INVESTING IN A SUSTAINABLE FUTURE
10 years of ISO certification

CLOSING THE DOOR BEHIND YOU:
Securing BACnet operational technology

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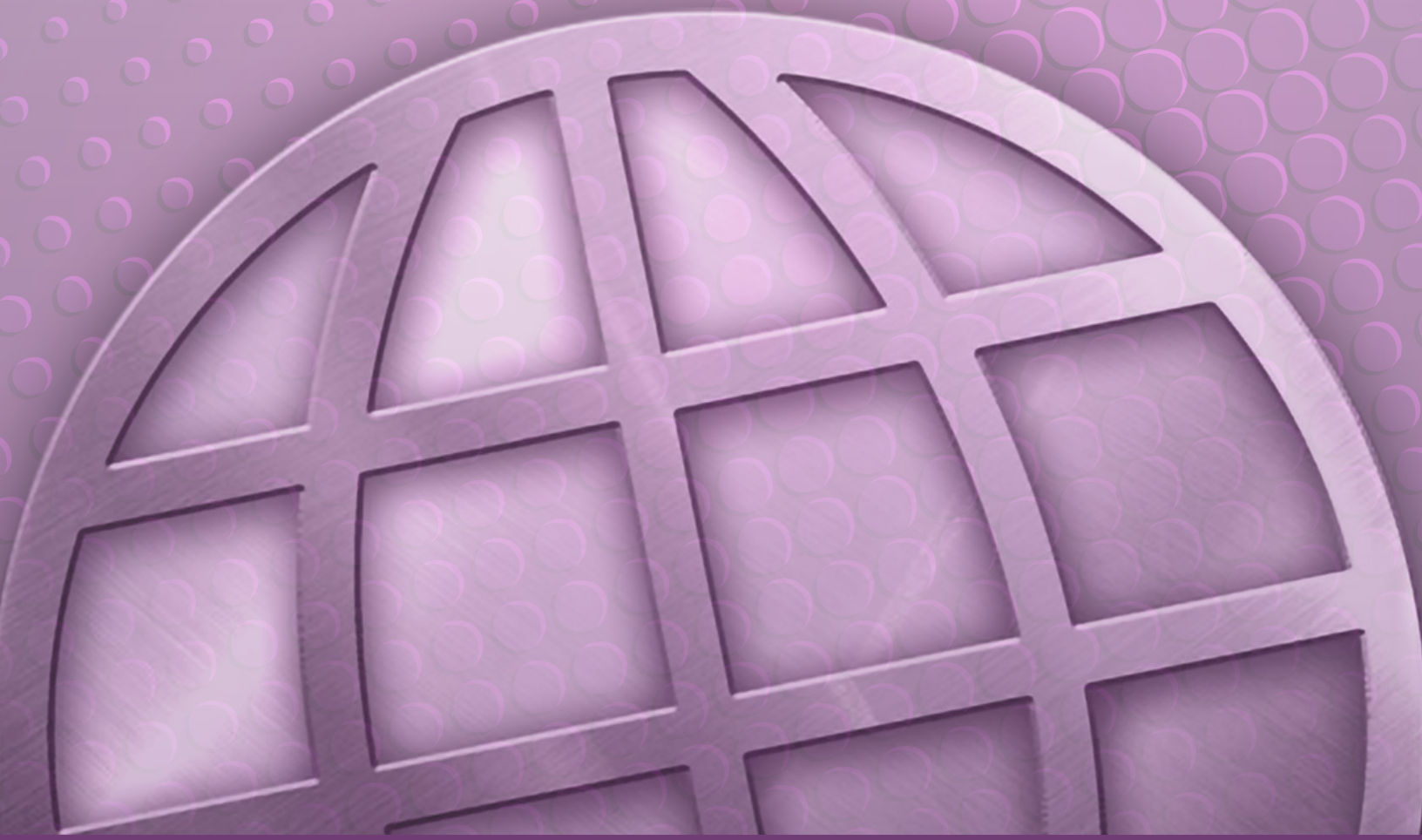
RUNtime

The official quarterly magazine of Reliable Controls® Corporation

Q3-2021

RCWebView® 3.14

Revolutionizes how users can display building data



Member of BACnet International

Reliable® controls

President's message

Showdown with Shodan

Tom Zaban, P.Eng, LEED Green Associate

Data and network security is a growing issue in the world. In its 2020 report titled *The Hidden Costs of Cybercrime*,[1] McAfee reports cybercrime now costs the global economy approximately $1 trillion annually. As building owners and facility managers, we are responsible for the information technology and operational technology of our facilities. Cybercrime is a growing concern that should receive our growing attention.

Securing building automation networks does not need to be an onerous or expensive process. The Pareto principle tells us a modicum of defensive effort (20 percent) goes a long way (80 percent) to minimize security vulnerability. Two simple, inexpensive initial steps you can take today are to change your internet-connected device's default password and UDP port numbers. For Reliable Controls devices, this means using the Set Master Password dialog box in RC-Studio® to change the master password, and using the MSet tool in RC-Toolkit® to change the default BACnet UDP port numbers from 47808 to something outside the 47800–47823 range. Although these practices might be routine for today's new installations, most older installations are likely to use the default master passwords and BACnet UDP port numbers.

As of this printing, Reliable Controls is aware of nearly 2,000 internet-connected Reliable Controls devices that are installed using default BACnet UDP port numbers, making them the most vulnerable to hackers.

By now you might have heard about the website Shodan,[2] which tracks internet-connected devices. For a modest membership fee, anyone can obtain a Shodan account and search for all types of devices exposed to the internet. You can even search for building automation devices. For instance, once logged in, click **Explore** on the main menu, then select the Industrial Control Systems category. Here you can search over a dozen industrial control system vendors such as Modbus, Siemens, Tridium, and BACnet. Click **Explore BACnet** to return the configuration details of thousands of devices in the world that use the BACnet protocol configured with the default port number of 47808. The Shodan search tools allow you to further filter your search results by country, organization, and product. Filtering your BACnet search results by organization quickly displays all the BACnet internet-connected devices that are accessible on port 47808 for specific companies—possibly *your company*. The search results provide users with additional details such as device IP addresses, instance IDs, object names, locations, firmware versions, and model names. These are all key pieces of data that can help make a hacker's job a lot easier when trying to penetrate and compromise the confidentiality, integrity, and availability of a building automation system.

If you find BACnet devices on the Shodan website that belong to your building, it is relatively easy to protect your facilities. Simply reconfigure your enabled BACnet/IP1 or BACnet/IP2 UDP port numbers using the MSet tool in RC-Toolkit to values outside the 47800–47823 range.

Of course, *security by obscurity* is only a single step that can help defeat exposure to automated probes from services such as Shodan. To further strengthen your defenses against more sophisticated risks, Reliable Controls strongly recommends you download the *Reliable Controls Hardening Guide*, available to all Reliable Controls users with credentials to the Customer Support Center. The guide can help you appreciate the best practices in the building automation industry so you can adopt a multilayered protection strategy to secure your building automation system. Your local Reliable Controls Authorized Dealer, too, is certainly a willing and able resource to help you achieve your cybersecurity goals. Go ahead and reach out to them today to help you develop a step-by-step plan to strengthen your operational technology security and reduce your risk to cybercrime.

1 https://www.mcafee.com/enterprise/en-us/assets/reports/rp-hidden-costs-of-cybercrime.pdf

2 https://www.shodan.io

RC-WebView® 3.14

Revolutionizes how users can display building data

The release of RC-WebView 3.14, the easy-to-use browser-based building management solution from Reliable Controls, completely revolutionizes how users can display building data. This new version of the software means users are no longer dependent on System Group graphics in RC-Studio; they can now display live data using Navigation Groups in RC-WebView, saving valuable setup time and providing endless flexibility.

"This release greatly empowers dealers to create enterprise-level dashboards using the new and improved Navigation Groups feature," says Mark Hatherly, product owner at Reliable Controls. Mark is pleased to announce that RC-WebView 3.14 is newly recertified as a BACnet Operator Workstation at BACnet revision 16.

With RC-WebView 3.14, users can add objects, keywords, and animations directly to a Navigation Group. A Navigation Group provides a navigation interface for operators and other users by linking to homepages that represent buildings and systems. This even includes HTML5 animations from RC-GrafxSet® software from Reliable Controls, which allows for quick and easy creation of custom graphical interfaces. Previously, users had to use System Groups to display data for a single connected system; the new Navigation Groups feature transcends multiple building automation systems, allowing users to effortlessly and securely access data for an entire enterprise.

For example, a user could add a Google Map to a Navigation Group (Figure 1) with pins that represent buildings in an enterprise, or choose to create interactive HVAC, lighting, and security graphics.

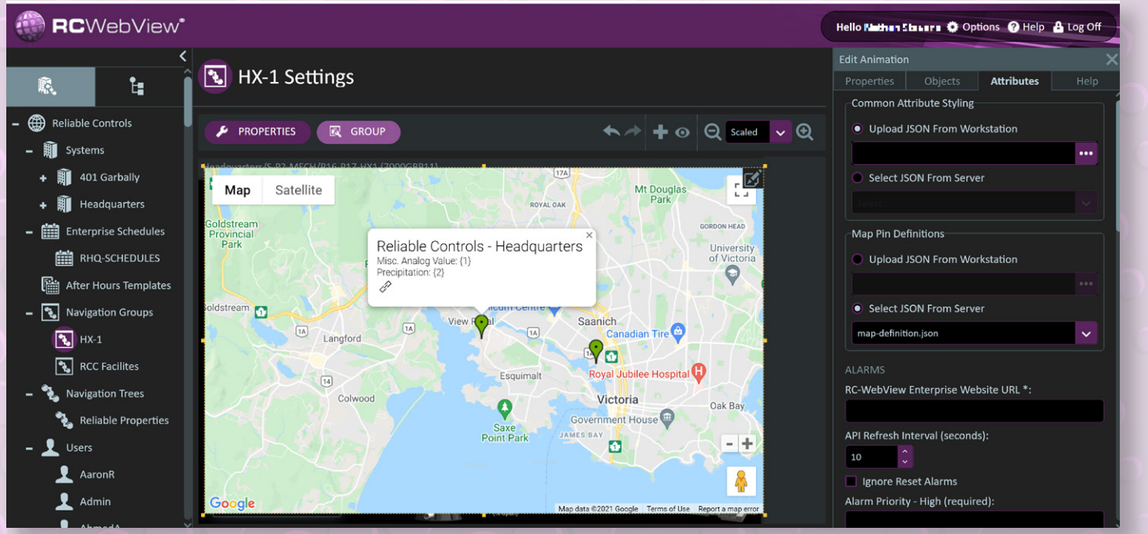


Figure 1: Live HTML5 Google Map animation.

Navigation Group support for HTML animations enables users to:

- **Upload new animations or select a previously uploaded animation in the gallery.**
- **Drag an animation from the preview area in the Insert Animation pane and position it on the Navigation Group canvas (Figures 2 and 3).**
- **Use the resize handles to change an animation's size and select whether to preserve its aspect ratio (Figure 4).**

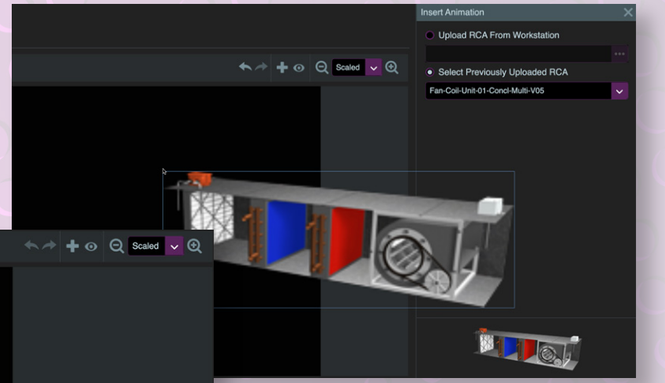
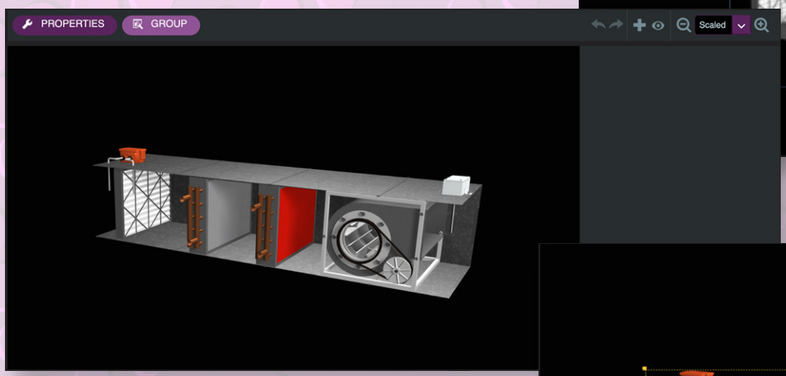


Figure 2: Drag animation to the Navigation Group canvas.

Figure 3: Animation secured in the Navigation Group canvas.



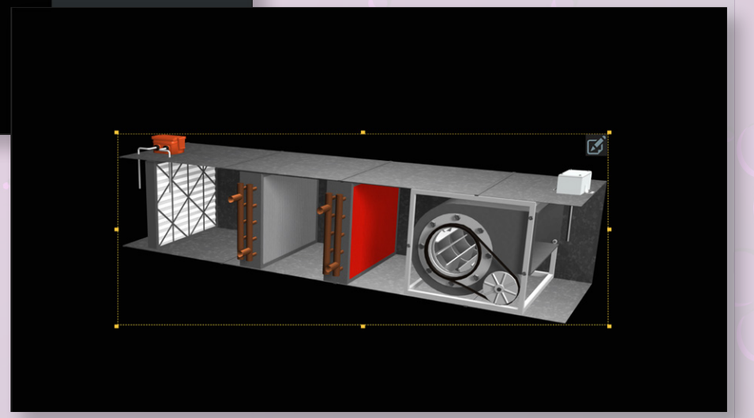


Figure 4: Resize animation in the Navigation Group canvas.

In addition, RC-WebView support for live data for BACnet– and Reliable Controls protocol–objects allows users to drag and reposition inputs, outputs, values, EnOcean values, BACnet Lighting Output objects, PID loops, and BACnet array indices on Navigation Groups.

The RC-WebView What You See Is What You Get (WYSIWYG) user interface matches the client-ready view of a user Navigation Group as the user builds it (Figure 5). The ability to autosave a configuration as well as the undo and redo capabilities in the WYSIWYG interface make it easier to design Navigation Groups. Operators can use the zoom in and zoom out controls, manually input a zoom percentage, or use the drop-down list to select **Scaled** or predefined percentage values.

Figure 5: Navigation Group WYSIWYG view (top) and client view (bottom). Note the toolbar with undo/redo, scaling, and zoom controls in the WYSIWYG view.

Also new in version 3.14 is the Alarm History Cleanup feature, which empowers operators to manually clean up old alarm notifications as needed or schedule recurring cleanups that keep their database at a manageable size. Without a mechanism to remove expired alarm notifications, database size could increase beyond the allowable limit with SQL Server Express, the default RC-WebView database.

An operator can click **Clean Up Alarm History** in the toolbar of the Alarm History worksheet to set an automatic cleanup schedule or manually remove entries using the Cleanup Configuration dialog box (Figure 6). The user permission Clean Up Alarm History needs to be enabled for this option to be available.

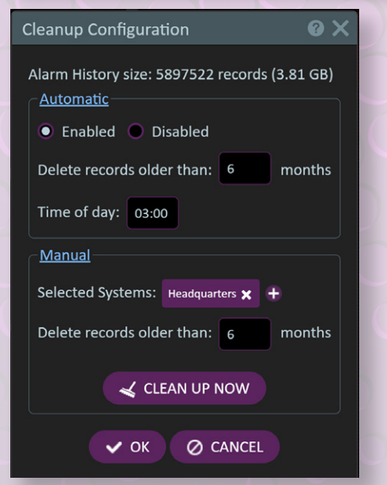


Figure 6: Cleanup Configuration dialog box.

"Our team is responsive to dealers' most requested features, and we strive to deliver flexible, dependable software that satisfies our dealer network and their customers," says Mark. In addition to the high level of integration between HVAC, security, and lighting systems, building sustainability demands the use of technology that supports scalable, secure data communications. RC-WebView provides a single sign-on architecture and a comprehensive approach to security—no matter how many different BACnet devices a user deploys or buildings they control.

To learn more about RC-WebView 3.14, visit reliablecontrols.com/rcwv.

View the latest features of RC-WebView 3.14 in this informative video on YouTube!

Reliable Controls white papers

Did you know white papers can help a brand build credibility and trust with current and prospective customers? White papers have the power to influence almost any type of business executive who is considering the purchase of a new, complex, expensive product or service.

Reliable Controls has two white papers available for download under the Sales tab on the Reliable Controls homepage. The first, *Data Strategy*, advocates about the impact of data analytics on energy efficiency and building performance in today's world. Integrated fault detection and diagnostics FlexTiles™ and RC-Reporter® software can bring much-needed context to the vast data available to building professionals. What makes this white paper great is it promises concrete value (efficient operations, educated decisions, opportunities for improvement, reduced operating costs, reduced greenhouse gas emissions, and more) backed by cutting-edge technology and actionable advice.

The second white paper, *Accountable Operational Technology*, aims to educate about how RC-WebView software is purpose built to be a key component of a Title 21 CFR Part 11 environment. Part 11 of the Code of Federal Regulations establishes requirements for electronic records and signatures in processes and facilities regulated by Title 21, and it has significant implications for pharmaceutical, medical device, biologic, and biotech industries, where compliance is a commercial imperative. This white paper leverages the company's authority to persuade building operators into adopting RC-WebView as part of a Title 21 CFR Part 11–validated system for FDA-regulated process and indoor environmental control.

These white papers are a useful way to share the combined experiences of authors with over 30 years in the building controls industry. Download and share one or both of these papers to learn about Reliable Controls and its expertise and accountability in the industry.

Closing the door behind you: Securing BACnet operational technology

A doorway provides an entrance into a building or a passage from one room to another. It offers freedom of travel between spaces and into a facility or home. When separation or privacy is desirable, a door is installed in a doorway. A closed door impedes travel and in many cultures represents a basic implied barrier to entrance. Doors are used not only to moderate human traffic but also to provide protection from incidental intrusion by animals, insects, or windblown debris. Point in case: How many people leave the doors to their home not merely unlocked but wide open, effectively encouraging freedom of entry?

How many facilities leave their doors wide open? Perhaps more to the point, how about the doors to their mechanical and electrical equipment rooms? Likely very few. Why? The equipment in those rooms is expensive and complex. It consumes energy and natural resources. It plays an important role in the effective operation of a facility. Further, these rooms pose a real risk to the physical safety of anyone unqualified to be inside and interact with that equipment. Improper operation can threaten the health and welfare of the facility and the people inside. For these reasons, doors to mechanical and electrical equipment rooms are often securely locked to impede or even prohibit access. However, in many facilities, electronic access to operational technology (OT) systems is analogous a neon Open sign hanging above a doorway.

Why is the door open?

BACnet is an internationally used public communication protocol designed for multivendor interoperability. Standard BACnet data on an IP network is transmitted in plain text. This means a free packet analyzer like Wireshark can clearly reveal information about devices and objects in a way that is easy to understand. BACnet/IP is the most common method for building-level and enterprise-level networks and for remote access, but it does not enforce user credentials or passwords. In fact, the standard BACnet/IP configuration used for communication on the internet is published and widely known. BACnet OT systems control mechanical and electrical equipment that exert a significant influence on the physical built environment. Unintentional or malicious improper operation of a BACnet OT can result in discomfort and even harm to people and property.

A BACnet OT exposed to the internet using standard BACnet/IP is unsecure and puts the system, facility, and occupants at risk. Anyone with a BACnet workstation can access and manipulate BACnet devices as well as the mechanical and electrical equipment they control. Exposing a BACnet OT to the internet using BACnet/IP makes a system inherently unsecure, like leaving the door to the mechanical room wide open, welcoming both malicious and incidental entry.

Why is there an open sign?

In networking terminology, port describes the logical connection point for a process or application. *Ports* provide a means for many applications to simultaneously communicate on a TCP/IP network through a single network connection. In a way, ports are like telephone extensions at a business. The business has one phone number, but several conversations happen simultaneously on different extensions. For two people to have a conversation, they speak on the same extension. For two BACnet devices to communicate, they must be logically connected to the same port.

The International Assigned Numbers Association, the standards organization that oversees allocation of addresses and media resources for the internet, has formally registered ports 47808 (0xBAC0) to 47823 (0xBACF) for BACnet communication. This means that even if someone does not know for sure if a BACnet device is present, the easiest place to look is within this range, particularly 47808, the de facto standard BACnet port. Search engines for internet-connected devices, such as Shodan (shodan.io), automatically search for devices using standard ports and publish their IP address and other data to the internet. Exposing a BACnet OT to the internet using BACnet/IP and standard ports makes a system easy to find, like hanging an Open sign above a door.

15 minutes to fame

Does this vulnerability pose a compelling risk to an OT system or the built environment? It takes less than 15 minutes to find out.

00:00–5:00 minutes

Shodan is widely advertised in venues like *Wired*, BBC News, and the *Washington Post* as the world's first search engine for internet-connected devices. It is commonly used by researchers and in the networking industry. From the Shodan homepage, two clicks (**Explore > Industrial Control Systems**) bring you to the Industrial Control Systems dashboard, which states, "The following protocols are some of the languages that the industrial control systems use to communicate across the Internet. Many of them were developed before the Internet became widely used, which is why Internet-accessible ICS devices don't always require authentication—it isn't part of the protocol!" (Shodan n.d.).

Click **Explore BACnet** to display the more than 28,000 BACnet OT systems connected to the internet using standard ports. To filter the results to a specific country, region, or city, you need only to zoom in on a map or filter the search results, and Shodan displays information like the exposed IP address for the OT, the name of the internet service provider, the name of the device and vendor, and much more. In less than 5 minutes, you can find the IP address and UDP port of many BACnet OTs.

5:00–10:00 minutes

Most BACnet vendors have BACnet workstation software applications that could easily be used to initiate a connection to an unsecure BACnet OT. However, some require project files or supporting information to connect. Some, like RC-Studio from Reliable Controls, enforce user credentials. BACnet vendor workstation software often requires licensing and costs and can complicate access in this setting. Instead, you can search for and download a free BACnet workstation or explorer such as YABE (Kvistgaard et al., n.d.). It takes only a few moments to find, download, and install.

10:00–15:00 minutes

Once you've installed a BACnet explorer, it can take a few additional moments to experiment with the user interface and connect to one of the BACnet OTs you identified only a few minutes before. All that is required is an IP address and UDP port (conveniently provided by Shodan). Recall that BACnet does not enforce authentication. Once a BACnet explorer is connected to the system, the entire OT is available. It might be interesting to change space-temperature setpoints, turn equipment on and off, run several pumps or fans simultaneously, override physical safeties, or reset random devices, erasing their database.

In under 15 minutes, someone can easily access an unsecure BACnet OT. But after that minimal time investment, a BACnet OT can provide hours of difficult-to-trace and unlikely-to-be-audited entertainment. Does this vulnerability pose a compelling threat to an OT system or the built environment? Reliable Controls very strongly believes it does.

The Reliable Controls mandate for secure BACnet OT

Reliable Controls is serious about accountability for people, the planet, and profit. With people paramount, the company's mission is to *earn and sustain the reputation for having the most satisfied customers in the building automation industry*. In 2014, well before there was widespread awareness of the cybersecurity threat to OT systems, founder Roland Laird initiated a mandate to ensure that every Reliable Controls site was secure by 2020.

In a rare step for Reliable Controls, rather than wait for an industry-standard BACnet approach to BACnet cybersecurity, the company independently developed the RC-RemoteAccess® BACnet Virtual Private Network (B/VPN) in 2016. Cybersecurity featured prominently in the agenda for the organization's dealer sales event in 2018, and throughout 2018 and 2019, Reliable Controls raised awareness of the BACnet cybersecurity vulnerability with design professionals and portfolio executives through presentations at ASHRAE meetings and publications.

There is still more work to do. Prior to his retirement in 2019, Roland extended the mandate to 2022. In early 2020 the company introduced warnings and tooltips in software to change the BACnet network port used to connect a controller to the internet from the publicly registered port range. Reliable Controls works hard to increase Authorized Dealer awareness and provide resources that empower them to care for their customers with more secure, more sustainable Reliable Controls BACnet OTs.

What can a facility manager do to reduce the surface of exposure of a building's BACnet OTs to this inherent vulnerability?

Be discreet

When you park your car, do you leave your laptop, wallet, and keys on the seat and the windows down? In a busy restaurant, do you leave your phone and wallet on the table when you go to the washroom? Likely not. *Out of sight, out of mind* is not a proverb about security but rather a reminder that things that are not obvious are often forgotten or overlooked. A determined thief is likely to find even hidden valuables, but they might not target you at all if you don't provide an obvious vulnerability or easy reward.

Hardening an information system means reducing the surface of vulnerability or the exposure of vulnerability to threats. With the prevalence of utilities like Shodan and Wireshark, connecting an OT to the internet using the ports reserved for BACnet, particularly 47808, is like leaving valuables in plain sight.

- As published and de facto standards, UDP:47808–47823 should never be used for transmitting BACnet data through a firewall.
- Ports 49152–65535 are dynamic and cannot be reserved. If BACnet/IP must be exposed on the internet or between local area networks (LANs), this is a more appropriate range.

Using nonstandard BACnet ports is obfuscation and in no way a security control; nor does it make a BACnet OT secure. Obfuscation does, however, make an unsecure BACnet OT less obvious, which might reduce the surface of vulnerability. Using nonstandard ports simply removes a BACnet OT from an initial glance, which might make it less likely to be exploited than those on full display. Once a basic level of discretion has been implemented, what steps can a facility manager take to secure a BACnet OT?

Apply appropriate security controls

A closed door is just an implication of a barrier to entry. To reduce the likelihood of access, you need to install appropriate measures to secure the door. These can range from simple locks and dead bolts to electronic and magnetic strikes and even three-point locking systems or vaults. Security mechanisms should be appropriate for the threat and value of the contents.

Cybersecurity has a similar range of security controls to help facility managers balance an acceptable level of security with the vulnerabilities of and threats to the OT and operating environment. For example, security controls should be effective to prevent incidental access to the system and even casual or recreational intrusion while providing appropriate access for authorized users. Building operators can mitigate even a degree of adversarial threat, although the cost of properly securing an OT from a government agency or military unit, for example, would likely be prohibitive.

An OT system can be appropriately secured through basic design considerations. Here's a handy cybersecurity audit checklist for facility operators:

- ☑ Install hardware on a trusted LAN with a LAN IP address, a network management component such as a router, and a boundary protection control such as a firewall between the device and a public or untrusted network or the internet.
- ☑ Encrypt and authenticate all communication between a software application and a BACnet internetwork by a technology consistent with a B/VPN.
- ☑ Encrypt and authenticate all BACnet internetwork communication between separate broadcast domains by a technology consistent with a B/VPN:
  - ☑ Encrypt and authenticate all BACnet communication to and from discrete hosts, including remote workstations and servers, external to the LAN by a technology consistent with a B/VPN.
  - ☑ Encrypt and authenticate all BACnet communication between separate LANs by a technology consistent with a B/VPN.
  - ☑ Encrypt and authenticate all BACnet communication exposed to the internet by a technology consistent with a B/VPN.
- ☑ Properly authenticate all access to the system:
  - ☑ Disable public user accounts.
  - ☑ Change default passwords, including master passwords.
  - ☑ Create and manage unique credentials for each user and process.
  - ☑ Make passwords appropriately strong—easy to remember but difficult to guess.
  - ☑ Enable auto logoff after inactivity.
- ☑ A secure browser user interface for the BACnet internetwork should use Hyper Text Transfer Protocol Secure (HTTPS) connections.

Lead the way

To protect their loved ones and valuables, most people secure their homes at night. When a responsible technician or operator leaves an equipment room, they close and lock the door behind them. This simple step protects people and property from incidental and adversarial intrusion. Operational technology systems exert a significant influence on the built environment, helping cultivate the health and welfare of people and property. However, improper operation of electrical and mechanical systems can place these critical assets at risk.

Properly securing a BACnet OT is a fundamental step to caring for facilities by closing and locking the virtual door to the management of these complex systems. If something should go wrong, a facility manager does not want to be the one who left the virtual door open. Responsible design and implementation of basic cybersecurity is one more way Reliable Controls provides people and technology building operators can rely on.

Kvistgaard , Morten , Frédéric Chaxel , Adam Guzik , Günther Günther , and Thamer Al-Salek. n.d. Yet Another Bacnet Explorer. https://sourceforge.net/projects/yetanotherbacnetexplorer/.

Shodan. n.d. Home. https://www.shodan.io

Better by design™

Adidas North America headquarters

United States

A target LEED Gold project in 2020 expanded Adidas's North American headquarters in Portland, Oregon, with two new signature buildings that strengthen campus connectivity and cohesiveness. True to the Adidas brand, the project was inspired by small stadium environments where spectators and players engage in an active dialog. The architecture of the two buildings connects creative work, community, and sport.

Installed Reliable Controls hardware
- 3 MACH-Pro1™ controllers
- 208 MACH-ProAir™ controllers
- 6 MACH-ProCom™ controllers
- 1 MACH-ProWebCom™ controller
- 24 MACH-ProZone™ controllers

Installed Reliable Controls software
- RC-Studio
- RC-RemoteAccess

Total objects
- 1,552

SUNBELT CONTROLS™

Reliable Controls Authorized Dealer Sunbelt Controls installed a complete Reliable Controls system during construction of two impressive LEED Gold–certified buildings for Adidas. The backbone of the new buildings is a MACH-ProWebCom controller networked with MACH-ProCom, MACH-ProZone, and MACH-Pro1 controllers to control air-handling units, a boiler system, a chilled water system, and more.

The mechanical system in the project's north building includes four air-handling units that provide conditioned air to terminal devices via two chillers and a cooling tower. Over 200 MACH-ProAir devices control the hydronic-heating terminal units.

Sunbelt Controls installed third-party CO_2 and NO_2 sensors to monitor the four underground parking levels and trigger exhaust fans that ventilate the space.

In the south building, the flexibility of the Reliable Controls system meant Sunbelt Controls could use BACnet to integrate a variable refrigerant flow system, an energy recovery ventilator, boilers, variable frequency drives, and energy meters. RC-Studio and RC-RemoteAccess software allowed Sunbelt Controls to easily integrate multiple third-party devices into this complex building automation system. Sunbelt's software engineers had full support from the Reliable Controls technical support team, facilitating a smooth installation.

Reliable Controls and Sunbelt Controls are incredibly proud of their integral role in the construction of these two new energy efficient buildings for Adidas.

Total area
- 42,735 m² (460,000 ft²)

BACnet integration
- LG variable refrigerant flow system
- YORK chillers
- AERCO boilers
- Huntair air-handling units
- ABB variable frequency drives
- Veris energy meters
- Senva CO_2/NO_2 sensors

Viettel Group head office

Vietnam

Viettel Group is a Vietnamese multinational technology company with over 330 million customers in 13 countries across Asia, America, and Africa. Winner of the Asia Pacific International Property Awards in 2019, the company's 23,710 m² LEED Silver–certified headquarters in Hanoi, Vietnam, integrates workplace and landscape features with interconnected floor spaces, a rainwater harvesting system, abundant natural light, and an expansive green roof.

BASS Solutions & Services

Installed Reliable Controls hardware
- 179 MACH-ProAir 12-A-F controllers
- 39 MACH-ProCom controllers
- 94 MACH-ProPoint™ Input expansion modules
- 28 MACH-ProPoint Output expansion modules
- 4 MACH-ProSys™ controllers
- 39 MACH-ProZone 44-C controllers
- 290 MACH-ProZone 48-C controllers
- 328 SMART-Sensor™ EPD devices
- 328 SMART-Sensor EPD devices with CO_2 sensors

Installed Reliable Controls software
- RC-Archive®
- RC-WebView

Total objects
- 5,000

Reliable Controls Authorized Dealer B.A.S.S successfully implemented a sustainable building automation system in Viettel Group's new headquarters. The project is one of only a few in Vietnam to receive LEED certification.

B.A.S.S. installed MACH-ProAir, MACH-ProCom, MACH-ProSys, and MACH-ProZone controllers, along with MACH-ProPoint expansion modules, to control chiller plants, air-handling units, fan-coil units, variable air volume boxes, a sophisticated heat-pump system, three generators, and hundreds of power meters networked over BACnet/IP. SMART-Sensor devices provide air-quality measurement and occupancy control.

Building operators use RC-WebView to easily access and control the building automation system and monitor energy efficiency. RC-Archive software makes it easy for facility managers to retrive historical data that informs daily operational decisions and sequences of control.

Nearly 100 percent of rainwater to the building is collected and used for cooling, landscaping, and sanitation. B.A.S.S. implemented a variety of strategies to optimize building performance for energy efficiency, operating costs, and indoor air quality.

Reliable Controls and B.A.S.S. are excited to be part of this impressive project with Viettel Group.

Ian Giles, Reliable Controls VP of Sales and Marketing for the Asia-Pacific region, and Jacob Sng, regional sales manager for Southeast Asia, at the Viettel Group head office in Hanoi.

Read other exciting profiles of projects that use Reliable Controls technology: reliablecontrols.com/projects/profiles.

Welcome

New Reliable Controls Authorized Dealers

Sunway Digital Indonesia
Jakarta, Indonesia
sunway-digital.com

SUNWAY®

Advanced Construction Technologies
Grand Junction, CO, United States
advancedconstructiontechnologies.net

ACT
ADVANCED CONSTRUCTION TECHNOLOGIES

Reliable Controls sales, installation, service, and support are all performed by a growing network of independent, factory-trained Authorized Dealers. Each dealer is committed to the green building controls industry and to providing total customer satisfaction.

Reliable controls Authorized Dealer

Investing in a sustainable future

Reliable Controls reflects on 10 years of ISO certification

Reliable Controls is proud to celebrate 10 years of ISO certification, a milestone in responsible manufacturing.

Certification by the International Organization for Standardization (ISO) helps Reliable Controls meet the needs of its customers by ensuring consistent quality and responsible environmental performance. In 2011 the company achieved ISO 9001:2008 certification, added ISO 14001:2008 in 2014, and passed the requirements for both ISO 9001:2015 and 14001:2015 in 2017.

"In the past decade, the entire organization has demonstrated its commitment to continual improvement by consistently achieving high-performance results during external ISO audits," said Vince Palmer, VP Operations at Reliable Controls. "Most importantly, we have steadily managed to make positive changes throughout the company to contribute to our mission of having and sustaining the most satisfied dealers and customers in the building automation industry."

ISO 9001 sets out the criteria for a quality management system and accompanying processes, including a strong customer focus, motivation for managers, and a process approach to continual improvement that ensures Reliable Controls customers receive consistent, good-quality products and services. The company has exceeded its intended ISO 9001 goals of minimizing product returns to less than 1.5 percent during their 5-year warranty period and achieving delivery times of less than 5 business days from any requested date.

ISO 14001:2015 certification sets Reliable Controls apart from many of its competitors in the building automation controls industry. The standard helps the company achieve the intended outcomes of its environmental management system, including enhancement of environmental performance, fulfillment of compliance obligations, and achievement of environmental objectives.

"Our focus with the ISO standards is on sustainable operations throughout the organization," said Palmer. "These results over 10 years coincided with a period of significant company growth, and we're very proud of that, our commitment to the standard, and our mission."

Learn more about ISO:
iso.org

Liam Dicks, former quality environmental management system coordinator; Carlito Gumba, operations quality control manager; Bradley Doll, quality environmental management system coordinator.

Lighting leader

Empower your facility managers to integrate lighting controls into their building automation system using the MACH-ProLight™, the world's first, and only, BTL-listed BACnet Lighting Device (B-LD) and BACnet Building Controller (B-BC).

Looking for a BACnet lighting solution that not only integrates with your other building control systems but also streamlines energy consumption?

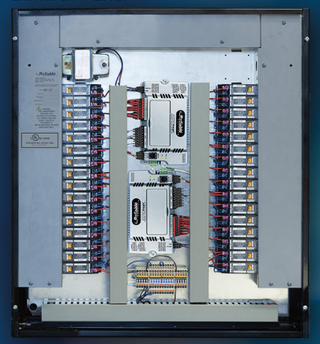
Compatible with standard lighting-control relays, low-voltage peripherals, EnOcean wireless products, and Reliable Controls SPACE-Sensor™ and SMART-Net™ products, and appropriate in ASHRAE 90.1– and Title 24–regulated environments, the MACH-ProLight lets you implement advanced control strategies like daylight harvesting, dim-to-off and vacancy control, plug-load control, and theme control that will illuminate your building's operational efficiency today and tomorrow.

Order as an individual controller or as part of a custom UL 508A Listed lighting or general control panel.

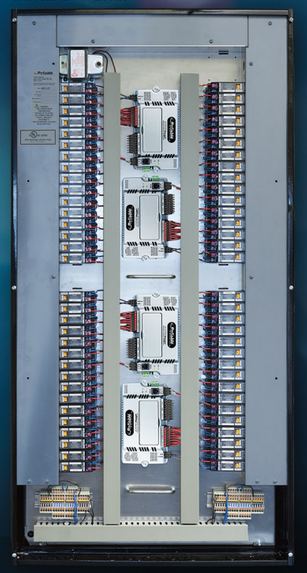
Learn more today:
reliablecontrols.com/MPL

Small Lighting Control Panel

Medium Lighting Control Panel



Large Lighting Control Panel



enocean alliance

EnOcean Transceiver

EnOcean wireless lighting products

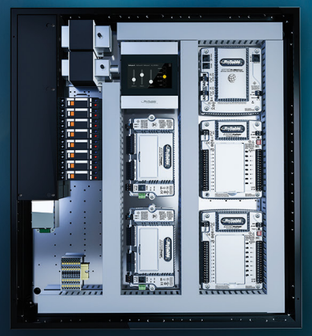
MACH-ProLight™

ADVANCED LIGHTING CONTROLLER

Better by design™

5yr WARRANTY

Medium General Control Panel



ISO 9001 14001 QUALITY ENVIRONMENTAL ASSURANCE

Member of BACnet International

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Reliable® controls

Since 1986 Reliable Controls has developed a global network of highly skilled independent controls contractors called the Authorized Dealer network. The *RUNtime* newsletter supports the collective efforts of the company to earn and sustain the most satisfied customers in the building automation industry. Information on the latest Reliable Controls products and services and insight into industry news and trends can be found in each issue of the *RUNtime.*

As a leader in the industry, Reliable Controls supports their Authorized Dealer network to achieve their goals with a motto that together, they can be better by design.

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