Water / Wastewater Industry Division

Setting the Standard for Automation™

Calendar of WWID Events

June 11 – 14	ACE23: The Future of Water is 2050
Sept 30- Oct.4	WEF WEFTEC 2023 (includes WEF LIFT Challenge (2023)
Oct 4 - 6	ISA Automation & Leadership Conference

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Newsletter
April 2023

Director's Welcome

Hassan Ajami, PE, CAP, PCI-Vertix.

Welcome to our 2023 Water & Wastewater Industries Division (WWID) newsletter.

I am honored to take on the WWID Director role for these next two years. We have exciting plans for this year and I look forward to getting all of our membership involved.

I want to thank Manoj Yegnaraman for his work as our past-Director. He led WWID through all of the COVID related changes and restrictions that we all had to endure, culminating in our division winning the ISA Division Excellence award in 2022. Thank you Manoj for your leadership and your continued support as part of the WWID Board. I also want to welcome Jason Hamlin as our Director-Elect and Colleen Goldsborough as our Director-Elect-Elect. They are both long-term WWID members and we will all be working together to bring an exciting and inclusive program for our members this year.

I've been an ISA member since my college days as a student member. When I became a full ISA member, I was not really involved in the divisions or events as Michigan's local section was in the midst of closing. By chance, I submitted an abstract to the 2014 WWAC conference and was selected to present in Orlando Florida. The conference format, its focus on the Water & Wastewater industry, and the conference committee's welcoming arms kick started my ongoing commitment to WWID. The WWID Program Chair, Joe Provanzano, made sure that everyone who attended …**(continued on page 2)**

Newsletter Editor's Welcome

Slawek Wolski,Ulteig

Welcome to the April 2023 issue of the ISA Water & Wastewater Industries Division (WWID) Newsletter. This month's issue focuses on a topic that is critical to the water and wastewater treatment industry: ISA112, the new standard for SCADA systems in water and wastewater treatment facilities.

As we work to improve the safety, reliability, and efficiency of our water and wastewater treatment systems, ISA112 provides a comprehensive framework for designing, implementing, and maintaining SCADA systems that meet the unique needs of our industry. In this issue, we will discusses the importance of an ongoing alarm management program for SCADA alarm systems used in modern water utilities. The article highlights the ISA-18.2 alarm management standard and the key components required for an effective alarm management program.

While ISA18.2 is an essential standard for the water and wastewater treatment industry, it is crucial that we also recognize the critical role that other emerging technologies play in shaping the future of our industry. Advancements in artificial intelligence (AI) and machine learning (ML) have the potential to revolutionize water and wastewater treatment by improving the accuracy and efficiency of treatment processes. By analyzing vast amounts of data in real-time, AI and ML systems can identify patterns and anomalies that may be missed by human operators enabling faster and,…(continued on page 3)

WWID Director's Message
(continued from Page 1)

… these events felt welcome. It was a very sad day last year when we heard of Joe's passing, he left behind a great legacy and a strong division for all of us to participate in. I had the privilege of participating in each WWAC, and the honor of becoming the Co-Chair and Chair as we transitioned to the combined EWAC conference with the Power industry.

I can't say that 2023 has been off to a great start. My prayers and condolences go out to all those effected by the natural disasters in Turkey, Syria, and New Zeland. It was refreshing to see how quickly the international community rose to support those effected by the disasters, leaving politics and past conflicts aside and focusing on compassion towards our fellow men, women and children.

ISA sets yearly goals for each Division related to membership, outreach, events and participation. I am proud to announce that WWID scored at the top of all divisions in the 2022 Division Health report. Our membership increased by 42% in one year! We have plans for new opportunities for members to participate with the creation of three sub-committees – Cybersecurity, Advanced Technology, and Events. All members are invited to volunteer for these committees, please reach out to anyone on the Board for more information. We also working on agreements with our partner organizations AWWA and WEF to open opportunities for WWID to participate in their annual events. I have to thank Manoj again for taking the lead on discussions with AWWA and WEF and ISA's Events group to establish the agreements. Once details on these events are finalized, we will reach out to members who are interested in participating.

One exciting event that WWID has always been part of the Leaders Innovation Forum for Technology (LIFT) Challenge. We are excited to announce our participation in this year's event – the 2023 Intelligent Water System Challenge which culminates at WEFTEC in Chicago. Our very own Don Dickenson is part of the judging team for this year. Please check our WWID website for the press release and more information on the IWS Challenge.

As we all come out of the COVID era, each entity has been forced to re-evaluate past operations. ISA's plans for events in 2023 has been limited to the four main events listed on isa.org/events. Unfortunately, we will not have an official EWAC or WWAC event this year. In its place, we plan on hosting ConnectLive and OnPoint meetings. We are open to volunteers who have case studies that they would like to present. I'm a firm believer that collaboration between members is the key to the longevity of any organization. WWAC/EWAC events showed that there is a desire in our industry for events or forums that are focused on the automation side of Water/Wastewater. We are hopeful that we'll be able to restart WWAC/EWAS in future years.

I am looking forward to continuing my work with everyone in the WWID community for 2023 and beyond. I wish everyone the best.

Regards,

Hassan Ajami, PE, CAP
Director, ISA WWID
Vice President / Lead Technical Officer PCI-Vertix
hajami@pci-vertix.com

Hassan has been involved in the Water/Wastewater industry for 20 years and has been an ISA Professional member for over 10 years.

He is the Director for WWID, Conference CO-Chair for EWAC, and part of the ISA112 SCADA Systems Standard committee.

Hassan has a Bachelor of Science in Chemical Engineer from Wayne State University in Detroit, and a Masters of Science in Industrial Systems Engineering from the University of Michigan. He has been with PCI Vetrix since 2000 and is currently the Vice President and Lead Technical Officer.

Hassan is a registered Professional Engineer (PE) in 4 states and the District of Columbia. He is also a Certified Automation Professional (CAP).

Newsletter Editor's Welcome
(continued from Page 1)

…., more effective decision-making.

However, it is important to acknowledge that the water and wastewater industry, like many others, is currently facing significant challenges related to labor shortages and supply chain issues due to the ongoing chip shortages. These challenges have impacted the availability of critical components, such as sensors and controllers, which are essential for the implementation of advanced technologies like AI and ML systems and smart water management systems. As a result, it is more important than ever for the industry to come together to share knowledge and resources, and to explore innovative solutions to these challenges.

Despite these challenges, we believe that by embracing AI and ML systems and implementing smart water management systems, we can enhance the efficiency, reliability, and sustainability of our treatment processes, ensuring that we continue to meet the needs of our communities now and in the future. In future issues of the ISA Water and Wastewater Division Newsletter, we will continue to explore these critical topics and provide insights on how to leverage emerging technologies to improve the performance of water and wastewater treatment systems, while also addressing the challenges posed by labor shortages and supply chain issues.We hope you find this month's issue informative and valuable, and we look forward to continuing to provide you with the latest news, insights, and trends in the water and wastewater treatment industry.

Warmest Regards,

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Slawek Wolski is the Engineering Supervisor (Water/Wastewater) with Ulteig Engineering's Hamilton Ontario office. Ulteig Engineers is an employee-owned company with offices in Hamilton ON, Austin TX, Billing MT, Bismark ND, Boise ID, Cedar Rapids IA, Denver CO, Detroit Lakes MN, Sacramento CA, Sioux Falls SD, St. Paul MN, Williston ND, and head offices in Fargo ND. Slawek was an associate director with NLS Engineer, prior to it being acquired by Utleig in 2021. Slawek has also held senior positions with Grey Matter Systems, Hatch Mott MacDonald, Insyght Engineering, Sirron Systems, and The Walter Smith Co. Slawek and his wife live in Etobicoke, Ontario, Canada which is part of Canada's largest city: Toronto.

WELCOME

Director Elect's Welcome

Jason Hamlin Instrulogic

Hello fellow WWID members, hope all are well in beginnings of 2023. Here in Northern Virginia, we're seeing one of the earliest Spring blooms on record with heavy rains in late February, while some of my friends in parts of California are seeing snow in their yards. No matter the form, there's no denying the impact water has on our lives. Spring usually brings plenty of rainfall to the Northeast, along with longer daylight hours, warmer weather, and new growth. Speaking of new growth, this year brings some change in Division leadership; Hassan as director, myself as Director-Elect, and Colleen as Director-Elect-Elect. A warm welcome to them, and hearty thank you to Manoj's excellent leadership during the Covid years and winning the Division Excellence Award for 2022 as his parting gift to us. No pressure Hassan!

For those who don't know, I became an ISA member in 2012 straight into the WWID, went to the WWAC Symposium that year in Orlando knowing nobody. I met and retained some amazing friendships there, with Graham Nasby and Joe Provenzano being the two who introduced themselves to me and immediately made me feel welcome… and then rapidly recruited me into volunteering more within the Division the following year. Life has given me some interesting ups and downs over the years, but I never lacked for the great camaraderie, content, and Joe's warm welcomes at the WWAC. Thank you Joe, may I aspire to be even half the leader you were.

We now live in a world scarred by pandemics, supply change issues, and labor challenges, which is to say 2023 sadly still won't see the return of an in-person WWAC/EWAC event. While we're hopeful this event will come back, we do have a collection of ConnectLive and OnPoint meetings this year, as well as three new sub-committees being formed for Cybersecurity, Advanced Technologies, and Events. Manoj is also working to continue our joint participation with AWWA and WEF and with a little bit of luck I may get to see some off you at WEFTEC this year. I look forward to serving the WWID and its members, and may each of you have a great 2023.

Jason Hamlin
2023-2024 Director-Elect
Jason Hamlin
Instrulogic
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Colleen Goldsborough, United Electric Supply

Hello WWID Members! Hope 2023 is treating you well so far. As the new year is in full swing, I'd like to wish our new Director, Hassan Ajami, and Director-Elect, Jason Hamlin good luck in the coming year. I am honored to be the Director-Elect-Elect alongside these two. Thank you to Past Director, Manoj Yegnaraman, for leading us through the past two difficult years with COVID and ending with the Division Excellence Award from ISA at the ALC in Galveston this past October! It was great to meet everyone in person that we've been working together with virtually over the past couple years. I also want to thank Manoj's continued efforts on our board with our joint participation with AWWA and WEF.

With the restructuring of Division events, we have multiple ConnectLive and OnDemand presentations coming throughout the year. I'm even more excited about our sub committees forming this year: Cybersecurity, Advanced Technology and Events. Please reach out to anyone on the board if you have any interest in getting more involved in OnDemand presentations or the sub committees.

I began with the WWID at my first Fall Leadership Conference, and just wanted to sit in on the WWID meeting, to understand better of what a Division was. Graham Nasby "invited" me to sit at the table along with the rest of the board members. From there, I met more board members including Joe Provenzano, Pavol Segedy and Kevin Patel. When a position became open on the board, Pavol reached out to me, and I happily accepted and haven't looked back since! I look forward to the rest of 2023 with supporting the WWID members and the whole Water/Wastewater Industry.

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WWID NEWS

Water Environment Federation Launches Fifth Intelligent Water Systems Challenge

WWID Announcements

The Water Environment Federation (WEF) announces the Intelligent Water Systems Challenge is set to once again challenge participants to use innovation and data to help solve some of the most difficult issues faced by the water industry.

The goal is to demonstrate the value of intelligent water systems to utilities and foster the adoption of smart water technologies, as well as give students, professionals, and technology experts the opportunity to highlight their talents and innovation with a focus on leveraging data to help utilities make better decisions.

The 2023 Intelligent Water Systems Challenge, launched on January 23, will run until October 2, 2023. Scenarios will focus on collection systems, wastewater treatment systems, drinking water treatment systems, source water/watershed, and distribution networks. Teams with innovative solutions will be invited to present their results in person at WEFTEC 2023 in Chicago for final judging. The winning team will receive a minimum cash award of $10,000. In addition, Xylem will be awarding $2,500 for the "Most Elegant Solution."

The Challenge is hosted by Leaders Innovation Forum for Technology (LIFT) and is a joint effort by WEF and The Water Research Foundation. It is also supported by BlueTech Research, Cleveland Water Alliance, International Society of Automation Water and Wastewater Industries Division, Smart Water Networks Forum, The IEEE Smart Cities TAC, and The Water Council.

"As we encourage creativity to advance innovation in the water and wastewater systems sector, we are also looking for ways to integrate practical applications," said Walter Marlowe, WEF Executive Director. "The Intelligent Water Systems Challenge continues to demonstrate the value of ingenuity that fosters the adoption of smart water technologies across the sector."

For more information or to register for the challenge, visit:

WEF.ORG/IWS-CHALLANGE

UPCOMING WEBINARS

ISA Conference and Webinars in 2023

From the WWID Program Committee

ISA conferences, webinars, and ISA Connect Live sessions cover a variety of topics in industrial automation by providing attendees with insight into key operational and business topics through online sessions, panels with live Q&A, exhibits, as well as networking and chat opportunities.

Benefit from experiences with renowned experts and presenters, hear firsthand about the latest technologies and trends, and gain the high-value, peer-reviewed technical content that will keep you and your skills on the cutting edge. Plus, take advantage of great exposure opportunities for yourself and/or your company's products and services.

Register at: https://www.isa.org/events-and-conferences

Upcoming Conferences

OT Cybersecurity Summit–Scotland

31 May — 1 June 2023

This brand new event will focus on how you can protect your fortress with the ISA 62443 series of standards and related training courses.

Register Now

Digital Transformation Conference–Brazil

September 2023

This second annual event will take a deeper dive by going beyond the need for effective cybersecurity to keep up with the increasing pace of digital transformation within the industrial automation field by exploring the development of a smart manufacturing center of excellence.

Learn More

ISA Automation & Leadership Conference–USA

4–6 October 2023

The ISA Automation & Leadership Conference (ALC) is the automation event of the year—combining ISA's leadership conference with the best technical presentations from its automation conference series into an unparalleled event experience.

Learn More

Digital Transformation Conference–Asia Pacific

November 2023

This third-annual event will bring together subject matter experts to share end-user case studies and firsthand experiences on how to optimize core assets in acceleration towards energy transition and industrial sustainability through digital transformation.

Learn More

Upcoming Webinars

Accelerating the Process Industry Through Digitalization

28 March | 1:00 p.m. – 2:00 p.m. ET

Register Now

ISA Connect Live

Technical discussion and networking in a live, virtual setting

Connect Live with the Automatic Controls and Robotics Division

15 March 2023 | 11:00 a.m. ET

Rise of Robots as Quality Control Specialists

Register Now

Connect Live with Smart Manufacturing and IIoT Division

22 March 2023 | 10:00 a.m. ET

Augmented and Virtual Reality

Register Now

OnPoint

Division-led technical presentations for ISA members

OnPoint with the Water & Wastewater Industries Division

3 May 2023 | 12:30 p.m. ET

Scada Standards

Register Now

TECHNICAL ARTICLES

Guide to create an Alarm Management Program using ISA-18.2 standard

By Graham Nasby, co-managing director of ISA18 committee

SCADA alarm systems – whether they generate screen alarms, control room alarms, mobile device alarms, or call-out alarms – are a vital component of any SCADA system. SCADA systems, known as supervisory control and data acquisition, perform a vital role modern water utilities by monitoring, controlling, logging, and alarming a wide range of processes, including pumping, purification, storage, distribution, and ultimately the collection and treatment of wastewater.

To ensure the continued effectiveness of the SCADA alarm system, an ongoing alarm management program is needed to monitor the performance of alarms and make alarm programming adjustments as required. The ISA-18.2 alarm management standard provides standardized framework and work procedures for developing and maintaining an effective SCADA alarm system.

At a minimum, an effective alarm management program that is part of water facility operations should consist of:

- A master alarm database (MADB) is used to document the agreed-to configuration of each alarm, including the expected operator response, expected speed of operator response required, and the purpose of each alarm. The master alarm database should be readily accessible to operations.

- A program where alarm system statistics are gathered continuously, or at set intervals, so the performance of alarms over time can be monitored. This includes statistics such as number alarm activations per hour, number of standing alarms, alarm acknowledgement times, operator response times, and the most commonly activated alarms. While informal/manual methods can be used, software tools should be used to automatically create these reports.

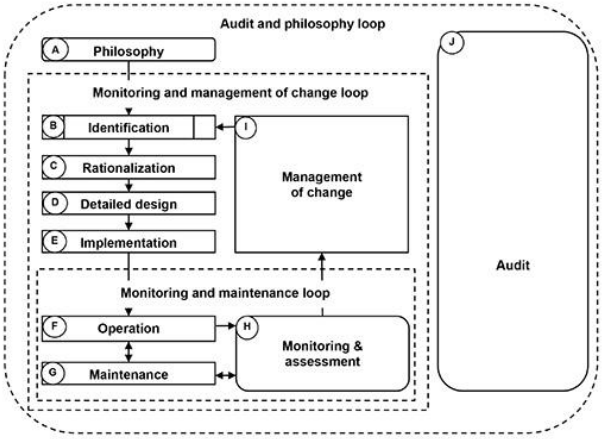
- Periodic meetings with the operations, compliance, management, and SCADA team members, plus other stakeholders as needed, to review alarm system performance, and to discuss potential improvements that can be made to problematic alarms and/or alarm conditions

- Establishing a clear identification and rationalization process that is used when adding new alarms. Identification is the ISA18.2 work process where opportunities for adding alarms are identified, and rationalization is when potential new alarms are reviewed to ensure they will be useful/effective prior to them being added to the alarm system.

- Periodic alarm system audits to ensure that in-service alarm settings are in alignment with what is documented in the master alarm database.

- Having documented procedures for shelving or putting alarms out of service in a controlled way, in the case of known equipment problems or when parts of a facility that are currently not in use. Ideally, the SCADA system software will have built-in support for controlling and logging when alarms are shelved and/or put out of service, including requiring users to enter in a reason when alarm temporarily disabled and when (or if) it should be restored.

A more complete guide to establishing an alarm management program can be found in the ISA18.2 alarm management standard and associated technical reports. ISA members can view the ISA18.2 standard at no cost at www.isa.org, and copies can be purchased at www.isa.org/standards .



ISA18.2 Alarm Management Lifecycle (source: ISA 18.2-2016)

Alarm performance metrics based upon at least 30 days of data		
Metric	**Target value**	
Annunciated alarms per time:	Target value: Very likely to be acceptable	Target value: Maximum manageable
Annunciated alarms per day per operating position	~150 alarms per day	~300 alarms per day
Annunciated alarms per hour per operating position	~6 (average)	~12 (average)
Annunciated alarms per 10 minutes per operating position	~1 (average)	~2 (average)
Metric	**Target value**	
Percentage of hours containing more than 30 alarms	~<1%	
Percentage of 10-minute periods containing more than 10 alarms	~1<%	
Maximum number of alarms in a 10 minute period	≤10	
Percentage of time the alarm system is in a flood condition	~<1%	
Percentage contribution of the top 10 most frequent alarms to the overall alarm load	~<1% to 5% maximum, with action plans to address deficiencies.	
Quantity of chattering and fleeting alarms	Zero action plans to correct any that occur.	
Stale alarms	Less than 5 present on any day, with action plans to address	
Annunciated priority distribution	3 priorities: ~80% Low, ~15% Medium, ~5% High or 4 priorities: ~80% Low, ~15% Medium, ~5% High, ~<1% "highest" Other special-purpose priorities excluded from the calculation	
Unauthorized alarm suppression	Zero alarms suppressed outside of controlled or approved methodologies	
Unauthorized alarm attribute changes	Zero alarm attribute changes outside of approved methodologies or MOC	

Summary of Maximum Recommended Alarm Rates from Alarm Systems (source: ISA 18.2-TR5 Alarm System Monitoring, Assessment, and Auditing)

About the Author: *Graham Nasby, P.Eng has over 20 years of experience with SCADA, OT and industrial automation systems. From 2010-2022 he worked in the municipal water/wastewater sector in both the utility and consultant roles. He is co-managing director of the ISA18 alarm management committee. Since 2022, he has held the position of Senior Manager of OT Security Architecture at CN Rail. Contact: graham.nasby@grahamnasby.com*

TECHNICAL ARTICLES

Securing Water and Wastewater Systems

By SCADA fence - Shawn O'Neill

Water and wastewater systems depend on automated control systems to operate and monitor processes such as treatment, testing and the movement of water.

In recent years, there has been an increase in connectivity of OT networks to other networks and to the Internet, due to increased process automation, more segments and new remote sensors. The reliance on these Industrial Control Systems (ICS), such as Supervisory Control and Data Acquisition (SCADA), has opened the critical water and wastewater infrastructure to new exposures and threats: whether they are malware or ransomware infections, accidental activities that cause damage, or carefully crafted targeted attacks by well-organized hacker groups and national threat actors.

Components of Typical Industrial Control System in the Water Sector

Diagram #1: A Typical ICS System in the Water Sector

In recent years, ransomware and hacking cyber-attacks in the US (and around the globe), have caused the disruption of numerous water and wastewater systems. Ranging from crippling and costly ransomware incidents, up to incidents that risk public safety. These incidents include dam and canal management, sewage spilling, water treatment process manipulations, and many others. These cyber-attacks have caused severe damages to ongoing operations, putting water quality and public safety at risk, while causing millions of dollars in damages.

In 2018, the American Water Infrastructure Act (AWIA) was signed into law. AWIA Section 2013 requires community (drinking) water systems serving more than 3,300 people to develop or update risk assessments and Emergency Response Plans (ERPs).

Addressing the Attack Vectors

Attack vectors into OT networks are constantly changing. They include internal engineering stations, external vendors, attacks of remote equipment, attacks of wired and wireless radio networks, and many more. All of which are not addressed by perimeter firewalls or by a local agent. Real-time and continuous network-based detection is needed in order to prevent system abuse or from being a target of a cyberattack.

Furthermore, it is vital to continuously monitor for availability related issues.

A robust network wide intrusion detection covers the following attack vectors:

- Unauthorized external access via misconfigured perimeter devices, or routes alternate to the firewall
- Malware and ransomware infections – new or known malwares can easily bypass firewalls and anti-virus solutions.
- Unauthorized remote access or authorized users' access escalation of privileges.
- Internal malicious activities by authorized or formerly authorized users.
- Direct access to critical OT equipment and manipulating of production processes. Including tampering with sensors and actuators in central or remote stations.
- IT-OT propagation of threats from authorized stations, gateways, unauthorized wired/wireless routers, etc.
- Operational issues caused by human error/misconfiguration, service, or hardware malfunctions.

The SCADAfence Platform

The SCADAfence Platform offers full visibility of network assets and their day-to-day operations. The non-intrusive platform provides real-time detection of anomalous and non-authorized behavior. The SCADAfence Platform also discovers security scenarios that are not discoverable by other security tools, such as firewall and anti-virus components. It addresses external and internal attack vectors, tampering with security mechanisms, malware and ransomware activities, misconfigurations, as well as amateur and professional hacking attempts.

Scalable Architecture

The SCADAfence Platform supports multiple architecture models, comprised from one or multiple hierarchical layers. It is also suitable for managing small or a very large number of sites and monitoring points.

The Benefits

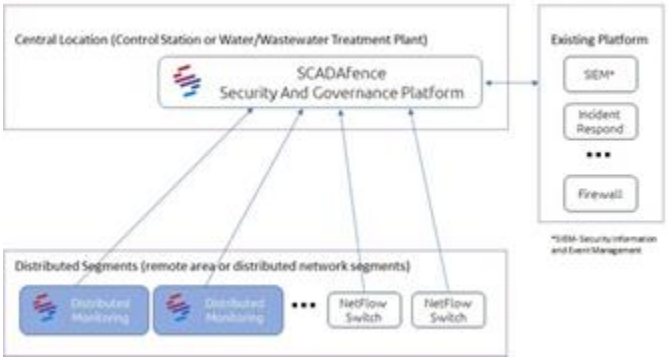


Diagram #2: SCADAfence's Multi-Layer Architecture

Cost-Effective and Non-Intrusive

The SCADAfence Platform's DPI (Deep Packet Inspection) algorithms are designed with performance optimization in mind. The SCADAfence Industrial DPI Sensors can use small hardware form factors with minimal specifications. Additionally, the central SCADAfence Platform server can scale to hundreds of distributed sensors, serving tens of thousands of devices without performance degradation. Furthermore, for large-scale distributed networks, the SCADAfence Platform is able to process NetFlow traffic from remote locations, thus eliminating the need for local sensors, making deployments practical and maintainable.

The SCADAfence Platform's is non-intrusive (default mode), therefore it has no impact on the production process. It does not inherently require production downtime or lengthy maintenance windows. An active mode is also available for further asset data collection. The active polling of devices can be done via "IT" protocols such as SNMP and WMI, and via native industrial protocols. Active polling should be explicitly enabled.

Visibility

In each site, the SCADAfence sensor will discover and monitor assets such as RTUs, PLCs, smart meters and actuators. The sensor will automatically discover the site assets, perform DPI of the network traffic including industrial protocols and raise alerts on cyber-security and operational events. The SCADAfence platform will alert on attempts to tamper with local assets, shut down critical infrastructure components and initiate unauthorized OT commands to the network devices.

Low False Positives

SCADAfence's Micro-Granular Baseline is granular, per asset and per traffic characteristics. This unique feature is designed to provide the most accurate detection mechanism, and minimize the number of false positives in the industry.

Providing a low number of accurate alerts makes the system usable and trustable by its end- users. There is also no need for effort and time-consuming stop/restarts and re-learn steps (which would make the system unusable for large periods of time and increases network exposure and risks).

Automatic Tuning with Continuous Improvement

The SCADAfence Platform's installation is configuration-free by default. Its algorithms, and the Micro-Granular Baseline are pre-tuned to the distributed network architecture making the deployment phase quick and at minimal effort. There is no need for a lengthy analysis and expert tuning.

Upon installation, the SCADAfence Platform creates a baseline, that keeps evolving and learns the network traffic patterns and assets behavior. It then enables it to detect any deviation from the norm and alert on suspicious activities and potential threats.

The SCADAfence Platform's Preventive Approach

Handling incidents once they happen is very expensive (today's malware and hacking attacks spread in a matter of hours and can cripple entire production and production-supporting processes). On the other hand, infiltration and preparation for the attack can take weeks and months.

Therefore, SCADAfence is equipped with a full suite of features, under one umbrella called "Exposure Analysis", that is constantly analyzing the network traffic and presenting network and security personnel with exposure and threat related information. The information is tailored to their organizational processes, visualizes traffic between their network segments, and provides prioritization of assets according to threat related metrics. This helps identify threats before they are fully deployed and prevent the next security incident.

The SCADAfence Governance Portal

The SCADAfence Governance Portal enables the IT and OT departments to centrally define and monitor the organizational adherence to organizational policies and to OT related regulations. The solution is easily deployed, is not intrusive, and does not jeopardize the process availability in any of the OT sites.

The solution is configured and managed from a central location, and aggregates compliance information from all sites in the organization. It also connects to other security systems, providing a cross-organizational, comprehensive compliance posture.

Diagram #3: The SCADAfence Governance Portal's Compliance Score Dashboard

Shawn O'Neill is an experienced professional with ~10 years in Cyber Security and has spent the last 5 years focusing on OT Cyber Security and helping organizations protect their critical infrastructure and operational environments. If interested in a discussion around OT Security, feel free to reach out to Shawn at shawn.oneill@scadafence.com or 506-260-8393.

About SCADAfence

SCADAfence is the global technology leader in OT & IoT cybersecurity. SCADAfence offers a full suite of industrial cybersecurity products that provides full coverage of large-scale networks, offering best-in-class network monitoring, asset discovery, governance, remote access, and IoT device security. A Gartner "Cool Vendor" in 2020, SCADAfence delivers proactive security and visibility to some of the world's most complex OT networks, including the largest manufacturing facility in Europe. SCADAfence enables organizations in critical infrastructure, manufacturing, and building management industries to operate securely, reliably, and efficiently. To learn more, go to www.scadafence.com

AUTO-QUIZ: BACK TO BASICS

Models of control to describe a batch process

From the ISA Certification Program

This automation industry quiz question comes from the ISA Certified Automation Professional (CAP) certification program. ISA CAP certification provides a non-biased, third-party, objective assessment and confirmation of an automation professional's skills. The CAP exam is focused on direction, definition, design, development/application, deployment, documentation, and support of systems, software, and equipment used in control systems, manufacturing information systems, systems integration, and operational consulting. Click this link for more information about the CAP program.

According to ISA-88.00.01-2010 (Part 1), which statement is true about the models of control that can be used to describe a batch process:

a) ISA-88 describes four models: process, procedural, equipment, and physical.
b) A process stage in the process model can be mapped to a unit procedure in the procedural model, which in turn is mapped to a unit in the physical model.
c) Procedural control model elements are designed to correspond to elements of the physical model.
d) A unit (physical model) may support procedures, unit procedures, operations, and phases from the procedural model.
e) None of the above

Answer A is not correct. There are only three models of control identified in ISA-88. These are the process model, the procedural control model, and the physical model.

Answer C is not correct. Procedural control model elements are designed to correspond to elements of the process model, not the physical model. Procedural control model elements (procedures, operations, and phases) are designed to carry out the requirements of the process stages, operations, and actions.

Answer D is not correct. A unit (physical model) may support unit procedures, operations, and phases from the procedural model, but not procedures, which are supported at the process cell level only.

The correct answer is B, "A process stage in the process model can be mapped to a unit procedure in the procedural model, which in turn is mapped to a unit in the physical model." An example would be "mixing stage" (process model) carried by a "mix phase" (procedural control model) executed on unit "mixer 1" (physical model).

Reference: ISA88 Batch Control standards

About the Editor
Joel Don is the community manager for ISA and is an independent content marketing, social media and public relations consultant. Prior to his work in marketing and PR, Joel served as an editor for regional newspapers and national magazines throughout the U.S. He earned a master's degree from the Medill School at Northwestern University with a focus on science, engineering and biomedical marketing communications, and a bachelor of science degree from UC San Diego.
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Question originally appeared in the ISA Certified Automation Professional; (CAP) program column of https://blog.isa.org.

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(https://blog.isa.org/autoquiz-failsafe-positions-industrial-valves)

SOCIETY NEWS

ISA Announces 2023 Society Leadership

The International Society of Automation (ISA) has announced its Society leadership for the term beginning 1 January 2023.

- President: Marty Bince, EECOL Electric
- President-elect Secretary: Prabhu Soundarrajan
- Past President: Carlos Mandolesi, Trinity College Dublin
- Treasurer: Rajesh Rathi, Control Infotech Inc.
- Executive Director: Claire Fallon, International Society of Automation

- Executive Board
  - Ardis Bartle, Apex Measurement and Controls LLC
  - R. Donald Bartusiak, Collaborative Systems Integration
  - Dean Bickerton, The Reynolds Company
  - Paulina Chan, Global Mutual Innovation Consortium
  - Francisco Diaz-Andreu, Repsol-ISA
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  - Maxym Lachance, BBA
  - Claudio Makarovsky, Microsoft
  - Edward Naranjo, Honeywell
  - Mary'beth Ramey, Celanese Engineered Materials – Hytrel
  - Jagdish Shukla, Servilink Systems Ltd.
  - Sujata Tilak, Ascent Intellimation
  - Ashley Weckwerth, Burns & McDonnell

This group of officers and executive board members have demonstrated their strong commitment to ISA and to visioning the role that the Society plays in the future of the automation community.

"I am honored to welcome this new slate of exceptional professionals to ISA leadership," said Mr. Bince. "International is the first word in our Society's name, and I am delighted to see such a diverse group represented here, representing 7 countries and with a wide array of experience across ISA and the industry sectors our Society serves. Our leaders are chosen by ISA's global membership in an open election. I thank all those who cast their vote."

Nominations for Society leadership are accepted annually from 1 January to 1 March. For more information, visit https://www.isa.org/about-isa/leadership/nominations-and-election-process.

About ISA
The International Society of Automation (ISA) is a non-profit professional association founded in 1945 to create a better world through automation. ISA advances technical competence by connecting the automation community to achieve operational excellence and is the trusted provider of standards-based foundational technical resources, driving the advancement of individual careers and the overall profession.

Share Your Love of Automation: Recommend ISA to a Colleague

By Marty Bince ISA President, EECOL Electric

While it would be the standard opening to relate how honored and humbled I am to serve as your president for 2023, I would prefer to focus on the value of your Society and encourage you to share your professional association with a colleague.

ISA grew membership by 11% in 2022!

This outstanding result came from the hard work of our Executive Director, the staff, and our volunteer leaders in all corners of the Society. ISA is poised for growth and success, and has set the goal to grow by 13% in 2023.

Someone invited me to be an ISA member

My ISA journey began as an invite from a colleague to a local section meeting. As with our in-person social connections (and reflected by the social media world), we form friendships and professional connections easily when a friend or colleague offers advice or an introduction.

Whether you began in one of the 100+ student sections or 100+ professional geographic sections, or you joined because you were interested in the Society's 16 technical divisions or any of the 14 standards committees that contribute to the automation body of knowledge, you were likely invited by a colleague. Member contributions to the Society and the worldwide automation community serve as the backbone for the ISA Society's member and industry value.

How about you? Invite a colleague in 2023

There is tremendous value in ISA! We should be proud of all the contributions that the Society has made to the world of automation, and indeed, the planet. Automation makes for a better standard of living, and will help make the world a better place. Your invitation to a colleague will be the best and most unselfish recommendation you may make to help a colleague advance their career. If you're interested in sharing the gift of ISA membership, reach out to a colleague and share the information available at isa.org/membership – including the benefits of joining ISA.

ISA is your professional association

No other automation association advances automation as well as ISA. Our mission is to empower the global automation community through standards and knowledge sharing. Let's share our knowledge about ISA with others and encourage them to get involved today.

Honored and humbled to serve as your 2023 ISA President

It is truly a real honor to serve as the 2023 ISA President.

I want to thank Carlos Mandolesi, our 2022 ISA President, and the Executive Board for their leadership in 2022. I would like to thank Claire Fallon, our Executive Director, for a stellar first year while picking up the ISA reins, and recognize the hard work of her staff as they continue to execute on the Society's strategic goals that have helped move the Society forward with a tremendous 2022.

The Society wouldn't be where it is without the volunteer time and expertise provided by our passionate volunteers and members. Several hundred volunteer leaders provide their valuable time serve and lead the Society's sections, student sections, divisions, and committees, while thousands more contribute their time developing our standards, webinars and conferences. Without our volunteers and members contributions, ISA would not be where it is today.

ISA is poised for growth and success!

Let's create a better world through automation, together.

Contact the President

I love to connect with our members and listen to their opinions about automation, what ISA is doing now, and what ISA should be doing to answer your needs. Please connect with me on ISA Connect, LinkedIn, or send an email to president@isa.org.

Marty Bince is an industry leading sales and automation professional, and management consultant. Currently Automation Business Development Manager with EECOL Electric, Marty has a demonstrated history of technical acumen and experience in many industrial and manufacturing settings, including as a former business owner of an industrial automation software distributor. He has experience with many facets of oil & gas extraction / production / transportation, manufacturing, mining, food processing, water/wastewater, manufacturing and clean tech. Marty has been a member of the International Society of Automation (ISA) Executive Board since 2017 and is ISA President for the 2023 term.

ISA Water/Wastewater Industry Division

Call for Newsletter Articles

The WWID newsletter is published four times a year (winter, spring, summer, and fall) and reaches the WWID's 2,000+ members. Each issue is approximately 16-32 pages long and is electronically printed in color PDF format. A notification email goes out to all WWID members, and it is available for public download at www.isawaterwastewater.com.

We are always on the lookout for good articles, and we welcome both solicited and unsolicited submissions.

Article submissions should be 500-2000 words in length and be written for a general audience. While it is understood that the articles are technical in nature, the use of technical jargon and/or unexplained acronyms should be avoided. We actively encourage authors to include several photos and/or figures to go along with their articles.

We actively welcome articles from all of our members. However, we do ask that articles be non-commercial in nature wherever possible. One or two mentions of company and/or product names for the purposes of identification are acceptable, but the focus of the article should be technical content and not just sales literature. If you are unsure of whether your article idea is workable, please contact our newsletter editor for more information – we are here to help.

Some examples of the types of articles we are looking for include:

- Explanatory/teaching articles that are meant to introduce or explain a technical aspect of automation and/or instrumentation in the water/wastewater sector.
- Biographical stories about personalities and/or leaders in the water/wastewater sector.
- Case Studies about plant upgrades and/or the application of new technologies and techniques. This type of article must include at least two photos along with the article text.
- Pictorial Case Studies about a plant upgrade consisting of 4-6 photos plus a brief 200-500 word description of the project undertaken. The article should ideally include one to two paragraphs about lessons learned and/or advice for other automation professionals.
- Historical reflections on changes in technology pertaining to specific aspects of instrumentation or automation, and how these changes point to the future.
- Discussions about changes in the water/wastewater sector and how these affect automation professionals.

Once we receive a submission, we will work with you to edit it so it is suitable for publication in the newsletter.

Article submissions can be sent to the WWID newsletter editor Slawek Wolski at slawek.wolski@ulteig.com

WWID Newsletter Advertising

The WWID newsletter is an excellent way to announce new products and services to the water/wastewater automation community. With a distribution of 2,000+ professionals in the automation, instrumentation and SCADA fields, the WWID newsletter is an effective targeted advertising tool.

The WWID newsletter is published quarterly, on the following approximate publication schedule:

- Winter Issue – published in January/February
- Spring Issue – published in April/May
- Summer Issue – published in July/August
- Fall Issue – published in October/November

Advertising in the newsletter is offered in full page, half-page and quarter page formats. Advertisements can be purchased on a per issue basis or for four issues at a time. The newsletter itself is distributed as a full-color PDF, so both color and black/white artwork is acceptable.

The current advertising rates are as follows:

Per Issue:
- Full page, full color (7" x 9"): $500
- Full page, full color, (8.5x11"), with bleed $600
- Half page horizontal, full color (7"x4.5"): $350
- Half page vertical, full color (3.5"x9"): $350
- Quarter page, full color (3.5" W x 4.5" H): $250

Per Year: Apply 20% discount if purchasing 4 ads at a time

Other sizes of advertisements are available but are priced on an individual basis. Contact us for more information.

Please book advertising space as early as possible before the intended publication date. Artwork for advertisements should be submitted a minimum of two weeks prior to the publication date; earlier is always better than later. Artwork for advertisements can be submitted in EPS, PDF, PNG, JPG or GIF formats. EPS, PDF and PNG formats are preferred. Images should be at least 300dpi resolution if possible. A complete list of ad specs can be found at www.isawaterwastewater.com .

The ISA Water/Wastewater Industry Division is run on a non-profit basis for the benefit of its members. Monies raised from the sale of advertising in the newsletter are used to help offset the cost of division programming and events. Like its parent organization, the ISA, the WWID is a non-profit member-driven organization.

For more information, or to discuss other advertisement sizes not outlined above, please contact the WWID newsletter editor Slawek Wolski at slawek.wolski@ulteig.com .

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Facebook: https://www.facebook.com/ISAWaterWastewater/

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About the ISA Water/Wastewater Industries Division

The ISA Water / Wastewater Industry Division (WWID) is concerned with all aspects of instrumentation and automated-control related to commercial and public systems associated with water and wastewater management. Membership in the WWID provides the latest news and information relating to instrumentation and control systems in water and wastewater management, including water processing and distribution, as well as wastewater collection and treatment. The division actively supports ISA conferences and events that provide presentations and published proceedings of interest to the municipal water/wastewater sector. The division also publishes a quarterly newsletter, and has a scholarship program to encourage young people to pursue careers in the water/wastewater automation, instrumentation and SCADA field. For more information see www.isa.org/wwid/ and www.isawaterwastewater.com