therm

therm Beginner's Guide

1. Introduction

therm is a diagnostic and performance analysis tool for heat pumps. It loads long term CSV exports from Grafana or Home Assistant, detects sensor types automatically, applies a configurable sensor mapping profile, and runs a physics based engine to detect heating and DHW runs, evaluate performance and generate AI ready analysis bundles.

When you upload CSV files, therm tries to detect whether each file is part of a Grafana numeric and state pair or a Home Assistant History export. This reduces setup friction and helps catch missing or mismatched files.

The JSON profile is a reusable configuration that stores your entity mappings. Once you have mapped your own entities for power, flow, return, flow rate, outdoor and room sensors, you can save the profile to disk and load it again for future datasets.

2. Home screen and sample data

On first load, therm opens on the Data source and files view. From here you can upload CSV files or download sample data to try the workflow.

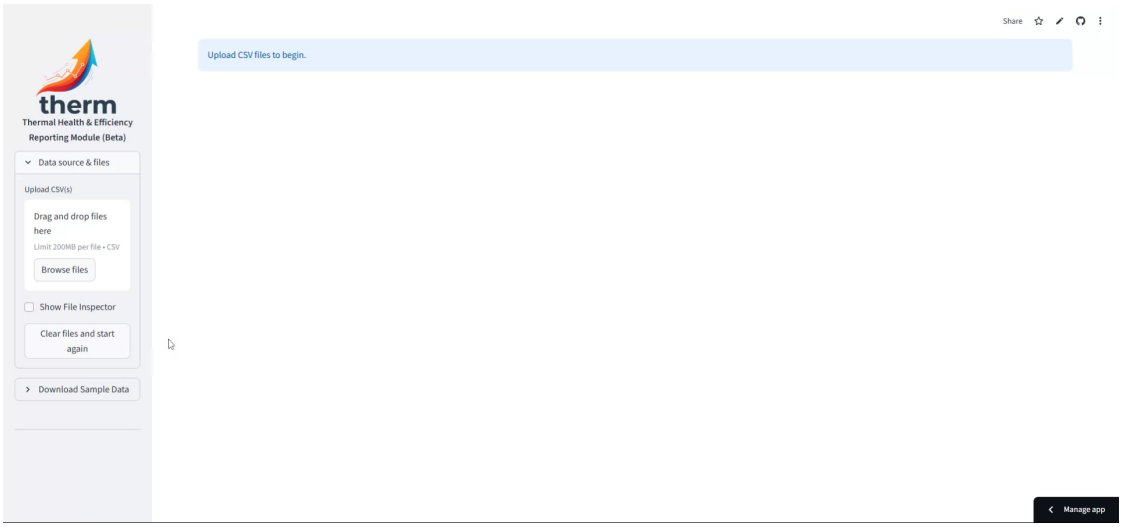

Figure 1 - therm home screen (no data loaded)

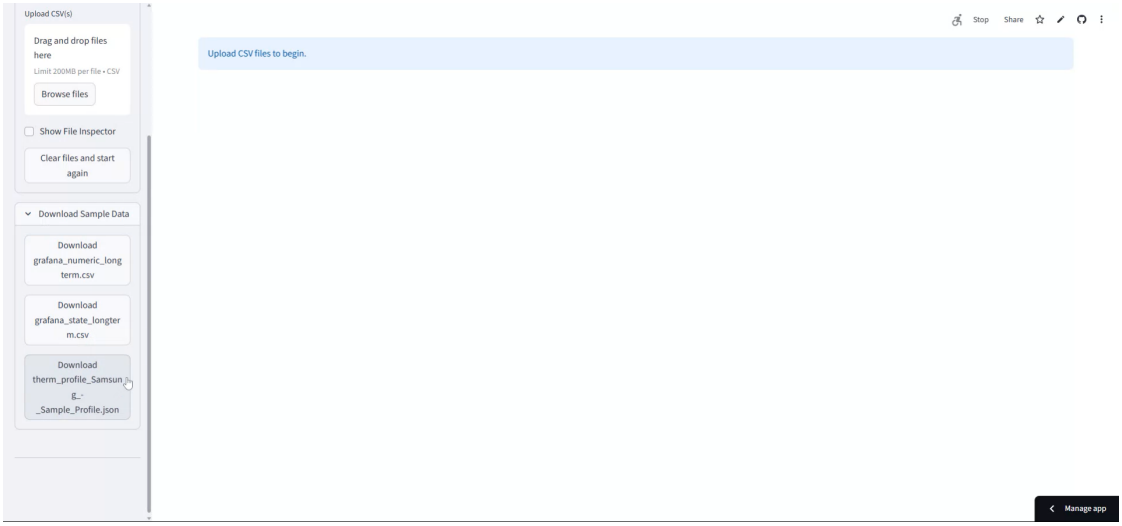

Figure 2 - Sample data download options

3. Uploading CSV files

Use the Upload CSVs panel to add your numeric and state long term CSV files. therm will attempt to recognise Grafana numeric and state pairs and flag if something is missing.

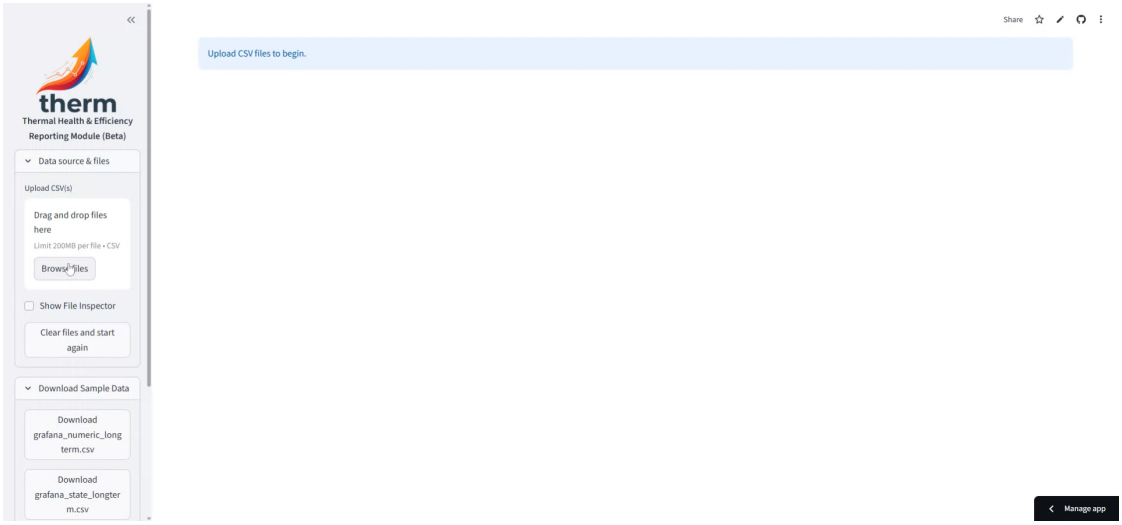

Figure 3 - Upload interface

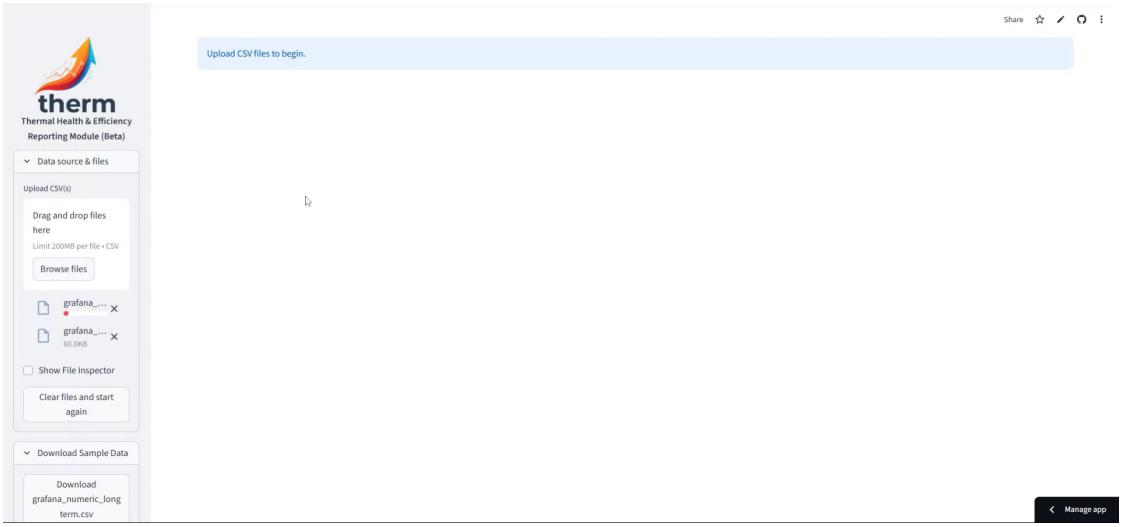

Figure 4 - Grafana CSV files uploaded

4. Loading and saving a profile

The System setup page lets you load or save a JSON profile that defines your sensor mappings. Loading a profile applies the mappings for critical and recommended sensors. Saving a profile lets you reuse the same configuration for future exports.

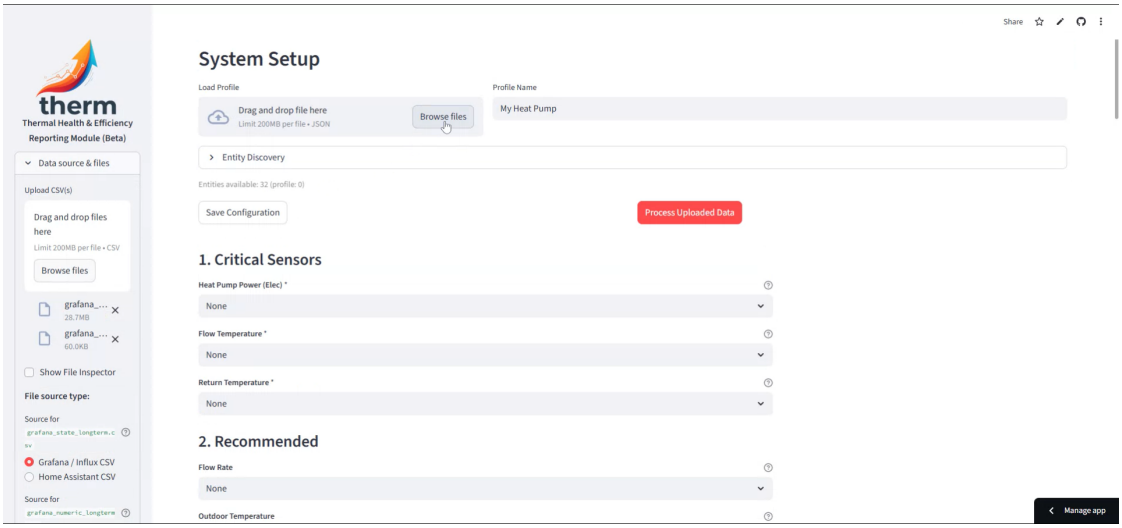

Figure 5 - System setup before profile load

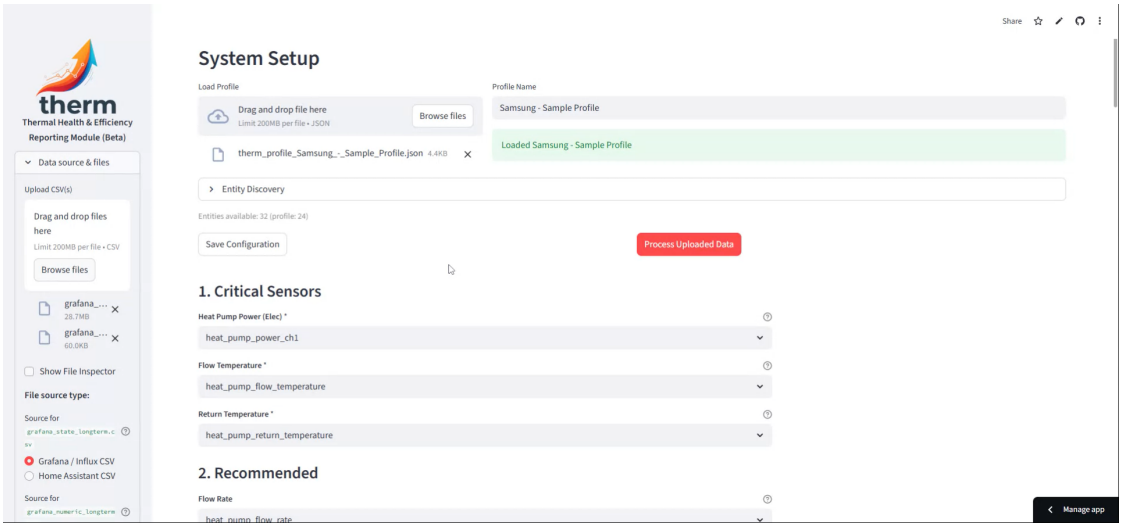

Figure 6 - Profile successfully loaded

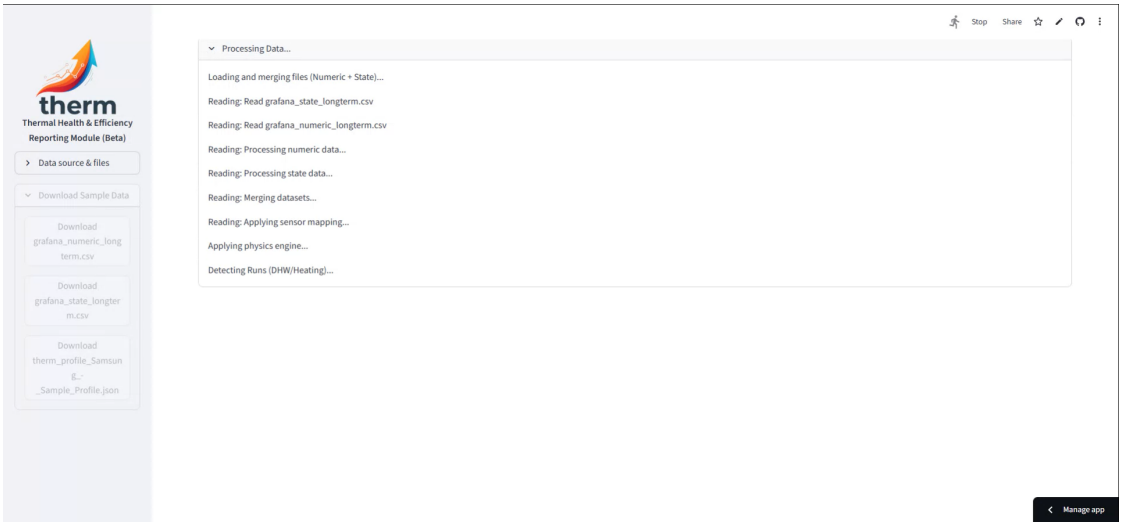

Figure 7 - Data processing stage

5. Long term trends

After processing, therm shows a long term summary of heat output, electricity input, cost and SCOP. Daily stacked energy charts show how space heating, DHW and immersion contribute over time.

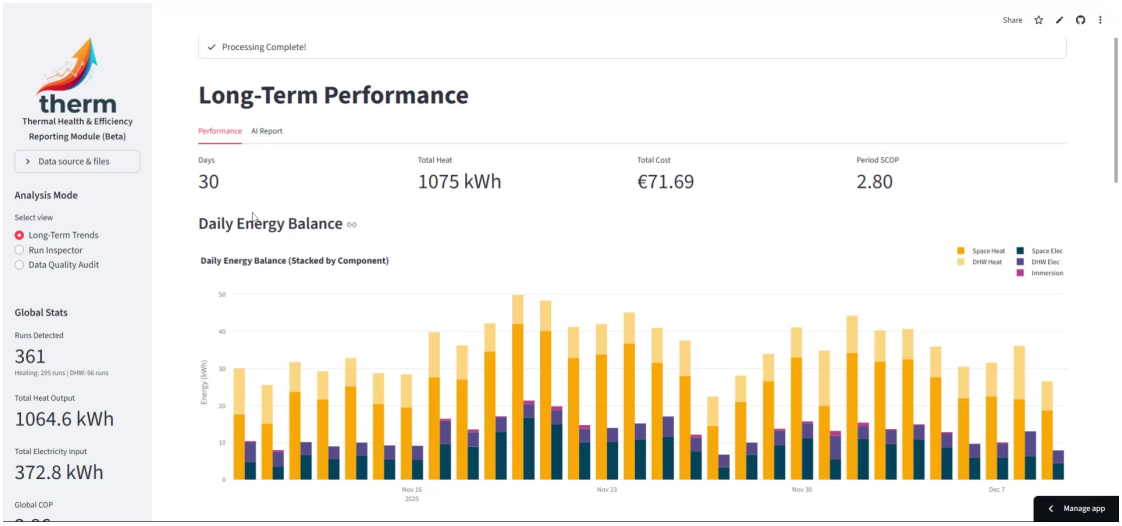

Figure 8 - Long-term performance summary

6. Long term AI context export

The AI report tab allows you to download a JSON bundle containing long term metrics and configuration. This can be passed to an AI assistant for higher level diagnostics.

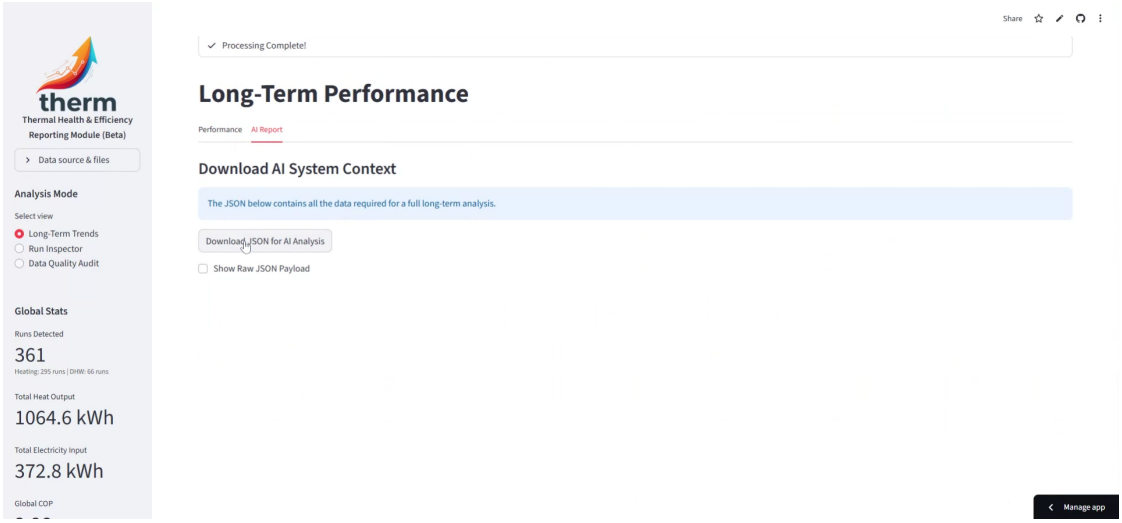

Figure 9 - Long-term AI context export

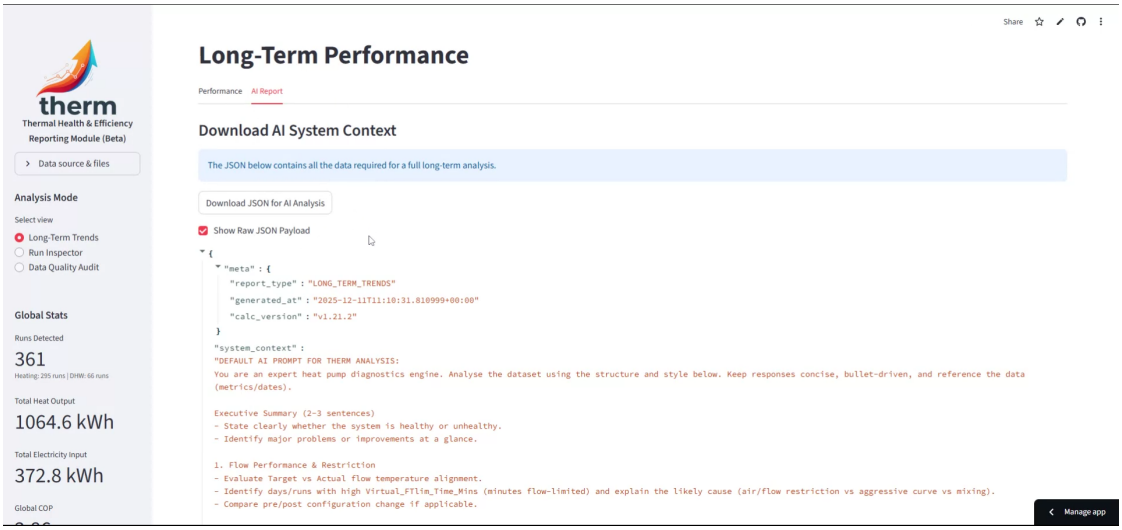

Figure 10 - Raw JSON payload

7. Run inspector

Run inspector focuses on individual heating or DHW runs. It exposes efficiency, hydraulics and room temperature response for each run and can export a per run AI bundle.

7.1 Efficiency view

Shows COP, average delta T, average flow and curves for power, heat and COP across the selected run.

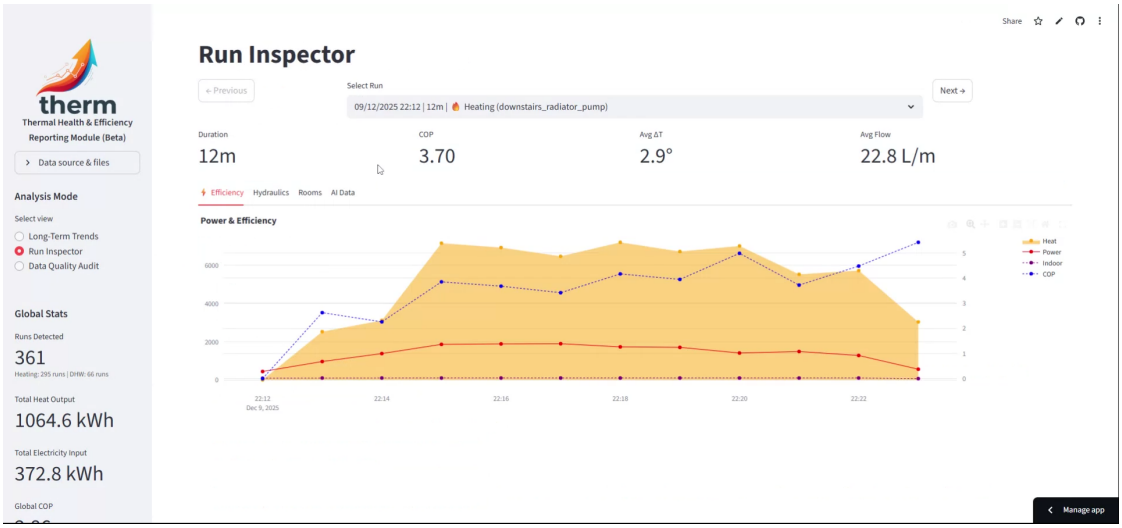

Figure 11 - Run inspector: Efficiency view

7.2 Hydraulics view

Plots delta T, flow rate and zone activity so you can see whether the system is flow limited or unstable.

Figure 12 - Run inspector: Hydraulics view

7.3 Room temperature response

Tracks room temperature sensors through the run, letting you compare how different rooms respond to the same cycle.

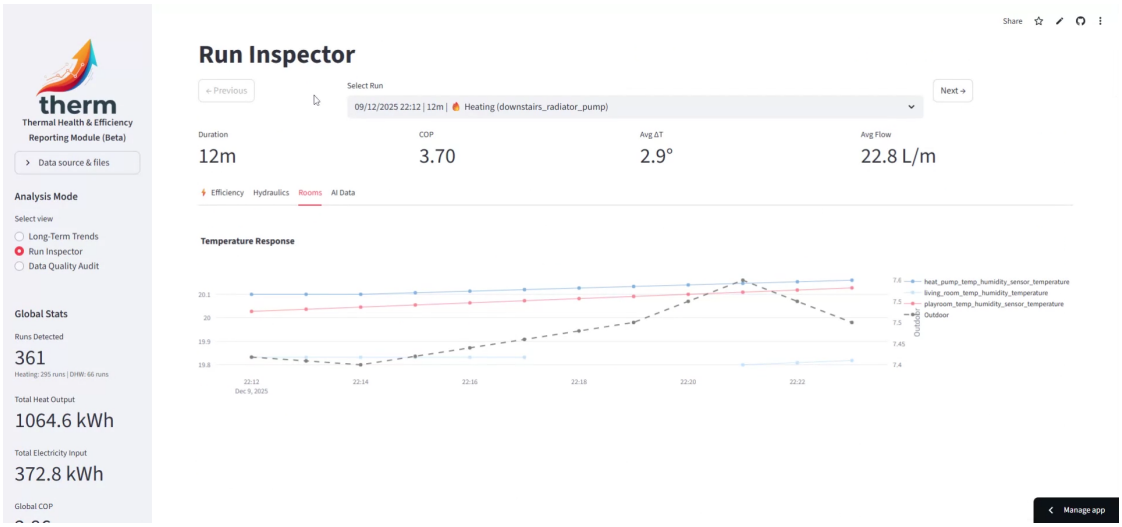

Figure 13 - Run inspector: Rooms response

7.4 AI data for a single run

Exposes a JSON structure for the current run, including timing, type, active zones and sampled metrics.

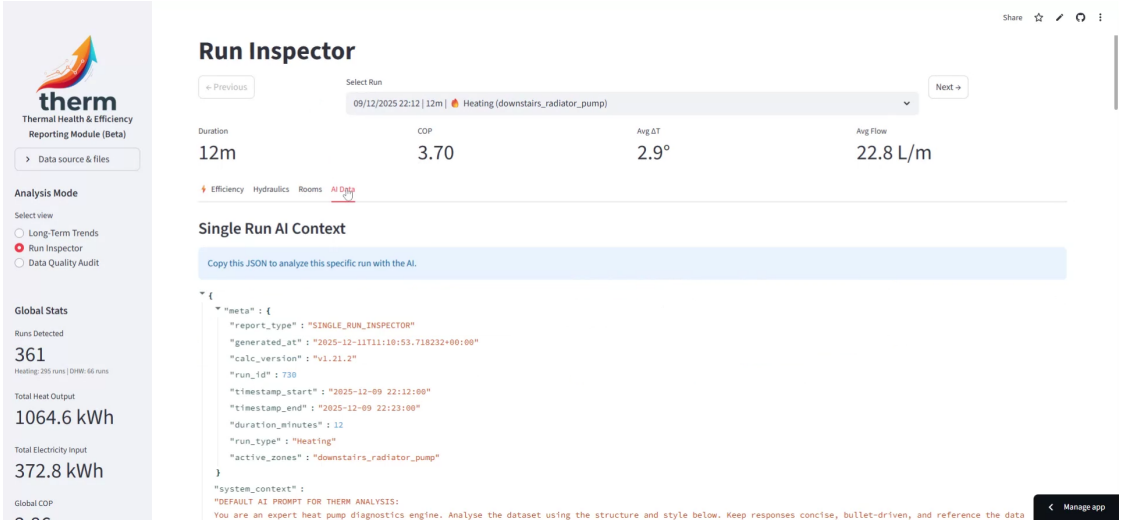

Figure 14 - Run inspector: AI data

7.5 Run navigation and heating during DHW

Use the run selector to move between runs. therm can highlight cases where heating zones appear to be active during DHW production. This heating during DHW reduces DHW efficiency and may point to valve or control issues.

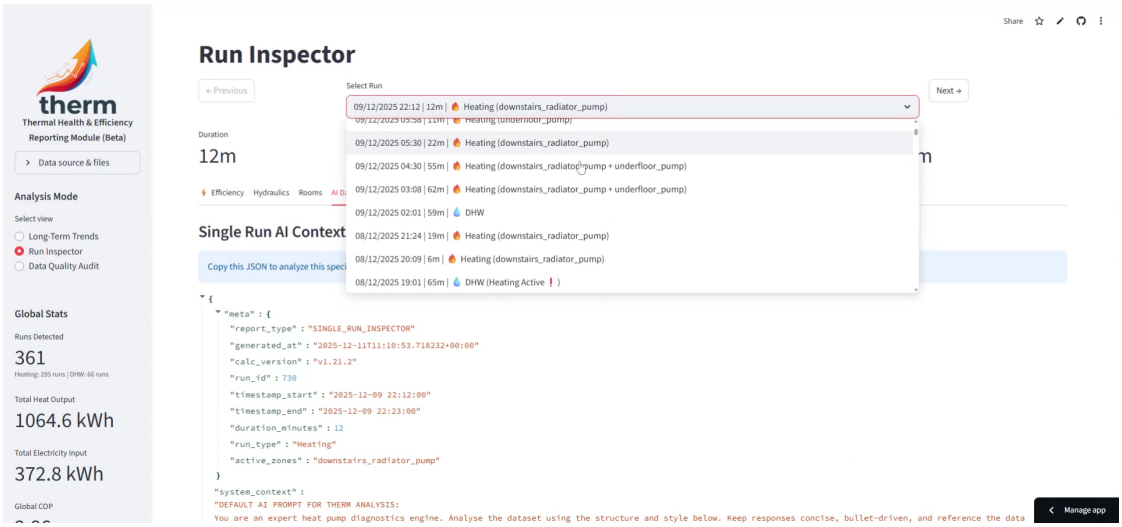

Figure 15 - Run selector dropdown

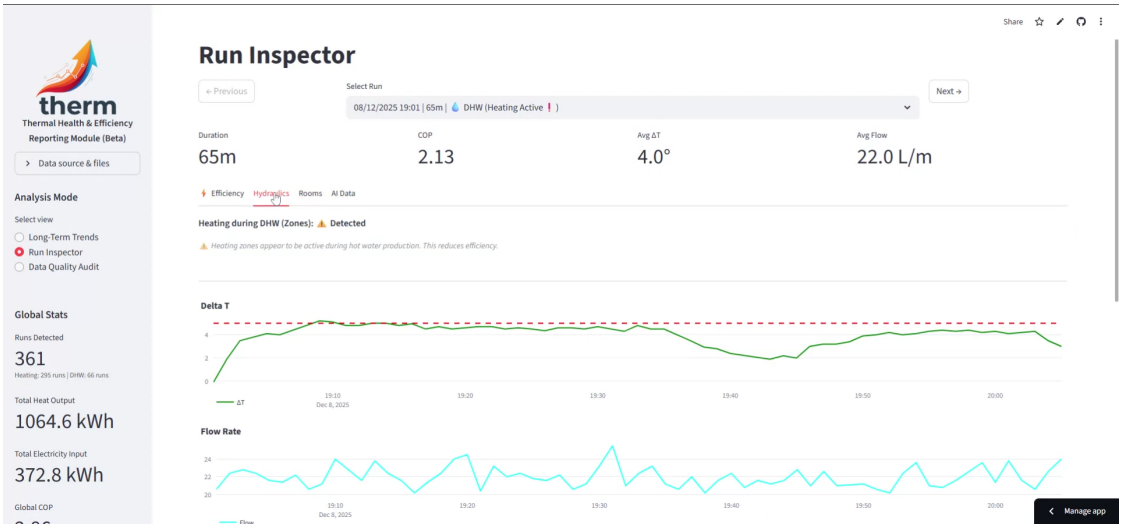

Figure 16 - DHW run with heating detected during DHW

8. Next steps

After exploring the sample dataset, repeat the process with your own exports. Create and save a profile for your system so that future analyses only require new CSV uploads and processing.