

Rebuilding your Database



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Why Rebuild?

There are several reasons to rebuild your database:

1. After upgrading from an earlier version of SOS to a 2005 or later release, you will have to rebuild your database in order to derive the most benefit from the new Sybase components.
2. To physically reorganize your database to minimize the space it consumes on your hard drive and to maximize its performance.
3. To change the encryption level or the database files. (See document # 111 in the Document Library at [sosoft.com](http://www.sosoft.com) for details, <http://www.sosoft.com/fod/doc111-databaseencryption.pdf>)

SOS provides you with a guided utility that makes it easy to accomplish this otherwise complex task.

Overview of the Rebuild Process

It is very difficult to predict how long the rebuild process will take because it depends on:

1. The size of your database
2. The speed of your computer
3. The amount of RAM in your computer
4. The speed of your hard disk system
5. Whether your hard disk has been defragmented recently

With good hardware you can upgrade and rebuild a 1 gigabyte (1,000 MB) database in 2 to 3 hours, or less. The same database on a five year old computer with insufficient memory and a slow drive system could take all day or longer.

If you are doing a rebuild as part of the update to release 2005, note that you can use the software without rebuilding the database. You can schedule a later, more convenient time to do the rebuild. You will see a nag/reminder window every time you log into SOS, but you can continue. You won't realize some of the performance benefits until after the rebuild, but the system should work at least as well as before the upgrade. Release 2007 requires that the database has been rebuilt at least once after the upgrade to 2005.

The rebuild process consists of four steps:

1. A copy of your database will be saved in another folder. You will have an opportunity to specify the location of the copy, but it should be on the same computer as the database itself. You will not be able to continue with the rebuild unless this copy is successful.

2. All of your data will be exported to a set of text files. These can be quite large, so it is essential that you have plenty of available disk space. (The process takes place on the same computer that is used to store your data, so the drive containing your database must have enough space to accommodate these temporary files.)
3. Your current database files **WILL BE DELETED**. For this reason, it is **EXTREMELY IMPORTANT** that you make your own backup on removable media or on another computer on your network prior to starting the process. If there should be a problem during the rebuild process, **IT IS POSSIBLE TO LOSE ALL YOUR DATA**, so make a backup and carefully check the number, size, and dates of the 12 files to be sure that they match your database. SOS strongly recommends that you take this opportunity to make a permanent "archival" backup of your data on CD or DVD, label the disk carefully with the date and SOS release number, and store it off premises in a secure location such as a bank safe-deposit box.
4. A brand new database will be initialized with the encryption level you specify and all of your data will be imported from the text files exported in step 2.

Before You Continue

Whenever doing major maintenance on your database, it is essential that you first make a backup of your data. Use your regular backup routine prior to continuing. The rebuild utility will make its own backup prior to the actual rebuild, but that will be a copy on the same computer, so you should make your own backup as well.

This process will rename and restart your transaction log (the SOSDATA.LOG file in your DATA folder). That file is a running record of every change to the database made by your users. As such it serves as a complete audit trail, and should never be discarded. SOS strongly recommends that you copy your entire database, including the sosdata.log file, to a CD or DVD at this point. That disk should be carefully labeled with the date and the SOS version, and placed in your safe deposit box or other off-premises, secure location.

Data backup is your responsibility. SOS will not be liable if you should lose your data as a result of this or any other procedure!

If running a network copy of SOS, you will be doing the rebuild procedure directly on your server computer. Make sure that you can successfully launch an SOS program that accesses the database on that computer. Try, for example, **Start > Programs > SOS Applications > DBTools**. If the utility comes up without errors, you should be able to run the rebuild utility as well. If this test results in error messages, call SOS support before continuing.

Rebuilding Your Database, Step by Step

1. If running the database on a network, you must run the rebuild directly on the database server computer console. On standalone systems, there is only one computer, so this is not an issue. In any case, you should start with the database NOT running on the server or standalone system. Double check that nobody is currently running an SOS application and that the database is not running. Be sure to log onto the computer and the network using an administrator level ID and password. (The procedure requires that you have access rights to create new directories and files.)
2. Launch SOSLOGIN.
3. Enter the ID and password of an account with SOS Security Administrator privileges.
4. Click the Admin icon (the keys).

5. Select Database Tools.
6. Locate **Database Rebuild Utility** on this menu and run it.
7. Read the opening window and click **Next**.
8. Confirm the location of your database and log. By default, SOS installs both the database and the transaction log file in the DATA folder within the SOS folder on the C: drive, but this can vary if the installer selected a different target directory, or if the database, transaction log (the SOSDATA.LOG file), or both were manually moved after installation. If you are not sure where your data is located, call for assistance before proceeding! Once you have confirmed the location of your database and log, click **Next**.
9. You must now select a directory in which the program can put a backup copy of your data files. The backup destination must be physically on the same computer as the database (not a shared drive on another computer) and must not be a directory that already contains a set of SOSDATA files. To use an existing directory, click the **Select** button, navigate to the desired location, and double-click the destination folder with your mouse. **DO NOT TYPE A DESTINATION!** Select with your MOUSE.

If you would like to create a new directory for this purpose, click the **Create** button. If creating a new directory, type a valid drive and path name, such as C:\SOSBACK and click **OK**. Do NOT use a path that contains any spaces! (Bad: C:\MY BACKUP; Good: C:\MY-BACKUP or C:\MYBACKUP). After creating the new folder, you can select it as described above.
10. Once you have selected a valid target directory for the backup, the window will display the amount of space needed for the backup and the amount of space available on the selected drive. Assuming that you have plenty of space in addition to what will be used by the backup, click **Next**.
11. Select the level of encryption for the new database. SOS recommends that you use at least simple encryption. For a full description of your encryption options, click the **More Info** button to the right of the *None* option. If you select *Strong encryption*, enter your desired encryption key and re-enter to confirm in the fields provided. Once you have made your selection, click **Next**.
12. The rebuild is now ready to go. Click **Finish**.
13. A black and white "DOS" window should open in which you can monitor the progress of the database backup. When the backup is complete, another "DOS" window will open in which you will see a variety of messages while the database is unloaded to a set of files in an UNLOAD folder that the program creates for this purpose. There will then be a short flurry of additional "DOS" windows that open and close.
14. The data unloaded in the previous step will now be read back into a newly created, empty database. While this is going on, you will see commands being executed in the DBISQL utility. **Do not interfere with this process or close the DBISQL window!** Depending on the amount of data to be loaded and the speed of your system, this step can take some time, but even a relatively large database should reload in an hour or two. You should see disk activity during most of this process, but if in doubt, open Task Manager with Ctrl-Alt-Delete and look at the **Performance** tab. ***A notation in Task Manager that the rebuild program is "not responding" is meaningless! All that means is that the program is not waiting for user input, not that it is hung!***

IF STEP 14 DOES NOT PROCEED AS DESCRIBED, DO NOT PANIC. PLEASE SEE TROUBLESHOOTING BELOW.

15. The last step, which takes only a minute or two, refreshes various required database structures (views, triggers, procedures, indices, and events).
16. When the process is complete, you should be able to start the database and run your SOS applications without error if you selected either no encryption or simple encryption. **If you selected strong encryption, you must modify your database startup command so that it includes your encryption key.** Details of your options in that regard can be found in: doc111-databaseencryption.pdf. This file can be found in the SOS folder, or if you have not yet closed the rebuild utility, by clicking the **More Info** button on the final window. This document can also be found in the SOS web site document library. Go to www.sosoft.com and click Document Library on the Support menu. Click the red dot beside document 111.
17. Once you have spot-checked your data and confirmed that all is well, you should delete the \SOS\UNLOAD folder from the hard drive on your server. It is an unsecure copy of your data and takes up a good deal of hard drive space.

Your new database will probably be a bit smaller than your old one and should perform better, especially if this is the first rebuild you have done after transitioning to SOS 2005 from an earlier version.

TROUBLESHOOTING

The most common problem occurs at step 14. The database unloads normally, but the rebuild stops with an error at the point at which it should be initializing the new database and re-loading the data. If you examine the \SOS\DATA folder and find that it contains no DB files, you can manually complete the process as follows, or call SOS and a technician will do it for you:

1. Copy the file named **SOSINIT.SOS** in the \SOS folder to the \SOS\DATA folder.
2. Rename that file **SOSDATA.DB**.
3. If you are working on a network server, start the database as you normally would. If you are working on a standalone system, then just go to the next step.
4. Open a command prompt.
5. Change to the SOS directory
6. Type: **ASA\WIN32\DBISQLC RELOAD.SQL** <press enter>
7. A login window will appear. Type the id **DBA** and password **SQL**. In the Data Source field type or select **SOSDATA**.
8. Click OK.
9. Now you just wait while DBISQLC reloads all your data.
10. Pick up the regular procedure at step 16.