

Preview & switch your live NDI & RTSP sources from the lighting desk

NDI · RTSP · CUT OVER DMX / ART-NET / SACN

Raspberry Pi

Installation Guide

From a blank SD card to a live switcher you cut from the desk — in about 30 minutes.



What ND-Pi does

ND-Pi turns a Raspberry Pi into an **NDI & RTSP multiview switcher** you cut live from the lighting desk over DMX. Preview every source — followspot cameras, media servers, anything on the network — pick the one on air from Art-Net / sACN / DMX, and let show-grade failover hold the last frame on a dropout. No commercial converter switches NDI from a lighting desk; ND-Pi does.

This guide walks you through setting up ND-Pi on a Raspberry Pi — from a blank SD card to a live control panel you can open on any phone, tablet or laptop. **One binary set runs on both the Pi 5 and the Pi 4**: the app detects the model at boot and sets its own limits, so the steps below are identical for both.

Tip. Prefer it ready to run? Construct Ent also offers pre-configured ND-Pi units — a Pi flashed, licensed and ready to plug in. See construct-ent.com.

BEFORE YOU START

What you'll need

Raspberry Pi 5 or Pi 4	The Pi 5 (recommended) drives dual HDMI (program + multiview) and carries more live sources. The Pi 4 runs headless — NDI program out, RTSP capped.
microSD card	16 GB or larger, good quality (Class 10 / A1 or better).
USB-C power supply	The official Raspberry Pi supply is strongly recommended — under-powered supplies cause hard-to-trace glitches.
Wired Ethernet	NDI is bandwidth-heavy, so ND-Pi is wired. Patch the Pi into the same switch as your NDI/RTSP sources and your control browser.
The free NDI runtime	ND-Pi uses NDI, whose runtime is licensed by Vizrt and is not ours to redistribute — you install it once yourself (free). Step 2 covers it.
A computer	Mac, Windows or Linux — to flash the card and to view the panel.
HDMI screen (optional)	Plus a micro-HDMI cable — only if you want the Pi to drive program & multiview out to a screen.

Note. The appliance binaries are 64-bit (`aarch64`). You must flash **64-bit** Raspberry Pi OS — a 32-bit image will not run them.

1 Flash 64-bit Raspberry Pi OS

1. On your computer, download and install **Raspberry Pi Imager** from `raspberrypi.com/software`.
2. Insert your microSD card, open Imager, and set the three choices:
 - **Choose Device** — your Raspberry Pi 5 or Pi 4.
 - **Choose OS** — **Raspberry Pi OS (64-bit)**. Lite is ideal for an appliance; Desktop also works.
 - **Choose Storage** — your SD card.
3. Click **Next → Edit Settings** and pre-configure the box so it runs headless:
 - **Hostname:** `ndpi`
 - **Enable SSH** — password authentication; set a username and password you'll remember.
 - Set your locale / time zone. Leave Wi-Fi off — ND-Pi runs wired.
4. Write the card, then eject it. Confirm the OS is 64-bit on the Pi later with `uname -m` → `aarch64`.

2 Install the free NDI runtime

ND-Pi will not start its pipeline until the NDI runtime is present. It is free, but licensed by Vizrt, so you install it yourself:

1. On the Pi, download **NDI SDK for Linux** (or the NDI Runtime) from `ndi.video`.
2. Extract it into your home folder, then symlink it where the app looks:

```
ln -sf "$HOME/NDI SDK for Linux" ~/ndi-sdk-linux
```

Note. The installer checks for this and tells you if it's missing — you can install it before or after and just re-run the installer.

3 Get ND-Pi onto the Pi

Download the appliance bundle — the current link is always at `apps.construct-ent.com/ndpi-download` (the **Download for Raspberry Pi** button). Copy it onto the Pi, then unpack it and change into the folder:

```
tar xzf nd-pi-switcher-*.tar.gz
cd ndibridge
```

4 Install

From the unpacked bundle, run the one-command installer:

```
bash packaging/bootstrap.sh
```

That's it. It installs the runtime dependencies (one `sudo` for apt), checks the NDI runtime, copies the app to `~/ndibridge`, and sets up the services, boot autostart and signed self-update. It is **idempotent** — safe to re-run any time, for example after dropping in the NDI runtime or downloading an update.

Quick smoke test. The bundle ships `run-demo.sh`, which runs the switcher with four built-in test-pattern sources — a 60-second "does it run" check before wiring real cameras or a monitor.

5 Open the control panel

From any browser on the same network, open the panel — the installer prints the exact URL:

```
http://<pi-ip>:8080
```

You get the switcher: your NDI and RTSP sources as tiles, tap to cut to program, the on-air tile framed in red, wire DMX and save shows. On the Pi 5 you can also send program & multiview out over HDMI.

Note. First boot is slow — the engine loads sources serially (~10s per absent source), so the panel is reachable once that finishes. Wait it out on the first start.

6 Activate your licence

Your licence key arrives by email when you buy — it looks like `NDP-XXXX-XXXX-XXXX`. Activate it either way:

- **In the panel** (no keyboard on the Pi needed): the **Licence** card → paste the key → **Activate**.
- **On the box:**

```
bash ~/ndibridge/packaging/activate.sh --key NDP-XXXX-XXXX-XXXX
```

The box binds the licence to its own hardware and then runs offline, re-checking automatically when it's online. A licence is bound to **one device** — copying it to another Pi won't license that Pi.

ONCE IT'S RUNNING

Everyday use

- **Open it any time** at `http://<pi-ip>:8080` from any browser on the network.
- **Leave it powered.** The box starts the switcher on every boot and holds the show across a panel restart — there's nothing to launch.
- **Check the services** (rarely needed) over SSH:

```
systemctl --user status nd-pi-engine nd-pi-web
```

- **Updates** arrive over a signed channel: when one is available the panel shows an **Update now** button, and every build is verified before it installs.

Troubleshooting

The panel is unreachable right after boot. Cold start loads sources serially (~10s each) — wait, then check `systemctl --user status nd-pi-engine`.

No picture / the engine won't start. The NDI runtime is almost certainly missing — do Step 2, then `systemctl --user restart nd-pi-engine`.

`uname -m` is not `aarch64`. The card was flashed with 32-bit Raspberry Pi OS. Re-flash the 64-bit image (Step 1).

An RTSP source thrashes or drops the panel. Force UDP for it by setting `NDIBRIDGE_RTSP_INPUT_OPTS="-rtsp_transport udp -fflags nobuffer"`.

Both HDMI outputs land on one monitor at ~1 fps. The installer pins the outputs via a compositor rule; if it didn't take, reboot the Pi to reload it.

Pi 4 vs Pi 5. You never pick a profile — the app self-reports its model and sets its own limits (it prints e.g. `[hw] Raspberry Pi 4 - RTSP cap 2`). The Pi 5 drives dual HDMI and more sources; the Pi 4 is headless, program-only, with RTSP capped.

Questions, or want a ready-to-run unit? Get in touch at construct-ent.com, or reply to your licence email — it comes straight to us.