



# How to Verify a Database Backup\*

\* Because this topic is not covered by the current PMO funded SPS Helpdesk Agreement, this document has been provided to help you resolve this issue. If you still need assistance after reviewing this document, please contact a representative from your Customer Support Team.

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# 1. Verifying Database Backups

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Automating backups eliminates the need for anyone to manually execute the backup process. However the DBA is still responsible for verifying that the backup has been successfully completed.

There are several reasons why a backup may fail to successfully complete. Below is a list of some of the common problems that cause backups to fail.

- The hard drive where the dump devices are located has run out of space
- The dump device has exceeded its 2.0GB limit (Unix Only)
- The sa password that is used to automate the backup has changed

Regardless of what causes the backup to fail, it is important to identify a failed backup before it is too late.

The following sections list methods that can be used to verify that a backup is successful. These checks can be used separately. But to be absolutely certain that a backup is successful AMS recommends using all four of these methods to verify your backup. These methods are as follows:

1. Check the date/time stamp of the dump files
2. Check the backup log for errors
3. Use the *load database ... with headeronly* command
4. Load the backup to a test database

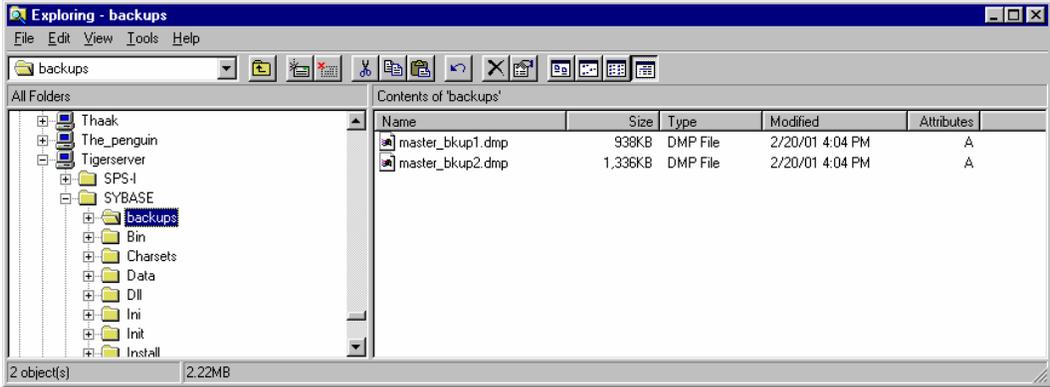
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**Note:** This paper only covers verifying disk dump files. It *does not* discuss verifying tape or file system backups. This is because AMS recommends that sites backup each of their databases to a disk dump file *first* before copying the dump file to an external tape or disk drive.

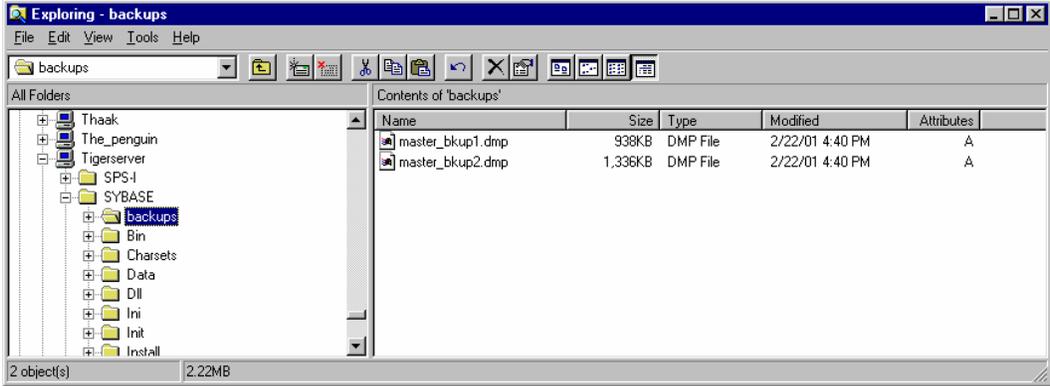
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# 1.1 Check the Date/Time Stamp of the Dump Files

One of the easiest ways to verify that the backup is successful is to check the date time stamp of the dump file. Locate the dump files on your server and note the current date and time.



Once you have located the dump files, perform a backup. If the backup is successful the date and time stamp of the dump file will indicate the time the backup was performed.



# 1.2 Check the Backup Log for Errors

In addition to checking the data/time stamp of the dump files, you should also check the backup log to see if the backup is complete for the date on the dump file. The backup log (filename: backup.log) is usually located on the Sybase Server in the c:\sybase\install directory for NT servers or in the \$SYBASE/install directory on Unix servers. Any time the system performs a backup or restore the information is captured in the backup log. The initiation, progress and completion of the backup and restore commands can be viewed in the backup log.

When a backup is successful a message appears in the log indicating that the dump is complete (See Figure Below).

```

Feb 22 16:40:16 2001: Backup Server: 6.28.1.1: Dumpfile name
'master010530EA6F ' section number 0001 mounted on disk file
'c:\sybase\backups\master_bkup1.dmp'
Feb 22 16:40:17 2001: Backup Server: 6.28.1.1: Dumpfile name
'master010530EA6F ' section number 0001 mounted on disk file
'c:\sybase\backups\master_bkup2.dmp'
Feb 22 16:40:20 2001: Backup Server: 4.58.1.1: Database master: 2030
kilobytes DUMPed.
Feb 22 16:40:20 2001: Backup Server: 4.58.1.1: Database master: 2242
kilobytes DUMPed.
Feb 22 16:40:23 2001: Backup Server: 3.43.1.1: Dump phase number 1 completed.
Feb 22 16:40:23 2001: Backup Server: 3.43.1.1: Dump phase number 2 completed.
Feb 22 16:40:23 2001: Backup Server: 3.43.1.1: Dump phase number 3 completed.
Feb 22 16:40:23 2001: Backup Server: 4.58.1.1: Database master: 2254
kilobytes DUMPed.
Feb 22 16:40:23 2001: Backup Server: 3.42.1.1: DUMP is complete (database
master).

```

If this message does not appear for every database that was backed up, then the backup was not successful. The backup log usually prints an error message when a backup fails to complete. Most error messages contain a number and a brief description of the problem. You may call the Help Desk to get a detailed explanation of the error or you can look it up in the technical reference manual section of Sybase's website <http://sybooks.sybase.com/srg1100e.html>. Search the "Troubleshooting and Error Message Guide" for the error number or phrase that appears in the backup log.

### 1.3 Use the *load database ... with headeronly* command

Even if the dump file is up to date *and* the backup log shows that a backup is complete, you can still encounter problems when attempting to load the database from backup. One way to test the successfulness of loading a database without actually loading it is to run the load database command with the *headeronly* option.

The *load database ... with headeronly* command allows a user to see what messages will appear prior to restoring a database without actually restoring it. The dump header indicates whether the file contains a database or transaction log dump, the database ID, the file name, the date the dump was made, the character set, sort order, page count, and next object ID. If errors appear in the dump header then there may be problems with dump file or the load command itself. The messages that appear as a result of executing this command notify the user as to whether the restore command will be successful or unsuccessful. It does not necessarily indicate that the backup was unsuccessful.

Connect to the server as 'sa' using SQL Advantage. Execute the following SQL command.

```
load database <db_name> from <device_name>
with headeronly
go
```

<db\_name> = the name of the database that will be restored.

<device\_name> = name of the dump device that will be used to restore the database.

Example

```
load database master from master_backup
with headeronly
go
```

The output will look similar to the following. The messages that are highlighted in the following output indicate the type of information that is received when the *load database...with headeronly* command is executed without errors.

```
Server Message: Number 3216, Severity 10
Line 1:
Backup Server session id is: 21. Use this value when executing the
'sp_volchanged' system stored procedure after fulfilling any volume change
request from the Backup Server.
Server Message: Number 602801, Severity 1
Server 'TIGERSERVER_BS', Procedure 'bs_read_header', Line 0:
Backup Server: 6.28.1.1: Dumpfile name 'master010530EA6F ' section number 0001
mounted on disk file 'c:\sybase\backups\master_bkup1.dmp'
Server Message: Number 602801, Severity 1
Server 'TIGERSERVER_BS', Procedure 'bs_read_header', Line 0:
Backup Server: 6.28.1.1: Dumpfile name 'master010530EA6F ' section number 0001
mounted on disk file 'c:\sybase\backups\master_bkup2.dmp'
Server Message: Number 3124, Severity 10
Line 1:
This is a database dump of database ID 1, name 'master', from Feb 22 2001
4:40PM. SQL Server version: SQL Server/11.0.3.3/P/PC Intel/Windows NT 3.5/SWR
7926 Rollup/OPT/Mon Jun 1 1998 23:06:50.62. Backup Server version: Backup
Server/11.0.3.3/P/PC Intel/Windows NT 3.5/SWR 7926 Rollup/OPT/ Mon Jun 1 1998
23:48:29.18 .
Server Message: Number 3125, Severity 10
Line 1:
Database contains 2560 pages; checkpoint RID=(Rid pageid = 0x69c; row num =
0x4); next object ID=1520008446; sort order ID=50, status=0; charset ID=3.
Server Message: Number 3136, Severity 10
Line 1:
Database log version=2; database upgrade version=1.
```

The messages highlighted in the following output indicate the errors that appear if the database was backed up using multiple devices (i.e. striped) and the load command does not list all of the striped devices.

```
Server Message: Number 3216, Severity 10
Line 1:
Backup Server session id is: 19. Use this value when executing the
'sp_volchanged' system stored procedure after fulfilling any volume change
request from the Backup Server.
Server Message: Number 602801, Severity 1
Server 'TIGERSERVER_BS', Procedure 'bs_read_header', Line 0:
Backup Server: 6.28.1.1: Dumpfile name 'master010530EA6F ' section number 0001
mounted on disk file 'c:\sybase\backups\master_bkup1.dmp'
Server Message: Number 405402, Severity 2
Server 'TIGERSERVER_BS', Procedure 'bs read header', Line 0:
Backup Server: 4.54.2.1: The load command specifies too few devices of type
'disk file': expected 2, got 1.
Server Message: Number 603202, Severity 2
Server 'TIGERSERVER_BS', Procedure 'bs read header', Line 0:
Backup Server: 6.32.2.3: c:\sybase\backups\master_bkup1.dmp: volume not valid
or not requested (server: , session id: 19.)
Server Message: Number 101402, Severity 2
Server 'TIGERSERVER_BS', Procedure 'bs_read_header', Line 0:
Backup Server: 1.14.2.4: Unrecoverable I/O or volume error. This DUMP or LOAD
session must exit.
Server Message: Number 8009, Severity 16
Line 1:
Error encountered by Backup Server. Please refer to Backup Server messages for
details.
```

## 1.4 Load the Database to a Test Database

The previous sections discussed methods that can be used to verify that your database has been successfully backed up and can be successfully restored. However the only way to be absolutely certain that the database backup was successful is to restore it into a test database and log into it to PD<sup>2</sup> to check that the information is complete and up to date. Detailed instructions on how to create a test database can be found in the paper entitled “How to Create a Test Database”.