OpShield from GE Digital

Protection for industrial controls and critical infrastructure networks

If you connect it, protect it.

Traditional industry is becoming digital industry. The embedded devices connected via critical infrastructure SCADA systems are increasingly closing the air gap that operators have relied on to keep industrial assets safe from cyber incidents.

It's important to use the right tools to protect these connected industrial assets. The stakes are high, with cyber mistakes and attacks potentially impacting safety, availability and asset health, as well as reputation and intellectual property.

OpShield from GE Digital was created specifically to protect critical infrastructure, drawing on over ten years of embedded device testing and assessments of hundreds of industrial facilities.

Outcomes

- Reduces risk of cyber-related unplanned downtime, which can decrease safety and availability
- Improves asset protection from cyber-related damage
- Helps safeguard protected health information (PHI) by protecting networks from device compromise
- Reduces risk of damage to reputation and intellectual property theft due to cyber incidents
- Increases your confidence to connect and optimize your critical assets

01 Inspect

To protect it, you need to see it. OpShield provides increased visibility within operational technology (OT) networks because it understands what IT firewalls can't—OT commands and parameters in the context of a defined control process.

02 Enforce

Knowing something's wrong is useful, but having the ability to prevent it is better. That's why OpShield's enforcement policies not only alert, but can also be configured to block traffic that is not on a whitelist of allowable commands in the context of a particular data flow.

OpShield supplements its whitelist capability with unique vulnerability signatures. These heavily researched signatures help protect a device's root vulnerabilities vs. spotting known exploits one by one. The result is increased effectiveness and signature life.

03 Protect

In addition to the ongoing inspection and enforcement OpShield provides, it also helps protect OT networks structurally via virtual segmentation. Segmentation creates zones that reduce the mobility and damage of a misconfiguration or attacker.

From segmentation to protocol inspection and command blocking, OpShield provides several layers of the defense-in-depth approach necessary to help protect the people, assets, and operations that run critical infrastructure.

Vulnerability Research Team

Our vulnerability research team focuses solely on devices and software that control critical infrastructure. And whereas other research groups typically identify and track threats, we painstakingly reverse engineer exploits and conduct our own tests to identify the root causes—the weakness in the software or embedded device.

We then write signatures to block traffic that could exploit the vulnerability. This means longer life, more comprehensive protection from exploit variants, and protection against currently unknown exploits.

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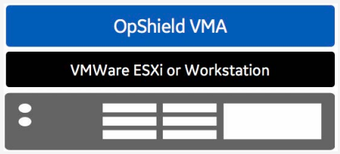
Overview

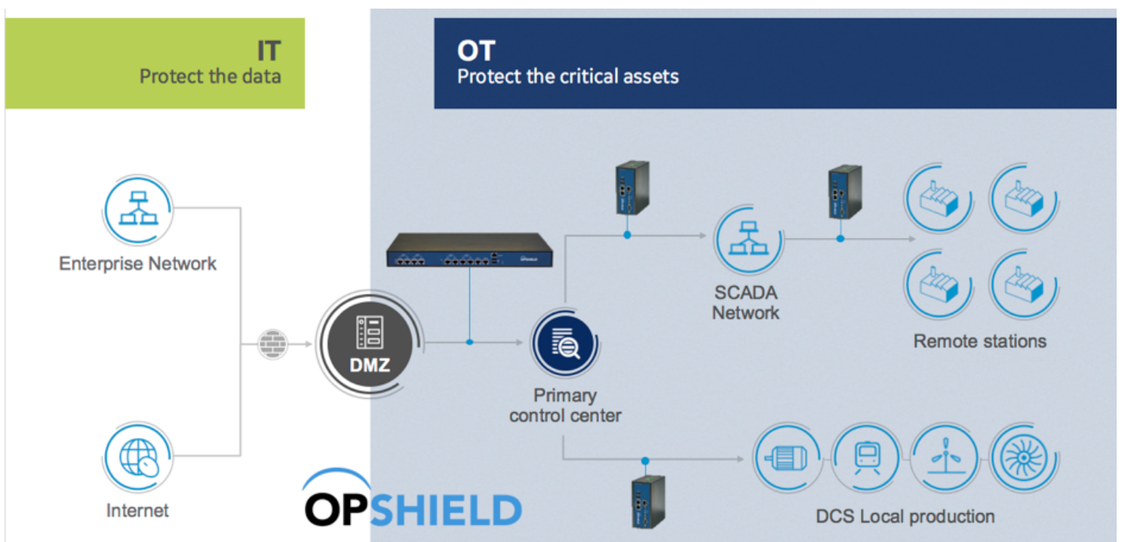
- OpShield protects your network by deploying perimeter and field units into your existing network architecture, with minimal wiring changes and no changes to the endpoint network configuration.
- Can deploy with minimal or no production disruption
- Field units inspect network traffic. There are two models: the OpShield 300 and 400, both of which are fanless and environmentally hardened.
- Perimeter units manage the OpShield system and configure the operation of the field units. There are three models: OpShield 3000, OpShield 4000, and the Virtual Management Appliance (VMA).
- OpShield 3000 and 4000 provide inspection and management capabilities . They are higher-performance models.
- OpShield VMA provides management capabilities in a software-only solution, allowing it to be installed on existing hardware on the network.

400-4 400-2-4s



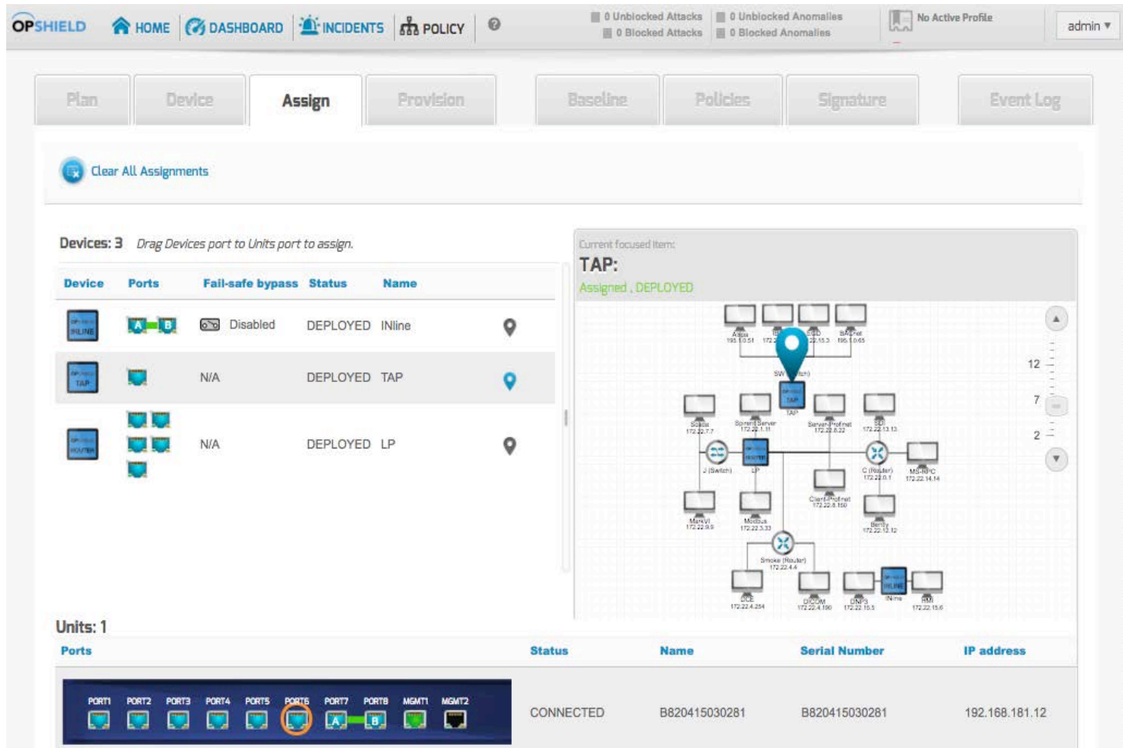
3000-8

4000-4



Features

- Hardware available with fiber optic support, network modules, SFP ports, and HA features like hot-swappable dual power supplies
- Configurable in tap, inline or router mode
- Record network traffic passing through OpShield
- Intelligent policy creation uses machine learning to suggest policy based on recorded traffic
- Automatic topology creation based on recorded network traffic
- OT protocol inspection engine reads OT packets to the command and parameter levels
- Vulnerability signatures protect against root causes, not just one-off threats
- Drag-and-drop virtual network segmentation limits misconfiguration and attacker impact
- Security alerts can be delivered to the management console and SIEM tools
- Simplifies security administration with easy to use graphical interfaces—no CLI required



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Protection for industrial controls and critical infrastructure networks

Protocol Support: Industrial and Medical*

Protocol: Subprotocol	Protocol Whitelisting Capability
ALSPA E8000 over S8000	1 interface, 10 commands, 3 parameters
ALSPA PCX	7 commands, 9 parameters
ALSPA PGD	27 commands, 5 parameters
ALSPA S8000	5 commands, 4 parameters
BACnet	16 interfaces, 310 commands, 3 parameters
Bently Nevada 3500	6 interfaces, 103 commands
CIP over ENIP	2 interfaces, 330 commands
DCE-RPC over UDP	11 commands
DCE-RPC over UDP: DCE-RPC over UDP Common	2 interfaces, 12 commands
DCE-RPC over UDP: ProfinetAcyclic	4 interfaces, 24 commands
DICOM	1 interface, 29 commands, 12 parameters
DNP3	34 commands, 17 parameters
EGD	20 commands
EGD Configuration (over HTTP)	8 commands, 1 parameter
ICMP	1 command, 1 parameter
IEC-101 over TCP	2 interfaces, 149 commands
IEC-104	2 interfaces, 58 commands, 3 parameters
iFix	8 interfaces, 42 commands
Modbus	19 commands, 55 parameters
MS-RPC	20 commands
MS-RPC: DCOM	13 interfaces, 72 commands
MS-RPC:OPC Common	5 interfaces, 16 commands
MS-RPC: OPC Data Access	19 interfaces, 137 commands, 86 parameters
OPC UA Binary	3 interfaces, 48 commands
SDI (Mark VI)	2 interfaces, 91 commands, 1 parameter
SDI (Mark VIe)	217 commands, 2 parameters

*OpShield is fluent in these protocols to the command level. OpShield recognizes over 20 additional protocols,including Siemens S7, OPC UA and EtherNet/IP-CIP

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Protection for industrial controls and critical infrastructure networks

Product Specifications by Model

	OpShield-300-2 (end-of-sale)	OpShield-300-4	OpShield-400-4	OpShield-400-2-4S	OpShield-3000-8	OpShield-4000-4
AC Power						
Range Line Voltage					90 ~ 264 VAC	100 ~ 240 VAC
Normal Line Voltage					100 ~ 240 VAC	100 ~ 240 VAC
Max Current					1.2 A (100 VAC)	5.0A (100 VAC)
Frequency					50/60 Hz	50/60 Hz
Redundant Power					No	Hot Swappable AC PSU
DC Power						
Power Supply	12 ~ 36 VDC	12 ~ 36 VDC	12 ~ 36 VDC	12 ~ 36 VDC		-36 ~ -72 VDC
Power Consumption (Avg/ Max)	13.8 W / 15.7 W	13.8 W / 15.7 W	13.7 W/20.5 W	13.7 W/20.5 W		89.3 W/165.7 W
Redundant Power	Dual DC Connectors	Dual DC Connectors	Dual DC Connectors	Dual DC Connectors		Optional Hot Swappable DC PSU
Environmental						
Operating Temp	-40° ~ 70° C	-40° ~ 70° C	-40° ~ 75° C	-40° ~ 75° C	0° ~ 40° C	0° ~ 45° C
Storage Temp	-40° ~ 85° C	-40° ~ 85° C	-40° ~ 85° C	-40° ~ 85° C	-10° ~ -70° C	-25° ~ 75° C
Humidity	5% ~ 95% (non-condensing)	5% ~ 95% (non-condensing)	5% ~ 95% (non-condensing)	5% ~ 95% (non-condensing)	20% ~ 90% (non-condensing)	5% ~ 90% (non-condensing)
Cooling	Passive (Fanless)	Passive (Fanless)	Passive (Fanless)	Passive (Fanless)	Fan	Hot-swap fans
Physical						
Height	146 mm / 5.75 inches	146 mm / 5.75 inches	146 mm / 5.75 inches	146 mm / 5.75 inches	44 mm / 1.73 inches	44 mm / 1.73 inches
Width	65 mm / 2.56 inches	65 mm / 2.56 inches	78 mm / 3.07 inches	78 mm / 3.07 inches	438 mm / 17.24 inches	431 mm / 16.97 inches
Depth	127 mm / 5.00 inches	127 mm / 5.00 inches	127 mm / 5.00 inches	127 mm / 5.00 inches	292 mm / 11.50 inches	514 mm / 20.20 inches
Weight	1.0 kg / 2.2 lbs	1.0 kg / 2.2 lbs	1.25 kg / 2.75 lbs	1.25 kg / 2.75 lbs	8.6 kg / 19 lbs	8.0 kg / 17.63 lbs
Mounting	DIN (or optional Wall-Mount)	DIN (or optional Wall-Mount)	DIN (or optional Wall-Mount)	DIN (or optional Wall-Mount)	1U rack	1U rack, rails included (tool-less)
Interfaces						
Network Modules						8x Gigabit SFP 4x Gigabit Copper
Gigabit Ethernet RJ45	2 with bypass + 1 mgmt port	4 with bypass + 1 mgmt port	4 with bypass + 1 mgmt port	2 with bypass + 1 mgmt port	8 with bypass + 2 mgmt ports	4 with bypass + 2 mgmt ports (add'l ports via network modules)
Gigabit Ethernet SFP				4		Supported via network module(s)
USB	2	2	2	2	2	2
Console	Serial over DB9	Serial over DB9	Serial over DB9	Serial over DB9	Serial RJ45	Serial RJ45

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Product Certifications

	8 Port (3000, 4000)	2/4 Port (300, 400)
Safety		
	RoHS	RoHS
		IP30 (Ingress Protection)
		ATEX C1D2 (300 only)
UL		
	UL 60950-1, 2nd Edition, 2011-12-19	UL 60950-1, Information Technology Equipment Safety Part 1: General Requirements
	CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12	CSA C22.2 No. 60950-1-07, Information Technology Equipment Safety Part 1: General Requirements
FCC		
	FCC Part 15 Class A or B	FCC Part 15, Subpart B: 2012 Class A
	IC ICS-003	ICES-003 Issue 5: 2012 Class A
CE		
		IEC 60068-2-64 Vibration
		IEC 60068-2-27 Mechanical Shock
	EN-55022: 2010 + AC: 2011 (Class A or B)	EN 55022: 2010 + AC: 2011 Class A
	EN-61000-3-2: 2006 + A1: 2009 + A2: 2009	EN 61000-3-2: 2006 +A1: 2009 + A2: 2009 Class A
	EN-61000-3-3: 2008	EN 61000-3-3: 2008
	EN 55024: 2010	EN55024: 2010
	IEC 61000-4-2: 2008	IEC 61000-4-2: 2008
	IEC 61000-4-3: 2006 +A1: 2007 + A2: 2010	IEC 61000-4-3: 2006 + A1: 2007 + A2: 2010
	IEC 61000-4-4: 2012	IEC 61000-4-4: 2012
	IEC 61000-4-5: 2005	IEC 61000-4-5: 2005
	IEC 61000-4-6: 2008	IEC 61000-4-6: 2008
	IEC 61000-4-8: 2009	IEC 61000-4-8: 2009
	IEC 61000-4-11: 2004	IEC 61000-4-11: 2004
	IEC 61000-4-12: 2006	
	VCCI	VCCI

OpShield is now available with or without fiber, high availability features, and SFPs. Contact us to learn about the right technology for your operational environment.

LEARN MORE

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Services

In the world of Industrial Internet of Things (IIoT), organizations are able to optimize productivity, reduce costs, and achieve operational excellence. While this is an exciting time for opportunity and growth, it can also bring on new challenges, questions, and uncertainty. No matter where you are on your IIoT journey, GE Digital has the right services offering for you.

Advisory Services We can help you plan and start your IIoT journey in a way that aligns to your specific business outcomes.

Managed Services We can help you maintain your critical machines from one of our remote locations around the world using model-based predictive-analytic technology.

Implementation Services Our team will help develop a collaborative, multi-generational plan that will marry your existing investments to the right process enhancements and technology.

Education Services We specialize in education services to ensure that you're leveraging our solutions to the fullest extent with our training and certificate programs.

GlobalCare Support Services Let us help by ensuring that your business continues to operate at its highest efficiency, all while mitigating risks to your investments.

Cyber Security Services Our solutions provide industrial-grade security for a wide range of OT network and application topologies.

Related products

GE Digital's OT cyber security suite helps protect industrial and healthcare companies against misconfigured devices and unplanned downtime due to cyber incidents. We can help you test, certify, and secure industrial connected devices, applications, and processes.

Achilles Test Platform →

Build in product security. Achilles Test Platform discovers vulnerabilities and faults to be reproduced, isolated, identified, and resolved before product introduction.

PREDIX

Predix →

Innovate and transform your business with the cloud-based operating system for the Industrial Internet, purpose-built for industry.

Continue your IIoT journey

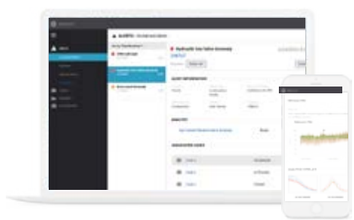
Transforming your business requires innovative foundational solutions that lay the groundwork for optimized performance.

Historian →

Optimize asset and plant performance through time-series industrial data collection and aggregation, leveraging Predix IIoT connectivity.

iFIX →

Gain visibility into your operations and secure agility for smarter decision making that drives results.



Asset Performance Management →

Move from reactive to proactive maintenance to reduce unplanned downtime, minimize maintenance costs, improve efficiency and extend asset life.

About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry.

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