What is S3-like storage?

S3-like storage is an object storage service that provides a RESTful API. This means that it can be used by any application that supports the REST API. S3-like storage services are designed to store large amounts of data efficiently. They can be used to store any type of data, including files, images, videos, and backup data.

How does S3-like storage work?

S3-like storage services store data as objects. An object consists of a file and, optionally, any metadata that describes that file. Objects are stored in containers called buckets. Buckets are identified by a unique name and can be created by any user with a valid account.Objects can be accessed via an URL. The URL of an object is composed of two parts: the bucket name and the object name.

Advantages of S3-like storage

S3-like storage services offer a number of advantages, including:

- **Security**: S3-like storage services offer a high level of data security. Many S3-like service providers offer end-to-end encryption to protect your data.
- **Reliability**: S3-like storage services are designed to be reliable. Many S3-like service providers offer a 99.9% uptime guarantee.
- **Scalability**: S3-like storage services are scalable. You can increase or decrease the amount of storage depending on your needs.
- **Efficiency**: S3-like storage services are designed to store large amounts of data efficiently.

Advanced S3-like storage techniques → S3-like storage services offer a number of advanced features that can be used to improve performance and data security.

- **Replication*:*** is the process of copying data to multiple locations. Replication can be used to protect data from hardware failures or to improve performance.
- **Versioning**: allows you to keep multiple versions of the same object. Versioning can be used to restore an object to a previous version or to compare different versions of the same object.
- **Caching**: is the process of storing data in local memory. Caching can be used to improve performance by reducing the need to access data on the server.
- **Compression**: Compression is the process of reducing the size of data. Compression can be used to save storage space or to improve performance by reducing the amount of data to transfer.
- **Encryption**: is the process of converting data into an unreadable format. Encryption can be used to protect data from unauthorized access.

SOMMAIRE

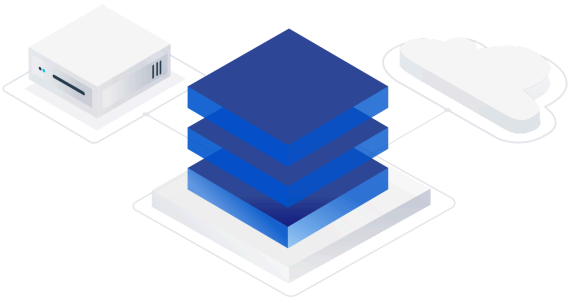
1. Overview of S3 storage
2. Installation of container TrueNAS LXC turnkey on Proxmox
3. Creation of Leviia account
4. Configuration of Leviaa on NextCloud
5. Conclusion
6. External resources and links

On the following pages, the step-by-step procedure for configuring the functions described above will be explained with an accompanying explanation

In this tutorial, we will use a test system based Proxmox and Portainer:
• An os acting like hypervisor (PROXMOX) (Always thanks to M. C.T.)
• A LXC container via Turnkey for NextCloud

Raccourci	Explication
Object	An object is a unit of data stored in an S3-like storage service
Bucket	A bucket is a container that contains objects.
URL	A URL is a unique address that identifies an object.
Replication	The process of copying data to multiple locations
Versioning	The ability to keep multiple versions of the same object.
Caching	The process of storing data in local memory
Compression	The process of reducing the size of data
Encryption	The process of converting data into an unreadable format

Overview



Nextcloud is an open source file hosting and collaboration software that offers a wide range of features, including file sharing, online collaboration, file synchronization, and backup.

Leviia is a French cloud service provider offering a secure, reliable and scalable S3 storage service.

In this guide, we will see how to configure Nextcloud to use a Leviia S3 storage service.

Benefits of using Nextcloud with Leviia

📌**Sécurity** : Leviia offers end-to-end encryption to protect data stored in its S3 service.
📌**Reliability** : Leviia offers a 99.9% uptime guarantee for its S3 service.
Scalability : Leviia allows you to increase or decrease the amount of S3 storage depending on your needs.
📌**Efficiency** : Leviia is a French cloud provider, so your information is stored in France.

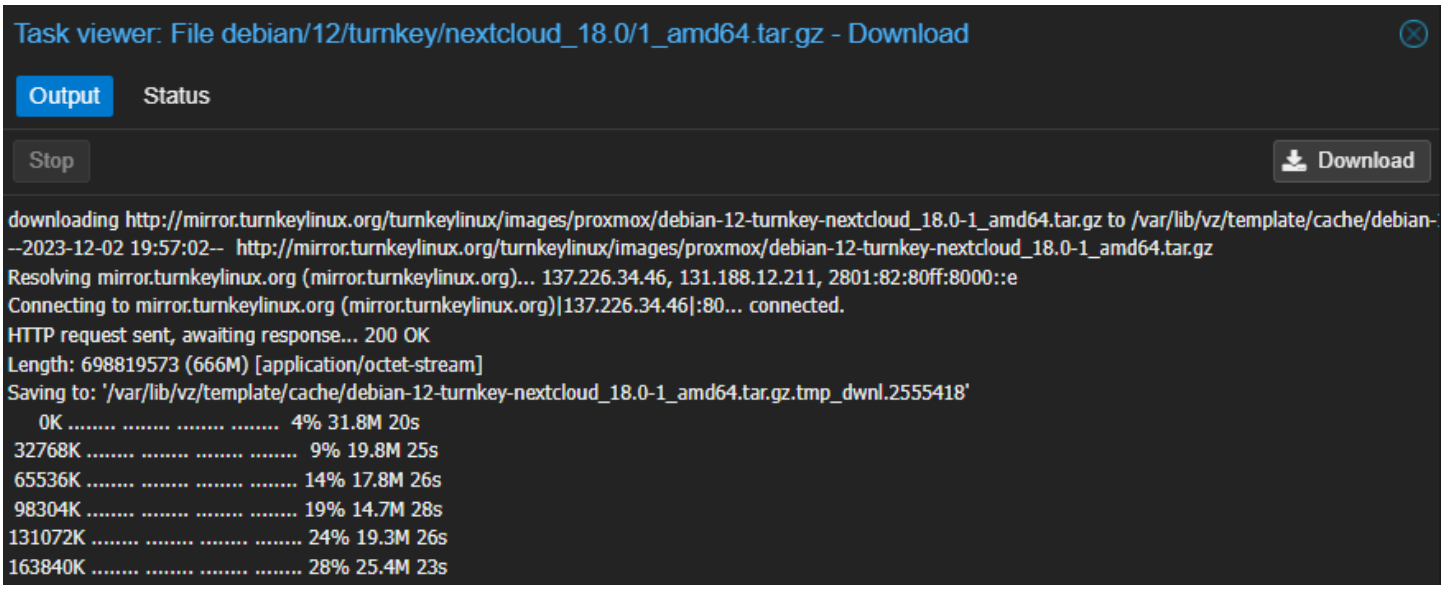
Preconditions:
To follow this guide, you will need the following:
✔ A free Leviia account to benefit from a 2-week free trial.
✔ An instance of Nextcloud. You can install Nextcloud on a server or cloud device.

As you can see, all data stored on Leviia is and remains in France.

> Tous les espaces de stockage Leviia sont hébergés en France et répartis sur nos datacenters à Roubaix, Strasbourg et Gravelines.

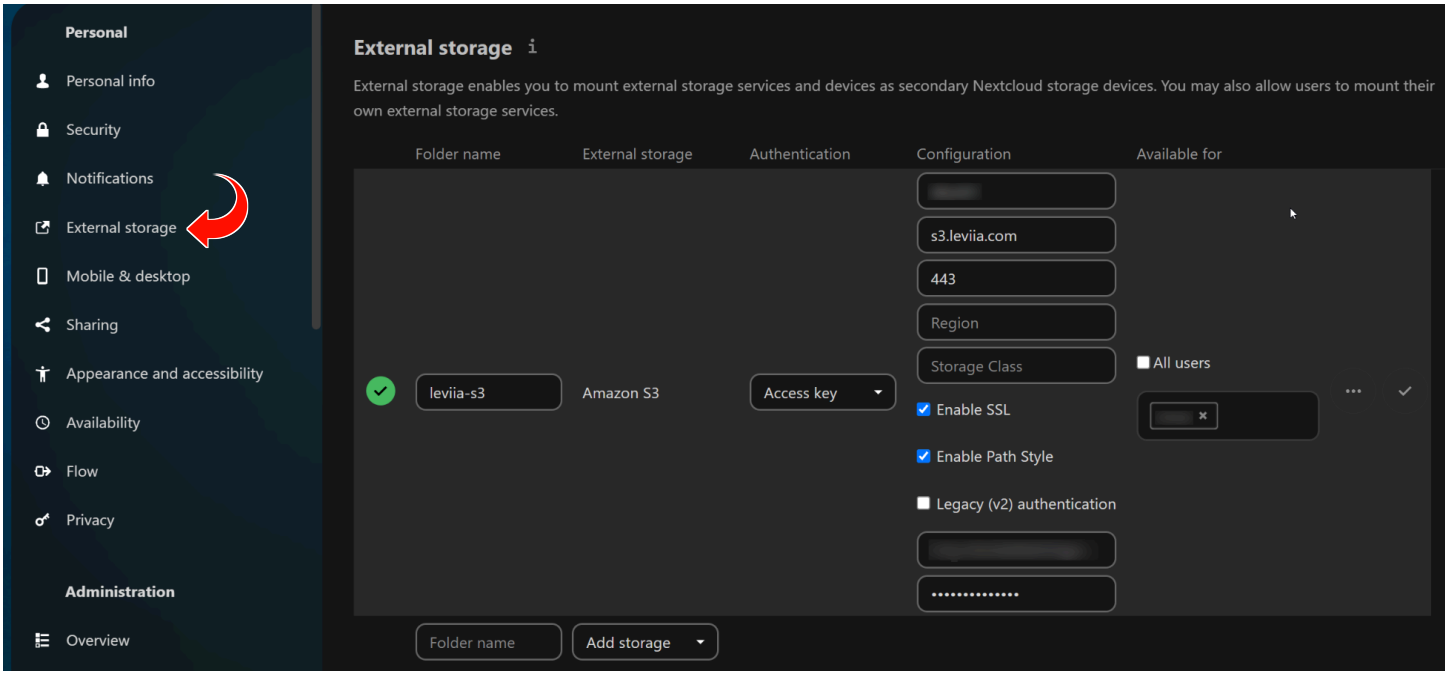
Installation of container TrueNAS LXC turnkey on Proxmox

If we already have Proxmox installed, installing the LXC container with turnkey and therefore with NextCloud already installed is simple, intuitive and fast. In fact, all you have to do is go up https://www.turnkeylinux.org/nextcloud and download the target ISO.



Once installed, therefore once you have carried out all the configuration, we can access the main interface of NextClouD where it will be necessary to enter the user and password.
Now we just need to click in the menu at the top right and click on the + Apps 'icon''
Then you will need to search for the External storage support package and install it

Once the package is installed, simply follow these settings
you can find the access keys directly on Leevia in the "Identifiants" menu



Creation and conf of Leviaa Account

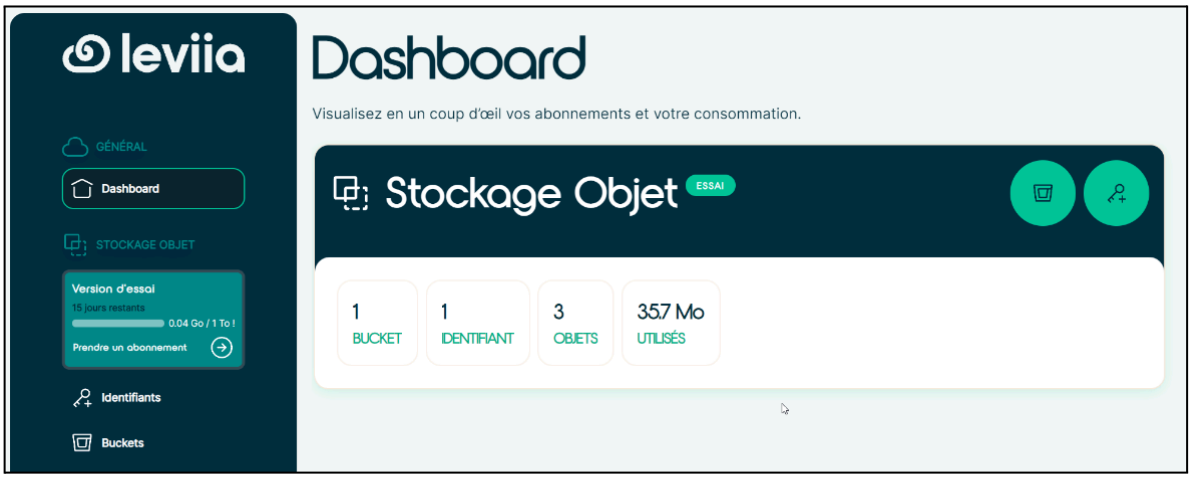
Once the account has been created it will be necessary to create the identifiers and buckets.

In S3 (Simple Storage Service), a "bucket" is a container for storing objects, which can be files or data. It is a top-level container that helps organize and control access to your data.

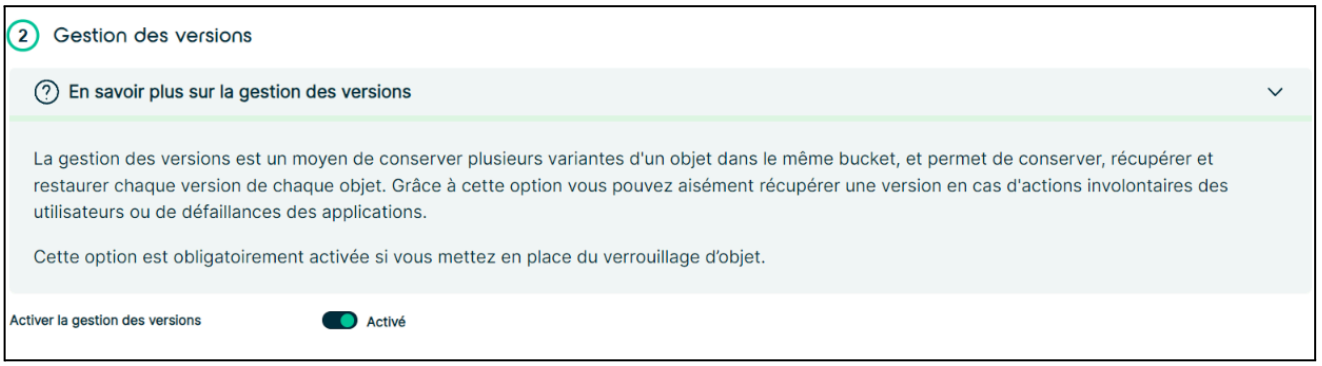
📌**. Objects**: Inside a bucket, you store your data as objects. These objects can be anything from a simple text file to a complex database backup. Each object in S3 is assigned a unique key within the bucket.
📌**. Access Control** You can control access to your buckets and objects by using bucket policies and Access Control Lists (ACLs).
📌**. Versioning**: You can enable versioning for a bucket, which allows you to preserve, retrieve, and restore every version of every object stored in the bucket.

Of course, you can create multiple buckets in S3 storage.
A bucket is, essentially, a storage container within Amazon S3. Each bucket has a unique name

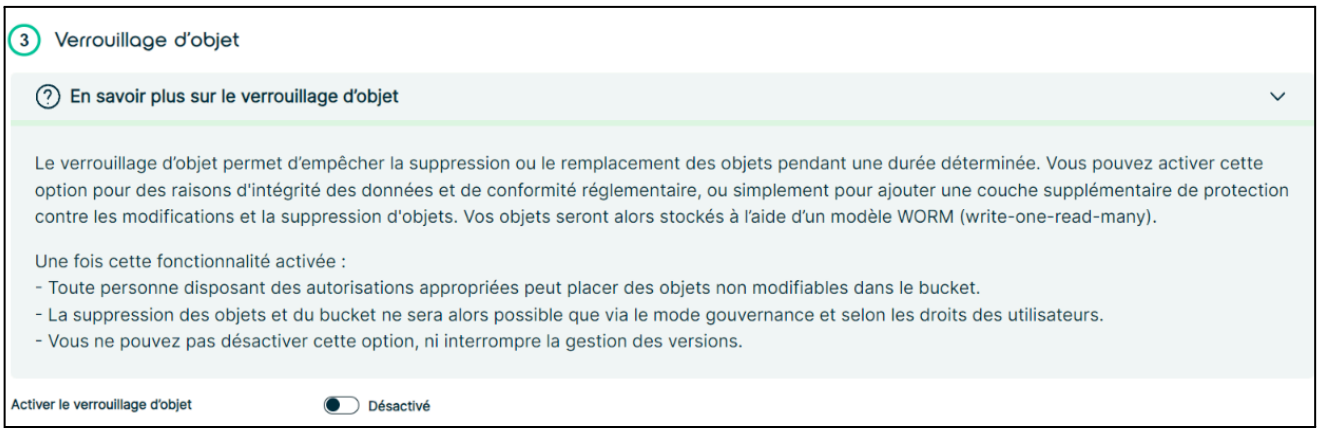
From the main interface it is possible to see the quantity of active buckets and the space used.



On Leviia we can activate file versioning or not which can be useful in case files/folders are deleted by mistake just before the backup.



You can also activate an object lock so that the backup is immutable and avoid unpleasant surprises in the event of a ransomware attack.



Conclusion

Une fois la configuration terminée, Nextcloud commencera à utiliser votre compartiment S3 pour stocker les données. Cela signifie que vos fichiers, images et autres données seront stockés de manière sécurisée et fiable sur un serveur cloud francaise.

La polyvalence de S3, manifestée par des fonctionnalités telles que la gestion des versions, les contrôles d'accès et les classes de stockage, permet aux utilisateurs d'adapter leurs stratégies de stockage en fonction d'exigences spécifiques. L'évolutivité automatique et l'ensemble complet d'API facilitent une intégration transparente avec diverses applications et services.

Les mesures de sécurité, notamment le cryptage en transit et au repos, ainsi que des contrôles d'accès robustes, contribuent à un environnement de stockage de données sécurisé. La possibilité de configurer des politiques de cycle de vie des objets et de recevoir des notifications basées sur des événements spécifiques améliore la gestion globale des données au sein de S3.

En substance, tirer parti S3 n'est pas seulement une solution de stockage, mais un choix stratégique pour les organisations à la recherche d'une infrastructure de stockage fiable, flexible et rentable dans le cloud. Ses fonctionnalités robustes et son accessibilité mondiale le positionnent comme un composant fondamental des services, prenant en charge un large éventail d'applications et de scénarios.

External resources and links

Il existe de nombreux liens et informations utiles sur le stockage s3, notamment de nombreuses vidéos et pages Web qui peuvent être utiles. Je les rapporte tous ici pour être complet:

References

- Truenas Turnkey container for PRoxmox
- Levia ducumentation
- NextCloud sur docker
- NextCloud sur GitHub :
- NextCloud via Cloudron
- Leviia

- Configuring Object Storage as Primary Storage

Useful video tutorial on youtube:

- How to Install Next Cloud using Turnkey LXC Image
- How to Install Next Cloud using Turnkey LXC Image