

GETTING STARTED

What MergenHub is

Architecture, modules, services, data flow and where things live on disk.

Online: mergenhub.envest.com.tr/docs/overview

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MergenHub is a software-based **industrial data acquisition platform** and **OPC UA aggregation server** for Windows. It reads field devices over 11 industrial protocols, keeps every value in one live tag store, and publishes that data northbound as an **OPC UA server**, a **REST API**, a **web SCADA/HMI**, and outbound **Data Bridge** agents (MQTT / REST). Alarms, historian, virtual tags, users and audit are built in. One installer, three Windows services, no client software.

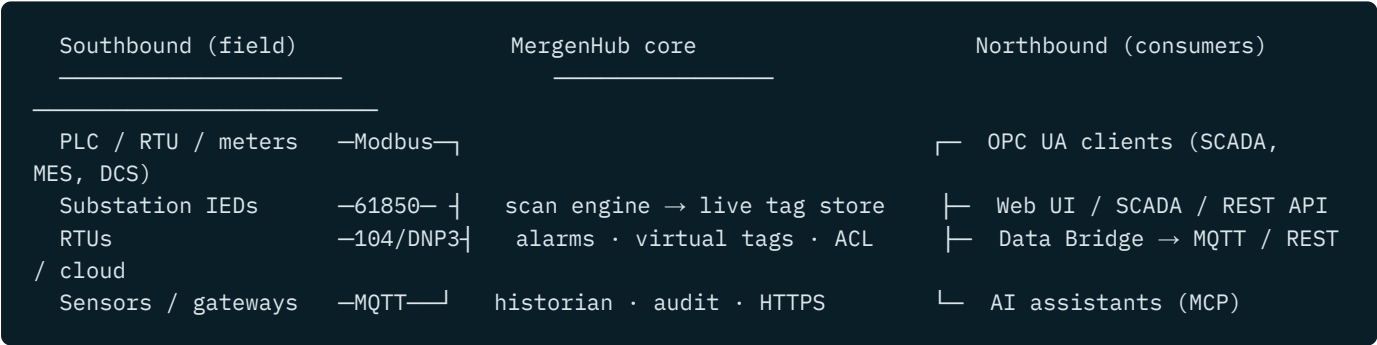
The screenshot displays the MergenHub dashboard interface. On the left, a sidebar menu shows the 'Bağlantılar' (Connections) section selected, with a sub-menu for 'Simulation Examples' containing 24 items. The main dashboard area features four summary cards: 'BAĞLANTILAR' (1 kanal), 'CIHAZ SAĞLIĞI' (0 / 1 çevrimiçi), 'AKTİF TAG' (0 / 24), and 'ALARMLAR' (0 aktif). Below these cards is a table titled 'Kanallar' (Channels) with columns for 'Ad' (Name), 'Sürücü' (Driver), 'Cihaz' (Device), and 'Tag'. The table shows one channel named 'Simulation Examples' with the driver 'Simulator', device '1', and tag '24'. The bottom of the dashboard shows the user 'admin' (Root (super-admin)) and the language 'TR'.

MergenHub dashboard right after installation – the connectivity view with a simulator channel

What you get in one installation

AREA	WHAT IT DOES
Drivers	Modbus TCP/RTU/ASCII, Siemens S7, OMRON FINS & NJ/NX CIP, DNP3, IEC 60870-5-104, IEC 61850 MMS, MQTT, OPC UA client, simulator
OPC UA server	All channels in one address space; multiple endpoints; security policies; certificates; per-user access; history access; alarms as UA conditions
REST API	Configuration and live values over HTTPS/JSON with session or token authentication; Swagger UI built in
Web SCADA / HMI	Browser editor with symbol libraries, pipes, flow animation, faceplates, templates; operator view for desktop and mobile
Alarms	ISA-18.2 lifecycle, conditions with deadband, e-mail and SMS, per-user notification preferences, history
Historian	SQLite or ODBC targets, log groups with triggers, store-and-forward, trends and CSV/Excel export
Data Bridge	REST server (Kepware-compatible), REST client and MQTT client agents that push data to clouds or third-party systems
Virtual tags	Expression engine: average, min/max, totalizer, derived, link, cumulative; function library
Security	Users, groups, roles, resource-level ACL, HTTPS, session policy, audit log
AI assistant	MCP server so AI assistants can query the plant with your permissions

Architecture



Every driver writes into the same in-memory **tag store**. The OPC UA server, the REST API, the alarm engine, the historian, the SCADA screens and the Data Bridge all read the same live value at the same moment. Scanning is **demand-driven**: a device is only polled while something (an OPC UA subscription, an open screen, a log group, an alarm) actually needs its tags.

PROJECT HIERARCHY

Channel → Device → Tag (and tag groups) . A channel is one driver plus its transport settings (TCP port, serial port, broker). A device is one PLC/RTU/IED under that channel. Tags are the addresses you read or write. See [Channels, devices and tags](#).

Windows services

SERVICE (SCM NAME)	DISPLAY NAME	ROLE
MergenHub	MergenHub Runtime (OPC UA + Config API)	Core: scan engine, OPC UA server, REST API, web UI
MergenHubDataBridge	MergenHub Data Bridge	MQTT/REST push and pull agents (separate process)

SERVICE (SCM NAME)	DISPLAY NAME	ROLE
MergenHubHistorian	MergenHub Historian	Tag history logging to SQLite/ODBC (separate process)

The two auxiliary services depend on the core and are restarted automatically by Windows if they stop. A **system tray** application (`MergenHub.Tray.exe`) starts at logon for quick status, restart and shortcuts. Details: [Windows services and the tray app](#).

Where things live on disk

PATH	CONTENT
<code>C:\Program Files\MergenHub\</code>	Program files (replaced on upgrade)
<code>C:\ProgramData\MergenHub\</code>	All data: project, users, settings, license, certificates, logs (kept on upgrade and uninstall)
<code>...\MergenHub\settings.json</code>	Server settings (ports, HTTPS, OPC UA, licensing, retention)
<code>...\MergenHub\projects\</code>	The project (channels, devices, tags, alarms, log groups)
<code>...\MergenHub\scada.json</code>	SCADA screens and zones
<code>...\MergenHub\mergenhub.db</code>	Users, groups, roles, sessions
<code>...\MergenHub\events.db</code> , <code>audit.db</code> , <code>logs.db</code>	Event log, audit log, historian (see Logs)
<code>...\MergenHub\pki\</code> , <code>webpki\</code>	OPC UA certificates, HTTPS certificate
<code>...\MergenHub\license\</code>	License document and machine key

Note Back up `C:\ProgramData\MergenHub` and you have everything. See [Backup, restore, upgrade, uninstall](#).

Default ports

PURPOSE	DEFAULT
Web UI / REST API	8090 (HTTP) — or the HTTPS port (default 443) when HTTPS is enabled
OPC UA server	48010 — <code>opc.tcp://<host>:48010/MergenHub</code>

Both can be changed in the installer or later in *Settings* › *OPC UA Server / Web & REST API*. See [Windows Firewall and ports](#).

Editions and limits

Every feature is available in every package; packages differ only by the **number of tags**. An unlicensed installation runs in **trial mode** (500 tags, a 2-hour runtime window per start). See [Licensing and trial mode](#).