Synology®

Installation of Baïkal server on Synology NAS running DSM v5 and configuring clients to use it.

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Revision history

Version	Date	Summary of changes
1.0	15jan14	Initial version
1.1	26jan14	Added Client instructions for Android, thanks to “Bobdroid” for the info ! Added icons to Client instruction paragraphs for easier navigation.
1.2	08mar14	Updated chapter 9: “Upgrading the Baïkal package” with info from actually performed 0.2.6 → 0.2.7 upgrade.
1.3	24mar14	Updated caption of pictures, minor textual changes about DSM 5.0
1.4	31mar14	Added CardDAV-Sync for Android, thanks to “m4tt0” for the info !
1.5	06sep14	Updated for DSM v5
2.0	07sep14	Added 0.2.7-002 to the upgrade path table in chapter 9.
2.1	07sep15	Added remark on using HTTPS to §1.1, added note to §6.3 about newer iOS versions, added URL to §7.2.3. Thanks “Lapin” for the feedback !
2.2	13sep15	Mention port 443 for HTTPS in §1.1, describe Trust Level in §3.1

Introduction

Store your contacts and calendars on your own Synology NAS, away from the inquisitive eyes of Google, NSA and others.

Baïkal is a lightweight CalDAV (calendars) and CardDAV (contacts) server released under the GNU GPL v3 license. Baïkal is copyright (c) 2013 by Jérôme Schneider, the homepage is http://baikal-server.com

This document describes the system requirements for Baïkal and the installation/configuration procedures for the Synology NAS and the clients that use it. This document and the related installation/configuration software is released under the GNU GPL v3 license.

Don't let the 34 pages of this manual discourage you:
each step is really easy and well described,
and probably you can skip quite a few paragraphs too.

Used symbols in this document:

(_)	Radio button, not selected
(*)	Radio button, selected
[_]	Check box, not ticked
[v]	Check box, ticked
→ [Next]	Press the "Next" button

Disclaimer:

System requirements

- Synology NAS running DSM 5.0 or above

  Works also under DSM 4.2 and 4.3, but then you can better use manual version 1.4 instead

- 30 MB free disk space on /volume1.

- Web Station must be enabled (procedure described in this document).

- For the database, Baïkal can use either SQLite or MariaDB.
  This document describes the procedure for both options:

  - For **MariaDB**, the corresponding package must be installed started and configured
    (procedure described in this document, in orange)
    Using MariaDB has the advantage of having a proper database and tools for management and backup/restore.

  - **SQLite** does not require any extra services and is straightforward to use.
    The Contacts and Calendar data is stored together in one single file.

Note:
The Baïkal "flat package" is integrated into this package for Synology (no need to download it separately).

1. Enabling the DSM Web Services

Login to DSM using the "admin" account.

1.1. Enable Web Station

DSM Control Panel → Applications → Web Services

→ Tab [Web Services]

Web Applications

[v] Enable Web Station

HTTP Service

[v] Enable HTTPS connection for web services *)

→ [Apply]

*) Using https is optional, you will need a certificate for this

Firewall Notification pops up → Add rules for port 80 (http) and 443 (https, optional)

1.2. Enable “mssql” extension

Note:
This step is only needed if you use SQLite instead of MariaDB (see also Chapter 2).

DSM Control Panel → Applications → Web Services

→ Tab [PHP Settings] → [Select PHP extension]

PHP extension list

[v] mssql

→ [OK], [Apply]

2. Using MariaDB (optional)

In DSM5, MySQL has been replaced by MariaDB, which is free, open source and highly compatible with MySQL.

See “System requirements” on page 5 for a short comparison between using MariaDB and SQLite. You can skip the rest of this chapter if you decide on using SQLite.

2.1. Install MariaDB

Install the standard MariaDB package:

- DSM Package Center → Utilities → MariaDB → Install
- Firewall Notification pops up → add rule for port 3306 (if not already there).

2.2. Install phpMyAdmin for MariaDB

Install the standard phpMyAdmin package:

- DSM Package Center → Utilities → phpMyAdmin → [Install]
- Login to phpMyAdmin as root (default password is blank)
- Change the MariaDB root password:
  General Settings → "Change password"

Change password

Hashing: (*) MySQL 4.1+

2.3. Create the Baïkal database in MariaDB

Creating the baikal database and the baikal user will be done in one single step.

- (If not already done: login to phpMyAdmin using the "root" account)
- Tab [Users] → "Add user" (in lower left of screen)

Login info:

User Name = baikal (lower case, do not use special characters !)

Host = localhost

Password = *(whatever you want)*

Database for user:

(*) Create database with same name

Global privileges:

Leave all [_] and 0

→ [Add user]

→ [Log out]

3. Installing the Baïkal package

Using your preferred internet browser, download the latest Baïkal package for Synology from:
http://sourceforge.net/projects/baikalforsynology/
(single file, e.g. "baikal-0.2.6-001.spk")

Store it on a convenient location, e.g. your desktop.

3.1. Set the Trust Level

This Baïkal installation package has no digital signature. To be able to install it anyway, the "Trust Level" must be adjusted.

- DSM Package Center → [Settings] → General

Trust Level

(*) Any publisher

→ [Apply]

3.2. Manual install

- DSM Package Center → [Manual Install]
- Browse to the file you just downloaded
  → [Open] → [Next]

License agreement

[v] I accept

→ [Next]

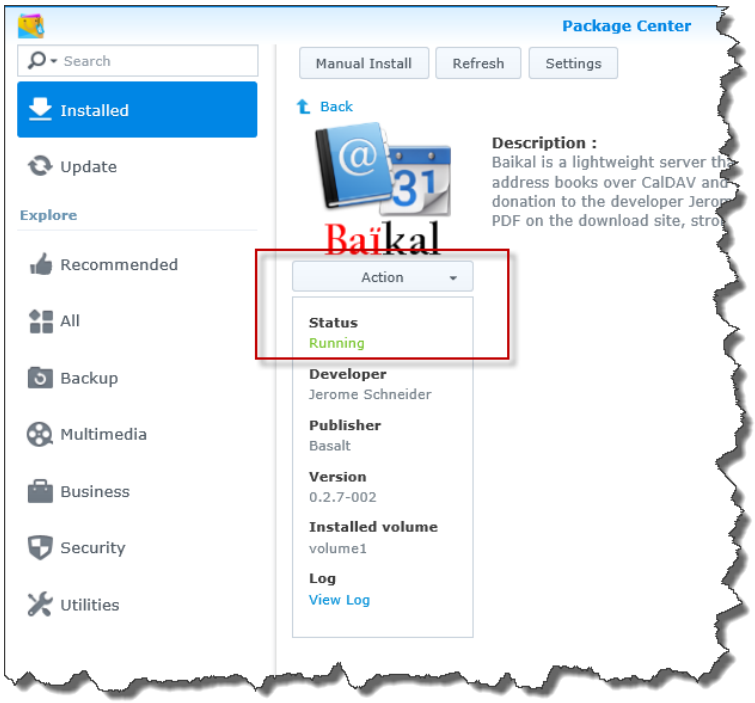
Confirm settings

[v] Run after installation

→ [Apply]

a

- Check if Baïkal actually started running, if not: start manually (Action→Run).

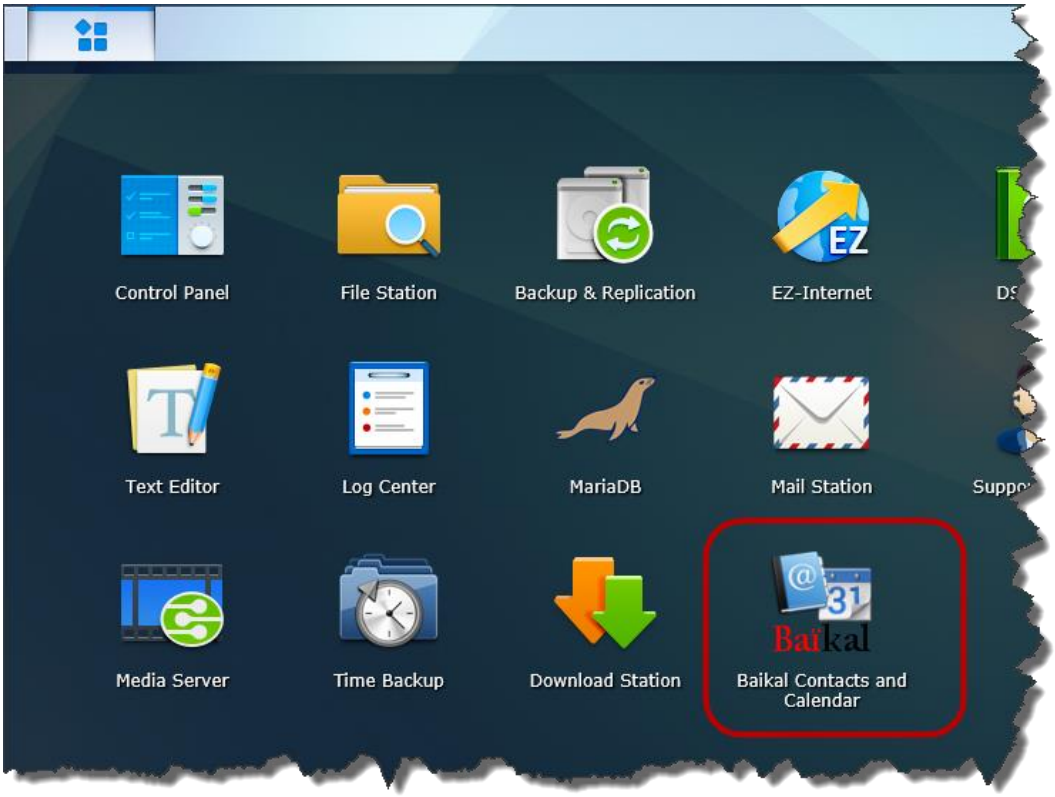


Note:
From now, please continue within 1 hour with the next step (Baïkal initialization wizard), otherwise you will have to uninstall/install the Baïkal package.

4. Initializing the Baïkal server

DSM Main Menu (automatically opened in previous step) → [Baïkal Contacts and Calendar]

As long as Baïkal is not initialized, this opens the Wizard. After successful initialization this opens the Web Admin instead (where all settings you made are accessible).



Note:
You get the next error message in case you installed the Baïkal package more than 1 hour ago:

> **Baïkal Install Tool is locked.**
>
> To unlock it, create (or re-create if it exists already) an empty file named ENABLE_INSTALL (uppercase, no file extension) in the Specific/ folder of Baïkal.

Easiest way to solve this, is using the DSM Package Center to uninstall the Baïkal package and install it again.

4.1. Baïkal initialization wizard

Server time zone = (your local time zone)

Enable CalDAV : [v] *(for having Calendars)*

Enable CardDAV: [v] *(for having Contacts)*

WebDAV authentication type = Digest *)

Admin password = *(whatever you want)*

Enable Web interface : [v]

Web interface autolock : [_] **)

→ [Save changes]

*) For use with BlackBerry OS10, you have to select authentication type = Basic, and need to use SSL, for which a server certificate is required on your Synology NAS.

**) With “autolock” enabled, the Baïkal Web interface will lock after not using it for 1 hour.
By performing stop/run Baïkal in Package Center, you can re-enable the Web interface again (no need to "touch" the ENABLE_ADMIN file ☺).

4.2. Baïkal database setup

The Baïkal Wizard continues with the database setup.

Note that Baïkal refers to MySQL, while on Synology MariaDB is used instead.

SQLite file path : (leave unchanged)

Use MySQL → **Do what you decided before:**

[_] : If you want SQLite as database, just proceed to [Save changes] now

[v] : As soon as you enable “Use MySQL”, you get first a "Validation error",
next you can enter the SQL database details (must be the same as in Chapter 2):

MySQL host = localhost

MySQL database name = baikal

MySQL user name = baikal

MySQL password = *(the password of baikal)*

→ [Save changes] → [Start using Baikal]

5. Adding a Baïkal user

The Baïkal Web Admin is already automatically opened in previous step.
(if not: DSM Main Menu → Baikal)

You get the next error message in case you enabled “Web interface auto lock” (see §4.1) and you didn’t use the Baïkal web interface in the past hour:

Baïkal Admin is locked.

To unlock it, create (or re-create if it exists already) an empty file named ENABLE_ADMIN (uppercase, no file extension) in the Specific/ folder of Baïkal.

Easiest way to solve this, is using the DSM Package Center to → [Stop] the Baïkal package and → [Run] it again. No need to "touch" the ENABLE_ADMIN file ☺.

5.1. Authentication

Login = admin

Password = *(the Admin password you entered in the Wizard, see §4.1)*

You will land on the “Dashboard”.

5.2. Add user

[Users and resources] → [+ Add user]

Creating new user

Username = *(name of the new Baïkal user, e.g. "Erik". Do not use special characters)*

Display name = *(whatever you want)*

Email = *(his/her e-mail address, don't know why it is needed here)*

Password = *(whatever you want)*

Note: only this username/password will be needed in any (mail, calendar,…) client that uses Contacts and/or Calendars

→ [Save changes]

5.2.1. Change user's Address Book name

With previous step you should have entered the "Users" screen, if not: → [Users and resources]

Users

(Username, e.g. "Erik") [Calendars] **[Address Books]** …etc…

→ [Address Books]

Manage Address Books for (User name)

Display name = Default Address Book

Description = Default Address Book for *(Display name)*

→ [Edit]

Change Display name and Description into something that makes sense to you,
e.g. "Home address book". This name will show up in your E-mail and Contacts clients.

→ [Save changes] → [Close] → [Back to users list]

5.2.2. Change user's Calendar name

With previous step you should have entered the "Users" screen, if not: → [Users and resources]

Users

(Username, e.g. "Erik") **[Calendars]** [Address Books] …etc…

→ [Calendars]

Manage Calendars for (User name)

Calendar token ID = default

Display name = Default calendar

Description = Default calendar

Todos [v]

→ [Edit]

Change Display name and Description into something that makes sense to you,
e.g. "Home calendar". This name will show up in your Calendar clients.

→ [Save changes] → [Close] → [Back to users list]

5.3. Check the Dashboard

→ [Dashboard]

On the dashboard, now you see:

- under CalDAV one (1) calendar
- under CardDAV one (1) address book.

You can use the same address book and calendar for all the users, or add more Baïkal users with their own address books and calendars.

→ [Logout] → [x]

6. Connecting your Contacts client

You need to create a **CardDAV** account in your Contacts client (eM Client, Thunderbird, Apple Contacts, ...) to make use of the Baïkal server.

In all cases, replace the next red UPPERCASE words like this:

MYSYNO: IP address or hostname of your Synology NAS

USER: Baïkal username you created using the Baïkal Web Admin (see §5.2)

PASSWORD: Password for USER

ROLODEX: How you want to call your address book, e.g. “My home address book”

6.1. Contacts - eM Client

Tools → Accounts → [New account …] → Contacts → [CardDAV]

Server information

Account URL = http://MYSYNO/baikal/card.php/addressbooks/USER/default/

User name = USER

Password = PASSWORD

→ [Next]

Account details

Account name = ROLODEX

→ [Next]

Finish

→ [Finish]

6.2. Contacts - Thunderbird with SOGo connector

Important notes:

For quite some time already, SOGo has a reported bug that updating contacts does not work properly over CardDAV.

Some users reported that, for SOGo to work, you have to host your Baïkal on a https line, and keep usernames simple (no '@' in the username or any non ascii-alphanumeric char).

6.2.1. Install the “SOGo Connector” add-on

Thunderbird does not support CardDAV natively. Therefore, download "SOGo Connector Thunderbird extension" from: http://sogo.nu/downloads/frontends.html

Choose the version that fits to your Thunderbird version, install via:
Thunderbird → Tools → Add-ons → (Little wheel) → Install Add-on From File…
Restart Thunderbird.

6.2.2. Add the address book

File → New → Remote Address Book

Remote Address Book Properties

Name = ROLODEX

URL = http://MYSYNO/baikal/card.php/addressbooks/USER/default/

[_] Read Only

→ [OK]

Right-click on your newly created ROLODEX address book → [Synchronize]

Authentication required

Username and password requested at http://MYSYNO. The site says: “BaikalDAV”

Name = USER

Password = PASSWORD

→ [OK]

6.2.3. Install the “Saved Password Editor” add-on

Thunderbird does not remember the password for SOGo Connector on its own accord. Therefore, download “Saved Password Editor” from:
https://addons.mozilla.org/nl/firefox/addon/saved-password-editor

Install via: Thunderbird → Tools → Add-ons → (Little wheel) → Install Add-on From File…
Restart Thunderbird.

Next, add the username/password for Baïkal (valid for both Contacts and Address book):
Thunderbird → Tools → Saved Passwords

Saved passwords

Website	**Username**
imap…etc…	…etc…

→ [New]

Add new login

Type (*) Annotated

Host = http://MYSYNO

Annotation = BaikalDAV

Username = USER

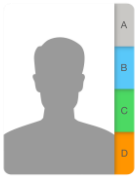
Password = PASSWORD

→ [OK]

Saved passwords

Website	**Username**
http://MYSYNO (BaikalDAV)	USER
imap…etc…	…etc…

→ [Close]



6.3. Contacts - Apple Contacts (iOS)

iPad desktop → Settings → Mail, Contacts, Calendars → Accounts → Add Account → Other → Contacts → ”Add CardDAV Account”:

CardDAV

Server = MYSYNO/baikal/card.php (note: no http:// nor https://, and no trailing slash)

User Name = USER

Password = PASSWORD

Description= ROLODEX

→ [Next]

This seems to have been successful, but it is NOT.

Select the ROLODEX account again you just added.

CardDAV

Server = MYSYNO/baikal/card.php

User Name = USER

Description = …etc..

Now remove the /baikal/card.php from the Server name:

(if you would have a look at “Advanced Settings”, you would see it was duplicated: https://MYSYNO/baikal/card.php**/baikal/card.php**/principals/USER)

Note:
It has been reported that on newer iOS versions (e.g. iOS8.4) this removing is not needed anymore.

CardDAV

Server = MYSYNO

…etc…

→ [Done]

Next, convince your Apple device to use this account:

Cannot Connect Using SSL

Do you want to try setting up the account without SSL?

→ [Cancel]

Contacts Account

Unable to verify account information.

→ [OK]

CardDAV

Server = MYSYNO

…etc…

→ [Done]

Contacts Account

This account may not be able to sync contacts. Are you sure you want to save?

→ [Save]

Check with the “Contacts” app if the contacts are synced indeed.

6.3.1. Contacts - Apple Contacts (iOS) - Hibernation

In case your Synology used to hibernate properly before, you can keep it that way by changing the fetching method to “Manual”. Your apple device will then only check this account for address updates when the app (Contacts, Mail, …) is active.

iPad desktop → Settings → Mail, Contacts, Calendars → Accounts → Fetch New Data → ROLODEX:

ROLODEX

Select schedule

Fetch

Manual [v]

→ [< Fetch New Data]

6.4. Contacts – Android devices – DAVdroid

Android does not support CardDAV and CalDAV natively, you will need an app for that.
Here DAVdroid is used (an alternative for contacts is “CardDAV-Sync”, see §6.5).

6.4.1. Install the “DAVdroid” app

DAVdroid offers both CardDAV and CalDAV, is open source and explicitly tested on Baïkal.
It is available for €2.99 currently. For more info see: http://davdroid.bitfire.at/what-is-davdroid

Buy the app at Google Play (or Samsung Store) and install it.

Open the app → Welcome to DAVdroid

Now the free “DAVdroid JB Workaround” add-on could be recommended.
If so, install that add-on at well to prevent data-loss on reboot (it’s an Android/Play Store bug).

6.4.2. Configure “DAVdroid” for Contacts

Open the app → Add account (key symbol with + sign) → Add an account → DAVdroid

Note: you could also use http (without s).

DAVdroid

Root URL = https://MYSYNO/baikal/card.php

User name = USER

Password = PASSWORD

[_] Pre-emptive authentication (incompatible with Digest, see §4.1, do not enable)

→ [Next]

Select the ROLODEX address book

Which collections shall be synchronised?

Address books

ROLODEX (*)

→ [Finish]

6.5. Contacts – Android devices – CardDAV-Sync

As an alternative to DAVdroid (see §6.4), “CardDAV-Sync” can be used to synchronise contacts with Android devices.

6.5.1. Install the “CardDAV-Sync free beta” app

As the name suggests, the “free beta” version of the app can be downloaded for free from Google Play. There is also a paid version with more contact fields supported.

Note that according to the description in Google Play, there seems to be a generic issue with CardDAV on HTC Sense devices.

6.5.2. Configure “CardDAV-Sync”

Open the app → Settings → Add an account → CardDAV → CardDAV

Note: for https, tick “Use SSL”, you may have to accept a “not trusted” certificate of your NAS.

Create CardDAV account

Server = http://MYSYNO/baikal/card.php/addressbooks/USER/default/

[_] Use SSL

User name = USER

Password = PASSWORD

→ [Next]

Select the ROLODEX address book, choose for 1-way or 2-way synchronisation.

Account name

ROLODEX

[_] Sync from server to phone only

→ [Finish]

7. Connecting your Calendar client

You need to create a **CalDAV** account in your Calendar client (eM Client, Thunderbird Lightning, Apple Calendar, ...) to make use of the Baïkal server.

In all cases, replace the next red UPPERCASE words like this:

MYSYNO: IP address or hostname of your Synology NAS

USER: Baïkal username you created using the Baïkal Web Admin (see §5.2)

PASSWORD: Password for USER

DIARY: How you want to call this calendar, e.g. “My home calendar”

7.1. Calendar - eM Client

Tools → Accounts → [New account …] → Calendar → [CalDAV]

Server information

Account URL = http://MYSYNO/baikal/cal.php/calendars/USER/default/

User name = USER

Password = PASSWORD

→ [Next]

Account details

Account name = DIARY

→ [Next]

Finish

→ [Finish]

7.2. Calendar - Thunderbird/Lightning with SOGo connector

Lightning is the standard Calendar add-on for Thunderbird.

7.2.1. Already (?) installed Thunderbird Add-ons

In the rare case that you just need the Calendar function and not the Contacts, you first have to install 2 Thunderbird add-ons, as described here:

6.2.1 Install the “SOGo Connector” add-on
6.2.3 Install the “Saved Password Editor” add-on

7.2.2. Install the “Lightning” add-on

By default, Thunderbird does not have a calendar on board.
Therefore, download the “Lightning” add-on from:
https://addons.mozilla.org/nl/thunderbird/addon/lightning/

Install via: Thunderbird → Tools → Add-ons → (Little wheel) → Install Add-on From File…
Restart Thunderbird.

7.2.3. Add the calendar

Thunderbird → Calendar
Right-click in left panel → New Calendar…

Create a new calendar - Locate

(*) On the network

→ [Next]

Locate

(*) CalDAV

[v] Offline support

→ [Next]

In case you enabled HTTPS in the Synology Web Services (see §1.1), you can use https in the URL below. Otherwise, just use http.

Customize

Name = DIARY

URL = http://MYSYNO/baikal/cal.php/calendars/USER/default/

Reminders [v]

→ [Next]

Created

→ [Finish]

To prevent mixing up calendars, delete the “default” calendar:

Thunderbird → Calendar
Right-click in left panel on “Default” → Remove Calendar → [OK]

7.3. Calendar - Apple Calendar (iOS)

iPad desktop → Settings → Mail, Contacts, Calendars → Accounts → Add Account → Other → Calendars → ”Add CalDAV Account”:

CalDAV

Server = http://MYSYNO/baikal/cal.php/principals/USER/

User Name = USER

Password = PASSWORD

Description= DIARY

→ [Next]

CalDAV

Calendars (ON)

Reminders (ON)

→ [Save]

Next, make this Calendar you default one:

iPad desktop → Settings → Mail, Contacts, Calendars → Calendars → Default Calendar:

Default Calendar

DIARY

(the name of you gave to the user’s Calendar, see §5.2.2) **[v]**

ICLOUD

…etc…

→ [Save]

7.4. Calendar – Android devices

Android does not support CardDAV and CalDAV natively, you will need an app for that. Here DAVdroid is used (an alternative would be CardDAV-Sync plus CalDAV-Sync).

7.4.1. Already (?) installed “DAVdroid” app

In the rare case that you just need the Calendar function and not the Contacts, you first have to install the DAVdroid app now, as described in §6.4.1.

7.4.2. Configure “DAVdroid” for Calendars

Open the app → Add account (key symbol with + sign) → Add an account → DAVdroid

Note: you could also use http (without s).

DAVdroid

Root URL = https://MYSYNO/baikal/cal.php

User name = USER

Password = PASSWORD

[_] Pre-emptive authentication (incompatible with Digest, see §4.1, do not enable)

→ [Next]

Select the DIARY calendar.

Which collections shall be synchronised?

Calendars

DIARY [v]

→ [Finish]

8. Backing up the Baïkal configuration and database

The Baikal application itself can be re-installed easily, no need to backup.

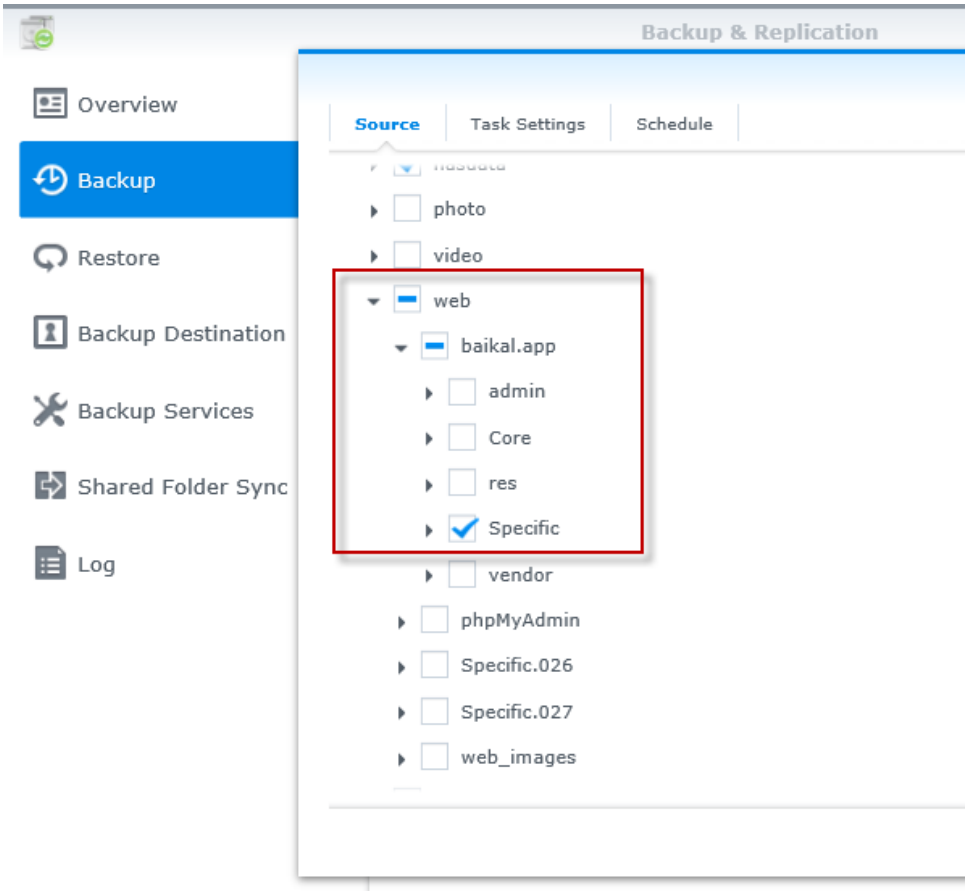
The Baïkal database and configuration can be backupped and restored with the standard DSM “Backup & Replication” tool.

8.1. Backup Baikal configuration and SQLite database

By default, the Baïkal configuration and SQLite database are stored in:
/volume1/web/baikal.app/Specific

Note:
Always backup this directory, even if you are using MariaDB (or MySQL).

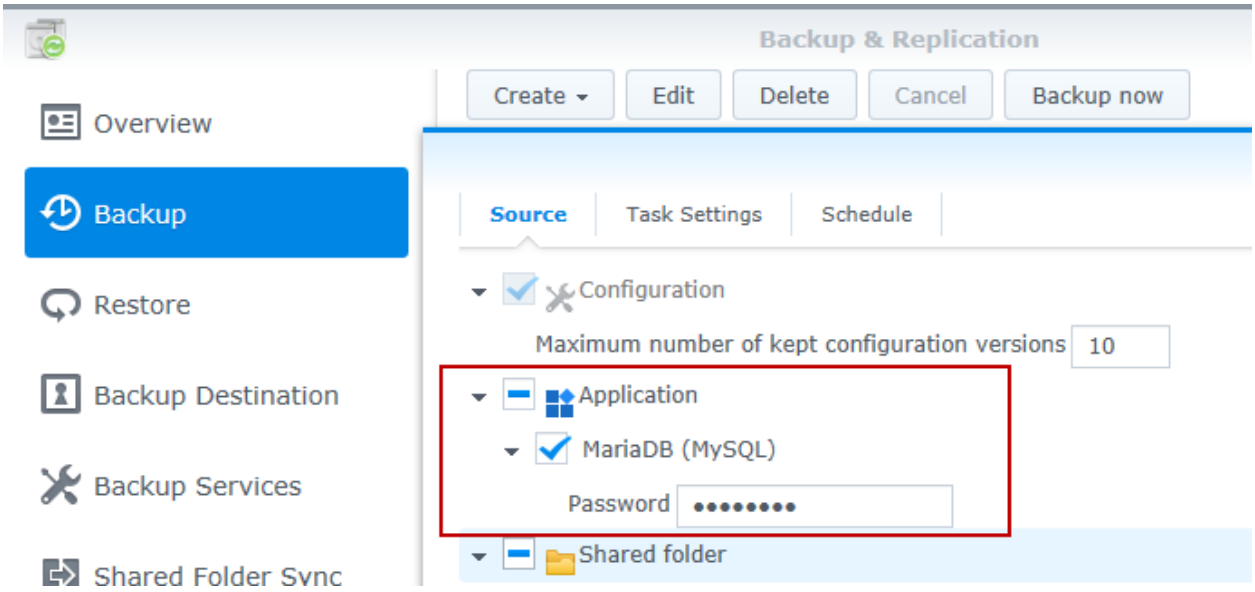
See below how to select the “Specific” directory for backup:



8.2. Backup MariaDB database

If you are using MariaDB, see below how to select that database for backup in the standard “Backup and Replication” task.

You will need to provide the MariaDB root password (see Chapter 2).



9. Upgrading the Baïkal package

At some point in time, a newer version of the Baïkal package may become available.

- Download the Baïkal package for Synology from:
  http://sourceforge.net/projects/baikalforsynology/
  (single file, e.g. "baikal-0.2.7-001.spk")

- If there is a new version of this manual as well: download and use it.

- **/!\ WARNING:**
  The DSM Package Center will not prevent you from performing an “illogical” upgrade, which could result in data corruption or data loss. Be very sure yourself on what upgrade to apply.

- See table below for the supported upgrade paths:

To ► / ▼From	0.2.6-001	0.2.7-001	0.2.7-002	
0.2.6-001	Yes (1)	Yes	Yes	
0.2.7-001	No (2)	Yes (1)	Yes	
0.2.7-002	No (2)	No (2)	Yes (1)	

(1) No problem, but this is actually a re-install, not an upgrade.

(2) This downgrade seems to work in practice, but is not formally supported.

- Great care has been taken to perform the upgrade safely without data loss.

  ➔ Nevertheless: backup your database now !!
  See Chapter 8 for instructions.

9.1. Install the upgrade

- Login to DSM using the "admin" account
- Stop the Baikal package, to prevent user access during the update:
    - DSM Package Center → Baikal → Action → Stop
    - Are you sure → [Yes]
- Install the new Baïkal package like a fresh install, as described in Chapter 3.
    - DSM Package Center will detect that an older Baïkal version is already installed, and will actually perform an upgrade instead of a new install.
    - The upgrade procedure will take care of:
        - Saving your configuration.
        - Saving the SQLite database (only if you didn't change its path !)
          The MariaDB database (if used) will not be saved/restored by the upgrade.
        - Uninstalling the old version, installing the new one.
        - Restoring your configuration and SQLite database.

Note:
From now, please continue within 1 hour with the next step (Baïkal upgrade wizard), otherwise you will have to install the new version of the Baïkal package again (as described in this paragraph).

9.2. Baïkal upgrade wizard

- (If not already done: login to DSM using the "admin" account)
- Start the Baikal package:
    - DSM Package Center → Baikal → Action → Run
        - Status will become “Running”
        - The Baikal icon will reappear in the DSM Main Menu
- DSM Main Menu → Baikal
    - In case the Baikal software itself has NOT been changed, the normal login window will appear right away.
    - Otherwise (if the Baikal software has been changed), the upgrade wizard will appear:

> **Baïkal upgrade wizard**
>
> Upgrading Baïkal from version x.x.x to version y.y.y
>
> …
>
> Baïkal has been successfully upgraded.
>
> → [Access the Baikal admin]

- Login as “admin” to Baikal Web Admin

> **Version**
>
> This system runs Baïkal y.y.y flat package.

→ [Logout]

10. Removing the Baïkal package

Not happy with Baïkal after all? You can easily remove it completely from your Synology NAS.

- Login to DSM using the "admin" account
- DSM Package Center→ Installed → Baikal
    - Action → Uninstall

      Are you sure you want to uninstall this package?

      → Yes

    - The Baïkal package, configuration, SQLite database and log file will all be removed from your Synology NAS.
- If you have used MariaDB (see Chapter 2), you may want to use phpMyAdmin to remove the “baikal” user and database.