Cella PDF Server on a Synology NAS: step by step

Cella PDF Server 1.1.2 · Sorted Solution

Cella PDF Server keeps a project's drawings and everyone's markups in step across the office: people working on the same sheet see each other's markups arrive live, on Mac, Windows, Linux and iPad. This guide puts it on a Synology NAS you already have. Everything is done in DSM, the NAS's web page: there is nothing to download to your computer and nothing to type at a command line. It assumes you can sign in to DSM as an administrator and have never used Docker. Allow about half an hour.

What Docker is, in one paragraph. Synology's *Container Manager* runs programs in sealed boxes called containers (the technology is called Docker). Cella PDF Server is published as a container *image* in the public registry, Docker Hub, under the name **sortedsol/cellapdf-server**. Container Manager downloads it from there and runs it; nothing else is installed on the NAS.

What you need

- A Synology NAS with **DSM 7.2 or newer** that offers **Container Manager** in Package Center (the Plus, XS and most recent Value models do; the J series does not). 2 GB of memory or more.
- Free space for about three times the size of your current drawing sets.
- An **administrator** account in DSM.

Step 1. Install Container Manager

In DSM, open **Package Center**, search for **Container Manager** and choose **Install**. It creates a shared folder called **docker**.

Step 2. Make the server's folders

The server keeps its projects in one folder and its nightly backups in another. Open **File Station**, go to the **docker** shared folder, and:

1. Create a folder named **cellapdf-server**.
2. Inside it, create two folders: **data** and **backups**.

Step 3. Download the server

1. Open **Container Manager** ▸ **Registry**.
2. Search for **cellapdf-server**.
3. Select **sortedsol/cellapdf-server** and choose **Download**. When it asks for a tag, choose **latest** and **Download**.

The download takes a few minutes. It is finished when **sortedsol/cellapdf-server** appears under **Image**.

Step 4. Start the server

In **Container Manager** ▸ **Image**, select **sortedsol/cellapdf-server** and choose **Run**.

General settings

- **Container name:** `cellapdf-server`
- Tick **Enable auto-restart**.
- Choose **Next**.

Advanced settings

- **Port Settings:** in the row for container port **8787**, the **Local Port** says **Auto**. Replace it with `8787`. **Don't leave it on Auto:** the NAS would then pick a different number every time, and step 6 could not find the server.
- **Volume Settings:** choose **Add Folder** twice.

Folder on the NAS	Mount path
`docker/cellapdf-server/data`	`/var/lib/atrium`
`docker/cellapdf-server/backups`	`/var/lib/atrium-backups`

  Leave both as **Read/Write**.

  The two folders you map must be exactly `docker/cellapdf-server/data` and `docker/cellapdf-server/backups`: never the `docker` shared folder itself, or any folder that holds other files. The server takes ownership of the folders you map.
- **Environment:** choose **Add** and enter the variable `ATRIUM_NAME` with your firm's name as its value (for example `Studio Meridian`). People see it when they join.
- Choose **Next**, then **Done**.

The container **cellapdf-server** appears under **Container** with a green dot.

From now on the `data` and `backups` folders belong to the server, so File Station may show them as not accessible. That is normal: don't change their permissions.

Step 5. Copy the admin token

The admin token is the password for the server's admin page. It is made once, the first time the server starts.

1. **Container Manager** ▸ **Container**, select **cellapdf-server** ▸ **Details** ▸ **Log**.
2. Find the line that starts `rsa_` under "Admin token". Copy it into your firm's password manager now. It is not shown again.

No "Admin token" in the log? Then the server has been started on this `data` folder before, and it only shows the token the first time. Make a new one: select **cellapdf-server ▸ Action ▸ Open terminal ▸ Create** (this opens a command line inside the server), type `atrium admin rotate-token` and press Enter. Copy the token it shows before closing the window.

Step 6. Give the server a secure address

Cella PDF only talks to a server over HTTPS, the padlock kind of address. DSM provides that: it has the name, the certificate and a "reverse proxy" that passes visitors through to the server.

6a. A name and certificate for the NAS. If your NAS already has a name with a padlock (for example you open DSM at `https://yourfirm.synology.me`), skip to 6b. Otherwise: **Control Panel ▸ External Access ▸ DDNS ▸ Add**. Service provider **Synology**, choose a hostname such as `yourfirm.synology.me`, and tick **Get a certificate from Let's Encrypt and set it as default**. Choose **OK** and wait for the status to read **Normal**.

6b. The reverse proxy. Control Panel ▸ Login Portal ▸ Advanced ▸ Reverse Proxy ▸ Create:

Reverse Proxy Name	`Cella PDF Server`
Source ▸ Protocol	`HTTPS`
Source ▸ Hostname	your NAS's own name, such as `yourfirm.synology.me`
Source ▸ Port	`8788`
Destination ▸ Protocol	`HTTP`
Destination ▸ Hostname	`localhost`
Destination ▸ Port	`8787`

Choose **Save**.

6c. The certificate for it. Control Panel ▸ Security ▸ Certificate ▸ Settings: in the list, the row for your NAS's name and `:8788` should show your `synology.me` certificate (or your own). If it shows another, pick the right one and choose **OK**.

6d. The router. On the office router, forward **TCP port 8788** to the NAS. This is needed even when everyone works in the office: the `synology.me` name leads to the router first. If the NAS's own firewall is on (**Control Panel ▸ Security ▸ Firewall**), allow port 8788 there too.

Check it, in three short tests. Each one proves one part, so the first that fails tells you where to look. Use your own name in place of `yourfirm`.

1. **The NAS itself.** On a computer in the office, open the NAS by its number instead of its name: `https://192.168.1.20:8788/health` (use your NAS's own address; it is shown in **Control Panel ▸ Network ▸ Network Interface**). The browser warns that the name doesn't match: choose to continue. You should see `{"ok":true}`. *If not:* the reverse proxy (6b) or the server (step 4) needs attention, not the router. See "If something goes wrong" for what each message means.

2. **From outside.** On a phone with **Wi-Fi turned off** (so it uses mobile data), open `https://yourfirm.synology.me:8788/health`. You should see `{"ok":true}` and a padlock. *If test 1 worked and this doesn't:* the router isn't passing port 8788 to the NAS (6d).
3. **From inside, by name.** Back on a computer in the office, open `https://yourfirm.synology.me:8788/health`. You should see `{"ok":true}` and a padlock. *If test 2 worked and this doesn't:* your router doesn't let office computers reach the office's own outside address. See "Works on a phone, not in the office" below.

When all three work, open `https://yourfirm.synology.me:8788/admin` and sign in with the admin token.

The address people join is `https://yourfirm.synology.me:8788`.

Step 7. Invite people

1. On the admin page, **Projects ▸ Create**: name it like the job (`2417 Riverside Clinic`).
2. **Invites ▸ Create invite** for that project, one for each computer or iPad, with a note (`Sam's laptop`). Copy the code (it looks like `J6GV-0WDS-ZJ3B`): it is shown once, works once and lasts 14 days.
3. Give each person the server's address and their code. In Cella PDF they choose **Sync ▸ Join Server…** (on an iPad, the cloud button at the right of the toolbar ▸ **Join Server…**), enter the address, the code, their name and email, then open a drawing and choose **Sync ▸ Connect Document to Project…**.

Each person needs a licensed Cella PDF. When someone leaves or a laptop is lost, use **Members ▸ Remove** on the admin page.

Step 8. Backups

Every night the server writes a complete backup into `docker/cellapdf-server/backups` and keeps 14 days. Add that folder to your **Hyper Backup** task (or make one with **Hyper Backup ▸ + ▸ Data backup task**, choose where the copy goes, then tick **docker ▸ cellapdf-server ▸ backups**), so a copy leaves the NAS. Back up the `backups` folder, not `data`: `data` is in use while the server runs.

To bring a backup back after a disaster, contact us (Help, below) and we will walk you through it.

Updating the server

When we announce a new version:

1. **Container Manager ▸ Registry**: search **cellapdf-server** and **Download** the **latest** tag again.
2. **Container Manager ▸ Container**: select **cellapdf-server**, choose **Action ▸ Stop**, then **Action ▸ Reset**. The container starts again from the new version. If it isn't running afterwards, choose **Action ▸ Start**.

Your projects and markups are in the `data` folder and stay as they are.

If something goes wrong

- **The container stops straight after starting.** Open its **Log**. If it mentions a folder or "permission", check step 4's two folders and mount paths, letter for letter.
- **Works on a phone, not in the office** (test 2 passes, test 3 fails). Your router doesn't pass office traffic back to its own outside address. Either fix works; you need only one:
  - *On the router,* turn on the setting usually called **NAT loopback**, **hairpin NAT** or **NAT reflection** (on some routers it is a tick box on the port-forwarding rule itself).
  - *Or give the name a local answer.* In the router's **DNS** or **local DNS records** settings, add a record that points `yourfirm.synology.me` to the NAS's own address (such as `192.168.1.20`). Office computers then go straight to the NAS, and the padlock still shows because the name is the same. Restart the browser afterwards.
- **Nothing opens at all: the page keeps loading, then times out** (tests 2 and 3 both fail, test 1 passes). The request never reaches the NAS. Check, in this order:
  - the router's port-forwarding rule: **TCP**, outside port **8788**, to the **NAS's address**, inside port **8788** (not 8787, and not 5001);
  - **Control Panel ▸ External Access ▸ DDNS**: the status reads **Normal**, and the **External address** shown there is the same as the router's own internet (WAN) address. If the two differ, your internet provider or a second router sits in between and the forward has to be made there too, or your provider has to give the office a public address;
  - the NAS's firewall, if it is on: a rule that allows port 8788.
- **Test 1 fails too** (the NAS's own number doesn't answer on 8788). Open **Control Panel ▸ Login Portal ▸ Advanced ▸ Reverse Proxy** and check the row from 6b, letter for letter: Source **HTTPS**, port **8788**; Destination **HTTP**, `localhost`, port **8787**. Then check in **Container Manager ▸ Container** that **cellapdf-server** has a green dot.
- `/health` **shows "502 Bad Gateway".** The secure address works, but it can't find the server behind it. The container's **Local Port** is not 8787 (step 4): **Container ▸ cellapdf-server ▸ Action ▸ Stop**, then **Settings ▸ Port Settings**, set the Local Port to `8787`, save and start it.
- `/health` **says the connection was refused.** The office router isn't passing port 8788 to the NAS. Do step 6d (forward TCP port 8788 to the NAS), even if everyone is in the office: the `synology.me` name leads to the router first. To test without the router, use the NAS's own address in numbers, such as `https://192.168.1.20:8788/health`, and accept the browser's warning about the name.
- `/health` **shows "404", or another device's page or certificate.** Something else on your network already answers on port 8788 (a network controller or a camera system, for example). Pick another port number, such as `8790`: change it in step 6b's **Source ▸ Port**, on the router and in the address people join.
- **A certificate warning.** Step 6c: the `:8788` row must use the certificate that matches the name you typed.
- **People connect but markups arrive late.** Tell us; send the log (below).

- **You lost the admin token. Container Manager ▸ Container ▸ cellapdf-server ▸ Action ▸ Open terminal ▸ Create** (this opens a command line inside the server), type `atrium admin rotate-token` and press Enter. The new token is shown there: copy it before closing the window.
- **The log. Container ▸ cellapdf-server ▸ Details ▸ Log ▸ Export**.

Help

Sorted Solution: https://www.sortedsolution.com/contact/. Send the exported log, your NAS model and DSM version, and what you see.

(The settings and paths say `atrium`: that is the server's working name.)