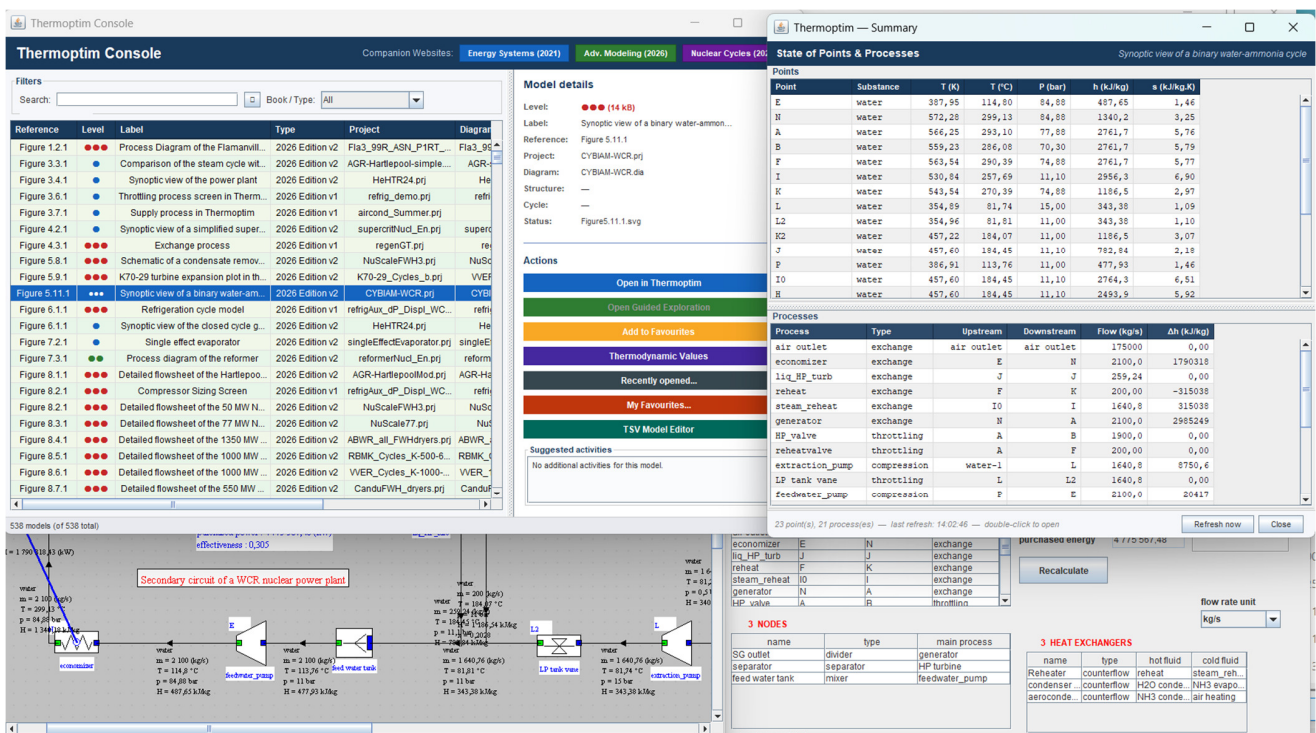


Thermoptim Console

User Guide



The Console (left) with the Points & Processes State panel (right) and the Thermoptim screens (below).

Introduction

The Thermoptim Console is a dashboard for users of the Thermoptim software suite. It provides organised access to series of models distributed with the guided explorations or the books: project files, diagram files, exergy structure files, cycle files.

The Console facilitates the management of existing models by presenting them in a table with sorting, filtering and search functions, together with an indication of their difficulty level. Once a model is

selected, a summary of its content is displayed, and a double-click directly opens its project and diagram files. Activity suggestions are made based on the associated files (structure, html, etc.).

The model list is provided in a plain text file that is easy to edit, allowing users to add their own models and remove those they do not need.

Installation of the Console is very straightforward: simply copy the contents of its archive into the Thermoptim installation directory. To avoid filename conflicts, prefixes can be used.

One typical use case for the Console is the complete set of files from the guided explorations, as an alternative to installing the Thermoptim browser. Using the Console, it is possible to open on your own machine all files referenced in the online version of the explorations, without any additional installation.

From the Console, you can:

- Browse many models grouped by Type (book editions, guided explorations, online courses, etc.)
- Filter by type, search by keyword
- Open any model directly in Thermoptim with a single click
- See the complexity level of each model at a glance
- Access the associated guided exploration in your browser, if one exists
- Mark favourite models for quick access
- View thermodynamic values of points and processes in real time
- Follow contextual activity suggestions based on the available files

Getting started

Prerequisites

- Thermoptim installed (demo or licensed version)
- Model files distributed with the Console, placed in the working directory with the standard folder structure
- File console/thoptModels.tsv present in the console/ subdirectory

Important: French-language project files can only be opened by a version of Thermoptim configured in French. The two versions (French and English) must be installed in separate directories.

Launching the Console

Use the executable jar or the provided script in the working directory:

```
ThermoptimConsole.jar  (double-click or java -jar)
run.bat                (Windows)
./run.sh               (Linux / macOS)
```

Configuration file (console/config-en.ini)

The file console/config-en.ini allows customising the Console without recompiling. It is read once at startup.

Key	Description	Default
ESNA_Label / BTN1_Label	Label of the first web button	Energy Systems (2021)
URL_ESNA / URL_BTN1	URL of the first web button	server.s4e2.com/crc/esna/...
AMTC_Label / BTN2_Label	Label of the second web button	Adv. Modeling (2026)
URL_AMTC / URL_BTN2	URL of the second web button	server.s4e2.com/crc/amtc/...
TCNPP_Label / BTN3_Label	Label of the third web button	Nuclear Cycles (2026)
URL_TCNPP / URL_BTN3	URL of the third web button	server.s4e2.com/crc/tcnpp/...
TSV_editor	Show the model editor button (true/false)	false

If config.ini is absent, all default values are used. Values may be quoted or unquoted.

Window layout

Zone	Contents
Title bar	Title «Thermoptim Console» + three configurable web buttons
Left panel	Filter bar + sortable model table
Right panel	Model details + action buttons + Suggested Activities

Filters and sorting

Control	How to use
Search field	Real-time text search on the Label column.
× button	Clears the search field.
Edition / Type	Dynamically populated from the TSV file. Only the types present in the loaded file appear.
Available only	Hides models without a .prj file.

Click any column header to sort (ascending → descending → original order). The Reference column reflects the reading order in the books. Sorting combines with active filters.

Row colours

Colour	Meaning
Gold	This model is one of your favourites
Light green	The model is available (has a .prj file)
White	No project file defined for this model

Complexity level

The Level column indicates the complexity of each model, estimated automatically from the size of its .prj file. Thresholds (tertiles) are computed from the full loaded corpus, so that roughly one third of models falls in each level.

Symbol	Colour	Meaning
•	Blue	Simple model — few components, basic cycle
••	Green	Intermediate — regeneration, heat exchangers
•••	Red	Complex — multi-fluid systems, exergy analysis

The detail panel shows the symbol together with the actual file size in kB, e.g. •• (14 kB).

Opening a model in ThermoOptim

1. Click a row to select it. Details appear in the right panel.
2. Click Open in ThermoOptim, or double-click the row.
3. On first use, ThermoOptim starts automatically. Subsequent clicks load the new model into the running instance.

Both the project file (.prj) and the diagram file (.dia) are loaded simultaneously.

Action buttons

Button	Function
Open in ThermoOptim	Launches ThermoOptim if needed, then loads the selected project and diagram.
Open Guided Exploration	Opens the guided exploration in the browser (active when the Remarks field contains a .html filename).
Open linked page	Opens a reference page specified in the message: field of the Remarks column (replaces the previous button when no guided exploration is defined but a URL is present).

Button	Function
Add / Remove Favourite	Toggles favourite status. The row turns gold; the button label updates.
Thermodynamic Values	Opens the floating Points & Processes State panel.
Recently opened...	Shows the last 10 opened models.
My Favourites...	Opens the Favourites dialog.
TSV Model Editor	Opens the model editor (visible only when TSV_editor = true in config-en.ini).

Guided explorations and linked pages

Guided explorations (GE) are step-by-step interactive tutorials hosted on the Thermoptim-UNIT portal. When a GE is associated with the selected model, the green button is active.

In the TSV format, the Reference column contains the exploration code (e.g. BESP-1), and the Remarks column contains the corresponding .html filename. When a Remarks field contains a message: entry with a URL, the same button becomes Open linked page and opens that URL.

Format in the Remarks column:

```
| message: some note text https://your-url-here.html
```

The three web buttons in the title bar give access to the Thermoptim websites. These can be customised via config-en.ini.

Suggested Activities panel

The Suggested Activities area at the bottom of the right panel shows contextual instructions based on the files available for the selected model. Up to four types of suggestion may appear:

Condition	Suggestion shown
Note in Remarks (message: ...)	Displays the note and, if present, the URL of the linked page.
Guided exploration available	Reminder to use the green button to open it in the browser.
Exergy structure file (.str) present	How to open it: Special menu in Thermoptim (last entry) → Exergy Structure window, then open the .str file.
Cycle file present	How to plot the cycle: open the appropriate interactive diagram (second entry of the Special menu: steam, ideal gas or psychrometric), then open the cycle file from the Cycle menu.

Points & Processes panel

Click 'Thermodynamic Values' to open a floating window. It updates automatically every 2 seconds after any recalculation in ThermoOptim.

Table	Columns
Points	Point Fluid T (K) T (°C) P (bar) h (kJ/kg) s (kJ/kg.K)
Processes	Process Type Upstream Downstream Flow (kg/s) Δh (kJ/kg). Flow rates are particularly useful as they are not directly visible in ThermoOptim.

Double-clicking any row opens the corresponding point or process screen directly in ThermoOptim.

Managing favourites

Action	How
Add	Select a row, click Add to Favourites
Remove	Dialog: select row, click × Remove or press Delete
Reorder	▲ Up / ▼ Down buttons in the dialog
Sort	Click any column header in the dialog
Open	Double-click or Open in ThermoOptim button in the dialog
Clear all	Click Clear all and confirm

Favourites are saved automatically to console/favorites.properties.

Recent history

The Recently opened... button shows the last 10 opened models, most recent first, with timestamp and label. Click an entry to reload the model. History is saved automatically to console/history.properties.

TSV Model Editor

When TSV_editor = true in config-en.ini, a teal button appears in the action panel. It opens a dialog showing all current TSV records in an editable table.

Carefully follow the required order and formats and do not forget to add the different files in ThermoOptim's usual directories, otherwise the Console will not be able to access them

Action	How
Add a row	Click Add row; a blank line appears at the bottom.
Delete a row	Select the row, click Delete row.

Action	How
Edit a cell	Double-click the cell and type. No field may contain the character ;.
Save	Click Save. A message confirms that changes take effect on next launch.
Discard	Click Close without saving.

The validation blocks saving if any cell contains a semicolon (;), which would corrupt the TSV format. The offending cell is highlighted automatically.

Tip for teachers: set TSV_editor = false before distributing the Console to students, to prevent unintended changes to the catalogue.

Adding your own models

You can also integrate your own files directly into the Console. To do so, create rows with Type "User" or any other type of your choice in console/thoptModels.tsv. Place the corresponding .prj and .dia files in proj/ and schema/ respectively. They will appear when selecting that type in the Edition / Type filter.

You can also add a custom message or linked URL in the Remarks column:

```
message: note text https://url-of-the-page.html
```

The message appears in the Suggested Activities panel. If a URL is present, the Open linked page button activates automatically.

Tips

- Start with the Guided Explorations filter to find structured learning material.
- Use the Reference column sort to follow the reading order in a book.
- Use keyword search: "steam", "absorption", "combined cycle", etc.
- Use the Level column to select models matching your skill level (● to start, ●●● for advanced work).
- Mark models for a teaching session as favourites before the session starts.
- Set TSV_editor = false before distributing the Console to students.
- After loading a model, open the Points & Processes panel to monitor values in real time.
- The Suggested Activities panel tells you exactly which Thermoptim menu entries to use — no need to memorize the menu structure.