Why IEC 62443 Demands an OT Asset Inventory – And What It Must Include

The 8 Key Characteristics of a compliant OT asset inventory

62443

OTbase

Content

In the world of OT security, few standards carry the weight and precision of IEC 62443. Designed specifically for OT, or Industrial Automation and Control Systems (IACS) as they call it, this international standard doesn't just recommend strong security practices. It requires them.

One of the most foundational—and often underappreciated—requirements? A comprehensive, accurate, evergreen OT asset inventory.

If you're pursuing IEC 62443 compliance, your asset inventory isn't a nice-to-have. It's the bedrock of your entire security program.

Let's break down why the standard mandates it, where the requirements appear, and what your inventory must include to meet compliance.

Where IEC 62443 Requires an OT Asset Inventory

The requirement isn't buried in fine print. It's explicit across multiple parts of the standard:

Standard part	Requirement	Summary
IEC 62443-1-1	6.5.4.3 – Asset Inventory	An organization needs to maintain a list of all the assets (physical and logical)
IEC 62443-2-1	4.2.3.2 – Asset Inventory	Organizations shall identify and document all IACS assets
IEC 62443-3-2	ZR 1.1 – Identification of Assets	Assets in each zone and conduit must be identified and documented
IEC 62443-3-3	SR 1.1 – Identification of System Assets	The system must support asset identification and documentation
IEC 62443-4-2	CR 1.1 – Asset Identification	Components must support machine-readable asset identification

Bottom line: Without an OT asset inventory, sometimes also referred to as an asset model, everything else in the standard doesn't work. You cannot achieve Security Level 1 (SL-1)—the minimum level—without a proper asset inventory.

The 8 Key Characteristics of a Compliant OT Asset Inventory

Not all inventories are created equal. IEC 62443 doesn't just say "make a list." It defines in detail what must be captured and how it must be maintained. Here are the eight must-have attributes, and how they are covered by the OTbase OT asset inventory software:

1. Comprehensive Scope

IEC 62443 Requirement	OTbase Implementation
Include PLCs, RTUs, HMIs, IEDs	OTbase automatically discovers control system racks, RTUs etc. down to I/O cards with their firmware versions and serial numbers

Include servers, workstations, historians	OTbase automatically discovers Windows and Linux boxes, including their software configuration (see below)
Include network devices	OTbase automatically discovers network devices, including port lists and L2 connectivity (what is connected to which port)
Include safety systems and Distributed Control Systems	OTbase automatically discovers safety systems and also allows for import of DCS configuration data
Include software and firmware, with version numbers	OTbase automatically discovers installed software and firmware, and also informs users about outdated versions
Include data flows and communication protocols	OTbase automatically collects data flow from SPAN ports, Netflow and Sflow services, and local Windows PCs
Include reference manuals and configuration files	OTbase allows for attaching files, such as documents and project files, to individual devices, products, locations, and systems

2. Unique Identification

IEC 62443 Requirement	**OTbase Implementation**
Every asset gets a unique identifier (e.g., UUID, serial number, or internal tag)	OTbase automatically assigns a unique ID to each device.
No duplicates, no ambiguity	OTbase automatically performs a reconciliation process to assure that no duplicates occur.

3. Ownership and Responsibility

IEC 62443 Requirement	**OTbase Implementation**
Who owns the asset?	OTbase maintains a database field for each asset, holding the name of the asset owner
Who is responsible for patching, monitoring, and decommissioning?	OTbase allows for adding additional fields for each asset, holding the names of people responsible for patching, monitoring, and commissioning.

4. Physical and Logical Location

IEC 62443 Requirement	**OTbase Implementation**
Physical mapping: Rack, cabinet, plant area, GPS coordinates	OTbase allows for detailed identification of geolocation, supporting the hierarchical structure that is mandated by IEC 62443-1-1 (6.3: Asset Models) with sites, buildings, floors, rooms, cabinets etc. It even supports the integration of floor maps, with hotspots identifying the exact location of an asset.
Logical mapping: Network segment, zone/conduit, IP/subnet, VLAN	OTbase automatically identifies the subnet/VLAN that an asset resides in and builds an automatic network topology map.

5. Function and Criticality

IEC 62443 Requirement	OTbase Implementation
What does it do? (e.g., "controls boiler feedwater pump")	OTbase allows for recording the function and purpose of individual assets in a dedicated description field. It also provides for physical process association.
What's the business impact if it fails or is compromised? (High/Medium/Low or CIA triad scoring	OTbase includes detailed criticality rating for each device. Criticality can also be set for a system (such as a machine line) and is then inherited by a system's components.

6. Software/Firmware Inventory

IEC 62443 Requirement	OTbase Implementation
Identification of exact software version, vendor, patch level	OTbase automatically identifies operating system version, installed application software, installed security patches, installed component software, and firmware versions (including I/O cards)
Exposure of End-of-support dates	OTbase automatically lists the product lifecycle stage of operating systems, making it easy to identify systems that can no longer be patched. For firmware, OTbase flags installations that run an outdated firmware version.
Exposure of known vulnerabilities (linked to CVE where possible)	OTbase automatically lists known vulnerabilities for software products, observing any installed security patches, and highlighting vulnerabilities with known exploits

7. Dynamic and Maintained

IEC 62443 Requirement	OTbase Implementation
Not a one-time spreadsheet	OTbase creates an evergreen inventory with automatic updates every 24 hours
Updated during new deployments, patches/upgrades, decommissioning, network changes	OTbase automatically catches new devices, software and hardware configuration changes, and network changes. It maintains a configuration timeline for each device and notifies users of configuration changes or new devices via email.

8. Workflow Integration

IEC 62443 Requirement	OTbase Implementation
Vulnerability assessment	OTbase includes a comprehensive vulnerability management workspace with automatic CVE mapping, risk determination, and vulnerability remediation workflows
Authorized technology policies	OTbase includes an audit workspace that provides for the identification of unauthorized equipment and software, and automatic compliance reporting.

Change management process	OTbase includes a change management workflow with built-in authorization checks

Why the Asset Inventory Is Non-Negotiable

Think of your OT environment like a city. You can't secure it if you don't know: What buildings exist. Who lives in them. What utilities they depend on. Which ones are hospitals vs. warehouses.

Without this map, you're defending in the dark.

The asset inventory enables every other control:

Security Practice	Depends on Asset Inventory?
Risk assessment	Yes – can't assess what you don't know
Network segmentation	Yes – zones/conduits are built around assets. OTbase shows you exact network topology maps, and the functional context required to arrive at proper segmentation.
Patch management	Yes – how do you patch what you can't find? Since OTbase also does automatic CVE mapping, it tells you where patches are missing, and what is patched already.
Incident response	Yes – how do you contain a breach without knowing what's connected?
Change management	Yes – how do you detect unauthorized changes? OTbase informs you automatically about configuration changes from network down to PLC ladder logic.

Final Thoughts: Start your 62443 Journey with the Inventory

If you're beginning your IEC 62443 journey, start here: No asset inventory = no compliance. And no foundation for any other parts of the standard: No zones, no conduits, no risk assessment.

It's that simple.

Build it once. Maintain it forever. OTbase does the heavy lifting for you.

Want to learn more? Contact us for a personalized demo: https://otbase.com/request-a-demo/

About OTbase

OTbase is the quintessential solution driving the digital transformation in OT. Designed by the team that cracked Stuxnet, OTbase is the first platform specifically designed to help large enterprises move toward secure and resilient OT networks. Providing a contextualized OT asset inventory, the OT asset management system makes users in engineering, auditing, cyber security, plant planning, and related fields more productive. Visit https://otbase.com to see how OTbase is re-shaping OT.