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Back-up and synchronization strategies to keep copies of your computer files

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CREAFuture talks

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A horror story

A horror scenario: half-way your research work (e.g. PhD), a hard-disk crash, computer virus attack, operating system problem or another catastrophic event makes some or all of your files unavailable!



A horror story

- If it is a software problem, try using specialized tools.
- If it is a hardware problem, hire someone to fix your hard-disk, if it can be fixed.
- If nothing works...



Best solution: prevent that from
happening by keeping an updated
copies of your files!

Let this be our take-home message

There are two basic ways to make and keep updated copies of your files and/or folders:

1. Back-up your work onto another device or the cloud.
2. Synchronization between two (or more) computers.

Example software	Back-up solution	Synchronization solution	OS
Cobian	Yes		Windows
Resilio Sync		Yes	Windows/Linux/Mac
Microsoft OneDrive	Yes	Yes	Windows

What is a backup copy?

Three basic types of back-up copies:

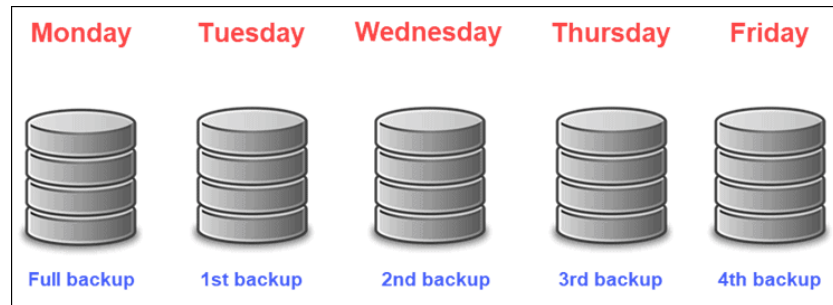
1. Full
2. Differential
3. Incremental

Which ones are you going to need?

What is a backup copy?

Full: each time we make a backup, a full copy of all our files is performed

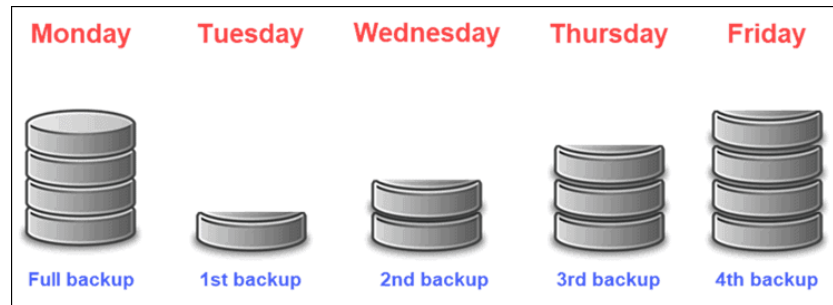
- Advantages: easy to set up, each copy is a fixed “photo” of all your folders.
- Disadvantages: unefficient, slow to copy, memory-demanding.



What is a backup copy?

Differential: only files that differ from last **FULL** copy are copied

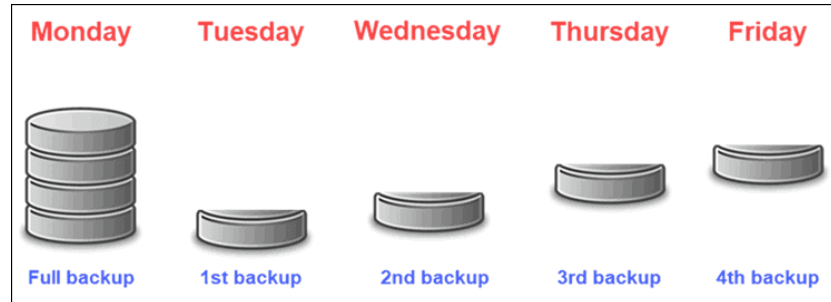
- Advantages: relatively easier to get files back.
- Disadvantages: still unefficient and slow (though not as much). It needs a full copy to be made first.



What is a backup copy?

Incremental: only files that differ from last back-up (full or otherwise) are copied

- Advantages: memory-efficient and fast
- Disadvantages: harder to get old files back. It needs a full copy to be made first.



- Two directories in two different computers work as “mirrors”. Updates in one (new files, modifications of old ones...) are reflected immediately in the other one.
- There must be a connection between the two.
- If versioning is implemented, wrongly-deleted files in one computer can still be recovered.

Where to copy?

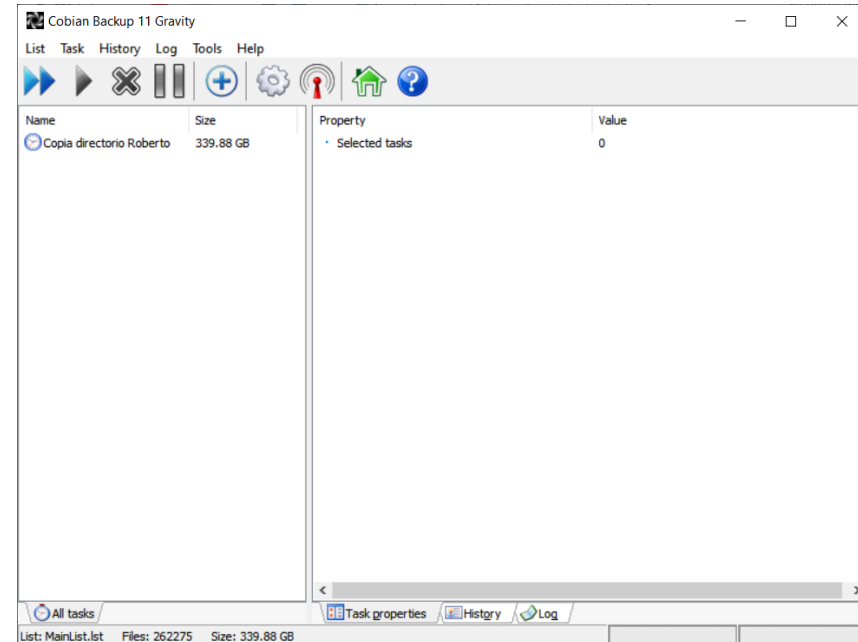
Typically, you may copy your files over to:

1. the same computer (discouraged!)
2. another computer or external hard drive
3. the cloud



<https://www.cobiansoft.com/cobianbackup.html>

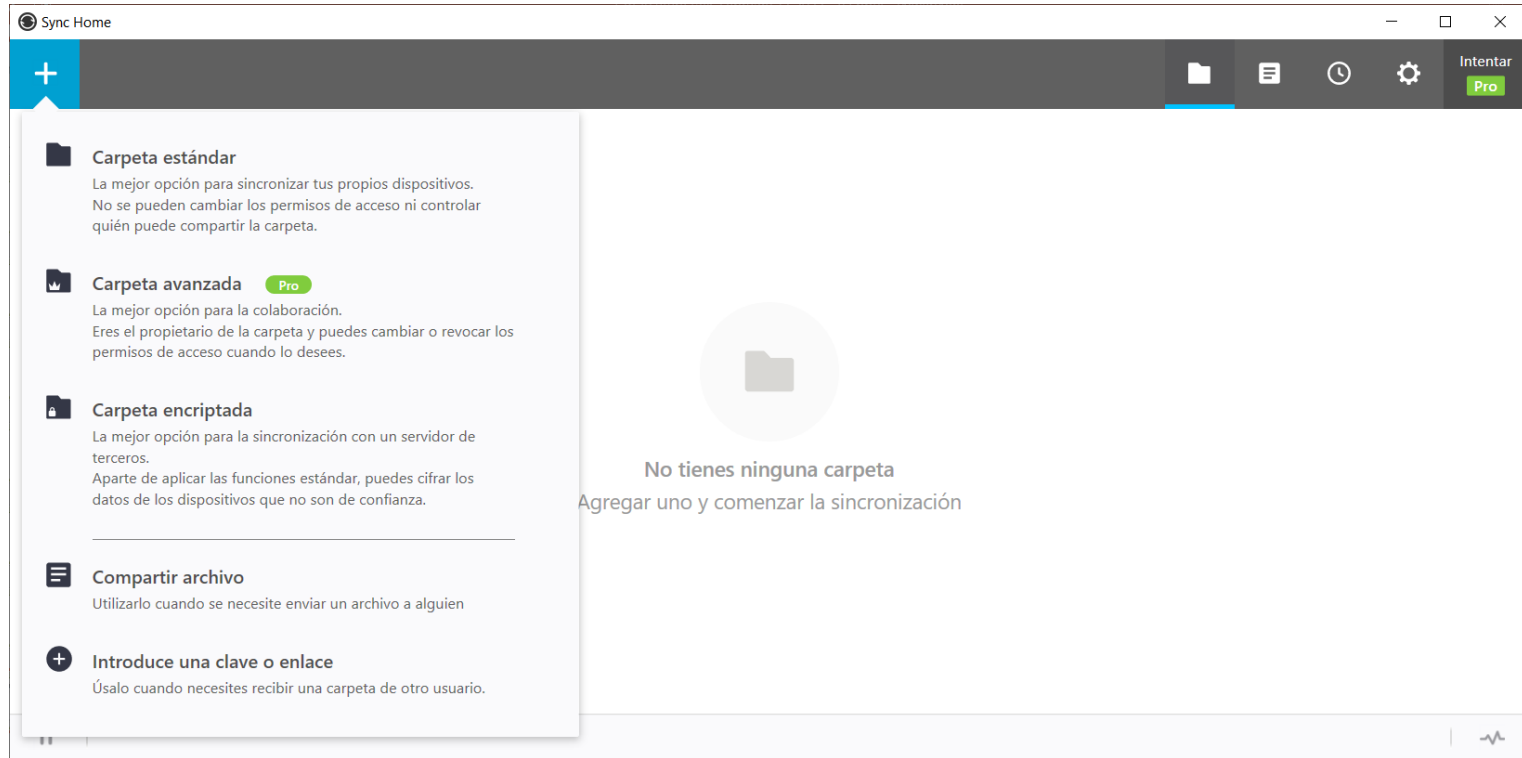
- External hard disk
- Completely free
- Settings are somehow complicated
- Easy to run
- Can make back-ups regularly



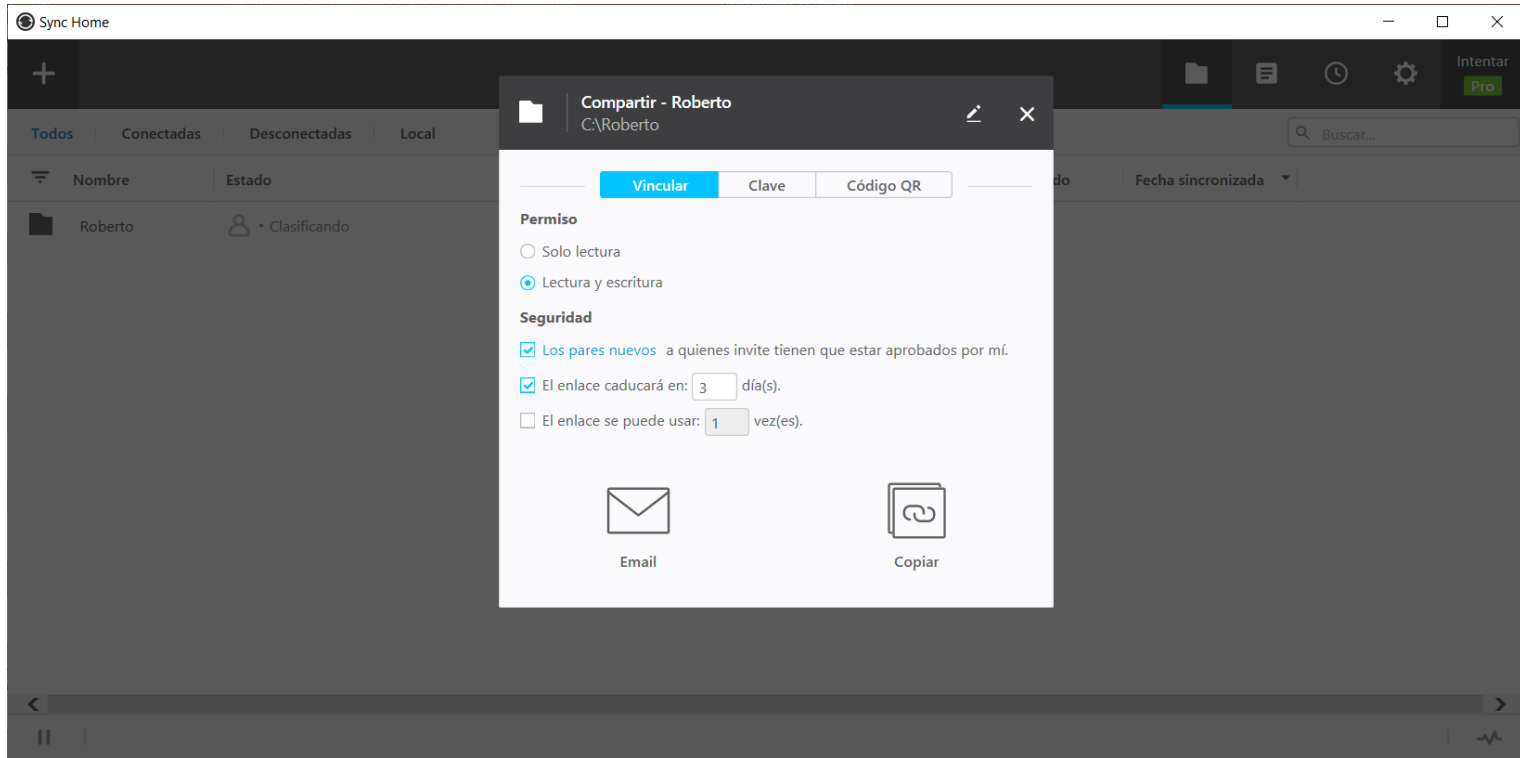
<https://www.resilio.com/>

- Free for basic home use (enough most of the time).
- Relatively easy to set-up (long key must be shared by the two computers).
- Can sync any two folders.
- Keeps older versions of the same file as long as we will.
- May have problems with some firewalls.

Resilio Sync synchronization software




Resilio Sync synchronization software




<https://www.microsoft.com/es-es/microsoft-365/onedrive/online-cloud-storage>


- Full of options.
- Subscription for anything but basic use.
- Can do both back-up (to the cloud) and synchronization.
- Only synchronizes folders that are located under the “OneDrive” main folder.

 Microsoft OneDrive

Configurar OneDrive

Pon tus archivos en OneDrive para acceder a ellos desde cualquier dispositivo.



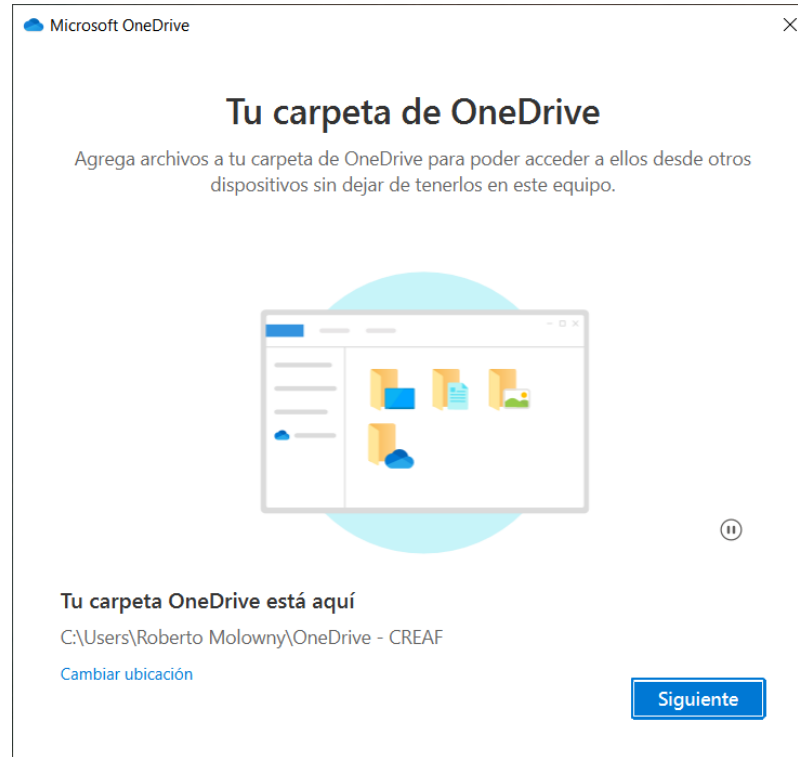


Dirección de correo electrónico

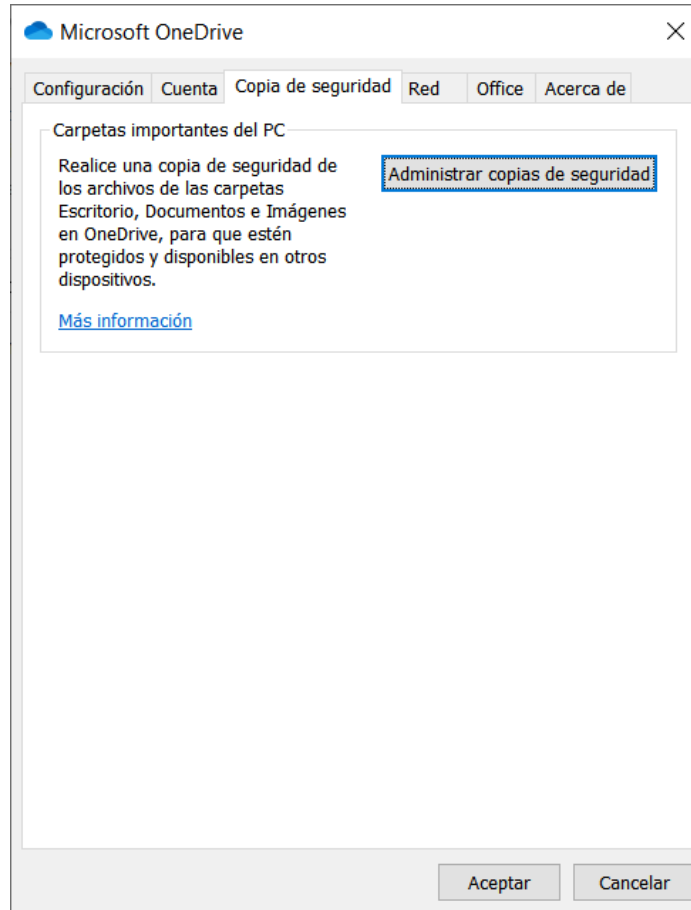
Crear cuenta

Iniciar sesión

OneDrive: syncing two folders



OneDrive: backing-up folders



1. Am I keen on paying a monthly/annual subscription?
2. Can I count on always having a reliable internet connection?
3. Do I have another computer/external hard-disk to make copies to?
4. Do I expect to have to recover old files very often?
5. Am I planning on using and building huge files all the time?
6. Am I concerned about having copies of all my work on a server somewhere else, managed by a private company?
7. Can I accept a relative degradation of computing performance by having a client application running always in the background?
8. Is the software easy and straightforward to set up?
9. Am I worried about computer viruses or malware?
10. Other questions?

For VERY important documents, like a PhD thesis, a book, etc, it is not a silly idea to use the old and humble:

PRINTER!

That is, make regular paper copies of full chapters or parts of the document.



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