Figure 3-23   DB2 Connect PE to DB2 on mainframe

The commands are executed on the client platform. Additional information about the parameters used by these commands can be found in Table 3-8.

Table 3-8   Setup commands for a DB2 Connect PE - DB2 for z/OS and OS/390 connection

Commands to run on client (DB2 Connect V8 PE on Windows/Linux)	Information you need from DB2 for z/OS and OS/390
`db2 catalog tcpip node sandbox remote d7f1.sandbox.itso.ibm.com server 33730` Sandbox is just a name you give to the mainframe. It is only used to link the tcpip node to the database in the next command.	z/OS IP host name. (The IP address can be used instead.) DRDA port for DB2 = 33730. To find the DRDA port, issue a -DISPLAY DDF command (introduced in DB2 V7), or check the DSNL004I message.
`db2 catalog db D7F1DB at node sandbox authentication dcs` D7F1DB is the name you will have to use on the CONNECT TO statement to connect to the DB2 for z/OS and OS/390.	
`db2 catalog dcs db D7F1DB as D7F1`	D7F1 is the location name for the DB2 for z/OS and OS/390. To find the location name, issue a -DISPLAY DDF command, or check the DSNL004I message.

3.5.2 DB2 client - DB2 Connect Server - DB2 for z/OS and OS/390

The commands to run on the client, the DB2 Connect Server, and the information needed to run these commands are explained in Table 3-9. The commands running on the server are the same as in the Table 3-8 on page 91.
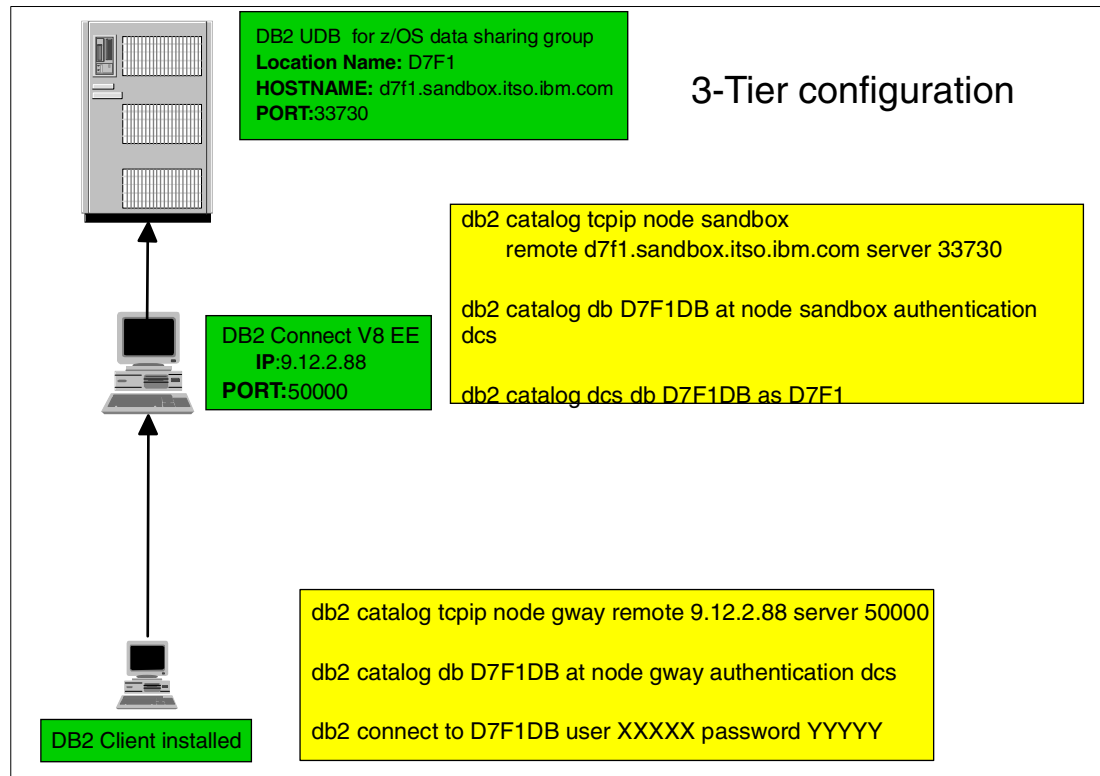

Figure 3-24   DB2 client to DB2 on mainframe via DB2 Connect Server

Table 3-9   Setup commands for DB2 client - DB2 Connect Server - DB2 for z/OS

Commands to run on WINDOWS/Linux client	Commands to run on DB2 Connect V8 EE on WINDOWS/Linux/UNIX and information needed	Information you need from DB2 for z/OS and OS/390
	`db2 catalog tcpip node sandbox remote d7f1.sandbox.itso.ibm.com server 33730`	IP host name of z/OS system. (IP address can be used instead.) DRDA port for DB2 = 33730. To find the DRDA port, issue a -DISPLAY DDF command or check the DSNL004I message.
	`db2 catalog db D7F1DB at node sandbox authentication dcs`	
	`db2 catalog dcs db D7F1DB as D7F1`	D7F1 is the location name of the DB2 for z/OS and OS/390. To find the location name, issue a -DISPLAY DDF command or check the DSNL004I message.

Commands to run on WINDOWS/Linux client	Commands to run on DB2 Connect V8 EE on WINDOWS/Linux/UNIX and information needed	Information you need from DB2 for z/OS and OS/390
`db2 catalog tcpip node gway remote 9.12.2.88 server 50000` gway is any name for the DB2 Connect Server.	9.12.2.88 is the IP address of the DB2 Connect Server machine. 50000 is the port number for the DB2 instance. It is coded in the /etc/services file.	
`db2 catalog db D7F1DB at node gway authentication dcs`	D7F1DB is the name that the DB2 Connect Server uses to access the DB2 for OS/390 and z/OS	

3.5.3 DB2 Connect configuration parameters

Installing and configuring DB2 Connect to communicate with DB2 for OS/390 and z/OS is a straightforward process, as demonstrated in 3.5.1, "DB2 Connect PE to DB2" on page 90, and 3.5.2, "DB2 client - DB2 Connect Server - DB2 for z/OS and OS/390" on page 92.

In addition to just establishing a working connection, there are a number of parameters that effect performance and exploit some of the functionalities that are not enabled when you install DB2 Connect out of the box.

There are four types of parameters that effect DB2 Connect:

► Database manager configuration parameters for DB2 Connect
► DB2 registry variables
► DCS directory parameters
► DB2CLI.INI parameters

DBM configuration parameters

You can view the DBM configuration parameters by issuing the following commands from the DB2 CLP:

```
get database manager configuration
get dbm cfg
```

The following parameters affect DB2 Connect behavior and performance.

Multi-site update

The following parameters govern distributed unit of work recovery:

TM_DATABASE   This parameter identifies the name of the transaction manager database. A DB2 for OS/390 database Version 5 or later, if accessed via TCP/IP, and SPM (SyncPoint Manager) is not used. You have to set this parameter to 1ST_CONN. In that case, the TM database is the first database you connect to (which is the DB2 for OS/390 system).

RESYNC_INTERVAL   Specifies the time interval in seconds that a TM, Resource Manager (RM), or SPM should retry the recovery of an indoubt transaction.

SPM_NAME   Identifies the name of the SPM instance to the database manager.

SPM_MAX_RESYNC   Identifies the number of agents that can simultaneously perform resync operations.

Connection management

The connection management parameters are critical for the DB2 Connect pooling enablement and performance. The following parameters are discussed in detail in Chapter 6, "Connection pooling" on page 143:

- ► MAXAGENTS
- ► NUM_POOLAGENTS
- ► NUM_INITAGENTS
- ► MAX_COORDAGENTS
- ► MAXCAGENTS
- ► MAX_CONNECTIONS

Other parameters

Some other parameters are:

RQRIOBLK   Sets the maximum size of network I/O blocks. A larger block size may improve the performance of large requests. However, larger sets require more memory on DB2 Connect workstations, and this can increase the amount of paging.

DIR_CACHE   Determines whether directory information is cached. With DIR_CACHE=YES, directory files are cached in memory to minimize the overhead of creating the internal directory structure and reading the directory files every time a connection is established. The cached information is the system database directory, the DCS directory, and the node directory.

To update the database manager configuration parameters, you can use the following command from the DB2 CLP:

```
UPDATE DBM CFG USING parameter_name parameter_value
```

DB2 registry variables

To see the DB2 registry variables currently set in your environment, issue the following command:

```
db2set -all
```

To view a list of all supported registry variables, execute the following command:

```
db2set -lr
```

To change the value of a DB2 registry variable, execute the following command:

```
db2set registry_var_name=new_value
```

Some of the variables that are of interest are:

DB2CONNECT_IN_APP_PROCESS   Specifying NO means that local DB2 Connect clients on a DB2 Connect Enterprise Edition are forced to run within an agent. This allows these local clients to be monitored, and they can also use the SYSPLEX support. The default value is YES.

DB2SYSPLEX_SERVER   Specifies whether SYSPLEX exploitation when connected to DB2 for OS/390 and z/OS is enabled. If this variable is not set (the default) or if it is set to a non-zero value, exploitation is enabled. If you set this variable to zero, SYSPLEX exploitation is

	disabled regardless of the DCS database catalog entry.
DB2DBDFT	Specifies the database alias name of the database to be used for implicit connects. If an application has no database connection but SQL statements are issued, an implicit connect will be made if this variable is set. The default is null.

DCS directory parameters

The Database Connection Services (DCS) directory contains information specific to host or iSeries database servers. You can specify the DCS parameters while cataloging the DCS entry. To specify parameters while cataloging the DCS entry, you can use the following command:

```
CATALOG DCS DATABASE database-name [AS target-database-name] [AR arname]
        [PARMS "parameter-string"] [WITH "comment-string"]
```

The parameters in the parameter string are positional, that is, you have to supply the correct number of comma delimiters before the positional parameter, as in:

```
CATALOG DCS DATABASE D7F1DEN as D7F1 PARMS ",,,,,SYSPLEX"
```

The relevant parameters for the DCS entries are as follows:

,D	The second positional parameter. If it is specified, the application will disconnect from the host database when certain SQLCODEs are returned.
,,INTERRUPT_ENABLED	This parameter only applies if the end server does not support interrupts. When a client sends an interrupt to such a server, if the interrupt_enabled is coded, DB2 Connect will perform the interrupt by dropping the connection and rolling back the unit of work.
,,,,,SYSPLEX	The sixth positional parameter. It enables the SYSPLEX support for a particular database.
,,,,,,LOCALDATE=X	This parameter is used to enable DB2 Connect date formatting support.

DB2CLI.INI parameters

The DB2CLI.INI file parameters are discussed in 5.5.2, "DB2CLI.INI file" on page 138. The DB2CLI.INI file is an editable file residing in the DB2 Connect installation path, under the /SQLLIB/ directory.

3.6 Character conversion

When you have all your data and all your applications on your local system, life is easy since you do not have to worry about converting between different representations of text.
But as your data and applications get distributed between different systems with each of them having a different representation for the same character data, you have to convert them correctly to the local representation, preferably without any loss of information.

DB2 uses Coded Character Set IDs (CCSIDs) to describe the data stored in a DB2 subsystem. In V7, DB2 supports specification of three CCSID sets. These three sets represent the three encoding schemes (ASCII, EBCDIC, and UNICODE) that DB2 supports. These CCSIDs are specified at the subsystem level. These values are stored in catalog