



# ISIS Mirroring

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## Instructions to set-up ISIS mirroring

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This document outlines the process to set-up database mirroring for the ISIS pathology system.

# Mirroring

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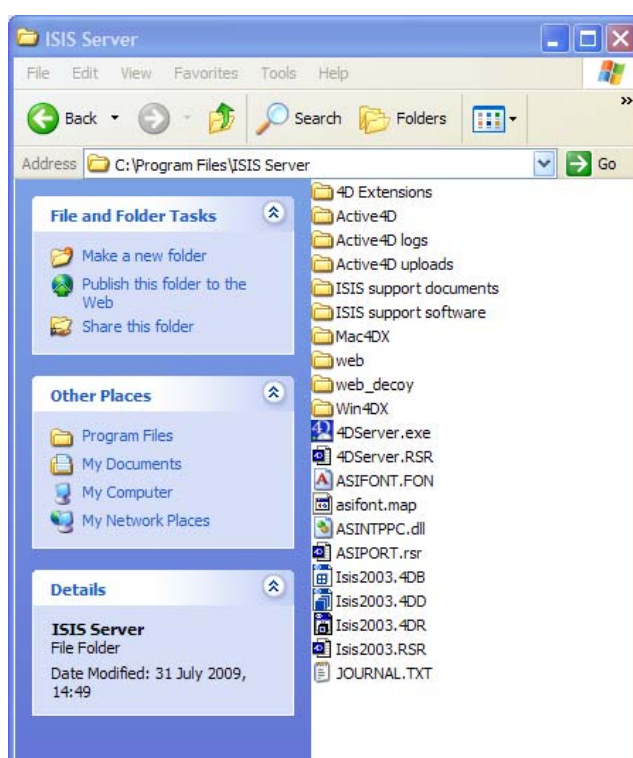
## Outline

The server version of the ISIS Pathology system supports the operation of a database mirroring scheme to ensure the highest level of system availability. The mirroring requires a second server machine to be on-line at all times such that in the event of the failure of the primary server the mirrored database can be started in a matter of minutes. The system works by running mirroring software on the secondary server and a scheduler on the primary server that periodically sends the database log file to the mirror machine. The mirroring software on the secondary machine then integrates the sent log into the mirror database and creates a backup of this updated mirror data. In the event of the primary server failing, the mirroring software on the backup server is stopped and the mirror database opened with the standard 4<sup>th</sup> Dimension server.

To implement the mirroring option, the software must be configured on both the primary server and on the backup server. The standard ISIS server installation places all of the required software on the server machines.

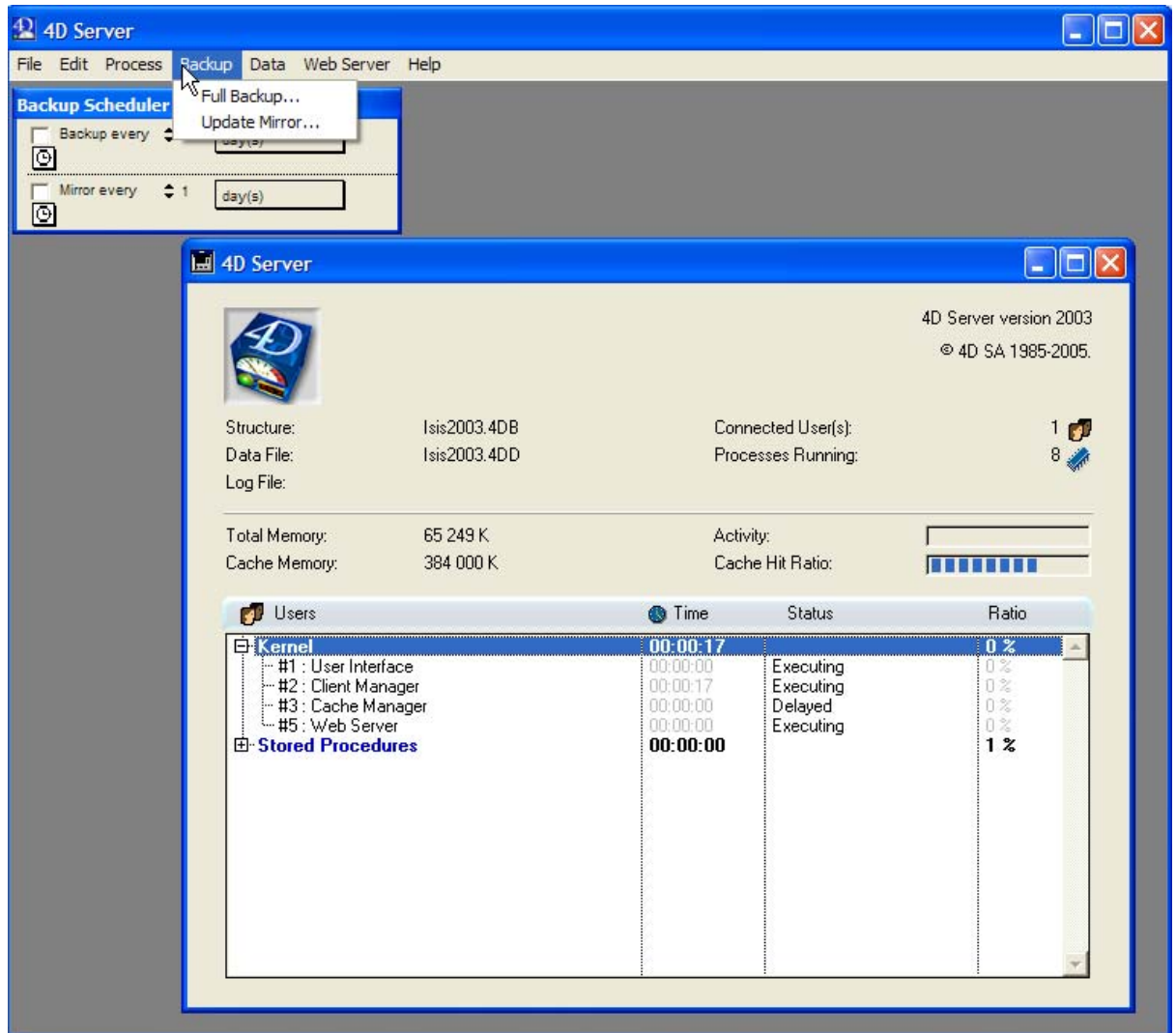
## Server setup

Before the mirror can be established, identical copies of the database and its current data must be installed on both machines. The easiest way of doing this is to copy the entire current ISIS directory from the primary server to the backup server. The content of the ISIS directory typically looks like this:

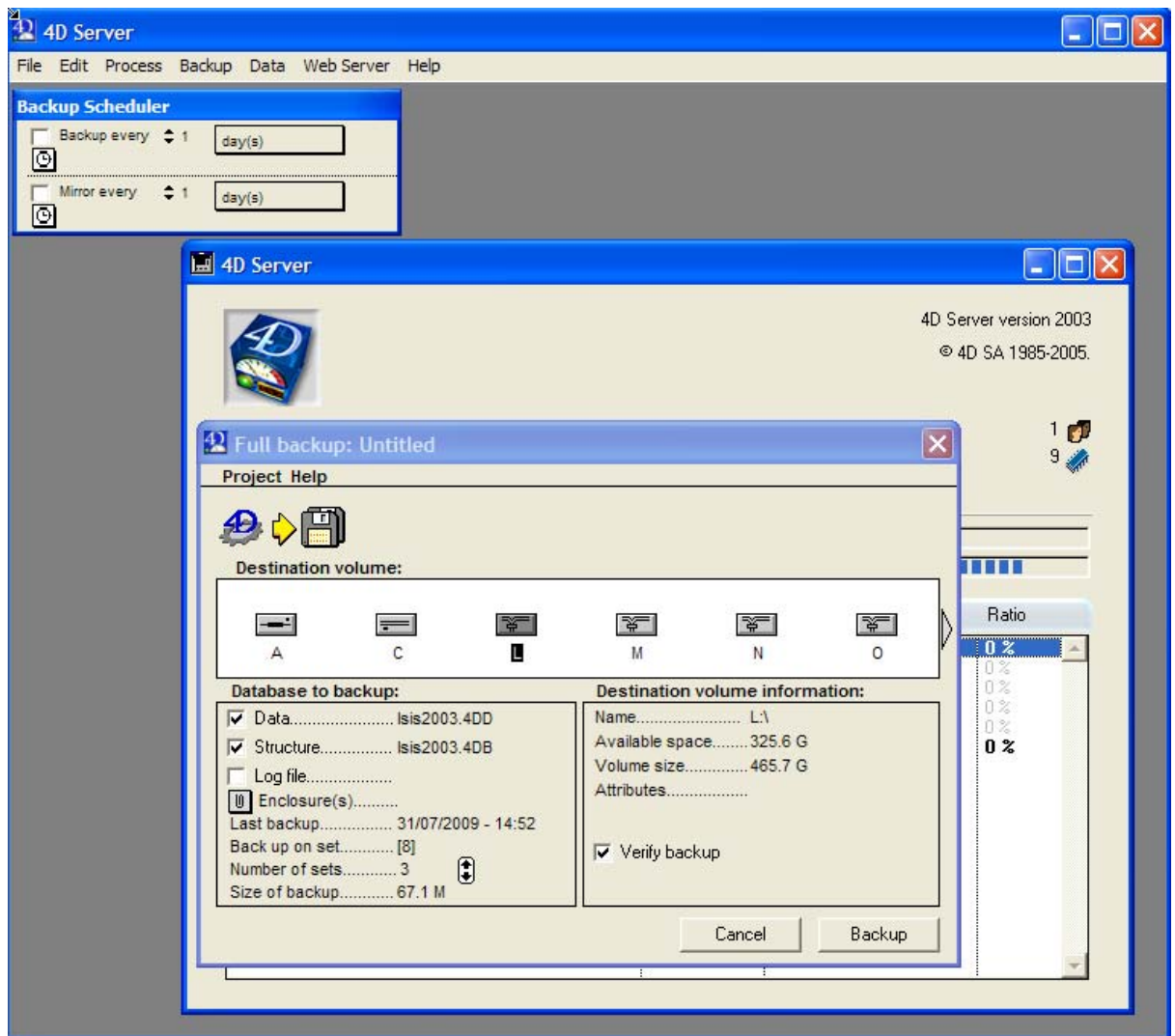


Once the database has been copied, the 4D server application has to be started on the primary server and the ISIS application started.

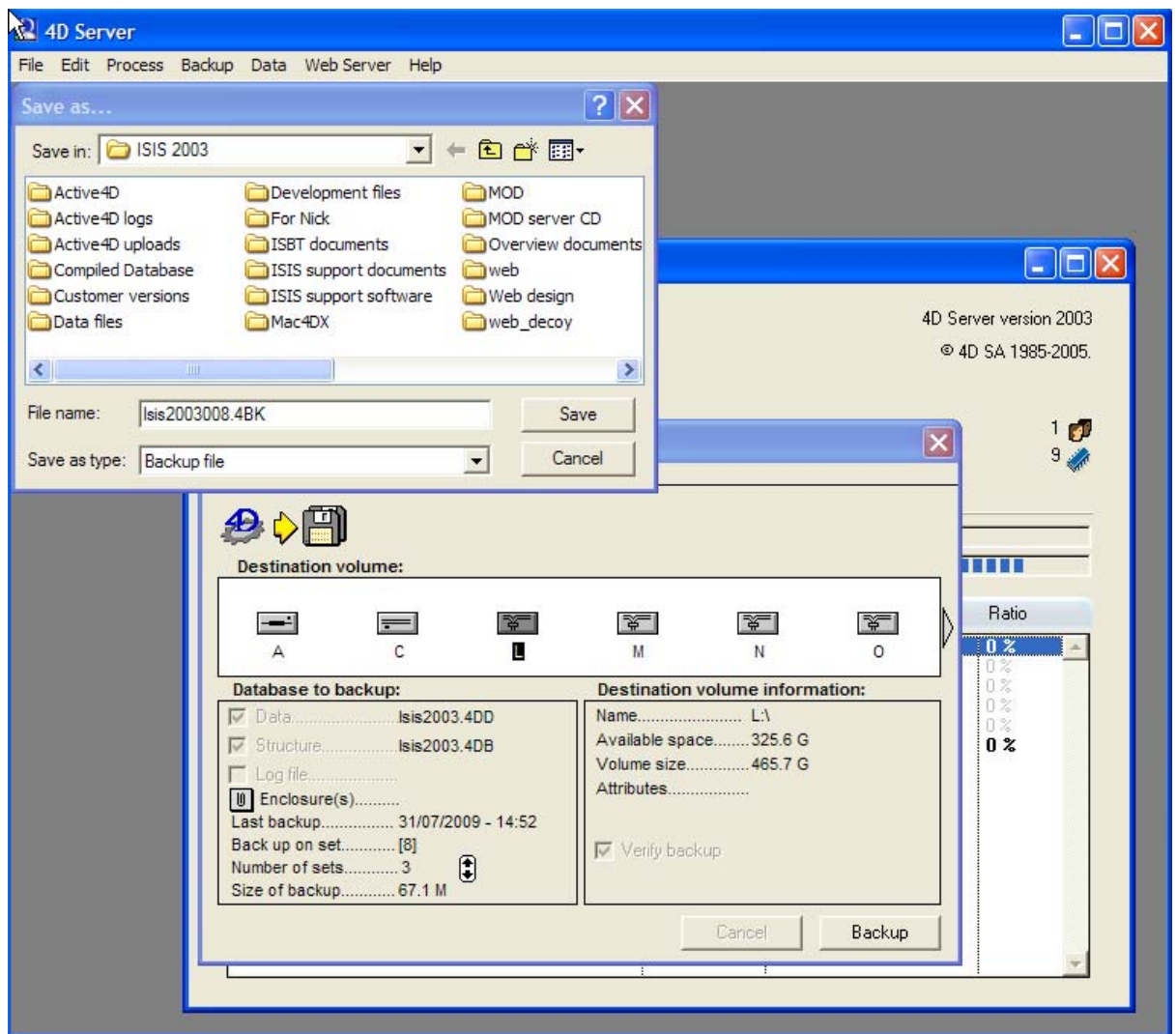
From the server menu select the 'Full Backup' option from the backup menu:



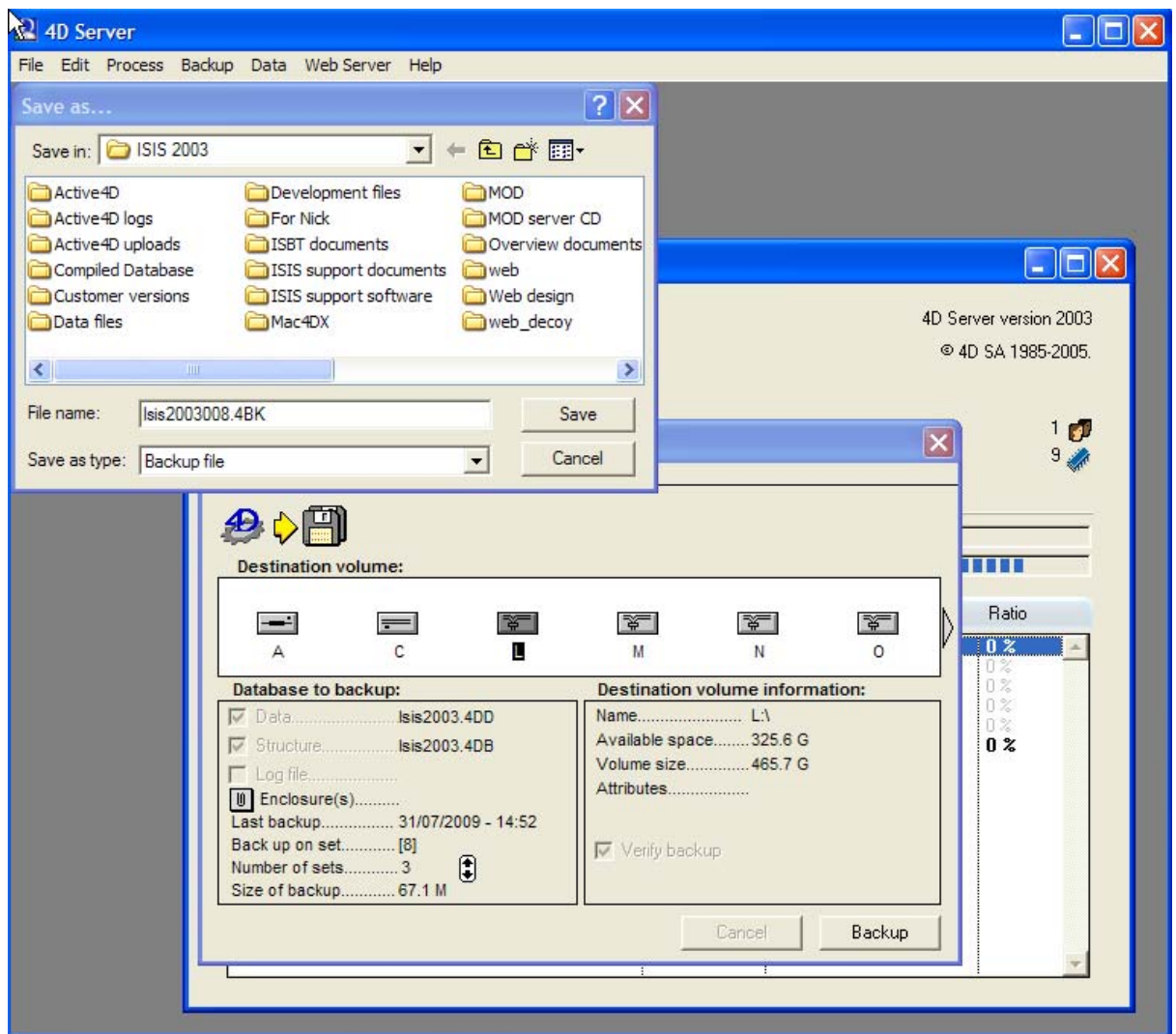
This will allow the creation of the standard database backup:



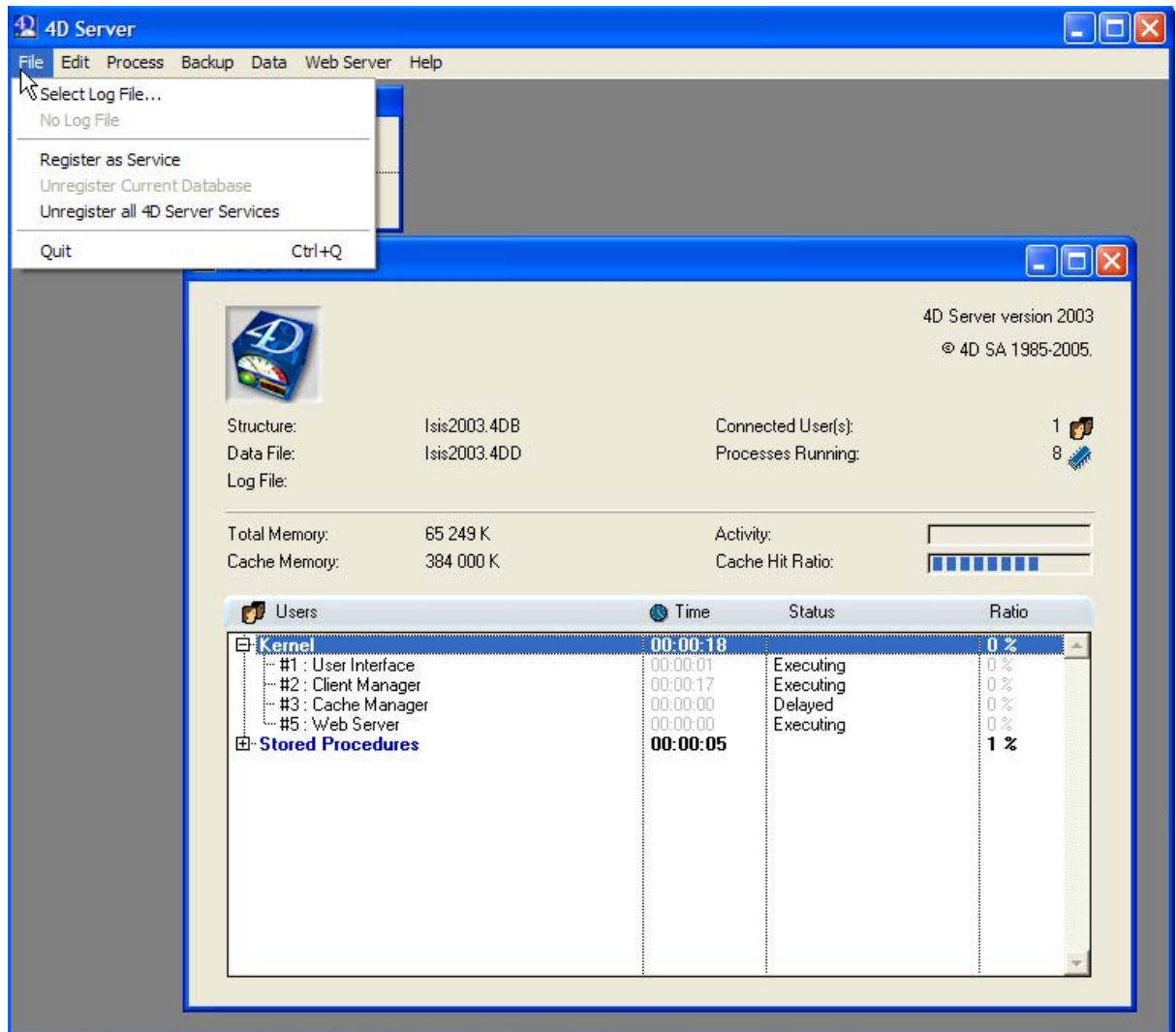
Select the destination volume and select the 'Verify backup' option and click 'Backup'. This will bring up a file save dialog then navigate to the previously selected backup location and save the backup file.



A backup progress dialog will be displayed followed by another dialog asking if you want to save the backup project – select yes. This brings up another file save dialog for the backup project; navigate back to the main ISIS directory and save the backup project there. **IMPORTANT** – The backup project file **MUST** be saved in the same directory as the ISIS application, the main ISIS directory.

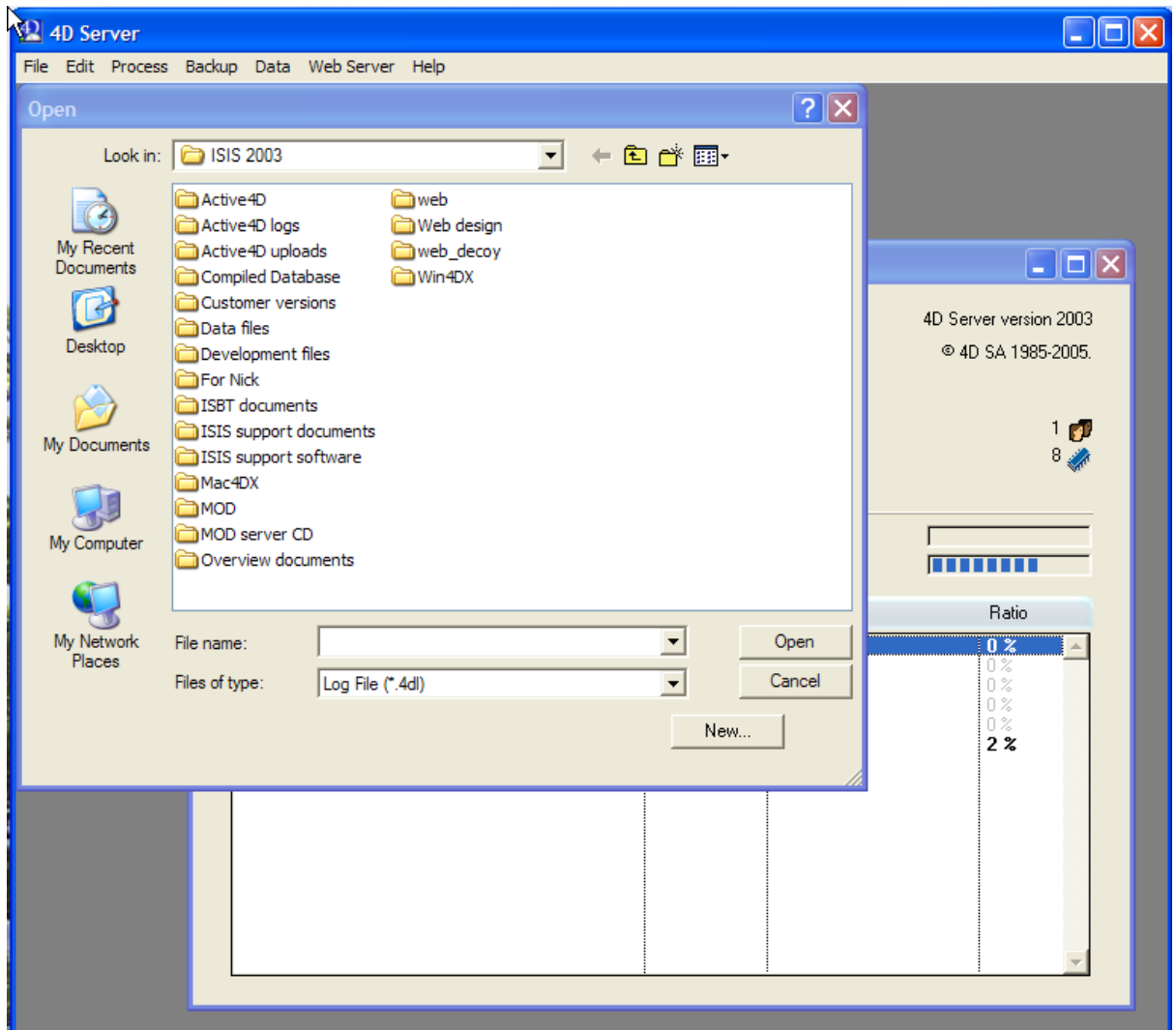


Once this process is complete, the next step is to create a database log file. Choose the 'Select log file' option from the server file menu:



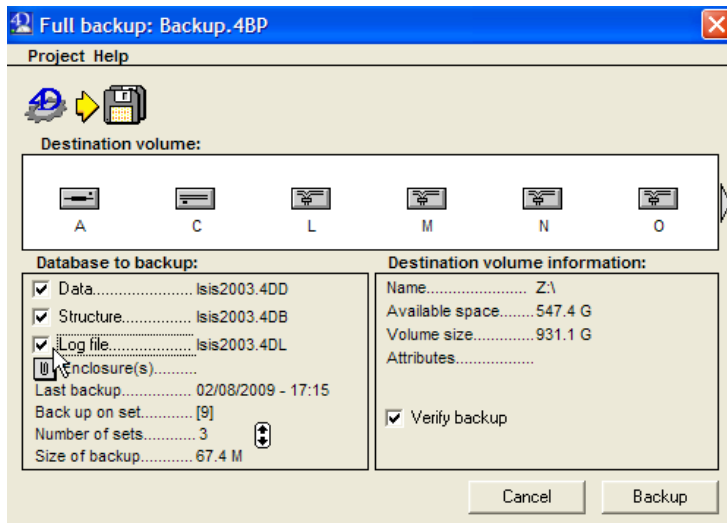


From the next dialog select 'new' to create a new log file and navigate to the directory that you previously saved the backup to and save the log file there. The default name for the log file is fine 'ISIS2003.4DL'.





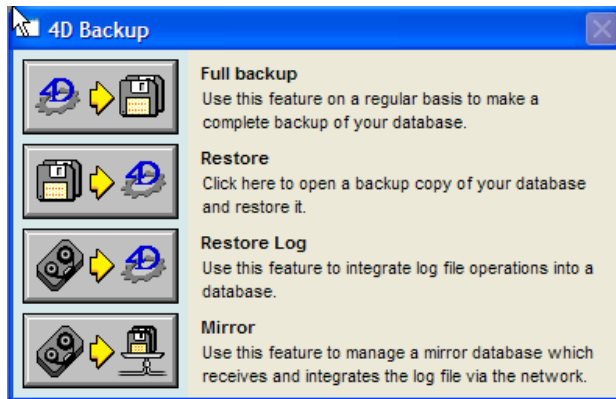
Once the log file is created, select the full backup option once again from the 4D server 'Backup' menu. Click the check box to add the log file to the backup project:



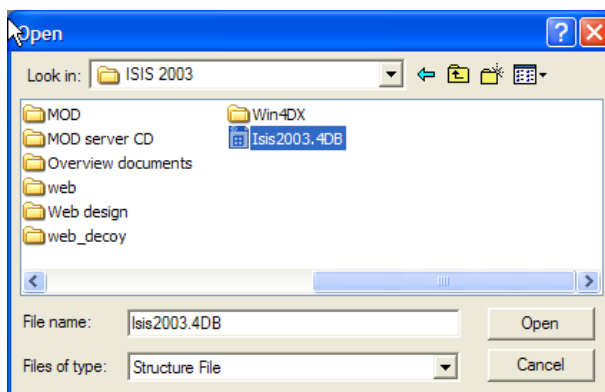
Backup the database again. Once the backup is complete a dialog will appear saying that you have modified the backup project and asking if you want to save the project – select 'Save'.

## Mirror setup

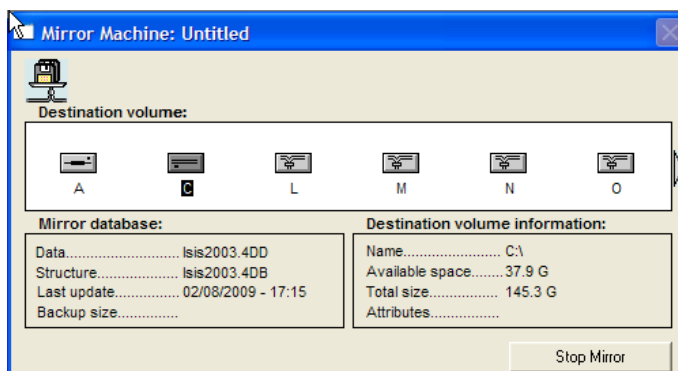
The mirroring software is installed as part of a standard ISIS server installation and this will have been run on the backup server. The software is located in the main ISIS directory in the directory of ISIS support software. The program is '4D backup' and is in the 4D backup application directory in the support software directory. Start the 4D backup program:



Select the mirror option – this will open a file selection dialog. Select the copy of the ISIS program that you copied to this mirror machine in the first step (ISIS2003.4DB).



Once the database has been opened the following dialog is displayed:

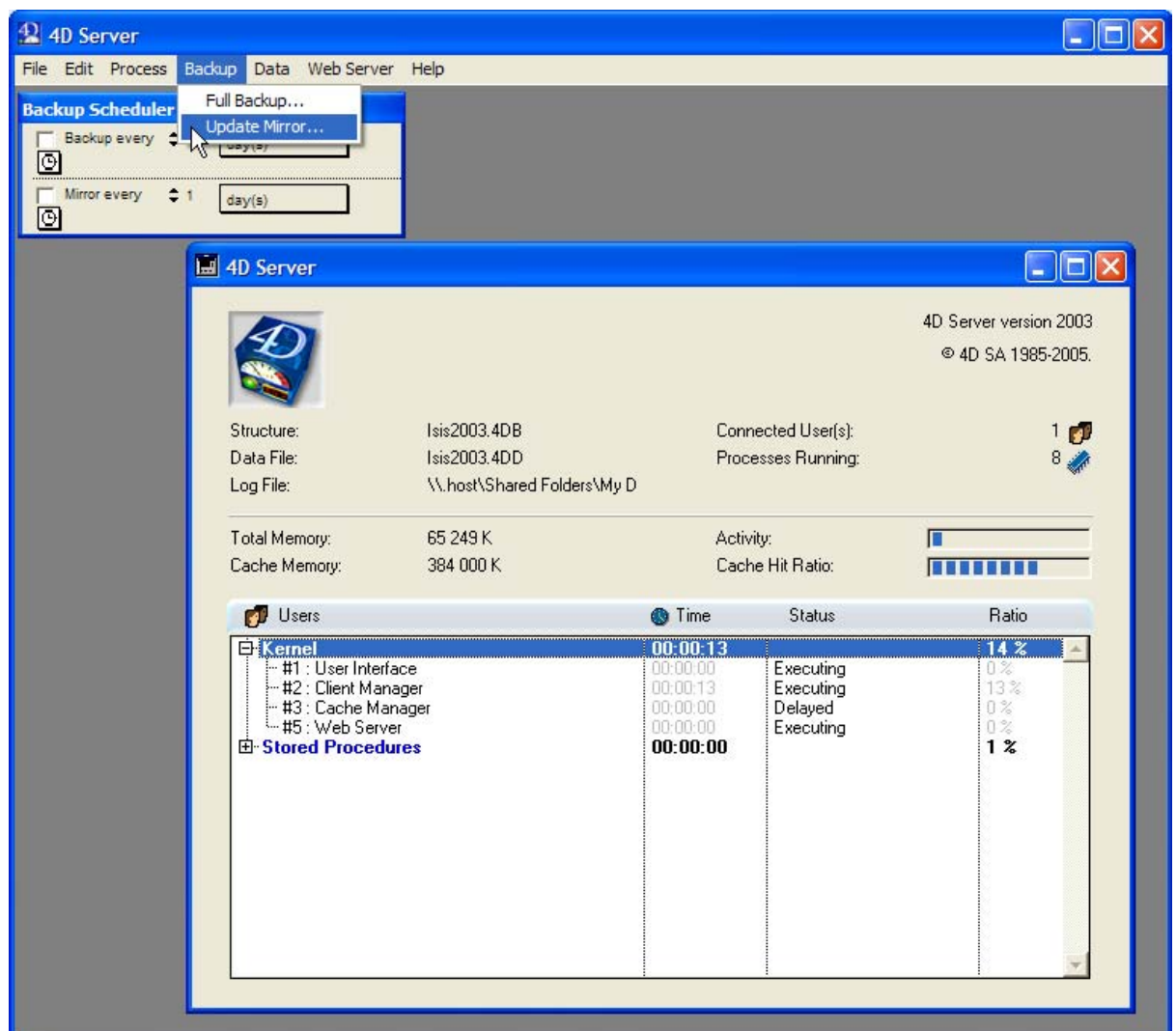


From the destination volume list select the volume that you want to contain the BACKUPS of the mirror database. If there is a volume allocated for backups select this. This volume is NOT

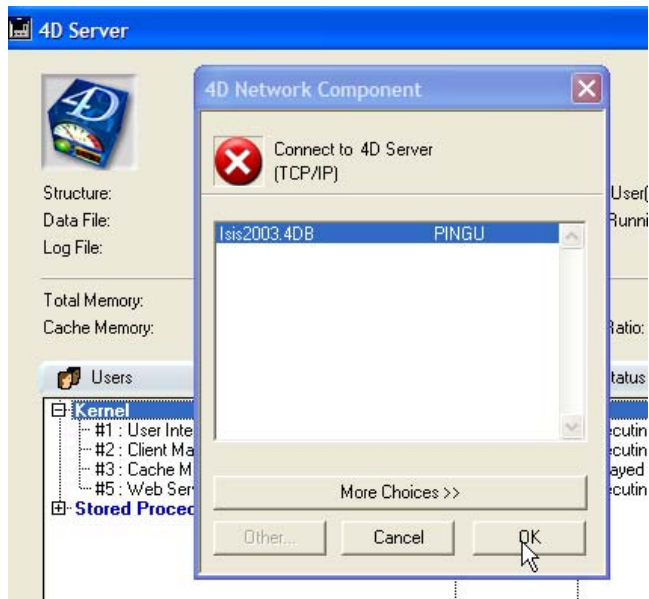
the volume that contains the copy of the ISIS database that you have just opened (although you can use the same volume). This mirroring software must now be left running on the backup server machine.

## Establishing the mirror

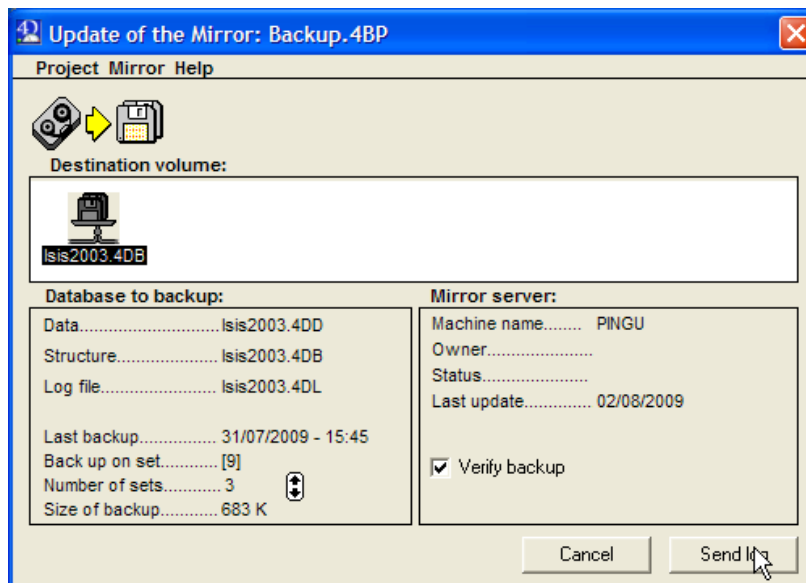
Once the mirroring software is running on the backup server the mirror must be established from the primary server. Select 'Update mirror' from the Backup menu:



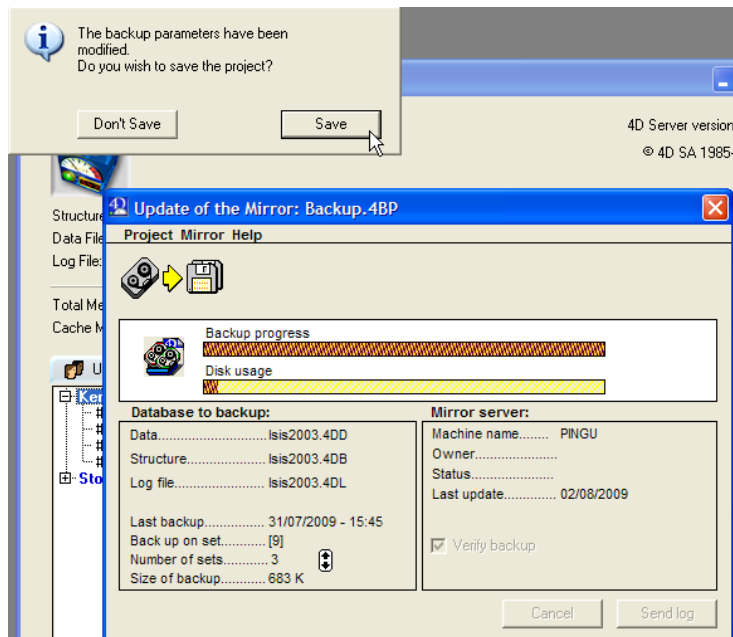
This will bring up a dialog asking to select the mirror machine:



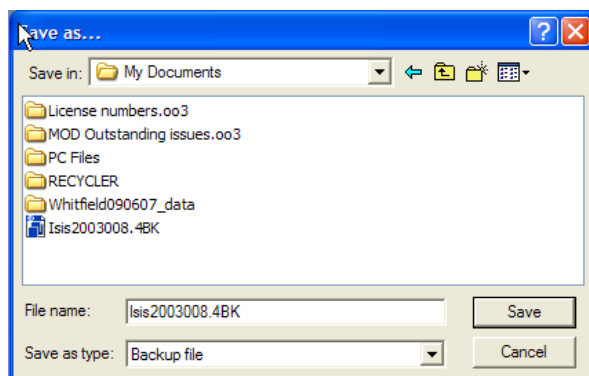
The mirror database that you have started on the backup server should appear in the selection list – select this server and click 'OK':



On this following dialog make sure the 'Verify backup' checkbox is selected and click the 'Send log' button. This will cause the server to close its current transaction log and send it to the mirror machine before opening a new transaction log. After the log has been sent and the progress window is complete, you will again be asked if you want to save the backup project – select 'Save':



Back on the mirror machine the following dialog will appear:



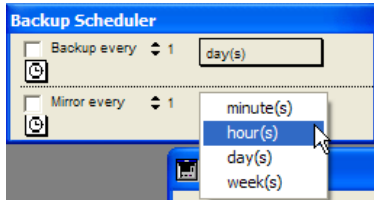
Save this backup file on the same volume that you selected when starting the mirror software on the backup machine. Once you have saved this file you will be prompted to save the modified backup project – save this file in the same directory as the main ISIS program on this machine.

**IMPORTANT** – the backup project file **MUST** be saved in the same directory as the main ISIS program.

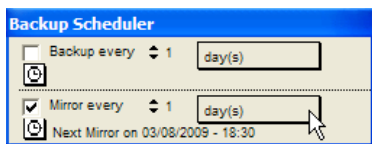
This completes the process of establishing the mirror.

## Scheduling the mirror

Once the mirror has been established it is possible to schedule the mirroring process from the primary server to run at the required interval. The backup scheduler window is in the top left of the main 4D server screen:



Here you can select the interval using the pop-down menu and the number spinner on the scheduling window. Once you have set the interval you can turn on the schedule using the check box:



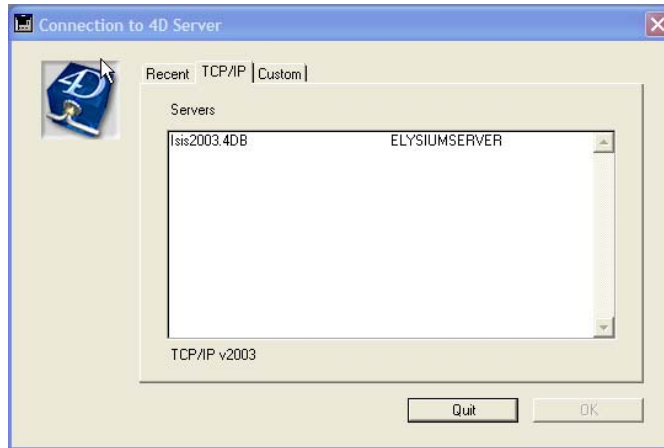
A local backup can also be scheduled using the upper section of the scheduler window in the same way. This will run the backup previously defined on the primary server at the defined interval and runs independently from the mirror scheduler. A standard strategy would be to schedule the local backup daily, usually in the small hours of the morning, but have the mirror update more frequently, say every fifteen minutes.

## Starting the mirror database

In the event of the primary server failing, the mirror database will have to be started manually. The following procedure is used to start the mirror database:

1. Stop the mirror on the backup server – click the 'stop mirror' button.
2. Quit the 4D Backup program.
3. Start the copy of 4D server installed on the backup server (This will have its own series of licenses).
4. Select the ISIS program in the main ISIS directory (ISIS2003.4DB).
5. The program will start automatically using the mirrored data file.

6. Re-start the 4D client software on the client machines and select the TCP tab in the server selection window. This will show the currently running mirror database. (The default 'Recent' tab will display the previously selected primary server and will give an error if selected).



7. Select the running server from the list and click 'OK'. The client is now connected to the mirror database.