on Windows 2000 or Windows .NET to register the DB2 server in Active Directory, you must extend the directory schema before you install.
- You must have a local *Administrators* user account with the recommended user rights to perform the installation.
- During instance creation a number of ports equal to the number of logical nodes that the instance is capable of supporting will be reserved in the `/etc/services`. These ports will be used by the Fast Communication Manager. The reserved ports will be in the following format:

```
DB2_InstanceName
DB2_InstanceName_1
DB2_InstanceName_2
DB2_InstanceName_END
```

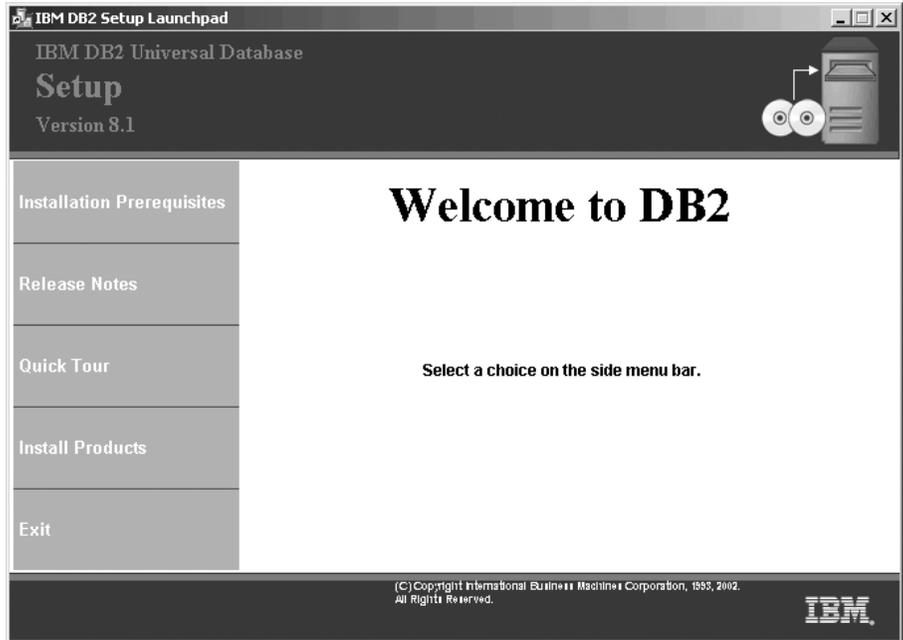
The only mandatory entries are the beginning (DB2_InstanceName) and ending (DB2_InstanceName_END) ports. The other entries are reserved in the services file so that other applications do not use these ports.

Procedure:

To install the instance owning database partition server:

1. Log on to the system with the domain user account that you will use to perform the installation. This is the domain user account that you added to the local *Administrators* group on each computer.
2. Close all programs so the installation program can update files as required.

3. Insert the CD-ROM into the drive. If enabled, the auto-run feature automatically starts the DB2 Setup Launchpad:



From this window, you can view installation prerequisites and the release notes, you can take the DB2 Quick Tour to explore the features of DB2 Universal Database Version 8, or you can proceed directly to the installation. You may want to review the installation prerequisites and release notes for late-breaking information. Select **Install Products** and select the DB2 product to install.

4. The DB2 Setup wizard will determine the system language, and launch the setup program for that language. If you want to run the setup program in a different language, or the setup program failed to auto-start, you can start the DB2 Setup wizard manually.

To start the DB2 Setup wizard manually:

- a. Click **Start** and select the **Run** option.
- b. In the **Open** field, enter the following command:

```
x:\setup /i language
```

where:

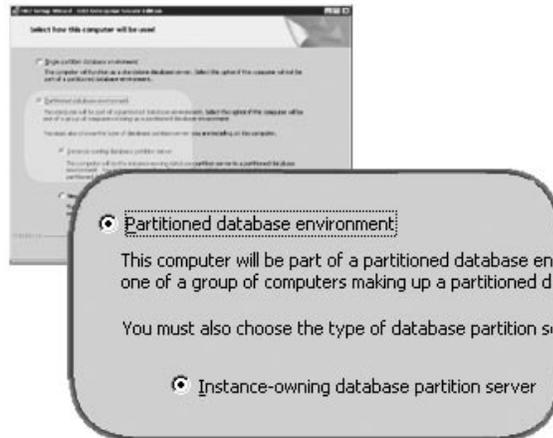
- *x*: represents your CD-ROM drive
- *language* is the territory identifier for your language (for example, EN for English).

If the */i* flag is not specified, the installation program will run in the default language of the operating system.

- c. Click **OK**.
5. When you have finished viewing launchpad information, proceed with the installation. The following list provides information about specific DB2 Setup wizard installation panels and the selections you must make to correctly install the instance owning partition on the primary computer:

Select how this computer will be used

On the *Select how this computer will be used* panel, you must select the **Partitioned database environment** radio button and the **Instance-owning database partition server** radio button.

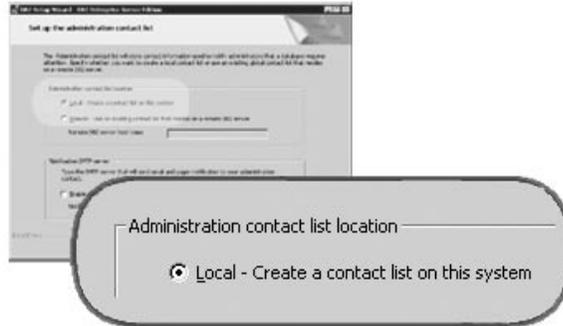


Set up the administration contact list

On the *Set up the administration contact list* panel, select **Local**. This selection will create a file on the primary computer that will store contact information for your system.

The contact information is used by DB2 to send notifications and alerts to a system administrator. A notification may state that a job has completed. An alert may state that a system threshold has been breached. You can specify notification and alert parameters after setup is complete.

Participating computers will remotely access the contact list on this computer.

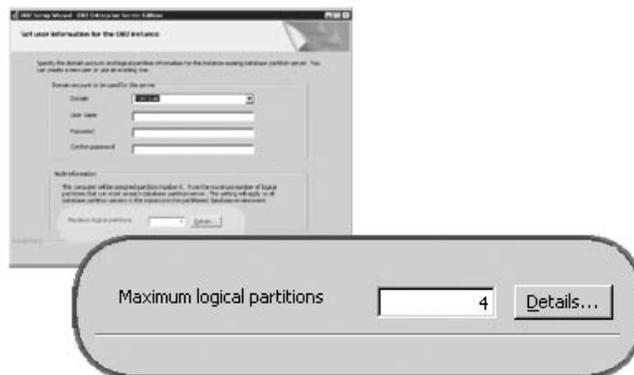


Set user information for the DB2 instance

On the *Set user information for the DB2 instance* panel, you must specify a domain for the DB2 instance and the maximum number of database partitions you can have on a computer.

Select the domain in which your partitioned database will exist from the drop-down box. You can also specify a domain name by entering the domain name in the **Domain** field.

The default maximum logical partitions for a computer is four. If you have one database partition server per computer, only one port is required. If you keep the default value of four, four ports will be reserved for database partition server communication. DB2 will attempt to reserve identical port numbers when you install database partition servers on participating computers.



Online help is available to guide you through the remaining steps. To invoke the online help, click **Help** or press **F1**. You can click **Cancel** at any

time to end the installation. DB2 files will only be copied to your system once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

For information on errors encountered during installation, see the `db2.log` file. The `db2.log` file stores general information and error messages resulting from the install and uninstall activities. By default, the `db2.log` file is located in the 'My Documents'\DB2LOG\ directory. The location of the 'My Documents' directory will depend on the settings on your computer.

Related tasks:

- “Installing database partition servers on participating computers (Windows)” on page 100

Related reference:

- “Language identifiers (for running the DB2 Setup wizard in another language)” on page 251
- “Disk requirements for a partitioned DB2 server (Windows)” on page 91
- “Installation requirements for a partitioned DB2 server (Windows)” on page 88
- “Memory requirements for a partitioned DB2 server (Windows)” on page 90

Verifying port range availability on participating computers

This task describes the steps required to verify port range availability on participating computers. The port range will be used by the Fast Communications Manager (FCM). FCM is a feature of DB2 that handles communications between database partition servers.

When you install the instance owning database partition server on the primary computer, DB2 reserves a port range according to the specified number of database partition servers per node. The default range is for four ports. The DB2 Setup wizard must be able to reserve an identical port range when database partition servers are installed on participating computers.

Procedure:

To verify port range availability on participating computers:

1. Open the `services` file located in the `%SystemRoot%\system32\drivers\etc` directory, where `%SystemRoot%` is your Windows root directory.
2. Locate the ports reserved for the DB2 Fast Communications Manager (FCM). The entries should appear similar to the following:

DB2_db2inst1	60000/tcp
DB2_db2inst1_1	60001/tcp
DB2_db2inst1_2	60002/tcp
DB2_db2inst1_END	60003/tcp

DB2 will reserve the first four available ports after 60000.

3. On each participating computer, open the services file and verify that the ports reserved for DB2 FCM in the services file of the primary computer are not being used.
4. In the unlikely event that the required ports are in use on a participating computer, identify an available port range for all computers and update each service file, including the service file on the primary computer.

Related concepts:

- “Fast Communications Manager (Windows)” on page 232

Related tasks:

- “Installing database partition servers on participating computers (Windows)” on page 100

Related reference:

- “DB2 node configuration file (db2nodes.cfg)” on page 220

Installing database partition servers on participating computers (Windows)

This task describes how to install database partition servers on participating computers using the DB2 Setup wizard. You must perform this task on each participating computer.

Prerequisites:

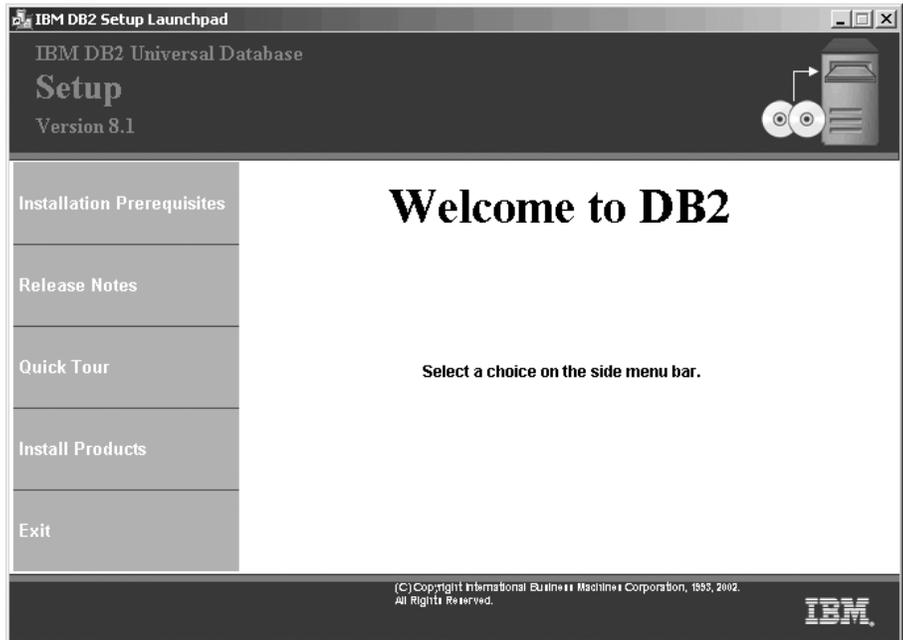
Before you install a database partition server on a participating computer:

- The instance owning database server partition must be installed on the primary computer.
- The domain user account that you added to the local Administrators group on the primary computer, must be added to the local Administrators group on the participating computer. You will use this account to perform the installation.

Procedure:

To start the DB2 Setup wizard:

1. Log on to the system with the domain user account that you will use to perform the installation. This is the domain user account that you added to the local *Administrators* group on each computer.
2. Close all programs so the installation program can update files as required.
3. Insert the CD-ROM into the drive. If enabled, the auto-run feature automatically starts the DB2 Setup Launchpad:



From this window, you can view installation prerequisites and the release notes, you can take the DB2 Quick Tour to explore the features of DB2 Universal Database Version 8, or you can proceed directly to the installation. You may want to review the installation prerequisites and release notes for late-breaking information. Select **Install Products** and select the DB2 product to install.

4. The DB2 Setup wizard will determine the system language, and launch the setup program for that language. If you want to run the setup program in a different language, or the setup program failed to auto-start, you can start the DB2 Setup wizard manually. The syntax for starting the DB2 Setup wizard is described at the end of this procedure.
5. The following list provides information about specific DB2 Setup wizard installation panels and the selections you must make to correctly install a database partition server on a participating computer:

Select how this computer will be used

On the *Select how this computer will be used* panel, you must select

the **Partitioned database environment** radio button and the **New database partition server** radio button.



New database partition server
This computer will be a new database partition server in an existing partitioned database environment.

Set up an administration contact list

On the *Set up an administration contact list panel*, select **Remote**. Specify the hostname of the primary computer where you installed the instance owning database partition server and set up the contact list.



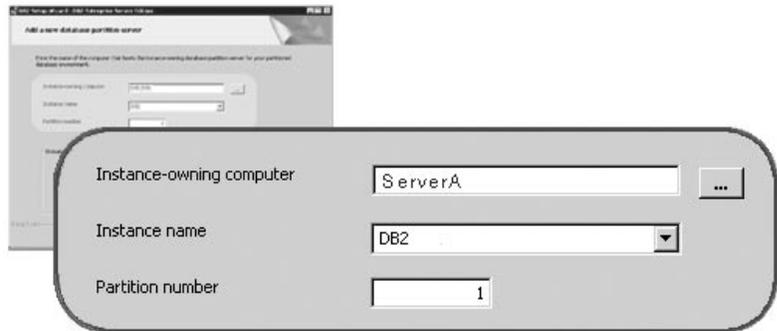
Remote - Use an existing contact list that resides on a remote DB2 server
Remote DB2 server host name:

Add a new database partition server

On the *Add a new database partition server panel*:

- Specify the hostname of the primary computer (instance-owning computer), where you installed the instance owning database partition server.
- In the drop-down box, select the name of the instance that was created when you installed the instance-owning database partition server. The default name instance name is *DB2*.
- For the partition number, specify a unique value in the range of 1 to 999. If this is the first new database partition server you are installing, it is recommended that you enter a value of 1. For the next database partition server, enter 2, and so on. The instance

owning partition server is always assigned partition number 0. Values must be in ascending order, but gaps in the sequence are acceptable.



Online help is available to guide you through the remaining steps. To invoke the online help, click **Help** or press **F1**. You can click **Cancel** at any time to end the installation. DB2 files will only be copied to your system once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

For information on errors encountered during installation, see the `db2.log` file. The `db2.log` file stores general information and error messages resulting from the install and uninstall activities. By default, the `db2.log` file is located in the 'My Documents'\DB2LOG\ directory. The location of the 'My Documents' directory will depend on the settings on your computer.

To start the DB2 Setup wizard manually:

1. Click **Start** and select the **Run** option.
2. In the **Open** field, enter the following command:

```
x:\setup /i language
```

where:

- *x*: represents your CD-ROM drive
 - *language* is the territory identifier for your language (for example, EN for English).
3. Click **OK**.

Applying the latest FixPak

Applying the latest FixPak is optionally part of the larger task of installing DB2 products.

A DB2 FixPak contains updates and fixes for bugs (Authorized Program Analysis Reports, or "APARs") found during testing at IBM, as well as fixes for bugs reported by customers. Every FixPak is accompanied by a document, called APARLIST.TXT, that describes the bug fixes it contains.

FixPaks are cumulative. This means that the latest FixPak for any given version of DB2 contains all of the updates from previous FixPaks for the same version of DB2. We recommend that you keep your DB2 environment running at the latest FixPak level to ensure problem-free operation.

When installing a FixPak on a partitioned ESE system, all participating computers must have the same FixPak installed while the system is offline.

Prerequisites:

Each FixPak may have specific prerequisites. See the FixPak README that accompanies the FixPak for more information.

Procedure:

1. Download the latest DB2 FixPak from the IBM DB2 UDB and DB2 Connect Online Support Web site at <http://www.ibm.com/software/data/db2/udb/winos2unix/support>.
2. Each FixPak contains a set of Release Notes and a README. The README provides instructions for installing the FixPak.

Verifying a partition database server installation (Windows)

To verify that your DB2 server installation was successful, you will create a sample database and run SQL commands to retrieve sample data and to verify that the data has been distributed to all participating database partition servers.

Prerequisites:

You have completed all of the installation steps.

Procedure:

To create the SAMPLE database:

1. Log on to the primary computer (ServerA). as user with SYSADM authority.
2. Enter the **db2sampl** command to create the SAMPLE database.

This command may take a few minutes to process. There is no completion message; when the command prompt returns, the process is complete.

The SAMPLE database is automatically cataloged with the database alias SAMPLE when it is created.

3. Start the database manager by entering the **db2start** command.
4. Enter the following DB2 commands from a DB2 command window to connect to the SAMPLE database, retrieve a list of all the employees that work in department 20:

```
db2 connect to sample
db2 "select * from staff where dept = 20"
```
5. To verify that data has been distributed across database partition servers, enter the following commands from a DB2 command window:

```
select distinct dbpartitionnum(empno) from employee;
```

The output will list the database partitions used by the employee table. The specific output will depend on the number of partitions in the database and the number of partitions in the partition group that is used by the tablespace where the employee table was created.

After you have verified the installation, you can remove the SAMPLE database to free up disk space. Enter the **db2 drop database sample** command to drop the SAMPLE database.

Installing DB2 online documentation (Windows)

This task describes how to install the DB2 online documentation using the DB2 Setup wizard on Windows. The DB2 online documentation is installed separately from other DB2 products from its own CD-ROM.

Prerequisites:

Before you start the DB2 Setup wizard:

- Ensure that your system meets installation, memory, and disk requirements.
- You must have a local *Administrator* user account with the recommended user rights to perform the installation.

Procedure:

To start the DB2 Setup wizard:

1. Insert the CD-ROM into the drive. The auto-run feature automatically starts the DB2 Setup wizard. The DB2 Setup wizard will determine the system language, and launch the setup program for that language. If you want to run the setup program in a different language, or the setup program failed to auto-start, you can start the DB2 Setup wizard manually.

2. The DB2 Setup Launchpad opens.



From this window, you can view installation prerequisites and the release notes, you can take a Quick Tour to explore the features of DB2 Universal Database Version 8, or you can proceed directly to the installation. You may want to review the installation prerequisites and release notes for late-breaking information.

3. Once you have initiated the installation, proceed by following the setup program's prompts. Online help is available to guide you through the remaining steps. To invoke the online help, click Help or press F1. You can click **Cancel** at any time to end the installation. DB2 files will only be copied to your system once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

For information on errors encountered during installation, see the `db2.log` file. The `db2.log` file stores general information and error messages resulting from the install and uninstall activities. By default, the `db2.log` file is located in the 'My Documents'\DB2LOG\ directory. The location of the 'My Documents' directory will depend on the settings on your computer.

To start the DB2 Setup wizard manually:

1. Click **Start** and select the **Run** option.
2. In the **Open** field, enter the following command:

```
x:\setup /i language
```

where:

- *x*: represents your CD-ROM drive
- *language* is the territory identifier for your language (for example, EN for English).

The */i* language parameter is optional. If it is not specified, the DB2 Setup wizard will run in the same language as your operating system.

3. Click **OK**.

Chapter 10. Installing partitioned DB2 servers (UNIX)

Preparing for installation (AIX)

Installing a partitioned DB2 server (AIX)

This topic outlines steps for installing a partitioned DB2 Enterprise Server Edition server on AIX.

Prerequisites:

Ensure that your computer meets the following requirements:

1. Installation requirements for partitioned DB2 servers
2. Memory requirements for partitioned DB2 servers
3. Disk requirements for partitioned DB2 servers
4. Groups and user accounts for DB2 installations

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for partitioned DB2 servers prior to beginning the installation.

To install a partitioned DB2 server on AIX:

1. Update the AIX environment settings for a partitioned DB2 installation.
2. Verify that NFS is running.
3. Create a DB2 home file system for a partitioned database system.
4. Create required users for a partitioned DB2 installation.
5. Mount the DB2 CD-ROM.
6. *Optional:* Copy the contents of the DB2 product CD-ROM to your computer.
7. Install a database partition server on the primary computer using the DB2 Setup wizard.
8. Install database partition servers on participating computers using a response file.
9. Update the node configuration file (db2nodes.cfg).
10. Enable communication between database partition servers.
11. Enable the execution of remote commands.

12. Enable Control Center administration.
13. *Optional*: Apply the latest FixPak.
14. *Optional*: Verify the partitioned database installation.
15. *Optional*: Install the DB2 online documentation.

Related concepts:

- “Installation overview for a partitioned DB2 server (UNIX)” on page 12

Related tasks:

- “Updating AIX environment settings for a partitioned DB2 installation” on page 114
- “Verifying that NFS is running (AIX)” on page 116
- “Creating a DB2 home file system for a partitioned database system (AIX)” on page 117
- “Creating required users for a partitioned DB2 server installation (AIX)” on page 119
- “Mounting the DB2 CD-ROM (AIX)” on page 61
- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121
- “Installing a database partition server on the primary computer using the DB2 Setup wizard (UNIX)” on page 157
- “Installing database partition servers on participating computers using a response file (UNIX)” on page 162
- “Updating the node configuration file (UNIX)” on page 163
- “Enabling communications between database partition servers” on page 165
- “Enabling the execution of remote commands (UNIX)” on page 166
- “Enabling Control Center administration (UNIX)” on page 167
- “Applying the latest FixPak” on page 52
- “Verifying a partitioned database server installation (UNIX)” on page 168
- “Installing DB2 online documentation (UNIX)” on page 82
- “Creating group and user IDs for a DB2 installation” on page 239
- “Setting up a working collective to distribute commands to ESE workstations (AIX)” on page 233

Related reference:

- “Disk requirements for a partitioned DB2 server (UNIX)” on page 113
- “Memory requirements for partitioned DB2 servers (UNIX)” on page 112
- “Installation requirements for partitioned DB2 servers (AIX)” on page 111

Requirements

Installation requirements for partitioned DB2 servers (AIX)

This topic lists hardware, operating system, software and communication requirements for a partitioned DB2 server (AIX).

Hardware requirements

DB2 supports the following hardware:

- IBM RISC/6000
- eServer pSeries

Operating system requirements

DB2 Enterprise Server Edition is available on:

- AIX Version 4.3.3 with maintenance level 9 or later (32-bit)
- AIX Version 5.1.0 with maintenance level 2 or later (32-bit and 64-bit)

Software requirements

- Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 servers and DB2's Java-based tools, such as the Control Center.
- If you plan to use the Tivoli Storage Manager facilities back up and restore to your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later.
- A browser is required to view online help.

Communication requirements

You can use APPC, TCP/IP or MPTN (APPC over TCP/IP). To remotely administer a Version 8 DB2 database, you must connect using TCP/IP. DB2 Version 8 servers, using the DB2 Connect server support feature, support only outbound client APPC requests; there is no support for inbound client APPC requests.

- For TCP/IP connectivity, no additional software is required.
- For APPC (CPI-C) connectivity, through the DB2 Connect server support feature, one of the following communication products is required:
 - IBM eNetwork Communications Server for AIX V5.0.3
 - Bull DPX/20 SNA/20
- For LDAP (Lightweight Directory Access Protocol) support, you require an IBM SecureWay Directory Client V3.1.1
- If you plan to use the Simple Network Management Protocol (SNMP) subagent, you require DPI 2.0 provided by IBM SystemView Agent.

DB2 Administration Server (DAS) requirements

The following requirements must be met:

- A DAS must be created on each physical machine for the Control Center and the Task Center to work properly.
- Each DAS must be created under a userID (same as an instance).
- If the same userID is to be used on all physical machines, then that userID's home directory cannot be shared (cross mounted) with the other machines.
- If a different userID is used for each DAS, then the home directories of the userIDs that are used can be shared (cross mounted).
- As long as a DAS is created on each machine, it does not matter whether:
 - A different userID is used for each DAS, or
 - The same userID is used and that the userID's home directory is not shared.

Installing DB2 products or sharing instance directory on NFS

Currently, we do not support the installation of DB2 products on NFS. Installing DB2 on NFS (for example, NFS mounting `/usr/opt/db2_08_01` or `/opt/IBM/db2/V8.1`) can be error prone and these errors can be difficult to diagnose.

The following configuration is not supported:

- Setting up an instance on a filesystem
- NFS mounting a filesystem from multiple machines, and then run DB2 on these machines using that same instance.

This configuration can cause file locking and performance problems.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109

Memory requirements for partitioned DB2 servers (UNIX)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required. In a partitioned database environment, the amount of memory required for each database partition server depends heavily on your configuration.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.

- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.
- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.
- Memory requirements in a partitioned environment may be affected by system design. Demand for memory on one computer may be greater than the demand on another.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Disk requirements for a partitioned DB2 server (UNIX)

Disk requirements vary depending on your file system and the type of installation you perform. The DB2 Setup wizard provides typical, data warehouse typical, satellite typical, compact, and custom installation types. The following table provides an approximate disk space requirement for each installation type.

Table 10. Disk requirements for a partitioned DB2 server

Installation type	required disk space
Typical	450 to 500MB
Compact	300 to 350 MB
Custom	200 MB to 800 MB

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Includes graphical tools such as the Control Center and Configuration Assistant.

Compact installation

Only the basic DB2 features and functions are installed. Does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

Remember to include disk space allowance for required software, communication products, and documentation. For DB2 version 8, documentation is provided on separate CD-ROMS.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Updating AIX environment settings for a partitioned DB2 installation

This task describes the environment settings that you need to update on each computer that will participate in your partitioned database system.

Procedure:

To update AIX environment settings:

1. Log on to the computer as a user with root authority.
2. Set the AIX maxuproc (maximum number of processes per user) device attribute to 4096 by entering the following command:
3. Set the TCP/IP network parameters on all the workstations that are participating in your partitioned database system to the following values:

```
thewall      = 65536
sb_max       = 1310720
rfc1323      = 1
tcp_sendspace = 221184
tcp_recvspace = 221184
udp_sendspace = 65536
udp_recvspace = 65536
ipqmaxlen    = 250
somanconn    = 1024
```

To list the current settings of all network-related parameters, enter the following command:

```
no -a | more
```

To set a parameter, enter the follow command:

```
no -o parameter_name=value
```

where:

- *parameter_name* represents the parameter you want to set.
- *value* represents the value that you want to set for this parameter.

For example, to set the `tcp_sendspace` parameter to 221184, enter the following command:

```
no -o tcp_sendspace=221184
```

The above values are the minimum values for these parameters. If any of the network-related parameters are already set to a higher value, do not change it.

4. If you are using a high speed interconnect, you must set the `spoolsize` and `rpoolsize` for `css0` to the following values:

```
spoolsize    16777216
rpoolsize    16777216
```

To list the current settings of these parameters, enter the following command:

```
lsattr -l css0 -E
```

To set these parameters, enter the following commands:

```
/usr/lpp/ssp/css/chgcss -l css0 -a spoolsize=16777216
/usr/lpp/ssp/css/chgcss -l css0 -a rpoolsize=16777216
```

If you are not using the `/tftpboot/tuning.cst` file to tune your system, you can use the `/opt/lpp/db2_08_01/misc/rc.local.sample` sample script file to update the network-related parameters after installation. To update the network-related parameters using the sample script file after installation, perform the following steps:

- a. Copy this script file to the `/etc` directory and make it executable by root by entering the following commands:

```
cp /opt/lpp/db2_08_01/misc/rc.local.sample /etc/rc.local
chown root:sys /etc/rc.local
chmod 744 /etc/rc.local
```
- b. Review the `/etc/rc.local` file and update it if necessary.
- c. Add an entry to the `/etc/inittab` file so that the `/etc/rc.local` script is executed whenever the machine is rebooted. You can use the **mkitab** command to add an entry to the `/etc/inittab` file. To add this entry, enter the following command:

```
mkitab "rclocal:2:wait:/etc/rc.local > /dev/console 2>&1"
```
- d. Ensure that `/etc/rc.nfs` entry is included in the `/etc/inittab` file by entering the following command:

```
lsitab rcnfs
```
- e. Update the network parameters without rebooting your system by entering the following command:

```
/etc/rc.local
```

5. Ensure that you have enough paging space for a partitioned installation of DB2 ESE to run. If you do not have sufficient paging space, the operating

system will kill the process that is using the most virtual memory (this is likely to be one of the DB2 processes). To check for available paging space, enter the following command:

```
lspgs -a
```

This command will return output similar to the following:

Page Space	Physical Volume	Volume Group	Size	%Used	Active	Auto	Type
paging00	hdisk1	rootvg	60MB	19	yes	yes	lv
hd6	hdisk0	rootvg	60MB	21	yes	yes	lv
hd6	hdisk2	rootvg	64MB	21	yes	yes	lv

We recommend that the paging space available be equal to twice the amount of physical memory installed on your computer.

6. If you are creating a small to intermediate size partitioned database system, the number of network file system daemons (NFSDs) on the instance-owning computer should be close to:

```
# of biod on a computer * # of computers in the instance
```

We recommended that you run 10 biod processes on every computer. According to the above formula, on a four computer system with 10 biod processes, you would use 40 NFSDs.

If you are installing a larger system, you can have up to 120 NFSDs on the computer.

For additional information about NFS, refer to your NFS documentation.

Verifying that NFS is running (AIX)

Network File System (NFS) must be running on each computer.

Procedure:

To verify that Network File System (NFS) is running on each computer that will participate in your partitioned database system, enter the following command on each computer:

```
lssrc -g nfs
```

The Status field for NFS processes should indicate active. More specifically, DB2 requires that the following two NFS processes are active:

```
rpc.lockd  
rpc.statd
```

If these processes are not running, consult your AIX operating system documentation.

Creating a DB2 home file system for a partitioned database system (AIX)

This task describes how to create a DB2 home file system, NFS export the home file system, and NFS mount the home file system from each participating computer.

It is recommended that you create a home file system that is 1 GB in size or greater. Later installation instruction will ask that you copy the contents of the DB2 product CD-ROM to a directory on your DB2 home file system. The DB2 product CD-ROM will temporarily occupy approximately 700 MB of space. A DB2 instance will require at least 50 MB of space. If you do not have 1 GB of free space, you can mount the DB2 product CD-ROM from each participating computer as an alternative to copying the contents to disk.

Prerequisites:

You must have:

- root authority to create a file system
- Created a volume group where your file system is to physically reside.

Procedure:

To create, NFS export, and NFS mount the DB2 home file system, perform the following steps:

Creating the DB2 home file system

Log on to the primary computer (ServerA) in your partitioned database system as a user with root authority and create a home file system for your partitioned database system called /db2home.

1. Enter the **smit jfs** command.
2. Click on the **Add a Journaled File System** icon.
3. Click on the **Add a Standard Journaled File System** icon.
4. Select an existing volume group from the **Volume Group Name** list where you want this file system to physically reside.
5. Set the **SIZE of file system (in 512-byte blocks) (Num.)** field to 180 000 (this is about 90 MB).
6. Enter the mount point for this file system in the **MOUNT POINT** field. In this example, the mount point is /db2home.
7. Set the **Mount AUTOMATICALLY at system restart** field to yes. The remaining fields can be left to the default settings.
8. Click **OK**.

Exporting the DB2 home file system

1. NFS export the /db2home file system so that it is available to all of the computers that will participate in your partitioned database system:
 - a. Enter the **smit nfs** command.
 - b. Click on the **Network File System (NFS)** icon.
 - c. Click on the **Add a Directory to Exports List** icon.
 - d. Enter the pathname and directory to export (for example, /db2home) in the **PATHNAME of directory to export** field.
 - e. Enter the name of each workstation that will participate in your partitioned database system in the **HOSTS allowed root access** field. Use a comma (,) as the delimiter between each name. For example, ServerA, ServerB, ServerC. If you are using a high speed interconnect, we recommend that you specify the high speed interconnect names for each workstation in this field as well. The remaining fields can be left to the default settings.
 - f. Click **OK**.
2. Log out.

Mounting the DB2 home file system from each participating computer

Log on to *each* participating computer (ServerB, ServerC, ServerD) and NFS mount the file system that you exported by performing the following steps:

1. Enter the **smit nfs** command.
2. Click on the **Network File System (NFS)** icon.
3. Click on the **Add a File System for Mounting** icon.
4. Enter the pathname of the mount point in the **PATHNAME of the mount point (Path)** field.

The path name of the mount point is where you should create the DB2 home directory. For this example, use/db2home.
5. Enter the pathname of the remote directory in the **PATHNAME of the remote directory** field.

For our example, you should enter the same value that you entered in the **PATHNAME of the mount point (Path)** field.
6. Enter the *hostname* of the machine where you exported the file system in the **HOST where the remote directory resides** field.

This is the hostname of the machine where the file system that you are mounting was created.

To improve performance, you may want to NFS mount the file system that you created over a high speed interconnect. If you

want to mount this file system using a high speed interconnect, you must enter its name in the **HOST where remote directory resides** field.

You should be aware that if the high speed interconnect ever becomes unavailable for some reason, every workstation that participates in your partitioned database system will lose access to these DB2 home directory.

7. Set the **MOUNT now, add entry to /etc/filesystems or both?** field to both.
8. Set the **/etc/filesystems entry will mount the directory on system RESTART** field to yes.
9. Set the **MODE for this NFS file system** field to read-write.
10. Set the **Mount file system soft or hard** field to soft.

A soft mount means that the computer *will not* try for an infinite period of time to remotely mount the directory. A hard mount means that your machine will infinitely try to mount the directory. This could cause problems in the event of a system crash. We recommend that you set this field to soft.

The remaining fields can be left to the default settings.

11. Ensure that this file system is mounted with the **Allow execution of SUID and sgid programs in this file system?** field set to Yes. This is the default setting.
12. Click **OK**.
13. Log out.

Related tasks:

- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121

Creating required users for a partitioned DB2 server installation (AIX)

This task is part of the larger task of *Installing a partitioned DB2 server on AIX*.

Three users and groups are required to operate DB2. The user and group names used in the following instructions are documented in the following table. You may specify your own user and group names as long as they adhere to your system naming rules and DB2 naming rules.

Table 11. Required users and groups

Required user	user name	group name
Instance owner	db2inst1	db2iadm1
Fenced user	db2fenc1	db2fadm1

Table 11. Required users and groups (continued)

Required user	user name	group name
Administration server user	db2as	db2asgrp

If an existing user is used as the Administration server user, this user must also exist on the all participating computers before installation. If you use the DB2 Setup wizard to create a new user for the Administration server on the instance owning computer, then this user will also be created (if necessary) during the response file installations on the participating computers. If the user already exists on the participating computers, it must have the same primary group.

Prerequisites:

- You must root authority to create users and groups.
- If you manage users and groups with NIS/NIS+ or similar security software, see *NIS/NIS+ considerations* before creating users and groups. Additional steps may be required to when defining DB2 users and groups.

Restrictions:

The user names you create must conform to both your operating system’s naming rules, and those of DB2.

Procedure:

To create all three of these users, perform the following steps:

1. Log on to the primary computer.
2. Create a group for the instance owner (for example, db2iadm1), the user that will execute UDFs or stored procedures (for example, db2fadm1), and the Administration Server (for example, db2asgrp) by entering the following commands:

```

mkgroup id=999 db2iadm1
mkgroup id=998 db2fadm1
mkgroup id=997 db2asgrp

```

3. Create a user that belongs to each group that you created in the previous step using the following commands. The home directory for each user will be the DB2 home directory that you previously created and shared (db2home).

```

mkuser id=1004 pgrp=db2iadm1 groups=db2iadm1 home=/db2home/db2inst1
core=-1 data=491519 stack=32767 rss=-1 fsize=-1 db2inst1
mkuser id=1003 pgrp=db2fadm1 groups=db2fadm1 home=/db2home/db2fenc1
db2fenc1
mkuser id=1002 pgrp=db2asgrp groups=db2asgrp home=/db2home/db2as
db2as

```

4. Set an initial password for each user that you created by entering the following commands:

```
passwd db2inst1
passwd db2fenc1
passwd db2as
```
5. Log out.
6. Log on to the primary computer as each user that you created (db2inst1, db2fenc1, and db2as). You may be prompted to change each user's password since this is the first time that these users have logged onto the system.
7. Log out.
8. Create the exact same user and group accounts on each computer that will participate in your partition database system. For our example, perform this task on ComputerB, ComputerC, and ComputerD.

Related reference:

- "NIS installation considerations" on page 224

Mounting the DB2 CD-ROM (AIX)

You must mount the DB2 product CD-ROM before you can start the DB2 Setup wizard.

Procedure:

To mount the DB2 installation CD and copy the contents:

1. Create a directory for the CD-ROM by entering the following command:

```
mkdir /cdrom -p
```
2. Allocate a CD-ROM file system by entering the following command:

```
crfs -v cdrfs -p ro -d cd0 -m /cdrom
```

where cd0 is the standard representation for the CD-ROM drive.

3. Mount the CD-ROM file system by entering the following command:

```
mount /cdrom
```

Copying the contents of the DB2 product CD-ROM to your computer

This task describes the steps for copying the contents of the DB2 ESE product CD-ROM to the shared DB2 home file system. Copying the contents of the DB2 CD-ROM is a step unique to partitioned installations of DB2. Because you are likely to be installing DB2 to multiple computers simultaneously, installing from hard disk is significantly faster than installing from a CD-ROM. This method is recommended for any system that includes more than four computers.

The alternative is to NFS mount the CD-ROM file system from each computer. You may want to mount the CD-ROM from each computer if you do not have enough disk space on the DB2 home file system or if you are installing on fewer than four computers.

Procedure:

To mount the DB2 installation CD and copy the contents

1. Create a directory on your /db2home file system for the DB2 product CD-ROM:

```
mkdir /db2home/db2cdrom
```

2. Copy the contents of the CD-ROM to directory that you created:

```
cp -R /cdrom /db2home/db2cdrom
```

Preparing for installation (HP-UX)

Installing a partitioned DB2 server (HP-UX)

This topic outlines steps for installing a partitioned DB2 Enterprise Server Edition server on HP-UX.

Prerequisites:

Ensure that your computer meets the following requirements:

1. Installation requirements for partitioned DB2 servers
2. Memory requirements for partitioned DB2 servers
3. Disk requirements for partitioned DB2 servers
4. Groups and user accounts for DB2 installations

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for partitioned DB2 servers prior to beginning the installation.

To install DB2 ESE (partitioned) on HP-UX:

1. Modify kernel parameters for DB2.
2. Verify that NFS is running.
3. Create a DB2 home file system for a partitioned database system.
4. Create required users for a partitioned DB2 installation.
5. Mount the DB2 CD-ROM.

6. *Optional:* Copy the contents of the DB2 product CD-ROM to your computer.
7. Install a database partition server on the primary computer using the DB2 Setup wizard.
8. Install database partition server on participating computers using a response file.
9. Update the node configuration file (db2nodes.cfg).
10. Enable communication between database partition servers.
11. Enable the execution of remote commands.
12. Enable Control Center Administration.
13. *Optional:* Apply the latest FixPak.
14. Verify the partitioned database installation.
15. *Optional:* Install the DB2 documentation.

Related concepts:

- “Installation overview for a partitioned DB2 server (UNIX)” on page 12

Related tasks:

- “Modifying kernel parameters (HP-UX)” on page 65
- “Verifying that NFS is running (HP-UX)” on page 128
- “Creating a DB2 home file system for a partitioned database system (HP-UX)” on page 128
- “Creating required users for a partitioned DB2 installation (HP-UX)” on page 130
- “Mounting the DB2 CD-ROM (HP-UX)” on page 132
- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121
- “Installing a database partition server on the primary computer using the DB2 Setup wizard (UNIX)” on page 157
- “Installing database partition servers on participating computers using a response file (UNIX)” on page 162
- “Updating the node configuration file (UNIX)” on page 163
- “Enabling communications between database partition servers” on page 165
- “Enabling the execution of remote commands (UNIX)” on page 166
- “Enabling Control Center administration (UNIX)” on page 167
- “Applying the latest FixPak” on page 52
- “Verifying a partitioned database server installation (UNIX)” on page 168
- “Installing DB2 online documentation (UNIX)” on page 82
- “Creating group and user IDs for a DB2 installation” on page 239

Related reference:

- “Disk requirements for a partitioned DB2 server (UNIX)” on page 113
- “Memory requirements for partitioned DB2 servers (UNIX)” on page 112
- “Installation requirements for partitioned DB2 servers (HP-UX)” on page 124

Requirements**Installation requirements for partitioned DB2 servers (HP-UX)**

This topic lists hardware, operating system, software and communication requirements for a partitioned DB2 server (HP-UX).

Hardware requirements

HP 9000 series 700 or 800 system

Operating system requirements

DB2 Enterprise Server Edition can run on:

- HP-UX 11i with December 2001 GOLDBASE11i and December 2001 GOLDAPPS11i bundles

Software requirements

- The Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 servers and DB2’s Java-based tools, such as the Control Center. If you are running in a 64-bit environment, you will need JRE Version 1.4.
- If you plan to use the Tivoli Storage Manager facilities to back up and restore your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later.
- A browser is required to view online help.

Communication requirements

APPC or TCP/IP. You can only use TCP/IP to remotely administer databases.

- For TCP/IP connectivity, no additional software is required.
- For APPC (CPI-C) connectivity, through the DB2 Connect server support feature, HP-UX Version 11.00 requires the following:
 - SNAplus2 Link R6.11.00.00
 - SNAplus2 API R.6.11.00.00

DB2 Version 8 servers, with DB2 Connect server support, only support outbound client APPC requests; there is no support for inbound client APPC requests.

DB2 Version 8 HP-UX 64-bit servers do not support running DB2 Version 7 64-bit local applications.

DB2 Administration Server (DAS) requirements

The following requirements must be met:

- A DAS must be created on each physical machine for the Control Center and the Task Center to work properly.
- Each DAS must be created under a userID (same as an instance).
- If the same userID is to be used on all physical machines, then that userID's home directory cannot be shared (cross mounted) with the other machines.
- If a different userID is used for each DAS, then the home directories of the userIDs that are used can be shared (cross mounted).
- As long as a DAS is created on each machine, it does not matter whether:
 - A different userID is used for each DAS, or
 - The same userID is used and that the userID's home directory is not shared.

Installing DB2 products or sharing instance directory on NFS

Currently, we do not support the installation of DB2 products on NFS. Installing DB2 on NFS (for example, NFS mounting `/usr/opt/db2_08_01` or `/opt/IBM/db2/V8.1`) can be error prone and these errors can be difficult to diagnose.

The following configuration is not supported:

- Setting up an instance on a filesystem
- NFS mounting a filesystem from multiple machines, and then run DB2 on these machines using that same instance.

This configuration can cause file locking and performance problems.

Related tasks:

- “Installing a DB2 server on HP-UX” on page 61

Memory requirements for partitioned DB2 servers (UNIX)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required. In a partitioned database environment, the amount of memory required for each database partition server depends heavily on your configuration.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.

- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.
- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.
- Memory requirements in a partitioned environment may be affected by system design. Demand for memory on one computer may be greater than the demand on another.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Disk requirements for a partitioned DB2 server (UNIX)

Disk requirements vary depending on your file system and the type of installation you perform. The DB2 Setup wizard provides typical, data warehouse typical, satellite typical, compact, and custom installation types. The following table provides an approximate disk space requirement for each installation type.

Table 12. Disk requirements for a partitioned DB2 server

Installation type	required disk space
Typical	450 to 500MB
Compact	300 to 350 MB
Custom	200 MB to 800 MB

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Includes graphical tools such as the Control Center and Configuration Assistant.

Compact installation

Only the basic DB2 features and functions are installed. Does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

Remember to include disk space allowance for required software, communication products, and documentation. For DB2 version 8, documentation is provided on separate CD-ROMS.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Modifying kernel parameters (HP-UX)

Before installing your DB2 for HP-UX product, you may need to update your system’s kernel configuration parameters. You must restart your computer after updating kernel configuration parameters.

Prerequisites:

You must have root authority to modify kernel parameters.

Procedure:

To change a value:

- Enter the **sam** command to start the System Administration Manager (SAM) program.
- Double-click on the **Kernel Configuration** icon.
- Double-click on the **Configurable Parameters** icon.
- Double-click on the parameter that you want to change and enter the new value in the **Formula/Value** field.
- Click on **OK**.
- Repeat these steps for all of the kernel configuration parameters that you want to change.
- When you are finished setting all of the kernel configuration parameters, select **Action --> Process New Kernel** from the action menu bar.

The HP-UX operating system automatically restarts after you change the values for the kernel configuration parameters.

Related reference:

- “Recommended HP-UX kernel configuration parameters” on page 222

Verifying that NFS is running (HP-UX)

Network File System (NFS) must be running on each computer.

Procedure:

To verify that Network File System (NFS) is running on each computer that will participate in your partitioned database system, enter the following command:

```
showmount -e hostname
```

Entering the showmount command without the *hostname* parameter will check the local system. If NFS is not active you will receive a message similar to the following:

```
showmount: ServerA: RPC: Program not registered
```

Once you have verified that NFS is running on each system, check for the specific NFS processes required by DB2. The required processes are:

```
rpc.lockd  
rpc.statd
```

You can use the following commands to check for these processes:

```
ps -ef | grep rpc.lockd  
ps -ef | grep rpc.statd
```

Creating a DB2 home file system for a partitioned database system (HP-UX)

This task describes how to create a DB2 home file system, NFS export the home file system, and NFS mount the home file system from each participating computer.

It is recommended that you create a home file system that is 1 GB in size or greater. Later installation instruction will ask that you copy the contents of the DB2 product CD-ROM to a directory on your DB2 home file system. The DB2 product CD-ROM will temporarily occupy approximately 700 MB of space. A DB2 instance will require at least 50 MB of space. If you do not have 1 GB of free space, you can mount the DB2 product CD-ROM from each participating computer as an alternative to copying the contents to disk.

Prerequisites:

You must have root authority to create a file system.

Procedure:

To create, NFS export, and NFS mount the DB2 home file system, perform the following steps:

Creating the DB2 home file system

Manually:

1. Select a disk partition or logical volume and use a utility like `newfs` to create this file system. For more information, enter the `man newfs` command.
2. Mount this file system locally and add an entry to the `/etc/fstab` file so that this file system is mounted each time the system is restarted.

Using SAM:

1. Enter the `sam` command.
2. Click on the **Disks and File Systems** icon.
3. Click on the **File Systems** icon.
4. Select **Action** → **Add Local File systems**.
5. You can choose either to use or not to use a Logical Volume Manager. It is recommended to use a Logical Volume Manager.

Exporting the DB2 home file system

If you are installing DB2 ESE on a cluster of HP-UX systems, you can add an entry to the `/etc/exports` file to export this file system via NFS, or use SAM.

To export the file system using SAM:

1. Enter the `sam` command.
2. Click on the **Networking and Communications** icon.
3. Click on the **Networked File Systems** icon.
4. Click on the **Exported Local File Systems** icon.
5. Click the **Action** menu and select **Add Exported File System**
6. Enter the pathname and directory to export (for example, `/db2home`) in the **Local Directory Name** field.
7. Click the **User Access** button and add read-write access for the other computers in the instance in the window that appears.
8. Click the **Root User Access** button and add access for the other computers in the instance in the window that appears.
9. Click **OK**.
10. Log out.

Mounting the DB2 home file system from each participating computer

After you have exported this file system, you must mount this file system on each of the participating computers.

On each participating computer:

1. Enter the **sam** command.
2. Click on the **Networking and Communications** icon.
3. Click on the **Networked File Systems** icon.
4. Click on the **Mounted Remote File Systems** icon.
5. Click the **Action** menu and select **Add Remote File System Using NFS**
6. Enter the mount point of the file system to mount (for example, /db2home) in the **Local Directory Name** field.
7. Enter the name of the remote server (for example, ServerA) in the **Remote Server Name** field.
8. Enter the pathname and directory of the remote directory (for example, /db2home) in the **Remote Directory Name** field.
9. Set the **Mount At System Boot** option on.
10. Click the **NFS Mount Options** button and set **soft** mount type and the **Allow SetUID Execution** option on.
A soft mount means that the computer *will not* try for an infinite period of time to remotely mount the directory. A hard mount means that your machine will infinitely try to mount the directory. This could cause problems in the event of a system crash. We recommend that you set this field to soft.
The remaining fields can be left to the default settings.
11. Click **OK**.
12. Log out.

Related tasks:

- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121

Creating required users for a partitioned DB2 installation (HP-UX)

This task is part of the larger task of *Installing a partitioned DB2 server on AIX*.

Three users and groups are required to operate DB2. The user and group names used in the following instructions are documented in the following table. You may specify your own user and group names as long as they adhere to your system naming rules and DB2 naming rules.

Table 13. Required users and groups

Required user	User name	Group name
Instance owner	db2inst1	db2iadm1
Fenced user	db2fenc1	db2fadm1

Table 13. Required users and groups (continued)

Required user	User name	Group name
Administration server user	db2as	db2asgrp

If an existing user is used as the Administration server user, this user must also exist on the all participating computers before installation. If you use the DB2 Setup wizard to create a new user for the Administration server on the instance owning computer, then this user will also be created (if necessary) during the response file installations on the participating computers. If the user already exists on the participating computers, it must have the same primary group.

Prerequisites:

- You must root authority to create users and groups.
- If you manage users and groups with NIS/NIS+ or similar security software, see *NIS/NIS+ considerations* before creating users and groups. Additional steps may be required to when defining DB2 users and groups.

Restrictions:

The user names you create must conform to both your operating system’s naming rules, and those of DB2.

Procedure:

To create all three of these users, perform the following steps:

1. Log on to the primary computer.
2. Create a group for the instance owner (for example, db2iadm1), the user that will execute UDFs or stored procedures (for example, db2fadm1), and the Administration Server (for example, db2asgrp) by entering the following commands:


```
groupadd id=999 dbiadm1
groupadd id=998 db2fadm1
groupadd id=997 db2asgrp
```
3. Create a user that belongs to each group that you created in the previous step using the following commands. The home directory for each user will be the DB2 home directory that you previously created and shared (db2home).


```
useradd -g db2iadm1 -d /home/db2inst1 -m db2inst1 passwd mypasswd
useradd -g db2fadm1 -d /home/db2fenc1 -m db2inst1 passwd mypasswd
useradd -g dbasgrp -d /home/db2fenc1 -m db2inst1 passwd mypasswd
```
4. Set an initial password for each user that you created by entering the following commands:

```
passwd db2inst1
passwd db2fenc1
passwd db2as
```

5. Log out.
6. Log on to the primary computer as each user that you created (db2inst1, db2fenc1, and db2as). You may be prompted to change each user's password since this is the first time that these users have logged onto the system.
7. Log out.
8. Create the exact same user and group accounts on each computer that will participate in your partition database system. For our example, perform this task on ComputerB, ComputerC, and ComputerD.

Related reference:

- "NIS installation considerations" on page 224

Mounting the DB2 CD-ROM (HP-UX)

You must mount the installation CD before you can run the DB2 Setup wizard.

Because DB2 Version 8 for HP-UX contains several files with long file names, the mount command may fail. Perform the following steps to avoid any problems when mounting your CD-ROM.

Restrictions:

If you are mounting a CD-ROM drive from a remote system using NFS, the CD-ROM file system on the remote machine must be exported with root access. You must also mount that file system with root access on the local machine.

Procedure:

To mount your CD-ROM on HP-UX, perform the following steps:

1. In the /etc directory, add the following line to the pfs_fstab file:

```
/dev/dsk/c0t2d0 mount_point pfs-rrip ro,hard
```

where *mount_point* is the mount point of the CD-ROM.

2. Start the pfs daemon by entering the following commands (if they are not already running):

```
/usr/sbin/pfs_mountd &
/usr/sbin/pfsd 4 &
```

3. Enter the following commands to create a directory called /cdrom and mount the CD-ROM on this directory:

```
mkdir /cdrom
/usr/sbin/pfs_mount /cdrom
```

where /cdrom represents the mount point of the CD-ROM.

Copying the contents of the DB2 product CD-ROM to your computer

This task describes the steps for copying the contents of the DB2 ESE product CD-ROM to the shared DB2 home file system. Copying the contents of the DB2 CD-ROM is a step unique to partitioned installations of DB2. Because you are likely to be installing DB2 to multiple computers simultaneously, installing from hard disk is significantly faster than installing from a CD-ROM. This method is recommended for any system that includes more than four computers.

The alternative is to NFS mount the CD-ROM file system from each computer. You may want to mount the CD-ROM from each computer if you do not have enough disk space on the DB2 home file system or if you are installing on fewer than four computers.

Procedure:

To mount the DB2 installation CD and copy the contents

1. Create a directory on your /db2home file system for the DB2 product CD-ROM:

```
mkdir /db2home/db2cdrom
```

2. Copy the contents of the CD-ROM to directory that you created:

```
cp -R /cdrom /db2home/db2cdrom
```

Preparing for installation (Linux)

Installing a partitioned DB2 server (Linux)

This topic outlines steps for installing a partitioned DB2 Enterprise Server Edition server on Linux.

Prerequisites:

Ensure that your computer meets the following requirements:

1. Installation requirements for partitioned DB2 servers
2. Memory requirements for partitioned DB2 servers
3. Disk requirements for partitioned DB2 servers
4. Groups and user accounts for DB2 installations

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for partitioned DB2 servers prior to beginning the installation.

To install DB2 ESE (partitioned) on Linux:

1. Modify kernel parameters for DB2.
2. Verify that NFS is running.
3. Create a file system for a partitioned database system.
4. Create required users for a partitioned DB2 ESE installation.
5. Mount the DB2 CD-ROM.
6. *Optional:* Copy the contents of the DB2 product CD-ROM to your computer.
7. Install a database partition server on the primary computer using the DB2 Setup wizard.
8. Install database partition server on participating computers using a response file.
9. Update the node configuration file (db2nodes.cfg).
10. Enable communication between database partition servers.
11. Enable the execution of remote commands.
12. Enable Control Center Administration.
13. *Optional:* Apply the latest FixPak.
14. *Optional:* Verify the partitioned database installation.
15. *Optional:* Install the DB2 documentation.

Related concepts:

- “Installation overview for a partitioned DB2 server (UNIX)” on page 12

Related tasks:

- “Modifying kernel parameters (Linux)” on page 70
- “Verifying that NFS is running (Linux)” on page 139
- “Creating a file system for a partitioned DB2 server (Linux)” on page 140
- “Creating required users for a partitioned DB2 server (Linux)” on page 142
- “Mounting the DB2 CD-ROM (Linux)” on page 72
- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121
- “Installing a database partition server on the primary computer using the DB2 Setup wizard (UNIX)” on page 157
- “Installing database partition servers on participating computers using a response file (UNIX)” on page 162

- “Updating the node configuration file (UNIX)” on page 163
- “Enabling communications between database partition servers” on page 165
- “Enabling the execution of remote commands (UNIX)” on page 166
- “Enabling Control Center administration (UNIX)” on page 167
- “Applying the latest FixPak” on page 52
- “Verifying a partitioned database server installation (UNIX)” on page 168
- “Installing DB2 online documentation (UNIX)” on page 82
- “Creating group and user IDs for a DB2 installation” on page 239

Related reference:

- “Disk requirements for a partitioned DB2 server (UNIX)” on page 113
- “Memory requirements for partitioned DB2 servers (UNIX)” on page 112
- “Installation requirements for partitioned DB2 servers (Linux)” on page 135

Requirements

Installation requirements for partitioned DB2 servers (Linux)

This topic lists hardware, operating system, software and communication requirements for a partitioned DB2 server (Linux).

Hardware requirements

You require one of the following types of hardware:

- Intel 32-bit
- Intel 64-bit
- OS/390 or z-Series

Distribution requirements

For Intel 32-bit architecture you require a recent Linux operating system distribution with:

- kernel level 2.4.9 or later
- glibc 2.2.4 or later
- RPM 3 or later

For Intel 64-bit architecture you require one of the following Linux operating system distributions:

- Red Hat Linux 7.2
- SuSE Linux SLES-7

For Intel 64-bit architecture the following software is required:

- gcc 3.0.2
- gcc3 libstdc++ runtime libraries

For z-Series architecture you require one of the following Linux operating system distributions:

- Red Hat Linux 7.2
- SuSE Linux SLES-7

Software requirements

- The IBM Developer Kit for Java 1.3.1 is required for DB2 servers, to use the DB2 Control Center or create and run Java applications, including stored procedures and user-defined functions. Only the IBM JDK is supported.
- If you plan to use the Tivoli Storage Manager facilities for backup and restore of your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later.
- A browser is required to view online help.

Communication requirements

TCP/IP is required to access remote databases.

DB2 Administration Server (DAS) requirements

The following requirements must be met:

- A DAS must be created on each physical machine for the Control Center and the Task Center to work properly.
- Each DAS must be created under a userID (same as an instance).
- If the same userID is to be used on all physical machines, then that userID's home directory cannot be shared (cross mounted) with the other machines.
- If a different userID is used for each DAS, then the home directories of the userIDs that are used can be shared (cross mounted).
- As long as a DAS is created on each machine, it does not matter whether:
 - A different userID is used for each DAS, or
 - The same userID is used and that the userID's home directory is not shared.

Installing DB2 products or sharing instance directory on NFS

Currently, we do not support the installation of DB2 products on NFS. Installing DB2 on NFS (for example, NFS mounting /usr/opt/db2_08_01 or /opt/IBM/db2/V8.1) can be error prone and these errors can be difficult to diagnose.

The following configuration is not supported:

- Setting up an instance on a filesystem
- NFS mounting a filesystem from multiple machines, and then run DB2 on these machines using that same instance.

This configuration can cause file locking and performance problems.

Related tasks:

- “Installing a partitioned DB2 server (Linux)” on page 133

Memory requirements for partitioned DB2 servers (UNIX)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required. In a partitioned database environment, the amount of memory required for each database partition server depends heavily on your configuration.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.
- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.
- Memory requirements in a partitioned environment may be affected by system design. Demand for memory on one computer may be greater than the demand on another.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Disk requirements for a partitioned DB2 server (UNIX)

Disk requirements vary depending on your file system and the type of installation you perform. The DB2 Setup wizard provides typical, data warehouse typical, satellite typical, compact, and custom installation types. The following table provides an approximate disk space requirement for each installation type.

Table 14. Disk requirements for a partitioned DB2 server

Installation type	required disk space
Typical	450 to 500MB

Table 14. Disk requirements for a partitioned DB2 server (continued)

Installation type	required disk space
Compact	300 to 350 MB
Custom	200 MB to 800 MB

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Includes graphical tools such as the Control Center and Configuration Assistant.

Compact installation

Only the basic DB2 features and functions are installed. Does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

Remember to include disk space allowance for required software, communication products, and documentation. For DB2 version 8, documentation is provided on separate CD-ROMS.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Modifying kernel parameters (Linux)

Before installing DB2, you may want to update Linux kernel parameters. DB2 will automatically raise the IPC limits where necessary. You may still want to raise these limits depending on your particular needs.

Prerequisites:

You must have root authority to modify kernel parameters.

Procedure:

To update kernel parameters:

RedHat and SuSE

Systems using a 2.4.x series kernel have a default value for the message queue parameter (msgmni), which allows only a few

simultaneous connections to DB2. Semaphore array parameters also have to be changed for DB2 to run successfully. To check shared memory segment, semaphore array, and message queue limits, issue the **ipcs -l** command.

The following is the output from the the **ipcs -l** command.

```
# ipcs -l

----- Shared Memory Limits -----
max number of segments = 4096           // SHMMNI
max seg size (kbytes) = 32768
max total shared memory (kbytes) = 8388608
min seg size (bytes) = 1

----- Semaphore Limits -----
max number of arrays = 1024            // SEMMNI
max semaphores per array = 250
max semaphores system wide = 128000
max ops per semop call = 32
semaphore max value = 32767

----- Messages: Limits -----
max queues system wide = 1024         // MSGMNI
max size of message (bytes) = 65536
default max size of queue (bytes) = 16384 // MSGMAX
```

Modify the kernel parameters by adding the following entries to the default system control configuration file, `/etc/sysctl.conf`:

```
kernel.msgmni = 512
kernel.sem = 250 128000 32 1024
```

where max semaphores system wide = max number of arrays x max semaphores per array. Run `sysctl` with `-p` parameter to load in `sysctl` settings from the default file `/etc/sysctl.conf`.

```
sysctl -p
```

The entries from the `sysctl.conf` file are read during startup by the network initialization script.

On some distributions you may be required to add `sysctl -p` in the one of the system initialization files (for example, `rc.local`) so that kernel parameters are set after each reboot.

Verifying that NFS is running (Linux)

Network File System (NFS) must be running on each computer.

Procedure:

To verify that Network File System (NFS) is running on each computer that will participate in your partitioned database system, enter the following command:

```
showmount -e hostname
```

Entering the **showmount** command without the *hostname* parameter will check the local system.

If NFS is not active you will receive a message similar to the following:

```
showmount: ServerA: RPC: Program not registered
```

Once you have verified that NFS is running on each system, check for the specific NFS processes required by DB2. The required process is `rpc.statd`. You can use the **ps -ef | grep rpc.statd** commands to check for this process.

If this process is not running, consult your Linux distribution documentation.

Creating a file system for a partitioned DB2 server (Linux)

This task is part of the larger task of installing DB2 ESE on Linux.

You must have a file system that is available to all machines that will participate in your partitioned database system. This file system will be used as the instance home directory.

For configurations that use more than one machine for a single database instance, NFS (Network File System) is used to share this file system. Typically, one machine in a cluster is used to export the file system using NFS, and the remaining machines in the cluster mount the NFS file system from this machine. The machine that exports the file system has the file system mounted locally.

For more command information, see your Linux distribution documentation.

Procedure:

To create this file system:

1. On one machine, select a disk partition or create one using **fdisk**.
2. Using a utility like **mkfs**, create a file system on this partition. The file system should be large enough to contain the necessary DB2 program files as well as enough space for your database needs.
3. Locally mount the file system you have just created and add an entry to the `/etc/fstab` file so that this file system is mounted each time the system is rebooted. For example:

```
/dev/hda1    /db2home    ext2    defaults    1 2
```

4. To automatically export an NFS file system on Linux at boot time, add an entry to the `/etc/exports` file. Be sure to include all of the host names participating in the cluster as well as all of the names that a machine might be known as. Also, ensure that each machine in the cluster has root authority on the exported file system by using the "root" option.

The `/etc/exportfs` is an ASCII file which contains the following type of information:

```
/db2home machine1_name(rw) machine2_name(rw)
```

To export the NFS directory, run

```
/usr/sbin/exportfs -r
```

5. On each of the remaining machines in the cluster, add an entry to the `/etc/fstab` file to NFS mount the file system automatically at boot time. As in the following example, when you specify the mount point options, ensure that the file system is mounted at boot time, is read-write, is mounted hard, includes the `bg` (background) option, and that `setuid` programs can be run properly.

```
fusion-en:/db2home /db2home nfs - rw,time0=300,retrans=5,
hard,intr,bg,suid,rw
```

where `fusion-en` represents the machine name.

6. Once you have added a similar entry to the `/etc/fstab` file on each machine (except for the machine acting as the NFS server), NFS mount the exported file system on each of the remaining machines in the cluster by entering the following command:

```
mount /db2home
```

If the mount command fails, use the **showmount** command to check the status of the NFS server. For example:

```
showmount -e fusion-en
```

This **showmount** command should list the file systems which are exported from the machine named `fusion-en`. If this command fails, the NFS server may not have been started. Run the following command as root on the NFS server to start the server manually:

```
/etc/rc.d/init.d/nfs restart
```

Assuming the present run level is 3, you can have this command run automatically at boot time by renaming `K20nfs` to `S20nfs` under the following directory: `/etc/rc.d/rc3.d`.

7. Ensure that the following steps were successful:
 - a. On a single machine in the cluster, you have created a file system to be used as the instance and home directory.

- b. If you have a configuration that uses more than one machine for a single database instance, you have exported this file system using NFS.
- c. You have mounted the exported file system on each of the remaining machines in the cluster.

Related tasks:

- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121

Creating required users for a partitioned DB2 server (Linux)

Three users and groups are required to operate DB2. The user and group names used in the following instructions are documented in the following table. You may specify your own user and group names as long as they adhere to your system naming rules and DB2 naming rules.

Table 15. Required users and groups

Required user	user name	group name
Instance owner	db2inst1	db2iadm1
Fenced user	db2fenc1	db2fadm1
Administration server user	db2as	db2asgrp

If an existing user is used as the Administration server user, this user must also exist on the all participating computers before installation. If you use the DB2 Setup wizard to create a new user for the Administration server on the instance owning computer, then this user will also be created (if necessary) during the response file installations on the participating computers. If the user already exists on the participating computers, it must have the same primary group.

Prerequisites:

- You must have root authority to create users and groups.
- If you manage users and groups with NIS/NIS+ or similar security software, see *NIS/NIS+ considerations* before creating users and groups. Additional steps may be required when defining DB2 users and groups.

Restrictions:

The user names you create must conform to both your operating system’s naming rules, and those of DB2.

Procedure:

To create all three of these users, perform the following steps:

1. Log on to the primary computer.
2. Create a group for the instance owner (for example, db2iadm1), the user that will execute UDFs or stored procedures (for example, db2fadm1), and the Administration Server (for example, db2asgrp) by entering the following commands:

```
groupadd -g 999 db2iadm1
groupadd -g 998 db2fadm1
groupadd -g 997 db2asgrp
```

Ensure that the specific numbers you are using do not currently exist on any of the machines.

3. Create a user that belongs to each group that you created in the previous step using the following commands. The home directory for each user will be the DB2 home directory that you previously created and shared (db2home).

```
useradd -u 1004 -g db2iadm1 -m -d /db2home/db2inst1 db2inst1 -p password1
```

```
useradd -u 1003 -g db2fadm1 -m -d /db2home/db2fenc1 db2fenc1 -p password2
```

```
useradd -u 1002 -g db2asgrp -m -d /db2home/db2as db2as -p password3
```

4. Set an initial password for each user that you created by entering the following commands:

```
passwd db2inst1
passwd db2fenc1
passwd db2as
```

5. Log out.
6. Log on to the primary computer as each user that you created (db2inst1, db2fenc1, and db2as). You may be prompted to change each user's password since this is the first time that these users have logged onto the system.
7. Log out.
8. Create the exact same user and group accounts on each computer that will participate in your partitioned database system. For our example, perform this task on ComputerB, ComputerC, and ComputerD.

Related reference:

- "NIS installation considerations" on page 224

Mounting the DB2 CD-ROM (Linux)

Mounting the DB2 CD-ROM (Linux) is part of the larger task of *Installing DB2*.

You must mount the installation CD-ROM before you can run the DB2 Setup wizard.

Prerequisites:

You must logon with a user ID that has root authority.

Procedure:

Many Linux distributions will automatically mount the CD. The mount point is often `/mnt/cdrom` or `/media/cdrom`. If your mount point is `/mnt/cdrom`, enter the following command:

```
mount /mnt/cdrom
```

Some distributions disable execute privileges on CD-ROM devices by default. To mount with execute permission at mount point `/mnt/cdrom`, issue the following command as root:

```
mount -o exec /mnt/cdrom
```

If your CD-ROM was not automatically mounted, enter:

```
mount -t iso9660 -o ro /dev/cdrom /mnt/cdrom
```

where `/mnt/cdrom` represents the mount point of the CD-ROM.

Related tasks:

- “Starting the DB2 Setup wizard (Linux)” in the *Quick Beginnings for DB2 Personal Edition*

Copying the contents of the DB2 product CD-ROM to your computer

This task describes the steps for copying the contents of the DB2 ESE product CD-ROM to the shared DB2 home file system. Copying the contents of the DB2 CD-ROM is a step unique to partitioned installations of DB2. Because you are likely to be installing DB2 to multiple computers simultaneously, installing from hard disk is significantly faster than installing from a CD-ROM. This method is recommended for any system that includes more than four computers.

The alternative is to NFS mount the CD-ROM file system from each computer. You may want to mount the CD-ROM from each computer if you do not have enough disk space on the DB2 home file system or if you are installing on fewer than four computers.

Procedure:

To mount the DB2 installation CD and copy the contents

1. Create a directory on your `/db2home` file system for the DB2 product CD-ROM:

```
mkdir /db2home/db2cdrom
```

2. Copy the contents of the CD-ROM to directory that you created:

```
cp -R /cdrom /db2home/db2cdrom
```

Preparing for installation (Solaris Operating Environment)

Installing a partitioned DB2 server (Solaris)

This topic outlines steps for installing a partitioned DB2 Enterprise Server Edition server on Solaris Operating Environment.

Prerequisites:

Ensure that your computer meets the following requirements:

- Installation requirements for partitioned DB2 servers
- Memory requirements for partitioned DB2 servers
- Disk requirements for partitioned DB2 servers
- Groups and user accounts for DB2 installations
- A filesystem with 2 GB of free space to contain the tar.Z file and the uncompressed installation image (in addition to the software disk requirements).

See the Related references for more information.

Procedure:

It is recommended that you read the Installation overview for partitioned DB2 servers prior to beginning the installation.

To install DB2 ESE (partitioned) on Solaris:

1. Install the appropriate Solaris Operating Environment patches.
2. Modify kernel parameters for DB2. Reboot your machine.
3. Verify that NFS is running.
4. Create a file system for a partitioned database system.
5. Create required users for a partitioned DB2 ESE installation.
6. Mount the DB2 CD-ROM.
7. *Optional:* Copy the contents of the DB2 product CD-ROM to your computer.
8. Install a database partition server on the primary computer using the DB2 Setup wizard.
9. Install database partition server on participating computers using a response file.

10. Update the node configuration file (db2nodes.cfg).
11. Enable communication between database partition servers.
12. Enable the execution of remote commands.
13. Enable Control Center Administration.
14. *Optional:* Apply the latest FixPak.
15. *Optional:* Verify the partitioned database installation.
16. *Optional:* Install the DB2 documentation.

Related concepts:

- “Installation overview for a partitioned DB2 server (UNIX)” on page 12

Related tasks:

- “Modifying kernel parameters (Solaris)” on page 77
- “Verifying that NFS is running (Solaris)” on page 151
- “Creating a file system for a partitioned DB2 server (Solaris Operating Environment)” on page 151
- “Creating required users for a partitioned DB2 server (Solaris)” on page 154
- “Mounting the CD-ROM (Solaris)” on page 77
- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121
- “Installing a database partition server on the primary computer using the DB2 Setup wizard (UNIX)” on page 157
- “Installing database partition servers on participating computers using a response file (UNIX)” on page 162
- “Updating the node configuration file (UNIX)” on page 163
- “Enabling communications between database partition servers” on page 165
- “Enabling the execution of remote commands (UNIX)” on page 166
- “Enabling Control Center administration (UNIX)” on page 167
- “Applying the latest FixPak” on page 52
- “Verifying a partitioned database server installation (UNIX)” on page 168
- “Installing DB2 online documentation (UNIX)” on page 82
- “Creating group and user IDs for a DB2 installation” on page 239

Related reference:

- “Disk requirements for a partitioned DB2 server (UNIX)” on page 113
- “Memory requirements for partitioned DB2 servers (UNIX)” on page 112
- “Installation requirements for partitioned DB2 servers (Solaris Operating Environment)” on page 147

Requirements

Installation requirements for partitioned DB2 servers (Solaris Operating Environment)

This topic lists hardware, operating system, software and communication requirements for a partitioned DB2 server (Solaris Operating Environment).

Hardware requirements

Solaris UltraSPARC-based computer

Operating system requirements

DB2 Enterprise Server Edition is supported on the following Solaris Operating Environment versions:

- Solaris 7 (32-bit) patch 106327-10
- Solaris 7 (64-bit) patch 106300-11
- Solaris 8 (32-bit) patches 108434-03 and 108528-12
- Solaris 8 (64-bit) patches 108435-03 and 108528-12
- Solaris 9 (32-bit)
- Solaris 9 (64-bit)

The following patches are also required to support Java:

- Solaris 7 "Recommended & Security Patches" + 107226-17 + 107153-01
- Solaris 8 "Recommended & Security Patches" + 108921-12 + 108940-24

Software requirements

- You will need a Java Runtime Environment (JRE) Version 1.3.1 to run DB2's Java-based tools, such as the Control Center. If you are running in a 64-bit environment, you will need JRE Version 1.4.
- If you plan to use the Tivoli Storage Manager facilities for backup and restore of your databases, you require the Tivoli Storage Manager Client Version 4.2.0 or later. If you are running in a 64-bit environment, you will need Tivoli Storage Manager Client Version 4.2.1 or later.
- A browser is required to view online help.

Communication requirements

APPC, or TCP/IP. You can only use TCP/IP to remotely administer databases.

- For TCP/IP connectivity, no additional software is required.

- For APPC (CPI-C) connectivity, through the DB2 Connect server support feature, you require SunLink SNA 9.1 or later, and the following communication products:
 - SunLink P2P LU6.2 9.0 or later
 - SunLink PU2.1 9.0 or later
 - SunLink P2P CPI-C 9.0 or later

DB2 Version 8 servers, with DB2 Connect server support, only support outbound client APPC requests; there is no support for inbound client APPC requests.

DB2 Administration Server (DAS) requirements

The following requirements must be met:

- A DAS must be created on each physical machine for the Control Center and the Task Center to work properly.
- Each DAS must be created under a userID (same as an instance).
- If the same userID is to be used on all physical machines, then that userID's home directory cannot be shared (cross mounted) with the other machines.
- If a different userID is used for each DAS, then the home directories of the userIDs that are used can be shared (cross mounted).
- As long as a DAS is created on each machine, it does not matter whether:
 - A different userID is used for each DAS, or
 - The same userID is used and that the userID's home directory is not shared.

Installing DB2 products or sharing instance directory on NFS

Currently, we do not support the installation of DB2 products on NFS. Installing DB2 on NFS (for example, NFS mounting /usr/opt/db2_08_01 or /opt/IBM/db2/V8.1) can be error prone and these errors can be difficult to diagnose.

The following configuration is not supported:

- Setting up an instance on a filesystem
- NFS mounting a filesystem from multiple machines, and then run DB2 on these machines using that same instance.

This configuration can cause file locking and performance problems.

Related tasks:

- “Installing a partitioned DB2 server (Solaris)” on page 145

Memory requirements for partitioned DB2 servers (UNIX)

At a minimum, DB2 requires 256 MB of RAM. Additional memory may be required. In a partitioned database environment, the amount of memory required for each database partition server depends heavily on your configuration.

When determining memory requirements, be aware of the following:

- Additional memory may be required for non-DB2 software that may be running on your system.
- Additional memory is required to support database clients.
- Specific performance requirements may determine the amount of memory needed.
- Memory requirements will be affected by the size and complexity of your database system.
- Memory requirements will be affected by the extent of database activity and the number of clients accessing your system.
- Memory requirements in a partitioned environment may be affected by system design. Demand for memory on one computer may be greater than the demand on another.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Disk requirements for a partitioned DB2 server (UNIX)

Disk requirements vary depending on your file system and the type of installation you perform. The DB2 Setup wizard provides typical, data warehouse typical, satellite typical, compact, and custom installation types. The following table provides an approximate disk space requirement for each installation type.

Table 16. Disk requirements for a partitioned DB2 server

Installation type	required disk space
Typical	450 to 500MB
Compact	300 to 350 MB
Custom	200 MB to 800 MB

Typical installation

DB2 is installed with most features and functionality, using a typical configuration. Includes graphical tools such as the Control Center and Configuration Assistant.

Compact installation

Only the basic DB2 features and functions are installed. Does not include graphical tools.

Custom installation

A custom installation allows you to select the features you want to install.

Remember to include disk space allowance for required software, communication products, and documentation. For DB2 version 8, documentation is provided on separate CD-ROMS.

Related tasks:

- “Installing a partitioned DB2 server (AIX)” on page 109
- “Installing a partitioned DB2 server (HP-UX)” on page 122
- “Installing a partitioned DB2 server (Linux)” on page 133
- “Installing a partitioned DB2 server (Solaris)” on page 145

Modifying kernel parameters (Solaris)

Before installing DB2 it is recommended that you update your system kernel configuration parameters. Refer to the *Solaris kernel configuration parameters* topic for recommended values.

You must restart your system after modifying kernel parameters.

Prerequisites:

You must have root authority to modify kernel parameters.

Procedure:

To set a kernel parameter, add a line at the end of the `/etc/system` file as follows:

```
set parameter_name = value
```

For example, to set the value of the `msgsys:msginfo_msgmax` parameter, add the following line to the end of the `/etc/system` file:

```
set msgsys:msginfo_msgmax = 65535
```

After updating the `/etc/system` file, restart the system.

Related concepts:

- “db2osconf - Utility for Kernel Parameter Values Command” in the *Command Reference*

Related reference:

- “Recommended Solaris kernel configuration parameters” on page 223

Verifying that NFS is running (Solaris)

Network File System (NFS) must be running on each computer.

Procedure:

To verify that Network File System (NFS) is running on each computer that will participate in your partitioned database system, enter the following command:

```
showmount -e hostname
```

Entering the showmount command without the *hostname* parameter will check the local system. If NFS is not active you will receive a message similar to the following:

```
showmount: ServerA: RPC: Program not registered
```

Once you have verified that NFS is running on each system, check for the specific NFS processes required by DB2. The required processes are:

```
rpc.lockd  
rpc.statd
```

You can use the following commands to check for these processes:

```
ps -ef grep | rpc.lockd  
ps -ef grep | rpc.statd
```

Related tasks:

- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121

Creating a file system for a partitioned DB2 server (Solaris Operating Environment)

This task describes how to create a DB2 home file system, NFS export the home file system, and NFS mount the home file system from each participating computer.

It is recommended that you create a home file system that is 1 GB in size or greater. Later installation instructions will ask that you copy the contents of the DB2 product CD-ROM to a directory on your DB2 home file system. The

DB2 product CD-ROM will temporarily occupy approximately 700 MB of space. A DB2 instance will require at least 50 MB of space. If you do not have 1 GB of free space, you can mount the DB2 product CD-ROM from each participating computer as an alternative to copying the contents to disk.

There are a number of ways to create a local file system on a Solaris Operating Environment system. If you want to use a product, such as Veritas, to create the file system, refer to the product's documentation.

Prerequisites:

You must have root authority to create a file system.

Procedure:

To create, NFS export, and NFS mount the DB2 home file system, perform the following steps:

Creating the DB2 home file system

1. On the primary computer (SeverA), select a disk partition or configure one using the **format** command. When using the **format** command, ensure that the disk partitions being used do not overlap. Overlapping partitions can cause data corruption or file system failures. Ensure you have correctly entered the command, as mistakes can cause serious problems.
2. Using a utility like **newfs** or **mkfs**, create a file system on this partition. The file system should be large enough to contain the necessary DB2 files as well as other non-DB2 files. A minimum of 300 MB is recommended.
3. Locally mount the file system you have just created and add an entry to the `/etc/vfstab` file so that this file system is mounted each time the system is rebooted. For example:

```
/dev/dsk/c1t0d2s2 /dev/rdisk/c1t0d2s2 /db2home ufs 2 yes -
```

Exporting the DB2 home file system

1. To automatically export an NFS file system on Solaris at boot time, add an entry to the `/etc/dfs/dfstab` file. Be sure to include all of the host names of the participating computers as well as all of the names that a given computer might be known as. Also, ensure that each computer has root authority on the exported file system by using the "root" option.

In the following example, an entry for a four computer partitioned database system is added to the `/etc/dfs/dfstab` file. The participating computers, ServerB, ServerC, and ServerD, are given permission to mount the file system `/db2home`, which will be used as the DB2 home file system.

```

share -F nfs -o \
rw=ServerB.torolab.ibm.com, \
root=ServerB.torolab.ibm.com \

rw=ServerC.torolab.ibm.com, \
root=ServerC.torolab.ibm.com\

rw=ServerD.torolab.ibm.com, \
root=ServerD.torolab.ibm.com \
-d "homes" /db2home

```

If a computer is known by more than one hostname, all aliases must be included in the `/etc/dfs/dfstab` file. For example, if ServerB was also known by the name ServerB-tokenring, the entry in the `/etc/dfs/dfstab` for ServerB would appear as follows:

```

rw=ServerB.torolab.ibm.com:ServerB-tokenring.torolab.ibm.com, \
root=ServerB.torolab.ibm.com:ServerB-tokenring.torolab.ibm.com \

```

2. On each of the participating computers, add an entry to the `/etc/vfstab` file to NFS mount the file system automatically at boot time. As in the following example, when you specify the mount point options, ensure that the file system is mounted at boot time, is read-write, is mounted hard, includes the `bg` (background) option, and that `suid` programs can be run properly:
ServerA:/db2home - /db2home nfs - yes rw,hard,intr,bg,suid

Mounting the DB2 home file system from each participating computer

1. Once you have added a similar entry to the `/etc/vfstab` file on each computer (except for the computer acting as the NFS server), create and NFS mount the exported file system on each of the participating computers in the partitioned database environment by entering the following commands:

```

mkdir /db2home
mount /db2home

```

If the `mount` command fails, use the `showmount` command to check the status of the NFS server. For example:

```

showmount -e ServerA

```

This `showmount` command should list the file systems which are exported from the computer named ServerA. If this command fails, the NFS server may not have been started. To start the server manually, run the following commands as root on the NFS server:

```

/usr/lib/nfs/mountd
/usr/lib/nfs/nfsd -a 16

```

These commands are run automatically at boot time if there are any entries in the `/etc/dfs/dfstab` file. After starting the NFS server, export the NFS file system again by running the following command:

```
sh /etc/dfs/dfstab
```

Ensure that you have completed the following steps:

1. On a single computer in the partitioned database environment, you have created a file system to be used as the instance and home directory.
2. You have exported this file system via NFS.
3. You have mounted the exported file system on each participating computer.

Related tasks:

- “Copying the contents of the DB2 product CD-ROM to your computer” on page 121

Creating required users for a partitioned DB2 server (Solaris)

Three users and groups are required to operate DB2. The user and group names used in the following instructions are documented in the following table. You may specify your own user and group names as long as they adhere to your system naming rules and DB2 naming rules.

Table 17. Required users and groups

Required user	user name	group name
Instance owner	db2inst1	db2iadm1
Fenced user	db2fenc1	db2fadm1
Administration server user	db2as	db2asgrp

If an existing user is used as the Administration server user, this user must also exist on the all participating computers before installation. If you use the DB2 Setup wizard to create a new user for the Administration server on the instance owning computer, then this user will also be created (if necessary) during the response file installations on the participating computers. If the user already exists on the participating computers, it must have the same primary group.

Prerequisites:

- You must root authority to create users and groups.
- If you manage users and groups with NIS/NIS+ or similar security software, see *NIS/NIS+ considerations* before creating users and groups.

Restrictions:

The user names you create must conform to both your operating system's naming rules, and those of DB2.

Procedure:

To create all three of these users, perform the following steps:

1. Log on to the primary computer.
2. Create a group for the instance owner (for example, db2iadm1), the user that will execute UDFs or stored procedures (for example, db2fadm1), and the Administration Server (for example, db2asgrp) by entering the following commands:

```
groupadd id=999 dbiadm1
groupadd id=998 db2fadm1
groupadd id=997 db2asgrp
```
3. Create a user for each group using the following commands. The home directory for each user will be the DB2 home directory that you previously created and shared (/db2home).

```
useradd -g db2iadm1 -d /home/db2inst1 -m db2inst1 passwd mypasswd
useradd -g db2fadm1 -d /home/db2fenc1 -m db2inst1 passwd mypasswd
useradd -g dbasgrp -d /home/db2fenc1 -m db2inst1 passwd mypasswd
```
4. Set an initial password for each user that you created by entering the following commands:

```
passwd db2inst1
passwd db2fenc1
passwd db2as
```
5. Log out.
6. Log on to the primary computer as each user that you created (db2inst1, db2fenc1, and db2as). You may be prompted to change each user's password since this is the first time that these users have logged onto the system.
7. Log out.
8. Create the exact same user and group accounts on each computer that will participate in your partition database system. For our example, perform this task on ComputerB, ComputerC, and ComputerD.

Related reference:

- "NIS installation considerations" on page 224

Mounting the CD-ROM (Solaris)

Prerequisites:

If you are mounting the CD-ROM drive from a remote system using NFS, the CD-ROM file system on the remote computer must be exported with root access. You must also mount that file system with root access on the local computer.

Procedure:

To mount the CD-ROM on Solaris Operating Environment:

1. Log in as a user with root authority.
2. Insert the CD-ROM into the drive.
3. If the Volume Manager is not running on your system, enter the following commands to mount the CD-ROM:

```
mkdir -p /cdrom/unnamed_cdrom
mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom/unnamed_cdrom
```

where `/cdrom/unnamed_cdrom` represents the CD-ROM mount directory and `/dev/dsk/c0t6d0s2` represents the CD-ROM drive device.

If the Volume Manager (`vold`) is running on your system, the CD-ROM is automatically mounted as:

```
/cdrom/unnamed_cdrom
```

4. Log out.

Your CD-ROM file system is now mounted. To view the contents of the CD-ROM, place the disk in the drive and enter the `cd /cdrom` command where `cdrom` is the CD-ROM mount point directory.

Copying the contents of the DB2 product CD-ROM to your computer

This task describes the steps for copying the contents of the DB2 ESE product CD-ROM to the shared DB2 home file system. Copying the contents of the DB2 CD-ROM is a step unique to partitioned installations of DB2. Because you are likely to be installing DB2 to multiple computers simultaneously, installing from hard disk is significantly faster than installing from a CD-ROM. This method is recommended for any system that includes more than four computers.

The alternative is to NFS mount the CD-ROM file system from each computer. You may want to mount the CD-ROM from each computer if you do not have enough disk space on the DB2 home file system or if you are installing on fewer than four computers.

Procedure:

To mount the DB2 installation CD and copy the contents

1. Create a directory on your /db2home file system for the DB2 product CD-ROM:

```
mkdir /db2home/db2cdrom
```

2. Copy the contents of the CD-ROM to directory that you created:

```
cp -R /cdrom /db2home/db2cdrom
```

Partitioned DB2 server installation and setup (UNIX)

Installing a database partition server on the primary computer using the DB2 Setup wizard (UNIX)

This task describes how to launch the DB2 Setup wizard and install a DB2 ESE database partition server on the primary computer in your partitioned system. Information is provided for specific DB2 Setup wizard panels that are key to setting up your partitioned database system. Not all of the DB2 Setup wizard panels are documented in this topic. Use the DB2 Setup wizard installation help when in doubt.

Prerequisites:

You must have root authority to install DB2.

Refer to the CD-ROM label to ensure that you are using the CD-ROM with your appropriate language.

During instance creation a number of ports equal to the number of logical nodes that the instance is capable of supporting will be reserved in the /etc/services. These ports will be used by the Fast Communication Manager. The reserved ports will be in the following format:

```
DB2_InstanceName  
DB2_InstanceName_1  
DB2_InstanceName_2  
DB2_InstanceName_END
```

The only mandatory entries are the beginning (DB2_InstanceName) and ending (DB2_InstanceName_END) ports. The other entries are reserved in the services file so that other applications do not use these ports.

Procedure:

To install DB2 ESE on the primary computer using the DB2 Setup wizard:

1. On AIX, HP-UX and Linux, from the directory on the /db2home file system where you copied the contents of the DB2 product CD-ROM, enter the **db2setup** command to start the DB2 Setup wizard. On the Solaris Operating Environment, from the directory on the /db2home file system

where you copied the contents of the DB2 product CD-ROM, enter the following command to start the DB2 Setup wizard:

```
zcat product.tar.Z | tar -xf - ; ./product/db2setup
```

 command

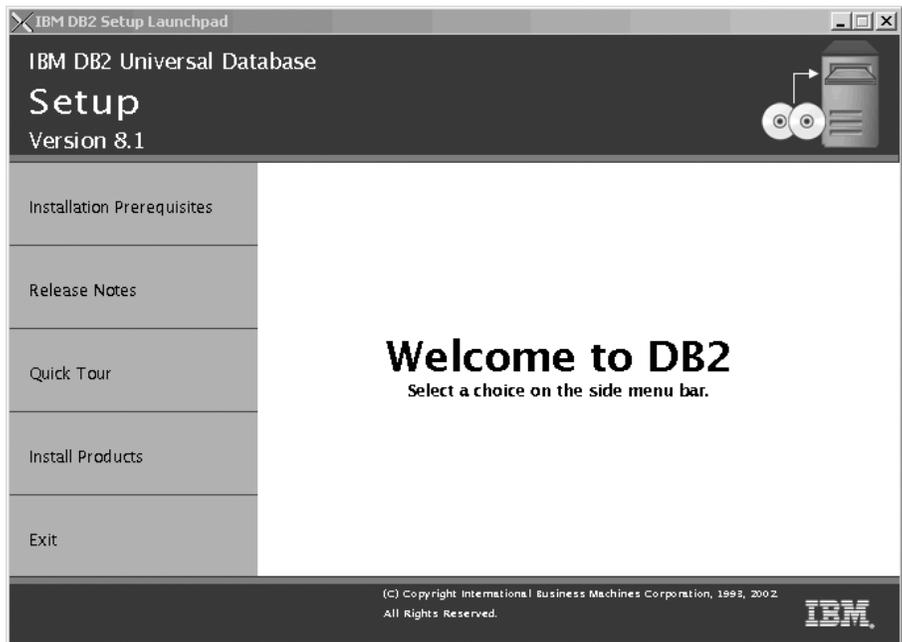
For example, if the product name for DB2 Enterprise Server Edition is *ese*, then enter the following command:

```
zcat ese.tar.Z | tar -xf - ; ./ese/db2setup
```

For example:

```
/db2home/db2cdrom/db2setup
```

After a few moments, the DB2 Version 8 Installation Launchpad opens.



From the DB2 Launchpad, you can view the Installation Prerequisites and Release Notes. You can also take a Quick Tour to learn about DB2 Version 8 features.

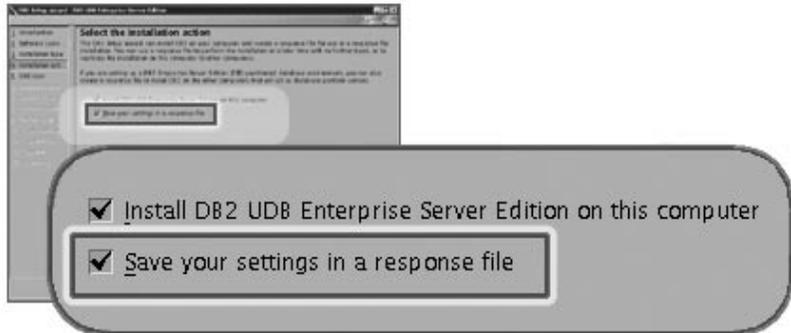
2. When you have finished viewing Launchpad information, proceed with the installation.

The following list provides information about specific DB2 Setup wizard installation panels and the selections you must make to correctly install DB2 ESE on your primary computer.

Select the installation action

On the *Select the installation action* panel, you must select both **Install DB2 UDB Enterprise Server Edition on this computer** and **Save your**

setting to a response file. The response file will be used to install DB2 on participating computers.



Set user information for the DB2 Administration Server (DAS)

On the *Set user information for the DB2 Administration Server (DAS)* panel you must select the DAS user that you created when you prepared your environment for installation. To do this, select the **Existing user** radio button and enter the user or use the ... button to locate the DAS user you previously created.



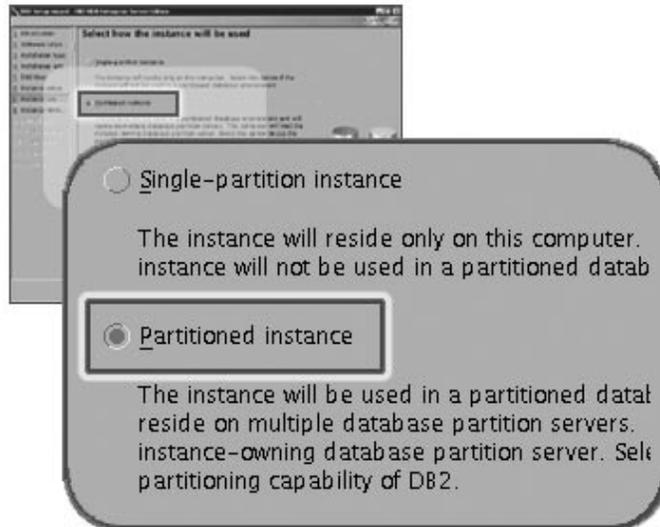
Set up a DB2 instance

On the *Set up a DB2 instance* panel, select **Create a DB2 instance**.

Select how this instance will be used

On the *Select how this instance will be used* panel, you must select

Partitioned instance.



Set user information for the DB2 instance

On the *Set user information for the DB2 instance* panel, you must select the instance owner that you created when you prepared your environment for installation. To do this, select the **Existing user** radio button and enter the user or use the ... button to select the instance owner.



Set user information for the fenced user

On the *Set user information for the fenced user* panel, select the existing fenced user that you created when you prepared your environment for installation. Select the Existing user radio button and enter the

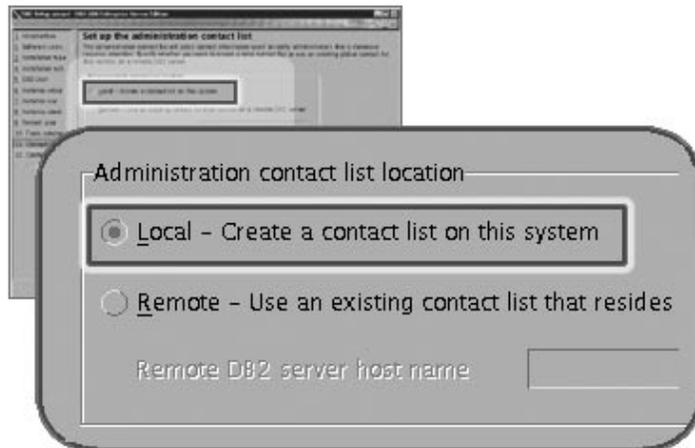
user or use the ... button to select the fenced user.



Set up an administration contact list panel

On the *Set up an administration contact list panel*, select **Local**. This selection will create a file on the primary computer that will store contact information for your system.

The contact information is used by DB2 to send notifications and alerts to a system administrator. You can specify notification and alert parameters after setup is complete. Participating computers will remotely access this contact list on the primary computer.



Start copying files

On the *Start copying files panel* you must specify a location and name for two response files. The first response file is for installing a replica of the primary computer installation. The second response file is for installing database partition servers on participating computers. You

can place the first response file where you like. The second response file, which we have named `AddPartitionResponse.file`, must be saved to the `/db2home` directory, where it will be accessible to participating computers.



Response file name

`/db2home/EseResponse.file`

Response file name for additional database

`/db2home/AddPartitionResponse.file`

The next step in installing an ESE partitioned database system is to use the response file you created (`AddPartitionResponse.file`) to install database partition servers on the participating computers.

Related reference:

- “Supported DB2 interface languages, locales, and code pages” on page 246
- “db2setup - Install DB2” on page 235

Installing database partition servers on participating computers using a response file (UNIX)

This task is part of the larger task of *Installing a DB2 ESE partitioned server*.

In this task you will use the response file you created using the DB2 Setup wizard to install database partition servers on participating computers.

Prerequisites:

- You have installed DB2 on the primary computer using the DB2 Setup wizard and have created a response file for installing on participating computers.
- You must have root authority on participating computers.

Procedure:

To install additional database partition servers using a response file:

1. As root, log on to a computer that will participate in the partitioned database environment.
2. Change to the directory where you copied the contents of the DB2 product CD-ROM:

```
cd /db2home/db2cdrom
```

3. Enter the `./db2setup` command as follows:

```
./db2setup -r /responsefile_directory/response_file_name
```

In our example, we saved the response file, `AddPartitionResponse.file`, to the `/db2home` directory. The command for our example, would be:

```
./db2setup -r /db2home/AddPartitionResponse.file
```

4. Check the messages in the log file when the installation finishes. The location of the log file is: `/tmp/db2setup.log`

You must log onto each participating computer and perform a response file installation.

Related tasks:

- “Installing a database partition server on the primary computer using the DB2 Setup wizard (UNIX)” on page 157

Updating the node configuration file (UNIX)

The node configuration file (`db2nodes.cfg`), located in the instance owner’s home directory contains configuration information that tells DB2 which database partition servers participate in an instance. There is a `db2nodes.cfg` file for each instance in a partitioned database environment.

The `db2nodes.cfg` file must contain one entry for each database partition server that will participate in the instance. When you create an instance, the `db2nodes.cfg` file is automatically created and an entry for the instance-owning database partition server is added.

For example, when you created the DB2 instance using the DB2 Setup wizard, on the primary computer `ServerA`, the `db2nodes.cfg` file was updated as follows:

```
0      ServerA      0
```

This task provides steps for updating the `db2nodes.cfg` file to include entries for participating computers.

Prerequisites:

- DB2 must be installed on all participating computers.
- A DB2 instance must exist on the primary computer.
- You must be a user with SYSADM authority.
- If you plan to use a high speed switch for communication between database partition servers or if your partitioned configuration will have logical database partition servers, review the *DB2 node configuration file* topic for configuration examples and information about file format of `db2nodes.cfg`.

Procedure:

To update the `db2nodes.cfg` file:

1. Log on as the instance owner (in our example, `db2inst1` is the instance owner).
2. Ensure that the DB2 instance is stopped by entering:

```
INSTHOME/sql11ib/adm/db2stop
```

command, where *INSTHOME* is the home directory of the instance owner (the `db2nodes.cfg` file is locked when the instance is running and can only be edited when the instance is stopped).

For example, if your instance home directory is `/db2home/db2inst1`, enter the following command:

```
/db2home/db2inst1/sql11ib/adm/db2stop
```

3. Add an entry to the `db2nodes.cfg` file for each database partition server. When you first view the `db2nodes.cfg` file, it should contain an entry, similar to the following:

```
0      ServerA      0
```

This entry includes the database partition server number (node number), the TCP/IP host name of the server where the database partition server resides, and a logical port number for the database server partition.

If you are installing the partitioned configuration described in the installation overview, with four computers and a database partition server on each computer, the updated `db2nodes.cfg` should appear similar to the following:

```
0      ServerA      0
1      ServerB      0
2      ServerC      0
3      ServerD      0
```

4. When you have finished updating the `db2nodes.cfg` file, enter the *INSTHOME*/**`sql11ib/adm/db2start`** command, where *INSTHOME* is the

home directory of the instance owner. For example, if your instance home directory is `/db2home/db2inst1`, enter the following command:

```
/db2home/db2inst1/sqllib/adm/db2start
```

5. Log out.

Related reference:

- “DB2 node configuration file (db2nodes.cfg)” on page 220

Enabling communications between database partition servers

This task describes how to enable communication between the database partition servers that participate in your partitioned database system. Communication between database partition servers is handled by the Fast Communications Manager (FCM). To enable FCM, a port or port range must be reserved in the `/etc/services` file on each computer in your partitioned database system.

You must perform this task on participating computers only. When you create an instance using the DB2 Setup wizard, a port range is automatically reserved on the primary (instance-owning) computer.

Procedure:

1. Log on to the primary computer (instance owning computer) as a user with root authority.
2. View the default port range that has been reserved in the `/etc/services` file. It should appear similar to the following:

```
DB2_db2inst1      60000/tcp
DB2_db2inst1_1   60001/tcp
DB2_db2inst1_2   60002/tcp
DB2_db2inst1_END 60003/tcp.
```

By default, the first available four ports above 60000 are reserved. One for the instance-owning database partition server and three for logical database partition servers that you might choose to add to the computer after installation is complete.

DB2 port entries use the following format:

```
DB2_instance_name    port_number
```

where:

- *instance_name* is the name of the partitioned instance.
 - *port_number* is the port number that you reserve for database partition server communications.
3. In turn, log onto each participating computer as a root user and add identical entries to the `/etc/services` file.

You can add a comment to describe each entry using the # comment identifier. For example:

```
DB2_db2inst1      60000/tcp  # instance-owning partition port
DB2_db2inst1_1   60001/tcp  # logical partition port
DB2_db2inst1_2   60002/tcp  # logical partition port
DB2_db2inst1_END 60003/tcp  # logical partition port
```

Related concepts:

- “Fast Communications Manager (UNIX)” on page 232

Related reference:

- “DB2 node configuration file (db2nodes.cfg)” on page 220

Enabling the execution of remote commands (UNIX)

In a partitioned database system, each database partition server must have the authority to perform remote commands on all the other database partition servers participating in an instance. This can be done by updating the .rhosts file in the home directory for the instance. Because the home directory for the instance is on the shared DB2 home file system, only one .rhosts file is required.

Prerequisites:

- You must have root authority.
- You must know the hostname of each participating computer
- You must know the instance owner’s user name.

Procedure:

1. Log onto the primary computer as a user with root authority.
2. Create a .rhosts file in the instance home directory. For example, if your instance home directory is /db2home/db2inst1, you can use an editor such as vi to create the .rhosts file by entering the following command:

```
vi /db2home/db2inst1/.rhosts
```

3. Add entries to the .rhosts file for each computer including the primary computer. The .rhosts file has the following format:

```
hostname  instance_owner_user_name
```

Some systems may require a long host name to be specified, for example: ServerA.yourdomain.com. Before you add hostname entries to the .rhosts file, make sure the hostnames in the /etc/hosts and the /etc/resolv.conf files can be resolved.

The *INSTHOME*/.rhosts file, should contain entries similar to the following:

```
ServerA.yourdomain.com db2inst1
ServerB.yourdomain.com db2inst1
ServerC.yourdomain.com db2inst1
ServerD.yourdomain.com db2inst1
```

Rather than specify each hostname individually, you may specify the following entry in the `.rhosts` file, but this may pose a security risk and should only be done in a test environment.

```
+ db2inst1
```

If you have specified a high speed switch (netname) in the `db2nodes.cfg` file, you should also add netname entries for each computer to the `.rhosts` file. The netname values are specified in the fourth column of the `db2nodes.cfg` file. A `.rhosts` file with high speed switch (netname) entries may look similar to the following:

```
ServerA.yourdomain.com db2inst1
ServerB.yourdomain.com db2inst1
ServerC.yourdomain.com db2inst1
ServerD.yourdomain.com db2inst1
Switch1.yourdomain.com db2inst1
Switch2.yourdomain.com db2inst1
Switch3.yourdomain.com db2inst1
Switch4.yourdomain.com db2inst1
```

An alternative to using a `.rhosts` file is to use `/etc/hosts.equiv` file. The `/etc/hosts.equiv` file would contain the exact same entries as the `.rhosts` file, but must be created on each computer.

For more information about the `.rhosts` file or the `/etc/hosts.equiv` file, see your operating system documentation.

Enabling Control Center administration (UNIX)

Before you can use the Control Center to administer your partitioned database system, you must start the DB2 Administration server on all computers.

Procedure: To enable Control Center administration for a partitioned database system:

Start the DB2 Administration Server on each computer

1. In turn, log on to each computer (ServerA, ServerB, ServerC, ServerD) as the DB2 Administration Server user. In our example, `db2as` is the DAS user.
2. Enter the following command to start the DB2 Administration Server:

```
/DASHOME/das/bin/db2admin start
```

where *DASHOME* is the home directory for the DB2 Administration Server. In our example, the *DASHOME* is /db2home/db2as.

Applying the latest FixPak

Applying the latest FixPak is optionally part of the larger task of installing DB2 products.

A DB2 FixPak contains updates and fixes for bugs (Authorized Program Analysis Reports, or "APARs") found during testing at IBM, as well as fixes for bugs reported by customers. Every FixPak is accompanied by a document, called APARLIST.TXT, that describes the bug fixes it contains.

FixPaks are cumulative. This means that the latest FixPak for any given version of DB2 contains all of the updates from previous FixPaks for the same version of DB2. We recommend that you keep your DB2 environment running at the latest FixPak level to ensure problem-free operation.

When installing a FixPak on a partitioned ESE system, all participating computers must have the same FixPak installed while the system is offline.

Prerequisites:

Each FixPak may have specific prerequisites. See the FixPak README that accompanies the FixPak for more information.

Procedure:

1. Download the latest DB2 FixPak from the IBM DB2 UDB and DB2 Connect Online Support Web site at <http://www.ibm.com/software/data/db2/udb/winos2unix/support>.
2. Each FixPak contains a set of Release Notes and a README. The README provides instructions for installing the FixPak.

Verifying a partitioned database server installation (UNIX)

To verify that your DB2 server installation was successful, you will create a sample database and run SQL commands to retrieve sample data and to verify that the data has been distributed to all participating database partition servers.

Prerequisites:

You have completed all of the installation steps.

Procedure:

To create the SAMPLE database:

1. Log on to the primary computer (ServerA). as the instance-owning user. In our installation example, db2inst1 is the instance-owning user.
2. Enter the **db2sampl** command to create the SAMPLE database. By default, the sample database will be created in the instance-owner's home directory. In our example /db2home/db2inst1/ is the instance owner's home directory. The instance owner's home directory is the default database path.

This command may take a few minutes to process. There is no completion message; when the command prompt returns, the process is complete.

The SAMPLE database is automatically cataloged with the database alias SAMPLE when it is created.

3. Start the database manager by entering the **db2start** command.
4. Enter the following DB2 commands from a DB2 command window to connect to the SAMPLE database, retrieve a list of all the employees that work in department 20:

```
db2 connect to sample
db2 "select * from staff where dept = 20"
```

5. To verify that data has been distributed across database partition servers, enter the following commands from a DB2 command window:
select distinct dbpartitionnum(empno) from employee;

The output will list the database partitions used by the employee table. The specific output will depend on the number of partitions in the database and the number of partitions in the partition group that is used by the tablespace where the employee table was created.

After you have verified the installation, you can remove the SAMPLE database to free up disk space. Enter the **db2 drop database sample** command to drop the SAMPLE database.

Installing DB2 online documentation (UNIX)

This task describes how to install the DB2 online documentation using the DB2 Setup wizard on UNIX. The DB2 online documentation is installed separately from other DB2 products from it's own CD-ROM.

Prerequisites:

Before you start the DB2 Setup wizard

- You require root authority to perform the installation.
- The DB2 product CD-ROM must be mounted on your system.

- The DB2 Setup wizard is a graphical installer. In order for it to run on your machine, you must have Xwindow software capable of rendering a graphical user interface.
- A Java Runtime Environment (JRE) must already be installed.

Procedure:

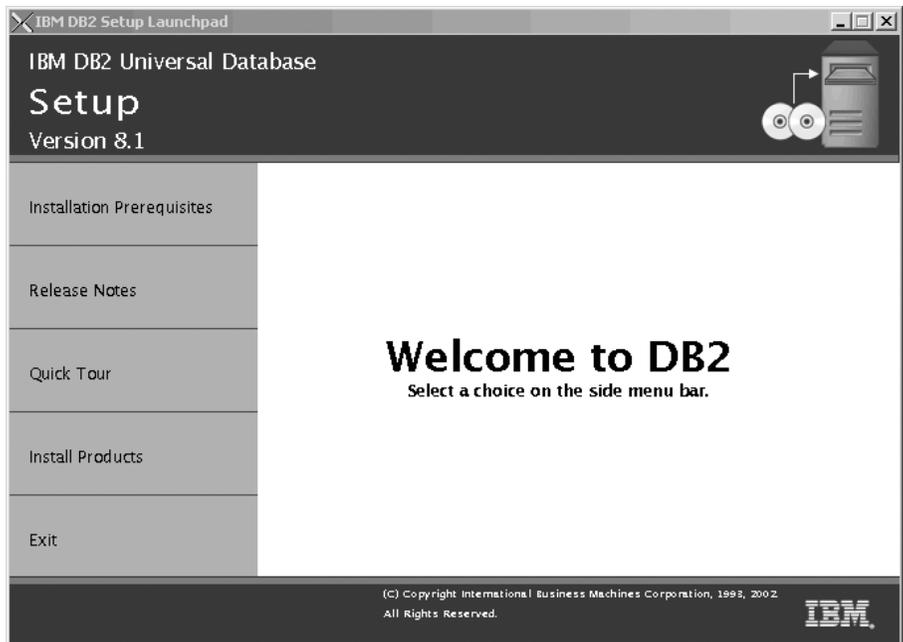
To install the DB2 online information using the DB2 Setup wizard:

1. Log on to the system as a user with root authority.
2. Change to the directory where the CD-ROM is mounted by entering the following command:

```
cd /cdrom
```

where */cdrom* represents mount point of the CD-ROM.

3. Enter the **.db2setup** command to start the DB2 Setup wizard. After a few moments, the IBM DB2 Setup Launchpad opens.



From this window, you can view installation prerequisites and the release notes, you can take a Quick Tour to explore the features of DB2 Universal Database Version 8, or you can proceed directly to the installation. You may want to review the installation prerequisites and release notes for late-breaking information.

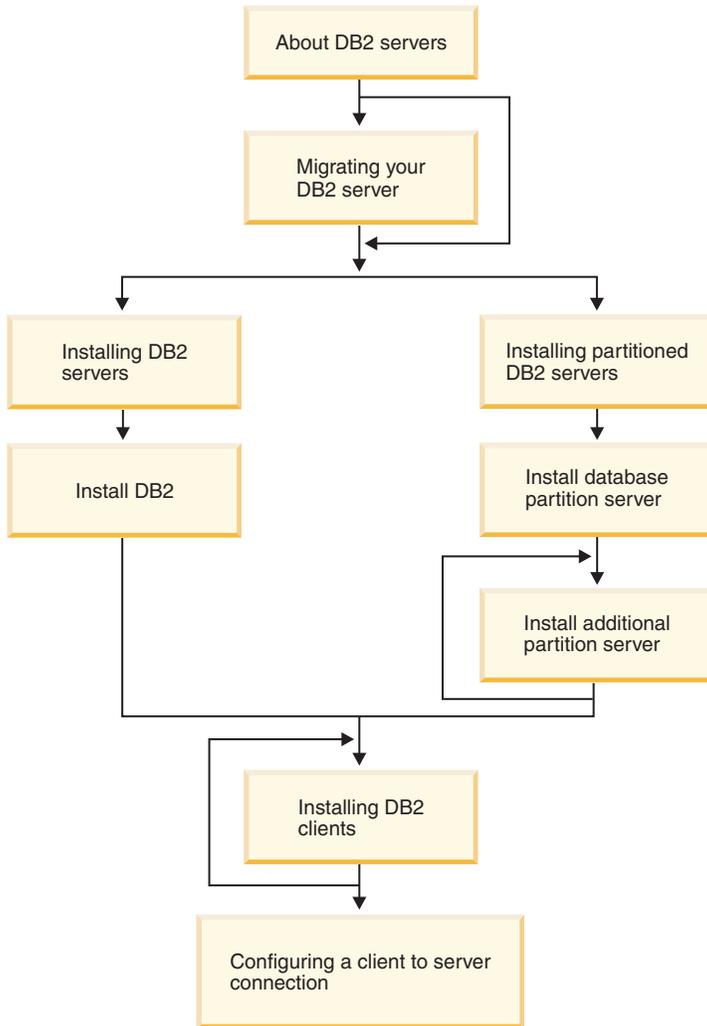
Once you have initiated the installation, proceed through the DB2 Setup wizard installation panels and make your selections. Installation help is

available to guide you through the remaining steps. To invoke the installation help, click **Help** or press F1. You can click **Cancel** at any time to end the installation. DB2 files will only be copied to your system once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

Related concepts:

- “Installation overview for DB2 servers (UNIX)” on page 11
- “Installation overview for a partitioned DB2 server (UNIX)” on page 12
- “Installation overview for DB2 Personal Edition (Linux)” in the *Quick Beginnings for DB2 Personal Edition*

Part 5. Installing DB2 clients



This diagram is to be used to help you navigate through this book. It is not intended to represent your specific installation steps. Use the information within this book to create your own specific installation plan.

Chapter 11. Introduction to DB2 clients

DB2 clients

There are three types of DB2[®] clients:

- Run-Time Client
- Administration Client
- Application Development Client

DB2 clients can connect to DB2 servers *two* releases later or *one* release earlier than the client's release level, as well as to servers at the same release level. This means that a DB2 Version 6 client can connect to DB2 servers at versions 5, 6, 7, and 8.

A database cannot be created on a DB2 client. You must access databases that reside on a DB2 server.

Related concepts:

- "DB2 Run-Time Client" on page 175
- "DB2 Administration Client" on page 176
- "DB2 Application Development Client" on page 176
- "Response files" in the *Installation and Configuration Supplement*

Related tasks:

- "Installing a DB2 client on Windows operating systems" on page 182
- "Installing DB2 clients on UNIX" on page 192

Client types

DB2 Run-Time Client

The DB2[®] Run-Time Client is a light-weight client that provides the functionality required for an application to access DB2 Universal Database[™] servers and DB2 Connect servers. Functionality includes communication protocol support and support for application interfaces such as JDBC, SQLj, ODBC, CLI, and OLE DB. As a result of the removal of most of the previous Run-Time Client GUI facilities, the Version 8 Run-Time Client now has diminished disk requirements.

Notes:

1. The Configuration Assistant is not packaged with the Windows® Run-Time Client. The only available GUI is the CLI/ODBC administration GUI.
2. With the DB2 Run-Time Client, you must bind the CLI packages from a machine with the proper bind files before you can make use of it for CLI applications.

DB2 Run-Time Clients are available for the following platforms: AIX, HP-UX, Linux, the Solaris Operating Environment, and Windows operating systems.

Related concepts:

- “DB2 clients” on page 175
- “DB2 Administration Client” on page 176
- “DB2 Application Development Client” on page 176

Related tasks:

- “Installing a DB2 client on Windows operating systems” on page 182
- “Installing DB2 clients on UNIX” on page 192

DB2 Administration Client

A DB2® Administration Client provides the ability for workstations from a variety of platforms to access and administer DB2 databases. The DB2 Administration Client has all the features of the DB2 Run-Time Client and also includes all the DB2 administration tools and support for Thin Clients.

DB2 Administration Clients are available for the following platforms: AIX, HP-UX, Linux, the Solaris Operating Environment, and Windows® operating systems.

Related concepts:

- “DB2 clients” on page 175
- “DB2 Run-Time Client” on page 175
- “DB2 Application Development Client” on page 176

Related tasks:

- “Installing a DB2 client on Windows operating systems” on page 182
- “Installing DB2 clients on UNIX” on page 192

DB2 Application Development Client

The DB2® Application Development Client is a collection of graphical and non-graphical tools and components for developing character-based, multimedia, and object-oriented applications. Special features include the

Development Center and sample applications for all supported programming languages. The Application Development Client also includes the tools and components provided as part of the DB2 Administration Client product.

DB2 Application Development clients are available for the following platforms: AIX, HP-UX, Linux, the Solaris Operating Environment, and Windows® operating systems.

Related concepts:

- “DB2 clients” on page 175
- “DB2 Run-Time Client” on page 175
- “DB2 Administration Client” on page 176

Related tasks:

- “Installing a DB2 client on Windows operating systems” on page 182
- “Installing DB2 clients on UNIX” on page 192

Chapter 12. Installing DB2 clients on Windows

Client requirements

Installation requirements for DB2 clients (Windows)

The following list provides operating system requirements, software requirements, and communication requirements for your DB2 client on Windows.

Operating system requirements

One of the following:

- Windows 98
- Windows ME
- Windows NT Version 4.0 with Service Pack 6a or later
- Windows NT Server 4.0, Terminal Server Edition (only supports the DB2 Run-Time Client) with Service Pack 6 or later for Terminal Server
- Windows 2000
- Windows XP (32-bit and 64-bit editions)
- Windows .NET servers (32-bit and 64-bit editions)

Software requirements

- The Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 graphical tools, such as the Control Center. If the JRE is not already installed, it will be installed for use by DB2. The DB2 JAVA GUI tools are not provided with the DB2 Version 8 Run-Time Client.
- If you plan to use LDAP (Lightweight Directory Access Protocol), you require either a Microsoft LDAP client or an IBM SecureWay LDAP client V3.1.1 or later. Microsoft LDAP client is included with the operating system for Windows ME, Windows 2000, Windows XP, and Windows .NET.
- If you plan to use the Tivoli Storage Manager facilities for backup and restore of your databases, you require the Tivoli Storage Manager Client Version 3 or later.
- If you have the IBM Antivirus program installed on your operating system, it must be disabled or uninstalled to complete a DB2 installation.
- If you are installing the Application Development Client, you must have a C compiler to build SQL Stored Procedures.

Communication requirements

- Named Pipes, NetBIOS, or TCP/IP.
- The Windows base operating system provides Named Pipes, NetBIOS, and TCP/IP connectivity.

Note: In Version 8, DB2 only supports TCP/IP for remotely administering a database.

Related concepts:

- “DB2 clients” on page 175
- “DB2 Run-Time Client” on page 175
- “DB2 Administration Client” on page 176
- “DB2 Application Development Client” on page 176

Related tasks:

- “Installing a DB2 client on Windows operating systems” on page 182

Related reference:

- “Memory requirements for DB2 clients” on page 180
- “Disk requirements for DB2 clients” on page 181

Memory requirements for DB2 clients

The following list outlines the recommended minimum memory requirements for the different types of DB2 clients:

- The amount of memory required for the DB2 Run-Time client depends on the operating system and the database applications that you are running. In most cases, it should be sufficient to use the minimum memory requirements of the operating system as the minimum requirement for running the DB2 Run-Time client.
- To run graphical tools on an Administration or Application Development client, you will require an additional amount of 64 MB of RAM. For example, to run graphical tools on an Administration Client machine running Windows 2000 Professional, you would need a minimum of 64 MB of RAM for the operating system plus an additional amount of 64 MB of RAM for the tools.

Note: Performance may be affected if less than the recommended minimum memory requirements are used.

Related concepts:

- “DB2 clients” on page 175

Related tasks:

- “Installing a DB2 client on Windows operating systems” on page 182
- “Installing DB2 clients on UNIX” on page 192

Disk requirements for DB2 clients

The actual fixed disk requirements of your installation may vary depending on your file system and the client components you install. Ensure that you have included a disk space allowance for your application development tools and communication products.

The following tables provide minimum disk space requirements for DB2 clients on Windows and UNIX-based operating systems. When you install a DB2 client using the DB2 Setup wizard, size estimates are dynamically provided by the installation program based on installation type and component selection.

Table 18. DB2 Clients for Windows — recommended minimum disk space

DB2 Clients for Windows	Recommended minimum disk space (MB)
DB2 Run-Time Client	20 to 30 MB
DB2 Administration Client	80 to 110 MB
DB2 Application Development Client	325 MB, including the JDK

Table 19. DB2 Clients for UNIX — recommended minimum disk space

DB2 Clients for UNIX	Recommended minimum disk space (MB)
DB2 Run-Time Client	50 to 60 MB Note: An additional 20 MB may be needed for the instance creation in the <i>/home</i> directory.
DB2 Administration Client	125 MB, not including the JRE Note: An additional 20 MB may be needed for the instance creation in the <i>/home</i> directory.
DB2 Application Development Client	130 to 160 MB, not including the JDK Note: An additional 20 MB may be needed for the instance creation in the <i>/home</i> directory.

Related concepts:

- “DB2 clients” on page 175

Related tasks:

- “Installing a DB2 client on Windows operating systems” on page 182
- “Installing DB2 clients on UNIX” on page 192

Installing a DB2 client on Windows operating systems

This task describes how to install a DB2 client on a Windows operating system.

Prerequisites:

Before you install your DB2 client:

- Ensure that your system meets all of the memory, disk space, and installation requirements.
- Ensure that you have a user account to perform the installation:

Windows 98, Windows ME

Any valid Windows 98 user account.

Windows Terminal Server, Windows NT, Windows 2000, Windows XP, and Windows .NET

A user account that belongs to a group with more authority than the Guests group, such as the Users group.

Note: To perform an installation on Windows 2000 servers and Windows .NET as part of the Users group, the registry permissions have to be modified to allow Users **write** access to the HKEY_LOCAL_MACHINE\Software registry branch. In the default Windows 2000 and Windows .NET environment, members of the Users group only have **read** access to the HKEY_LOCAL_MACHINE\Software registry branch.

Procedure:

To install a DB2 client:

1. Log on to the system with the user account that you want to use to perform the installation.
2. Shut down any other programs so that the DB2 Setup wizard can update files as required.
3. Insert the appropriate CD-ROM into the drive. The auto-run feature automatically starts the DB2 Setup wizard. The DB2 Setup wizard will determine the system language, and launch the setup program for that

language. You can run the DB2 Setup wizard in a language other than the default system language by manually invoking the DB2 Setup wizard and specifying a language code.

4. Choose **Install Products** once the DB2 Launchpad opens.
5. Proceed by following the DB2 Setup wizard's prompts. Online help is available to guide you through the remaining steps.

After installing your DB2 client, you should configure it to access a remote DB2 server.

Note: In Version 8, DB2 only supports TCP/IP for remotely administering a database.

Related tasks:

- "Configuring a client to server connection using the Configuration Assistant (CA)" on page 197
- "Configuring remote access to a server database" in the *Installation and Configuration Supplement*
- "Starting the DB2 Setup wizard for a DB2 server installation (Windows)" on page 50

Related reference:

- "Language identifiers (for running the DB2 Setup wizard in another language)" on page 251

Chapter 13. Installing DB2 clients on UNIX

Client requirements

Installation requirements for DB2 clients (HP-UX)

The following list provides hardware requirements, operating system requirements, software requirements, and communication requirements for your DB2 client on HP-UX.

Restrictions:

A system reboot is required if the kernel configuration parameters have been updated. The kernel configuration parameters are set in `/etc/system` and if these parameters require modification to accommodate the DB2 client, a reboot will be necessary to make the changes to `/etc/system` effective.

Note: The parameters must be set in advance of the DB2 client install.

Hardware requirements

HP 9000 Series 700 or 800 system

Operating system requirements

- HP-UX 11.0 32-bit with general release bundle + PHSS-24303
- HP-UX 11.0 64-bit with general release bundle + PHSS-24303
- HP-UX 11i 32-bit with June 2001 general release bundle
- HP-UX 11i 64-bit with June 2001 general release bundle

Software requirements

- The Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 graphical tools, such as the Control Center. During the installation process, if the JRE is not already installed, it will be installed. The DB2 JAVA GUI tools are not provided with the DB2 Version 8 Run-Time Client.
- If you are installing the Application Development Client, you may require the Java Developer's Kit. During the installation process, if the JDK is not already installed, it will be installed.
- If you are installing the Application Development Client, you must have a C compiler to build SQL Stored Procedures.

Communication requirements

- TCP/IP (TCP/IP is provided with the HP-UX base operating system.)

Note: In Version 8, DB2 only supports TCP/IP for remotely administering a database.

Related concepts:

- “DB2 clients” on page 175
- “DB2 Run-Time Client” on page 175
- “DB2 Administration Client” on page 176
- “DB2 Application Development Client” on page 176

Related tasks:

- “Modifying kernel parameters (HP-UX)” on page 65
- “Installing DB2 clients on UNIX” on page 192

Related reference:

- “Memory requirements for DB2 clients” on page 180
- “Disk requirements for DB2 clients” on page 181

Installation requirements for DB2 clients (Linux)

The following list provides operating system requirements, software requirements, and communication requirements for your DB2 client on Linux.

Restrictions:

A system reboot is required if the kernel configuration parameters have been updated. The kernel configuration parameters are set in `/etc/system` and if these parameters require modification to accommodate the DB2 client, a reboot will be necessary to make the changes to `/etc/system` effective.

Note: The parameters must be set in advance of the DB2 client install.

Operating system requirements

For Intel 32-bit architecture you require:

- kernel level 2.4.9 or higher
- glibc 2.2.4
- RPM 3

For Intel 64-bit architecture you require *one* of the following:

- Red Hat Linux 7.2; OR
- SuSE Linux SLES-7

For z-Series architecture you require *one* of the following:

- Red Hat Linux 7.2; OR

- SuSE Linux SLES-7

Software requirements

- The Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 graphical tools, such as the Control Center. The DB2 JAVA GUI tools are not provided with the DB2 Version 8 Run-Time Client.
- If you are installing the Application Development Client, you may require the Java Developer's Kit. During the installation process, if the JDK is not already installed, it will be installed. The same is applicable for JRE on all platforms, except for Linux where the JDK cannot be installed over the JRE.
- If you are installing the Application Development Client, you must have a C compiler to build SQL Stored Procedures.

Communication requirements

- TCP/IP (The Linux base operating system provides TCP/IP connectivity, if selected during installation).

Note: In Version 8, DB2 only supports TCP/IP for remotely administering a database.

Related concepts:

- "DB2 clients" on page 175
- "DB2 Run-Time Client" on page 175
- "DB2 Administration Client" on page 176
- "DB2 Application Development Client" on page 176

Related tasks:

- "Installing DB2 clients on UNIX" on page 192
- "Modifying kernel parameters (Linux)" on page 70

Related reference:

- "Memory requirements for DB2 clients" on page 180
- "Disk requirements for DB2 clients" on page 181

Installation requirements for DB2 clients (Solaris)

The following list provides hardware requirements, operating system requirements, software requirements, and communication requirements for your DB2 client on the Solaris Operating Environment.

Restrictions:

A system reboot is required if the kernel configuration parameters have been updated. The kernel configuration parameters are set in `/etc/system` and if these parameters require modification to accommodate the DB2 client, a reboot will be necessary to make the changes to `/etc/system` effective.

Note: The parameters must be set in advance of the DB2 client install.

Hardware requirements

Solaris SPARC-based computer

Operating system requirements

- Solaris Version 2.7 or later

Note: Solaris Version 2.7 is required for 64-bit.

- The following patches are required for the Solaris operating environment Version 2.7:
 - Solaris 7 (32-bit) patch 106327-8
 - Solaris 7 (64-bit) patch 106300-09
 - Solaris 8 (32-bit) patch 108434-01 + 108528-12
 - Solaris 8 (64-bit) patches 108435-01 + 108528-12

Software requirements

- For 32-bit Solaris, the Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 graphical tools, such as the Control Center. The DB2 JAVA GUI tools are not provided with the DB2 Version 8 Run-Time Client.
- For 64-bit Solaris, the Java Runtime Environment (JRE) Version 1.4.0 is required to run DB2 graphical tools, such as the Control Center. The DB2 JAVA GUI tools will not be provided with the DB2 Version 8 Run-Time Client.
- If you are installing the Application Development Client, you may require the Java Developer's Kit. The JDK will be available with the electronically downloaded version of DB2. For installation using CDs, the JDK will be included on a separate CD. This is also applicable for the JRE.
- If you are installing the Application Development Client, you must have a C compiler to build SQL Stored Procedures.

Communication requirements

- TCP/IP (The Solaris base operating system provides TCP/IP connectivity.)

Note: In Version 8, DB2 only supports TCP/IP for remotely administering a database.

Related concepts:

- “DB2 clients” on page 175
- “DB2 Run-Time Client” on page 175
- “DB2 Administration Client” on page 176
- “DB2 Application Development Client” on page 176

Related tasks:

- “Modifying kernel parameters (Solaris)” on page 77
- “Installing DB2 clients on UNIX” on page 192

Related reference:

- “Memory requirements for DB2 clients” on page 180
- “Disk requirements for DB2 clients” on page 181

Installation requirements for DB2 clients (AIX)

The following list provides hardware requirements, operating system requirements, software requirements, and communication requirements for your DB2 client on AIX.

Hardware requirements

RISC System/6000

Operating system requirements

AIX Version 4.3.3.78 or later

Software requirements

- For LDAP (Lightweight Directory Access Protocol) support, you require an IBM SecureWay Directory Client V3.1.1 running on AIX V4.3.3.78 or later.
- The Java Runtime Environment (JRE) Version 1.3.1 is required to run DB2 graphical tools, such as the Control Center. During the installation process, if the JRE is not already installed, it will be installed. The DB2 JAVA GUI tools are not provided with the DB2 Version 8 Run-Time Client.
- If you are installing the Application Development Client, you may require the Java Developer’s Kit. During the installation process, if the JDK is not already installed, it will be installed.
- If you are installing the Application Development Client, you must have a C compiler to build SQL Stored Procedures.

Communication requirements

- TCP/IP (The AIX base operating system provides TCP/IP connectivity, if selected during install.)

Note: In Version 8, DB2 only supports TCP/IP for remotely administering a database.

Related concepts:

- “DB2 clients” on page 175
- “DB2 Run-Time Client” on page 175
- “DB2 Administration Client” on page 176
- “DB2 Application Development Client” on page 176

Related tasks:

- “Installing DB2 clients on UNIX” on page 192

Related reference:

- “Memory requirements for DB2 clients” on page 180
- “Disk requirements for DB2 clients” on page 181

Memory requirements for DB2 clients

The following list outlines the recommended minimum memory requirements for the different types of DB2 clients:

- The amount of memory required for the DB2 Run-Time client depends on the operating system and the database applications that you are running. In most cases, it should be sufficient to use the minimum memory requirements of the operating system as the minimum requirement for running the DB2 Run-Time client.
- To run graphical tools on an Administration or Application Development client, you will require an additional amount of 64 MB of RAM. For example, to run graphical tools on an Administration Client machine running Windows 2000 Professional, you would need a minimum of 64 MB of RAM for the operating system plus an additional amount of 64 MB of RAM for the tools.

Note: Performance may be affected if less than the recommended minimum memory requirements are used.

Related concepts:

- “DB2 clients” on page 175

Related tasks:

- “Installing a DB2 client on Windows operating systems” on page 182
- “Installing DB2 clients on UNIX” on page 192

Disk requirements for DB2 clients

The actual fixed disk requirements of your installation may vary depending on your file system and the client components you install. Ensure that you have included a disk space allowance for your application development tools and communication products.

The following tables provide minimum disk space requirements for DB2 clients on Windows and UNIX-based operating systems. When you install a DB2 client using the DB2 Setup wizard, size estimates are dynamically provided by the installation program based on installation type and component selection.

Table 20. DB2 Clients for Windows — recommended minimum disk space

DB2 Clients for Windows	Recommended minimum disk space (MB)
DB2 Run-Time Client	20 to 30 MB
DB2 Administration Client	80 to 110 MB
DB2 Application Development Client	325 MB, including the JDK

Table 21. DB2 Clients for UNIX — recommended minimum disk space

DB2 Clients for UNIX	Recommended minimum disk space (MB)
DB2 Run-Time Client	50 to 60 MB Note: An additional 20 MB may be needed for the instance creation in the <i>/home</i> directory.
DB2 Administration Client	125 MB, not including the JRE Note: An additional 20 MB may be needed for the instance creation in the <i>/home</i> directory.
DB2 Application Development Client	130 to 160 MB, not including the JDK Note: An additional 20 MB may be needed for the instance creation in the <i>/home</i> directory.

Related concepts:

- “DB2 clients” on page 175

Related tasks:

- “Installing a DB2 client on Windows operating systems” on page 182
- “Installing DB2 clients on UNIX” on page 192

Installing DB2 clients on UNIX

This task provides steps for installing a DB2 client on UNIX.

Prerequisites:

Before you begin installing a DB2 client on UNIX:

- Ensure that your system meets all of the memory, hardware, and software requirements to install your DB2 product.
- Installing a DB2 client in the Solaris Operating Environment or on HP-UX requires that you update your kernel configuration parameters and restart your system.

Procedure:

After updating your kernel configuration parameters and rebooting your system (required for Solaris and HP-UX), you can install your DB2 client.

To install a DB2 client on UNIX:

1. Log in as a user with root authority.
2. Insert and mount the appropriate CD-ROM.
3. Change to the directory where the CD-ROM is mounted by entering the `cd lcdrom` command where *lcdrom* is the CD-ROM mount point.
4. Enter the `./db2setup` command. At this point the DB2 Setup Wizard will start.
5. Choose **Install Products** once the DB2 Launchpad opens.
6. Select the client you want to install.
7. Proceed by following the DB2 setup Wizard's prompts. Online help is available to guide you through the remaining steps.

When installation is complete DB2 software will be installed in the *DB2DIR* directory,

where *DB2DIR* = /usr/opt/db2_08_01 on AIX
= /opt/IBM/db2/V8.1 on all other UNIX operating systems.

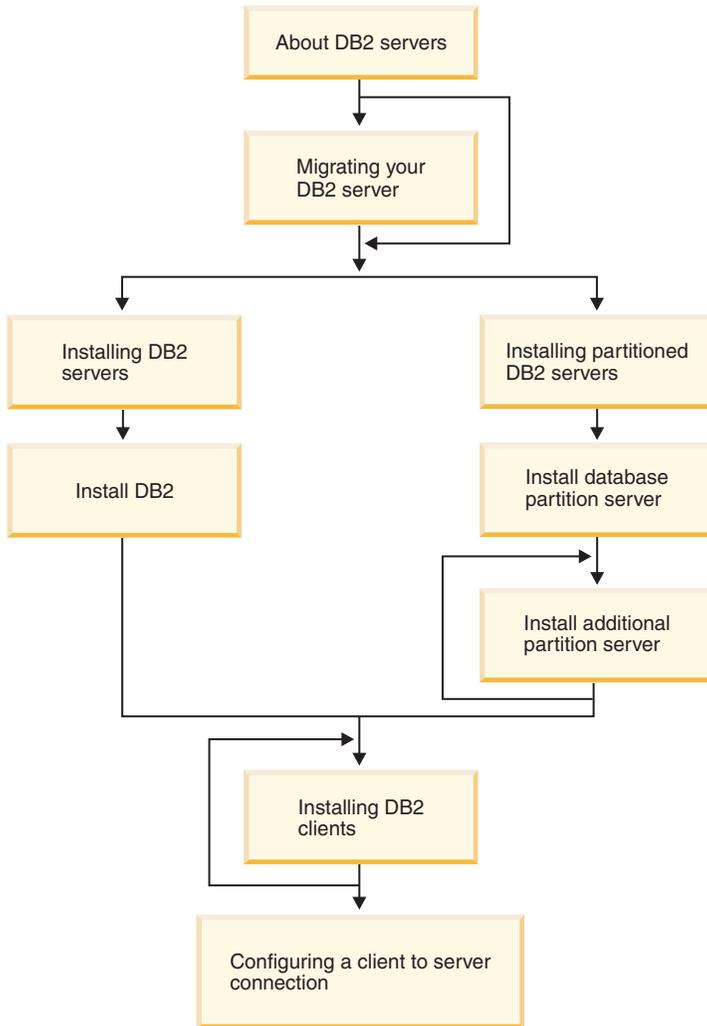
After installing your DB2 client, you should configure it to access a remote DB2 server.

Note: In Version 8, DB2 only supports TCP/IP for remotely administering a database.

Related tasks:

- “Modifying kernel parameters (Solaris)” on page 77
- “Modifying kernel parameters (HP-UX)” on page 65
- “Configuring a client to server connection using the Configuration Assistant (CA)” on page 197
- “Configuring remote access to a server database” in the *Installation and Configuration Supplement*
- “Modifying kernel parameters (Linux)” on page 70

Part 6. Configuring a client to server connection



This diagram is to be used to help you navigate through this book. It is not intended to represent your specific installation steps. Use the information within this book to create your own specific installation plan.

Chapter 14. Configuring a connection using the CA

Configuring a client to server connection using the Configuration Assistant (CA)

This task describes how to connect your DB2 client to a remote database using the Configuration Assistant (CA). The Configuration Assistant is a DB2 GUI tool that can be used to configure database connections and other database settings.

The Configuration Assistant (CA) was referred to as the Client Configuration Assistant (CCA) in previous releases of DB2.

Prerequisites:

- The Configuration Assistant must be installed on your DB2 client. For DB2 version 8, the Configuration Assistant is available as part of the DB2 Administration Client and DB2 Application Development Client.
- The remote server must be configured to accept inbound client requests. By default, the server installation program detects and configures most protocols on the server for inbound client connections.

Procedure:

To configure a connection to a database using the CA, select one of the following methods:

- Connecting to a database using discovery
- Connecting to a database using a profile
- Connecting to a database manually using the CA

Related tasks:

- “Configuring a database connection using Discovery” on page 200
- “Configuring a database connection using a profile” on page 199
- “Configuring a database connection using the Configuration Assistant (CA)” on page 198
- “Configuring communication protocols for a remote DB2 instance” in the *Installation and Configuration Supplement*
- “Configuring communication protocols for a local DB2 instance” in the *Installation and Configuration Supplement*
- “Configuring a client to server connection using the command line processor” on page 203

Configuring a database connection

Configuring a database connection using the Configuration Assistant (CA)

If you have the information for the database you want to connect to and the server upon which it resides, you can manually enter all of the configuration information. This method is analogous to entering commands via the command line processor, however, the parameters are presented graphically.

Prerequisites:

Before you configure a connection to a database using the CA:

- Ensure that you have a valid DB2 user ID.
- If adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSCTRL authority for the instance.

Procedure:

To add a database to your system manually using the CA:

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. On the CA menu bar, under **Selected**, choose **Add Database Using Wizard**.
4. Select the **Manually configure a connection to a database** radio button and click **Next**.
5. If you are using Lightweight Directory Access Protocol (LDAP), select the radio button that corresponds to the location where you would like your DB2 directories to be maintained. Click **Next**.
6. Select the radio button that corresponds to the protocol that you want to use from the **Protocol** list.

If DB2 Connect is installed on your machine and you select TCP/IP or APPC, you have the option to select **The database physically resides on a host or OS/400 system**. If you select this check box, you will have the option of selecting the type of connection that you want to make to the host or OS/400 database:

- To make a connection through a DB2 Connect gateway, select the **Connect to the server via the gateway** radio button.
- To make a direct connection, select the **Connect directly to the server** radio button.

Click **Next**.

7. Enter the required communication protocol parameters and click **Next**.
8. Enter the database alias name of the remote database that you want to add in the **Database name** field and a local database alias name in the **Database alias** field.

If you are adding a host or OS/400 database, type the Location name for an OS/390 or z/OS database, the RDB name for an OS/400 database, or the DBNAME for a VSE or VM database in the **Database name** field. Optionally add a comment that describes this database in the **Comment** field.

Click **Next**.

9. If you are planning to use ODBC, register this database as an ODBC data source. ODBC must be installed to perform this operation.
10. Click **Finish**. You are now able to use this database. Select the **Exit** menu action to close the CA.

Related tasks:

- “Configuring a database connection using Discovery” on page 200
- “Configuring a database connection using a profile” on page 199
- “Testing a database connection” in the *Installation and Configuration Supplement*

Configuring a database connection using a profile

A server profile contains information about server instances on a system, and databases within each server instance. A client profile contains database information that was cataloged on another client system. Use the steps in the following task to connect to a database using a profile.

Prerequisites:

Before you connect to a database through the CA using a profile:

- Ensure that you have a valid DB2 user ID.
- If adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSTRM authority for the instance.

Procedure:

To connect to a database using a profile:

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.

3. On the CA menu bar, under **Selected**, choose **Add Database Using Wizard**.
4. Select the **Use a profile** radio button and click **Next**.
5. Click the ... push button and select a profile. Select a remote database from the object tree that is displayed from the profile, and if the database selected is a gateway connection, select a connection route to the database. Click the **Next** push button.
6. Enter a local database alias name in the **Database alias** field and optionally enter a comment that describes this database in the **Comment** field. Click **Next**.
7. If you are planning to use ODBC, register this database as an ODBC data source. ODBC must be installed to perform this operation.
8. Click **Finish**. You are now able to use this database. Select the **Exit** menu action to exit the CA.

Related tasks:

- “Creating client profiles using the export function of the Configuration Assistant (CA)” in the *Quick Beginnings for DB2 Clients*
- “Testing a database connection” in the *Installation and Configuration Supplement*

Configuring a database connection using Discovery

You can use the Discovery feature of the Configuration Assistant to search a network for databases.

Prerequisites:

Before you configure a connection to a database using Discovery:

- Ensure that you have a valid DB2 user ID.
- If adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSCTRL authority for the instance.

Restrictions:

A DB2 Administration Server (DAS) must be running and enabled for the Discovery feature of the CA to return information about DB2 systems.

Procedure:

To add a database to your system using Discovery:

1. Log on to the system with a valid DB2 user ID.

2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. On the CA menu bar, under **Selected**, choose **Add Database Using Wizard**.
4. Select the **Search the network** radio button and click **Next**.
5. Double-click on the folder beside **Known Systems** to list all the systems known to your client.
6. Click the **[+]** sign beside a system to get a list of the instances and databases on it. Select the database that you want to add, click the **Next** push button.
7. Enter a local database alias name in the **Database alias** field and optionally enter a comment that describes this database in the **Comment** field.
8. If you are planning to use ODBC, register this database as an ODBC data source. ODBC must be installed to perform this operation.
9. Click **Finish**. You are now able to use the database you added. Click **Close** to exit the CA.

Related tasks:

- “Configuring a database connection using the Configuration Assistant (CA)” on page 198
- “Configuring a database connection using a profile” on page 199
- “Testing a database connection” in the *Installation and Configuration Supplement*

Chapter 15. Configuring a connection using the command line processor

Configuring a client to server connection using the command line processor

This task describes how to configure a connection from a DB2 client to a remote database using the command line processor (CLP). The task consists of cataloging the database node, cataloging the database, and testing the connection. Before you can complete this task, communications must be configured on the DB2 client and DB2 server.

You can also configure a client to server connection using the Configuration Assistant.

Prerequisites:

Before you configure a client to server connection:

- Communications must be configured on the client computer. Depending on your operating system, communications can be Named Pipes or one of the following communication protocols: APPC, NetBIOS, TCP/IP.
- Communications must be configured on the DB2 server. Depending on your operating system, communications can be Named Pipes or one of the following communication protocols: APPC, NetBIOS, TCP/IP.
- You must use one of the supported client to server connection scenarios. The connection scenarios outline which communication method or protocol can be used by which operating system. You cannot use NetBIOS to connect from a Windows client to a server running on a UNIX-based system.

Procedure:

To configure a client to server connection using the command line processor:

1. On the DB2 client, catalog the database node using one of the following methods:
 - Catalog the TCP/IP node on the DB2 client.
 - Catalog the NetBIOS node on the DB2 client.
 - Catalog the APPC node on the DB2 client.
 - Catalog the Named Pipes node on the DB2 client.
2. Catalog the database on the DB2 client.
3. Test the client to server connection.

Related tasks:

- “Cataloging the TCP/IP node on the client” on page 204
- “Cataloging the NetBIOS node on the DB2 client” on page 206
- “Cataloging the APPC node on the DB2 client” on page 207
- “Cataloging the Named Pipes node on the client” on page 208
- “Cataloging a database using the CLP” on page 209
- “Testing the client to server connection using the CLP” on page 210
- “Configuring communication protocols for a remote DB2 instance” in the *Installation and Configuration Supplement*
- “Configuring communication protocols for a local DB2 instance” in the *Installation and Configuration Supplement*
- “Configuring APPC communications for a DB2 instance” in the *Installation and Configuration Supplement*
- “Configuring NetBIOS communications for a DB2 instance” in the *Installation and Configuration Supplement*
- “Configuring TCP/IP communications for a DB2 instance” in the *Installation and Configuration Supplement*
- “Configuring Named Pipes communications for a DB2 instance” in the *Installation and Configuration Supplement*
- “Configuring a client to server connection using the Configuration Assistant (CA)” on page 197

Related reference:

- “Client-to-Server communication scenarios” in the *Installation and Configuration Supplement*

Cataloging the node

Cataloging the TCP/IP node on the client

This is part of the main task of *Configuring a client to server connection using the CLP*.

Cataloging the TCP/IP node adds an entry to the DB2 client’s node directory to describe the remote node, the chosen *node_name*, and the hostname. This entry specifies the chosen alias (*node_name*), the *hostname* (or *ip_address*), and the *svcname* (or *port_number*) that the client will use to access the remote host.

Procedure:

To catalog a TCP/IP node, perform the following steps:

1. Log on to the system as a user with System Administrative (SYSADM) or System Controller (SYSCTRL) authority. You can also log on to the system without these authority levels if you have the `catalog_noauth` option set to ON.
2. If you are using a UNIX client, set up the instance environment and invoke the DB2 command line processor. Run the start-up script as follows:

```
. INSTHOME/sql1lib/db2profile    (for bash, Bourne or Korn shell)
source INSTHOME/sql1lib/db2cshrc (for C shell)
```

where *INSTHOME* is the home directory of the instance.

3. Catalog the node by entering the following commands from a **db2** prompt:

```
catalog tcpip node node_name remote hostname|ip_address\
server service_name|port_number\
[remote_instance instance_name] [system system_name] [ostype os_type]
terminate
```

Where:

- `system` is the system name of the remote server;
- `ostype` is the operating system of the remote server system.

Specifying the `remote_instance`, `system`, and `ostype` is optional, but recommended for users who want to use the DB2 tools. The `service_name` used on the client does not have to be the same as the one on the server. However, the port numbers that they map to *must* match.

For example, to catalog the remote host *myserver* on the node called *db2node*, using the service name *server1*, enter the following from a **db2** prompt:

```
catalog tcpip node db2node remote myserver server server1
terminate
```

To catalog a remote server with the IP address *9.21.15.235* on the node called *db2node*, using the port number *3700*, enter the following from a **db2** prompt:

```
catalog tcpip node db2node remote 9.21.15.235 server 3700
terminate
```

Note: The **terminate** command is needed to refresh the directory cache.

The next step is to catalog the database on the client.

Related tasks:

- “Configuring TCP/IP on the client using the CLP” in the *Installation and Configuration Supplement*

Related reference:

- “CATALOG TCP/IP NODE Command” in the *Command Reference*

Cataloging the NetBIOS node on the DB2 client

This task is part of the main task of *Configuring a client to server connection using the command line processor (CLP)*.

Cataloging the NetBIOS node adds an entry to the client’s node directory to describe the remote node. Use the chosen node alias (*node_name*) as the node entry name. This entry specifies the client’s logical adapter number (*adapter_number*) and the server’s Workstation name (*nname*) that the client will use to access the remote DB2 server.

Prerequisites:

Before you configure NetBIOS on the client:

- You must be able to log on to the system with a valid DB2 user ID. If you are adding a database to a system that has a DB2 server or DB2 Connect server product installed, log on to this system as a user with System Administrative (SYSADM) or System Controller (SYSCTRL) authority on the instance.
- For more information about identifying these parameter values, see the NetBIOS parameter values worksheet.

Procedure:

To catalog the NetBIOS node:

1. Catalog the node by entering the following commands in the command line processor from a **db2** prompt:

```
catalog netbios node node_name remote nname adapter adapter_number
terminate
```

For example, to catalog a remote database server *server1* on the node called *db2node*, using the logical adapter number *0*, use:

```
catalog netbios node db2node remote server1 adapter 0
terminate
```

The next step in *Configuring a client to server connection using the command line processor (CLP)* is to catalog the database on the client.

Related tasks:

- “Configuring NetBIOS on the client using the CLP” in the *Installation and Configuration Supplement*
- “Cataloging a database using the CLP” on page 209

Related reference:

- “CATALOG NETBIOS NODE Command” in the *Command Reference*
- “NetBIOS parameter values worksheet” in the *Installation and Configuration Supplement*

Cataloging the APPC node on the DB2 client

This task is part of the larger task of *Configuring a client to server connection using the command line processor (CLP)*.

You must add an entry to the DB2 client’s node directory to describe the remote node. This entry specifies the chosen alias (*node_name*), symbolic destination name (*sym_dest_name*), and the APPC security type (*security_type*) that the client will use for the APPC connection.

Procedure:

To catalog the APPC or APPN node, perform the following steps:

1. Log on to the system with a valid user ID. If you are adding a database to a system that has a DB2 server or DB2 Connect server, you must log on as a user with System Administrative (SYSADM) or System Controller (SYSCTRL) authority. You can also log on to the system without these authority levels if you have the `catalog_noauth` option set to ON.
2. If you are using a UNIX-based system, set up the instance environment and invoke the DB2 command line processor. Run the start-up script as follows:

```
. INSTHOME/sql1lib/db2profile    (for bash, Bourne or Korn shell)
source INSTHOME/sql1lib/db2cshrc (for C shell)
```

where *INSTHOME* is the home directory of the instance.

3.
 - To catalog an APPC node, specify the chosen alias (*node_name*), Symbolic destination name (*sym_dest_name*), and the APPC security type (*security_type*) that the client will use for the APPC connection. Enter the following commands in the command line processor:

```
catalog "appc node node_name remote sym_dest_name \  
security security_type";  
terminate
```

For example, to catalog a remote database server with the Symbolic destination name DB2CPIC on the node called db2node, using APPC Security type NONE, enter the following commands:

```
catalog appc node db2node remote DB2CPIC security NONE  
terminate
```

- To catalog an APPN node, specify the chosen alias (*node_name*), the network ID, the remote partner LU, the transaction program name, the mode, and the security type. Enter the following commands, substituting your own values:

```
catalog "appn node db2node network SPIFNET remote NYX1GW0A
        tpname DB2DRDA mode IBMRDB security NONE"
terminate
```

The next step is to catalog the database on the client.

Related tasks:

- “Configuring APPC communications on the DB2 client” in the *Installation and Configuration Supplement*
- “Cataloging a database using the CLP” on page 209

Related reference:

- “CATALOG APPC NODE Command” in the *Command Reference*

Cataloging the Named Pipes node on the client

This task is part of the main task of *Configuring a client to server connection using the command line processor (CLP)*.

Cataloging the Named Pipes node adds an entry to the client’s node directory to describe the remote node. This entry specifies the chosen alias (*node_name*), the remote *server’s* workstation name (*computer_name*), and the instance (*instance_name*) that the client will use to access the remote DB2 server.

Procedure:

To catalog a Named Pipes node on a DB2 client, use the following command:

```
db2 catalog npipe node node_name remote computer_name instance instance_name
terminate
```

For example, to catalog a remote node called *db2node*, which is located on the server called *server1*, in the *db2* instance, use:

```
db2 catalog npipe node db2node remote server1 instance db2
terminate
```

The next step is to catalog the database on the client.

Related tasks:

- “Configuring Named Pipes on the client using the CLP” in the *Installation and Configuration Supplement*

Related reference:

- “CATALOG NAMED PIPE NODE Command” in the *Command Reference*
- “Named Pipes parameter values worksheet for configuring Named Pipes on the client” in the *Installation and Configuration Supplement*

Cataloging the database and testing the connection

Cataloging a database using the CLP

This task describes how to catalog a database using the CLP.

Before a client application can access a remote database, the database must be cataloged on the client. When you create a database, the database is automatically cataloged on the server with a database alias that is the same as the database name, unless a different database alias was specified. The information in the database directory, along with the information in the node directory (unless cataloging a local database where a node is not needed), is used on the DB2 client to establish a connection to the remote database.

Prerequisites:

Before you catalog the database:

- You require a valid DB2 user ID
- If you are cataloging a database on a system that has a DB2 server or DB2 Connect product installed, the user ID must have System Administrative (SYSADM) or System Controller (SYSCTRL) authority on the instance.
- The following parameter values are applicable when cataloging a *remote* database:
 - Database name
 - Database alias
 - Node name
 - Authentication type (optional)
 - Comment (optional)

Refer to the Parameter values worksheet for cataloging a database. for more information about these parameters.

- The following parameter values are applicable when cataloging a *local* database:
 - Database name
 - Database alias
 - Authentication type (optional)
 - Comment (optional)

Local databases can be uncataloged and re-cataloged at any time.

Procedure:

To catalog a database on the client, perform the following steps.

1. Log on to the system with a valid DB2 user ID. If you are cataloging a database on a system that has a DB2 server or DB2 Connect server installed, log onto this system as a user with System Administrative (SYSADM) or System Controller (SYSCTRL) authority on the instance.
2. Update the Your Value column in the Parameter values worksheet for cataloging a database..
3. If you are using DB2 on a UNIX platform, set up the instance environment. Run the start-up script as follows:

```
. INSTHOME/sql1lib/db2profile    (for bash, Bourne or Korn shell)
source INSTHOME/sql1lib/db2cshrc (for C shell)
```

where *INSTHOME* is the home directory of the instance.

4. Start the DB2 command line processor. You can do this by issuing the **db2** command from a DB2 command window.
5. Catalog the database by entering the following commands in the command line processor:

```
catalog database database_name as database_alias at \
node node_name authentication auth_value
```

For example, to catalog a remote database called *sample* so that it has the local database alias *mysample*, on the node *db2node*, enter the following commands:

```
catalog database sample as mysample at node db2node \
authentication server
terminate
```

The next step is to test the client to server connection.

Related tasks:

- “Testing the client to server connection using the CLP” on page 210

Related reference:

- “CATALOG DATABASE Command” in the *Command Reference*

Testing the client to server connection using the CLP

This task is part of the main task of *Configuring a client to server connection using the command line processor (CLP)*.

After cataloging the node and the database, you should connect to the database to test the connection.

Prerequisites:

The following prerequisites apply:

1. The database node and database must be cataloged before you can test the connection.
2. The values for *userid* and *password* must be valid for the system on which they are authenticated. By default, authentication takes place on the server.
3. Start the database manager by entering the **db2start** command on the database server (if it was not already started).

Procedure:

To test the client to server connection:

1. If you are using a UNIX client, run the start-up script as follows:

```
. INSTHOME/sql1lib/db2profile    (for Bash, Bourne, or Korn shell)
source INSTHOME/sql1lib/db2cshrc (for C shell)
```

where *INSTHOME* represents the home directory of the instance.

2. Using the CLP, enter the following command on the client to connect to the remote database:

```
connect to database_alias user userid
```

For example, enter the following command:

```
connect to mysample user jsmith
```

You will then be prompted to enter your password.

If the connection is successful, you will receive a message showing the name of the database to which you have connected. A message similar to the following will be given:

```
Database Connection Information
Database server = DB2/NT 8.1.0
SQL authorization ID = JSMITH
Local database alias = mysample
```

You are now able to work with the database. For example, to retrieve a list of all the table names listed in the system catalog table, enter the following SQL command:

```
select tabname from syscat.tables
```

When you are finished using the database connection, enter the **connect reset** command to end the database connection.

Related reference:

- “db2start - Start DB2 Command” in the *Command Reference*

Part 7. Reference

Chapter 16. Setting the DB2 license policy

Setting the DB2 license policy using the db2licm command

You can use the **db2licm** command to set your license policy instead of using the License Center.

Procedure:

To set your license policy using the **db2licm** command, perform *one* of the following depending on the type of licenses that you purchased:

- If you purchased Concurrent User licenses, enter the following commands (This example is for DB2 UDB Enterprise Server Edition):

```
db2licm -p db2ese concurrent
db2licm -u N
```

where *N* represents the number of concurrent user licenses that you have purchased.

- If you purchased Registered User licenses, enter the following command (This example is for DB2 UDB Enterprise Server Edition):
- If you purchased *both* Concurrent User and Registered User licenses, enter the following command (This example is for DB2 UDB Enterprise Server Edition):

```
db2licm -p db2ese registered
```

```
db2licm -p db2ese concurrent registered
```

For DB2 Workgroup Server Edition the internet policy is applicable and for DB2 Connect EE the measured policy is also applicable.

Related tasks:

- “Installing your DB2 license key using the db2licm command” in the *Installation and Configuration Supplement*
- “Installing your DB2 license key using the License Center” in the *Installation and Configuration Supplement*
- “Setting the DB2 license policy using the License Center” on page 216

Setting the DB2 license policy using the License Center

You can set your license policy using the License Center.

Procedure:

To set your license policy, perform the following depending on the type of licenses that you purchased:

1. In the License Center, select **Change** from the **License** menu.
2. In the Change License window, select the type of license that you have purchased:
 - If you purchased a Concurrent Users license, select **Concurrent connect users** and enter the number of user licenses that you have purchased.
 - If you purchased a Registered Users license, select **Concurrent registered users** and click **OK** to close the Change License window and return to the License Center. Click on the **Users** tab and add every user ID for which you purchased a license.

Notes:

1. For Workgroup Server Edition, you would choose either **Concurrent users** or **Registered users**.
2. For DB2 Connect products, you would choose either **Concurrent connect users** or **Registered connect users**.

There are also processor based licenses. You will also need to modify the number of processor licenses that you have bought.

Related tasks:

- “Installing your DB2 license key using the db2licm command” in the *Installation and Configuration Supplement*
- “Installing your DB2 license key using the License Center” in the *Installation and Configuration Supplement*
- “Setting the DB2 license policy using the db2licm command” on page 215

Chapter 17. Additional reference topics

Installation methods for DB2

This topic provides information about DB2[®] installation methods. The following table shows the installation methods that are available by platform.

Table 22. Installation method by operating system

Installation method	Windows [®]	UNIX [®]
DB2 Setup wizard	✓	✓
db2_install		✓
Response file installation	✓	✓
Native installation tools		✓

The following list describes installation methods for DB2.

DB2 Setup wizard

The DB2 Setup wizard is a GUI installer available on both UNIX and Windows platforms. On UNIX systems, the DB2 Setup wizard replaces the text-based installer interface (db2setup) that was available in previous releases. The DB2 Setup wizard provides an easy-to-use interface for installing DB2 and performing initial setup and configuration tasks. The DB2 Setup wizard can also be used to create instances and response files.

db2_install

The db2_install script uses the operating systems's native installation utility to install DB2. The db2_install script prompts for a DB2 product keyword. It will install *all* components for the DB2 product you specify, in English only. You cannot select or deselect components or interface language support. The db2_install script does not perform user and group creation, instance creation, or configuration. It simply installs the DB2 components to your system. This method of installation may be preferred in cases where greater control over the installation setup process is required.

Response file installation

A response file is an ASCII file that contains setup and configuration values. The file is passed to the db2setup program and the installation is performed according to the values that have been specified. There are a number of ways to create a response file:

- Using the response file generator (Windows)

- Using the DB2 Setup wizard (UNIX and Windows)
- By customizing sample response files that are provided for each DB2 product (UNIX and Windows)

Using the response file generator you can create a response file that will allow you to replicate an existing installation. For example, you might install DB2 client, fully configure the client, then generate a response file to replicate the installation and configuration of the client to other computers. The response file generator is only available on Windows.

The DB2 Setup wizard can be used to create a response file for both UNIX and Windows installations. The selections you make as you proceed through the DB2 Setup wizard are recorded in a response file that you can save to a location on your system. For your convenience, the DB2 Setup wizard allows you to create a response file without performing an installation. This feature may be useful in an environment where a DBA does not have the authority required to perform an installation. The DBA can create a response file for the installation and provide it to the system administrator who will install the product on the DBA's behalf.

An alternative to using the response file generator or the DB2 Setup wizard to create a response file is to manually modify a sample response file. Sample response files are provided on the DB2 product CD-ROM.

Native installation tools

Installing DB2 using your operating system's native installation provides the greatest control over the installation process, but is also more difficult than the other installation methods. When installing a particular DB2 product, you will have to ensure that the required components are installed and that component dependencies are maintained. Advanced knowledge of both DB2 and your operating environment is required. User and group creation, instance creation, and configuration must be performed manually.

Related tasks:

- "Installing a DB2 product manually" in the *Installation and Configuration Supplement*
- "Response file installation of DB2 on UNIX" in the *Installation and Configuration Supplement*
- "Response file installation of DB2 on Windows" in the *Installation and Configuration Supplement*

Preparing to install DB2 for Linux on S/390

To install DB2 on an S/390 machine that is running Linux, you will have to make the installation image accessible to the S/390 machine. You can use FTP to send the installation image to the S/390 machine or you can NFS mount the CD-ROM.

Prerequisites:

If you have DB2 beta code installed, you must remove it before installing DB2. Migration from beta code is not supported.

Procedure:

Using FTP

Create a tar file of the contents of DB2 installation CD-ROM. Put this tar file on your FTP server.

From the S/390 machine running Linux:

1. Enter the **ftp yourserver.com** command, where *yourserver.com* represents the FTP server where the installation image resides.
2. Enter your user ID and password.
3. Enter the following commands:

```
bin
get filename.tar
```

where *filename* represents the appropriate product package name.

4. Untar the installation image by entering the **tar -xvf filename .tar** command

Using an NFS mount

To use the DB2 product CD-ROM on a UNIX-based operating system:

1. Mount the appropriate CD-ROM on a UNIX-based operating system.
2. Export the directory where you mounted the CD-ROM. For example, if you mounted the CD-ROM under */cdrom*, then export the */cdrom* directory.
3. On the S/390 machine running Linux, NFS mount this directory using the following command:

```
mount -t nfs -o ro nfsservername :/cdrom /local_directory_name
```

where:

- *nfsservername* represents the name of the NFS server
- *cdrom* represents the name of the directory on the NFS server

- *local_directory_name* represents the name of the local directory
4. From the S/390 machine running Linux, change to the directory where the CD-ROM is mounted. You can do this by entering the **cd /local_directory_name** command, where *local_directory_name* represents the mount point of your product CD-ROM.

Related tasks:

- “Installing DB2 Personal Edition using the DB2 Setup wizard (Linux)” in the *Quick Beginnings for DB2 Personal Edition*

DB2 node configuration file (db2nodes.cfg)

This topic provides information about the format of the node configuration file (db2nodes.cfg). The db2nodes.cfg file is used to define the database partition servers that will participate in a DB2 instance. The db2nodes.cfg file is also used to specify the IP address or hostname of a high-speed interconnect, should you want to use a high-speed interconnect for database partition server communication.

Example configurations are also provided.

The format of the db2nodes.cfg file is as follows:

```
nodenum    hostname    logical port    netname
```

nodenum, hostname, logical port, and netname are defined as follows:

- nodenum** A unique number, between 0 and 999, that identifies a database partition server in a partitioned database system.
- To scale your partitioned database system, you add an entry for each database partition server to the db2nodes.cfg file. The *nodenum* value that you select for additional database partition servers must be in ascending order, however, gaps can exist in this sequence. You may choose to put a gap between the *nodenum* values if you plan to add a logical partition servers and wish to keep the nodes logically grouped in this file.
- This entry is required.
- hostname** The TCP/IP hostname of the database partition server for use by the FCM.
- This entry is required.
- You can specify the name of a high speed interconnect for the *hostname* value. This allows the **db2start**, **db2stop**, and **db2_all** commands to use the high speed interconnect for communications.

logical port Specifies the logical port number for the database partition server. This field is used to specify a particular database partition server on a workstation that is running logical database partition servers. If there is no entry for this field, the default is 0. However, if you add an entry for the *netname* field, you must enter a number for the *logical port* field.

In this case, if you specify an entry for the *netname* field (see below), the entry *must* be set to 0.

If you are using logical database partitions, the *logical port* value you specify *must* start at 0 and continue in ascending order with no gaps (for example, 0,1,2).

Furthermore, if you specify a *logical port* entry for one database partition server, you must specify a *logical port* for each database partition server listed in your *db2nodes.cfg* file.

This field is only optional if you are *not* using logical database partitions or a high speed interconnect.

netname Specifies the hostname or the IP address of the high speed interconnect for FCM communication.

If an entry is specified for this field, all communication between database partition servers (except for communications as a result of the **db2start**, **db2stop**, and **db2_all** commands) is handled through the high speed interconnect.

This parameter is only required if you are using a high speed interconnect for database partition communications.

Example configurations:

Use the following example configurations to determine the appropriate configuration for your environment.

One computer, four database partitions servers

If you are not using a clustered environment and want to have four database partition servers on one physical workstation called ServerA, update the *db2nodes.cfg* file as follows:

0	ServerA	0
1	ServerA	1
2	ServerA	2
3	ServerA	3

Two computers, one database partition server per computer

If you want your partitioned database system to contain two physical workstations, called ServerA and ServerB, update the *db2nodes.cfg* file as follows:

```

0      ServerA      0
1      ServerB      0

```

Two computers, three database partition server on one computer

If you want your partitioned database system to contain two physical workstations, called ServerA and ServerB, and ServerA is running 3 database partition servers, update the db2nodes.cfg file as follows:

```

4      ServerA      0
6      ServerA      1
8      ServerA      2
9      ServerB      0

```

Two computers, three database partition servers with high speed switches

If you want your partitioned database system to contain two computers, called ServerA and ServerB (with ServerB running two database partition servers), and use a high speed interconnect called switch1 and switch2, update the db2nodes.cfg file as follows:

```

0      ServerA      0      switch1
1      ServerB      0      switch2
2      ServerB      1      switch2

```

Related tasks:

- “Updating the node configuration file (UNIX)” on page 163

Recommended HP-UX kernel configuration parameters

Table 23. HP-UX Kernel Configuration Parameters (Recommended Values)

Kernel Parameter	Physical Memory			
	64MB - 128MB	128MB - 256MB	256MB - 512MB	512MB+
maxuprc	256	384	512	1 500
maxfiles	256	256	256	256
nproc	512	768	1 024	2 048
nfllocks	2 048	4 096	8 192	8 192
ninode	512	1 024	2 048	2 048
nfile	(4 * ninode)	(4 * ninode)	(4 * ninode)	(4 * ninode)
msgseg	8 192	16 384	32 767 (1)	32 767 (1)
msgmnb	65 535	65 535	65 535	65 535

Table 23. HP-UX Kernel Configuration Parameters (Recommended Values) (continued)

Kernel Parameter	Physical Memory			
	64MB - 128MB	128MB - 256MB	256MB - 512MB	512MB+
msgmax	65 535	65 535	65 535	65 535
msgtql	256	512	1 024	2 048
msgmap	130	258	258	2 050
msgmni	128	256	256	1 024
msgssz	16	16	16	16
semnmi	128	256	512	2 048
semmap	130	258	514	2 050
semms	256	512	1 024	4 096
semnu	256	512	1 024	1 024
shmmax	67 108 864	134 217 728 (2)	268 435 456 (2)	268 435 456 (2)
shmmni	300	300	300	1 000

Notes:

1. The msgseg parameter must be set no higher than 32 767.
2. The shmmax parameter should be set to 134 217 728 or 90% of the physical memory (in bytes), whichever is higher. For example, if you have 196 MB of physical memory in your system, set *shmmax* to 184 968 806 (196*1024*1024*0.9).
3. To maintain the interdependency among kernel parameters, change parameters in the same sequence in which they appear in the preceding table.

Related tasks:

- “Modifying kernel parameters (HP-UX)” on page 65

Recommended Solaris kernel configuration parameters

Setting kernel configuration parameters *before* installation: Use the sample files:

Sample files for updating the kernel configuration parameters are provided on the DB2 product CD-ROM in the `/db2/install/samples` directory. The names for these files are as follows:

kernel.param.128MB

for systems with 128MB–256MB of physical memory

kernel.param.256MB

for systems with 256MB–512MB of physical memory

kernel.param.512MB

for systems with 512MB–1GB of physical memory

Refining kernel parameter settings after installation

After installation, the `db2osconf` utility can be used to recommend more accurate kernel parameters based on the size and configuration of your system. If your system has more than 1GB of RAM, use the values from the `kernel.param.512MB` file for the installation, and then run the `db2osconf` utility to provide more accurate values. NOTE: the `db2osconf` utility does not change the `/etc/system` file and the system must be restarted in order for any changes to the `/etc/system` file take place.

Related concepts:

- “`db2osconf - Utility for Kernel Parameter Values Command`” in the *Command Reference*

Related tasks:

- “Modifying kernel parameters (Solaris)” on page 77

NIS installation considerations

In environments that include security software, such as NIS or NIS+, there are some installation considerations. The DB2 installation scripts will attempt to update things that are under the control of the security packages, such as users and groups, and will not be able to do so.

At instance creation, without a security component present, the instance owning user’s group properties will automatically be modified to add the administrative server’s group as a secondary group, and the administrative server’s group properties will be modified to include the instance owner’s group. If the instance creation program is unable to do this (it will not if NIS/NIS+ is controlling the group), it will report that it could not, and in the warning message it will provide the necessary information to manually make the changes.

These considerations hold true for any environment where an external security program is involved that does not allow the DB2 installation or instance creation programs to modify user characteristics.

If the DB2 Setup wizard detects NIS on your computer, you will not be given the option of creating new users during the installation. Instead you must chose existing users.

The following restrictions apply if you are using NIS or NIS+:

- Groups and users must be created on the NIS server before running the DB2 Setup wizard.
- Secondary groups must be created for the DB2 instance owner and the DB2 Administration Server on the NIS server. You must then add the primary group of the instance owner to the secondary DB2 Administration Server group. Likewise, you must add the primary DB2 Administration Server group to the secondary group for the instance owner.
- On a DB2 ESE system, before you create an instance, there must be an entry for the instance in the `etc/services` file. For example, if you want to create an instance for the user `db2inst1`, you require an entry similar to the following:

```
DB2_db2inst1    60000/tcp
```

Related tasks:

- “Installing DB2 Personal Edition using the DB2 Setup wizard (Linux)” in the *Quick Beginnings for DB2 Personal Edition*
- “Manually creating required groups and users for DB2 Personal Edition (Linux)” in the *Quick Beginnings for DB2 Personal Edition*

Virtual Interface Architecture

On Windows, a partitioned DB2[®] Enterprise Server Edition (DB2 ESE) environment can take advantage of Virtual Interface (VI) Architecture. VI Architecture was developed through the efforts of various companies to address the needs for a standard high-volume interconnect for data transfer between servers. VI Architecture permits high volumes of data to pass very quickly between clustered servers.

Prior to the release of VI Architecture, communications between database partition servers in a cluster was done through the network infrastructure provided by the operating system. This amounted to processing overhead on the operating system each time any communications between partitioned database servers took place. VI Architecture defines a thin, fast interface that connects software applications directly to the networking hardware, while retaining the robust security protection of the operating system. In a

communications-intensive environment, implementing VI Architecture with DB2 ESE can realize significant improvements in overall system throughput of database transactions and queries.

Related concepts:

- “DB2 Enterprise Server Edition” on page 3

Related tasks:

- “Installing a partitioned DB2 server (Windows)” on page 87

Removing DB2 on Windows

This task provides steps for completely removing DB2 version 8 from your Windows operating system. You should only perform this task if you no longer require existing DB2 instances and databases.

Procedure:

To remove DB2 version 8 on Windows:

1. Drop all databases. You can drop databases using the Control Center or **drop database** command.
2. Stop all DB2 processes and services. This can be done through the Windows Services panel or by issuing a **db2stop** command. If DB2 services and process are not stopped before attempting to remove DB2, you will receive a warning containing a list of processes and services that are holding DB2 DLLs in memory.
3. Accessible through the Windows Control Panel, use the Add/Remove Programs window to remove DB2 products. Refer to your operating system’s help for more information about removing software products from your Windows operating system.

Related tasks:

- “Removing DB2 on UNIX” on page 226

Related reference:

- “DROP DATABASE Command” in the *Command Reference*

Removing DB2 on UNIX

Removing DB2 on UNIX

This task provides steps for removing DB2 Version 8 from your UNIX operating system. This task is not required to install a new version of DB2.

Each version of DB2 on UNIX has a different installation path and can therefore coexist on the same computer.

Procedure:

To remove DB2 on UNIX:

1. Optional: Drop all databases. You can drop databases using the Control Center or the **drop database** command.
2. Stop the DB2 Administration Server.
3. Stop DB2 instances.
4. Remove the Administration Server.
5. Remove DB2 instances.
6. Remove DB2 products.

Related concepts:

- “DB2 Administration Server” in the *Administration Guide: Implementation*

Related tasks:

- “Stopping the DB2 administration server (DAS)” on page 227
- “Stopping DB2 instances” on page 229
- “Removing the DB2 administration server (DAS)” on page 228
- “Removing DB2 instances” on page 229
- “Removing DB2 products on UNIX” on page 230
- “Removing DB2 on Windows” on page 226

Related reference:

- “DROP DATABASE Command” in the *Command Reference*

Stopping the DB2 administration server (DAS)

This task is part of the main task of *Removing DB2 on UNIX*.

You must stop the DB2 administration server (DAS) before you remove DB2 on UNIX.

Procedure:

To stop the Administration Server:

1. Log in as the DB2 administration server owner.
2. Stop the DB2 administration server by entering the **db2admin stop** command.

The next step in removing DB2 on UNIX is to stop DB2 instances.

Related concepts:

- “DB2 Administration Server” in the *Administration Guide: Implementation*

Related tasks:

- “Removing DB2 products on UNIX” on page 230

Related reference:

- “db2admin - DB2 Administration Server Command” in the *Command Reference*

Removing the DB2 administration server (DAS)

This task is part of the main task of *Removing DB2 on UNIX*.

You must remove the DB2 administration server (DAS) before you remove DB2.

Procedure:

To remove the DB2 administration server:

1. Log in as the DB2 administration server owner.
2. Run the start up script:

```
. DASHOME/das/dasprofile (bash, Bourne, or Korn shells)
source DASHOME/das/dascshrc (C shell)
```

where *DASHOME* is the home directory of the DB2 administration server.

3. Back up the files in the *DASHOME*/das directory.
4. Log off.
5. Log in as root and remove the DB2 administration server by entering the following command: ***DB2DIR/instance/dasdrop***

where *DB2DIR* is */usr/opt/db2_08_01* on AIX and */opt/IBM/db2/V8.1* on all other UNIX-based operating systems.

The next step in removing DB2 on UNIX is to remove DB2 instances.

Related concepts:

- “DB2 Administration Server” in the *Administration Guide: Implementation*

Related tasks:

- “Removing DB2 products on UNIX” on page 230

Stopping DB2 instances

This task is part of the main task of *Removing DB2 on UNIX*.

You must stop all DB2 instances before you remove DB2.

Procedure:

To stop a DB2 instance:

1. Log in as a user with root authority.
2. To obtain a list of the names of all DB2 instances on your system, enter the `DB2DIR/bin/db2ilist` command.
where `DB2DIR` is `/usr/opt/db2_08_01` on AIX and `/opt/IBM/db2/V8.1` on all other UNIX-based operating systems.
3. Log out.
4. Log back in as the owner of the instance you want to stop.
5. Run the start up script:

```
. INSTHOME/sql1lib/db2profile      (bash, Bourne, or Korn shells)
source INSTHOME/sql1lib/db2cshrc  (C shell)
```

where `INSTHOME` is the home directory of the instance.
6. Back up files in the `INSTHOME/sql1lib` directory, if needed, where `INSTHOME` is the home directory of the instance owner.
7. You might want to save the database manager configuration file, `db2system`, the `db2nodes.cfg` file, or user defined function or fenced stored procedure applications in `INSTHOME/sql1lib/function`.
8. Stop all database applications by entering the **db2 force application all** command.
9. Stop the DB2 database manager by entering the **db2stop** command.
10. Confirm that the instance is stopped by entering the **db2 terminate** command.
11. Repeat these steps for each instance.

The next step in removing DB2 on UNIX is to remove DB2 instances.

Related reference:

- “db2stop - Stop DB2 Command” in the *Command Reference*
- “FORCE APPLICATION Command” in the *Command Reference*
- “db2ilist - List Instances Command” in the *Command Reference*

Removing DB2 instances

This task is part of the main task of *Removing DB2 on UNIX*.

You can remove some or all of the DB2 version 8 instances on your system. Once an instance is removed, all the DB2 databases owned by the instance, if any, will not be usable. Remove DB2 instances only if you are not planning to use DB2 Version 8 products, or if you do not want to migrate existing instances to a later version of DB2.

Procedure:

To remove an instance:

1. Remove the instance by entering the following command:

```
DB2DIR/instance/db2idrop InstName
```

where *DB2DIR* is `/usr/opt/db2_08_01` on AIX and `/opt/IBM/db2/V8.1` on all other UNIX-based operating systems.

The **db2idrop** command removes the instance entry from the list of instances and removes the *INSTHOME*/sql1lib directory, where *INSTHOME* is the home directory of the instance and where *InstName* is the login name of the instance.

2. Optional: As a user with root authority, remove the instance owner's user ID and group (if used only for that instance). Do not remove these if you are planning to re-create the instance.

This step is optional since the instance owner and the instance owner group may be used for other purposes.

The next step in removing DB2 on UNIX is to remove DB2 products.

Related tasks:

- "Removing DB2 products on UNIX" on page 230

Related reference:

- "db2idrop - Remove Instance Command" in the *Command Reference*

Removing DB2 products on UNIX

This task is part of the main task of *Removing DB2 on UNIX*.

This task provides steps for removing DB2 Version 8 products using the **db2_deinstall** command. The **db2_deinstall** command removes all DB2 products from your system. If you want to remove a subset of DB2 products, use your operating system's native tools to remove DB2 components, packages, or file sets.

Prerequisites:

Before you remove DB2 products from your UNIX system:

- Ensure that you have performed all steps outlined in *Removing DB2 on UNIX* before removing DB2 products from your UNIX system.
- You must have root authority to remove DB2 products.
- The **db2_deinstall** command is found in the root directory on the DB2 Version 8 product CD-ROM. You will need your product CD-ROM to use the **db2_deinstall** command.

Root authority is required to remove DB2 products.

Procedure:

To remove DB2 products from your UNIX system:

1. Log in as user with root authority.
2. Mount the DB2 Version 8 product CD-ROM.
3. Run the **db2_deinstall -n** command from the root directory of your DB2 Version 8 product CD-ROM. The *-n* parameter makes **pkgrm** non-interactive. The *-n* parameter is only on System V (Solaris).

This command will remove all DB2 products from your system.

There are alternative methods for removing DB2 products from your operating system. You may employ one of these methods if you only want to remove a subset of DB2 products from your system. Alternative methods for removing DB2 products include:

AIX On AIX systems you can use the System Management Interface Tool (SMIT) to remove some or all DB2 products. If you use SMIT to remove DB2, DB2 Version 8 products can be identified by their prefix of **db2_08_01**. You can also remove all DB2 products from AIX systems using the **installp** command by entering **installp -u db2_08_01**.

HP-UX

On HP-UX systems you can use the **swremove** command to remove some or all DB2 products.

Linux On Linux systems you can use the **rpm** command to remove some or all DB2 products.

Solaris operating environment

On the Solaris operating environment, you can remove some or all DB2 products using the **pkgrm** command.

Fast Communications Manager (UNIX)

The Fast Communications Manager (FCM) provides communication support for DB2® Enterprise Server Editions. Each database partition server has one FCM daemon to provide communications between database partition servers to handle agent requests, and to deliver message buffers. It consists of:

- A communications process, known as the FCM daemon (`db2fcmdm`)
- Requester functions that run within database manager processes
- Initialization and termination functions

The FCM daemon is started when you start the instance. When the daemon starts, it reads the node configuration file (`INSTHOME/sql/lib/db2nodes.cfg`, where `INSTHOME` is the home directory of the instance owner) and defines a well-known address to use for communications.

If communications fail between database partition servers or if they re-establish communications, the FCM daemon updates information (that you can query with the database system monitor) and causes the appropriate action (such as the rollback of an affected transaction) to be performed.

Note: You can specify the number of FCM message buffers with the `fcnum_buffers` database manager configuration parameter.

Related tasks:

- “Enabling communications between database partition servers” on page 165

Fast Communications Manager (Windows)

The fast communication manager (FCM) provides communication support for Enterprise Server Editions. Each database partition server has one FCM thread to provide communications between database partition servers to handle agent requests, and to deliver message buffers. The FCM thread is started when you start the instance.

If communications fail between database partition servers or if they re-establish communications, the FCM thread updates information (that you can query with the database system monitor) and causes the appropriate action (such as the rollback of an affected transaction) to be performed. You can use the database system monitor to help you set the FCM configuration parameters.

Note: You can specify the number of FCM message buffers with the `fcnum_buffers` database manager configuration parameter.

Related tasks:

- “Verifying port range availability on participating computers” on page 99

Setting up a working collective to distribute commands to ESE workstations (AIX)

In a partitioned database environment on AIX, you can set up a working collective to distribute commands to the set of RS/6000 SP workstations that participate in your partitioned database system. Commands can be distributed to the workstations by the `dsh` command.

This can be useful when installing or administrating a partitioned database system on AIX, to enable you quickly execute the same commands on all the computers in your environment with less opportunity for error.

Prerequisites:

You must know the hostname of each computer that you want to include in the working collective.

You must be logged on to the Control workstation as a user with root authority.

Procedure:

Have a file that lists the hostnames for all of the RS/6000 SP workstations that will participate in your partitioned database system. To set up the working collective to distribute commands to this list of workstations:

1. Create a file called `eeelist.txt` that will list the *hostnames* for all of the workstations that will participate in the working collective.

For example, assume that you wanted to create a working collective with two SP nodes called `workstation1` and `workstation2`. The contents of this file would be:

```
workstation1
workstation2
```

2. Update the working collective environment variable. To update this list, enter the following command:

```
export WCOLL=path/eeelist.txt
```

where *path* is the location where `eeelist.txt` was created, and `eeelist.txt` is the name of the file that you created that lists the RS/6000 SP workstations in the working collective.

3. Verify that the names in the working collective are indeed the workstations that you want, by entering the following command:

```
dsh -q
```

You will receive output similar to the following:

```
Working collective file /eeelist.txt:  
workstation1  
workstation2  
Fanout: 64
```

Related tasks:

- “Verifying that NFS is running (AIX)” on page 116

Verifying the installation of DB2 servers using First Steps

You should verify that the DB2 server installation has completed successfully by accessing data from the SAMPLE database.

Prerequisites:

- You must have the Control Center and the First Steps component installed to perform this task. First Steps is part of the Getting started component grouping in the DB2 Setup wizard. It is installed as part of a Typical installation or may be selected when performing a Custom installation.
- You must have SYSADM or SYSCTRL authority to perform this task.

Procedure:

1. Log on to the system with the user account that you want to use to verify the installation. Ensure that the domain user account you use to create the sample database has SYSADM or SYSCTRL authority.
2. Start First Steps.
3. Select **Create SAMPLE databases** on the First Steps Launchpad to open the Create SAMPLE databases window.
4. In the Create SAMPLE databases window, select the databases you want to create:
 - **DB2 UDB Sample database**
 - **Data Warehousing Sample database**

The DB2 UDB Sample database is used to verify the installation. The Data Warehouse Sample database is used with the Business Intelligence tutorial.

Note: The Data Warehousing sample database only applies if you installed the Base Warehouse components.

5. Click **OK**.

By default, the SAMPLE database is created on the drive where DB2 is installed.

This command may take a few minutes to process. When the SAMPLE database has been created, you will receive a completion message. Click **OK**.

6. Once the database is created, select **Work with the SAMPLE databases** on the First Steps Launchpad to start the Control Center. The Control Center allows you to perform administration tasks on different instance and database objects.

In the left pane of the Control Center screen, expand the object tree to view the SAMPLE database and SAMPLE database objects. Select the Tables object to view the SAMPLE database tables in the right pane of the Control Center screen.

After you have verified the installation, you can remove the SAMPLE database to free up disk space. Enter the **db2 drop database sample** command to drop the SAMPLE database.

Related tasks:

- “Verifying the installation using the command line processor (CLP)” on page 53
- “Installing DB2 Personal Edition (Windows)” in the *Quick Beginnings for DB2 Personal Edition*
- “Installing DB2 Personal Edition using the DB2 Setup wizard (Linux)” in the *Quick Beginnings for DB2 Personal Edition*

db2setup - Install DB2

Installs DB2 products.

This utility is located on the DB2 installation media. It launches the DB2 Setup wizard to define the installation and install DB2 products. If invoked with the *-r* option it performs an installation without further input taking installation configuration information from a response file.

For UNIX based systems

db2setup command

```
db2setup [-i language] [-l log_file] [-t trace_file]
          [-r response_file] [-?] [-h]
```

where:

db2setup - Install DB2

-i *language*

Is the two letter language code of the language in which to perform the installation.

-l *log_file*

Is the full path and file name of the log file to use.

-t Generates a file with install trace information.

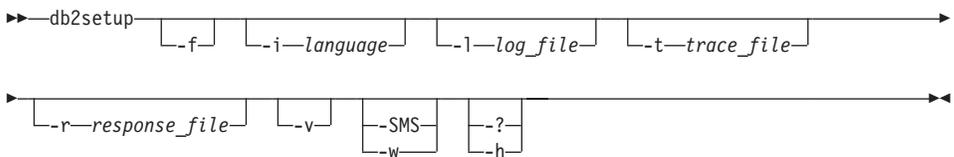
-r *response_file*

Is the full path and file name of the response file to use.

-, -h Generates usage information.

For Windows based systems

db2setup command



where:

-f Forces any DB2 processes to stop before installing.

-i:language

Is the two letter language code of the language in which to perform the installation.

-l:log_file

Is the full path and file name of the log file to use.

-t Generates a file with install trace information.

-r:response_file

Is the full path and file name of the response file to use.

-v Passes additional command line arguments to msiexec.

-SMS, -w

Keeps the parent process alive until the installation finishes.

-, -h Generates usage information.

Migrating Explain tables

This task is an optional part of the main task of *Migrating DB2*.

The **migrate database** command does not migrate explain tables. If you want to migrate explain tables for a database that you migrated to DB2 version 8 or if you are migrating from DataJoiner, you must perform the extra step of migrating explain tables using the **db2exmig** command.

You may want to migrate explain tables if you wish to maintain explain table information that you previously gathered. If you do not want to maintain previously gathered explain table information, you can later recreate the explain tables and gather new information.

Procedure:

To migrate the explain tables, use the **db2exmig** command:

```
db2exmig -d dbname -e explain_schema [-u userid password]
```

where:

- *dbname* represents the database name. This parameter is required.
- *explain_schema* represents the schema name of the explain tables to be migrated. This parameter is required.
- *userid* and *password* represent the current user's ID and password. These parameters are optional.

The explain tables belonging to the user ID that is running **db2exmig**, or that is used to connect to the database, will be migrated. The explain tables migration tool will rename Version 6 or Version 7 tables, create a new set of tables using the EXPLAIN.DDL, and copy the contents of the old tables to the new tables. Finally, it will drop the old tables. The **db2exmig** command will preserve any user added columns on the explain tables.

Related concepts:

- "Explain tools" in the *Administration Guide: Performance*
- "The explain tables and organization of explain information" in the *Administration Guide: Performance*

Related tasks:

- "Migrating databases" on page 30

Related reference:

- "db2expln - DB2 SQL Explain Tool Command" in the *Command Reference*

Granting user rights (Windows)

This topic describes the steps required to grant user rights on Windows operating systems. Specific user rights are recommended for user accounts required to install and setup DB2.

Prerequisites:

To grant advanced user rights on Windows you must be logged on as a local Administrator.

Procedure:

Windows NT

1. Click **Start** and select **Programs** → **Administrative Tools (Common)** → **User Manager for Domains**.
2. In the User Manager window, select **Policies** → **User Rights** from the menu bar.
3. In the User Rights Policy window, select the **Show Advanced User Rights** check box then in the **Right** drop down box, select the user right you want to grant. Click **Add**.
4. In the Add Users and Groups window select the user or the group you want to grant the right to and click **OK**.
5. In the User Rights Policy window, select the user or the group you have added from the **Grant To** list box and click **OK**.

Windows 2000, Windows XP, and Windows .NET

1. Click **Start** and select **Settings** → **Control Panel** → **Administrative Tools**.

Note: On Windows XP and Windows .NET computers, for some Windows Themes, this will be: **Settings** → **Control Panel** → **Performance and Maintenance** → **Administrative Tools**.

2. Select **Local Security Policy**.
3. In the left window pane, expand the **Local Policies** object, then select **User Rights Assignment**.
4. In the right window pane, select the user right that you want to assign.
5. From the menu, select **Action** → **Security...**
6. Click **Add**, then select a user or group to assign the right to, and click **Add**.
7. Click **OK**.

Note: If your computer belongs to a Windows 2000 or Windows .NET domain, the domain user rights may override your local settings. In this case, your Network Administrator will have to make the changes to the user rights.

Related concepts:

- “User, userID and group naming rules” on page 259

Related tasks:

- “Installing DB2 Personal Edition (Windows)” in the *Quick Beginnings for DB2 Personal Edition*

Related reference:

- “User accounts required for installation of DB2 servers (Windows)” on page 48
- “User accounts for installation and setup of DB2 Personal Edition” in the *Quick Beginnings for DB2 Personal Edition*

Creating group and user IDs for a DB2 installation

This task is part of the main task of *Setting up a DB2 server after manual installation*.

Three users and groups are required to operate DB2. The user and group names used in the following instructions are documented in the table below. You may specify your own user and group names as long as they adhere to system naming rules and DB2 naming rules.

The user IDs you create will be required to complete subsequent setup tasks.

Table 24. Required users and groups

Required user	Example user name	Example group name
Instance owner	db2inst1	db2iadm1
Fenced user	db2fenc1	db2fadm1
DB2 administration server user	db2as	db2asgrp

- The *instance owner* home directory is where the DB2 instance will be created.
- The *fenced user* is used to run user defined functions (UDFs) and stored procedures outside of the address space used by the DB2 database.
- The user ID for the *DB2 administration server user* is used to run the DB2 administration server on your system.

Prerequisites:

You must have root authority to create users and groups.

Procedure:

To create a required groups and user IDs for DB2:

1. Log in as a user with root authority.
2. Enter the appropriate commands for your operating system.

AIX To create groups on AIX, enter the following commands:

```
mkgroup id=999 db2iadm1
mkgroup id=998 db2fadm1
mkgroup id=997 db2asgrp
```

Create users for each group:

```
mkuser id=1004 pgrp=db2iadm1 groups=db2iadm1 home=/home/db2inst1
db2inst1 passwd mypasswrd
```

```
mkuser id=1003 pgrp=db2fadm1 groups=db2fadm1 home=/home/db2fenc1
db2fenc1 passwd mypasswrd
```

```
mkuser id=1002 pgrp=db2asgrp 1 groups=db2asgrp home=/home/db2as
db2as passwd mypasswrd
```

HP-UX

To create groups on HP-UX, enter the following commands:

```
groupadd id=999 dbiadm1
groupadd id=998 db2fadm1
groupadd id=997 db2asgrp
```

Create users for each group:

```
useradd -g db2iadm1 -d /home/db2inst1 -m db2inst1 passwd mypasswrd
useradd -g db2fadm1 -d /home/db2fenc1 -m db2inst1 passwd mypasswrd
useradd -g dbasgrp -d /home/db2fenc1 -m db2inst1 passwd mypasswrd
```

Linux To create groups on Linux, enter the following commands:

```
mkgroup -g 999 db2iadm1
mkgroup -g 998 db2fadm1
mkgroup -g 997 db2asgrp
```

Create users for each group:

```
mkuser -u 1004 -g db2iadm1 -G db2iadm1 -m -d /home/db2inst1
db2inst1 -p mypasswrd
```

```
mkuser -u 1003 -g db2fadm1 -G dbfadm1 -m -d /home/db2fenc1
db2fenc1 -p mypasswrd
```

```
mkuser -u 1002 -g db2asgrp -G db2asgrp -m -d /home/db2as
db2as -p mypasswrd
```

Solaris Operating Environment

To create groups on Solaris, enter the following commands:

```
groupadd -g 999 db2iadm1
groupadd -g 998 db2fadm1
groupadd -g 997 db2asgrp
```

Create users for each group:

```
useradd -g db2iadm1 -u 1004 -d /export/home/db2inst1 -m
db2inst1 passwd mypasswrd
```

```
useradd -g db2fadm1 -u 1003 -d /export/home/db2fenc1 -m
db2fenc1 passwd mypasswrd
```

```
useradd -g db2asgrp -u 1002 -d /export/home/db2as -m
db2as passwd mypasswrd
```

Related concepts:

- “Naming rules” on page 257

Related tasks:

- “Installing a DB2 product manually” in the *Installation and Configuration Supplement*

DB2 system administrator group (Windows)

By default, System Administrative (SYSADM) authority is granted to any valid DB2[®] user account which belongs to the Administrators group on the machine where the account is defined. If the account is a local account, then it must belong to the local Administrators group. If the account is a domain account, then it must belong to the Administrators group at the domain controller.

For example, if a user logs on to a domain account and tries to access a DB2 database, DB2 will go to a Domain Controller to enumerate groups (including the Administrators group). You can force DB2 to always perform group lookup on the local machine by setting the registry variable **DB2_GRP_LOOKUP=local** and adding the domain accounts (or global groups) to the local group.

For a domain user to have SYSADM authority, it must belong to the Administrators group on the Domain Controller. Since DB2 always performs authorization at the machine where the account is defined, adding a domain user to the local Administrators group on the server does not grant the domain user SYSADM authority to this group.

To avoid adding a domain user to the Administrators group at the Domain Controller, we suggest that you create a global group and add the domain users to which you want to grant SYSADM authority, and then update the DB2 configuration parameter SYSADM_GROUP with the name of the global group. To do so, enter the following commands:

```
db2stop
db2 update dbm cfg using sysadm_group global_group
db2start
```

Related tasks:

- “Installing DB2 Personal Edition (Windows)” in the *Quick Beginnings for DB2 Personal Edition*

Related reference:

- “User accounts for installation and setup of DB2 Personal Edition” in the *Quick Beginnings for DB2 Personal Edition*

Part 8. Appendixes

Appendix A. Language support

Changing the DB2 interface language (Windows)

The interface language of DB2 is the language that appears in messages, help, and graphical tool interfaces. When installing DB2, you have the option of installing support for one or more languages. If, at some time after installation, you want to change the interface language for DB2 to one of the other installed interface languages, use the steps outlined in this task.

Do not confuse languages supported by DB2 with languages supported by the DB2 interface. Languages supported by DB2, that is, languages that *data* can exist in, are a superset of languages supported by the DB2 interface.

Prerequisites:

The DB2 interface language you want to use must be installed on your system. DB2 interface languages are selected and installed when you install DB2 using the DB2 Setup wizard. If you change the interface language of DB2 to a supported interface language that has not been installed, the DB2 interface language will default to the operating system language first, and if that is not supported, English.

Procedure:

Changing the interface language for DB2 on Windows requires that you change the default language setting for your Windows operating system.

To change the DB2 interface language on Windows:

1. Through the Control Panel on your Windows operating system, select **Regional Options**.
2. In the Regional Options dialog window, change the default language setting for the system to the language in which you want to interface with DB2.

Refer to your operating system help for additional information about changing the default system language.

Related reference:

- “Supported territory codes and code pages” in the *Administration Guide: Planning*
- “Supported DB2 interface languages, locales, and code pages” on page 246

Changing the DB2 interface language (UNIX)

The interface language of DB2 is the language that appears in messages, help, and graphical tool interfaces. When installing DB2, you have the option of installing support for one or more languages. If, at some time after installation, you want to change the interface language for DB2 to one of the other installed interface languages, use the steps outlined in this task.

Do not confuse languages supported by DB2 with languages supported by the DB2 interface. Languages supported by DB2, that is, languages that *data* can exist in, are a superset of languages supported by the DB2 interface.

Prerequisites:

Support for the DB2 interface language you want to use must be installed on your system. DB2 interface language support is selected and installed when you install DB2 using the DB2 Setup wizard. If you change the interface language of DB2 to a supported interface language that has not been installed, the DB2 interface language will default to the operating system language first, and if that is not supported, English.

Procedure:

To change the DB2 interface language on UNIX systems, set the LANG environment variable to the desired locale.

For example, to interface with DB2 in French using DB2 for AIX, you must have French language support installed and you must set the LANG environment variable to a French locale, for example, fr_FR.

Related reference:

- “Supported territory codes and code pages” in the *Administration Guide: Planning*
- “Supported DB2 interface languages, locales, and code pages” on page 246

Supported DB2 interface languages, locales, and code pages

The following two tables list the languages (by operating system) supported by the DB2 interface, the language locale, and the code page for each locale. The DB2 interface includes messages, help, and graphical tool interfaces.

Do not confuse languages supported by DB2 with languages supported by the DB2 interface. Languages supported by DB2 that is, languages that *data* can exist in, are a superset of languages supported by the DB2 interface.

Language

Languages supported by the DB2 interface (messages, help, and graphical tool interfaces).

Locale/code page

The locale is used with the LANG environment variable on UNIX systems to set the language for the DB2 interface. A locale is not required for setting the DB2 interface language on Windows systems. On Windows systems, the DB2 interface language is determined by the system default language setting. The associated code page for each locale is listed as well.

Table 25. AIX, HP-UX, and Solaris Operating Environment locales and code pages

Language	AIX locale/code page	HP-UX locale/code page	Solaris locale/code page
Bulgarian	bg_BG/915 BG_BG/1208	bg_BG.iso88595/915 bg_BG.utf8/1208	bg_BG.UTF-8/1208
Brazil Portuguese	pt_BR/819 PT_BR/1208	pt_BR.iso88591/819 pt_BR.utf8/1208	pt_BR/819 pt_BR.UTF-8/1208
Chinese Simplified	zh_CN/1383 Zh_CN.GBK/1386 ZH_CN/1208	zh_CN.hp15CN/1383 zh_CN.utf8/1208	zh/1383 zh_CN.UTF-8/1208
Chinese Traditional	zh_TW/964 Zh_CN.GBK/950 ZH_CN/1208	zh_CN.hp15CN/1283 zh_CN.utf8/1208	zh/1383 zh_CN.UTF-8/1208
Croatian	hr_HR/912 HR_HR/1208	hr_HR.iso88592/912 hr_HR.utf8/1204	hr_HR/912 hr_HR.UTF-8/1204
Czech	cs_CZ/912 CS_CZ/1208	cs_CZ.utf8/1208	cs_CZ.UTF-8/1208
Danish	da_DK/819 Da_DK/850 DA_DK/1208	da_DK.iso88591/819 da_DK.roman8/1051 da_DK.utf8/1208	da/819 da_DK.UTF-8/1208
Dutch	n1_NL/819 NL_NL/	N/A	N/A
Finnish	fi_FI/819 Fi_FI/850 FI_FI/1208	fi_FI.iso88591/819 fi_FI.roman8/1051 fi_FI.utf8/1208	fi/819 fi_FI.UTF-8/1208

Table 25. AIX, HP-UX, and Solaris Operating Environment locales and code pages (continued)

Language	AIX locale/code page	HP-UX locale/code page	Solaris locale/code page
French	fr_FR/819 Fr_FR/850 FR_FR/1208	fr_FR.iso88591/819 fr_FR.roman8/1051 fr_FR.utf8/1208	fr/819 fr_FR.UTF-8/1208
German	de_DE/819 De_DE/850 DE_DE/1208	de_DE.iso88591/819 de_DE.roman8/1051 de_DE.utf8/1208	de/819 de_DE.UTF-8/1208
Hungarian	hu_HU/912 HU_HU/1208	hu_HU.utf8/1208	hu_HU.UTF-8/1208
Italian	it_IT/819 It_IT/850 IT_IT/1208	it_IT.iso88591/819 it_IT.roman8/1051 it_IT.utf8/1208	it/819 it_IT.UTF-8/1208
Japanese	ja_JP/954 Ja_JP/932 JA_JP/1208	ja_JP.eucJP/954 ja_JP.utf8/1208	ja/954 ja_JP.UTF-8/1208
Korean	Ko_KR/970 kO_KR1208	ko_KR.eucKR/970 ko_KR.utf8/1208	ko/970 ko_KR.UTF-8/1208
Norwegian	no_NO/819 No_NO/850 NO_NO/1208	no_NO.iso88591/819 no_NO.roman8/850 no_NO.utf8/1208	no/819 no_NO.UTF-8/1208
Polish	p1_PL/912 PL_PL/1208	p1_PL.utf8/1208	n1_NL.UTF-8/1208
Russian	ru_RU/915 RU_RU/1208	ru_RU.utf8/1208	ru_RU.UTF-8/1208
Romanian	ro_RU/912 RO_RO/1204	ro_R0.iso88592/912 ro_R0.utf8/1204	N/A
Slovak	sk_SK/912 SK_SK/1204	sk_SK.iso88592/912 sk_SK.utf8/1204	sk_SK/912 sk_SK.UTF-8/1204
Slovenian	s1_SI/912 SL_SI/1208	s1_SI.iso88592/912 s1_SI.utf8/1208	s1_SI/912 s1_SI.UTF-8/1208

Table 25. AIX, HP-UX, and Solaris Operating Environment locales and code pages (continued)

Language	AIX locale/code page	HP-UX locale/code page	Solaris locale/code page
Spanish	es_ES/819 Es_ES/850 ES_ES/1208	es_ES.iso88591/819 es_ES.roman8/1051 es_ES.utf8/1208	es/819 es_ES.UTF-8/1208
Swedish	Sv_SE/819 sv_SE/850 SV_SE/1208	sv_SE.iso88591/819 sv_SE.roman8/1051 sv_SE.utf8/1208	sv/819 sv_SE.UTF-8/1208
Turkish	tr_TR/920 TR_TR/1208	tr_TR.utf8/1208	tr_TR.UTF-8/1208

Table 26. Linux and Linux/390 locales and codepages

Language	Linux locale/code page	Linux/390 locale/code page
Arabic	ar/1089 ar_AA.utf8/1208	ar/1089 ar_AA.utf8/1208
Brazil Portuguese	pt_BR/819 pt_BR.utf8/1208	pt_BR/819 pt_BR.utf8/1208
Bulgarian	bg_BG/915 bg_BG.utf8/1208	bg_BG/915 bg_BG.utf8/1208
Chinese Simplified	zh_zh_CN.GBKz/1386 zh_CN.utf8/1208	zh_zh_CN.GBK/1386 zh_CN.utf8/1208
Chinese Traditional	zh_TW.Big5/950 zh_TW.utf8/1208	zh_TW.Big5/950 zh_TW.utf8/1208
Croatian	hr_HR/912 hr_HR.utf8/1208	hr_HR/912 hr_HR.utf8/1208
Czech	cs_CZ/912 cs_CZ.utf8/1208	p1_PL/912 p1_PL.utf8/1208
French	fr/819 fr_FR.utf8/1208	fr/819 fr_FR.utf8/1208

Table 26. Linux and Linux/390 locales and codepages (continued)

Language	Linux locale/code page	Linux/390 locale/code page
German	de/819 de_DE.utf8/1208	de/819 de_DE.utf8/1208
Hungarian	hu_HU/912 hu_HU.utf8/1208	hu_HU/912 hu_HU.utf8/1208
Italian	it_IT.utf8/1208	it_IT.utf8/1208
Japanese	ja_JP.ujis/954 ja_JP.utf8/1208	ja_JP.ujis/954 ja_JP.utf8/1208
Korean	ko/970 ko_KR.utf8/1208	ko/970 ko_KR.utf8/1208
Polish	pl_PL/912 pl_PL.utf8/1208	pl_PL/912 pl_PL.utf8/1208
Romanian	ro_RO/912 ro_RO.utf8/1208	ro_RO/912 ro_RO.utf8 /1208
Russian	ru_RU/915 ru_RU.utf8/1208	ru_RU/915 ru_RU.utf8/1208
Spanish	es_ES.utf8/1208	es_ES.utf8/1208
Slovak	sk_SK/912 sk_SK.utf8/1208	sk_SK/912 sk_SK.utf8/1208
Slovanian	sl_SI/912 sl_SI.utf8/1208	sl_SI/912 sl_SI.utf8/1208

Related tasks:

- “Changing the diagnostic error level before DB2 migration” on page 25
- “Changing the DB2 interface language (Windows)” on page 245
- “Changing the DB2 interface language (UNIX)” on page 246

Related reference:

- “National language versions” in the *Administration Guide: Planning*

- “Supported territory codes and code pages” in the *Administration Guide: Planning*

Language identifiers (for running the DB2 Setup wizard in another language)

If you want to run the DB2 Setup wizard in a language different from the default language on your computer, you can start the DB2 Setup wizard manually, specifying a language identifier. The language must be available on the platform where you are running the installation.

Table 27. Language identifiers

Language	Language identifier
Arabic	ar
Brazilian Portuguese	br
Bulgarian	bg
Chinese, Simplified	cn
Chinese, Traditional	tw
Croatian	hr
Czech	cz
Danish	dk
Dutch	nl
English	en
Finnish	fi
French	fr
German	de
Greek	el
Hebrew	iw
Hungarian	hu
Italian	it
Japanese	jp
Korean	kr
Norwegian	no
Polish	pl
Portuguese	pt
Romanian	ro
Russian	ru
Slovak	sk

Table 27. Language identifiers (continued)

Language	Language identifier
Slovenian	sl
Spanish	es
Swedish	se
Turkish	tr

Bidirectional CCSID support

The following BiDi attributes are required for correct handling of Bidirectional data on different platforms:

- Text type (LOGICAL vs VISUAL)
- Shaping (SHAPED vs UNSHAPED)
- Orientation (RIGHT-TO-LEFT vs LEFT-TO-RIGHT)
- Numeral shape (ARABIC vs HINDI)
- Symmetric swapping (YES or NO)

Since defaults on different platforms are not the same, problems appear when DB2 data is sent from one platform to another. For example, Windows platforms use LOGICAL UNSHAPED data, while data on OS/390 is usually in SHAPED VISUAL format. Therefore, without any support for these attributes data sent from DB2 Universal Database for OS/390 and z/OS to DB2 UDB on a Windows 32-bit operating systems workstation displays incorrectly.

Bidirectional-specific CCSIDs:

Table 28. Bidirectional Coded Character Set Identifiers (CCSID) defined and implemented with DB2

CCSID	Code Page	String Type
00420	420	4
00424	424	4
08612	420	5
08616	424	6
12708	420	7
X'3F00'	856	4
X'3F01'	862	4
X'3F02'	916	4
X'3F03'	424	5

Table 28. Bidirectional Coded Character Set Identifiers (CCSID) defined and implemented with DB2 (continued)

X'3F04'	856	5
X'3F05'	862	5
X'3F06'	916	5
X'3F07'	1255	5
X'3F08	1046	5
X'3F09'	864	5
X'3F0A'	1089	5
X'3F0B'	1256	5
X'3F0C'	856	6
X'3F0D'	862	6
X'3F0E'	916	6
X'3F0F'	1255	6
X'3F10'	420	6
X'3F11'	864	6
X'3F12'	1046	6
X'3F13'	1089	6
X'3F14'	1256	6
X'3F15'	424	8
X'3F16'	856	8
X'3F17'	862	8
X'3F18'	916	8
X'3F19'	420	8
X'3F1A'	420	9
X'3F1B'	424	10
X'3F1C'	856	10
X'3F1D'	862	10
X'3F1E'	916	10
X'3F1F'	1255	10
X'3F20'	424	11
X'3F21'	856	11
X'3F22'	862	11
X'3F23'	916	11

Table 28. Bidirectional Coded Character Set Identifiers (CCSID) defined and implemented with DB2 (continued)

X'3F24'	1255	11
---------	------	----

Table 29. Where CDRA String Types are defined

String Type	Text Type	Numerical Shape	Orientation	Shaping	Symmetrical Swapping
4	Visual	Arabic	LTR	Shaped	OFF
5	Implicit	Arabic	LTR	Unshaped	ON
6	Implicit	Arabic	RTL	Unshaped	ON
7(*)	Visual	Arabic	Contextual(*)	Unshaped-Lig	OFF
8	Visual	Arabic	RTL	Shaped	OFF
9	Visual	Passthru	RTL	Shaped	ON
10	Implicit		Contextual-L		ON
11	Implicit		Contextual-R		ON

Field orientation is left-to-right (LTR) when the first alphabetic character is a Latin one, and right-to-left (RTL) when it is a bidirectional (RTL) character. Characters are unshaped, but LamAlef ligatures are kept, and not broken into constituents.

Conversion of character data

When character data is transferred between machines, it must be converted to a form that the receiving machine can use.

For example, when data is transferred between a DB2 Connect server and a host or iSeries™ database server, it is usually converted from a server code page to a host CCSID, and vice versa. If the two machines use different code pages or CCSIDs, code points are mapped from one code page or CCSID to the other. This conversion is always performed at the receiver.

Character data sent *to* a database consists of SQL statements and input data. Character data sent *from* a database consists of output data. Output data that is interpreted as bit data is not converted. For example, data from a column declared with the FOR BIT DATA clause. Otherwise all input and output character data is converted if the two machines have different code pages or CCSIDs.

For example, if DB2 Connect is used to access DB2 Universal Database for OS/390 and z/OS data, the following happens:

1. DB2[®] Connect sends an SQL statement and input data to OS/390[®] or z/OS.
2. DB2 Universal Database for OS/390 and z/OS converts the data to an EBCDIC CCSID and processes it.
3. DB2 Universal Database for OS/390 and z/OS sends the result back to the DB2 Connect server.
4. DB2 Connect[™] converts the result to an ASCII or ISO code page and returns it to the user.

The table that follows shows the conversions that are supported between code pages (on the DB2 Connect Server) and CCSIDs (on the host or iSeries server).

Table 30. Server Code Page to host or iSeries CCSID Conversion

Host CCSIDs	Code Page	Territory
037, 273, 277, 278, 280, 284, 285, 297, 500,871, 1140-1149	437, 819, 850, 858, 860, 863, 1004, 1051,1252, 1275	Albania, Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Latin America, Netherlands, New Zealand, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, UK, USA
423, 875	737, 813, 869, 1253, 1280	Greece
870	852, 912, 920 ⁴ , 1250, 1282	Croatia, Czech Republic, Hungary, Poland, Romania, Serbia/Montenegro (Latin), Slovakia, Slovenia
1025	855, 866, 915, 1251, 1283	Bulgaria, FYR Macedonia, Russia, Serbia/Montenegro(Cyrillic)
1026	857, 920, 1254, 1281	Turkey
424	862, 916, 1255	Israel ³
420	864, 1046, 1089, 1256	Arabic countries ³
838	874	Thailand
930, 939, 5026, 5035	932, 942, 943, 954, 5039	Japan
937	938, 948, 950, 964	Taiwan
933, 1364	949, 970, 1363	Korea
935, 1388	1381, 1383, 1386	People's Republic of China

Table 30. Server Code Page to host or iSeries CCSID Conversion (continued)

Host CCSIDs	Code Page	Territory
1112, 1122	921, 922	Estonia, Latvia, Lithuania
1025	915, 1131, 1251, 1283	Belarus
1123	1124, 1125, 1251	Ukraine

Notes:

1. Code page 1004 is supported as code page 1252.
2. In general, data can be converted from a code page to a CCSID and back again to the same code page with no change. The following are the only exceptions to that rule:
 - In double-byte character set (DBCS) code pages, some data containing user-defined characters may be lost.
 - For single-byte code pages defined within mixed-byte code pages, and for some newer single-byte code pages, characters that do not exist in both the source and the target may be mapped to substitution characters and then lost when the data is converted back to the original code page.
3. For bidirectional languages, a number of special "BiDi CCSIDS" have been defined by IBM® and are supported by DB2 Connect.

If the bidirectional attributes of the database server are different from those of the client you can use these special CCSIDS to manage the difference.

See the DB2 Connect Release notes for detailed information about how to set them up for host or iSeries connections.
4. This code page is not supported on VM systems.

Related concepts:

- "Character-conversion guidelines" in the *Administration Guide: Performance*

Appendix B. Naming rules

Naming rules

Unless otherwise specified, all names can include the following characters:

- A through Z. When used in most names, characters A through Z are converted from lowercase to uppercase.
- 0 through 9
- @, #, \$, and _ (underscore)

Names cannot begin with a number or with the underscore character.

Do not use SQL reserved words to name tables, views, columns, indexes, or authorization IDs.

There are other special characters that might work separately depending on your operating system and where you are working with DB2. However, while they might work, there is no guarantee that they will work. It is not recommended that you use these other special characters when naming objects in your database.

You also need to consider object naming rules, workstation naming rules, naming rules in an NLS environment, and naming rules in a Unicode environment.

Related concepts:

- “General rules for naming objects and users” in the *Administration Guide: Implementation*
- “DB2 object naming rules” on page 257
- “Workstation naming rules” on page 261
- “User, userID and group naming rules” on page 259
- “Federated database object naming rules” on page 260

DB2 object naming rules

All objects follow the General Naming Rules. In addition, some objects have additional restrictions shown below.

Table 31. Database, database alias and instance naming Rules

Objects	Guidelines
<ul style="list-style-type: none"> • Databases • Database aliases • Instances 	<ul style="list-style-type: none"> • Database names must be unique within the location in which they are cataloged. On UNIX-based implementations of DB2, this location is a directory path, while on Windows® implementations, it is a logical disk. • Database alias names must be unique within the system database directory. When a new database is created, the alias defaults to the database name. As a result, you cannot create a database using a name that exists as a database alias, even if there is no database with that name. • Database, database alias and instance names can have up to 8 bytes. • On Windows NT, Windows 2000, Windows XP and Windows .NET systems, no instance can have the same name as a service name. <p>Note: To avoid potential problems, do not use the special characters @, #, and \$ in a database name if you intend to use the database in a communications environment. Also, because these characters are not common to all keyboards, do not use them if you plan to use the database in another language.</p>

Table 32. Database Object Naming Rules

Objects	Guidelines
<ul style="list-style-type: none"> • Aliases • Buffer pools • Columns • Event monitors • Indexes • Methods • Nodegroups • Packages • Package versions • Schemas • Stored procedures • Tables • Table spaces • Triggers • UDFs • UDTs • Views 	<p>Can contain up to 18 bytes <i>except</i> for the following:</p> <ul style="list-style-type: none"> • Table names (including view names, summary table names, alias names, and correlation names), which can contain up to 128 bytes • Package names, which can contain up to 8 bytes • Schema names, which can contain up to 30 bytes • Package versions, which can contain up to 64 bytes • Object names can also include: <ul style="list-style-type: none"> – valid accented characters (such as ö) – multibyte characters, except multibyte spaces (for multibyte environments) • Package names and package versions can also include periods (.), hyphens (-), and colons (:).

Related concepts:

- “Naming rules” on page 257

Delimited identifiers and object names

Keywords can be used. If a keyword is used in a context where it could also be interpreted as an SQL keyword, it must be specified as a delimited identifier.

Using delimited identifiers, it is possible to create an object that violates these naming rules; however, subsequent use of the object could result in errors. For example, if you create a column with a + or – sign included in the name and you subsequently use that column in an index, you will experience problems when you attempt to reorganize the table.

Related concepts:

- “Naming rules” on page 257

User, userID and group naming rules

Table 33. User, userID and group naming rules

Objects	Guidelines
<ul style="list-style-type: none">• Group names• User names• User IDs	<ul style="list-style-type: none">• Group names can contain up to 8 bytes.• User IDs on UNIX-based systems can contain up to 8 characters.• User names on Windows® can contain up to 30 characters. Windows NT, Windows 2000, Windows XP and Windows .NET currently have a practical limit of 20 characters.• When not Client authentication, non-Windows 32-bit clients connecting to Windows NT, Windows 2000, Windows XP and Windows .NET with user names longer than 8 characters are supported when the user name and password are specified explicitly.• Names and IDs cannot:<ul style="list-style-type: none">– Be USERS, ADMINS, GUESTS, PUBLIC, LOCAL or any SQL reserved word– Begin with IBM, SQL or SYS.– Include accented characters.

Notes:

1. Some operating systems allow case sensitive user IDs and passwords. You should check your operating system documentation to see if this is the case.
2. The authorization ID returned from a successful CONNECT or ATTACH is truncated to 8 characters. An ellipsis (...) is appended to the authorization ID and the SQLWARN fields contain warnings to indicate truncation.

Related concepts:

- “Naming rules” on page 257
- “Federated database object naming rules” on page 260

Federated database object naming rules

Table 34. Federated database object naming rules

Objects	Guidelines
<ul style="list-style-type: none">• Function mappings• Index specifications• Nicknames• Servers• Type mappings• User mappings• Wrappers	<ul style="list-style-type: none">• Nicknames, mappings, index specifications, servers, and wrapper names cannot exceed 128 bytes.• Server and nickname options and option settings are limited to 255 bytes.• Names for federated database objects can also include:<ul style="list-style-type: none">– Valid accented letters (such as ö)– Multibyte characters, except multibyte spaces (for multibyte environments)

Related concepts:

- “Naming rules” on page 257

Additional schema names information

- User-defined types (UDTs) cannot have schema names longer than 8 bytes.
- The following schema names are reserved words and must not be used: SYSCAT, SYSFUN, SYSIBM, SYSSTAT.
- To avoid potential migration problems in the future, do not use schema names that begin with SYS. The database manager will not allow you to create triggers, user-defined types or user-defined functions using a schema name beginning with SYS.
- It is recommended that you not use SESSION as a schema name. Declared temporary tables must be qualified by SESSION. It is therefore possible to have an application declare a temporary table with a name identical to that

of a persistent table, in which case the application logic can become overly complicated. Avoid the use of the schema `SESSION`, except when dealing with declared temporary tables.

Related concepts:

- “Naming rules” on page 257

Additional password information

You may be required to perform password maintenance tasks. Since such tasks are required at the server, and many users are not able or comfortable working with the server environment, performing these tasks can pose a significant challenge. DB2® UDB provides a way to update and verify passwords without having to be at the server. For example, DB2 for OS/390® Version 5 supports this method of changing a user’s password. If an error message `SQL1404N “Password expired”` is received, use the `CONNECT` statement to change the password as follows:

```
CONNECT TO <database> USER <userid> USING <password>
NEW <new_password> CONFIRM <new_password>
```

The “Password change” dialog of the DB2 Configuration Assistant (CA) can also be used to change the password.

Related concepts:

- “Naming rules” on page 257
- “DB2 object naming rules” on page 257
- “Workstation naming rules” on page 261
- “User, userID and group naming rules” on page 259
- “Federated database object naming rules” on page 260
- “Delimited identifiers and object names” on page 259
- “Additional schema names information” on page 260

Workstation naming rules

A *workstation name* specifies the NetBIOS name for a database server, database client, or DB2® Personal Edition that resides on the local workstation. This name is stored in the database manager configuration file. The workstation name is known as the *workstation nname*.

In addition, the name you specify:

- Can contain 1 to 8 characters
- Cannot include `&`, `#`, or `@`

- Must be unique within the network

In a partitioned database system, there is still only one workstation *nname* that represents the entire partitioned database system, but each node has its own derived unique NetBIOS *nname*.

The workstation *nname* that represents the partitioned database system is stored in the database manager configuration file for the database partition server that owns the instance.

Each node's unique *nname* is a derived combination of the workstation *nname* and the node number.

If a node does not own an instance, its NetBIOS *nname* is derived as follows:

1. The first character of the instance-owning machine's workstation *nname* is used as the first character of the node's NetBIOS *nname*.
2. The next 1 to 3 characters represent the node number. The range is from 1 to 999.
3. The remaining characters are taken from the instance-owning machine's workstation *nname*. The number of remaining characters depends on the length of the instance-owning machine's workstation *nname*. This number can be from 0 to 4.

For example:

Instance-Owning Machine's Workstation <i>nname</i>	Node Number	Derived Node NetBIOS <i>nname</i>
GEORGE	3	G3ORGE
A	7	A7
B2	94	B942
N0076543	21	N216543
GEORGE5	1	G1RGE5

If you have changed the default workstation *nname* during the installation, the workstation *nname*'s last 4 characters should be unique across the NetBIOS network to minimize the chance of deriving a conflicting NetBIOS *nname*.

Related concepts:

- "Naming rules" on page 257

Naming rules in an NLS environment

The basic character set that can be used in database names consists of the single-byte uppercase and lowercase Latin letters (A...Z, a...z), the Arabic numerals (0...9) and the underscore character (_). This list is augmented with three special characters (#, @, and \$) to provide compatibility with host database products. Use special characters #, @, and \$ with care in an NLS environment because they are not included in the NLS host (EBCDIC) invariant character set. Characters from the extended character set can also be used, depending on the code page that is being used. If you are using the database in a multiple code page environment, you must ensure that all code pages support any elements from the extended character set you plan to use.

When naming database objects (such as tables and views), program labels, host variables, cursors, and elements from the extended character set (for example, letters with diacritical marks) can also be used. Precisely which characters are available depends on the code page in use.

Extended Character Set Definition for DBCS Identifiers:

In DBCS environments, the extended character set consists of all the characters in the basic character set, plus the following:

- All double-byte characters in each DBCS code page, except the double-byte space, are valid letters.
- The double-byte space is a special character.
- The single-byte characters available in each mixed code page are assigned to various categories as follows:

Category	Valid Code Points within each Mixed Code Page
Digits	x30-39
Letters	x23-24, x40-5A, x61-7A, xA6-DF (A6-DF for code pages 932 and 942 only)
Special Characters	All other valid single-byte character code points

Related concepts:

- “Naming rules” on page 257
- “DB2 object naming rules” on page 257
- “Workstation naming rules” on page 261

Naming rules in a Unicode environment

In a UCS-2 database, all identifiers are in multibyte UTF-8. Therefore, it is possible to use any UCS-2 character in identifiers where the use of a character in the extended character set (for example, an accented character, or a multibyte character) is allowed by DB2[®] UDB.

Clients can enter any character that is supported by their environment, and all the characters in the identifiers will be converted to UTF-8 by the database manager. Two points must be taken into account when specifying national language characters in identifiers for a UCS-2 database:

- Each non-ASCII character requires two to four bytes. Therefore, an n -byte identifier can only hold somewhere between $n/4$ and n characters, depending on the ratio of ASCII to non-ASCII characters. If you have only one or two non-ASCII (for example, accented) characters, the limit is closer to n characters, while for an identifier that is completely non-ASCII (for example, in Japanese), only $n/4$ to $n/3$ characters can be used.
- If identifiers are to be entered from different client environments, they should be defined using the common subset of characters available to those clients. For example, if a UCS-2 database is to be accessed from Latin-1, Arabic, and Japanese environments, all identifiers should realistically be limited to ASCII.

Related concepts:

- “Naming rules” on page 257
- “DB2 object naming rules” on page 257
- “Workstation naming rules” on page 261

Appendix C. DB2 Universal Database technical information

Overview of DB2 Universal Database technical information

DB2 Universal Database technical information can be obtained in the following formats:

- Books (PDF and hard-copy formats)
- A topic tree (HTML format)
- Help for DB2 tools (HTML format)
- Sample programs (HTML format)
- Command line help
- Tutorials

This section is an overview of the technical information that is provided and how you can access it.

FixPaks for DB2 documentation

IBM may periodically make documentation FixPaks available. Documentation FixPaks allow you to update the information that you installed from the *DB2 HTML Documentation CD* as new information becomes available.

Note: If you do install documentation FixPaks, your HTML documentation will contain more recent information than either the DB2 printed or online PDF manuals.

Categories of DB2 technical information

The DB2 technical information is categorized by the following headings:

- Core DB2 information
- Administration information
- Application development information
- Business intelligence information
- DB2 Connect information
- Getting started information
- Tutorial information
- Optional component information
- Release notes

The following tables describe, for each book in the DB2 library, the information needed to order the hard copy, print or view the PDF, or locate the HTML directory for that book. A full description of each of the books in

the DB2 library is available from the IBM Publications Center at www.ibm.com/shop/publications/order

The installation directory for the HTML documentation CD differs for each category of information:

htmlcdpath/doc/htmlcd/%L/category

where:

- *htmlcdpath* is the directory where the HTML CD is installed.
- *%L* is the language identifier. For example, en_US.
- *category* is the category identifier. For example, core for the core DB2 information.

In the PDF file name column in the following tables, the character in the sixth position of the file name indicates the language version of a book. For example, the file name db2d1e80 identifies the English version of the *Administration Guide: Planning* and the file name db2d1g80 identifies the German version of the same book. The following letters are used in the sixth position of the file name to indicate the language version:

Language	Identifier
Arabic	w
Brazilian Portuguese	b
Bulgarian	u
Croatian	9
Czech	x
Danish	d
Dutch	q
English	e
Finnish	y
French	f
German	g
Greek	a
Hungarian	h
Italian	i
Japanese	j
Korean	k
Norwegian	n
Polish	p
Portuguese	v
Romanian	8
Russian	r
Simp. Chinese	c
Slovakian	7
Slovenian	l

Spanish	z
Swedish	s
Trad. Chinese	t
Turkish	m

No form number indicates that the book is only available online and does not have a printed version.

Core DB2 information

The information in this category covers DB2 topics that are fundamental to all DB2 users. You will find the information in this category useful whether you are a programmer, a database administrator, or you work with DB2 Connect, DB2 Warehouse Manager, or other DB2 products.

The installation directory for this category is `doc/htmlcd/%L/core`.

Table 35. Core DB2 information

Name	Form Number	PDF File Name
<i>IBM DB2 Universal Database Command Reference</i>	SC09-4828	db2n0x80
<i>IBM DB2 Universal Database Glossary</i>	No form number	db2t0x80
<i>IBM DB2 Universal Database Master Index</i>	SC09-4839	db2w0x80
<i>IBM DB2 Universal Database Message Reference, Volume 1</i>	GC09-4840	db2m1x80
<i>IBM DB2 Universal Database Message Reference, Volume 2</i>	GC09-4841	db2m2x80
<i>IBM DB2 Universal Database What's New</i>	SC09-4848	db2q0x80

Administration information

The information in this category covers those topics required to effectively design, implement, and maintain DB2 databases, data warehouses, and federated systems.

The installation directory for this category is `doc/htmlcd/%L/admin`.

Table 36. Administration information

Name	Form number	PDF file name
<i>IBM DB2 Universal Database Administration Guide: Planning</i>	SC09-4822	db2d1x80
<i>IBM DB2 Universal Database Administration Guide: Implementation</i>	SC09-4820	db2d2x80
<i>IBM DB2 Universal Database Administration Guide: Performance</i>	SC09-4821	db2d3x80
<i>IBM DB2 Universal Database Administrative API Reference</i>	SC09-4824	db2b0x80
<i>IBM DB2 Universal Database Data Movement Utilities Guide and Reference</i>	SC09-4830	db2dmx80
<i>IBM DB2 Universal Database Data Recovery and High Availability Guide and Reference</i>	SC09-4831	db2hax80
<i>IBM DB2 Universal Database Data Warehouse Center Administration Guide</i>	SC27-1123	db2ddx80
<i>IBM DB2 Universal Database Federated Systems Guide</i>	GC27-1224	db2fpx80
<i>IBM DB2 Universal Database Guide to GUI Tools for Administration and Development</i>	SC09-4851	db2atx80
<i>IBM DB2 Universal Database Replication Guide and Reference</i>	SC27-1121	db2e0x80
<i>IBM DB2 Installing and Administering a Satellite Environment</i>	GC09-4823	db2dsx80
<i>IBM DB2 Universal Database SQL Reference, Volume 1</i>	SC09-4844	db2s1x80
<i>IBM DB2 Universal Database SQL Reference, Volume 2</i>	SC09-4845	db2s2x80
<i>IBM DB2 Universal Database System Monitor Guide and Reference</i>	SC09-4847	db2f0x80

Application development information

The information in this category is of special interest to application developers or programmers working with DB2. You will find information about supported languages and compilers, as well as the documentation required to access DB2 using the various supported programming interfaces, such as embedded SQL, ODBC, JDBC, SQLj, and CLI. If you view this information online in HTML you can also access a set of DB2 sample programs in HTML.

The installation directory for this category is `doc/htmlcd/%L/ad`.

Table 37. Application development information

Name	Form number	PDF file name
<i>IBM DB2 Universal Database Application Development Guide: Building and Running Applications</i>	SC09-4825	db2axx80
<i>IBM DB2 Universal Database Application Development Guide: Programming Client Applications</i>	SC09-4826	db2a1x80
<i>IBM DB2 Universal Database Application Development Guide: Programming Server Applications</i>	SC09-4827	db2a2x80
<i>IBM DB2 Universal Database Call Level Interface Guide and Reference, Volume 1</i>	SC09-4849	db2l1x80
<i>IBM DB2 Universal Database Call Level Interface Guide and Reference, Volume 2</i>	SC09-4850	db2l2x80
<i>IBM DB2 Universal Database Data Warehouse Center Application Integration Guide</i>	SC27-1124	db2adx80
<i>IBM DB2 XML Extender Administration and Programming</i>	SC27-1234	db2sxx80

Business intelligence information

The information in this category describes how to use components that enhance the data warehousing and analytical capabilities of DB2 Universal Database.

The installation directory for this category is doc/htmlcd/%L/wareh.

Table 38. Business intelligence information

Name	Form number	PDF file name
<i>IBM DB2 Warehouse Manager Information Catalog Center Administration Guide</i>	SC27-1125	db2dix80
<i>IBM DB2 Warehouse Manager Installation Guide</i>	GC27-1122	db2idx80

DB2 Connect information

The information in this category describes how to access host or iSeries data using DB2 Connect Enterprise Edition or DB2 Connect Personal Edition.

The installation directory for this category is doc/htmlcd/%L/conn.

Table 39. DB2 Connect information

Name	Form number	PDF file name
<i>APPC, CPI-C, and SNA Sense Codes</i>	No form number	db2apx80
<i>IBM Connectivity Supplement</i>	No form number	db2h1x80
<i>IBM DB2 Connect Quick Beginnings for DB2 Connect Enterprise Edition</i>	GC09-4833	db2c6x80
<i>IBM DB2 Connect Quick Beginnings for DB2 Connect Personal Edition</i>	GC09-4834	db2c1x80
<i>IBM DB2 Connect User's Guide</i>	SC09-4835	db2c0x80

Getting started information

The information in this category is useful when you are installing and configuring servers, clients, and other DB2 products.

The installation directory for this category is doc/htmlcd/%L/start.

Table 40. Getting started information

Name	Form number	PDF file name
<i>IBM DB2 Universal Database Quick Beginnings for DB2 Clients</i>	GC09-4832	db2itx80

Table 40. Getting started information (continued)

Name	Form number	PDF file name
IBM DB2 Universal Database Quick Beginnings for DB2 Servers	GC09-4836	db2isx80
IBM DB2 Universal Database Quick Beginnings for DB2 Personal Edition	GC09-4838	db2i1x80
IBM DB2 Universal Database Installation and Configuration Supplement	GC09-4837	db2iyx80
IBM DB2 Universal Database Quick Beginnings for DB2 Data Links Manager	GC09-4829	db2z6x80

Tutorial information

Tutorial information introduces DB2 features and teaches how to perform various tasks.

The installation directory for this category is doc/htmlcd/%L/tutr.

Table 41. Tutorial information

Name	Form number	PDF file name
Business Intelligence Tutorial: Introduction to the Data Warehouse	No form number	db2tux80
Business Intelligence Tutorial: Extended Lessons in Data Warehousing	No form number	db2tax80
Development Center Tutorial for Video Online using Microsoft Visual Basic	No form number	db2tdx80
Information Catalog Center Tutorial	No form number	db2aix80
Video Central for e-business Tutorial	No form number	db2twx80
Visual Explain Tutorial	No form number	db2tvx80

Optional component information

The information in this category describes how to work with optional DB2 components.

The installation directory for this category is doc/htmlcd/%L/opt.

Table 42. Optional component information

Name	Form number	PDF file name
IBM DB2 Life Sciences Data Connect Planning, Installation, and Configuration Guide	GC27-1235	db2lsx80
IBM DB2 Spatial Extender User's Guide and Reference	SC27-1226	db2sbx80
IBM DB2 Universal Database Data Links Manager Administration Guide and Reference	SC27-1221	db2z0x80
IBM DB2 Universal Database Net Search Extender Administration and Programming Guide	SH12-6740	N/A

Note: HTML for this document is not installed from the HTML documentation CD.

Release notes

The release notes provide additional information specific to your product's release and FixPak level. They also provides summaries of the documentation updates incorporated in each release and FixPak.

Table 43. Release notes

Name	Form number	PDF file name
DB2 Release Notes	See note.	See note.
DB2 Installation Notes	Available on product CD-ROM only.	Available on product CD-ROM only.

Note: The HTML version of the release notes is available from the Information Center and on the product CD-ROMs. To view the ASCII file on UNIX-based platforms, see the Release.Notes file. This file is located in the DB2DIR/Readme/%L directory, where %L represents the locale name and DB2DIR represents:

- /usr/opt/db2_08_01 on AIX
- /opt/IBM/db2/V8.1 on all other UNIX operating systems

Related tasks:

- "Printing DB2 books from PDF files" on page 273

- “Ordering printed DB2 books” on page 274
- “Accessing online help” on page 274
- “Finding product information by accessing the DB2 Information Center from the administration tools” on page 278
- “Viewing technical documentation online directly from the DB2 HTML Documentation CD” on page 280

Printing DB2 books from PDF files

You can print DB2 books from the PDF files on the *DB2 PDF Documentation* CD. Using Adobe Acrobat Reader, you can print either the entire book or a specific range of pages.

Prerequisites:

Ensure that you have Adobe Acrobat Reader. It is available from the Adobe Web site at www.adobe.com

Procedure:

To print a DB2 book from a PDF file:

1. Insert the *DB2 PDF Documentation* CD. On UNIX operating systems, mount the DB2 PDF Documentation CD. Refer to your *Quick Beginnings* book for details on how to mount a CD on UNIX operating systems.
2. Start Adobe Acrobat Reader.
3. Open the PDF file from one of the following locations:
 - On Windows operating systems:
x:\doc\language directory, where *x* represents the CD-ROM drive letter and *language* represents the two-character territory code that represents your language (for example, EN for English).
 - On UNIX operating systems:
/cdrom/doc/%L directory on the CD-ROM, where */cdrom* represents the mount point of the CD-ROM and *%L* represents the name of the desired locale.

Related tasks:

- “Ordering printed DB2 books” on page 274
- “Finding product information by accessing the DB2 Information Center from the administration tools” on page 278
- “Viewing technical documentation online directly from the DB2 HTML Documentation CD” on page 280

Related reference:

- “Overview of DB2 Universal Database technical information” on page 265

Ordering printed DB2 books

Procedure:

To order printed books:

- Contact your IBM authorized dealer or marketing representative. To find a local IBM representative, check the IBM Worldwide Directory of Contacts at www.ibm.com/planetwide
- Phone 1-800-879-2755 in the United States or 1-800-IBM-4YOU in Canada.
- Visit the IBM Publications Center at www.ibm.com/shop/publications/order

You can also obtain printed DB2 manuals by ordering Doc Packs for your DB2 product from your IBM Reseller. The Doc Packs are subsets of the manuals in the DB2 library selected to help you to get started using the DB2 product that you purchased. The manuals in the Doc Packs are the same as those that are available in PDF format on the *DB2 PDF Documentation CD* and contain the same content as the documentation that is available on the *DB2 HTML Documentation CD*.

Related tasks:

- “Printing DB2 books from PDF files” on page 273
- “Finding topics by accessing the DB2 Information Center from a browser” on page 276
- “Viewing technical documentation online directly from the DB2 HTML Documentation CD” on page 280

Related reference:

- “Overview of DB2 Universal Database technical information” on page 265

Accessing online help

The online help that comes with all DB2 components is available in three types:

- Window and notebook help
- Command line help
- SQL statement help

Window and notebook help explain the tasks that you can perform in a window or notebook and describe the controls. This help has two types:

- Help accessible from the **Help** button
- Infopops

The **Help** button gives you access to overview and prerequisite information. The infopops describe the controls in the window or notebook. Window and notebook help are available from DB2 centers and components that have user interfaces.

Command line help includes Command help and Message help. Command help explains the syntax of commands in the command line processor. Message help describes the cause of an error message and describes any action you should take in response to the error.

SQL statement help includes SQL help and SQLSTATE help. DB2 returns an SQLSTATE value for conditions that could be the result of an SQL statement. SQLSTATE help explains the syntax of SQL statements (SQL states and class codes).

Note: SQL help is not available for UNIX operating systems.

Procedure:

To access online help:

- For window and notebook help, click **Help** or click that control, then click **F1**. If the **Automatically display infopops** check box on the **General** page of the **Tool Settings** notebook is selected, you can also see the infopop for a particular control by holding the mouse cursor over the control.
- For command line help, open the command line processor and enter:
 - For Command help:
 - `? command`

where *command* represents a keyword or the entire command.

For example, `? catalog` displays help for all the CATALOG commands, while `? catalog database` displays help for the CATALOG DATABASE command.

- For Message help:
 - `? XXXnnnnn`

where *XXXnnnnn* represents a valid message identifier.

For example, `? SQL30081` displays help about the SQL30081 message.

- For SQL statement help, open the command line processor and enter:
 - `? sqlstate` or `? class code`

where *sqlstate* represents a valid five-digit SQL state and *class code* represents the first two digits of the SQL state.

For example, ? 08003 displays help for the 08003 SQL state, while ? 08 displays help for the 08 class code.

Related tasks:

- “Finding topics by accessing the DB2 Information Center from a browser” on page 276
- “Viewing technical documentation online directly from the DB2 HTML Documentation CD” on page 280

Finding topics by accessing the DB2 Information Center from a browser

The DB2 Information Center accessed from a browser enables you to access the information you need to take full advantage of DB2 Universal Database and DB2 Connect. The DB2 Information Center also documents major DB2 features and components including replication, data warehousing, metadata, and DB2 extenders.

The DB2 Information Center accessed from a browser is composed of the following major elements:

Navigation tree

The navigation tree is located in the left frame of the browser window. The tree expands and collapses to show and hide topics, the glossary, and the master index in the DB2 Information Center.

Navigation toolbar

The navigation toolbar is located in the top right frame of the browser window. The navigation toolbar contains buttons that enable you to search the DB2 Information Center, hide the navigation tree, and find the currently displayed topic in the navigation tree.

Content frame

The content frame is located in the bottom right frame of the browser window. The content frame displays topics from the DB2 Information Center when you click on a link in the navigation tree, click on a search result, or follow a link from another topic or from the master index.

Prerequisites:

To access the DB2 Information Center from a browser, you must use one of the following browsers:

- Microsoft Explorer, version 5 or later

- Netscape Navigator, version 6.1 or later

Restrictions:

The DB2 Information Center contains only those sets of topics that you chose to install from the *DB2 HTML Documentation CD*. If your Web browser returns a File not found error when you try to follow a link to a topic, you must install one or more additional sets of topics from the *DB2 HTML Documentation CD*.

Procedure:

To find a topic by searching with keywords:

1. In the navigation toolbar, click **Search**.
2. In the top text entry field of the Search window, enter one or more terms related to your area of interest and click **Search**. A list of topics ranked by accuracy displays in the **Results** field. The numerical ranking beside the hit provides an indication of the strength of the match (bigger numbers indicate stronger matches).

Entering more terms increases the precision of your query while reducing the number of topics returned from your query.

3. In the **Results** field, click the title of the topic you want to read. The topic displays in the content frame.

To find a topic in the navigation tree:

1. In the navigation tree, click the book icon of the category of topics related to your area of interest. A list of subcategories displays underneath the icon.
2. Continue to click the book icons until you find the category containing the topics in which you are interested. Categories that link to topics display the category title as an underscored link when you move the cursor over the category title. The navigation tree identifies topics with a page icon.
3. Click the topic link. The topic displays in the content frame.

To find a topic or term in the master index:

1. In the navigation tree, click the "Index" category. The category expands to display a list of links arranged in alphabetical order in the navigation tree.
2. In the navigation tree, click the link corresponding to the first character of the term relating to the topic in which you are interested. A list of terms with that initial character displays in the content frame. Terms that have multiple index entries are identified by a book icon.

3. Click the book icon corresponding to the term in which you are interested. A list of subterms and topics displays below the term you clicked. Topics are identified by page icons with an underscored title.
4. Click on the title of the topic that meets your needs. The topic displays in the content frame.

Related concepts:

- “Accessibility” on page 285
- “DB2 Information Center accessed from a browser” on page 288

Related tasks:

- “Finding product information by accessing the DB2 Information Center from the administration tools” on page 278
- “Updating the HTML documentation installed on your machine” on page 280
- “Troubleshooting DB2 documentation search with Netscape 4.x” on page 283
- “Searching the DB2 documentation” on page 284

Related reference:

- “Overview of DB2 Universal Database technical information” on page 265

Finding product information by accessing the DB2 Information Center from the administration tools

The DB2 Information Center provides quick access to DB2 product information and is available on all operating systems for which the DB2 administration tools are available.

The DB2 Information Center accessed from the tools provides six types of information.

Tasks Key tasks you can perform using DB2.

Concepts

Key concepts for DB2.

Reference

DB2 reference information, such as keywords, commands, and APIs.

Troubleshooting

Error messages and information to help you with common DB2 problems.

Samples

Links to HTML listings of the sample programs provided with DB2.

Tutorials

Instructional aid designed to help you learn a DB2 feature.

Prerequisites:

Some links in the DB2 Information Center point to Web sites on the Internet. To display the content for these links, you will first have to connect to the Internet.

Procedure:

To find product information by accessing the DB2 Information Center from the tools:

1. Start the DB2 Information Center in one of the following ways:
 - From the graphical administration tools, click on the **Information Center** icon in the toolbar. You can also select it from the **Help** menu.
 - At the command line, enter **db2ic**.
2. Click the tab of the information type related to the information you are attempting to find.
3. Navigate through the tree and click on the topic in which you are interested. The Information Center will then launch a Web browser to display the information.
4. To find information without browsing the lists, click the **Search** icon to the right of the list.

Once the Information Center has launched a browser to display the information, you can perform a full-text search by clicking the **Search** icon in the navigation toolbar.

Related concepts:

- “Accessibility” on page 285
- “DB2 Information Center accessed from a browser” on page 288

Related tasks:

- “Finding topics by accessing the DB2 Information Center from a browser” on page 276
- “Searching the DB2 documentation” on page 284

Viewing technical documentation online directly from the DB2 HTML Documentation CD

All of the HTML topics that you can install from the *DB2 HTML Documentation CD* can also be read directly from the CD. Therefore, you can view the documentation without having to install it.

Restrictions:

As the Tools help is installed from the DB2 product CD and not from the *DB2 HTML Documentation CD*, you must install the DB2 product to view the help.

Procedure:

1. Insert the *DB2 HTML Documentation CD*. On UNIX operating systems, mount the *DB2 HTML Documentation CD*. Refer to your *Quick Beginnings* book for details on how to mount a CD on UNIX operating systems.
2. Start your HTML browser and open the appropriate file:

- For Windows operating systems:

```
e:\program files\IBM\SQLLIB\doc\htmlcd\%L\index.htm
```

where *e* represents the CD-ROM drive, and %L is the locale of the documentation that you wish to use, for example, **en_US** for English.

- For UNIX operating systems:

```
/cdrom/program files/IBM/SQLLIB/doc/htmlcd/%L/index.htm
```

where */cdrom/* represents where the CD is mounted, and %L is the locale of the documentation that you wish to use, for example, **en_US** for English.

Related tasks:

- “Finding topics by accessing the DB2 Information Center from a browser” on page 276
- “Copying files from the DB2 HTML Documentation CD to a Web server” on page 282

Related reference:

- “Overview of DB2 Universal Database technical information” on page 265

Updating the HTML documentation installed on your machine

It is now possible to update the HTML installed from the *DB2 HTML Documentation CD* when updates are made available from IBM. This can be done in one of two ways:

- Using the Information Center (if you have the DB2 administration GUI tools installed).
- By downloading and applying a DB2 HTML documentation FixPak .

Note: This will NOT update the DB2 code; it will only update the HTML documentation installed from the *DB2 HTML Documentation CD*.

Procedure:

To use the Information Center to update your local documentation:

1. Start the DB2 Information Center in one of the following ways:
 - From the graphical administration tools, click on the **Information Center** icon in the toolbar. You can also select it from the **Help** menu.
 - At the command line, enter **db2ic**.
2. Ensure your machine has access to the external Internet; the updater will download the latest documentation FixPak from the IBM server if required.
3. Select **Information Center** —> **Update Local Documentation** from the menu to start the update.
4. Supply your proxy information (if required) to connect to the external Internet.

The Information Center will download and apply the latest documentation FixPak, if one is available.

To manually download and apply the documentation FixPak :

1. Ensure your machine is connected to the Internet.
2. Open the DB2 support page in your Web browser at:
www.ibm.com/software/data/db2/udb/winos2unix/support.
3. Follow the link for Version 8 and look for the "Documentation FixPaks" link.
4. Determine if the version of your local documentation is out of date by comparing the documentation FixPak level to the documentation level you have installed. This current documentation on your machine is at the following level: **DB2 v8.1 GA**.
5. If there is a more recent version of the documentation available then download the FixPak applicable to your operating system. There is one FixPak for all Windows platforms, and one FixPak for all UNIX platforms.
6. Apply the FixPak:
 - For Windows operating systems: The documentation FixPak is a self extracting zip file. Place the downloaded documentation FixPak in an empty directory, and run it. It will create a **setup** command which you can run to install the documentation FixPak.

- For UNIX operating systems: The documentation FixPak is a compressed tar.Z file. Uncompress and untar the file. It will create a directory named `delta_install` with a script called `installdocfix`. Run this script to install the documentation FixPak.

Related tasks:

- “Copying files from the DB2 HTML Documentation CD to a Web server” on page 282

Related reference:

- “Overview of DB2 Universal Database technical information” on page 265

Copying files from the DB2 HTML Documentation CD to a Web server

The entire DB2 information library is delivered to you on the *DB2 HTML Documentation CD* and may be installed on a Web server for easier access. Simply copy to your Web server the documentation for the languages that you want.

Note: You might encounter slow performance if you access the HTML documentation from a Web server through a low-speed connection.

Procedure:

To copy files from the *DB2 HTML Documentation CD* to a Web server, use the appropriate source path:

- For Windows operating systems:

```
E:\program files\IBM\SQLLIB\doc\htmlcd\%L\*.*
```

where *E* represents the CD-ROM drive and *%L* represents the language identifier.

- For UNIX operating systems:

```
/cdrom/program files/IBM/SQLLIB/doc/htmlcd/%L/*.*
```

where *cdrom* represents the mount point for the CD-ROM drive and *%L* represents the language identifier.

Related tasks:

- “Searching the DB2 documentation” on page 284

Related reference:

- “Supported DB2 interface languages, locales, and code pages” on page 246
- “Overview of DB2 Universal Database technical information” on page 265

Troubleshooting DB2 documentation search with Netscape 4.x

Most search problems are related to the Java support provided by web browsers. This task describes possible workarounds.

Procedure:

A common problem with Netscape 4.x involves a missing or misplaced security class. Try the following workaround, especially if you see the following line in the browser Java console:

```
Cannot find class java/security/InvalidParameterException
```

- On Windows operating systems:

From the *DB2 HTML Documentation CD*, copy the supplied `x:program files\IBM\SQLLIB\doc\htmlcd\locale\InvalidParameterException.class` file to the `java\classes\java\security\` directory relative to your Netscape browser installation, where *x* represents the CD-ROM drive letter and *locale* represents the name of the desired locale.

Note: You may have to create the `java\security\` subdirectory structure.

- On UNIX operating systems:

From the *DB2 HTML Documentation CD*, copy the supplied `/cdrom/program files/IBM/SQLLIB/doc/htmlcd/locale/InvalidParameterException.class` file to the `java/classes/java/security/` directory relative to your Netscape browser installation, where *cdrom* represents the mount point of the CD-ROM and *locale* represents the name of the desired locale.

Note: You may have to create the `java/security/` subdirectory structure.

If your Netscape browser still fails to display the search input window, try the following:

- Stop all instances of Netscape browsers to ensure that there is no Netscape code running on the machine. Then open a new instance of the Netscape browser and try to start the search again.
- Purge the browser's cache.
- Try a different version of Netscape, or a different browser.

Related tasks:

- "Searching the DB2 documentation" on page 284

Searching the DB2 documentation

You can search the library of DB2 documentation to locate information that you need. A pop-up search window opens when you click the search icon in the navigation toolbar of the DB2 Information Center (accessed from a browser). The search can take a minute to load, depending on the speed of your computer and network.

Prerequisites:

You need Netscape 6.1 or higher, or Microsoft's Internet Explorer 5 or higher. Ensure that your browser's Java support is enabled.

Restrictions:

The following restrictions apply when you use the documentation search:

- Search is not case sensitive.
- Boolean searches are not supported.
- Wildcard and partial searches are not supported. A search on *java** (or *java*) will only look for the literal string *java** (or *java*) and would not, for example, find *javadoc*.

Procedure:

To search the DB2 documentation:

1. In the navigation toolbar, click the **Search** icon.
2. In the top text entry field of the Search window, enter one or more terms (separated by a space) related to your area of interest and click **Search**. A list of topics ranked by accuracy displays in the **Results** field. The numerical ranking beside the hit provides an indication of the strength of the match (bigger numbers indicate stronger matches).
Entering more terms increases the precision of your query while reducing the number of topics returned from your query.
3. In the **Results** list, click the title of the topic you want to read. The topic displays in the content frame of the DB2 Information Center.

Note: When you perform a search, the first (highest-ranking) result is automatically loaded into your browser frame. To view the contents of other search results, click on the result in the results list.

Related tasks:

- "Troubleshooting DB2 documentation search with Netscape 4.x" on page 283

Online DB2 troubleshooting information

With the release of DB2[®] UDB Version 8, there will no longer be a *Troubleshooting Guide*. The troubleshooting information once contained in this guide has been integrated into the DB2 publications. By doing this, we are able to deliver the most up-to-date information possible. To find information on the troubleshooting utilities and functions of DB2, access the DB2 Information Center from any of the tools.

Refer to the DB2 Online Support site if you are experiencing problems and want help finding possible causes and solutions. The support site contains a large, constantly updated database of DB2 publications, TechNotes, APAR (product problem) records, FixPaks, and other resources. You can use the support site to search through this knowledge base and find possible solutions to your problems.

Access the Online Support site at www.ibm.com/software/data/db2/udb/winos2unix/support, or by clicking the **Online Support** button in the DB2 Information Center. Frequently changing information, such as the listing of internal DB2 error codes, is now also available from this site.

Related concepts:

- “DB2 Information Center accessed from a browser” on page 288

Related tasks:

- “Finding product information by accessing the DB2 Information Center from the administration tools” on page 278

Accessibility

Accessibility features help users with physical disabilities, such as restricted mobility or limited vision, to use software products successfully. These are the major accessibility features in DB2[®] Universal Database Version 8:

- DB2 allows you to operate all features using the keyboard instead of the mouse. See “Keyboard Input and Navigation” on page 286.
- DB2 enables you customize the size and color of your fonts. See “Accessible Display” on page 286.
- DB2 allows you to receive either visual or audio alert cues. See “Alternative Alert Cues” on page 286.
- DB2 supports accessibility applications that use the Java[™] Accessibility API. See “Compatibility with Assistive Technologies” on page 286.

- DB2 comes with documentation that is provided in an accessible format. See “Accessible Documentation”.

Keyboard Input and Navigation

Keyboard Input

You can operate the DB2 Tools using only the keyboard. You can use keys or key combinations to perform most operations that can also be done using a mouse.

Keyboard Focus

In UNIX-based systems, the position of the keyboard focus is highlighted, indicating which area of the window is active and where your keystrokes will have an effect.

Accessible Display

The DB2 Tools have features that enhance the user interface and improve accessibility for users with low vision. These accessibility enhancements include support for customizable font properties.

Font Settings

The DB2 Tools allow you to select the color, size, and font for the text in menus and dialog windows, using the Tools Settings notebook.

Non-dependence on Color

You do not need to distinguish between colors in order to use any of the functions in this product.

Alternative Alert Cues

You can specify whether you want to receive alerts through audio or visual cues, using the Tools Settings notebook.

Compatibility with Assistive Technologies

The DB2 Tools interface supports the Java Accessibility API enabling use by screen readers and other assistive technologies used by people with disabilities.

Accessible Documentation

Documentation for the DB2 family of products is available in HTML format. This allows you to view documentation according to the display preferences set in your browser. It also allows you to use screen readers and other assistive technologies.

DB2 tutorials

The DB2[®] tutorials help you learn about various aspects of DB2 Universal Database. The tutorials provide lessons with step-by-step instructions in the areas of developing applications, tuning SQL query performance, working with data warehouses, managing metadata, and developing Web services using DB2.

Before you begin:

Before you can access these tutorials using the links below, you must install the tutorials from the *DB2 HTML Documentation CD*.

If you do not want to install the tutorials, you can view the HTML versions of the tutorials directly from the *DB2 HTML Documentation CD*. PDF versions of these tutorials are also available on the *DB2 PDF Documentation CD*.

Some tutorial lessons use sample data or code. See each individual tutorial for a description of any prerequisites for its specific tasks.

DB2 Universal Database tutorials:

If you installed the tutorials from the *DB2 HTML Documentation CD*, you can click on a tutorial title in the following list to view that tutorial.

Business Intelligence Tutorial: Introduction to the Data Warehouse Center
Perform introductory data warehousing tasks using the Data Warehouse Center.

Business Intelligence Tutorial: Extended Lessons in Data Warehousing
Perform advanced data warehousing tasks using the Data Warehouse Center.

Development Center Tutorial for Video Online using Microsoft[®] Visual Basic
Build various components of an application using the Development Center Add-in for Microsoft Visual Basic.

Information Catalog Center Tutorial
Create and manage an information catalog to locate and use metadata using the Information Catalog Center.

Video Central for e-business Tutorial
Develop and deploy an advanced DB2 Web Services application using WebSphere[®] products.

Visual Explain Tutorial
Analyze, optimize, and tune SQL statements for better performance using Visual Explain.

DB2 Information Center accessed from a browser

The DB2[®] Information Center gives you access to all of the information you need to take full advantage of DB2 Universal Database[™] and DB2 Connect[™] in your business. The DB2 Information Center also documents major DB2 features and components including replication, data warehousing, the Information Catalog Center, Life Sciences Data Connect, and DB2 extenders.

The DB2 Information Center accessed from a browser has the following features if you view it in Netscape Navigator 6.1 or later or Microsoft Internet Explorer 5 or later. Some features require you to enable support for Java or JavaScript:

Regularly updated documentation

Keep your topics up-to-date by downloading updated HTML.

Search

Search all of the topics installed on your workstation by clicking **Search** in the navigation toolbar.

Integrated navigation tree

Locate any topic in the DB2 library from a single navigation tree. The navigation tree is organized by information type as follows:

- Tasks provide step-by-step instructions on how to complete a goal.
- Concepts provide an overview of a subject.
- Reference topics provide detailed information about a subject, including statement and command syntax, message help, requirements.

Master index

Access the information installed from the *DB2 HTML Documentation CD* from the master index. The index is organized in alphabetical order by index term.

Master glossary

The master glossary defines terms used in the DB2 Information Center. The glossary is organized in alphabetical order by glossary term.

Related tasks:

- “Finding topics by accessing the DB2 Information Center from a browser” on page 276
- “Finding product information by accessing the DB2 Information Center from the administration tools” on page 278
- “Updating the HTML documentation installed on your machine” on page 280

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DataJoiner	RISC System/6000
DataPropagator	RS/6000
DataRefresher	S/370
DB2	SP
DB2 Connect	SQL/400
DB2 Extenders	SQL/DS
DB2 OLAP Server	System/370
DB2 Universal Database	System/390
Distributed Relational Database Architecture	SystemView
DRDA	Tivoli
eServer	VisualAge
Extended Services	VM/ESA
FFST	VSE/ESA
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IMS	WebSphere
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