

SARA ROBOTICS · CORE FIELD

User guide

Human guides, real sensor examples, and safe decisions for dashboards, charts, SQL Lab, alerts, and reports.

2026 edition · English
cores.sararobotics.org/core-field/

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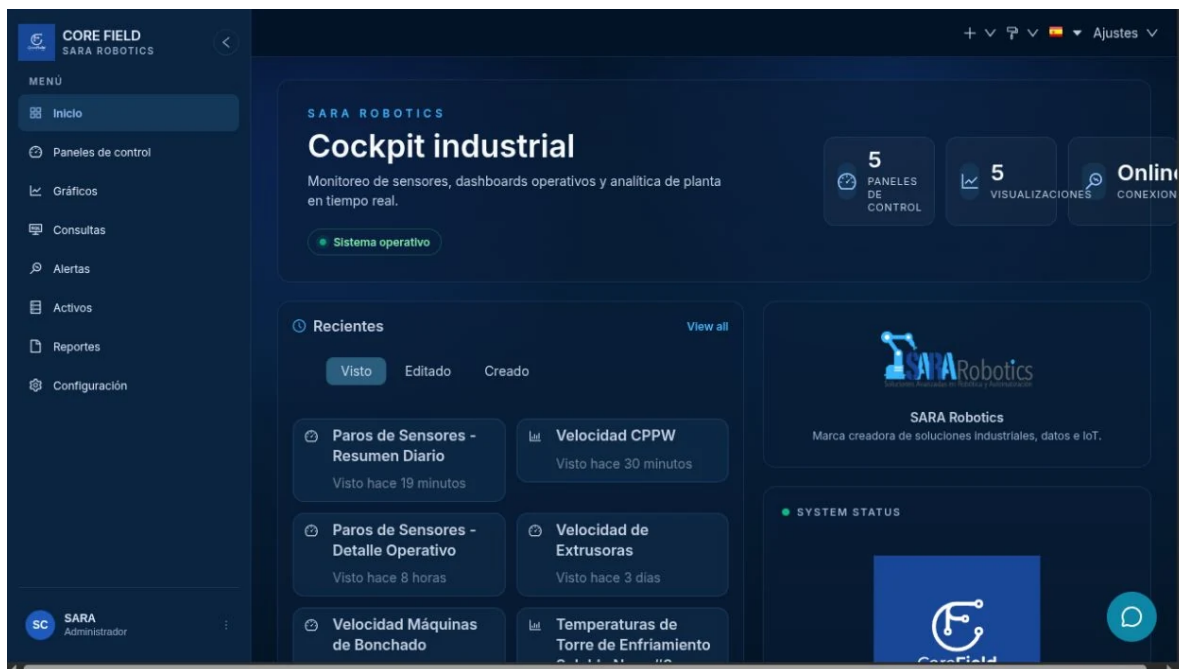
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Welcome to CORE FIELD

Learn to find dashboards, build sensor charts, share data, and automate notifications in CORE FIELD.



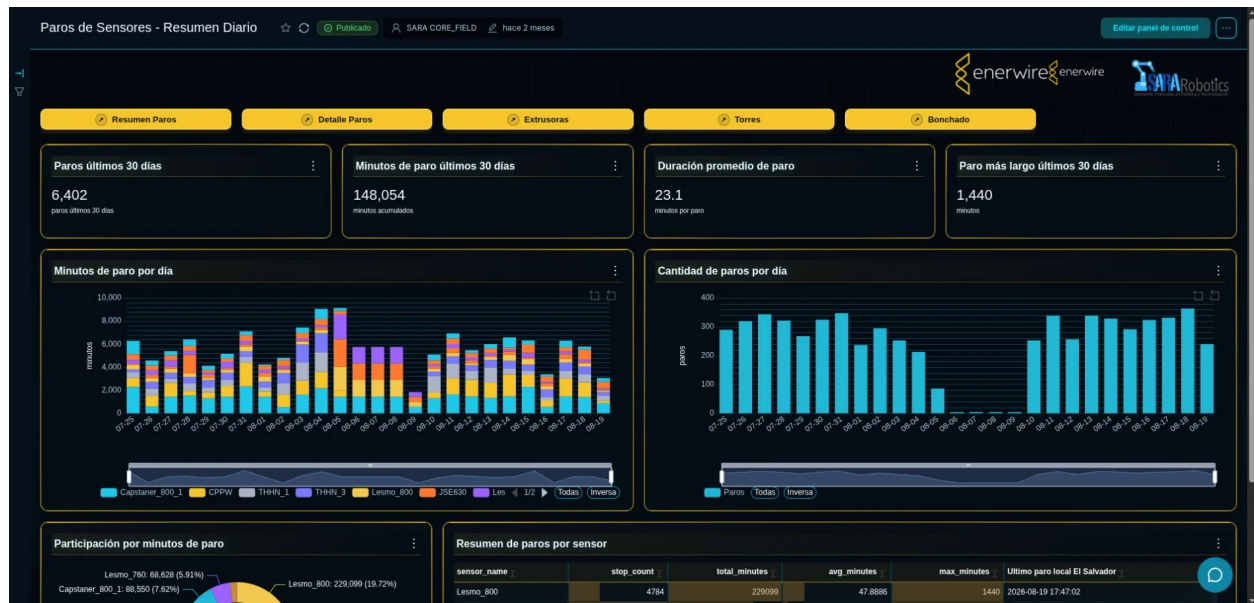
Home brings together the work modules, recent content, and chat access.

Choose a task

The rule that prevents the most mistakes

Do not interpret a chart while it is still loading

Before deciding, capturing, or exporting, check three signals: 1. Indicators already show numbers. 2. Bars, lines, or rows are drawn. 3. Loading or Waiting has disappeared.



Ready view: numbers, bars, and counts are visible, with no loading state left.

Expected result

You can open the right dashboard, recognize when its data finished loading, and choose the guide for your task.

Minimum vocabulary

- Dashboard: a screen that combines several charts.
- Chart: one visualization, such as a line, table, or big number.
- Data source or dataset: the information that feeds a chart.
- Metric: the value you want to measure, such as CPPW.
- Time grain: how readings are grouped, such as per minute.
- Range: the period to query, such as today or last week.

You do not need to memorize everything. Use search and type the action: export, share, CPPW, or alert.

Sign in and find your way

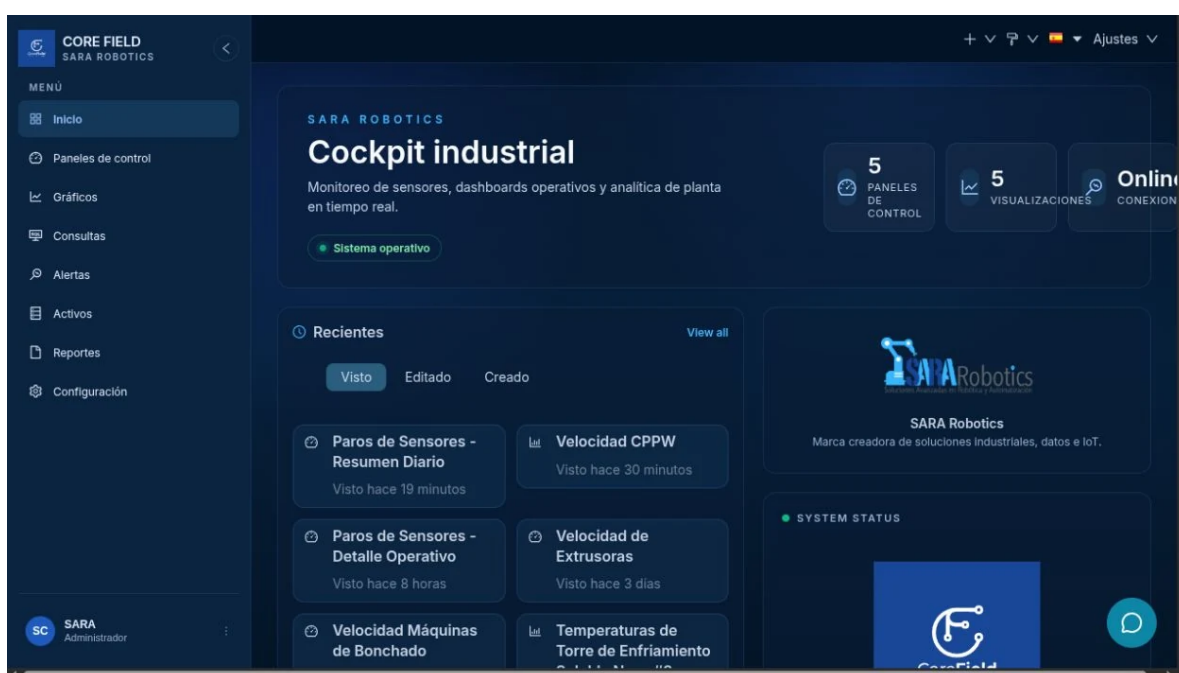
Learn the CORE FIELD home, side menu, and main work modules.

After signing in, you will see the Industrial Cockpit. From here, return to recent work or open any module your role allows.

Access address

Use corefield.sararobotics.org and the credentials provided by your administrator. These docs never store passwords.

Recognize the three areas



The menu is on the left, account and language are on top, and recent work fills the center.

1. Side menu. Open dashboards, charts, alerts, reports, sources, and settings.
2. Top bar. Shows your account, language, and general actions.
3. Workspace. Changes according to the module you open.

What each option does

Option	Use it to
Home	Return to the Industrial Cockpit and recent work.
Dashboards	View complete operational screens.
Charts	Open individual visualizations or create a new one.
Alerts	Notify when a query meets a condition.
Reports	Deliver a chart or dashboard on a schedule.
Assets	Review data sources, depending on your role.
Chat	Ask questions, download data, and prepare drafts.

Your menu may be shorter

CORE FIELD only shows options allowed for your role. If a function is missing, ask your administrator whether you should have access.

Sign out securely

1. Open your account menu in the top-right corner.
2. Select Sign out.
3. Always sign out on shared plant computers.

Expected result

You can return home, distinguish dashboards from charts, and find the right module without wandering through menus.

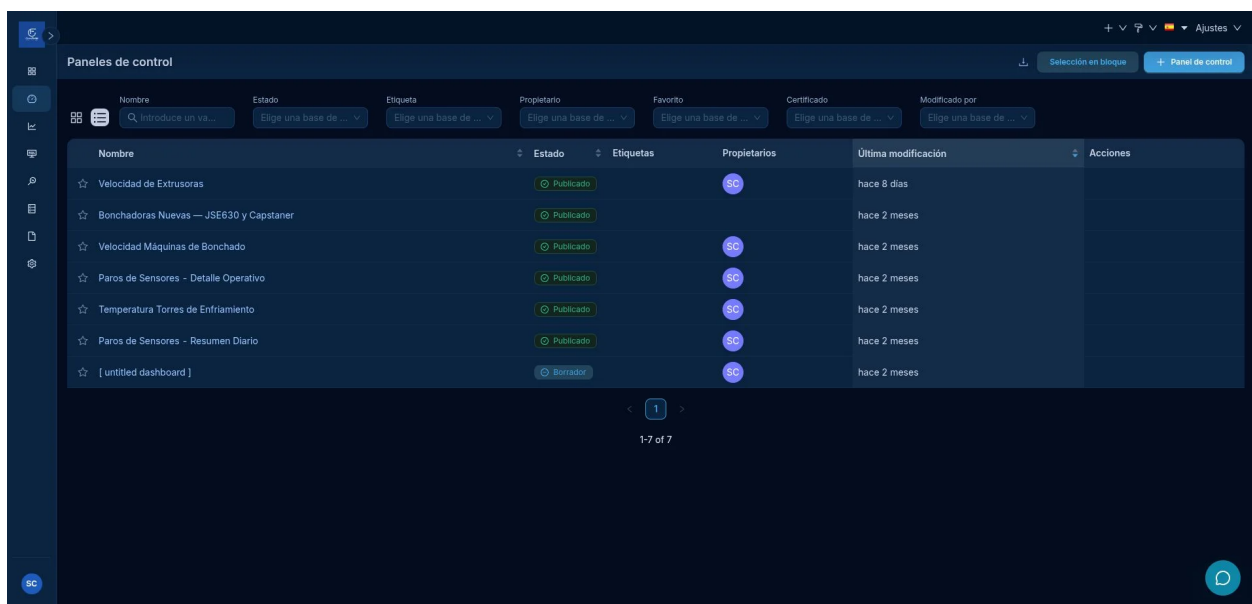
Find and read a dashboard

Open a published dashboard and confirm every chart finished loading.

Dashboards are the starting point for daily work. They combine indicators, trends, and detail tables for one operation.

1. Find the dashboard

1. Open Dashboards from the side menu.
2. Type part of the name in the Name filter.
3. Confirm the status is Published if the team uses it.
4. Click its name.



The list shows name, status, owner, and last modification.

Find it faster next time

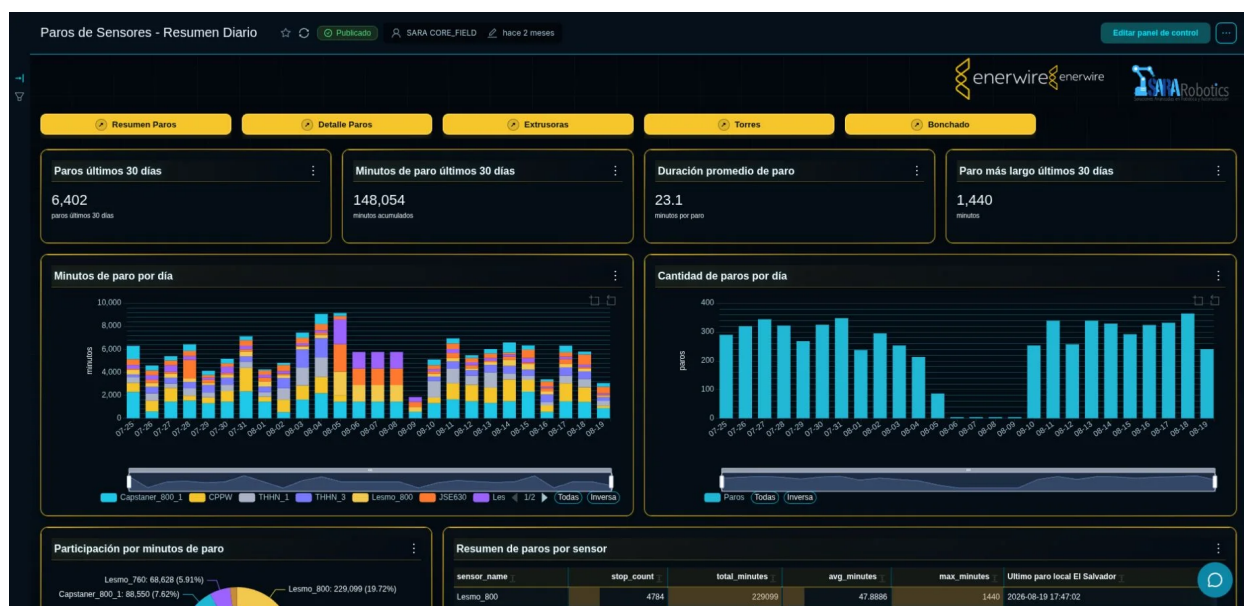
Star the dashboard. Favorites are easier to locate from Home.

2. Wait for the full load

A dashboard can appear before every query finishes. Do not read it yet.

Check for:

- indicators with values instead of dashes;
- lines, bars, or rows already drawn;
- no loading messages;
- a time period that matches your question.



Ready to read: values and distributions are visible.

3. Read from general to specific

1. Title and period. Confirm the operation and dates.
2. Indicators. Get the overall state.
3. Trends. Look for changes, spikes, or idle periods.
4. Details. Move to sensor tables or charts to explain a change.

Expected result

You opened the correct dashboard and can prove that every visualization is ready before interpreting it.

If something looks empty

- Wait a few more seconds.
- Click Refresh dashboard once.
- Review the date range and remove overly strict filters.
- If one chart fails for one person, check [the three access keys](#).

Filter, refresh, and export a dashboard

Use dashboard actions and choose the right download format.

Once the dashboard is loaded, change its period, refresh the data, or download the full view.

Apply filters without losing context

1. Open the filters panel.
2. Choose the time range and, when relevant, a machine or sensor.
3. Click Apply filters.
4. Wait again for every chart to load.
5. Check the active filter labels before sharing or capturing.

Every filter changes the question

A screenshot without visible period or filter context can be misread. Include that context when you send it.

Dashboard-wide menu

Open the three-dot menu in the top-right corner.

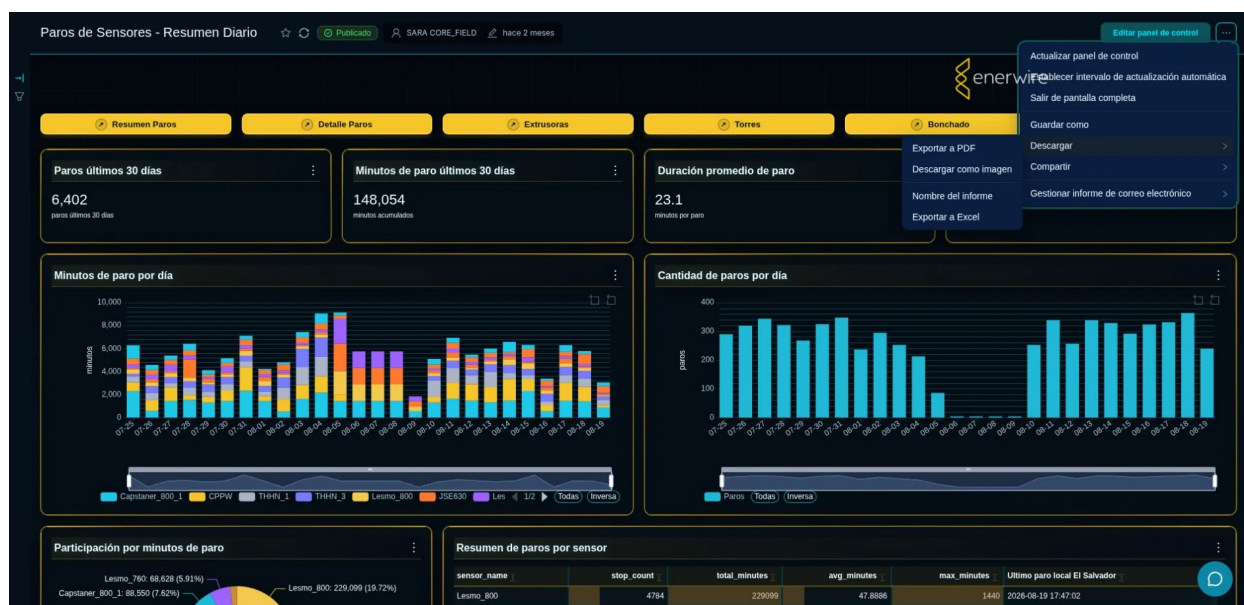


These actions affect the whole dashboard, not one chart.

- Refresh dashboard: query the latest data again.
- Full screen: hide menus for a presentation or plant display.
- Download: generate a file for the complete dashboard.
- Share: create a link; it does not grant permissions by itself.

Download the complete dashboard

1. Open : → Download.
2. Choose a format.
3. Wait for generation to finish before closing the tab.



Available formats depend on your role and CORE FIELD configuration.

Format	Choose it when
PDF	You want to preserve the view or attach it to a document.
Image	You need a presentation, message, or visual report.
Excel	You want chart data in separate worksheets.

Looking for CSV?

CSV belongs to an individual chart, not the complete dashboard. Follow [Export chart data](#).

Expected result

The file shows the same period and filters you validated on screen.

Investigate with filters, cross-filters, and detail

Use native filters, cross-filters, and detail actions without losing the dashboard context.

A dashboard is not a static picture. Its interactions help you move from “something changed” to “where and when did it change?”

Start with the visible filter

1. Open the filter bar.
2. Choose a period, machine, or sensor.
3. Check which charts are in the filter's scope.
4. Apply it and wait for the dashboard to finish loading.
5. Read the active labels before interpreting the result.



A filter changes the question; keep the period and context visible.

Three ways to investigate

Action	What it does	Example
Native filter	Changes several charts through a dashboard control.	Show only Extruder 3.
Cross-filter	Uses a point or bar in one chart to filter the others.	Select a day with many stops.
View detail / drill	Opens rows or changes the dimension to explain a value.	See which sensors make up the total.

Available actions depend on the chart type and its configuration. If a click does not show an option, it does not mean the data is damaged.

Keep your place

- Make one interaction at a time.
- Look at the labels or chips that remain active.
- Use Reset filters before changing the question.
- Show the filters in any screenshot you share.
- When sharing a link, check whether it preserves the state you need.

A filtered total is no longer the overall total

After choosing a machine, sensor, or period, the indicators answer only for that subset. Do not compare them with an unfiltered capture as though the two questions were the same.

Expected result

You can explain which interaction you applied, which charts it changed, and how to return to the complete dashboard.

Edit, organize, and publish a dashboard

Arrange charts, use tabs, save changes, and publish the dashboard for the right people.

This guide is for dashboard maintainers. Editing changes the experience for the whole team, so begin with a clear question and audience.

Before moving a chart

Define:

- who will use the dashboard;
- which decision it should make easier;
- which indicators need to be seen first;
- which detail can sit lower down or on another tab.

Organize the canvas

1. Open Edit dashboard.
2. Place general indicators at the top.
3. Group related trends and comparisons.
4. Use tabs for distinct journeys, not to hide clutter.
5. Adjust width and height without leaving empty rows.
6. Save and review outside edit mode.

Design for the report too

A report PNG captures the dashboard's real height. A compact layout is easier to read both on screen and in a scheduled delivery.

Add a chart

You can save it directly from Explore or drag it from the components panel while editing the dashboard.

Draft, published, and favorite

- Draft: editors and administrators use it while validating changes.
- Published: becomes available to people who also have access to its data sources.
- Favorite: the star makes it easier to find; it does not change permissions.

Data freshness

- Refresh queries again now.
- Auto-refresh repeats the load during your session; choose a reasonable interval.
- Last queried helps verify when the information was retrieved if the dashboard shows it.

Publishing does not replace permissions

A person may find the published dashboard and still be unable to load its charts. Check [the three access keys](#).

Expected result

The dashboard tells a story from top to bottom, avoids large empty spaces, is published only after validation, and loads for a target user account.

Understand data sources, columns, and metrics

Recognize which dataset to use, what each column represents, and when you need a metric.

Before you build a chart, CORE FIELD needs to know where the data comes from and what you want to measure. A source that looks similar is not enough: it must be the right source.

Real plant question

What do I need to analyze CPPW speed?

The shortest useful mental model

Concept	In plain language	Example
Database	The system where tables live.	Authorized industrial connection
Schema	A logical folder inside the database.	Authorized sensor area
Physical dataset	A table registered directly.	Sensor history
Virtual dataset	A saved SQL query that can be reused as a source.	Hourly THHN_1 variation
Column	A value available in each record.	timestamp , CPPW , THHN_1
Metric	A rule that summarizes values.	average CPPW

Physical or virtual

Use the physical dataset when its columns already answer your question. For example, [Sensor history](#) contains the original timestamps and sensor readings.

Use a virtual dataset when you need repeatable preparation: joining tables, reshaping data, or calculating a value such as [aporte](#) before charting it.

A saved query does not copy the plant

A virtual dataset stores the SQL logic. When a chart queries it, CORE FIELD reads the data allowed by the connection again.

Recognize a source before using it

1. Open Assets → Datasets if your role allows it.
2. Search for the exact name.
3. Check the database, schema, owner, and description.
4. Open the preview and confirm that its columns match your question.
5. Identify the time column before building a time series.

These guides use aliases

Public guides use human names such as Sensor history. Inside CORE FIELD, use the source name shown to your authorized account; do not copy internal database, schema, or table names into public documentation.

Columns and metrics are not the same

- A column answers “what value exists in each row?”
- A metric answers “how should these rows be summarized?”

For CPPW, you can use the column as input and calculate an average, minimum, maximum, or count. Those operations tell different stories, so choose the one that answers your question.

Do not guess the unit

The name `CPPW` alone does not tell you whether it represents speed, a percentage, or another unit. Check the description agreed on by the team before labeling axes or sharing conclusions.

Expected result

You can explain which source feeds the chart, which column represents time, and which calculation turns the rows into the value on screen.

If you need to prepare data with SQL, continue with [your first safe query](#).

Run a safe query in SQL Lab

Query CPPW by hour, validate the rows, and save or download the result without changing the database.

SQL Lab helps answer questions that require preparing data before you build a chart.

Real plant question

What was the average CPPW value in each of the last eight recorded hours?

Before you run it

- Confirm that you selected the connection and sensor area authorized for your role.
- Start with **SELECT**; do not use **UPDATE**, **DELETE**, or **DROP**.
- Limit the period and request only the columns you need.

In this public SQL, `<fuente_autorizada_de_sensores>` is a placeholder. Replace it inside CORE FIELD with the source authorized for your account; do not publish that identifier.

```
SELECT
  FROM_UNIXTIME(
    FLOOR(UNIX_TIMESTAMP(`timestamp`) / 3600) * 3600
  ) AS hora,
  AVG(`CPPW`) AS promedio_cppw,
  MIN(`CPPW`) AS minimo_cppw,
  MAX(`CPPW`) AS maximo_cppw,
  COUNT(*) AS lecturas
FROM `<fuente_autorizada_de_sensores>`
WHERE `timestamp` >= (
  SELECT DATE_SUB(MAX(`timestamp`), INTERVAL 8 HOUR)
  FROM `<fuente_autorizada_de_sensores>`
)
AND `CPPW` IS NOT NULL
GROUP BY hora
ORDER BY hora;
```

Run and read the result

1. Select Run.
2. Wait for the rows and execution time to appear.
3. Confirm that `hora` is sorted.
4. Check that minimum $\leq$ average $\leq$ maximum.
5. Use `lecturas` to spot hours with too few readings.

“Last eight hours” follows the data

The query ends at the latest `timestamp` in the table. This avoids an empty result while practicing with historical data.

Save, download, or convert

- Save query: keeps the SQL so you can run or review it later.
- Query history: helps recover a previous run and see whether it failed.
- Download CSV: exports the visible rows for work outside CORE FIELD.

- Save as dataset: turns the query into a virtual source for Explore.

A successful query can still answer the wrong question

Rows on screen only prove that the SQL ran. Before using the result, reread the question, period, column, and aggregation.

Expected result

The query returns one row per hour, with coherent values and without changing the original records.

To reuse the result in several charts, continue with [Create and maintain a virtual dataset](#).

Create and maintain a virtual dataset

Save a SQL Lab query as a reusable source and avoid breaking the charts that depend on it.

A virtual dataset turns a useful query into a source that other people can find and reuse without copying SQL into every chart.

When it is worth creating one

Create one when the same preparation will support several visualizations, for example:

- hourly CPPW averages;
- THHN_1 changes for a waterfall;
- a join between downtime events and machine names;
- clearer names or units for the team.

Do not create one for a disposable test. Validate the query in SQL Lab first.

Save it from SQL Lab

1. Run the query and verify the rows.
2. Choose Save → Save as dataset.
3. Select the database and schema where it will be registered.
4. Use a name that explains the transformation, such as `cppw_resumen_horario`.
5. Open the dataset in Explore.

For the waterfall example, we use `Hourly THHN_1 variation`:



The virtual dataset provides hora and aporte; Explore turns them into the waterfall.

Prepare it for the team

Review these properties:

Property	What to check
Description	Which question it answers and where the data comes from.
Owner	Who is responsible for future changes.
Time column	That <code>hora</code> or <code>timestamp</code> is recognized as date/time.
Filterable columns	Only the columns people should actually use as filters.
Metrics	Names and aggregations that do not encourage double counting.

Change it without breaking content

A chart stores references to columns and metrics. If you rename or remove one, dependent visualizations may become empty.

1. Identify the charts that use the dataset.
2. Test the change on a copy when possible.
3. Keep existing names or coordinate the migration.
4. Update one chart and validate its numbers.
5. Test with an account that has the team's normal permissions.

Do not paste secrets into SQL

Passwords, tokens, and credentials belong in the managed connection, never in query text or the dataset description.

Expected result

Another person can find the dataset, understand what it is for, and build a chart without rewriting the SQL preparation.

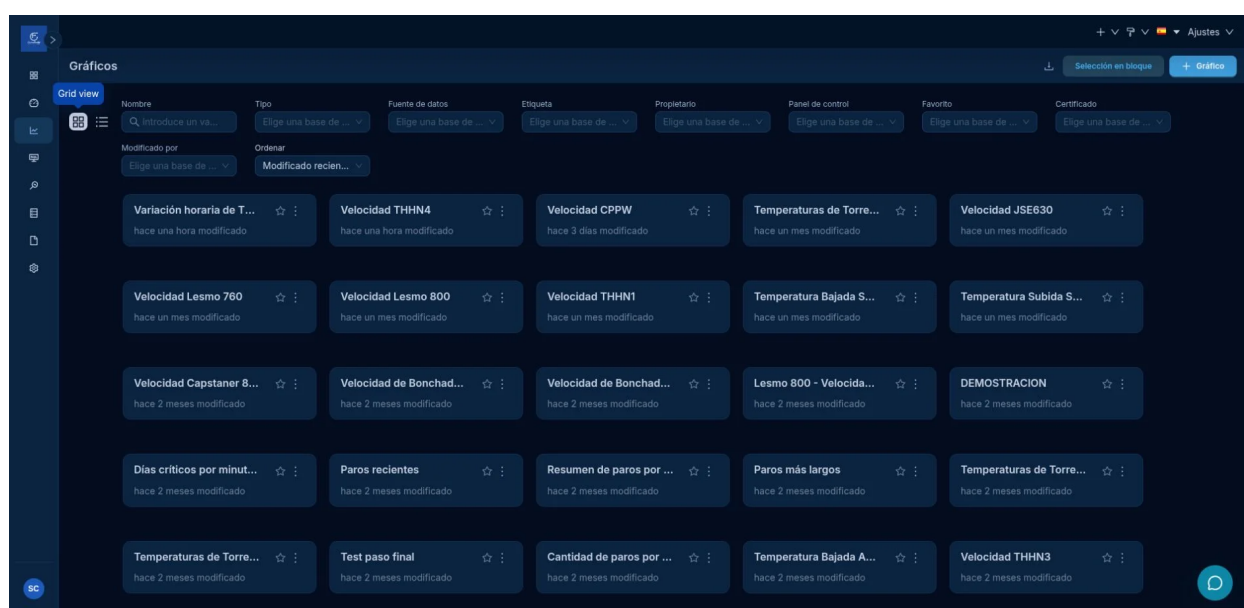
Find, open, and reuse a chart

Locate an existing chart, understand where its data comes from, and decide whether to edit it or save a copy.

Before building something from scratch, check whether someone has already answered a similar question. Often, you only need to open a chart, change the time range, or use it as a starting point.

Open the chart catalog

1. Select Charts in the side menu.
2. Search by sensor, machine, or question. For example: [THHN_1](#), [CPPW](#), or [stops](#).
3. If you see too many results, filter by Type, Data source, or Dashboard.
4. Use card view to scan names and dates without filling the screen with technical detail.



With the menu collapsed and card view enabled, more examples fit while names remain readable.

Choose the view for the task

Card view is best for navigation: it shows the name, last change, favorite, and actions. List view adds administrative detail for authorized users.

When you use the list, each column answers a useful question:

Column	What it tells you
Name	The question or measurement represented by the chart.
Type	How data is displayed: line, waterfall, gauge, table, and so on.
Data source	The dataset feeding the visualization.
Dashboards	Where users can currently see the chart.
Last modified	How recently its configuration changed.

Search with everyday words

You do not need to remember the full technical name. Start with a recognizable term such as [speed](#), [temperature](#), or the sensor identifier.

Open it without changing it

Click the chart name. CORE FIELD opens Explore with its data source, columns, metric, filters, and result.

If you only need to inspect it:

- change the time range if needed;
- click Update chart;
- review the result;
- avoid clicking Save.

Edit the chart or create another one?

Edit the existing chart when you are correcting the same question and know which dashboards depend on it.

Save a copy when you will change the sensor, metric, chart type, or purpose. Give it a name that explains the new question—not just “copy.”

A chart can appear on several dashboards

Before saving changes, switch temporarily to list view and check Dashboards. A change that helps you could also change what other people see.

Quick THHN_1 example

Search for [THHN_1](#) and open Hourly THHN_1 variation – last 24 hours. It is a waterfall chart that explains how much the sensor rose or fell each hour.

To rebuild it and understand every decision, follow [the complete THHN_1 waterfall example](#).

You can also review [the documented speed and temperature replicas](#), created as independent copies so the team's live dashboards remain unchanged.

Real sensor chart replicas

See how to build a current speed gauge, an extruder trend, and a temperature comparison without changing production charts.

These recipes start from charts the team already uses. We created independent copies so readers can inspect their settings, capture a clean result, and practice without changing an operational dashboard.

Find the copies

Open Charts and search for [Ejemplo documentación](#). None of the three copies belongs to a dashboard.

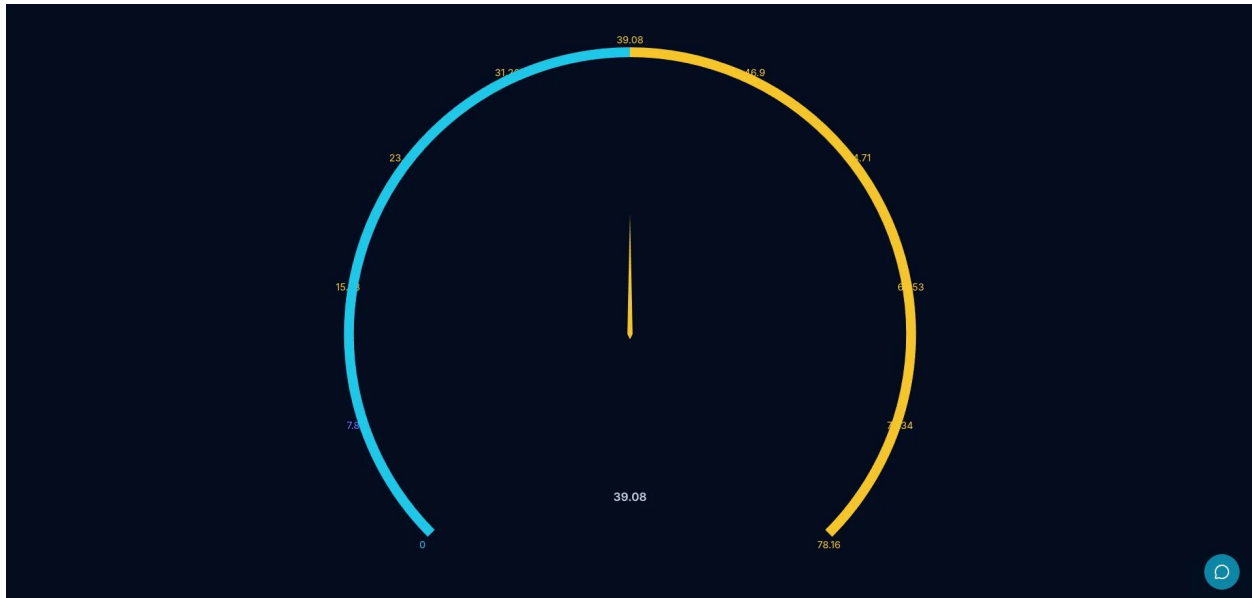
First: copy without touching the original

1. Open Charts and locate the visualization you want to study.
2. Open its name and wait for the query to finish.
3. Click Save.
4. Select Save as....
5. Enter a name beginning with [Ejemplo documentación](#) —.
6. Leave Add to dashboard empty.
7. Save and confirm the header says the chart is not on a dashboard.

From that point, every change belongs to the copy.

Recipe 1: current CPPW speed

This gauge answers: what is CPPW's speed in the latest reading?



The gauge focuses on one reading. Navigation and source details stay outside the capture so the value remains primary.

Data settings

Control	Value
Visualization	Gauge chart
Metric	Current value
Filter	sensor = CPPW
Row limit	10

Appearance

- start angle 225 and end angle -45;
- CORE FIELD Enerwire color scheme;
- pointer, animation, and progress enabled;
- interval limits 0, 10, 250, 300.

A gauge is useful for a current reading. Do not use it to explain how the value got there; use a time series for that question.

Recipe 2: Lesmo 800 speed trend

This line answers: did Lesmo 800 speed remain stable during the period?



The line stays close to 625 m/min and makes small variations visible without navigation competing for space.

Data settings

Control	Value
Visualization	Line chart
X axis	timestamp
Metric	AVG(Lesmo_800)
Visible range	Previous quarter
Series / row limit	500 / 500

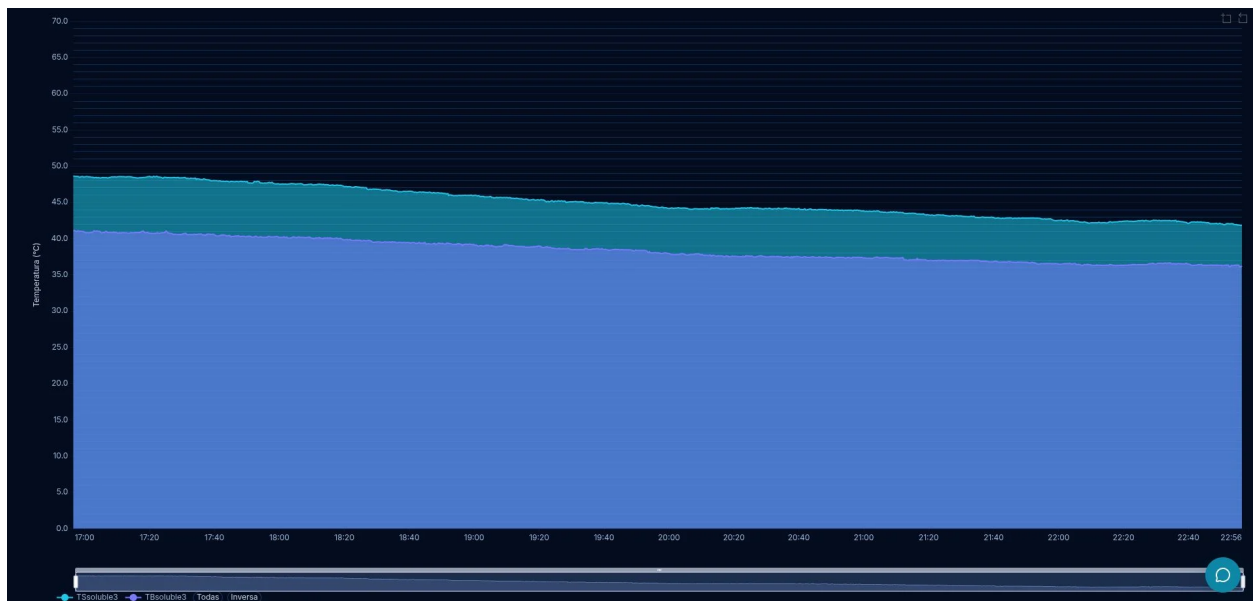
Appearance

- X axis: Time;
- Y axis: Speed (m/min);
- legend at the top;
- rich tooltip enabled;
- linear axis, no stacking, and no area fill.

For hourly changes, add a time grain. For small variations, keep more points and shorten the range.

Recipe 3: Soluble Building 3 temperatures

This comparison answers: how did the upward and downward temperatures behave together over the last six recorded hours?



Two transparent areas compare both temperatures and reveal their gradual decline.

Data settings

Control	Value
Visualization	Line chart with area fill
X axis	timestamp
Metrics	TBsoluble3 and TSsoluble3
Filter	Last 6 recorded hours
Row limit	50000

Appearance

- Y axis: Temperature (°C);
- CORE FIELD Enerwire color scheme;
- area, zoom, and bottom legend enabled;
- time shown as HH:mm;
- temperature shown with one decimal place;
- 30-minute visual interval on the time axis.

Area fill helps compare separation and shared movement. If the series overlap too much, reduce opacity or return to lines without fill.

Adapt a recipe to another machine

1. Save a copy of the closest recipe.
2. Change one thing at a time: sensor, metric, or period.
3. Update and check row count, unit, and range.
4. Rename the chart so it states machine, measure, and period.
5. Compare it with the original before adding it to a dashboard.

Columns are documentable; infrastructure is not

Sensor identifiers such as CPPW, Lesmo_800, TBsoluble3, and TSsoluble3 may appear in guides. Internal connection, database, schema, table, and dataset names are intentionally omitted.

Expected result

You can open a copy, explain every control, and adapt the recipe to another sensor without changing visualizations already used by the team.

Choose the right chart

Choose a line, bars, big number, or table based on the question you want to answer.

A useful chart starts with a question, not a visualization type.

Decide in less than a minute

If your question is...	Start with...	Plant example
How did it change over time?	Line chart	CPPW speed during the day
How much did it rise or fall at each step, and where did it end?	Waterfall	Hourly THHN_1 variation
Which sensor or machine has more?	Bar chart	Stop minutes by machine
What is the current value or total?	Big number	Operating minutes today
What happened in each record?	Table	Start, end, and duration of each stop

Start simple

First verify that the query answers your question. Colors and visual details come later.

Open the selector

1. Open Charts.
2. Click + Chart.
3. Select the data source.
4. Select the chart type.

Use a line for sensor measurements

When a measurement changes continuously—speed, temperature, pressure—a line makes its path and sudden changes easy to see.

Real plant question

How did CPPW speed change throughout the day?

Ready? Follow [the full CPPW example](#).

To explain increases and decreases through a final total, follow [the THHN_1 waterfall example](#).

Build a CPPW speed line

Build a line chart with Sensor history, timestamp, one-minute time grain, and the CPPW metric.

In this path, you will build a real visualization: CPPW speed throughout the day.

Real plant question

How did CPPW speed change throughout the day?

Before you begin

You need permission to:

- view [Sensor history](#);
- create charts;
- save content, if you want to keep the result.

If the source is missing, do not choose a similar name. Ask for access to the correct source.

1. Choose the source and line chart

1. Open Charts.
2. Click + Chart.
3. Search for [Sensor history](#) under Data source.
4. Select Line chart.
5. Click Create new chart.

2. Recognize Explore

Explore has three areas:

1. Source, on the left: available columns and metrics.
2. Configuration, in the center: time, metric, filters, and appearance.
3. Preview, on the right: the query result.

The preview does not change after every edit. Click Create chart or Update chart.

3. Complete the four controls

Control	Value in this example	What it does
X axis / Time column	timestamp	Places each reading in time.
Time grain	Minute	Groups readings so the curve stays readable.
Metric	CPPW	Selects the sensor value to measure.
Time range	Today	Limits the query to the current day.

Do not confuse time grain with range

Time grain groups points—by minute or hour. Range decides the period—today or last week.

4. Run and wait

1. Confirm no required field has a red mark.
2. Click Create chart.
3. Wait for the button to change to Update chart.
4. Do not save while the screen says Loading.

5. Validate the result

CPPW · speed by minute

Safe preview of the expected result: a readable time series without internal infrastructure names.

Check three things:

- Processed rows exist. The count confirms the query returned data.
- The line is visible. No empty area or loading state remains.
- The axis is correct. Hours match the range you selected.

Expected result

CPPW appears as a continuous or segmented line, the row count is visible, and the horizontal axis matches today.

If the curve has too many points

- Change the time grain from Minute to Hour.
- Or reduce the time range.
- Update again and compare readability, not only speed.

Next, [save the chart and add it to a dashboard](#).

Build an hourly THHN_1 waterfall

Turn THHN_1 readings into hourly changes and display the journey from the starting value to the final value.

This example answers a concrete plant-floor question:

Real plant question

How did the THHN_1 sensor rise or fall hour by hour, from its starting value to its final value?

A waterfall is useful when you want more than the sensor level. It explains the journey: where the value rose, where it fell, and where it ended.

What we will build

The original table stores one column per sensor. We will first use SQL Lab to produce four chart-friendly columns:

Column	Meaning
hora	Start of each hourly block.
sensor	Readable sensor name: THHN_1.
valor	Average THHN_1 reading during that hour.
aporte	Change from the previous hour. The first row uses the starting value.

Because of that final rule, adding all contributions takes the waterfall from the starting value to the final value.

1. Prepare the changes in SQL Lab

1. Open SQL Lab.
2. Select the sensor connection and area authorized for your role.
3. Paste and run this query:

The public example uses `<fuente_autorizada_de_sensores>` to protect the internal identifier. Replace it in CORE FIELD with the source authorized for your role.

```
SELECT
  actual.hora,
  'THHN_1' AS sensor,
  actual.valor,
  CASE
    WHEN anterior.valor IS NULL THEN actual.valor
    ELSE actual.valor - anterior.valor
  END AS aporte
FROM (
  SELECT
    FROM_UNIXTIME(
      FLOOR(UNIX_TIMESTAMP(`timestamp`) / 3600) * 3600
    ) AS hora,
    AVG(`THHN_1`) AS valor
  FROM `<fuente_autorizada_de_sensores>`
```

```

WHERE `timestamp` >= (
  SELECT DATE_SUB(MAX(`timestamp`), INTERVAL 24 HOUR)
  FROM `<fuente_autorizada_de_sensores>`
)
AND `THHN_1` IS NOT NULL
GROUP BY hora
) AS actual
LEFT JOIN (
  SELECT
    FROM_UNIXTIME(
      FLOOR(UNIX_TIMESTAMP(`timestamp`) / 3600) * 3600
    ) AS hora,
    AVG(`THHN_1`) AS valor
  FROM `<fuente_autorizada_de_sensores>`
  WHERE `timestamp` >= (
    SELECT DATE_SUB(MAX(`timestamp`), INTERVAL 24 HOUR)
    FROM `<fuente_autorizada_de_sensores>`
  )
  AND `THHN_1` IS NOT NULL
  GROUP BY hora
) AS anterior
ON anterior.hora = DATE_SUB(actual.hora, INTERVAL 1 HOUR)
ORDER BY actual.hora;

```

The 24 hours follow the data

The period ends at the table's latest `timestamp`, not necessarily at the current clock time. This also makes the example work with historical data.

2. Check the result before charting

Do not continue until you confirm that:

- there is one row for every expected hour;
- `hora` is in ascending order;
- `valor` and `aporte` contain numbers;
- the first row uses its own `valor` as `aporte`;
- later rows calculate `current value - previous value`.

Watch for gaps

This query compares exact consecutive hours. If an hour is missing, the following row behaves as a new starting point. Check continuity before interpreting the waterfall.

3. Save the virtual source

From the SQL Lab results, save the query as a virtual dataset. A clear name for this example is:

Hourly THHN_1 variation

This keeps the SQL preparation in one place and lets the Explore screen focus on the visualization.

4. Configure the waterfall

Open the saved dataset and choose Waterfall chart. Set:

Control	Value
X axis	hora
Time grain	Hour
Metric	SUM(aporte)
Row limit	1000

Select Update chart and wait until both the bars and row count appear.



Finished example: each bar explains one hour's change, while the last bar summarizes the final value.

5. Read the result in plain language

- Green: THHN_1 increased from the previous hour.
- Red: THHN_1 decreased.
- Bar height: size of the change, not that hour's absolute reading.
- Final gray bar: the value reached after accumulating every change.

The screenshot shows a sequence of increases and decreases, with especially large moves during the afternoon section. Hover over a bar for an exact hourly figure; do not estimate it from height alone.

Color does not judge the process

Green means “rose” and red means “fell.” You still need THHN_1's operating limits to decide whether a change was good, bad, or expected.

Expected result

You can tell THHN_1's complete story: the starting point, every hourly change, and the final value, without confusing changes with absolute readings.

After validating the result, continue to [save the chart and add it to a dashboard](#).

Save a chart and add it to a dashboard

Name, save, and add a chart to the right dashboard so your team can find it.

Saving does more than preserve a query: it defines how your team will find the chart.

Use a name that explains the content

A simple formula:

Example

Machine · measure · period or purpose

Clear examples:

- CPPW · Speed per minute
- Extruder 3 · Temperature today
- THHN_3 · Stop minutes per day

Avoid `Test`, `New chart`, or `CPPW 2`.

Save

1. Click Save.
2. Enter a clear, unique name.
3. Choose a target dashboard when needed.
4. Review who will be the owner.
5. Click Save or Save and go to dashboard.

Add it to a dashboard later

1. Open the target dashboard.
2. Enter Edit dashboard.
3. Find the chart in the components panel.
4. Drag it onto the canvas.
5. Resize it without leaving large empty spaces.
6. Save the dashboard.

Think about reports before leaving empty space

A PNG report captures the dashboard's actual height. Empty rows can make the file unnecessarily long.

Expected result

The chart has a name someone else understands, appears on the correct dashboard, and retains an owner responsible for it.

Before sharing, review [the three-key model](#).

Export chart data

Download CSV, Excel, JSON, or an image from an individual chart.

When you need to continue analysis in a spreadsheet, export from the individual chart.

Full dashboard or individual chart

From...	Common formats
Full dashboard	PDF, image, Excel
Individual chart	CSV, Excel, JSON, JPEG

Export

1. Open the chart from its title or from Charts.
2. Wait for the row count and final drawing.
3. Open  → Download.
4. Choose CSV, Excel, JSON, or JPEG.
5. Open the file and review headers, period, and row count.

The file preserves the current context

Filters and time range affect what you export. Record them if someone else must reproduce the result.

Choose a format

- CSV: simple data compatible with almost any tool.
- Excel: ready to work in a spreadsheet.
- JSON: system interchange or technical analysis.
- JPEG: only the image, without tabular data.

Expected result

The file includes `timestamp`, the expected metric—such as `CPPW`—and the same period you validated on screen.

Share correctly with three keys

Avoid empty dashboards by checking the link, user role, and data-source access.

Copying a link only says where the content lives. It does not grant permission.

To share without empty charts, check three keys.

1. Link

The link takes the person to the correct dashboard or chart.

1. Open the content and wait for it to load.
2. Use Share → Copy permanent link.
3. Send it only after checking the other two keys.

2. Role or user

This authorizes the person to open the content.

- A role groups permissions for several people.
- A person needs at least one allowed role.
- Owner means they can edit; do not use ownership just to grant viewing.

3. Data source

This allows charts to query information.

Even when a dashboard opens, every chart needs access to its source. For the sensor example, the role needs the exact [Sensor history](#) permission.

Avoid the global permission

Do not use all datasource access as a quick fix. It grants more information than necessary. Prefer each specific source.

Test as the recipient

1. Send the link.
2. Ask them to open it with their own account, not yours.
3. Confirm they see loaded numbers and visualizations.
4. If one chart fails, identify its source.

Expected result

The person opens the link with their account, sees the dashboard, and every chart queries data without “access denied.”

Configure roles and data sources

Administrator guide to owners, roles, and datasource access permissions.

This guide is for permission administrators. Apply the principle of least required access.

Owner does not mean reader

An owner can modify content. To grant read access:

- use an existing role when it already represents the group;
- create a limited role when access must be exclusive;
- do not make someone an owner just so they can view.

Add the exact source to the role

1. Open Security → List roles.
2. Edit the role receiving access.
3. Search for [datasource access](#) under Permissions.
4. Choose sources used by the dashboard, for example:
5. [Sensor history](#)
6. [Sensor stop events](#)
7. [Daily stops by sensor](#)
8. Save.
9. Ask the person to sign out and in if the change does not appear.

Diagnose from the bottom up

If a chart fails, identify its source first. Then confirm the role permission and finally dashboard access. This avoids random permission changes.

Zero, one, or several roles

- Zero explicit roles: normal security rules apply, and data sources still need permission.
- One role: access is limited to that group.
- Several roles: membership in any one is enough; they work like an “OR” condition.

Checklist

- [] The content has a real owner.
- [] The recipient belongs to an allowed role.
- [] The role has [datasource access](#) for every source.
- [] [all datasource access](#) was not granted without a documented reason.
- [] The test used the recipient's account.

Alerts and reports

Learn when to create a condition-based alert and when to schedule a report.

An alert reacts to a condition. A report delivers content on a schedule.

Need	Use
"Tell me when CPPW starts a stop"	Alert
"Send the dashboard every Monday at 8:00 AM"	Report

Example: alert when CPPW starts a stop

The condition should detect a transition, not repeat the same state every minute:

1. The previous window shows CPPW was running.
2. The last five minutes show it remains stopped.
3. The query returns **1** only when the stop begins.
4. The alert sends when the result equals **1**.

Test with a small audience

Start with one test address. Review execution history and confirm it does not repeat before adding real recipients.

Example: weekly visual report

1. Open Reports and click + Report.
2. Choose Dashboard.
3. Select Sensor Stops - Daily Summary.
4. Format: Send as PNG.
5. Schedule Monday, 8:00 AM.
6. Time zone: America/El_Salvador.

Content: complete dashboard as PNG.

Schedule: Monday 8:00 AM, El Salvador.

If the PNG is too long

The automated browser captures the dashboard's actual height.

1. Edit the dashboard.
2. Move charts upward.
3. Reduce empty rows or space.
4. Save.
5. Test the report again.

Changing width improves horizontal fit, but does not remove empty height by itself.

Expected result

The alert sends once when the event begins; the report arrives on schedule in the right time zone with a readable dashboard.

Ask and download with CORE FIELD Chat

Use plain language to query sensors, download CSV, and prepare alert or report drafts.

CORE FIELD Chat helps you query data and prepare actions without leaving the screen. You are still responsible for reviewing the result.

Ask concrete questions

Include:

- the machine or sensor;
- the period;
- the comparison or output you need.

Examples you can copy:

Example

What was CPPW's average speed today?

Example

Compare CPPW and THHN_3 over the last 8 hours.

Example

Give me a CSV of CPPW and THHN_3 for today.

Download CSV from chat

1. Select [Sensor history](#) or the correct source.
2. Ask for sensors and a period.
3. Confirm the response mentions what you requested.
4. Click Download CSV.
5. Review dates, headers, and rows.

Prepare a report or alert

Chat can prepare a draft. It does not activate until you confirm.

1. Choose Report or Alert.
2. Select the dataset.
3. Enter a clear name and human schedule, such as [daily 7am](#).
4. Click Prepare draft.
5. Read content, recipients, time zone, and frequency.
6. Confirm only when everything matches.

Verify before sharing

Chat shortens the path, but does not replace reviewing filters, sources, permissions, or recipients.

Expected result

The answer uses the correct source and period; every download or draft matches your question before confirmation.

Connect a database and register a dataset

An administrator's path for connecting a least-privilege database and exposing a table as a dataset.

This guide is for administrators. A connection opens the door to a database; a dataset defines which table the team can work with.

1. Prepare a read-only account

Before opening CORE FIELD, request a dedicated database account with access only to the required schemas and tables.

It should be able to run `SELECT`. Avoid `INSERT`, `UPDATE`, `DELETE`, table creation, or administrative privileges unless they are truly necessary.

Never document the real connection URI

Passwords, tokens, and connection URIs must not appear in screenshots, queries, Markdown files, or Git.

2. Connect and test

1. Open Data → Connect database.
2. Choose the correct engine.
3. Enter the details in the protected form.
4. Select Test connection.
5. Save only after the test succeeds.

A successful test confirms connectivity and authentication. You still need to limit which datasets and which people can query it.

3. Register a source with a human name

1. Open Assets → Datasets.
2. Select + Dataset.
3. Choose the connection, area, and table authorized for that team.
4. Confirm the registration.
5. Open the dataset and review its columns.

Use a visible name such as Sensor history. This alias helps readers and avoids turning public documentation into an infrastructure inventory.

4. Prepare the meaning

- Mark `timestamp` as the time column.
- Add plain-language descriptions for CPPW and THHN_1...THHN_4.
- Define which columns can filter or group data.
- Create metrics whose names explain their aggregation.

- Assign a responsible owner.

5. Give access without opening everything

Grant the exact `datasource access` permission to the appropriate role. Database-wide access can expose more datasets and SQL Lab capabilities than intended.

Read [Configure roles and data sources](#) and test with a non-administrator account.

Expected result

The connection uses least privilege, `Sensor history` appears as a dataset, and an authorized account can use it without receiving global access.

Common problems

Diagnose empty charts, missing dashboards, exports, and overly long reports.

Start from the visible symptom. Change one thing at a time and check again.

A chart is empty

1. Wait and look for a loading message.
2. Refresh the dashboard once.
3. Review the date range.
4. Remove overly strict filters.
5. If it fails for one person, check source permission.

Someone opens the dashboard but sees “access denied”

Review in this order:

1. Does the link point to the correct content?
2. Does the person belong to an allowed role?
3. Does that role have [datasource access](#) for every source?

See [the three keys](#).

I cannot find Sensor history

Do not choose a similar source to keep going. It may produce a convincing chart with the wrong data. Ask an administrator for [Sensor history](#) access.

The line has too many points

- Increase time grain from minute to hour.
- Reduce the time range.
- Update and confirm the trend still answers your question.

The CSV does not match what I expected

- Confirm whether you exported the dashboard or individual chart.
- Review filters and time range before downloading.
- Open the file and validate headers and dates.

See [Export chart data](#).

The report PNG is too long

Height usually comes from dashboard layout, not chat or email.

1. Edit the dashboard.
2. Remove empty rows and spaces.
3. Move charts upward.

4. Test the report again.

An option is missing

Functions depend on your role. Record:

- your username;
- the exact dashboard or chart name;
- the action you tried;
- the approximate time;
- the visible message, without your password.

Give this information to your administrator.

A useful screenshot

Wait for loading to finish and include the title, period, filters, and error message.