

NDI Test Signal Generator — User Manual

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NDI Test Signal Generator is a free tool that sends test pictures and test tones as NDI sources on your network.

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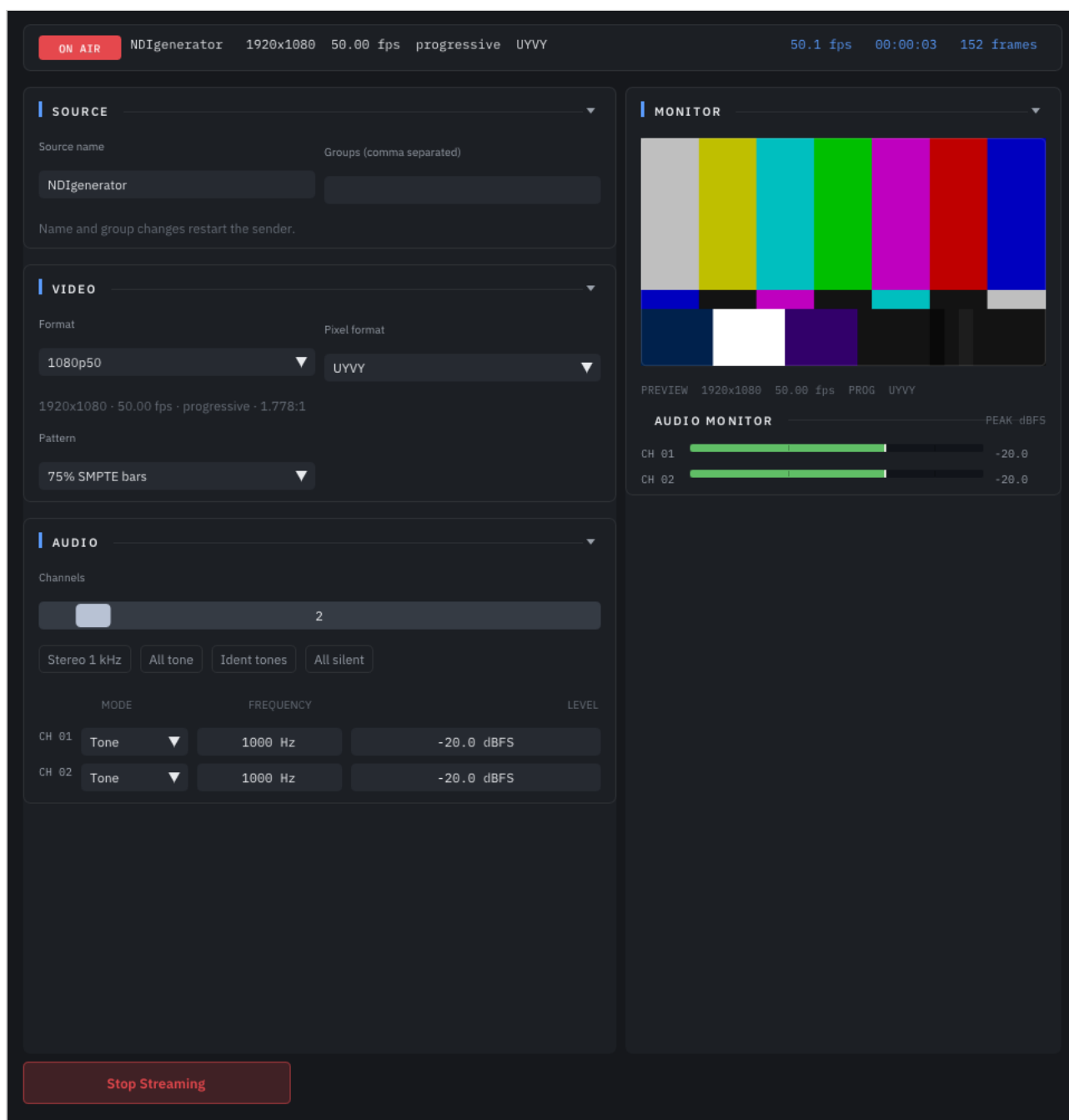
1. What NDI Test Signal Generator does

NDI Test Signal Generator puts a **test signal** on the network as an **NDI source**, so you can line up and check monitors, multiviewers, vision mixers, recorders and audio paths without a camera.

- **Video formats** from SD (525i / 625i) through 720p and 1080i/p up to 120 fps, to 2160p up to 60 fps, plus custom sizes and frame rates.
- **Patterns:** 100% bars, 75% SMPTE bars, bars with burned-in ID text, and a moving test card with running timecode.
- **Audio:** 1 to 16 channels at 48 kHz. Each channel is a tone (frequency and level of your choice) or silence. Presets: stereo 1 kHz, all tone, all silent, and ident tones (a different note per channel, so you can tell channels apart by ear).
- A **window** with live controls, or a **command-line mode** for scripts and servers.

NDI Test Signal Generator is **free**. There is no trial, no license key and no account. The NDI 6 runtime is included in the download.

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2. System requirements

Item	Requirement
Operating system	Ubuntu 24.04 LTS or newer , 64-bit (x86_64). Other current desktop Linux distributions with glibc 2.35 or newer will usually work but are not tested.
Desktop	For the window: a graphical session (X11 or Wayland) with OpenGL, which every normal desktop has. The command-line mode needs no desktop.
Network	The computer and the NDI receivers on the same local network . High formats use a lot of bandwidth: 1080p50 is roughly 150 Mbit/s, 2160p60 much more. Use wired gigabit or faster.
CPU	Bars and bars + ID text cost almost nothing, even at 2160p60. The moving test card is redrawn every frame; 1080p50 is fine on a laptop, 2160p wants a desktop CPU.

Item	Requirement
Disk	About 30 MB once unpacked.

Windows and macOS: not available on lumengrid.shop.

Everything is inside the download: the program, its fonts, and the NDI 6 runtime (`libndi.so.6`). You do not need to install anything from ndi.video.

3. Installing from the download

Download **NDIgenerator-1.0.0-linux-x64.tar.gz** from lumengrid.shop (NDI Test Signal Generator page). The page also shows its SHA-256 checksum.

1. Open a terminal in the folder where you saved it (usually `~/Downloads`).
2. Optional: check the download. The printed checksum must match the one on the shop page.

```
cd ~/Downloads
sha256sum NDIgenerator-1.0.0-linux-x64.tar.gz
```

3. Unpack it. This creates a folder called `NDIgenerator-1.0.0-linux-x64`:

```
tar -xzf NDIgenerator-1.0.0-linux-x64.tar.gz
```

4. Start the program:

```
./NDIgenerator-1.0.0-linux-x64/ndigenerator
```

There is no installer. The program runs from the unpacked folder, and you can move the whole folder anywhere. Keep the files together: `ndigenerator` needs `libndi.so.6` and the `fonts` folder next to it.

Optional: add it to your applications menu. If you moved the folder to `~/Apps/NDIgenerator`, create a launcher with:

```
mkdir -p ~/.local/share/applications
cat > ~/.local/share/applications/ndigenerator.desktop <<END
[Desktop Entry]
Type=Application
Name=NDI Test Signal Generator
Exec=$HOME/Apps/NDIgenerator/ndigenerator
Terminal=false
Categories=AudioVideo;
END
```

The folder also holds `LICENSE`, `libndi_licenses.txt` and the font licenses in `fonts/`.

4. First launch

Started with no options, the program opens its window. The settings are ready for a common line-up signal: **1080p50, UYVY, 75% SMPTE bars, 2 channels of 1 kHz tone at -20 dBFS**, source name **NDIgenerator**.

Nothing is sent until you press **Start Streaming** (§9). The top bar shows **STANDBY** until then.

Settings are not saved between sessions; each launch starts from these defaults. To start with other settings every time, use the command line (§10).

To quit, close the window (or press Ctrl+C in the terminal it was started from).

5. Source: name and groups

Field	Meaning
Source name	The name receivers show, after the computer name: e.g. STUDIO-PC (NDIgenerator). Give each generator a clear name such as CAM 1 bars.
Groups	Optional NDI groups, comma separated. Leave empty for the normal public group. Only receivers that watch the same group will see the source.

Changing the name or groups restarts the sender, so receivers briefly lose the source and find it again under the new name.

You can run several copies of the program at once, each with its own source name, to feed several inputs.

6. Video: format, pixel format and pattern

Format. Pick a standard format from the list:

Family	Formats
SD	525i59.94 4:3 and 16:9, 625i50 4:3 and 16:9, 525p29.97, 625p25
HD 720	720p23.98, 24, 25, 29.97, 30, 50, 59.94, 60
HD 1080	1080i50, 1080i59.94, 1080i60; 1080p23.98 to 1080p120
UHD 2160	2160p23.98 to 2160p60

Choose **Custom** to type your own **Width**, **Height** and **Frame rate** (e.g. 50, 29.97 or 60000/1001) and tick **Interlaced** if needed. Interlaced formats move field by field, as real interlaced video does.

The line under the format shows the size, rate, scan and picture shape in use.

Pixel format. How the picture is packed on the wire:

Pixel format	Use
UYVY (default)	4:2:2 YUV, the normal NDI format.
UYVA	UYVY plus an alpha (key) channel.

Pixel format	Use
BGRA / RGBA	8-bit RGB with alpha.
BGRX / RGBX	8-bit RGB without alpha.
NV12 / I420	4:2:0 YUV.

Use an alpha format to test keying: receivers that show alpha (for example the Alpha button in NDI Monitor) see it. Conversions to YUV use BT.601 levels.

Pattern.

Pattern	Picture
100% bars	Seven full-height bars at 100%.
75% SMPTE bars	Bars with the castellation strip, -I / white / +Q and PLUGE.
Bars + ID text	Bars with the source name, your ID text and the format burned in.
Moving test card	Grid, sweeping bar, moving circle, grey ramp, ID text, running timecode and frame counter. Use it to spot frozen or dropped frames.

ID text is shown on the Bars + ID text and moving patterns. Pattern, ID text and pixel format can be changed while streaming.

7. Audio: channels, tones and silence

Channels sets the number of audio channels, 1 to 16. Audio is always 48 kHz.

Each channel has its own row:

Column	Meaning
Mode	Tone or Silent .
Frequency	Tone frequency in Hz.
Level	Tone level in dBFS (0 dBFS is full scale; -20 dBFS is the usual line-up level, -18 in some countries).

Presets set all rows in one click:

Button	Result
Stereo 1 kHz	Channels 1-2: 1 kHz tone; the rest silent.
All tone	Every channel 1 kHz at -20 dBFS.
Ident tones	Every channel a different note, rising from A4 (440 Hz), so each channel can be named by ear.
All silent	No tone on any channel.

Tones are continuous with no clicks between frames, and the number of audio samples per frame is exact even at 29.97 and 59.94, so audio never drifts against the picture.

8. The monitor and the status line

The **Monitor** panel on the right shows a preview of what is being sent, with its size, rate, scan and pixel format. The **Audio monitor** shows a peak meter and the peak level in dBFS for every channel.

The bar at the top shows **STANDBY** or **ON AIR**, the source name and format. While streaming it also shows the real frame rate, the running time and the number of frames sent. If the real rate stays below the target, the computer cannot keep up: pick a lower format or a static pattern.

9. Start and stop streaming

Press **Start Streaming** at the bottom left. The top bar turns to **ON AIR** and the source appears on the network within a few seconds. Press **Stop Streaming** to take it off the network.

If streaming cannot start, the reason is shown next to the button (for example if the NDI runtime could not be loaded, §12).

10. Headless (command-line) mode

With options, the program runs **without a window** and starts sending at once. This is useful on servers, in scripts, or to start a fixed signal at login.

```
cd NDIgenerator-1.0.0-linux-x64

# 1080i50 SMPTE bars with ID text, 8 channels: ch 1-2 tone, rest silent
./ndigenerator --format 1080i50 --pattern bars-text --text "CAM 1" \
  --channels 8 --audio "1:tone:1000:-20,2:tone:1000:-20"

# 2160p60 moving test card, 16 channels of ident tones
./ndigenerator --format 2160p60 --pattern moving --channels 16 --ident

# Custom 2048x858 at 24 fps, square pixels, RGBA, stop after 60 seconds
./ndigenerator --size 2048x858 --fps 24 --square --pixel rgba --duration 60
```

Option	Effect
<code>--name NAME</code>	NDI source name (default <code>NDIgenerator</code>).
<code>--group LIST</code>	NDI groups, comma separated.
<code>--pattern P</code>	<code>bars100</code> , <code>bars75</code> (default), <code>bars-text</code> or <code>moving</code> .
<code>--text TEXT</code>	ID text burned into the picture.
<code>--format NAME</code>	Standard format, e.g. <code>1080i50</code> (default <code>1080p50</code>).
<code>--list-formats</code>	Print all format names and exit.
<code>--size WxH</code> , <code>--fps N[D]</code>	Custom raster and rate (e.g. <code>--fps 29.97</code>).
<code>--interlaced</code> , <code>--square</code>	Custom format interlaced; square pixels instead of 16:9.

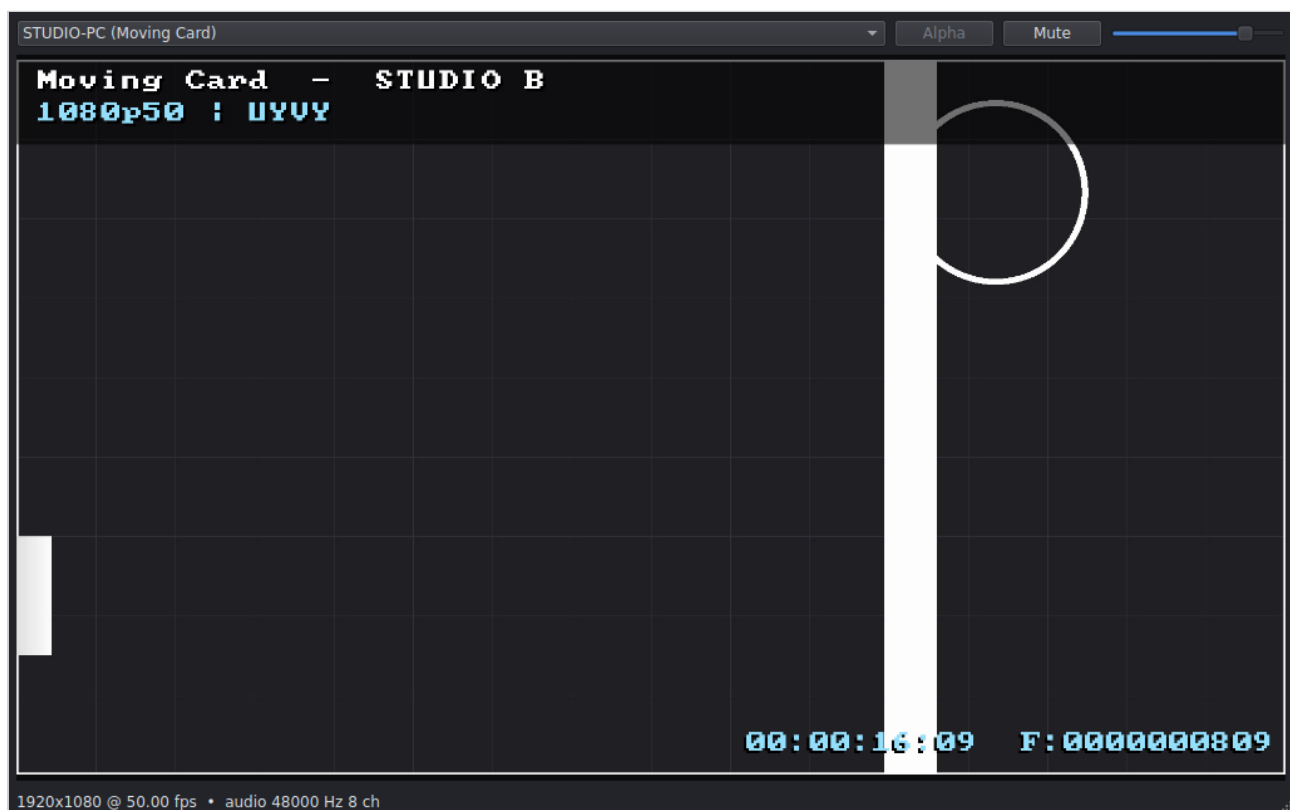
Option	Effect
<code>--pixel PF</code>	uyvy (default), uyva, bgra, bgrx, rgba, rgbx, nv12, i420.
<code>--channels N</code>	Audio channels 1-16 (default 2).
<code>--audio SPEC</code>	Per channel, comma separated: <code>channel:tone[:freq[:level]]</code> or <code>channel:silence</code> , e.g. <code>1:tone:1000:-20,5:tone:440:-12,6:silence</code> .
<code>--tone-all, --ident, --silent</code>	All channels 1 kHz at -20 dBFS / ident tones / silent.
<code>--duration S</code>	Stop after S seconds (default: run until Ctrl+C).
<code>--verbose</code>	Print frames sent and the real frame rate every second.
<code>--gui</code>	Open the window even when other options are given.
<code>--version, --help</code>	Print the version or the option list and exit.

Stop with **Ctrl+C**. The program prints how many frames and audio blocks it sent.

11. Checking the signal with NDI Monitor

The free **NDI Monitor** from lumengrid.shop is a quick way to check the output on any Linux computer on the network:

1. Start a signal, for example `./ndigenerator --name "Moving Card" --pattern moving --text "STUDIO B" --channels 8 --ident`.
2. In NDI Monitor, pick `COMPUTER (Moving Card)` from the source list.
3. The picture appears, and the status bar shows the format and `audio 48000 Hz 8 ch`.



12. Troubleshooting

Receivers do not see the source.

- Check that **ON AIR** is shown (in the window) or that the terminal says Streaming.
- The receiver must be on the **same network** and, if you set groups, watch the same group.
- If `ufw` is active, allow mDNS (UDP 5353) and NDI (TCP/UDP 5960 and up).
- On networks without mDNS, use an NDI Discovery Server or extra IPs in `~/.ndi/ndi-config.v1.json`, the standard NDI method.

The picture stutters or the real frame rate is below the target.

- The moving test card is drawn every frame. Use bars, or a lower format, or a faster computer.
- The network may be too slow for the format. Use wired gigabit, or a smaller format.

NDI runtime not found. The `libndi.so.6` file is missing from the program folder. Unpack the download again and keep all files together. To use another NDI runtime, point `NDIGEN_NDI_LIB` at it: `NDIGEN_NDI_LIB=/usr/local/lib/libndi.so.6 ./ndigenerator`.

The window does not open. Start it from a terminal to see the message. It needs a desktop session with OpenGL. Over plain SSH or on a server, use the command-line mode (§10) instead.

error: unknown pixel format — check the spelling; the valid names are listed in §10.

Getting help. Use the Support page on lumengrid.shop. Include your Ubuntu version (`lsb_release -d`) and the command and output that fail.

13. Uninstalling

1. Delete the `NDIgenerator-1.0.0-linux-x64` folder (and the downloaded `.tar.gz`).
2. If you made a menu launcher (§3), delete it too:

```
rm ~/.local/share/applications/ndigenerator.desktop
```

The program writes no settings of its own.

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