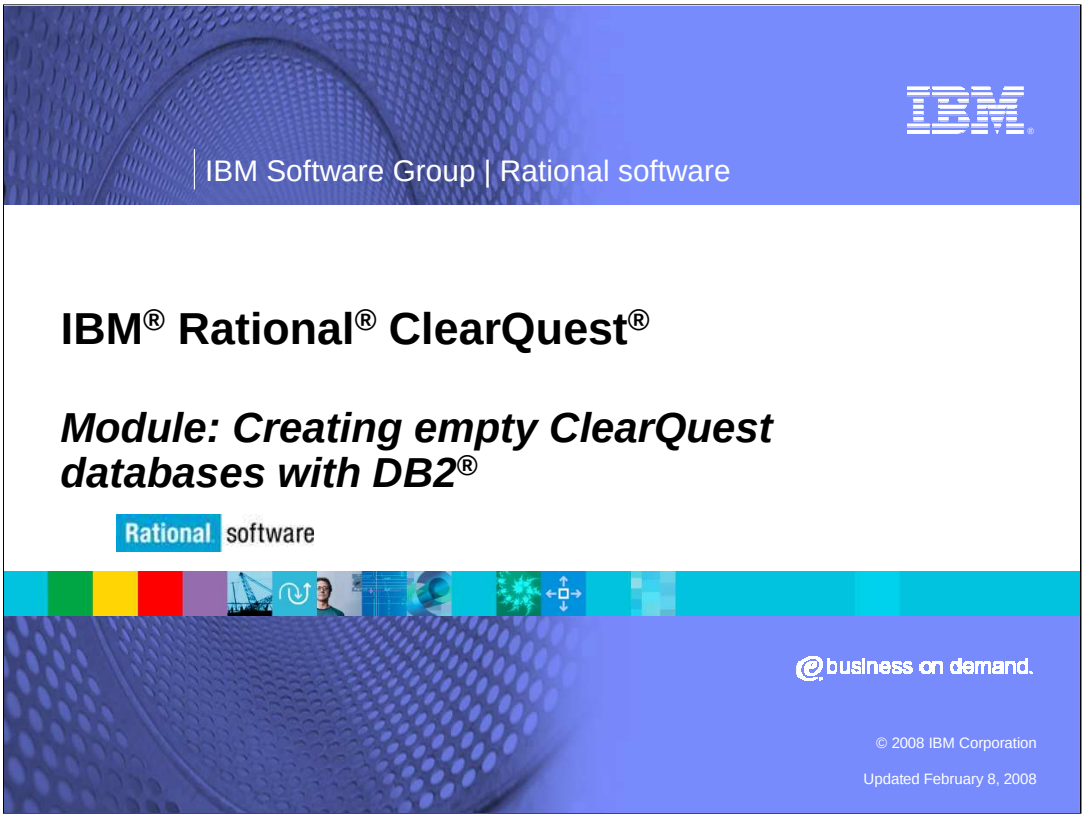


Before creating an IBM Rational ClearQuest database, you must create an empty one in a supported database product. This module will provide step-by-step instructions for creating an empty database using IBM DB2.

Module objectives

- The following topics are covered in this module:
  - Two methods for configuring DB2 databases
  - Outline of tasks for creating a database
  - Step-by-step instructions
- Upon completion of this module, you will be able to:
  - Create an empty DB2 database that is ready to be used by the ClearQuest administration tools to create a schema repository or a user database

There are two ways to configure a DB2 database for ClearQuest. These come into play when you use the ClearQuest Maintenance Tool or Designer to create a schema repository or user database. The steps before this, where you create the physical DB2 database, are the same regardless of the method.

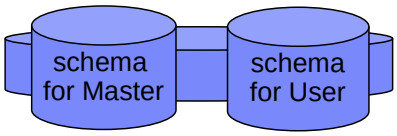
DB2 database configuration

- There are two options for configuring the DB2 databases:
  1. Create a single DB2 database that will hold a schema repository and one or more user databases
  2. Create separate DB2 databases for each ClearQuest database

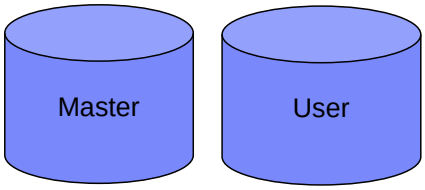
There are two options for configuring DB2 databases. With the first option, you create one physical DB2 database and use DB2 schema names to divide it into several logical ClearQuest databases. With the second option, you create a physical DB2 database for each ClearQuest database. This module will assume that one schema repository and one user database are being created.

One versus two database configuration

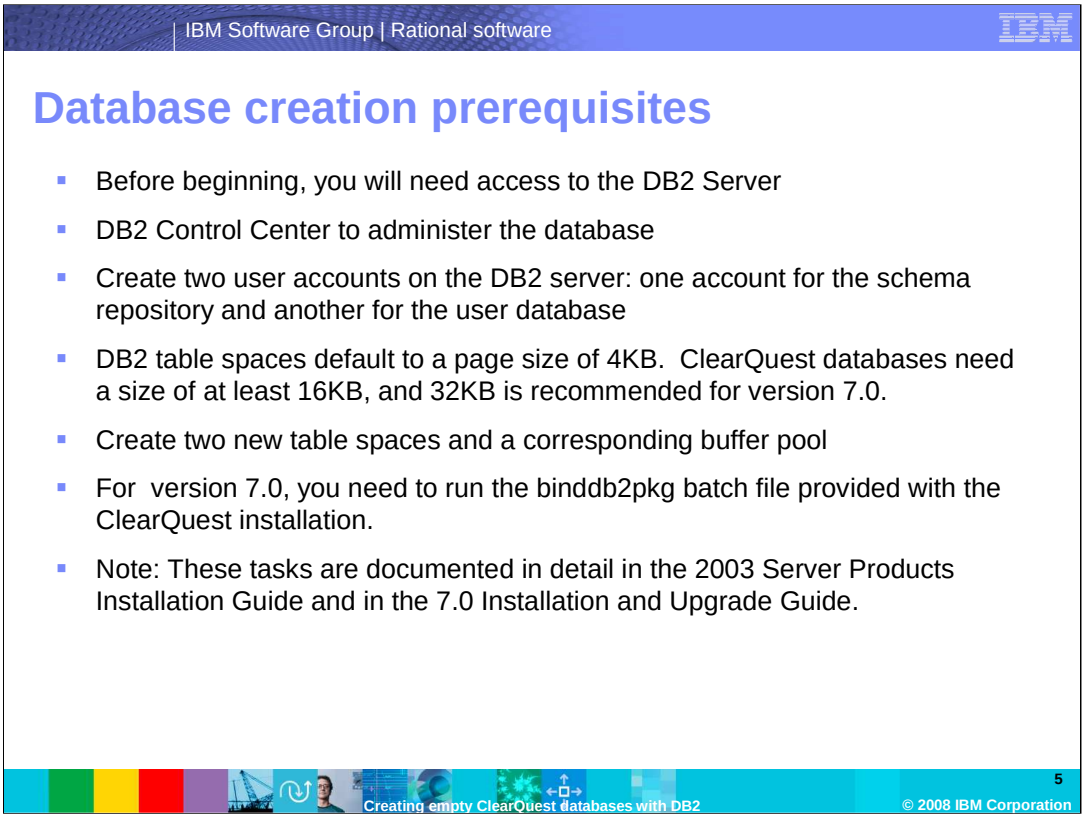
One physical DB2 database
two logical databases
differentiated by schema name



Two physical DB2
databases



Here is a visual model of what gets created for each configuration. The “Master” refers to the schema repository and the “User” refers to the associated user database. The configuration on the left consists of one physical DB2 database logically divided into two ClearQuest databases. The configuration on the right shows two physical DB2 databases, one for each ClearQuest database. The steps to create the physical DB2 database are the same regardless of configuration.



Before beginning, you will need access to the DB2 server. This module assumes you are using the DB2 Control Center to administer the database. You will also need to create two user accounts on the DB2 server, one account for the schema repository and another for the user database.

DB2 table spaces default to a page size of 4KB. ClearQuest databases need a size of at least 16KB, and 32KB is recommended for version 7.0. You will create two new table spaces and a corresponding buffer pool.

For 7.0, you need to run the binddb2pkg batch file provided with the ClearQuest installation. The Data Direct driver requires certain DB2 packages to be created and bound to the database.

These tasks are documented in detail in the 2003 Server Products Installation Guide and in the 7.0 Installation and Upgrade Guide.

Outline of tasks

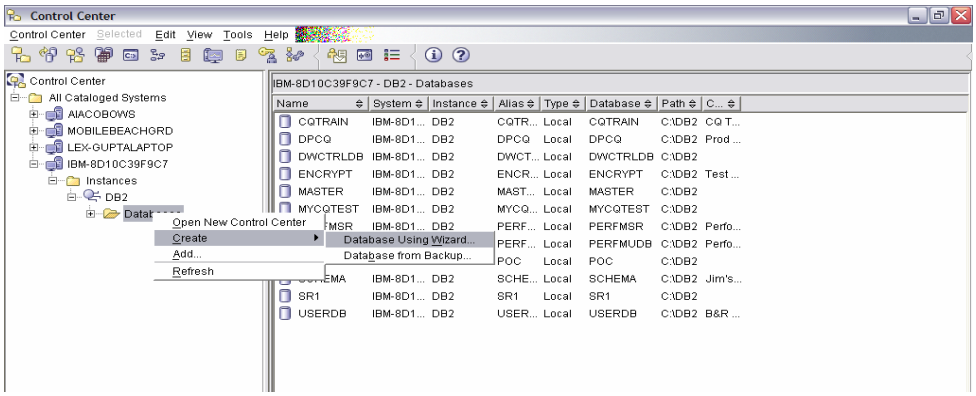
- Create two table spaces, regular and temporary
- Create a buffer pool
- Associate these two objects
- Drop the default regular table space
- Add the user account and grant authority
- Configure the database parameters
- Create DB2 packages and bind to database

Note: These tasks are documented in detail in the 2003 Server Products Installation Guide and in the 7.0 Installation and Upgrade Guide.

This is an outline of the tasks needed to create the DB2 database. You will need to create two table spaces, regular and temporary, and create a buffer pool and associate these two objects. Then drop the default regular table space, add the user account and grant authority, configure the database parameters, create DB2 packages and bind them to the database.

Step-by-step – Create database

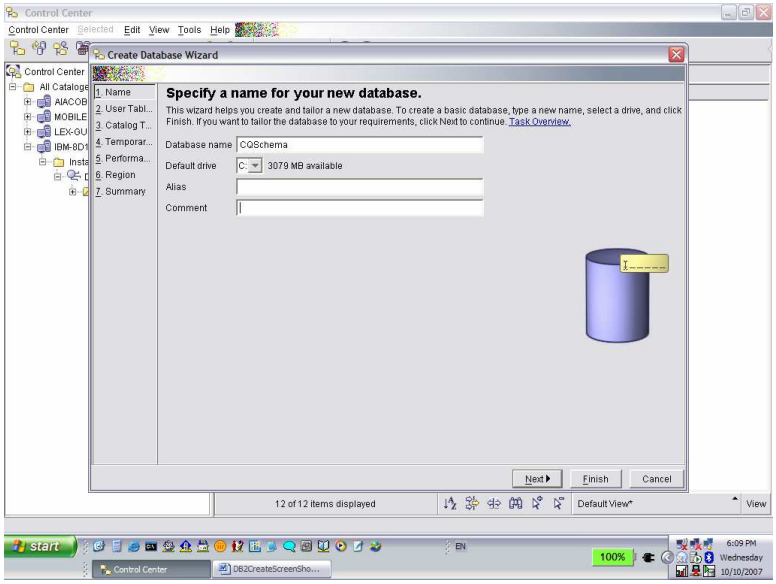
- Select Database folder, right-click, and select Create > Database using Wizard



The following slides will walk through the steps to create the database. The procedure for creating the physical database is the same regardless of which configuration you choose. This module assumes the recommended settings for ClearQuest version 7.0. The Control Center shown here is DB2 version 8.

To begin, create a new database using the DB2 Create Database wizard. Select the database folder, right-click, and select Create > Database Using Wizard.

Create database – Step 2

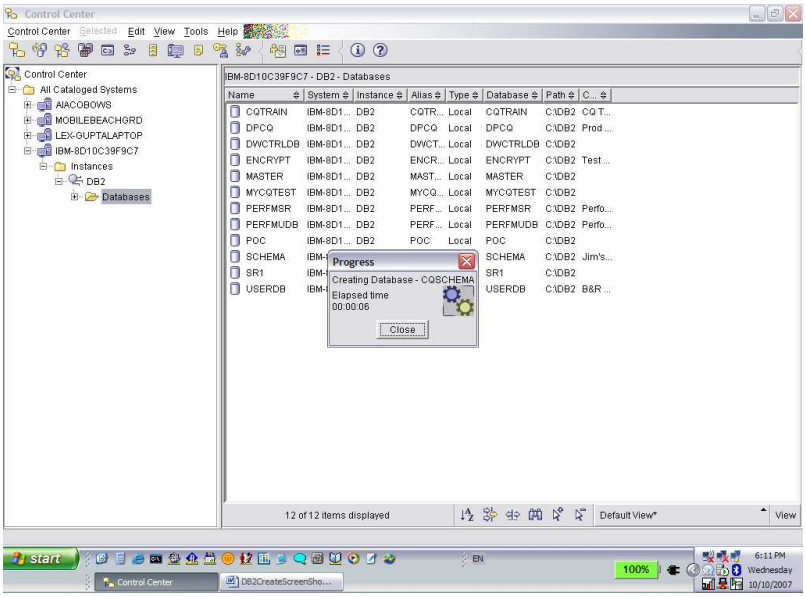


Type the name of the database. DB2 supports names of up to 8 characters. Optionally, provide a comment.

The DB2 Alias by default is the name of the database. This is used on the local client to distinguish between databases if you have to connect to more than one database with the same name.

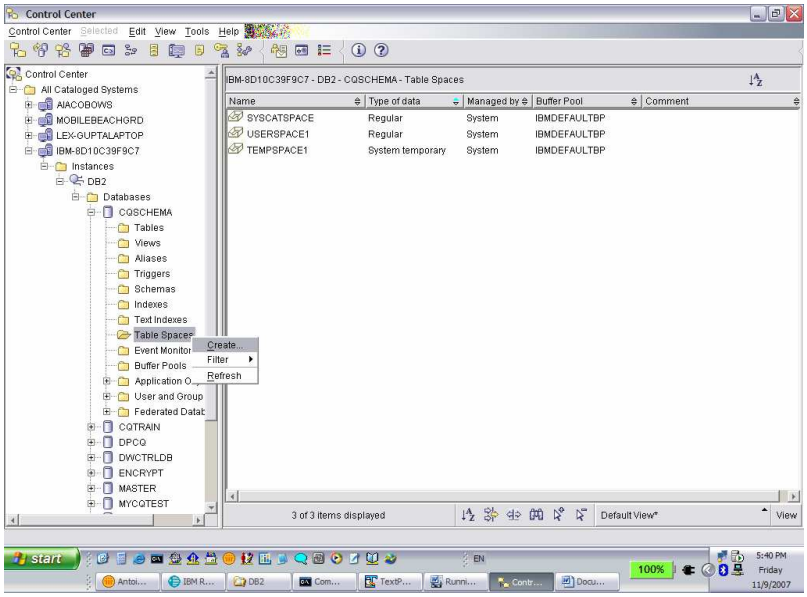
Click **Finish** and then click **No** when prompted to start the Configuration Advisor.

Create database – Step 3



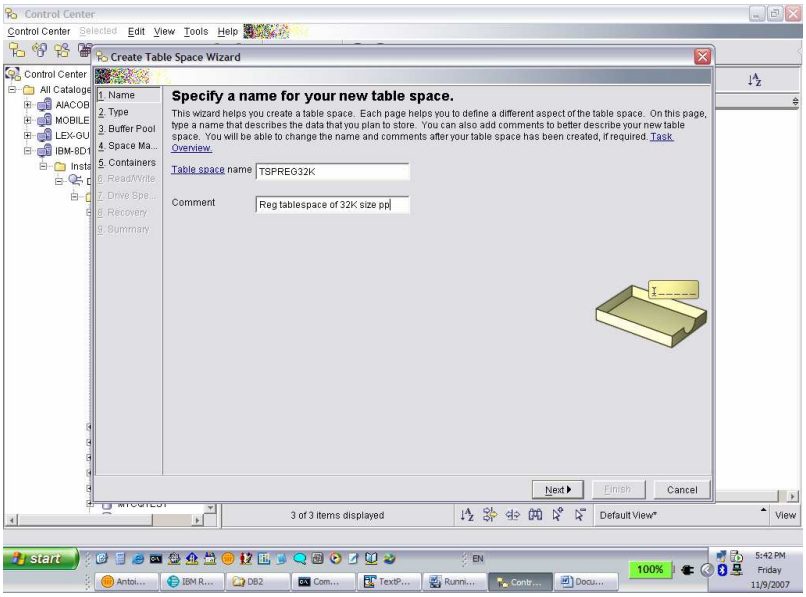
The DB2 Control Center will respond by closing the Progress window when the database creation has completed.

Create regular table space – Step 1



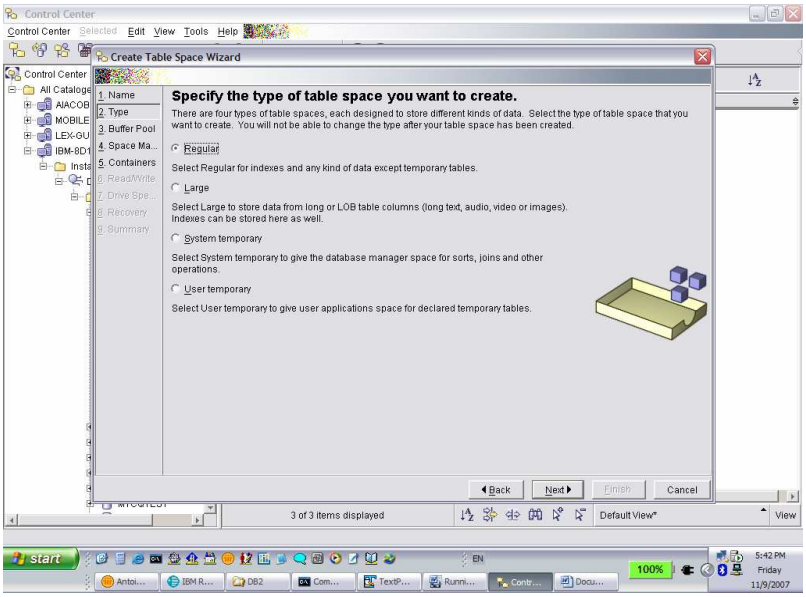
The next few slides will walk through creating regular and temporary table spaces and associating them with an appropriately-sized buffer pool for a ClearQuest database. First, create the regular table space: under the folder of the database you just created, right-click the **Table Spaces** folder and click “Create”.

Create regular table space – Step 2



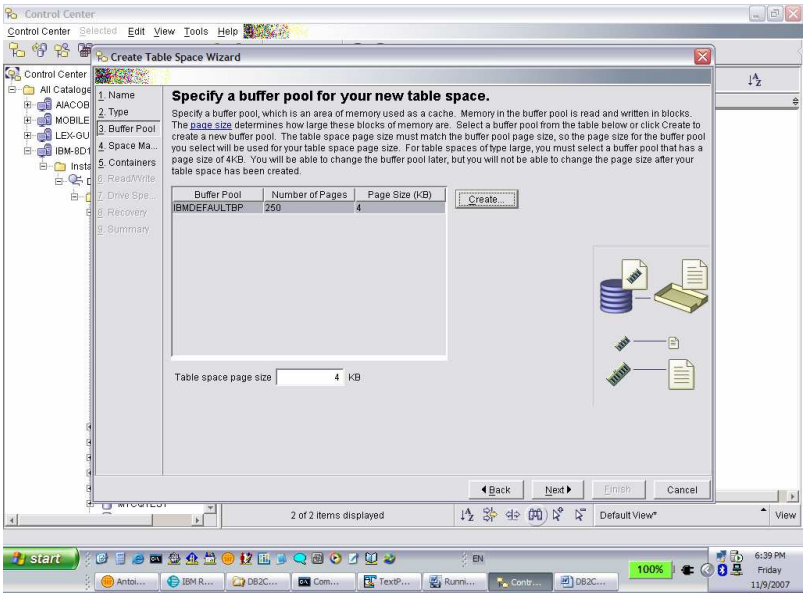
Use the Table space wizard: type a name for the table space, optionally, add a comment, and click **Next**.

Create regular table space – Step 3



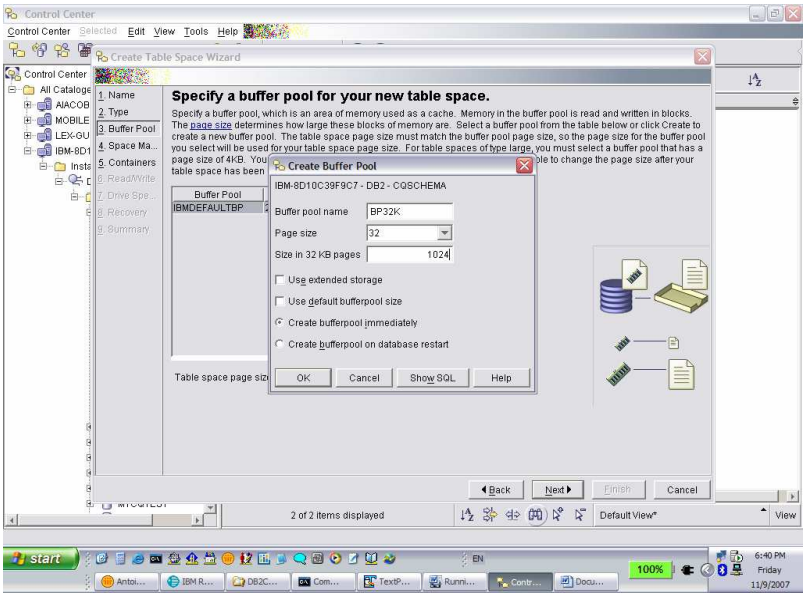
Set the type of table space to be **Regular**. Click **Next**.

Create buffer pool – Step 1



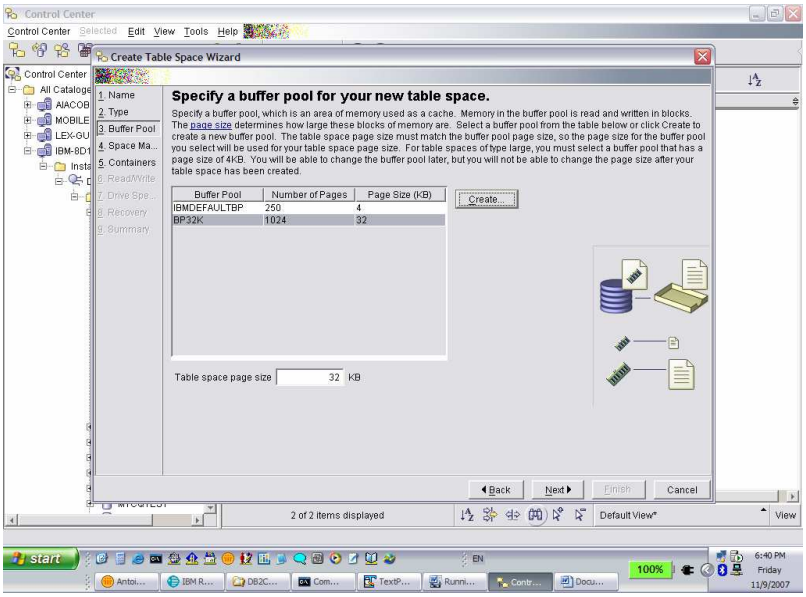
In the “Specify a buffer pool…”, select the “Create” button.

Create buffer pool – Step 2



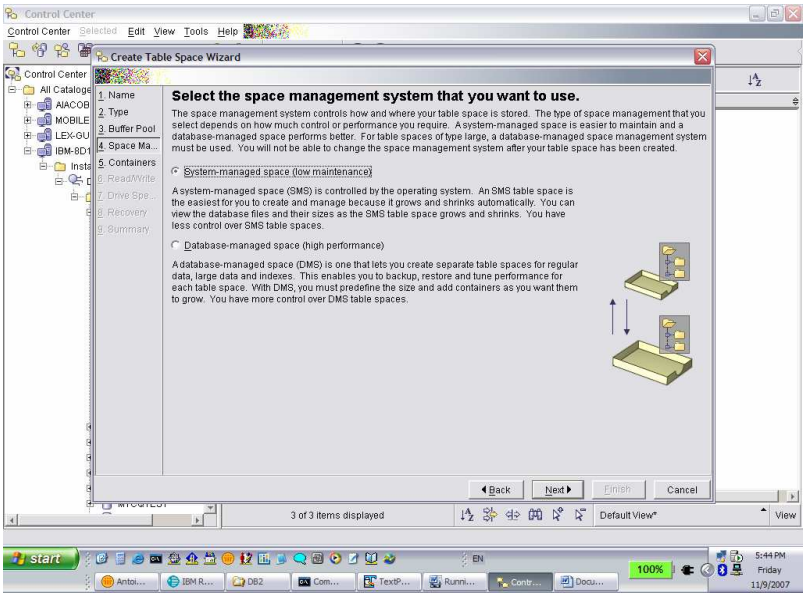
Type a buffer pool name. Set the page size to 32 and the Size in 32 KB pages to 1024. Ensure that the “Use extended storage” and “Use default bufferpool size” are not selected. Click **OK**.

Associate buffer pool



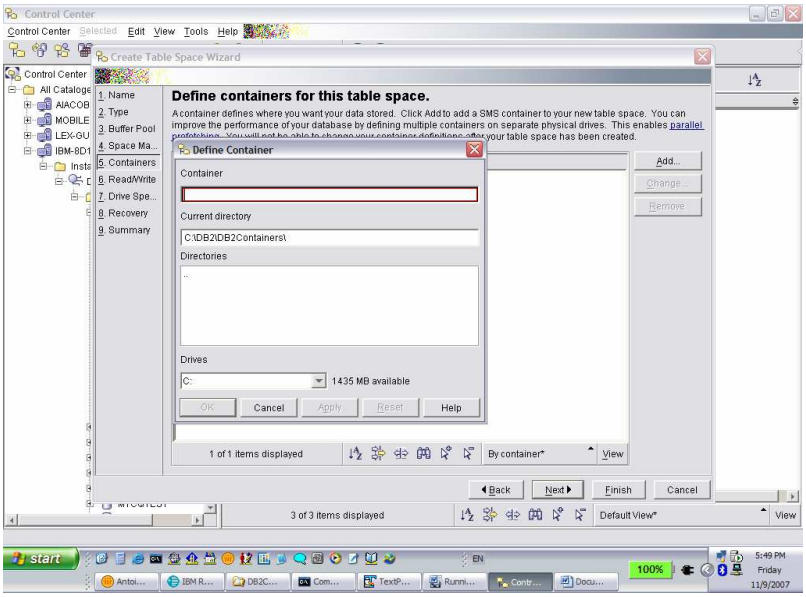
Select the buffer pool that you just created and click “Next”.

Create regular table space – Step 4



Set space management to be system-managed space. Click **Next**.

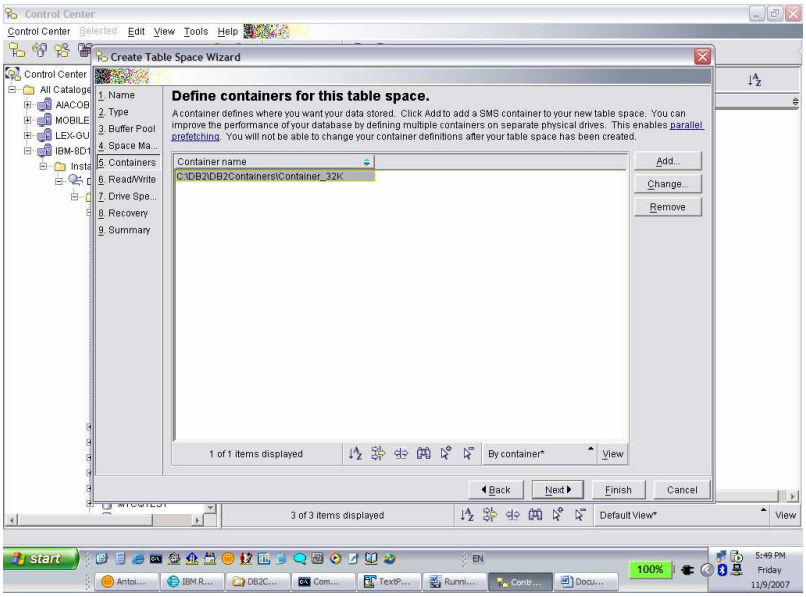
Create regular table space – Step 5



On the “Define containers” page, click **Add**.

Browse to where you want the container to be created and type a name for the container in the “Container” Window.

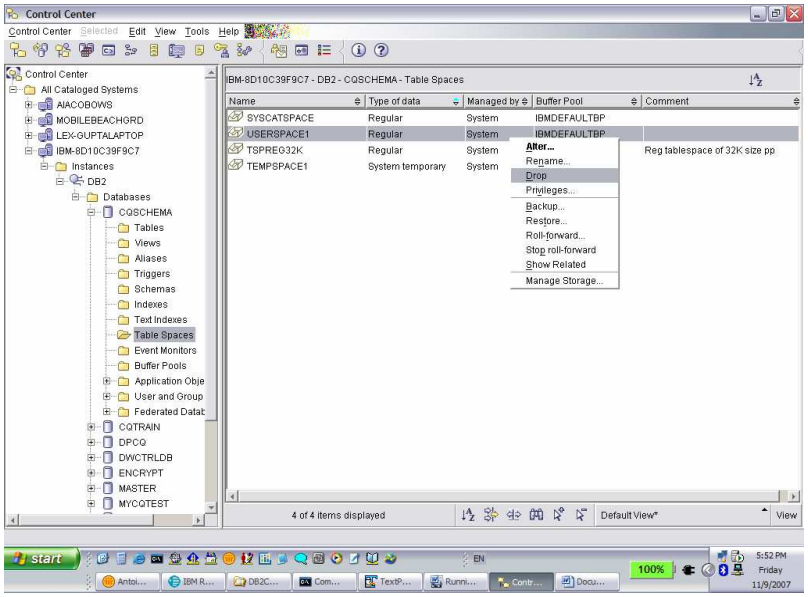
Create regular table space – Step 6



Select this container name and click **Finish.**

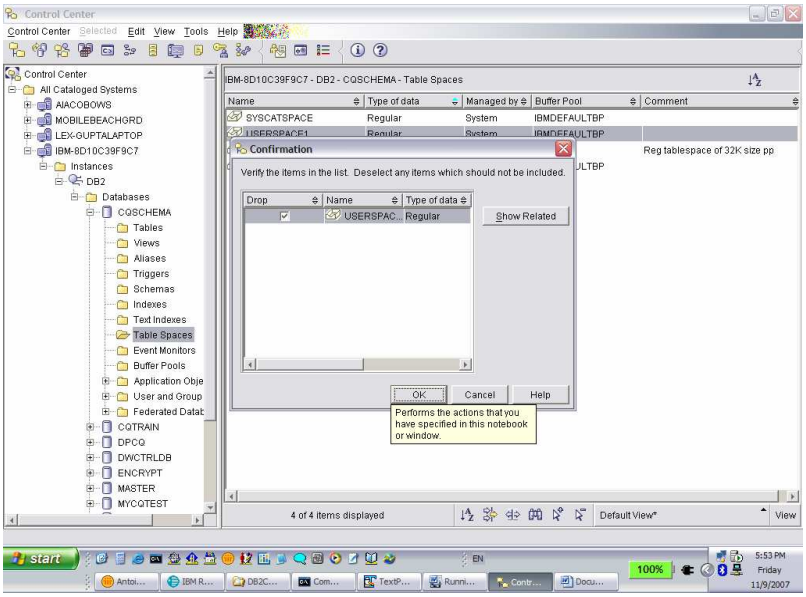
You can optionally click through and customize the table space parameters for the attributes shown on the right column such as Read/write, Drive specification, and Recovery options. You can change some of these options after the table space has been created, but not all. Use the wizard recommendations or consult with DB2 Support if you have questions about any of these options. By clicking **Finish** here, you accept the default settings.

Drop default user table space



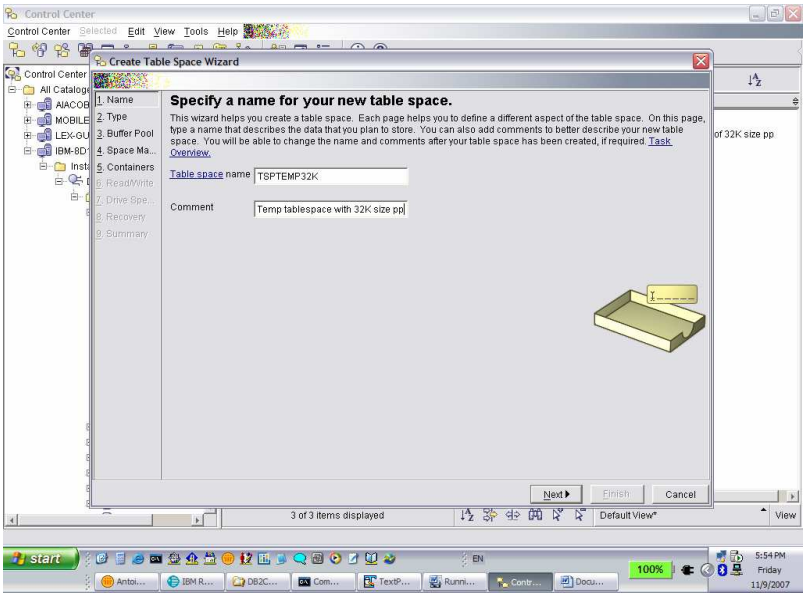
Note that you will see the new table space you just created in the window. Select the USERSPACE1 table space, right-click and select Drop. This will ensure that when your ClearQuest tables are created, the database manager will use the new regular table space you created.

Confirm drop



Click “OK” to confirm the drop

Create temp table space – Step 1

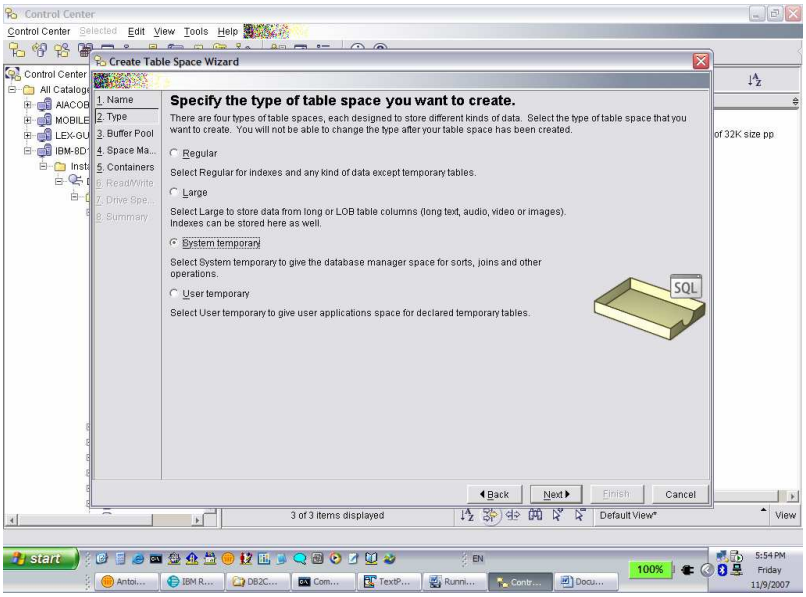


Now create a temporary table space that will also be associated with the buffer pool you created for the regular table space.

Again, select the folder of the database you just created, right-click the **Table Spaces** folder and click “Create” to bring up the “Create Table Space” Wizard.

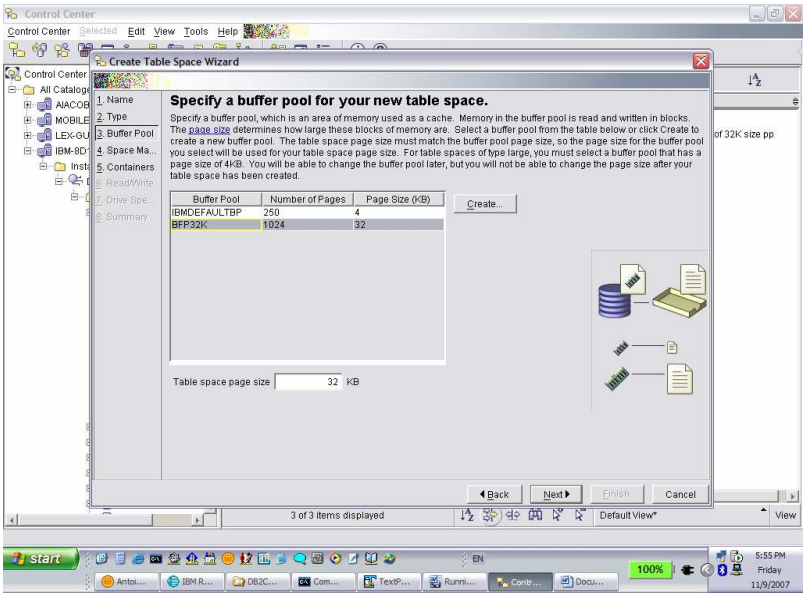
Specify a name for this temporary table space.

Create temp table space – Step 2



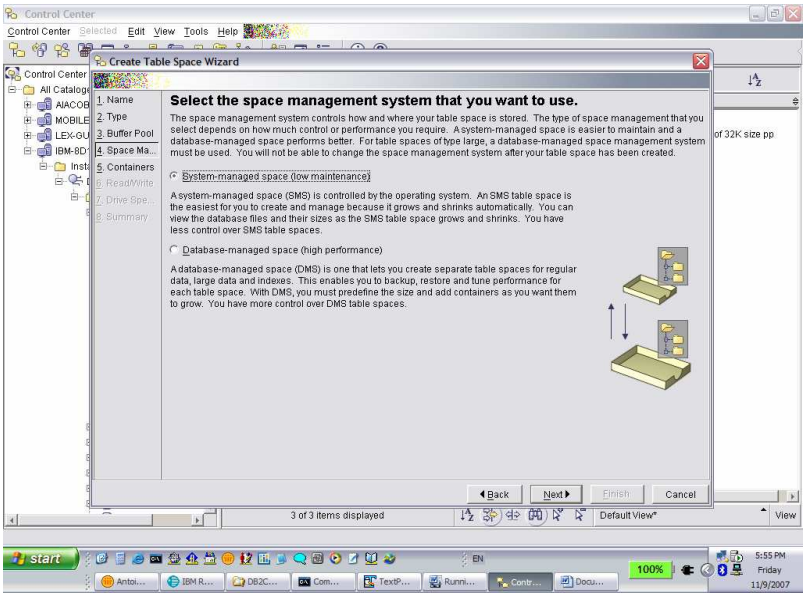
Set the type of table space to be **System temporary** and click **Next**.

Associate buffer pool



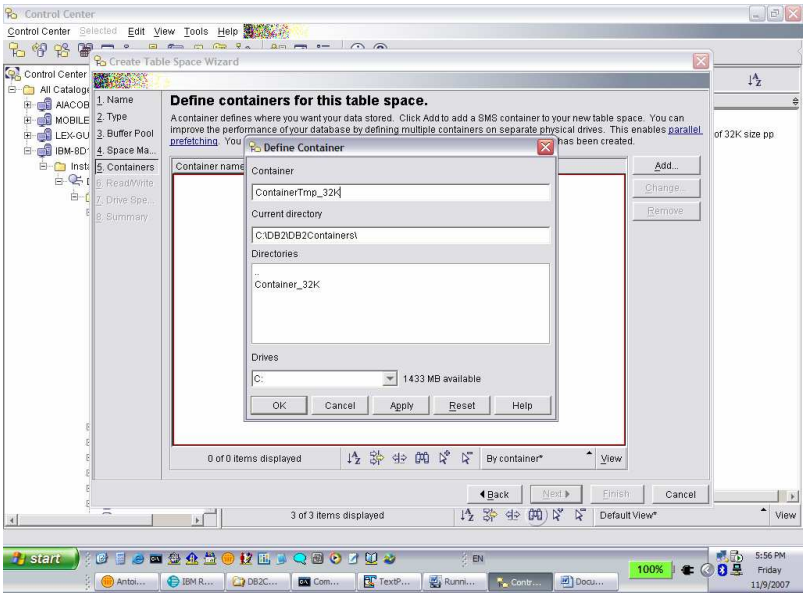
Select the buffer pool that you just created and click **Next.**

Create temp table space – Step 3



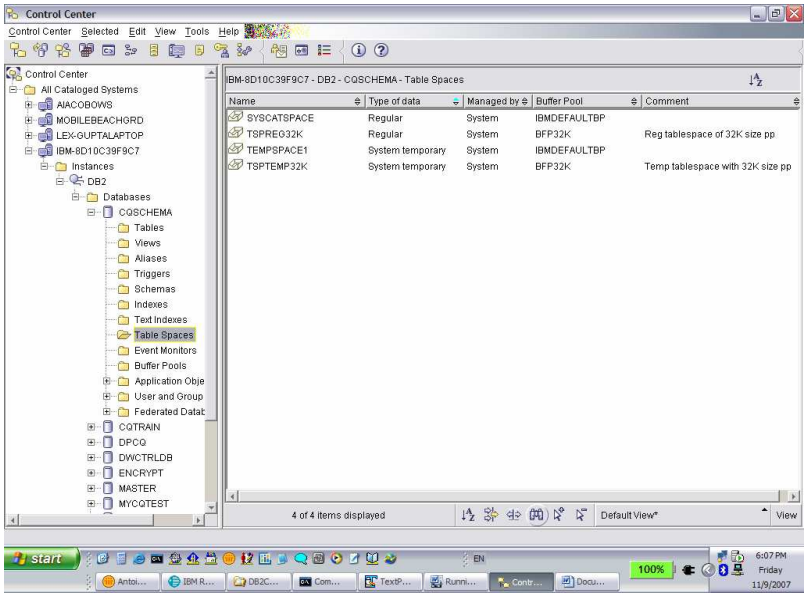
Set space management to be system-managed space. Click **Next**.

Create temp table space – Step 4



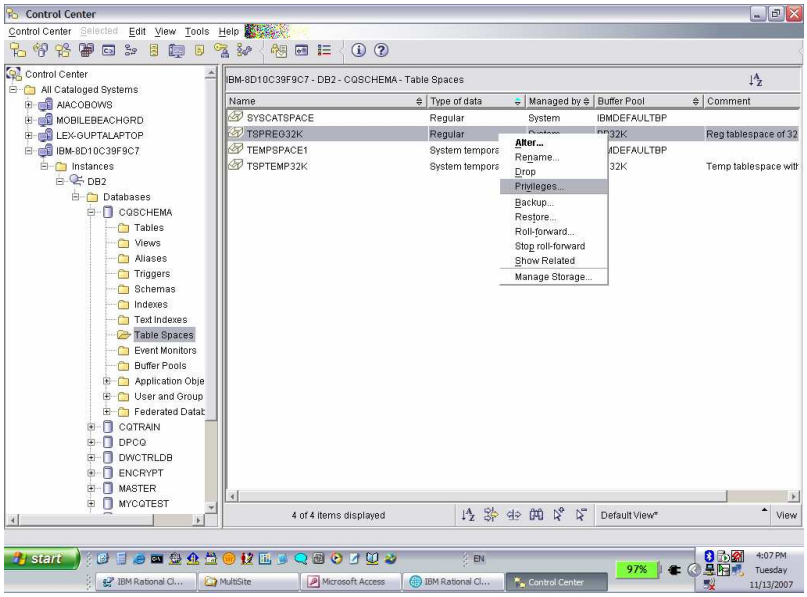
On the “Define containers” page, click **Add**. Browse to where you want the container to be created and type a name for the container in the “Container” Window. Click **OK**. Select this container name and click **Finish.**

Table spaces created



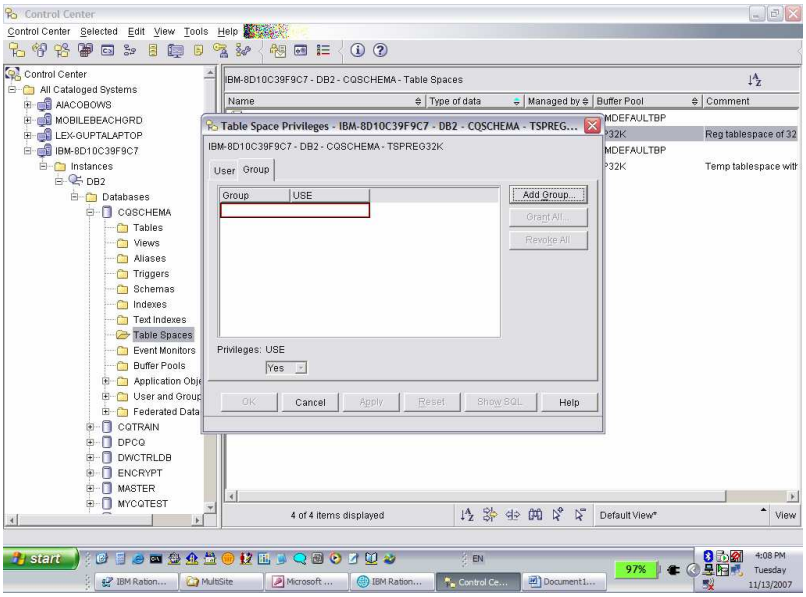
You will see the new temporary table space in the Window. You will not drop the default one because the system tables will continue to use that table space.

Assign privileges – Step 1



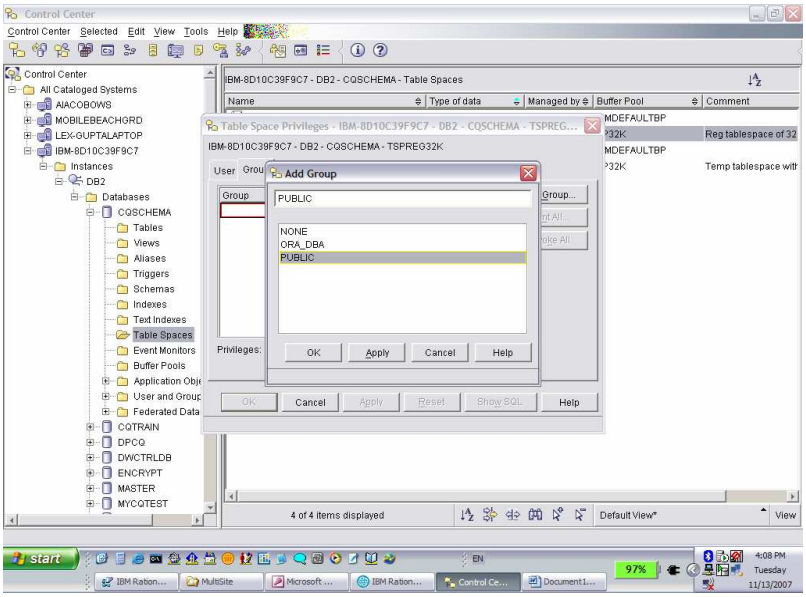
Now you need to assign privileges for the regular table space. Right-click on the regular table space you created and select Privileges.

Assign privileges – Step 2



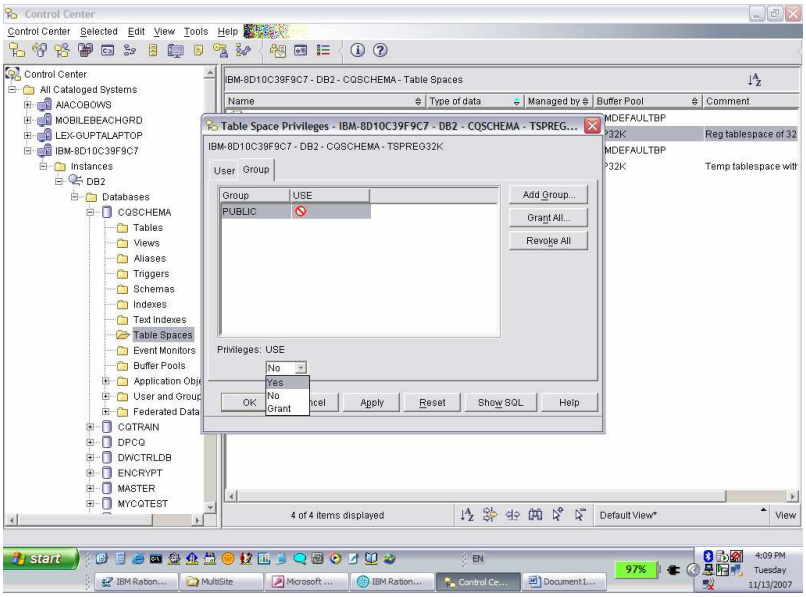
Select the “Group” tab and then “Add Group”.

Assign privileges – Step 3



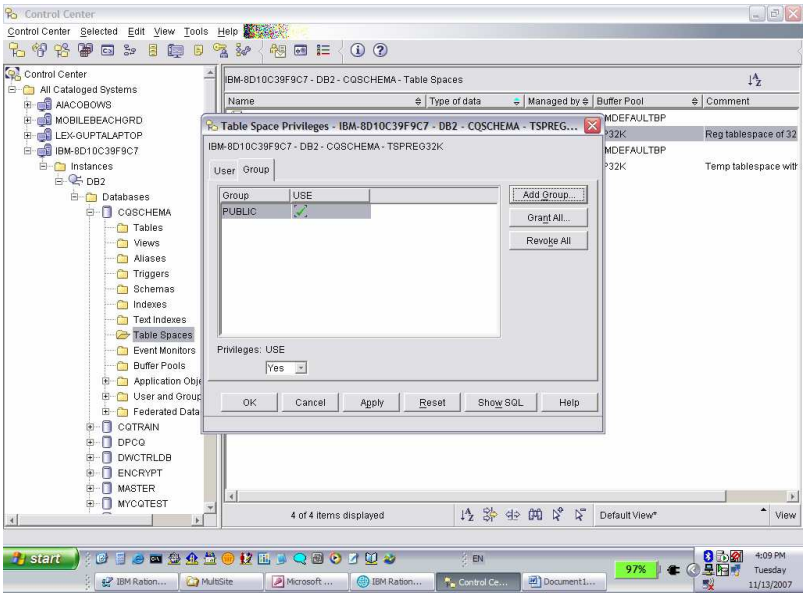
Select group “PUBLIC” and click OK.

Assign privileges – Step 4



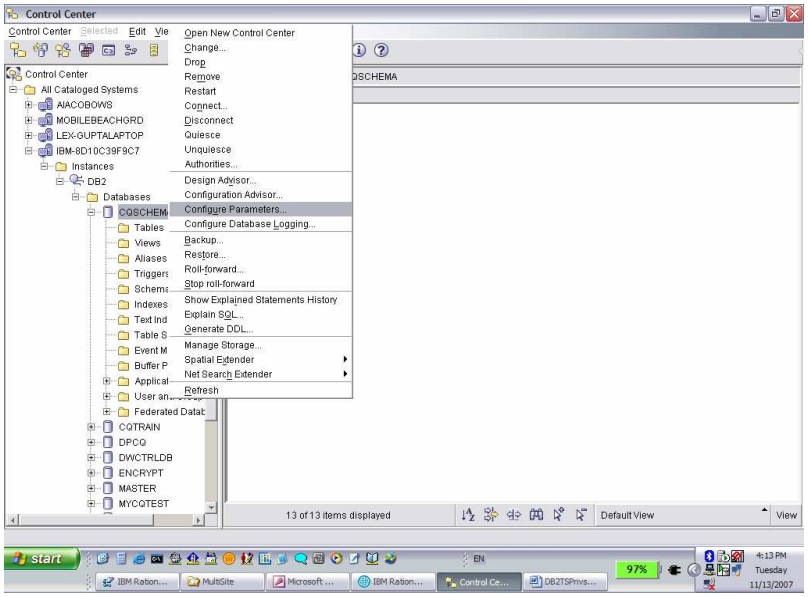
Select group “PUBLIC”, then select “Yes” for Privileges.

Assign privileges – Step 5



Group PUBLIC has been added. Click OK.

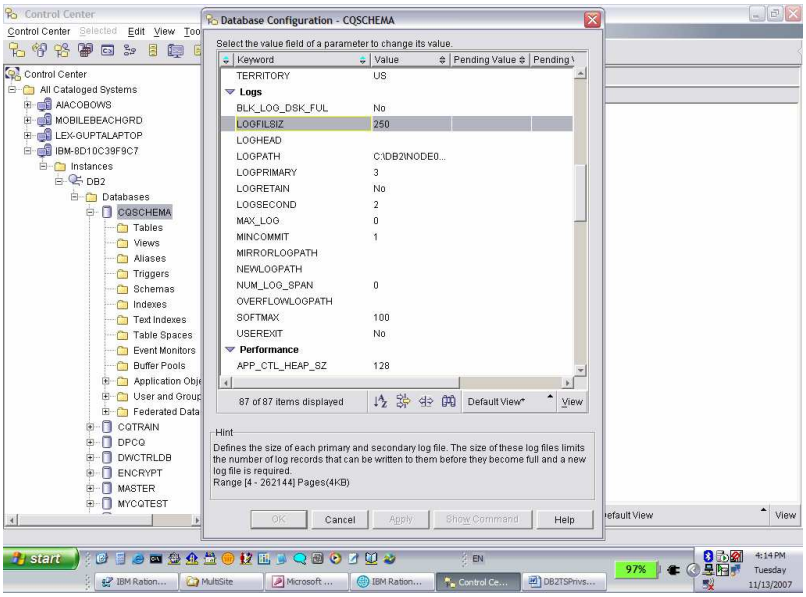
Configure database – Step 1



Now you need to configure the database manager.

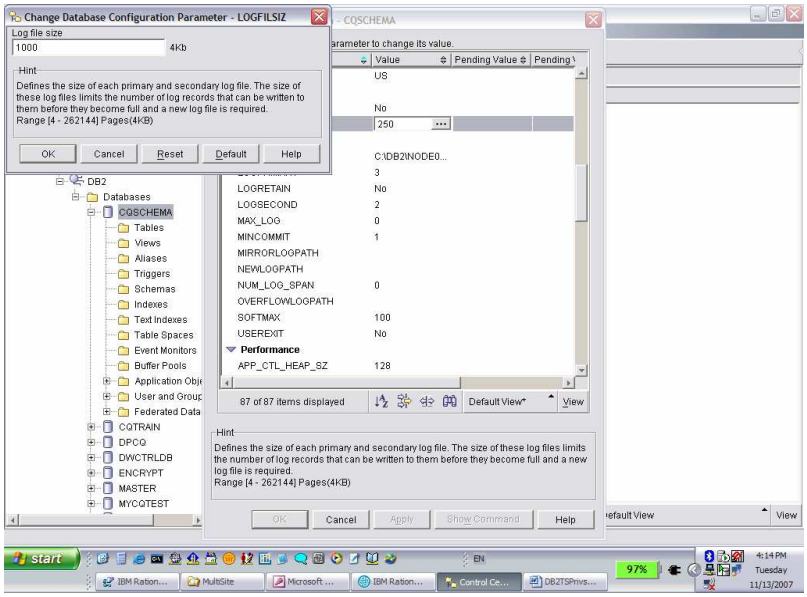
Open the database you created and right click on “Configure Parameters”.

Configure database – Step 2



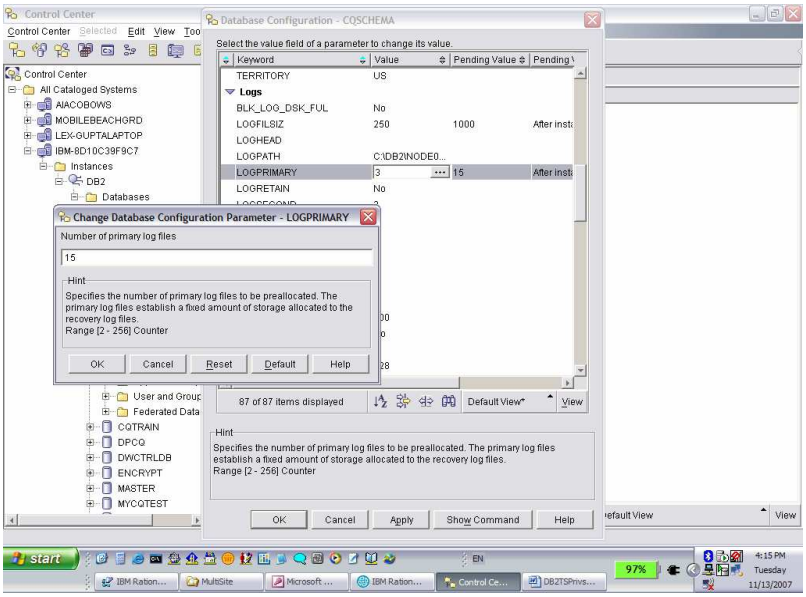
You will see sets of configuration parameters in alphabetical order. Scroll to the “Logs” section and select LOGFILESIZ. Be sure to click on the “Value” section.

Configure database – Step 3



This will bring up the “Change … “ dialog box. Enter 1000 and click OK.

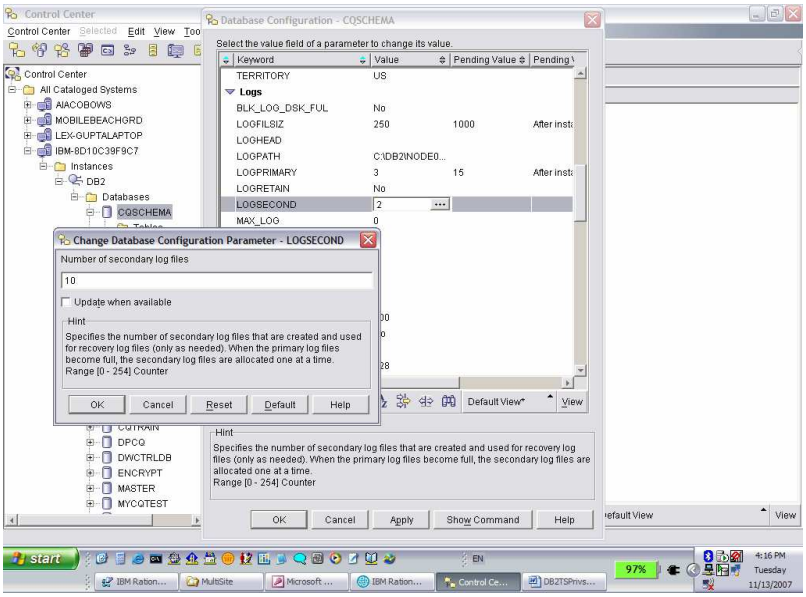
Configure database – Step 4



Note that the new value for LOGFILSIZ is pending. These changes will not take place until the Database Manager is restarted.

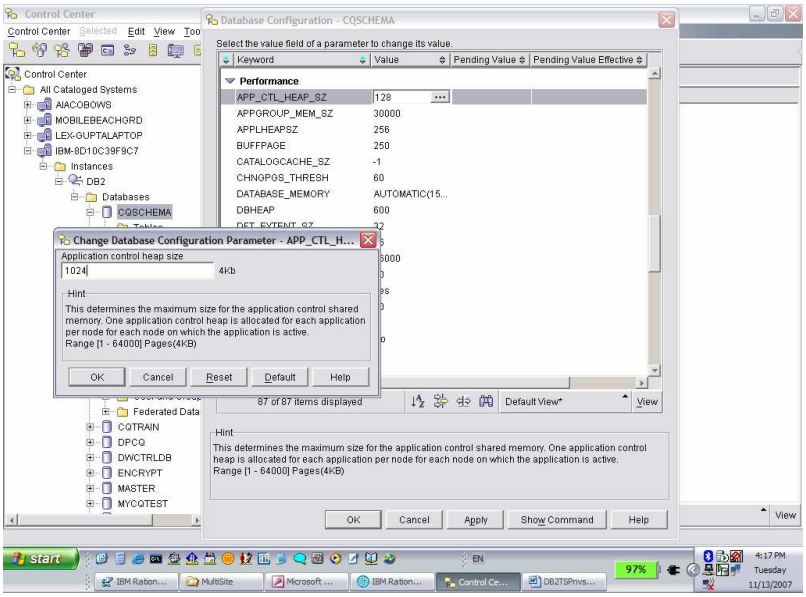
In a similar fashion, set LOGPRIMARY to 15.

Configure database – Step 5



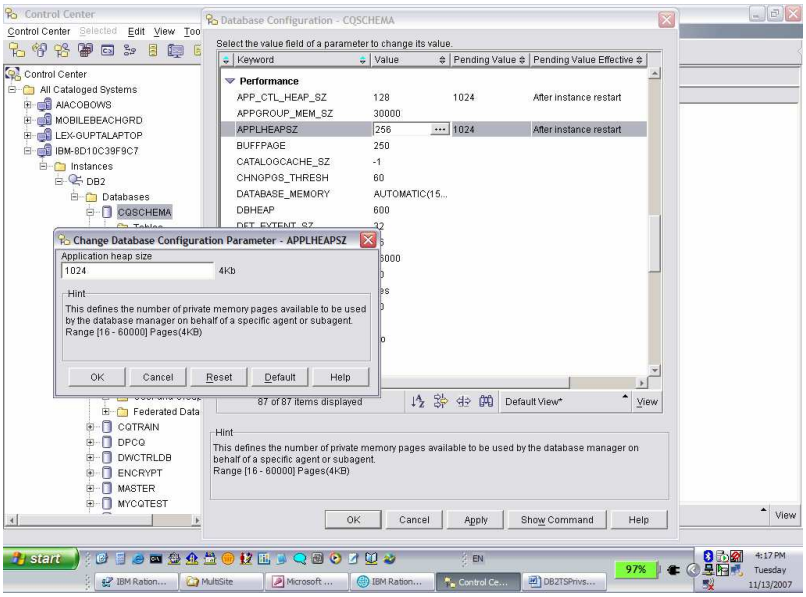
Set LOGSECOND to 10.

Configure database – Step 6



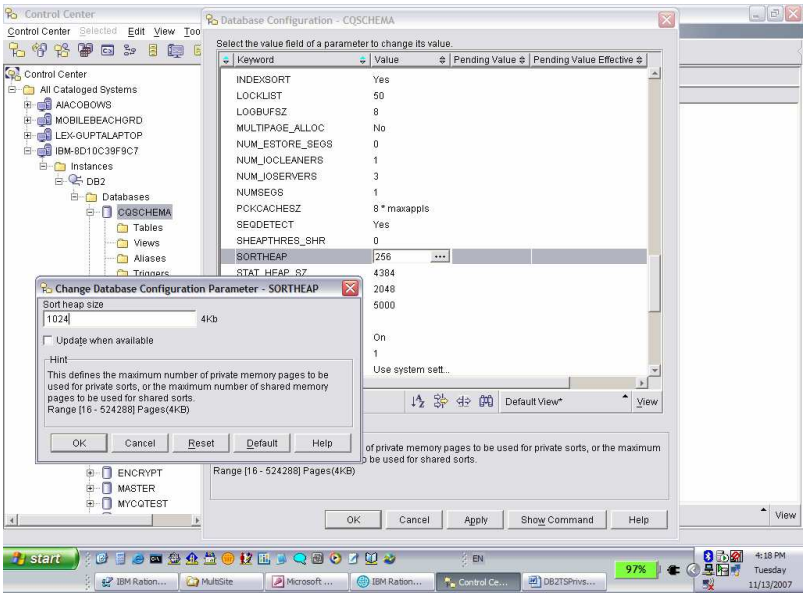
Scroll down to the Performance section. Set APP_CTL_HEAP_SZ to 1024.

Configure database – Step 7



Set APPLHEAPSZ to 1024.

Configure database – Step 8



Set SORTHEAP to 1024.

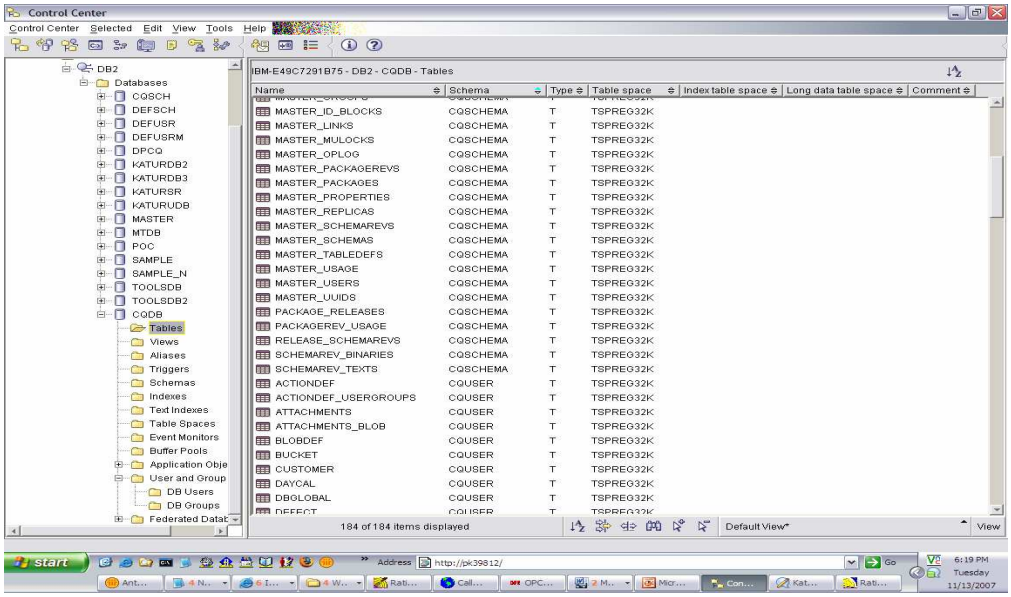
Click **OK** and acknowledge that some of the changes will not be reflected until you restart the DB2 manager. Next, restart the instance.

Create and bind packages

- For 7.0, you need to run the binddb2pkg batch file provided with the ClearQuest installation.
- Syntax is:
  - binddb2pkg *server database db2admin password [port]*
  - *Server* is the host, not the instance. The port is required if the DB2 instance is not using the default value 50000.

The last step is to run a ClearQuest batch file command that will create and bind several DB2 packages to the database. This batch file, binddb2pkg.bat, is in the Rational/ClearQuest install directory.

Example of 1 database configuration

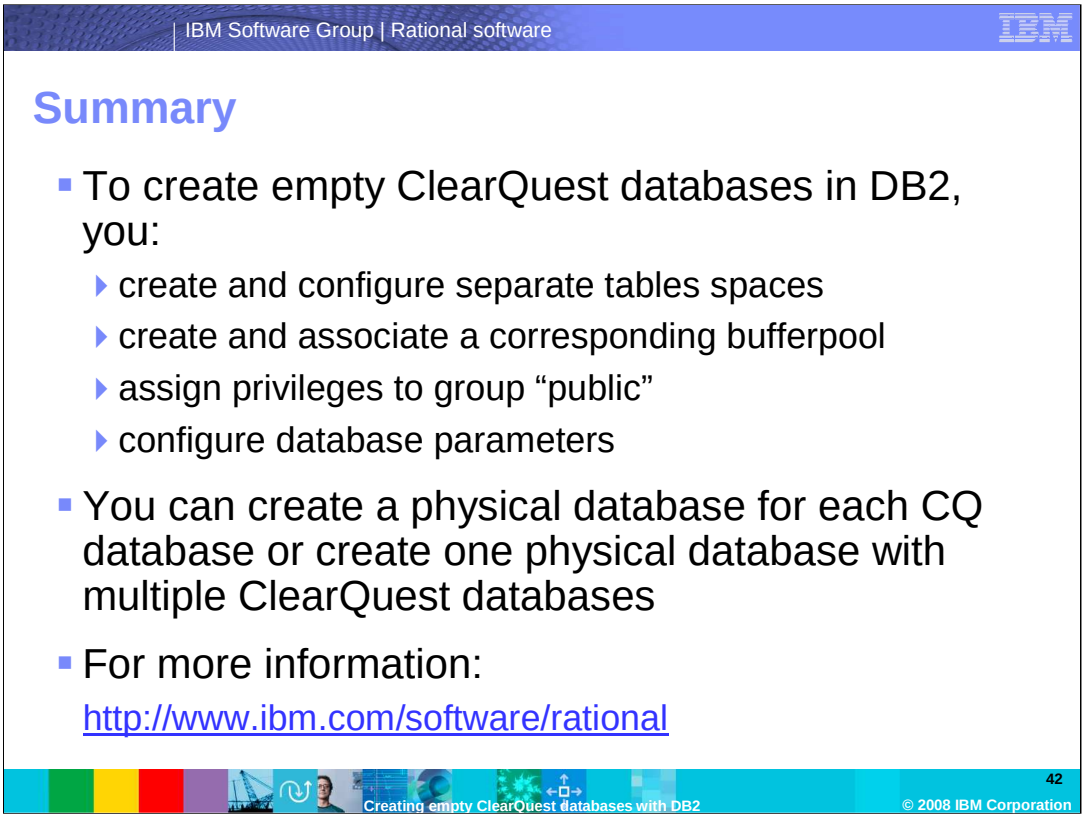


Shown here is an example of where the two methods for configuring DB2 databases that was discussed in the beginning of the module come into play.

In the example shown here, the database CQDB contains two ClearQuest databases. The schema repository was created with the user name CQSCHEMA and the user database with the user name CQUSER. By default, the user name used to create schema determines the schema name, therefore these tables are logically separated by their schema name.

If you are creating physical databases for each ClearQuest database, you must repeat the same steps covered in this module for each database. When you create the ClearQuest databases with either the Maintenance Tool or Designer, you specify the appropriate database name in the connection parameters.

If you are using one physical database, then the user names on the DB2 server created earlier will define the schema names that will logically separate the database tables into a schema repository or user database. In the Maintenance Tool and Designer, when you specify the connection parameters, although you specify the same database name, you will use a different user name for each ClearQuest database you create.



At this point, you are ready to create a ClearQuest database with either the Maintenance Tool to create a schema repository or the Designer to create a user database. The database names, user names, and passwords created here on the DB2 Server are the ones used in these tools to specify the connection properties.

In summary, to create empty ClearQuest databases in DB2, you create and configure separate tables spaces, create and associate a corresponding bufferpool, assign privileges to group “public”, and configure database parameters.

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