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AI on the edge

in zabbix

Tomáš Heřmánek / CEO initMAX

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Who We Are & Why **This Topic**

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unlocking
The value
Of data

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2

Zabbix Certified

Trainers

4

Zabbix Certified

Experts

6

Zabbix Certified

Professionals

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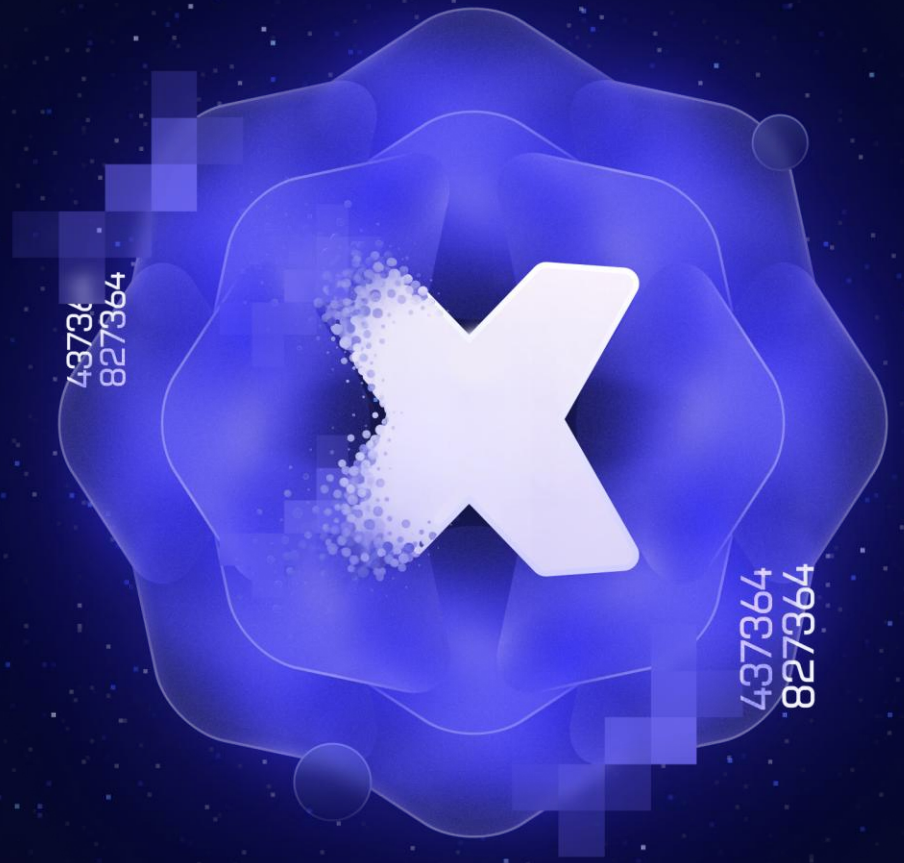
Widgets & Modules

Certified trainings



Technical Support

All in one solutions

Consulting

Integration

ZABBIX wazuh. PostgreSQL

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Global partner

Monitoring all over the world

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Monitoring all over the world

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Honesty, diligence and MAXimum knowledge of our products is our standard.

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From geeks to geeks. Something that everyone can try. The true power of open source, with a touch of AI magic.

The Idea
In One Picture

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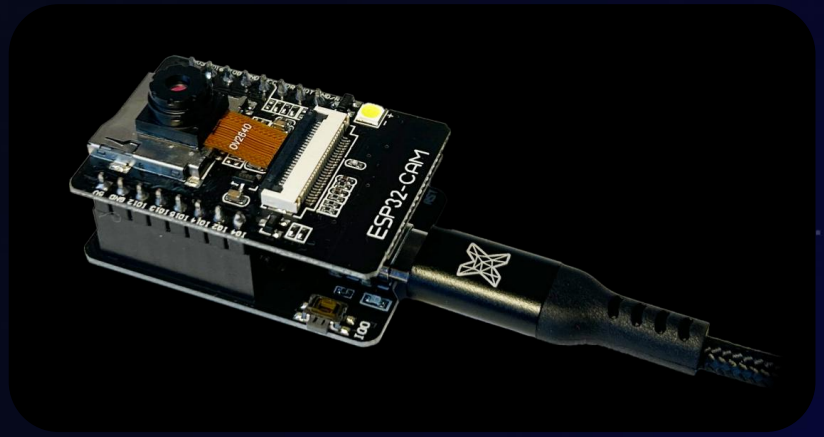
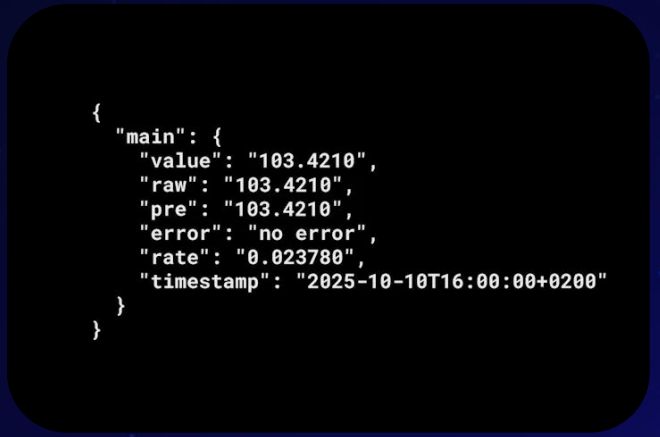
The Idea in One Picture

Camera → ROI processing → Inference → JSON/MQTT/HTTP → Zabbix

water meter



ESP32-CAM



```
{
  "main": {
    "value": "103.4210",
    "raw": "103.4210",
    "pre": "103.4210",
    "error": "no error",
    "rate": "0.023780",
    "timestamp": "2025-10-10T16:00:00+0200"
  }
}
```

API number preview

(Images stay in LAN; we send results, not streams)

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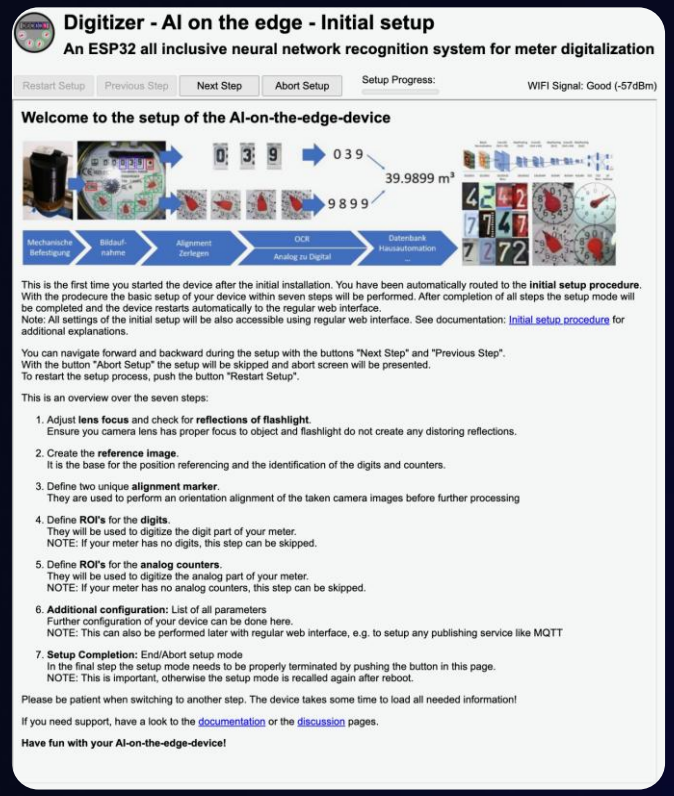
The Idea in One Picture

Camera → ROI processing → Inference → JSON/MQTT/HTTP → Zabbix

01

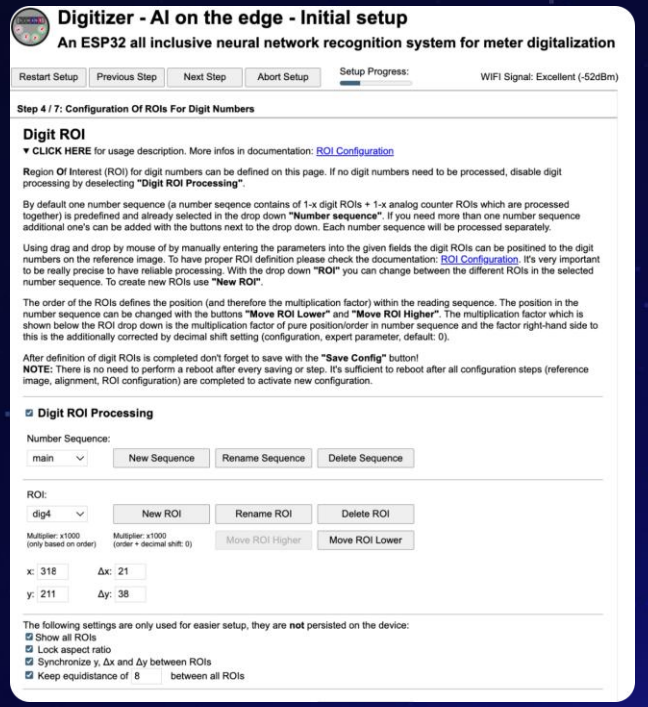


- A simple Setup Wizard is ready at http://<IP-of-your-device>/setup.html you can relaunch it anytime by visiting that URL directly.
- For a quick start, use the DEMO data from the **jomjol** repository.

The Idea in One Picture

Camera → ROI processing → Inference → JSON/MQTT/HTTP → Zabbix

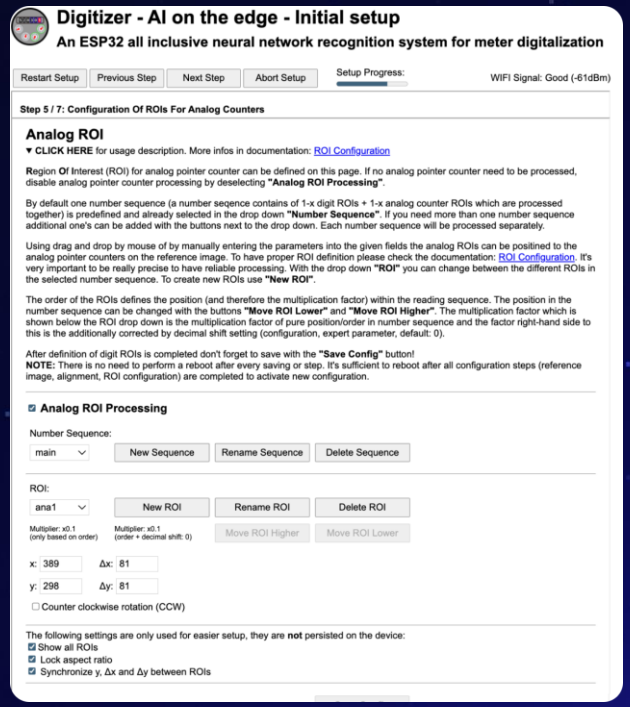
02



The Idea in One Picture

Camera → ROI processing → Inference → JSON/MQTT/HTTP → Zabbix

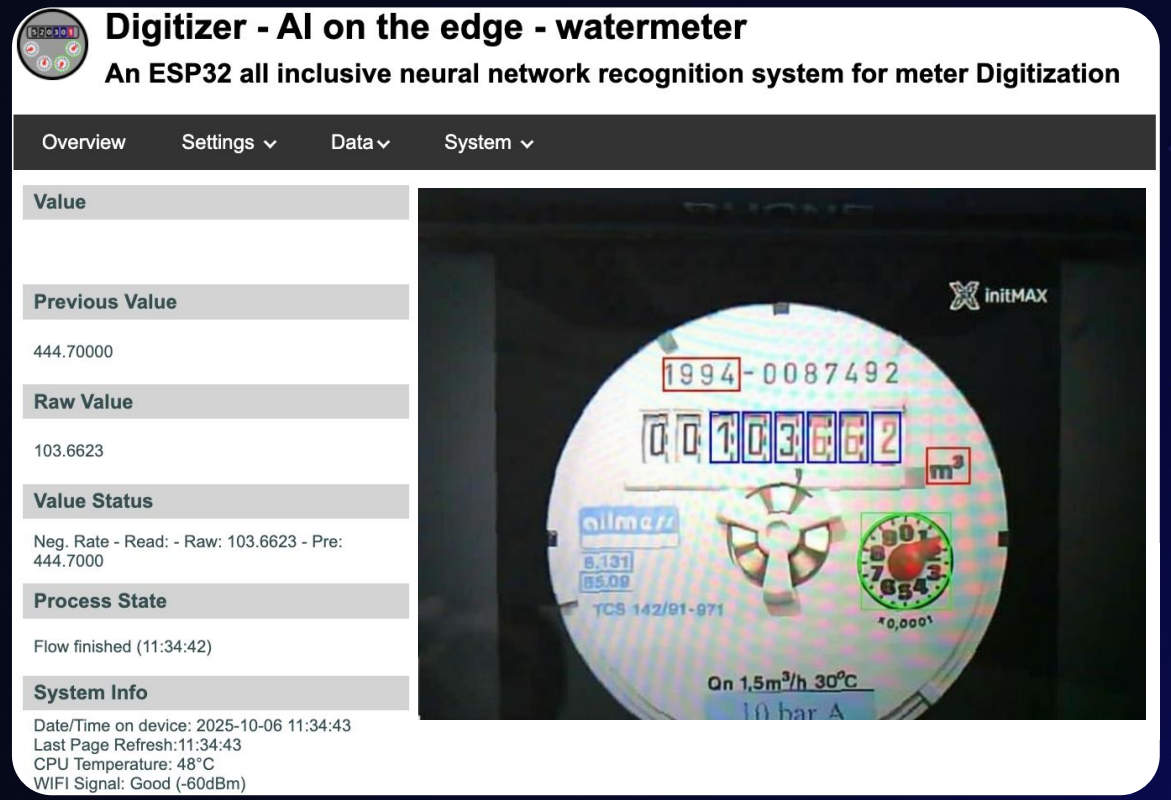
03



The Idea in One Picture

Camera → ROI processing → Inference → JSON/MQTT/HTTP → Zabbix

04



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The Idea in One Picture

- Many enterprise signals are still analog (meters, dials, LEDs, displays).
- Edge AI converts images → numbers locally (privacy, no cloud lock-in).
- Works with tiny budget and off-the-shelf parts ($10 - $20 USD).
- A simple “AI game” anyone can try, learn, and extend.

Who built it?

Open-source (non-commercial limits; credit: Josef / jomjol)
https://github.com/jomjol/AI-on-the-edge-device

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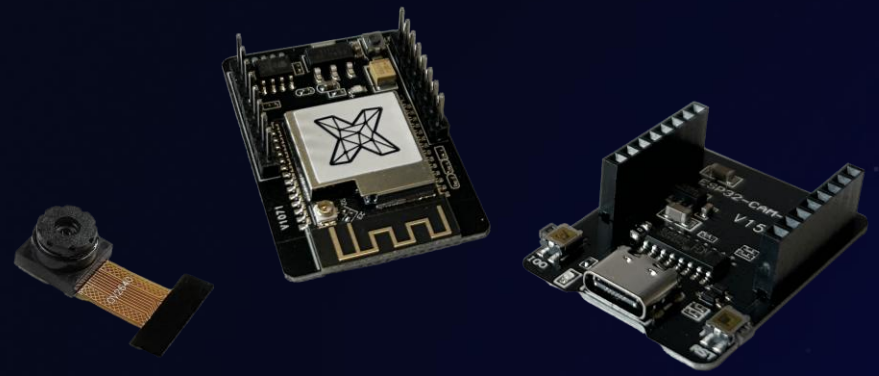
The Idea in One Picture

Camera → ROI processing → Inference → JSON/MQTT/HTTP → Zabbix

01



- OV2640 camera (2 MP).
- ESP32-CAM (ESP32, **8 MB PSRAM**), 2.4 GHz Wi-Fi; power 5 V / ≥ 500 mA.
- microSD ≥ 2 GB with FAT32.
- Use ESP32-CAM-MB (USB-UART) for programming and power; connect with a USB-C cable (a USB-mini board variant is also available).
- Data cable for firmware upload, power delivery and debug console access.

The Idea in One Picture

Camera → ROI processing → Inference → JSON/MQTT/HTTP → Zabbix

02

- Workshop AI Monitoring Kit — everything you need to get started.
- Recommended: CAM Adjuster for precise lens fine-tuning.
- The kit includes a demo holder; for specific setups, you can 3D-print your own design/mount.

How to monitor this **with Zabbix**

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Why zabbix

- **Mature open-source platform –** built-in alerting, SLA and escalations
- **Broad inputs –** HTTP Agent, MQTT (Agent2), Trapper (push/pull)
- **Large data storage (including images) –** store long-term time-series and image snapshots for audits, comparisons and model tuning
- **Item Browser –** double-check image and numeric values side-by-side
- **Clean widgets –** build clear, readable dashboards
- **Calculated/Aggregate items –** daily/monthly statistics and rollups
- **Easy-to-configure notifications and escalations**
- **Because Zabbix is COOL!!!**

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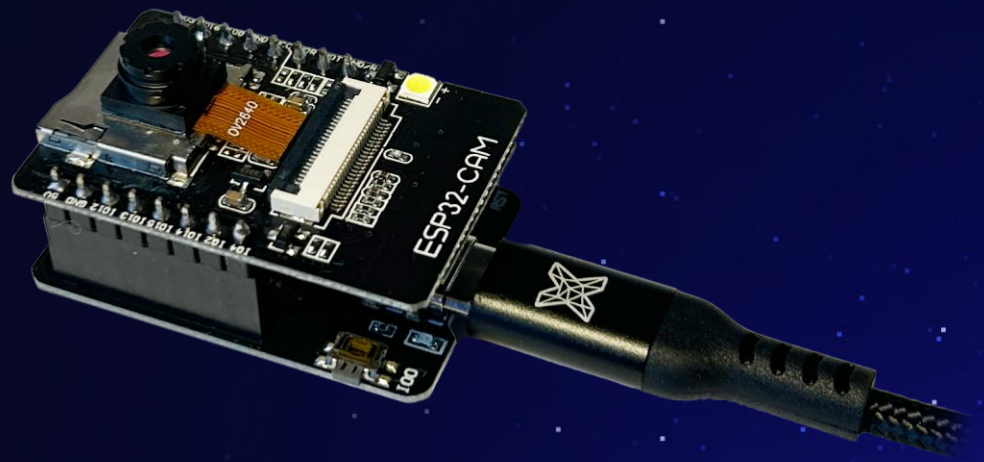
Why Zabbix

Monitoring from Zabbix server or proxy via HTTP Agent
Easy to check and get your data



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Why Zabbix

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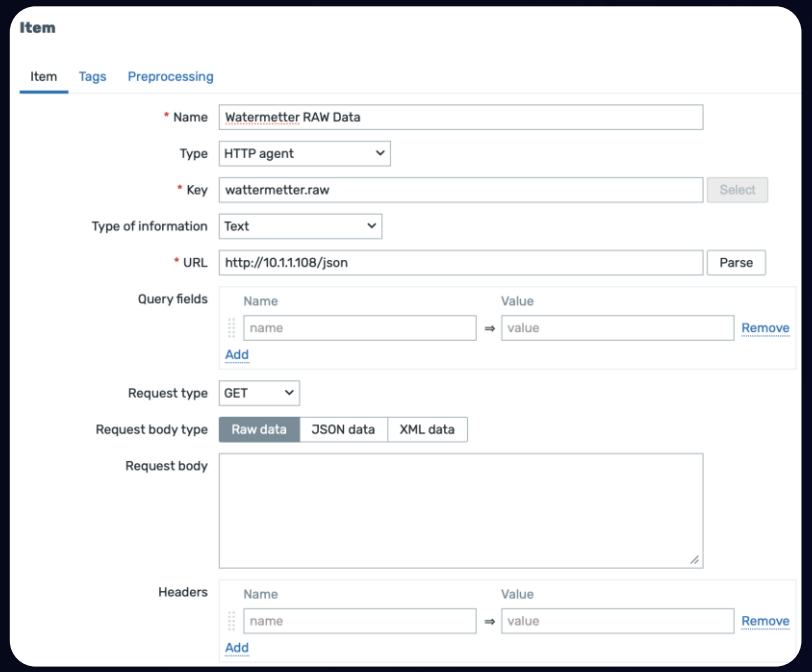

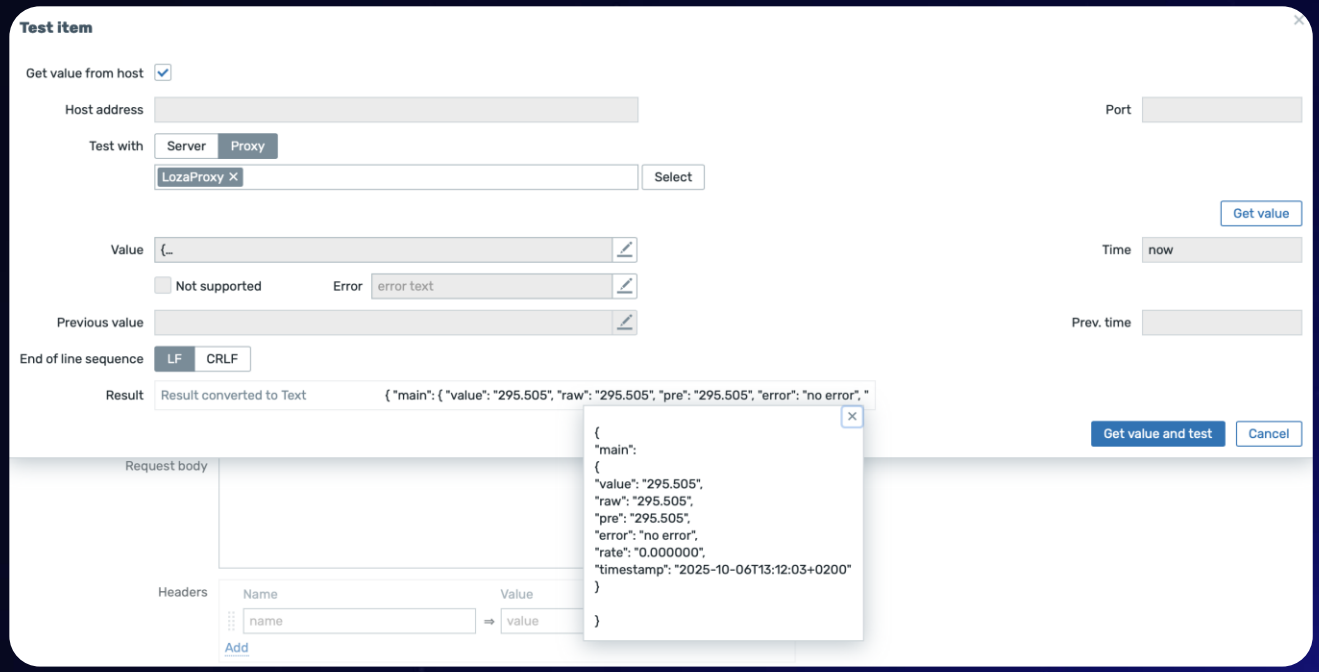

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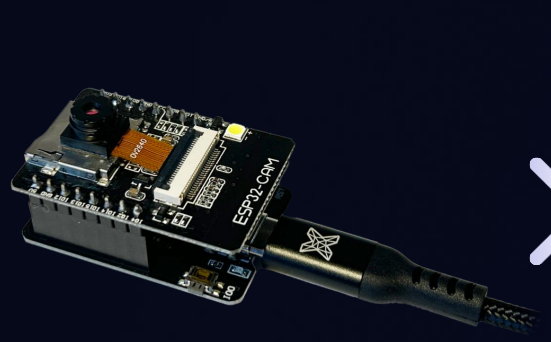
Why zabbix

Sending data via MQTT (recommended)



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Why Zabbix

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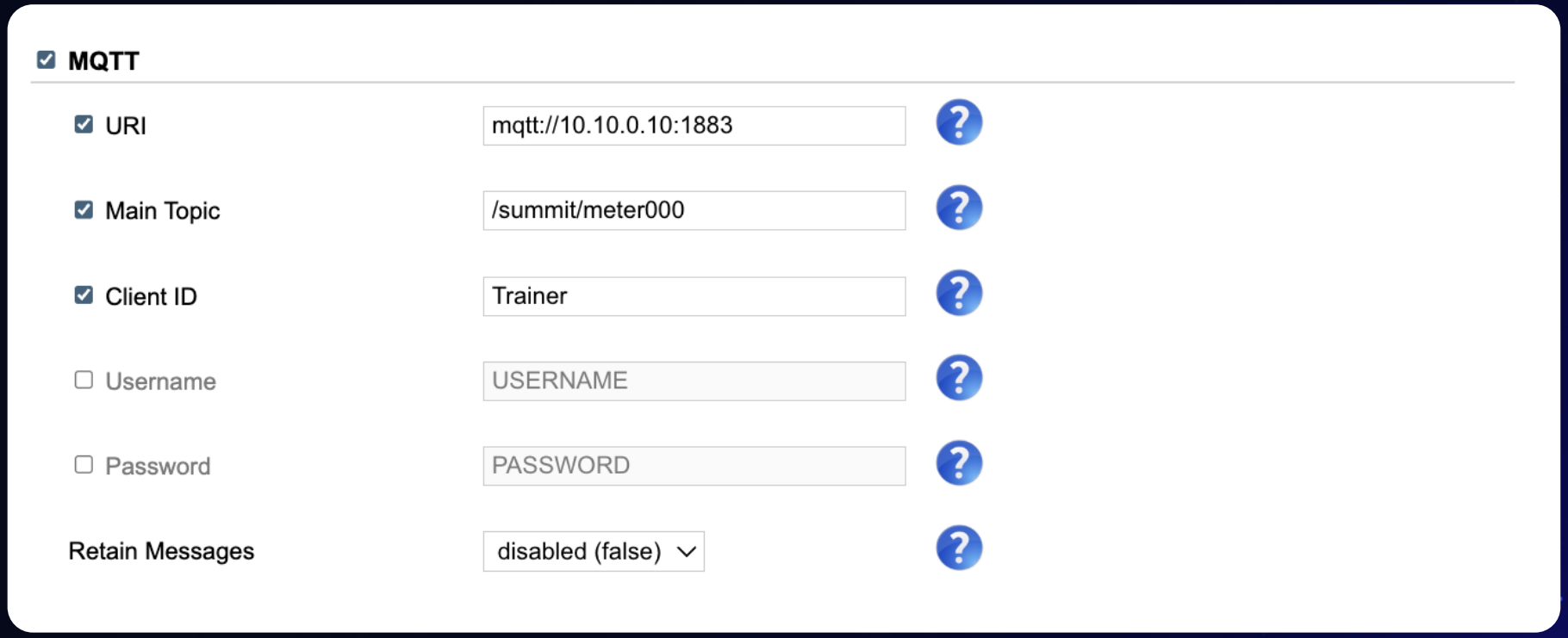

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Why Zabbix

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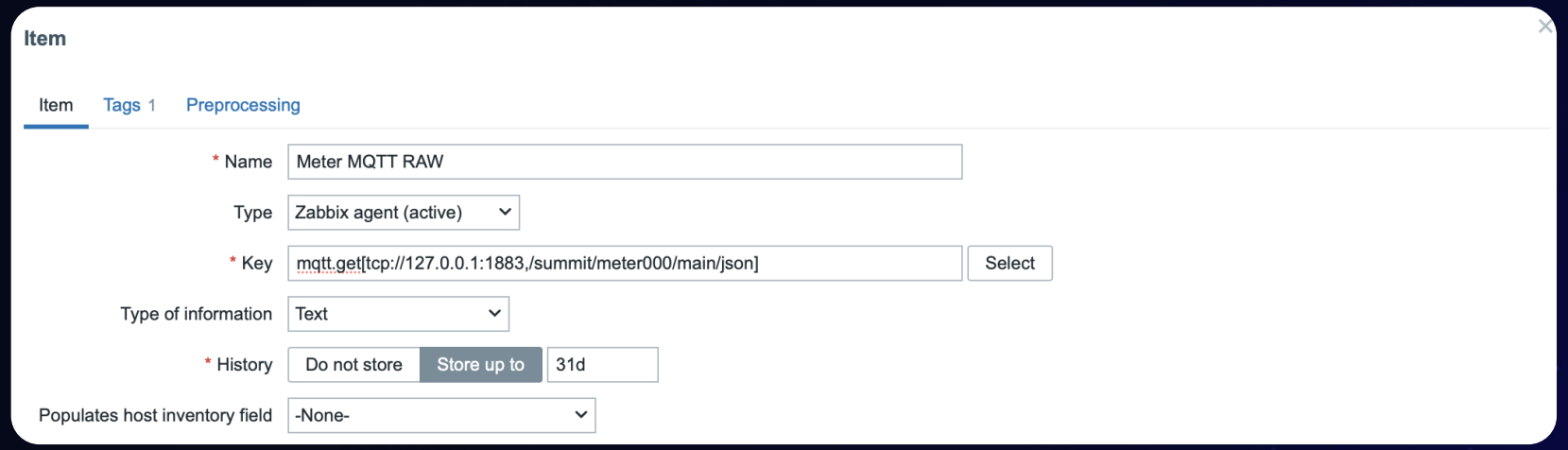

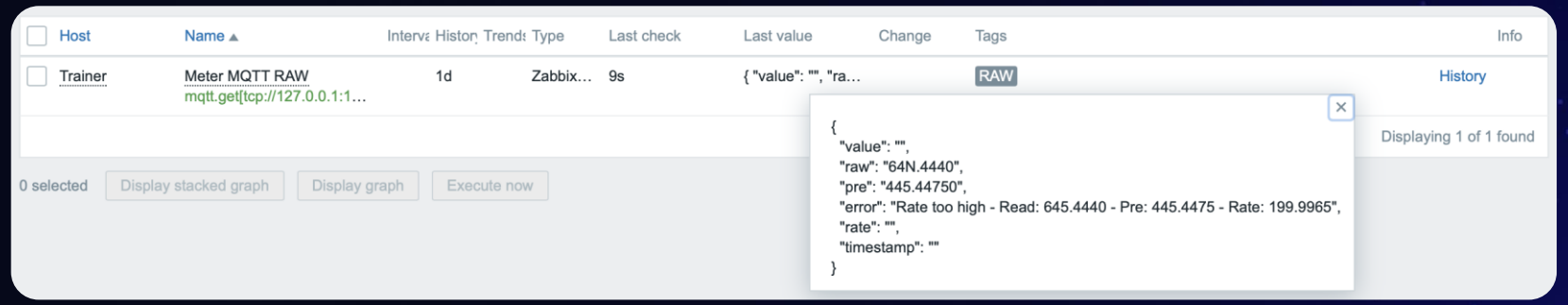

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Why Zabbix

Sending data via Webhook

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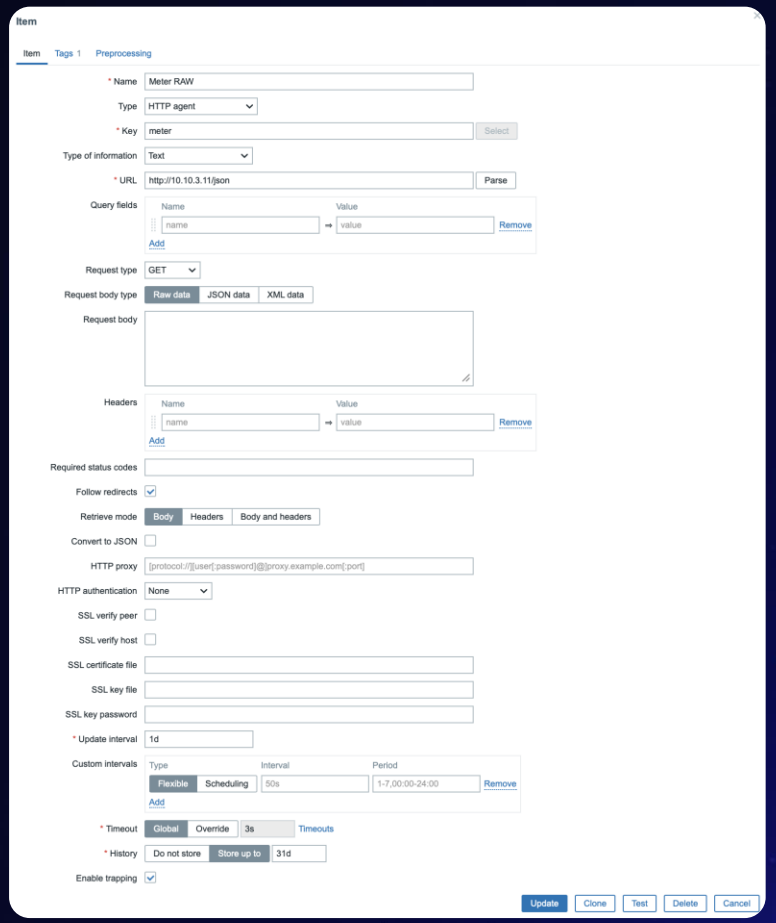
Why Zabbix

Webhook



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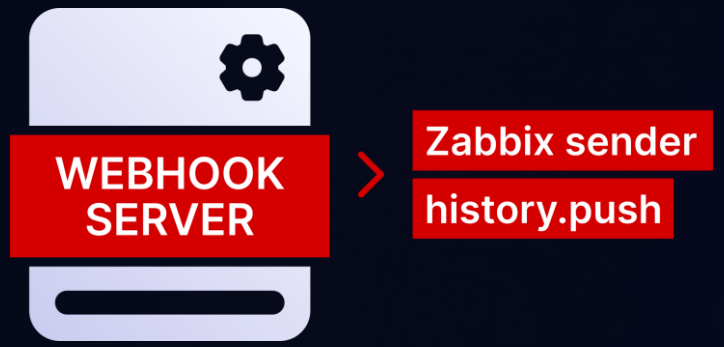
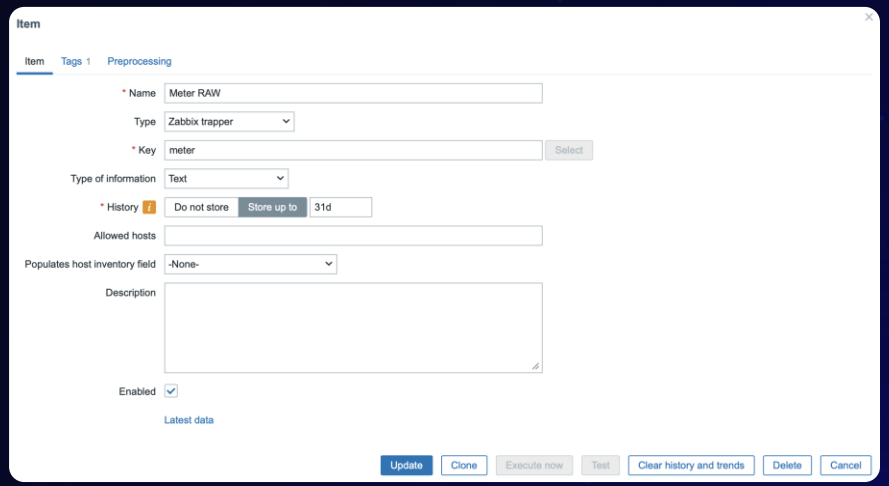
Why Zabbix

Webhook



Zabbix sender

history.push



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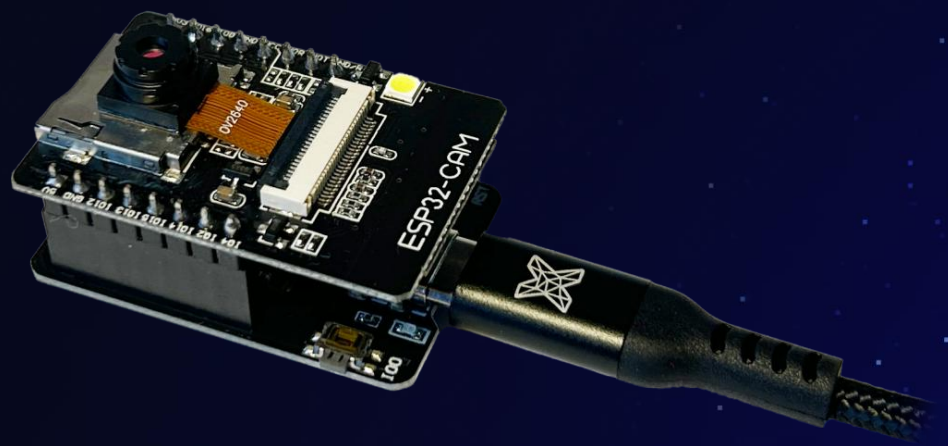
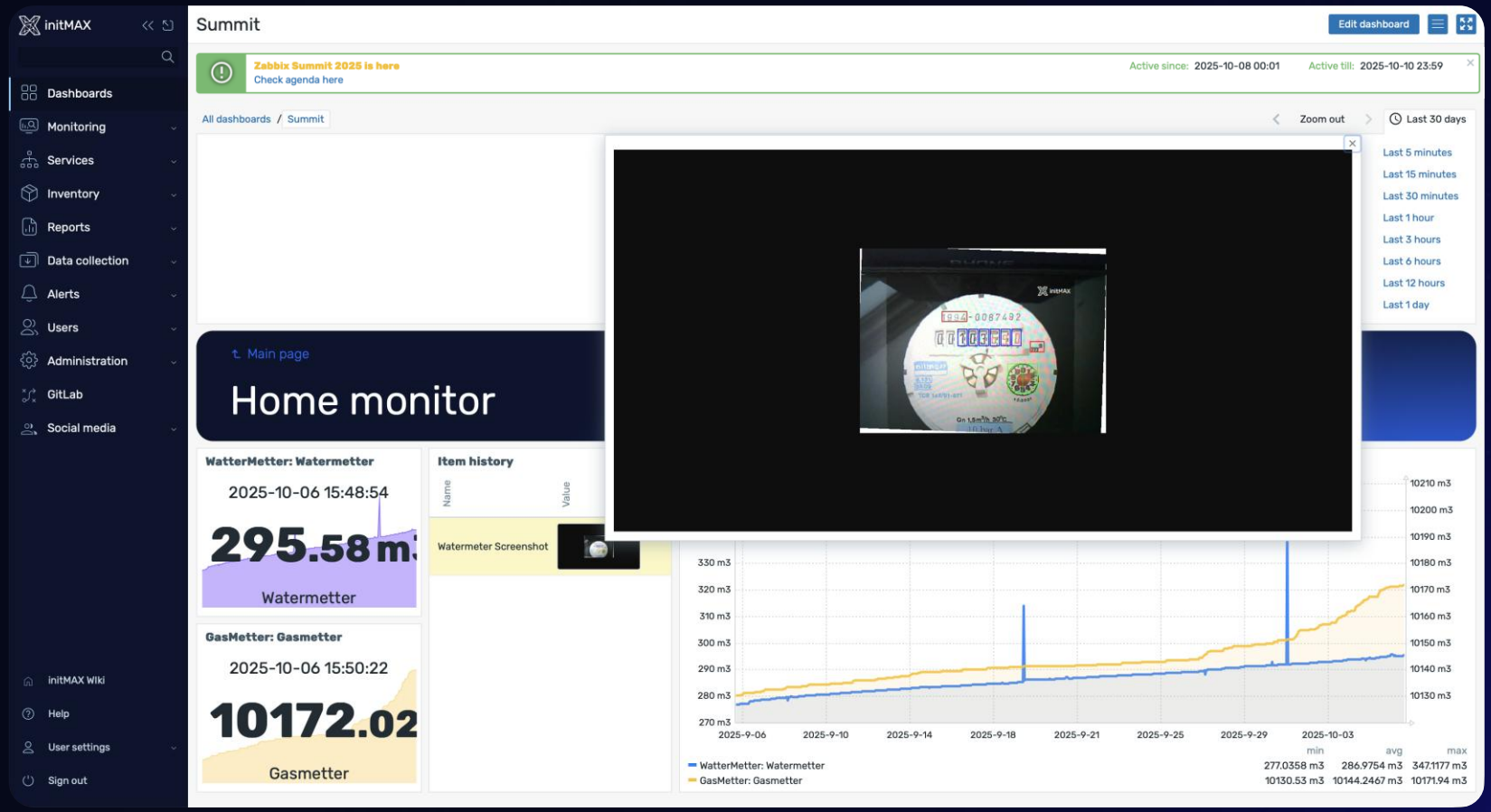
Why Zabbix

Extra check by item Browser



Why Zabbix

Item Browser http://<IP-of-your-device>/img_tmp/alg_roi.jpg



Recommendations and **additional tips**

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tips

- Stable power (5 V / ≥ 500 mA; solar is viable thanks to low draw).
- Reliable Wi-Fi; no Internet required (runs locally).
- Take time to calibrate - focus, ROI, thresholds.
- Telemetry cadence: ≥ 1 minute (sub-minute not supported). Make sure the whole pipeline finishes within 60 s.
- Prefer MQTT or webhook push so data are sent only when ready - less polling, lower device load, better performance/power.
- Dashboard idea: scene snapshot + item value + 1-min trend chart.
- Range option: ESP32-CAM supports an external antenna for stronger Wi-Fi signal, but it requires a solder modification.

Industrial **usage**

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Water Leak

Garage door

Light detect

OBJECT detect

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ACID TANK

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Meet us

ZABBIX PREMIUM PARTNER

ZABBIX CERTIFIED TRAINER

Tomáš

CEO

Tomáš

Developer

Alois

Technical consultant

Marek

Technical consultant

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Gifts

Same as last year, we've prepared a few gifts for you!

Workshop + present

E-shop discount

New Game tetrisMAX

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hands on!
Free AI kit!

workshop

10. October
11 am

Few seats left!

Register for workshop

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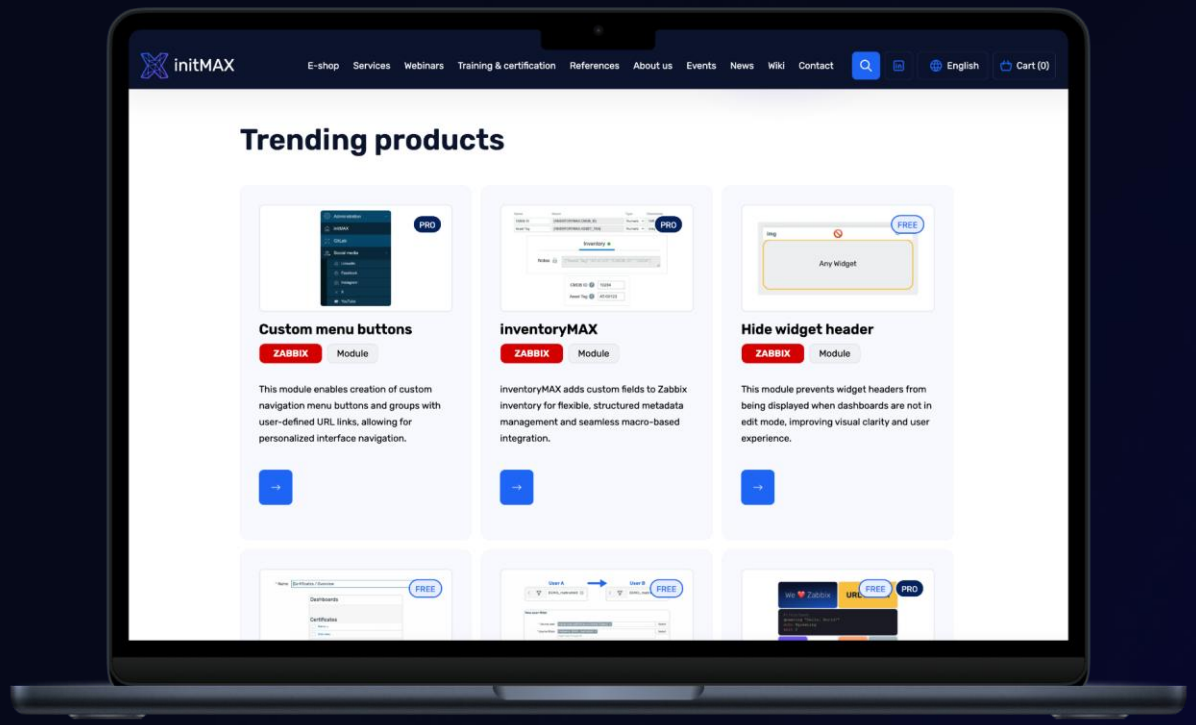

E-shop

50% off with code:
Zabbix-summit-2025

Visit e-shop
initmax.com/eshop

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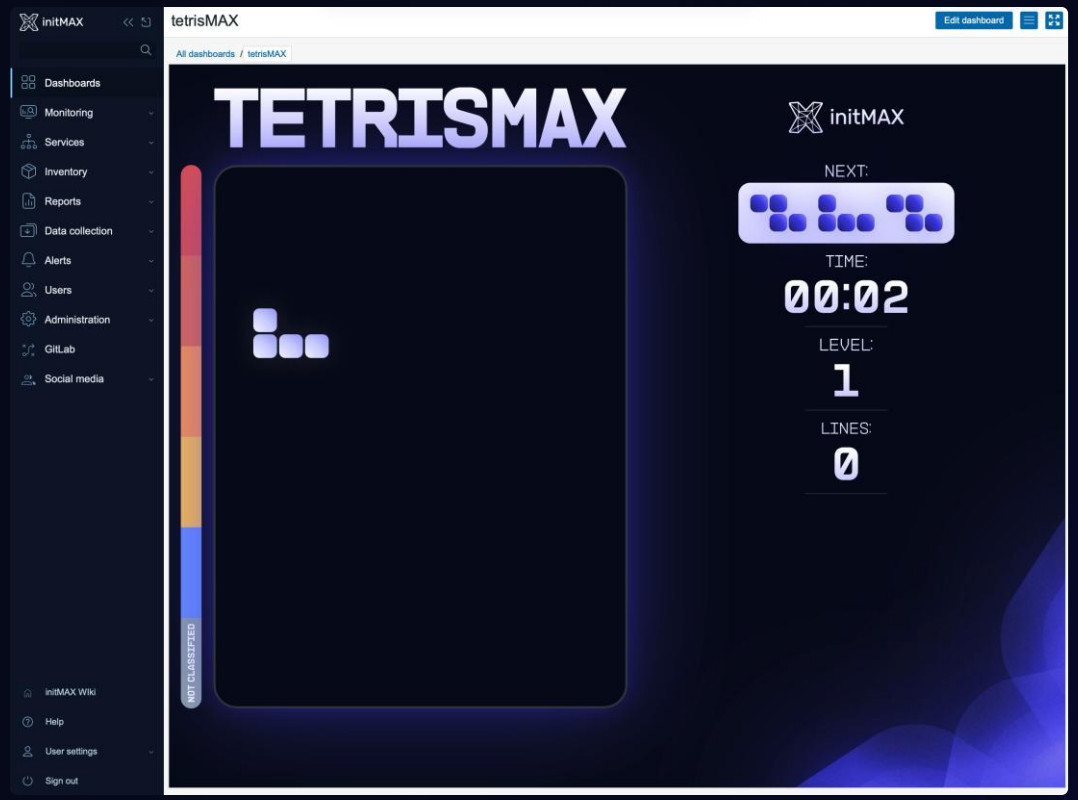

tetrisMAX

Original Game in Zabbix

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Join our mini-game & win great prizes!

Join US and win our prices

1) Open the Zabbix demo: https://www.initmax.com/zabbix/
2) Play our game tetrisMAX and win
3) The game starts now—results update in real time. We'll finalize and announce the winners at the end of the Summit on our LinkedIn page. Follow us so you don't miss it!

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1

1-year Zabbix Academy subscription

2

Lifetime license for one selected initMAX widget

3

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*Prize substitutions possible upon agreement.

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Thank You