STALICO®
MOBILE LIGHT & CAMERA TOWERS

FROM FIRST QUESTION TO WORKING TOWER

Designing your mobile CCTV tower, step by step.

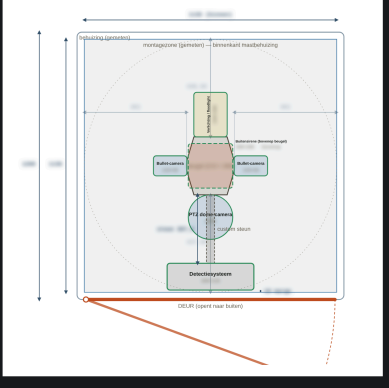
How GR Technics turns your security requirements into a STALICO® tower that is powered, equipped and branded for your sites. Including the two engineering studies behind every design: the energy study and the mounting layout study.

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1 Your brief: site and application
2 Choosing the mast
3 Power: the energy study
4 Equipment: the mounting layout study
5 Branding: your design on the tower
6 Production and quality check
7 Delivery and service

Two studies. One validated design.

Energy and equipment are checked on paper before a single part is welded. You see the result, and you approve it.



Built to keep earning for decades.

INTRODUCTION

Why we design every tower with you.

A mobile CCTV tower only earns money when it keeps working: day and night, summer and winter, on a site with no grid connection. Whether it does depends on choices made long before delivery. Which mast fits the site? How much power do the cameras really use, and can the sun deliver it in December? Do the camera, siren and speaker all fit on the bracket, without blocking each other's view?

At GR Technics we answer those questions together with you, in a fixed sequence of seven steps. Two of them are engineering studies we carry out for every design: an **energy study** and a **mounting layout study**. They show you, based on calculation and our own production drawings, whether a configuration works, and why.

The result is a design you can check and approve before production starts. No surprises on site, no camera that does not fit, no tower that runs out of power in the dark months.

This paper walks through each step: what we need from you, what we do, and what you receive.

THE PROCESS AT A GLANCE

	STEP	WHAT YOU PROVIDE	WHAT WE DO	WHAT YOU RECEIVE
1	**Brief**	Application, sites, devices, VMS or alarm platform	Translate needs into requirements	Agreed starting point
2	**Mast**	Required camera height, transport and site conditions	Select the tower from the STALICO® range	Proposed tower type
3	**Power** STUDY	Location of use and devices	Calculate battery autonomy, solar yield and fuel cell use for your set-up	Energy report (PDF)
4	**Equipment** STUDY	Camera and device models	Engineer the device layout on the bracket, to scale	Top-view layout drawing
5	**Branding**	Your design, or a request for one	Supply templates, check print quality, print and fit	Approved artwork
6	**Production**	Approval of the design	Build and quality check in Beerse, Belgium	Tested, CE-marked tower
7	**Delivery**	Delivery address and timing	Deliver, explain and support	A tower that keeps earning

> **Steps 3 and 4 run in parallel.** As soon as we know the tower type and the devices, our engineers start both studies. That is where a design is won or lost.

STEP 1

1 Your brief: site and application.

Every design starts with how the tower will be used. A tower on a construction site is moved every few months and has to survive daily site life. A tower at an event stands for a few days in a crowd. A tower on a vacant lot or along a rail line may stand untouched for a year.

In a short intake we go through the points below. If you do not have all the answers yet, that is fine: we work with typical values and refine them later.

- Application and sector: construction, events, infrastructure, ports, rail, parking, vacant sites
- Countries and regions where the tower will be used
- Power: off-grid (solar, battery, fuel cell) or grid connection on site
- Devices: cameras, sirens, speakers, lighting, detectors and router
- Video management or alarm platform the tower must connect to
- Number of towers and desired delivery timing

STEP 2

2 Choosing the mast.

The STALICO® range covers compact solar towers through to heavy vandal-proof units with outriggers. The choice depends on the camera height you need, the space and ground on site, how often the tower is moved, and the energy the devices require.

Based on these criteria, we advise the tower type that fits. The choice of mast fixes two things for the next steps: the solar panels and battery available (step 3) and the size and shape of the bracket at the top of the mast (step 4).



Figure 1. Part of the STALICO® camera tower range (not to scale). Each tower type has its own solar and battery set-up and its own bracket, which is why the choice of mast comes before the energy and equipment check.

STEP 3 · ENGINEERING STUDY

3 Power: the energy study.

Will the tower keep running in December, or during a power cut? Our energy study answers that for your power set-up and location, before the tower is built.

The question. An off-grid tower runs on solar panels and a battery, backed up by a low-emission fuel cell. In summer the sun usually covers everything. In winter the days are short and the fuel cell takes over. How much it has to do, how much methanol that costs and how long a tank lasts depend on the location, the panels on the tower and the devices you mount.

Not only for solar. The study is made to your need. For a grid-connected tower, for example, we estimate how long the UPS battery pack keeps the cameras running when the power fails. Battery-only and fuel cell set-ups are calculated the same way.

The input. We select a reference location (or enter your site coordinates) and the direction the front of the tower faces. Then we add the devices with their quantity, power and operating schedule, for example a camera running day and night. We use the panels, battery and methanol tank of each tower type from our own engineering data.

The calculation. Based on long-term solar data for your location, we simulate the tower through a full year: solar yield per panel and side, battery charge and discharge, and the moments the fuel cell has to step in. System losses and site conditions such as shade and dirty panels are included.

Best and worst case. No site is the same. Every result is therefore shown as a range, from an open site with clean panels to a site with shade and losses. You do not get one optimistic number, but a realistic bandwidth.

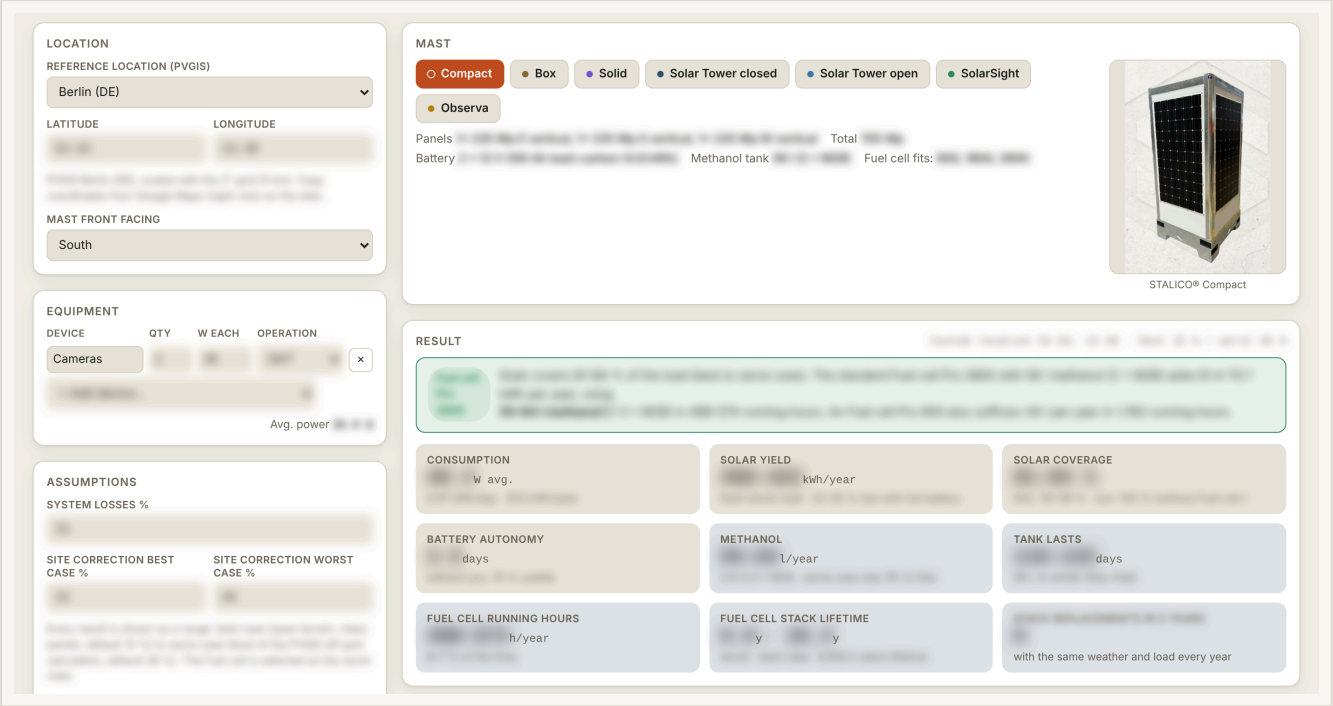


Figure 2. Energy study for a STALICO® Compact with one camera in Berlin, Germany: location, devices and assumptions on the left; tower type, conclusion and key figures on the right. Values are made unreadable in this paper: every study is specific to your site and your devices.

Reading the result

The study does not stop at a yes or no. It shows where the energy comes from in every month, so you can see when the tower relies on the sun and when on the fuel cell.

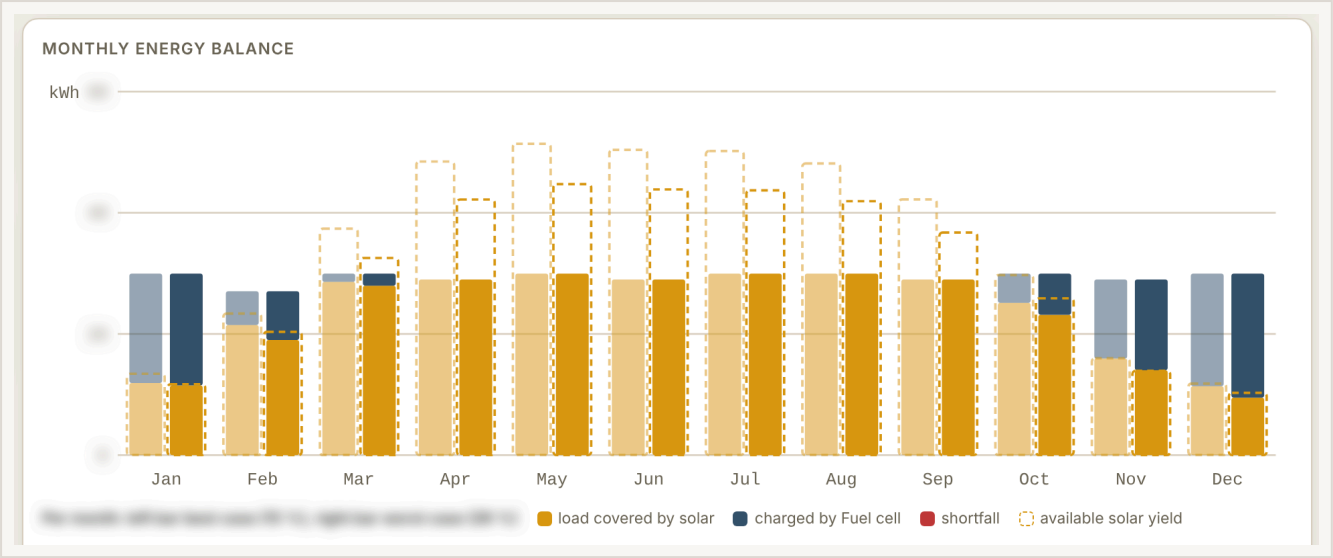


Figure 3. Monthly energy balance. Per month the left bar shows the best case and the right bar the worst case: load covered by solar, energy charged by the fuel cell, and the solar yield available. From April to September the sun covers the full load; from October to March the fuel cell fills the gap.

Key figures for every design

- Consumption and solar yield per year (kWh)
- Share of the load covered by solar
- Battery autonomy without sun
- Methanol per year, cartridges and how long the tank lasts
- Fuel cell running hours and stack lifetime
- Ageing over the years, and the smallest fuel cell that suffices

What you receive

A clear energy report as a PDF, in English, Dutch, German or French. It states the location, devices, assumptions and results, so you can share it internally and plan refills and service visits.

> **Indicative, not a guarantee.** The calculation is a theoretical estimate based on historical solar data and average assumptions. Actual results depend on weather, shading, the real power use of the devices and the condition of batteries and fuel cell.

ALL MASTS COMPARED

MAST	WP	SOLAR KWH/YEAR	SOLAR COVERAGE	FUEL CELL	METHANOL L/YEAR	CARTRIDGES/YEAR	FUEL CELL HOURS
Compact	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Box	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Solid	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Solar Tower closed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Solar Tower open	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Observa	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Figure 4. All tower types compared for the same devices and location. This shows at a glance which tower runs longest on solar power and which needs the least fuel, so the choice of mast is based on facts.

STEP 4 · ENGINEERING STUDY

4 Equipment: the mounting layout study.

Does everything fit at the top of the mast? We engineer it in a scale drawing, before anything is mounted.

The question. At the top of the mast sits a bracket that carries the cameras, siren, speaker and lighting. When the mast is lowered, all of it has to fit inside the tower housing, without devices touching each other, the bracket or the door. On paper that is easy to overlook; on site it is expensive.

Drawn from our factory drawings. We draw the top view of each tower type (Box, Compact, Solid, Solar Tower and Observa) to scale: the bracket, the housing and the free mounting zone, taken from our own production drawings.

Placing the devices. We work from a library of cameras, sirens, speakers, lighting and detectors, with their real dimensions from the manufacturers' datasheets. New models are measured and added when needed. Each device is positioned and rotated for the best fit and field of view.

The fit check. Every device is checked against the mounting zone and its neighbours, as shown in Figure 6 on the next page.

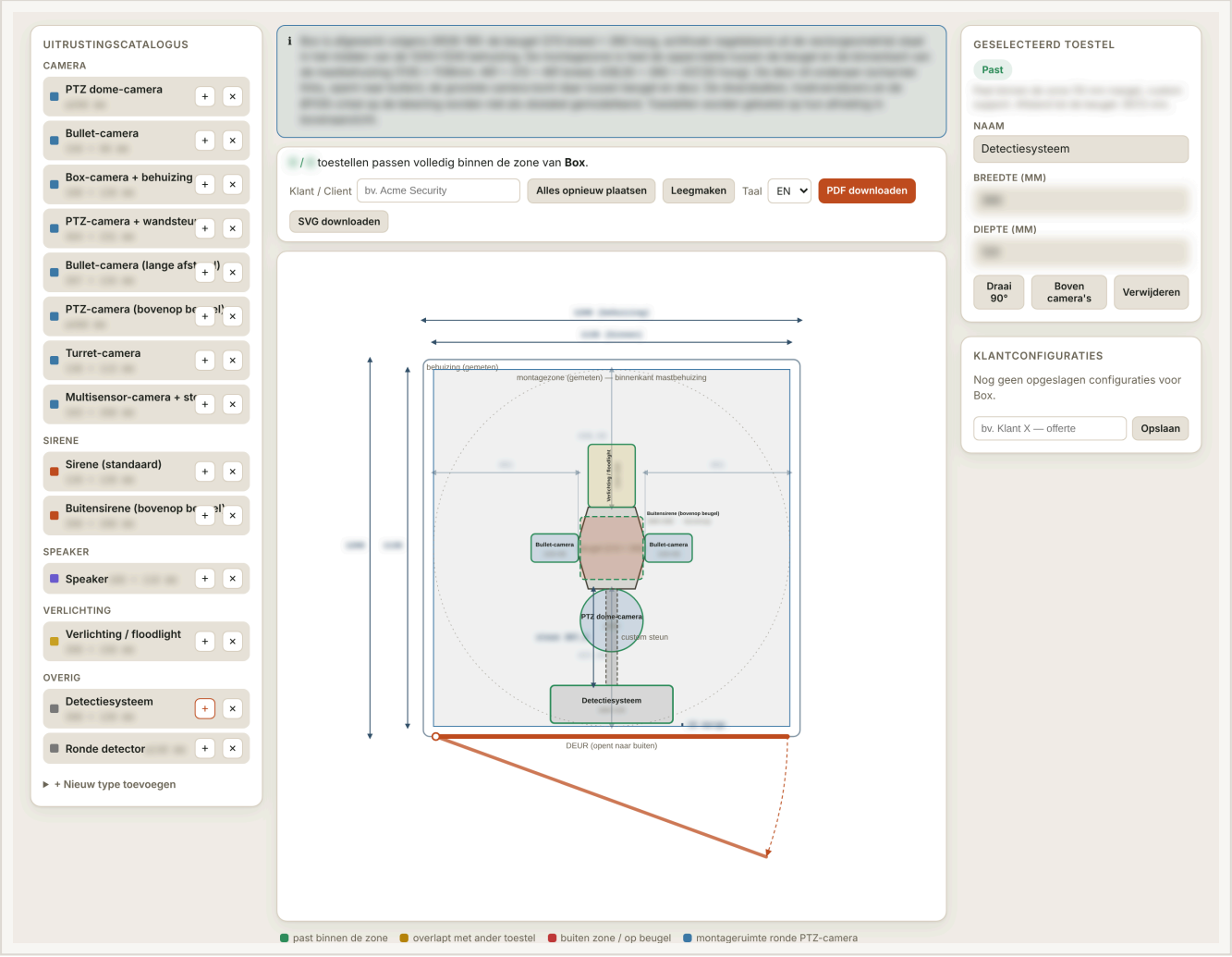


Figure 5. Mounting layout study for a STALICO® Box: device library on the left, scale top view of bracket and housing in the middle, details of the selected device on the right. Here all devices fit within the mounting zone. Dimensions are made unreadable in this paper.

STEP 4 · CONTINUED

The fit check, device by device

Each device is shown in a colour that tells you at once whether it can stay where it is. Every device must be fixed on the bracket: on top of it, against its edge or on a wall mount. Round PTZ cameras get the space they need to turn.

fits within the zone · overlaps another device · outside zone or on bracket · rotation space PTZ camera

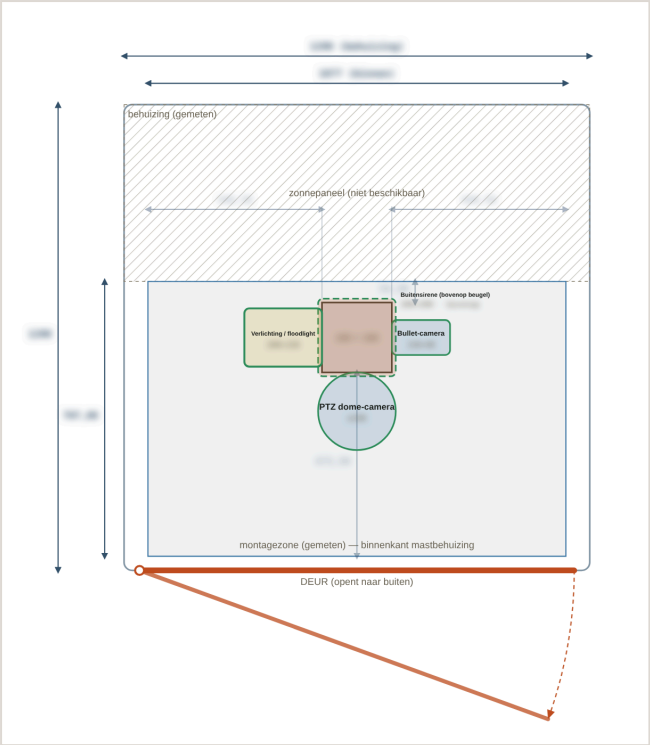


Figure 6a. STALICO® Solar Tower. The hatched area is taken by the solar panel and is not available. PTZ camera, bullet camera, lighting and siren all fit around the bracket.

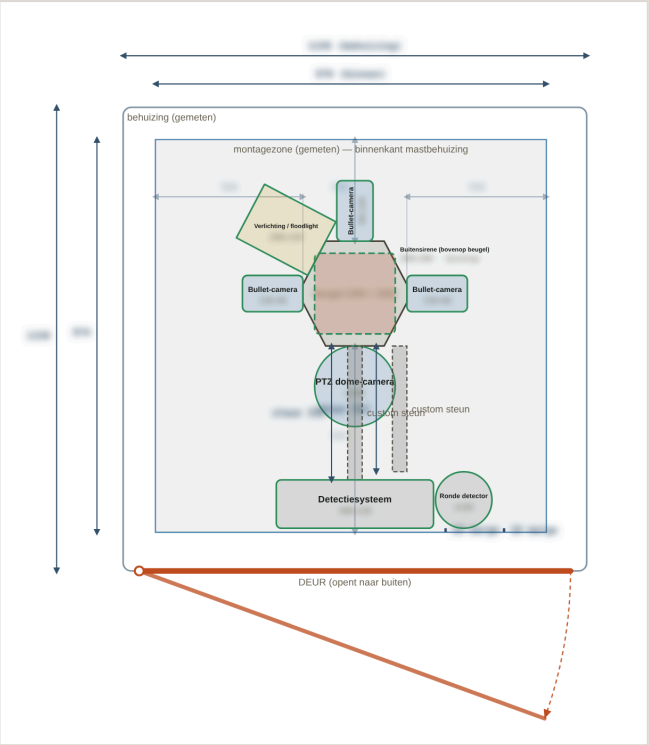


Figure 6b. STALICO® Solid with eight devices: a PTZ camera, three bullet cameras, siren, floodlight and two detectors. All 8 fit within the zone; the floodlight is rotated to make room. If a device did not fit, it would turn orange or red and we would move it, or change the selection, before approval.

Fewer surprises

Conflicts are solved in the drawing, not on the factory floor or on site.

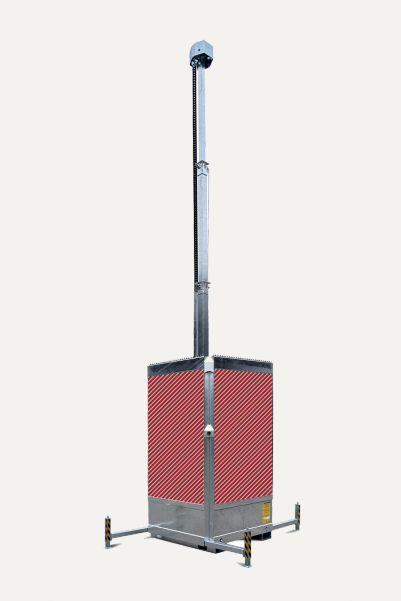
Faster quotes

A validated layout early in the quotation phase, for each tower type you consider.

A clear record

You receive the layout drawing, and we keep it on file for your configuration.

Energy and equipment together. The devices from step 4 are the same devices as in the energy calculation of step 3. If a camera changes, both studies are updated, so the power plan and the bracket layout always match.



5 Branding: your design on the tower.

You send your design and we do the rest. We supply templates with the exact panel sizes for each tower type, in metric and imperial. No design yet? On request, we create one for you. Before printing, we check the resolution and print quality of every file: if it is not good enough, we do not print. Quality guaranteed.

6 Production and quality check.

After your approval of the energy report, the layout drawing and the artwork, the tower is welded and assembled in our factory in Beerse, Belgium, with a supply chain of only 93 km (58 mi). Before it leaves the factory, every tower is checked against a checklist made for your project, electrical and mechanical. That is how we guarantee the same quality on every tower, also for orders of more than 100 towers. Every STALICO® system is CE-marked.

7 Delivery and service.

The tower is delivered ready for use and set up by one person in about 15 minutes. After delivery we stay close: three service vans on the road and spare parts delivered within a week. With more than 10,000 systems produced, we know what a tower has to endure, and we build it to keep earning for decades.

Start your design today.

Send us your site, your devices and your timing. We come back with an energy study and a mounting layout for the tower that fits.

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