

FILEMAKER® SERVER 12 BACKUPS FREQUENTLY ASKED QUESTIONS

BY:

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1. How have backups changed in FileMaker® Server 12?

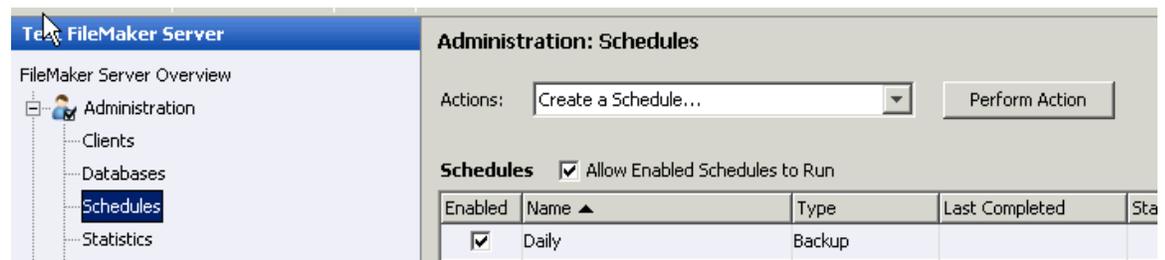
Scheduled backups now utilize a process known as hard links to reduce the amount of time needed for a backup process to run. After the initial backup, if there have been no changes in a file since the last backup for the same backup schedule, FileMaker Server simply increments an internal OS level flag for that file and does not copy it again. If there has been a change, then FileMaker Server writes a new copy to the backups directory. What is important to note about this is that a given file as displayed in the User Interface may have links to many different backup schedules.

A completely new feature is the Incremental Backup or the Progressive Backup. Initially FileMaker Server makes two full backup copies of the file. Thereafter, at the designated and specified interval, it writes only the changed elements to the oldest copy. There will always be two incremental backups, and the most recent will never be older than the specified interval (as set in the Unified Admin Console (UAC)).

2. I want to schedule an incremental or progressive backup. But I can't find where that is done? How do I schedule this?

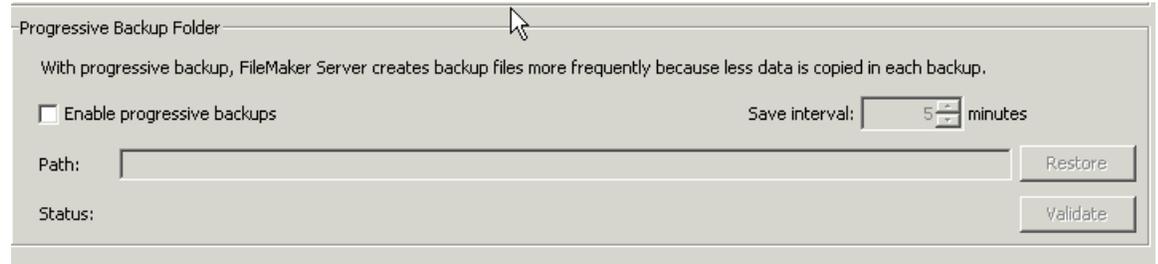
The new incremental / progressive has its own section in the FileMaker Server admin console (UAC)

It is not managed in the same area in UAC as the regular Scheduled BackUps which you can find under Administration → Schedules:



To enable incremental backups, go to the Configuration section → Database

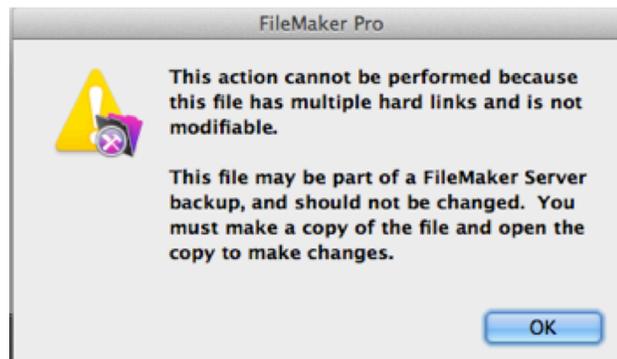
Server→Folders Tab. Here you can enable the feature and specify a folder where the backups will be kept.



Do not attempt to place these backups in same directory as Scheduled BackUps, FileMaker Server will not let you. If you have the hardware for it, choose a folder on a separate drive to help minimize the performance impact and to facilitate monitoring.

Note that the incremental backup feature is binary; it's either on or off for all hosted and open files.

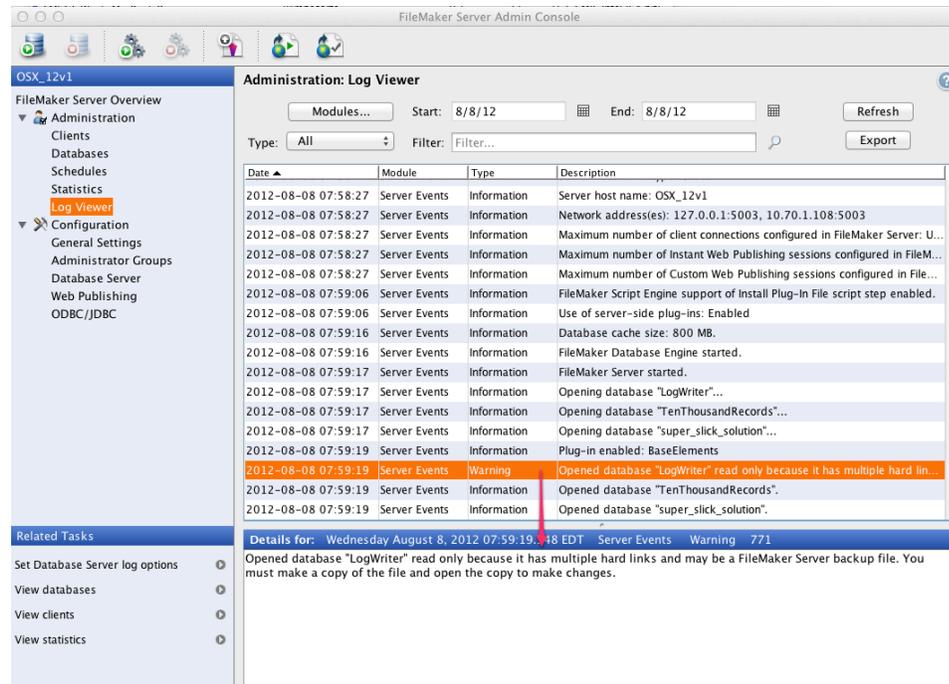
- 3. I need to restore from the last backup. But I get an error message when I try to open the backup file directly in FileMaker Pro or host it on FileMaker Server. Are my backups broken?**



Don't ever attempt to open a backup file in the directory where it resides. Always copy the backup files to another directory before making use of them. This is especially important with the new hard link system, since any given file as displayed in the User Interface may have links to multiple backups.

Similarly, don't move a backed up file from its backup location to the directory where FileMaker Server hosts files. Doing that will cause the file to be opened as Read-Only, with a warning logged in the FileMaker Server event

log explaining that the file is hard linked to other backup sets. So always COPY a backup file to where you need it.



4. **What is the best method to move a backup to another directory such as a network file server?**

Always copy the file first. Never attempt to move it directly; you want to keep your original backup intact. Note that hard links are only maintained for files on the same volume so if you copy a file to another volume like a network share, it will no longer be hard linked.

5. **Why can't I just use the backup file that FileMaker Server creates just as I have done in the past?**

Well, you shouldn't have been opening backups directly in the past. Most solutions have routines that run when a file is opened and those may already alter the file, effectively destroying the point-in-time backup state of your file.

It is especially important that you don't try to do that now in Version 12 given the hard link behavior that may happen between files in different backup sets. If you need to examine a backup or to use it to restore the system after some incident, always copy the backup file to the desired location.

6. **Do I have to pause the FileMaker Pro files before FileMaker Server makes the backups? I can't find where to do that in the Admin Console.**

FileMaker Server manages the backup process and pauses the files when it needs to do so.

If you use an external application or OS level script to make a backup, then you must first pause the files, then copy them, then resume them. This protects the integrity of the files and the integrity of the backups.

It is best practice not to let external backup mechanism touch hosted FileMaker files. But sometimes that is unavoidable because of IT policies. In that case it is crucial for the health of your FileMaker files that they be put in a paused state before the external backup tries to copy them.

A good example is Microsoft's Volume Snapshot Service that is used by many IT departments and by a lot of the modern backup applications. The only way that healthy FileMaker files can be restored from a volume snapshot is if the files are put in a paused state before the snapshot occurs. This can be done from the command line so the sequence of taking the snapshot would look like this(*):

```
fmsadmin pause -u admin -p adminpw -y
vssadmin create shadow /for=c:
fmsadmin resume -u admin -p adminpw -y
```

Keep in mind that pausing files has a big effect on the connected users: while the files remain open in their session, the users can no longer interact with them until the files are resumed on the server.

7. **What is the best interval of time between incremental backups? FileMaker Server defaults to 5 minutes. Is that often enough, or is it too frequent an interval?**

Five minutes may be a little excessive in some instances. A ten minute interval might be better. But the underlying question is whether you could afford to be without the last ten minutes of data. That is a business decision that needs to be discussed and documented.

* Note that this is a very bare-bones example and obviously needs error trapping and handling for production use.

After you enable progressive backups for the first time, do some baseline monitoring of the server to quantify what performance impact it has.

Also, wherever possible try to avoid time conflicts between Scheduled Backups and incremental ones. You basically can control the trigger time only for Scheduled Backups by setting a start and end time and what interval to use in-between those times. The incremental backup feature runs continuously at the specified interval.

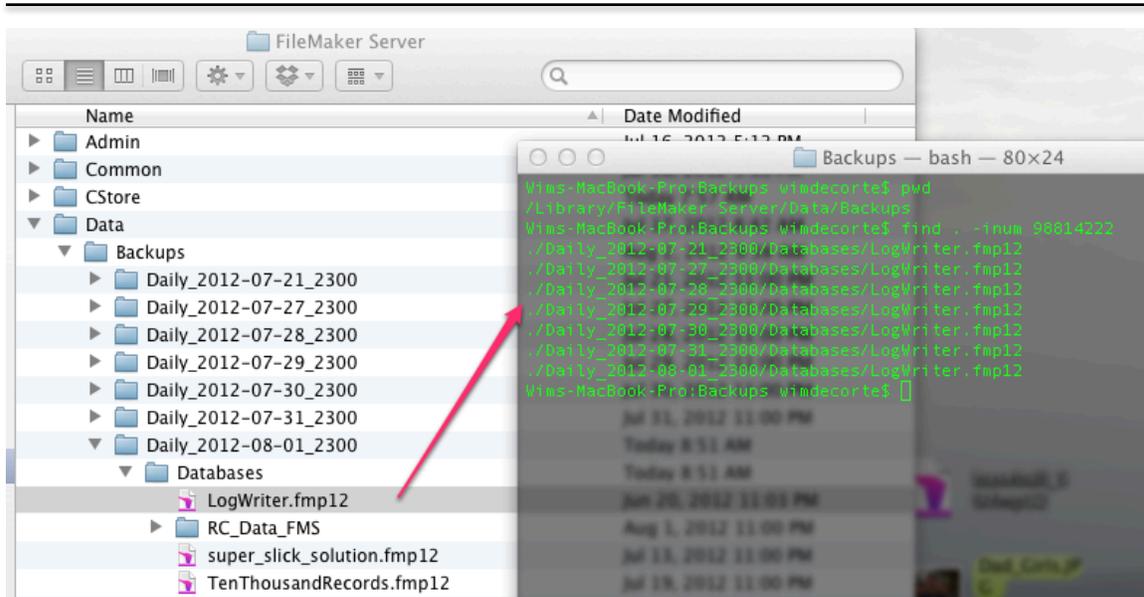
8. Where does FileMaker Server put the actual backup copies it creates?

You will always see the backed-up files in the OS UI tools (OSX Finder, Windows Explorer), in the folders created by the backup schedule. However, you can not tell from looking at them in the Finder or Windows Explorer whether a backed-up file is hard linked or not.

All files on the machine are stored on the drive in some space the OS allocates (an *inode*). What is displayed in the UI is a link to that bit of hard disk real estate that the file's *inode* occupies. With the introduction of possible multiple hard links to a file, developers and administrators should be aware that the single depiction they see of the file in the UI (OSX Finder / Windows Explorer) may actually be representative of many different backups. That is one of the reasons why you should not attempt to work directly with a backup. Always copy the backup and work with the copy.

9. What happens to the original file, the file that the other ones are hard linked to if FileMaker Server has to delete it to maintain the set # of backup sets to keep?

There is no "original file" among hard links. The screenshot below shows a backed up file named "LogWriter", and the terminal shows the hard links that exist for that file.



What this means is that this LogWriter file was not changed since the July 21 backup so FileMaker Server just kept adding hard link references to the physical file on the hard disk.[†]

When we manually delete the oldest backup set (Daily_2012-07-21_2300) or FileMaker Server does it as part of its keeping only x backup sets configuration, then all that really happens is that the hard link reference is removed from the list. The file on the hard disk is not touched since other hard link references still point to it. Only when the last hard link reference is removed is the hard disk space reclaimed.

10. Can I choose what file or files to enable the incremental backups for?

No, this is a binary option. Incremental backups are either on or off for all hosted and open files. Administrators cannot select a subset to include in incremental backups.

11. Can I save the change logs that FileMaker Server uses for its incremental backups?

These logs are not intended for Administrator or user access. They are used exclusively by FileMaker Server as part of the incremental backups management process. Do not attempt to access them.

[†] The “inum” in the terminal command stands for “inode number”. An *inode* is the physical representation of a file on the hard disk. The command in effect asks the OS to show me all the files that share the same *inode*.

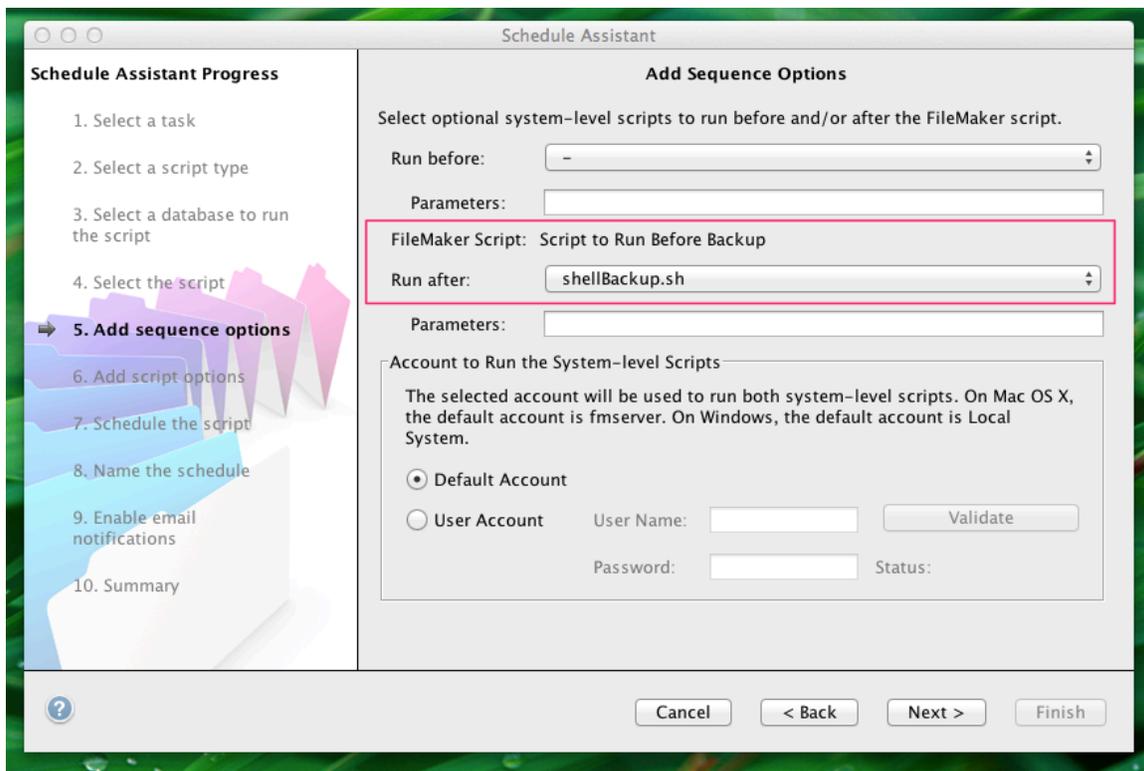
12. What if I want to move FileMaker files to different folders or rename folders on my FileMaker Server?

Before you do, make sure all FileMaker Server processes are stopped. It is not enough to just close the files. The incremental backup process for instance will otherwise try to work with the old file locations and this will produce some unexpected results such as backups spread over both the old and new folders.

13. How can I run a FileMaker script when a backup is done?

This can easily be done with a script sequence schedule and the FileMaker Server command line. A script sequence schedule in FileMaker Server consists of a FileMaker script that will run before and/or after an OS-level script (batch file, VBscript on Windows, shell script or AppleScript on OSX).

The script sequence setup to run a FileMaker script after a backup would look like this:

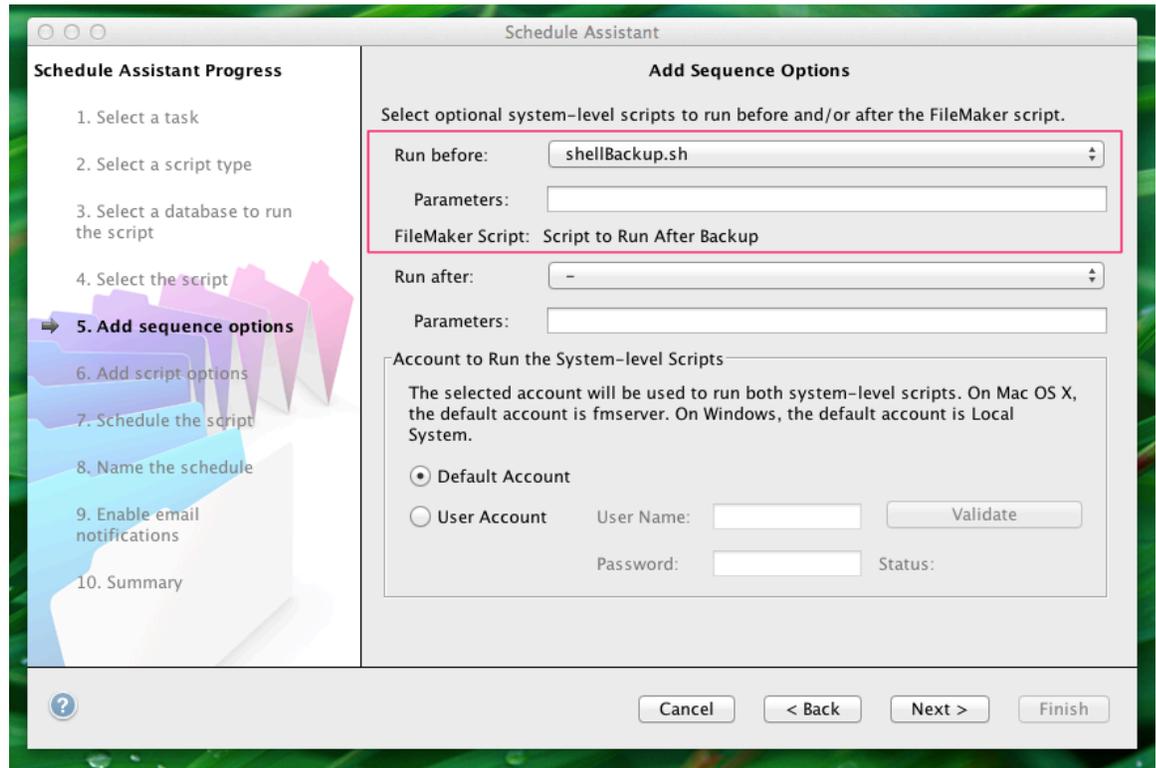


The "shellBackup.sh" OS level script basically has only command:

```
fmsadmin backup -u admin -p adminpw
```

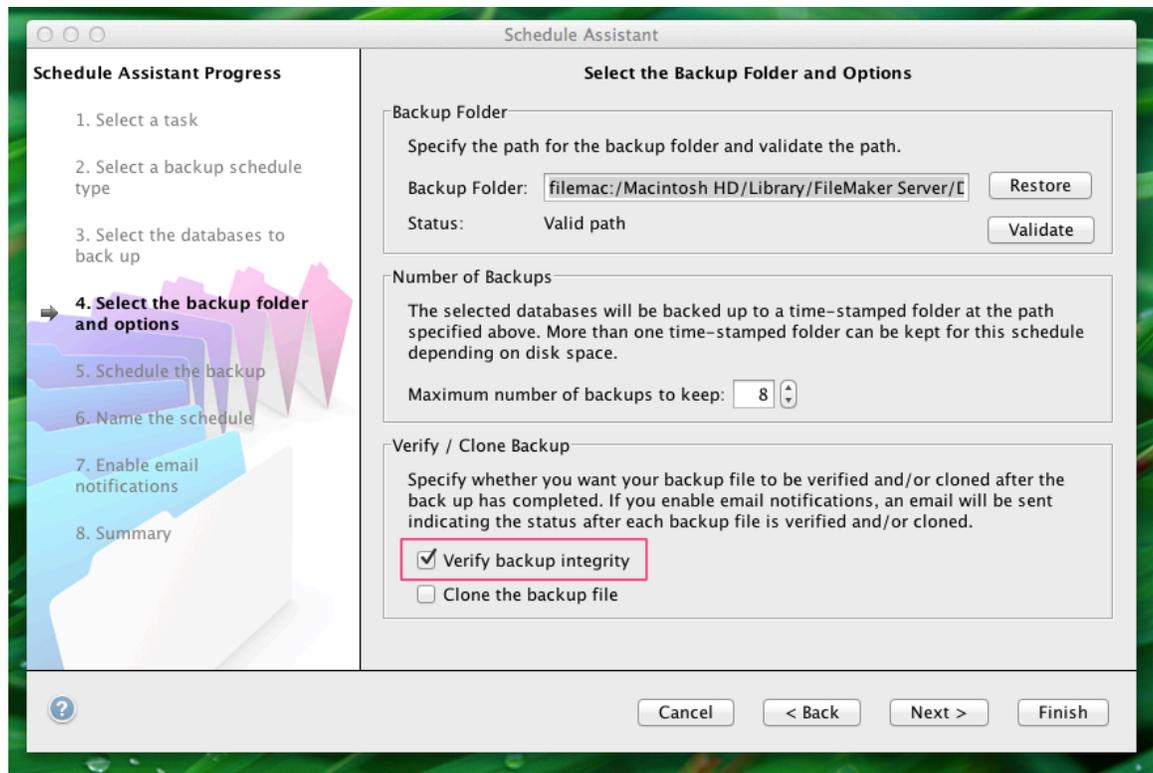
This syntax is the same on Windows as it is on OSX, on Windows you will have to include the full path to the “fmsadmin” executable.

The script sequence setup to run a FileMaker script before a backup looks like this:



14. Why does my backup take so long?

Backup times will vary with the size of the solution and the performance of the server machine. But if you find that the backup takes an extraordinary amount of time, check the backup schedule setup to see if the option to run a verification check is toggled on:



While backup verification is a crucial part of the backup process, this option has a drastic performance impact. Depending on the size of your solution and the specifications of your server you should turn this option off during production hours and enable it for a nightly backup schedule.

15. **Can I use incremental backups and push them to another server for quick recovery?**

While it is possible, it will likely prove to be very tricky because of timing issues, depending again on the size of the hosted files and the interval specified for incremental backups.

If the interval is short (and the default one is) and the total file size is somewhat big it means that you have a very small window in which to copy the files over before FileMaker Server will want to use them. Given that incremental backups are your very first go-to backup in case you need to restore, interfering with that backup process may turn out to be costly.