**As Built Documentation Planning**

Steve:

Help me plan the documentation of a combined FOH and Video Streaming system. The system is in place so I went do generate As Built drawings. Let’s start with block process diagrams.

Software available and preferred: Fritzing, KiCad, FreeCAD.

Please recommend software, libraries and then process.

ChatGPT:

You're working on documenting an **As-Built** system for a **combined FOH (Front of House) and Video Streaming system**, and you want to generate **block process diagrams** as a starting point.

**✅ GOAL: Block Process Diagrams for Installed System**

These diagrams will show how audio/video/streaming equipment is interconnected and functionally flows—from sources to outputs (audience, stream, archive, etc.).

**🧰 RECOMMENDED SOFTWARE**

Since you're focusing on **block-level process diagrams** (not circuit board layout), here's a breakdown of best-fit tools based on your listed preferences:

**🥇 FreeCAD (with TechDraw + Draft Workbench)**

* ✅ Great for creating vector-style diagrams.
* ✅ Native support for precise mechanical layouts.
* ✅ Exportable to SVG, PDF.
* ✅ Can include custom blocks for devices.
* ⚠️ Slightly steeper learning curve, but excellent for layered documentation (As-Built + Rack Elevations + Physical Mounting later).
* ✅ Use **Draft Workbench** for 2D diagramming, **TechDraw** for final outputs.

**🥈 Fritzing**

* ❌ Primarily for breadboard/electronics prototyping.
* ⚠️ Not ideal for pro-level AV systems.
* ✅ Could be helpful if you’re showing simple wiring, especially for Raspberry Pi or Arduino in streaming gear.

**🥉 KiCad**

* ❌ Overkill for this purpose.
* ⚠️ Focused on PCB design and signal-level schematics, not ideal for A/V flow diagrams.

**🧩 Libraries & Assets**

You’ll need visual representations of AV gear:

* Mixers
* Audio interfaces
* Cameras
* Switchers
* Encoders
* Network equipment
* Displays/projectors

**📚 Suggested Libraries & Assets:**

* **FreeCAD Blocks (SVG/DXF/FreeCAD format):**
  + Use standard **IEC 60617** or **ISA 5.1** block symbols.
  + Download SVG icon sets from [Flaticon](https://www.flaticon.com/) or [The Noun Project](https://thenounproject.com/) for simplified devices (camera, mixer, monitor, etc.).
  + For rack layouts later: [Middle Atlantic’s RackTools symbols](https://www.legrandav.com/resources/tools/racktools)
* **LibreOffice Draw (optional asset tool):**
  + For quick creation and export of vector block diagrams (can be converted into SVG and used in FreeCAD).

**🧭 Suggested Process (As-Built Block Diagram)**

**STEP 1: Inventory & Logical Flow Mapping**

Create a **master spreadsheet** or list:

* Devices (Model + Inputs/Outputs)
* Roles (e.g., FOH Mix, Stream Audio, Confidence Monitor)
* Connection types (HDMI, SDI, XLR, USB, Dante, NDI, etc.)
* Logical Flow (Source → Processor → Output)

**STEP 2: Sketch Block Process (Rough Draft)**

Use paper or diagram software (e.g., draw.io or Excalidraw) to:

* Block out **zones** (Stage, FOH, Streaming Booth, etc.)
* Draw high-level flow:
  + Audio: Mic → Mixer → DSP → Amp → Speakers
  + Video: Camera → Switcher → Encoder → Streaming PC
  + Control: OSC, MIDI, GPI, network

**STEP 3: Build Block Diagram in FreeCAD**

Use **Draft Workbench** for layout:

**Basic Block Setup:**

* Use **Rectangle** tool to draw devices.
* Use **Lines/Arrows** to indicate signal flow.
* Use **Labels/Texts** for port names (IN/OUT).
* Create **custom symbols** or import SVGs for recognizable device icons.

**Layered View:**

* Optionally add **layers**:
  + Audio Flow
  + Video Flow
  + Control Flow
  + Network

**STEP 4: Export As PDF or SVG**

Use **TechDraw Workbench**:

* Create drawing pages
* Insert diagrams from Draft
* Add notes, titles, revision blocks
* Export final **As-Built drawings** as PDFs

**STEP 5: Optional Add-ons Later**

* Physical layout: Use FreeCAD 3D modeling for actual rack or booth layout.
* Cabling schedule (separate spreadsheet or annotation layer).
* Patchbay or signal flow matrix diagrams.
* Rack elevations.

**✅ Summary**

| **Task** | **Tool** | **Notes** |
| --- | --- | --- |
| Block Process Diagrams | **FreeCAD Draft + TechDraw** | High-quality printable output |
| Rough Flow Draft | Draw.io or Excalidraw | Fast, collaborative |
| Custom Icons | Noun Project / Flaticon | SVG/PNG for import |
| Rack/Physical Layouts | FreeCAD Part or Arch Workbench | Later phase |
| Connection Spreadsheet | Excel / LibreOffice | Used for cross-reference |

Would you like a **starter FreeCAD template file** for this block diagram or a **symbol legend sheet** to accompany the drawings?