

The background of the slide is a blue-tinted image of a complex, geometric structure, possibly a dome or a large-scale architectural framework, with many intersecting lines and nodes. The text is centered and white, providing a high contrast against the blue background.

# TRIDIUM

## niagara4.15

### FEATURES OVERVIEW

# AGENDA

**01**

Niagara 4.15  
Overview

**02**

Deployment

**03**

Interoperability

**04**

Connectivity

**05**

Cyber  
Defense

**06**

Compliance

# niagara 4.15

## ALWAYS EVOLVING ACROSS FIVE DIMENSIONS

### DEPLOYMENT



- HTML5 Px Editor
- HTML5 Relation Manager
- JACE-9000 WiFi Support
- Access Control Badge Printing

### INTEROPERABILITY



- Driver Updates | Modbus, Mbus, OPC-UA, SNMP, BACnet

### CONNECTIVITY



- Fox over WebSocket
- kitControl Refresh
- Niagara Access

### CYBER DEFENSE



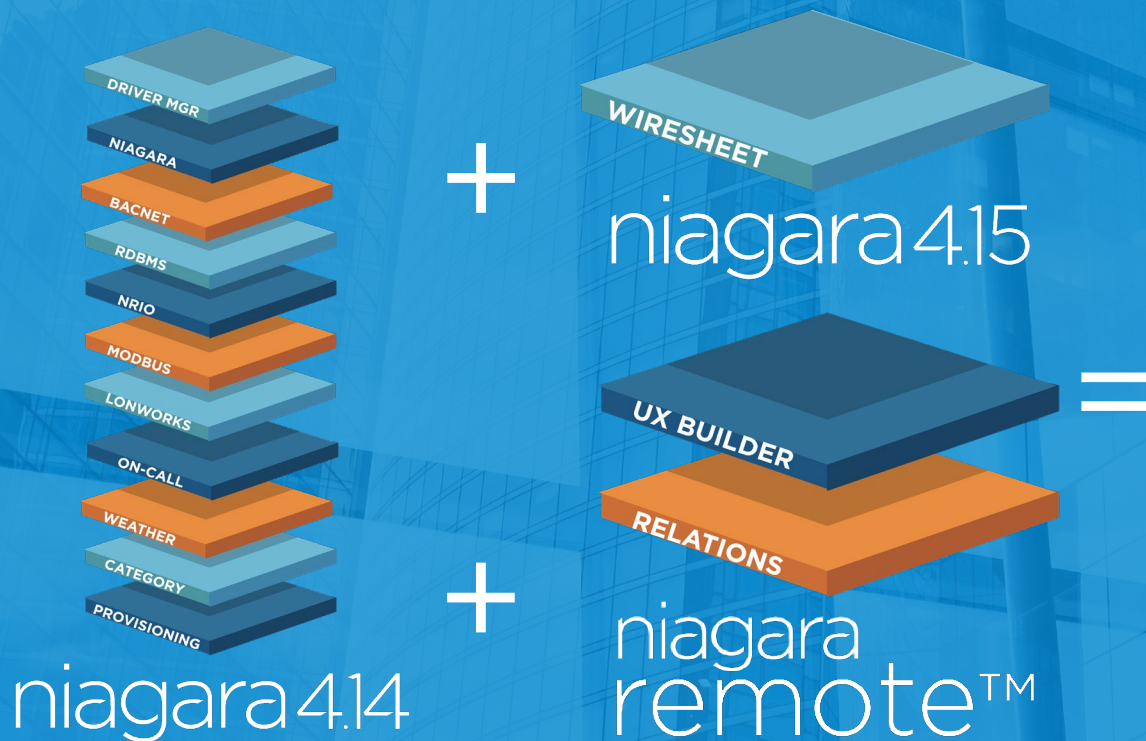
- CAC Authenticator Support (Browser)
- User Login History
- Encrypted Hashed Passwords

### COMPLIANCE



- BACnet Protocol Revision 18
- QNX 7.1 Upgrade for JACE-8000 + Edge-10

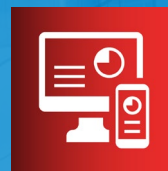
# NEW HTML5 WEB VIEWS



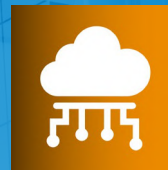
*A Significant  
Step-Up in*



**DEPLOYMENT  
EASE**



**DATA MANAGEMENT  
& VISUALIZATION**



**INTEROPERABILITY  
& CONNECTIVITY**





## DO MORE REMOTELY!

**4.15's new HTML5 Web Views expand what can be done remotely through a browser, strengthening the value proposition of a Niagara Remote subscription.**

- Troubleshoot a Niagara deployment
- Do regular engineering and maintenance work
- Check the status of Niagara stations across a Niagara-based network
- Design/edit Graphics and UI
- Do regular engineering and maintenance work

No additional  
hardware, gateways  
or VPNs needed!

Payback measured  
in fewer truck rolls!

**Any Tech, Any Station, Anywhere...**

niagara  
remote™





## **DEPLOYMENT EASE/ FLEXIBILITY**

# MORE HTML5 WEB VIEWS

Engineer Niagara Stations through a web browser client.  
**Save Time!**



Brand  
Agnostic

Client  
Version  
Agnostic

Connect via  
IT-Friendly  
HTTPS



# HTML5 PX EDITOR

Create and edit graphics through the browser. UI Design no longer requires Workbench.  
NextGen UI/UX Builder



HTML5  
Graphics Editor

Create and Edit  
Graphic Pages

# HTML5 PX EDITOR

Enables editing graphics and designing custom GUIs remotely.

# HTML5 RELATION MANAGER

Define relationships through the browser. Relationship tagging no longer requires Workbench.

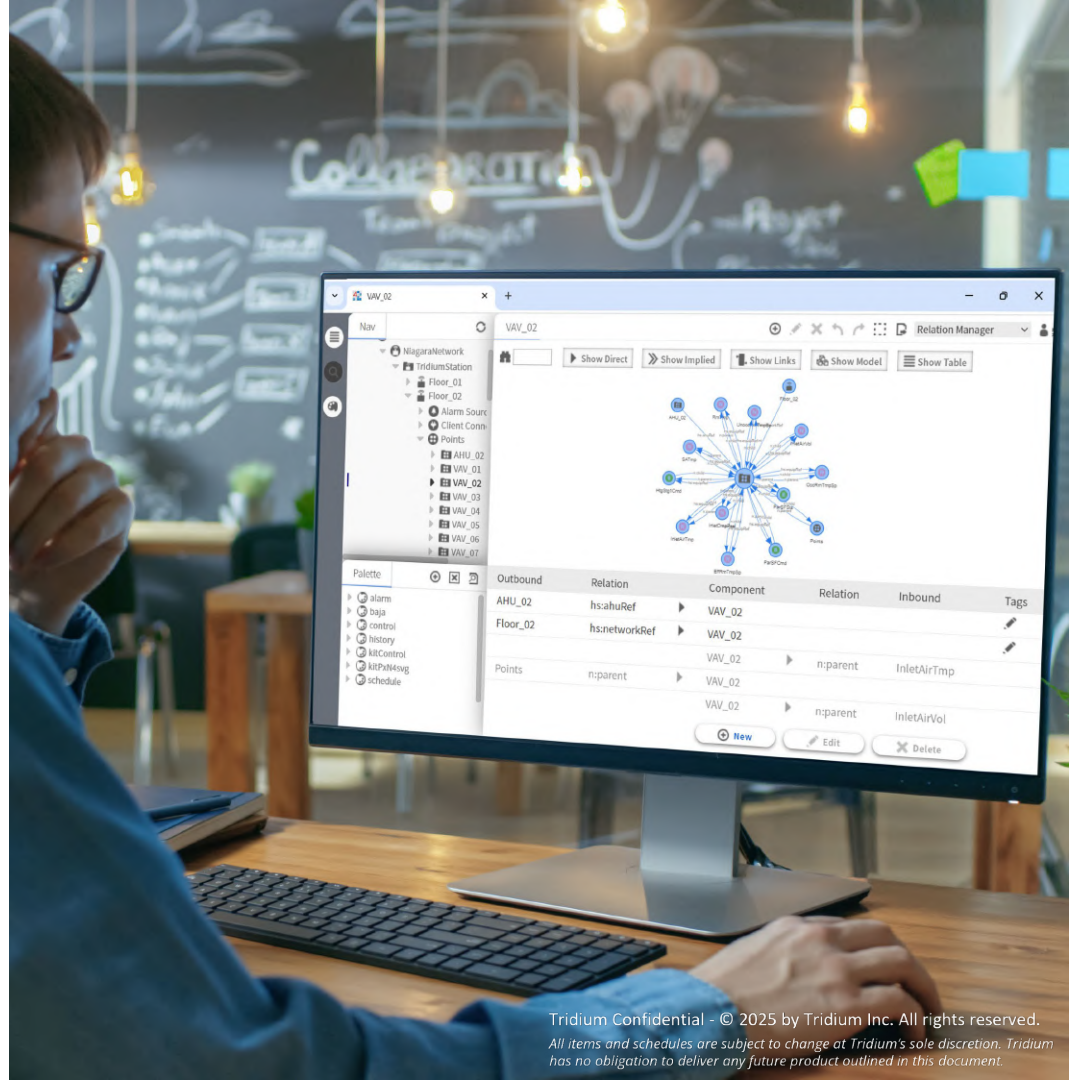
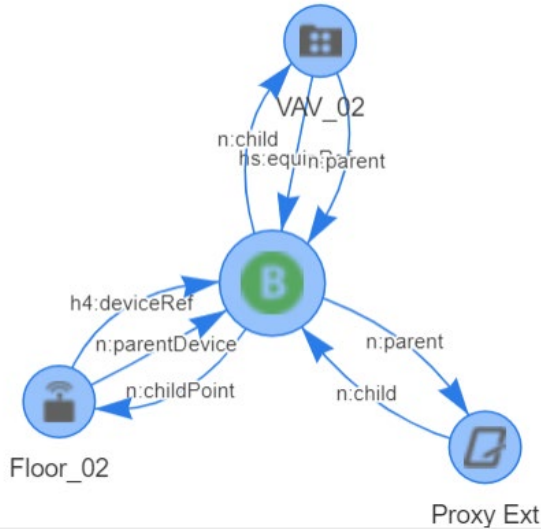


HTML Relation  
Sheet

View, create,  
edit, and delete  
relations

# HTML5 RELATION MANAGER

Relation Manager Web View  
enables defining  
relationships remotely.





# JACE-9000 WIFI SUPPORT

Now You Can Order  
WiFi-Enabled  
JACE 9000!



# JACE 9000 WiFi

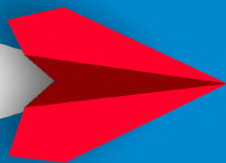
## niagara4.15

- Supports WiFi 5 (802.11 ac)
- Supports IEEE 802.11 a/b/g/n/ac networks



# ACCESS CONTROL TRANSFORMS WITH NIAGARA 4.15

niagara  
Enterprise Security



niagara  
access™



# ACCESS CONTROL UPDATE

niagara

## aCCeSS™ is now in beta!

- Niagara Access™ is a powerful access control solution supporting the latest innovations in physical security and access control.
  - *New access control solution for Niagara*
- 4.15 Adds Native Badge Design
  - Users can now create card templates in Workbench, take or import photos, and print customized badges from Niagara Access™ Supervisor with browser access.

**Your unified  
platform to  
integrate access  
control with  
BMS!**

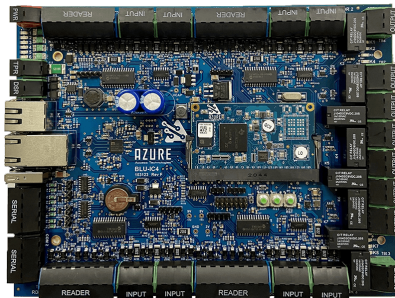


# NIAGARA ACCESS™

- Built on an open framework
- Supports **integration** with multiple 3<sup>rd</sup> party Open Supervised Device Protocol (**OSDP-verified**) access control hardware
- **TCP/IP smart controllers** with multiple options (1 door, 2 doors, 4 doors)
- 12 VDC
- POE
- Connectivity
  - Ethernet
  - Wi-Fi
- Support **OSDP & Weigand Protocols**
- Support Multi-class readers
- **Native badge design**



Armatura  
Global Solutions



...and many more  
Hardware Options.  
Learn more in the  
Connectivity Section  
of this presentation.





# INTEROPERABILITY ENHANCEMENTS



## MODBUS UPDATE



Ping more than 2 registers at a time when addressing Modbus devices

- Latest Modbus meters have data types that call for addressing 4 registers at a time
- Support for a 48-bit unsigned long data type was added and factored



# OPC-UA UPDATE

- Added bi-Direction point types for OPC UA Server enabling actions on server points
  - One point manages both incoming and outgoing data values (i.e. bi-directional)
- Enhancements to support OPC UA Client Arrays in a nested structure when discovering OPC points

**Integrate more easily with one of the most basic and familiar protocols used in industrial automation.**



Integrate more easily with one of the most basic and familiar protocols used in data centers.



# SNMP UPDATE

- Ability to configure an export type for SNMP export folders.
  - For example, if the user exports as the integer type, the backing SNMP type will also be an integer.
- An "Index Value" column has been added to the SNMP table view. This includes displaying both the OID representation of a row as well as the index of the row in the order of other rows in the table.

ASHRAE Standard 135  
open communication  
protocol of choice for  
field devices

# BACNET REVISION 18



Implementing the Revision 18 continues the progress towards the most recent revision and adds additional features requested from BACnet focused markets:

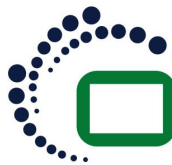
- **Value Source** – view the source device or process of a write or command on BACnet writable points
- **Network Port Object** – allows users to view and configure the BACnet device's network settings through Niagara



# CONNECTIVITY ENHANCEMENTS AND UPDATES



Niagara Access™ is built on an open framework by Z9 Security. Integrates with multiple OSDP-verified access control vendors.



**OSDP™**

niagara

access™ will support:

- OSDP & Wiegand Protocols
- Multi-class card readers
- Multiple TCP/IP smart controllers with PoE, Onboard-IO, Wi-Fi and Ethernet connectivity



The **Open Supervised Device Protocol (OSDP)** is an access control communication standard further developed by the **Security Industry Association (SIA)** to facilitate secure communication between access control systems.

In 2008, the **Open Supervised Device Protocol (OSDP)** access control communications standard was created to improve interoperability among access control and security products and donated to the **Security Industry Association (SIA)**, a not-for-profit trade organization.

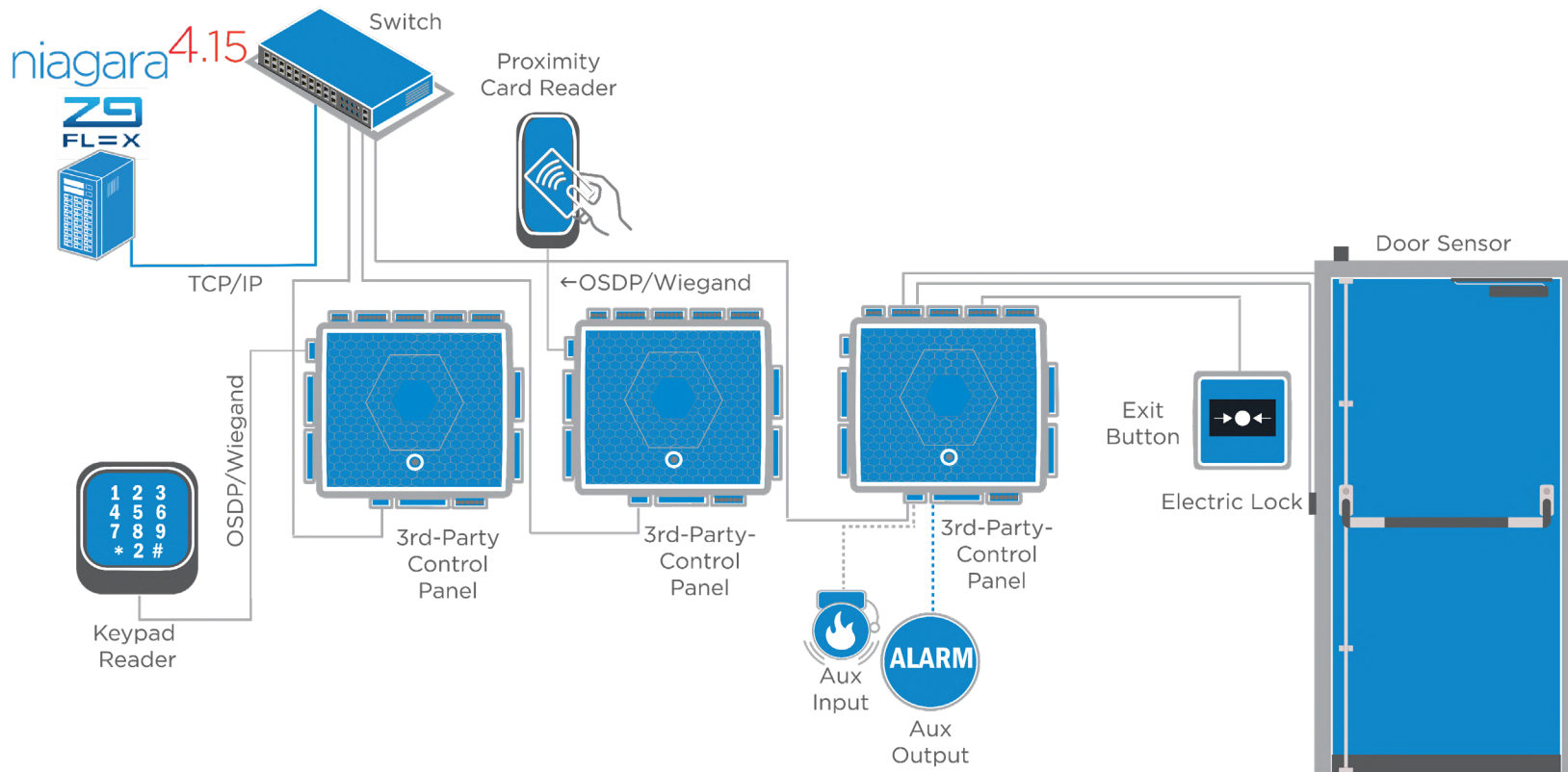
In May 2020, OSDP was approved as an international standard by the **International Electrotechnical Commission (IEC 60839-11-5)**. In December of the same year, SIA OSDP v2.2 was released based on the IEC 60839-11-5 standard. SIA continues to refine and update the standard to maintain maximum flexibility and to keep ahead of evolving security threats.



# OSDP MANUFACTURERS



# EXAMPLE NETWORK ARCHITECTURE

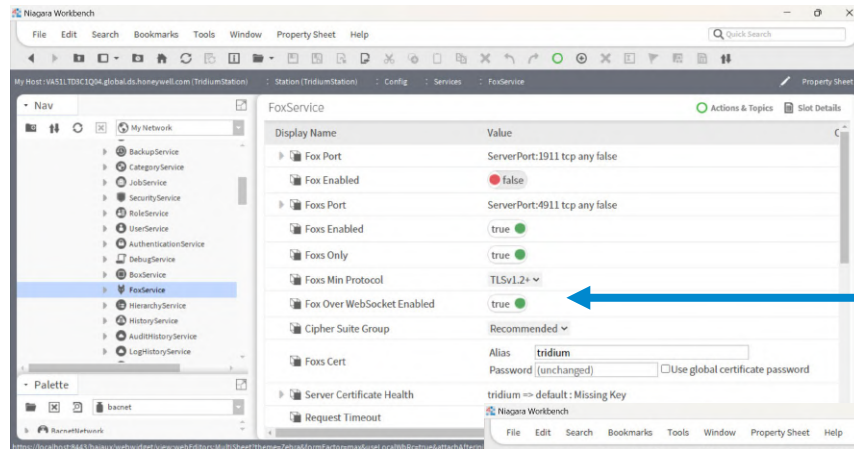




**Fox over WebSocket is a new option for Station-to-Station connections when Foxs is not available.**

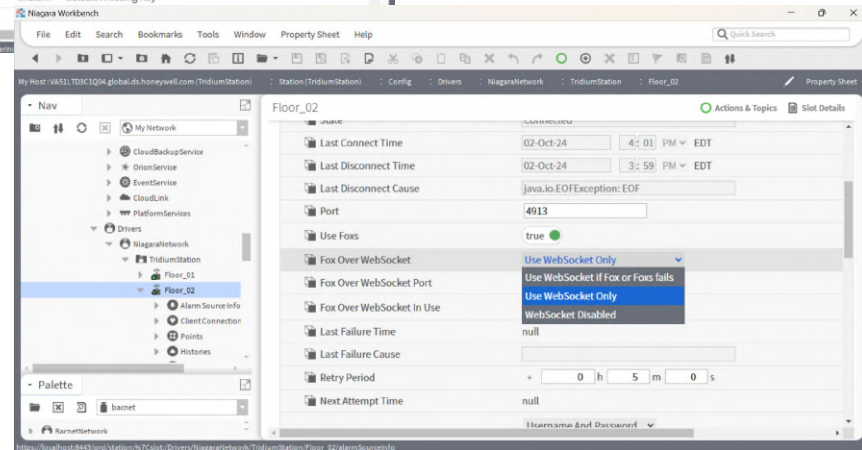


# FOX OVER WEBSOCKET

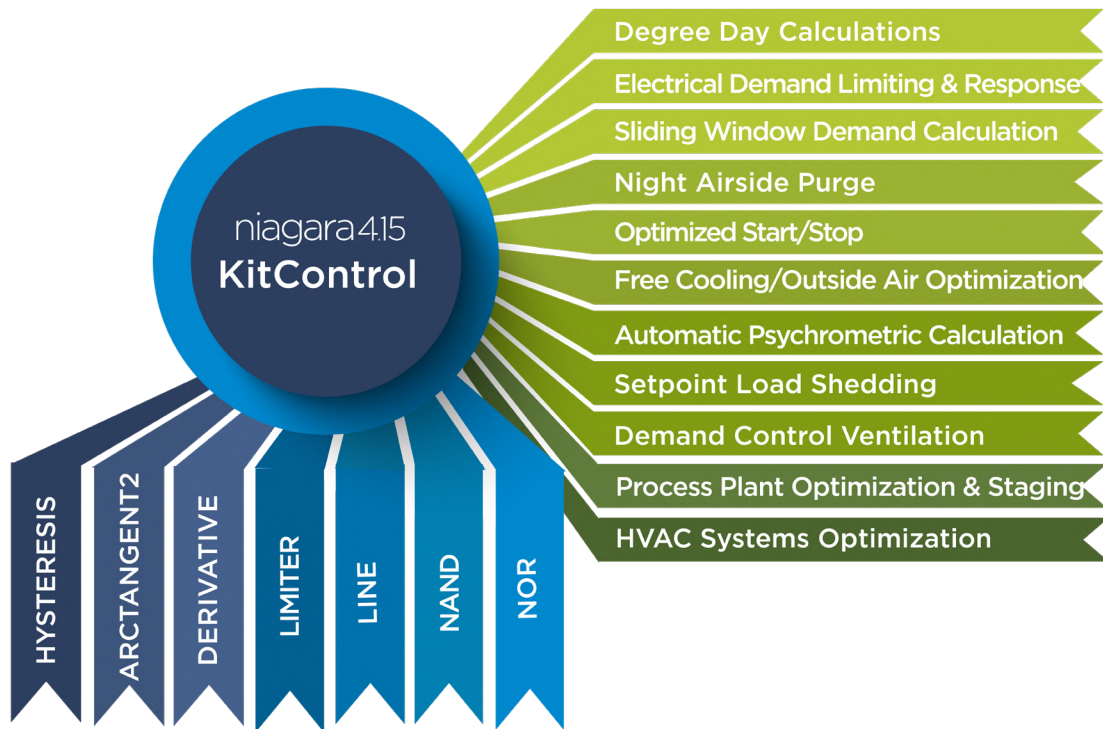


New Client Connection Property in the Fox Service

For use when IT restricts ports 1911 and 4911.



# ADDITIONAL KITCONTROL OBJECTS



New ASHRAE 231p CDL Standard Elementary Blocks



DOE-led Control  
Design Language  
(CDL) Initiative



OpenBuildingControl

Aligns with  
ASHRAE 231p

Goal = a unified CDL for  
Building Environmental  
Control Sequences





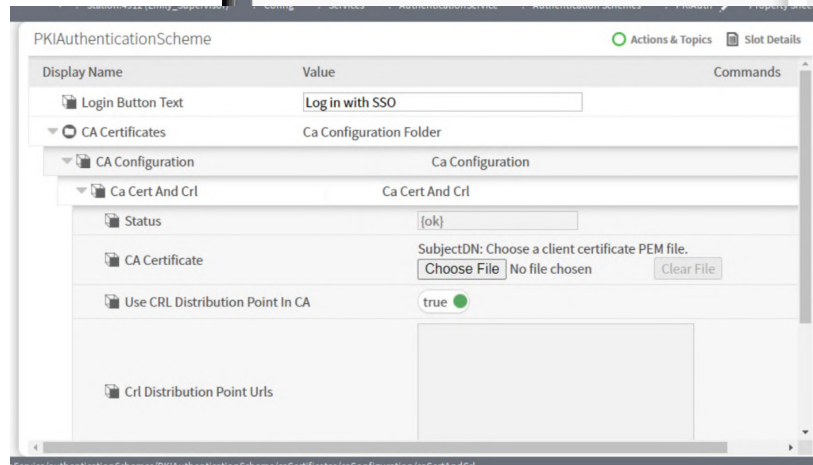
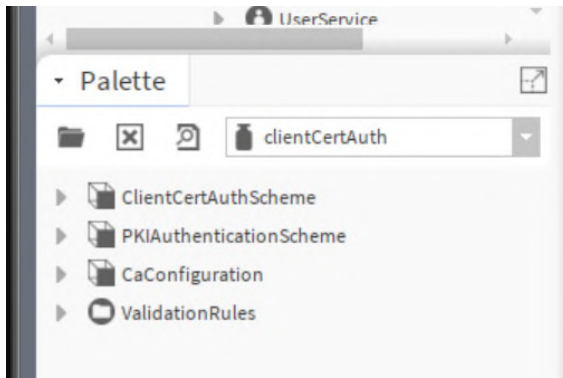
# CYBER DEFENCE UPGRADES

**Authenticate  
With Common  
Access Card  
when accessing  
Niagara through  
a browser!**

# PKI AUTHENTICATION FOR BROWSER

## New ClientCertAuth Scheme:

Simplifies authentication process for organizations (such as government org's) who utilize PKI-based authentication





Now users can check their login history for both the platform and the station.

# USER LOGIN HISTORY

Users can ensure that they recognize all logins to their account, helping detect potential attacks on the system.

Session Info for Emily\_Supervisor

You are connected as admin.

Hostname is localhost.

The identity of this host has not been verified.  
- Server's certificate does not match the address.  
- Server's certificate is not trusted.  
[Certificate Information](#)

Your connection to Emily\_Supervisor is encrypted with 256-bit encryption.

The connection uses TLSv1.3.

The connection is encrypted using AES\_256\_GCM, with SHA384 for message authentication and NULL as the key exchange mechanism.

Your connection started at 19-Jul-24 3:04 PM EDT.

Previous login was at 19-Jul-24 1:30 PM EDT from 127.0.0.1 as Workbench.  
[History](#)

OK

Hostname is localhost.

User Login History for admin

Previous login was at 19-Jul-24 1:30 PM EDT from 127.0.0.1 as Workbench.  
You are connected as admin.

Time	Location	Successful	Secure	Client
19-Jul-24 3:04:24 PM EDT	127.0.0.1	true	true	Workbench
19-Jul-24 1:30:33 PM EDT	127.0.0.1	true	true	Workbench
19-Jul-24 8:48:05 AM EDT	127.0.0.1	true	true	Workbench

OK



# ENCRYPTING HASHED PASSWORDS

- Passwords in the bog file will be encrypted, salted, and hashed
- Users will need to use the passphrase and station copier to successfully keep user passwords functional

No longer can users gain access to a Niagara station via unprotected offline bog file.





# COMPLIANCE UPGRADES

# BACNET TEST LABS CERTIFICATION

ASHRAE Standard 135 open communication protocol of choice for field devices



- B-BC Profile for Jace 9000, & Jace 8000
  - with BACnet Secure Connect link layer!
- AWS Profile for Supervisors
- Protocol Revision 18 Certification Testing Coming Soon

# niagara 101

FOR SPECIFYING ENGINEERS



# TRIDIUM VS NIAGARA

Tridium is the company, Niagara is the product...

## Software

Niagara  
Supervisor  
Niagara Analytics  
E-Sign  
Drivers  
Niagara Cloud Suite

## Hardware

JACE  
Edge  
Expansion Modules  
Enterprise Security

## Services

Professional Services  
Custom Drivers  
System Audits  
OEM Development

## Training

Niagara Certification  
Operator / End User  
Niagara Analytics  
Developer





## **The Niagara Framework is an open automation infrastructure used in critical facilities around the world**

Niagara helps institutions address energy savings, resource planning, and system management in one secure platform that sets the standard across entities as diverse and demanding as the U.S. State Department and DoD, Amazon, Google, Wawa, GM, Ford, Ikea, Walmart, Home Depot, Wells Fargo and Bank of America

# WHY NIAGARA

Compatibility  
and  
Flexibility

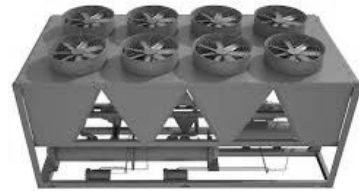
Risk  
Mitigation

Cost  
Savings

Future  
Proofing

# Flexibility to Integrate, Monitor and Control

## HVAC



## Safety and Access



## Lighting, Power and Water



## Occupancy, Usage and Condition



PEOPLE DETECTOR



PEOPLE COUNTER



Flow



Leak



NOISE LEVELS



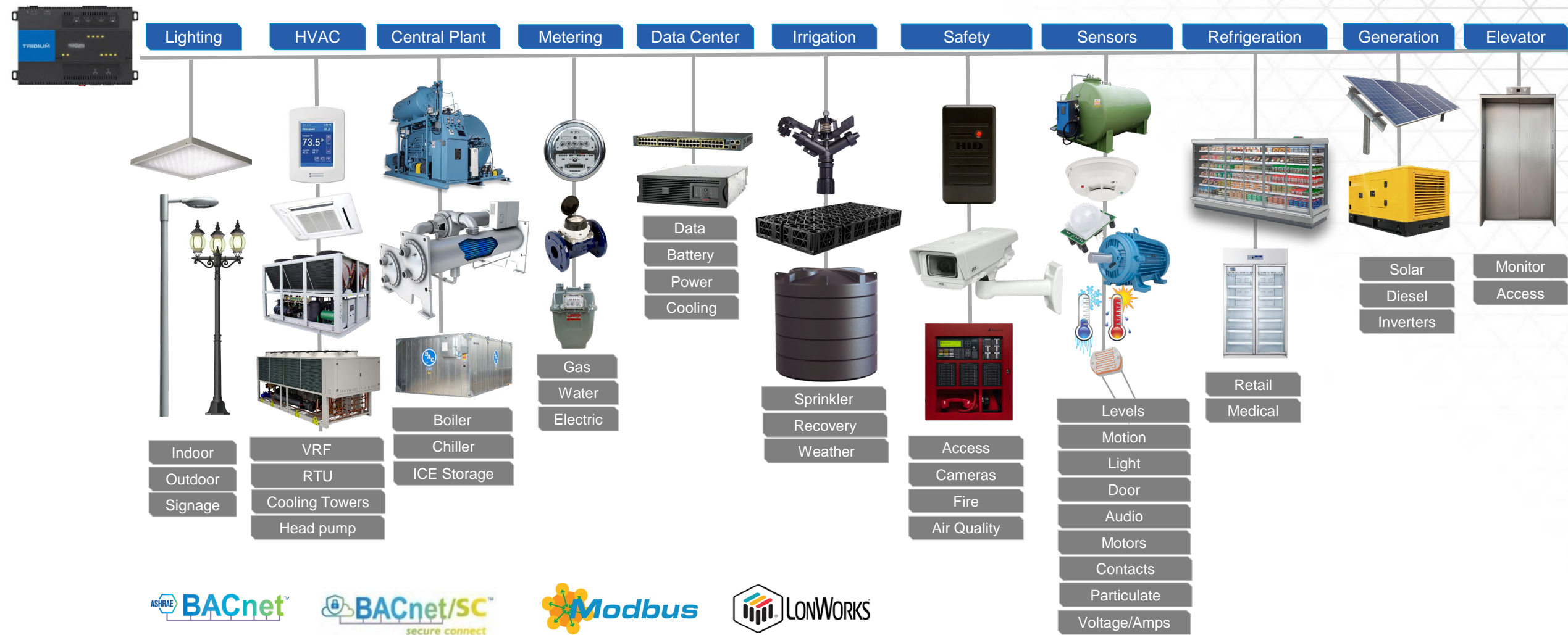
HUMIDITY LEVELS



ENVIRONMENTAL MONITORS

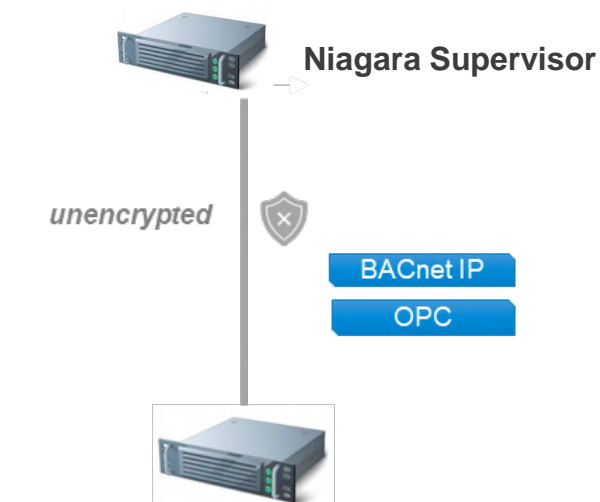


# Limitless Device Integrations with Niagara





# Connecting to Legacy Systems



**Honeywell**



Driver Name	System Detail	Type of System	Developer	For More Info
Accruent Alarm Driver	Send configured alarms to the accruent server	Any system that generates an Alarm including HVAC, Refrigeration and Lighting	Accruent	
Accruent Configuration Driver	To clone the JACE device to the Accruent system for mapping telemetry data values	Any System that needs a collection of Telemetry data or changing values on a JACE	Accruent	N/A
Accruent IOT Driver	Works with the Accruent Configuration Driver to change the values on a JACE from the Accruent System	Any System that needs values changed for a period of time including Turning on/off Lights, Temps on HVAC and Refrigeration Devices Mainly.	Accruent	N/A
Accruent Telemetry Driver	Transmits telemetry data from interesting points to the Accruent system for further processing and analysis	Any system that can be distilled into operational information using the Accruent rules engine	Accruent	N/A
Alarm Console (Enhanced)	Multi Client, Multi Group, Multi Workstation	Building Automation	MaxLine	controlsplus.s
Allen Bradley CIP Driver	Allen Bradley AbLogix5, PLC/SLC 2 and 5	Building Automation	Infocon/MaxLine	controlsplus.s
Allen Bradley CSPV4 TCP Driver	Allen Bradley	Building Automation	Infocon/MaxLine	controlsplus.s
American Auto-Matrix PHP	AAM PHP version 8.10	Building Automation	Tridium	tridium.com c
American Auto-Matrix PUP	AAM PUP version 8.35	Building Automation	Tridium	tridium.com c
Andover AC256	Andover AC256	Building Automation	Tridium	tridium.com c

American Auto-Matrix PUP

Andover AC256  
Andover Infinity/  
Continuum Driver

Automated Logic  
WebCTRL®  
SOAP Driver

Barber Colman GCM

Barber-Colman N8K  
Driver

Trane Comm3  
Non-isolated Driver

Trane Comm4 Driver  
(Isolated)

Honeywell Cbus  
TCP Driver

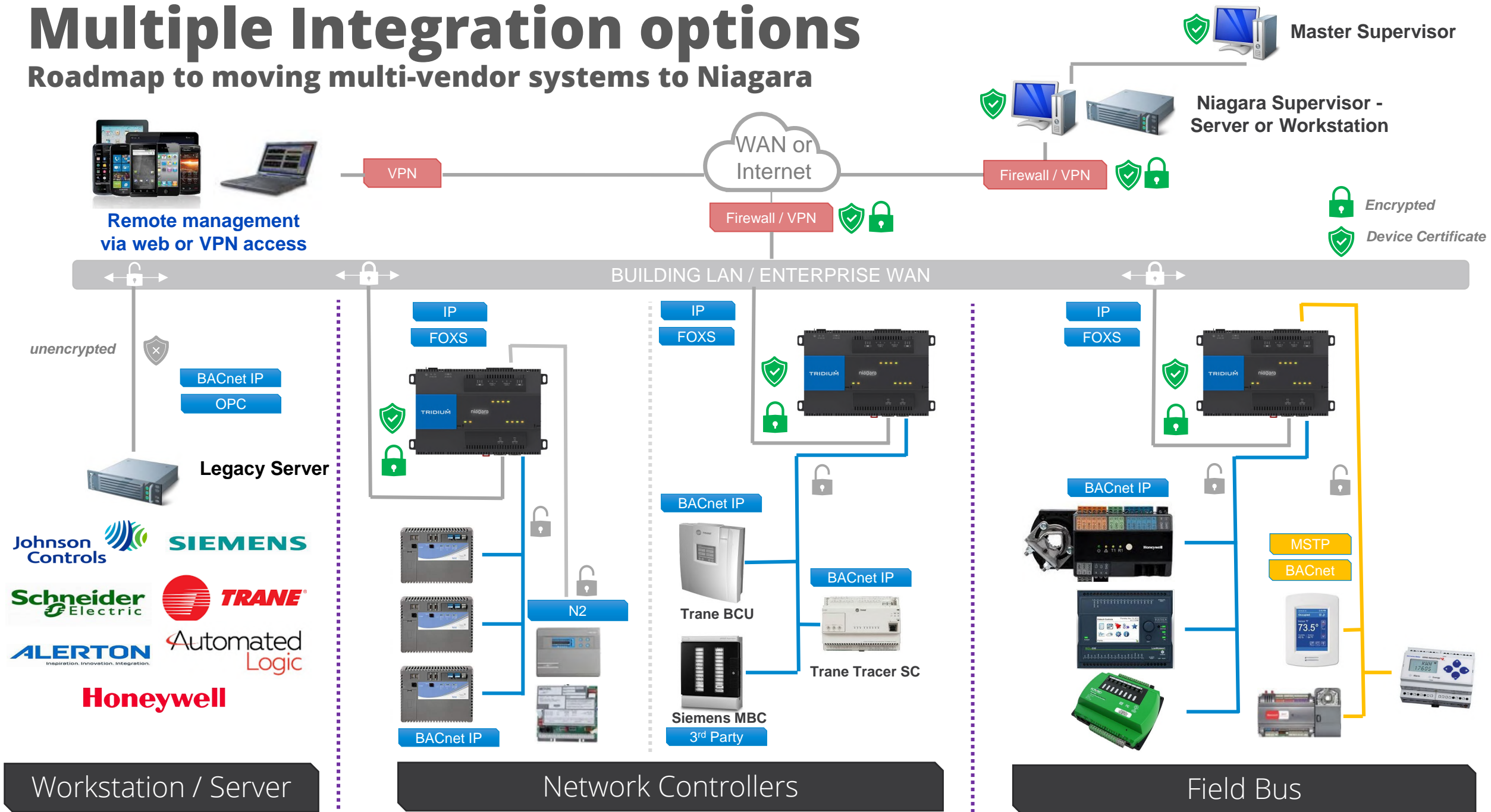
Johnson N2 Open  
driver

Siemens Apogee 600  
TEC Driver

**TRIDIUM**

# Multiple Integration options

## Roadmap to moving multi-vendor systems to Niagara



# Niagara Information and Conformance Statement (NICS)

The Niagara Compatibility Statement (NICS) for all Niagara Software shall allow open access and be set as follows: accept.station.in="\*" accept.station.out="\*" accept.wb.out="\*" accept.wb.in="\*". In any case, the end user shall maintain the right to instruct the contractor to modify any software license, regardless of supplier, as desired by the end user. *The contractor shall not install any "brand-specific" software, applications or utilities on Niagara Framework-based devices.*

All hardware and field-level devices installed shall not be limited in their ability to communicate with a specific brand of Niagara Framework JACE. They shall also be constructed in a modular fashion to permit the next generation and support components to be installed, in replacement of or in parallel with existing components. *All controllers must be able to be programmed within the Niagara Workbench.*

At the completion of the project, the owner shall be given all existing platform and station login credentials to include; super user (admin) usernames; passwords and passphrases.

# WHY NIAGARA

Compatibility  
and  
Flexibility

Risk  
Mitigation

Cost  
Savings

Future  
Proofing



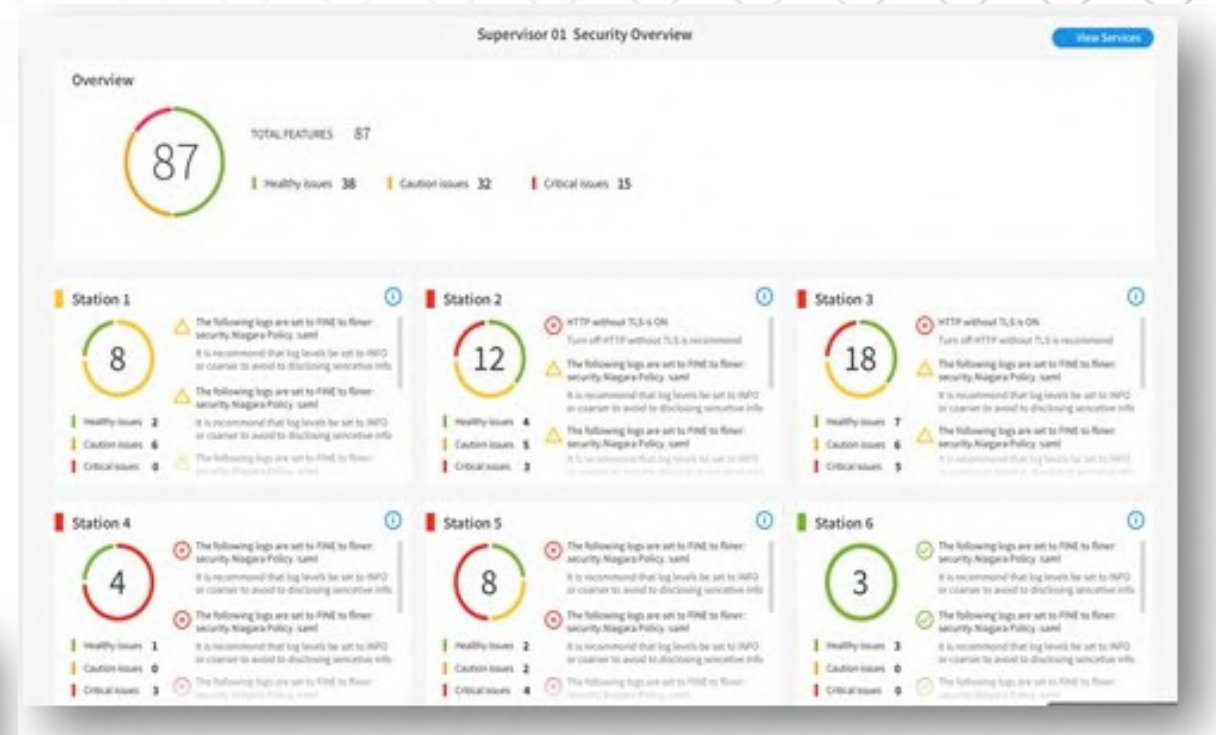
# Cybersecurity – a defense in depth approach

- **Strong Authentication** (SCRAM-SHA-256-bit DIGEST) with pluggable authentication schemes
- **PKI Integration** – Certificate management tools within the framework - ability to import/use 3rd party digital certificates with Niagara.
- **Role-Based Access Control** for authorization, providing access to security components by security role
- Use of **Internal Security Manager**, controlling authorization at the API level (protecting components of the framework from only accessing authorized methods & items)
- **ISA 62443 Certification** Tridium processes have met all requirements defined by the International Society of Automation (ISA) certification standard ISA/ICE 62443-4-1-2018
- **Encrypted Communications & Encrypted sensitive information at rest** for confidentiality. FOXS and HTTPS utilize Transport Layer Security (TLS 1.3) - additional degree of integrity protection in the protocol
- **Digitally Signed & Validated Code**, providing non-repudiation and assurance of system integrity
- Integration Capability with Security Infrastructure, including **LDAP Directory Servers, Kerberos, and SAML 2** Identity Providers for Single Sign-On
- **Common-Sense User Account Management** (Forced Strong Passwords, User Lockouts, Forced Removal of Factory Default Passwords, the ability to rename /change known user names...)
- **Auditing** of user activity at customizable levels
- **Cybersecurity Team** - A dedicated team focused on continuous security improvements



*Quickly assess the security posture of your Niagara Network*

- Quickly identify issues with roll up view
- Triage Outliers
- Manage Certificates and access privileges



# WHY NIAGARA

Compatibility  
and  
Flexibility

Risk  
Mitigation

Cost  
Savings

Future  
Proofing

# Niagara – Open and Secure Framework



NIST RMF

ISA/IEC 62443



# WHY NIAGARA

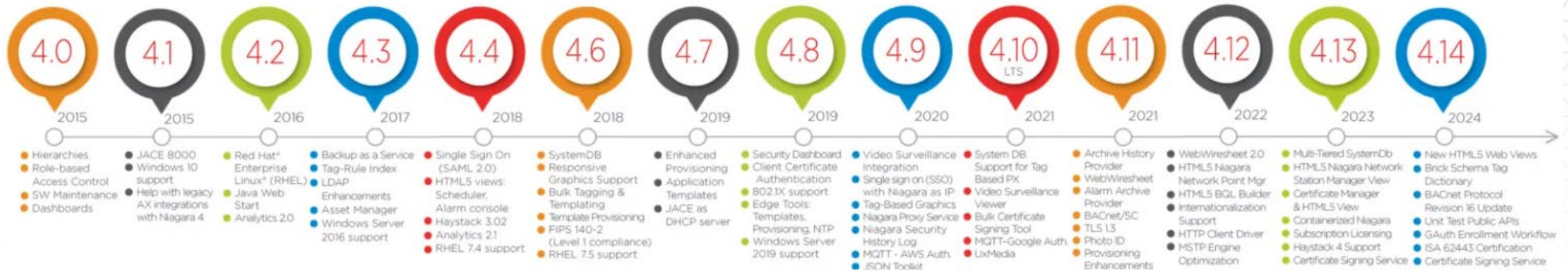
Compatibility  
and  
Flexibility

Risk  
Mitigation

Cost  
Savings

Future  
Proofing

# Protection of your investment...



The same JACE controller deployed in 2015 has vastly more capabilities today through constant enhancements to Niagara 4...



COMING IN 2025

■  
niagara

A large, stylized blue number '5' is positioned to the right of the word 'niagara', partially overlapping it. The background features a dark blue field with a network of glowing blue lines and dots, suggesting a digital or technological theme.



# JACE-9000

## KEY FEATURES

- Quad core iMX8M+ CPU
- Double the amount of RAM and 4x Usable Storage
- Ubuntu Core 20 operating system
- Wireless and Non-Wireless model
- Refreshed branding clip
- Easy drop-in replacement/upgrade to JACE-8000
- Supports all existing expansion modules (+remote IO)
- All connectors in same location and same orientation

## ROADMAP OBJECTIVES

- Remote device management
- Edge computing platform
- Mobile management UI
- Machine learning capabilities (NPU)





# PRODUCT COMPARISONS

	JACE-8000	JACE-9000
Processor	Single Core 1GHz TI AM3522	Quad Core 1.6GHz NXP iMX8M+
Operating System	QNX	Ubuntu Core 20 Linux
Memory	1GB	2GB
Storage	2GB uSD	8GB uSD
RS-485 Ports	2	2
USB Backup	Yes	No
Ethernet	10/100	10/100/1000
Data Recovery	2Mbit	4Mbit
Wi-Fi	2.4 & 5GHz	2.4 & 5GHz
Bluetooth	No	Yes
Debug Port	Yes	Yes



# Architecture

## Hybrid Edge/Cloud Approach



NCS Portal

User Management

Point History Graphs / API Keys

Backups

Remote Access

### Niagara Data Service



Modeler



Histories



Archive Histories

### Niagara Recover



Backup

### Niagara Remote



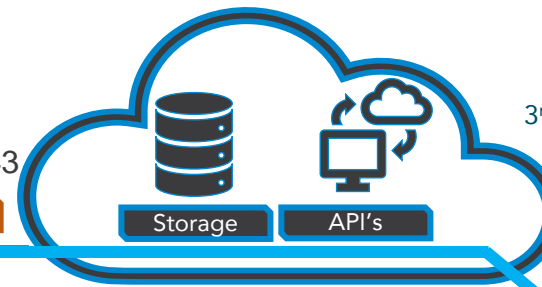
Browser  
Remote Access

JACE and/or Supervisor



Outbound 443

HTTPS



IoT Cloud Connections  
Time Series Database  
Customer Siloed



Remote Access to Niagara Station

Current Long Term Support Release | Current Feature Release | and Active SMA

# JACE 9000 controller

## PRODUCT DEFINITION

The JACE® 9000 is a compact, embedded IoT (Internet of Things) controller and server platform for connecting multiple and diverse devices and sub-systems. With internet connectivity and web-serving capability, the JACE 9000 controller provides integrated control, supervision, data logging, alarming, scheduling and network management. It streams data and rich graphical displays to a standard web browser via an Ethernet or wireless LAN, or remotely over the internet.

The licensing model for the JACE 9000 controller is simplified and features standard drivers, along with optional IO and field bus expansion modules for ultimate flexibility and expandability. The JACE 9000 controller operates with Niagara 4, the latest version of the Niagara Framework®, for optimum performance. In larger facilities, multi-building applications and large-scale control system integrations, Niagara 4 Supervisors can be used with JACE controllers to aggregate information, including alarms, and historical and real-time data, to create a single, unified application.



## HARDWARE SPECIFICATIONS

1.6GHz NXP iMX8M+ Quad Core CPU

2GB LPDDR4 RAM

8GB onboard EMMC storage

8GB micro-SD card (backup media)

Wi-Fi (Client or WAP)

- Wi-Fi 5 (802.11ac)
- 1x1 802.11 a/b/g/n/ac
- Configurable radio (Off, WAP, or Client)
- WPA2PSK/WPA3PSK supported
- Only available for wireless model

USB type C connector

- Debug port

(2) isolated RS-485 with selectable bias and termination

(2) 10/100/1000MB Ethernet ports

Secure boot

\*Supply requirements: 24VAC rated at 24VA minimum, or 24VDC rated at 1A (24W) minimum

Non-Wi-Fi: Supports Niagara 4.13 and later  
Wi-Fi: Supports Niagara 4.15 and later

Real-time clock

Batteryless

*\*Niagara Enterprise Security requires four hours of standby power*

# EXPANSION MODULE AND IO CONFIGURATIONS

## MAXIMUM EXPANSION (MODULES SUPPORTED)

- NPB-8000-LON (4)
- NPB-8000-232 (4)
- NPB-8000-2X-485 (2)

## MAXIMUM IO (MODULES SUPPORTED)\*

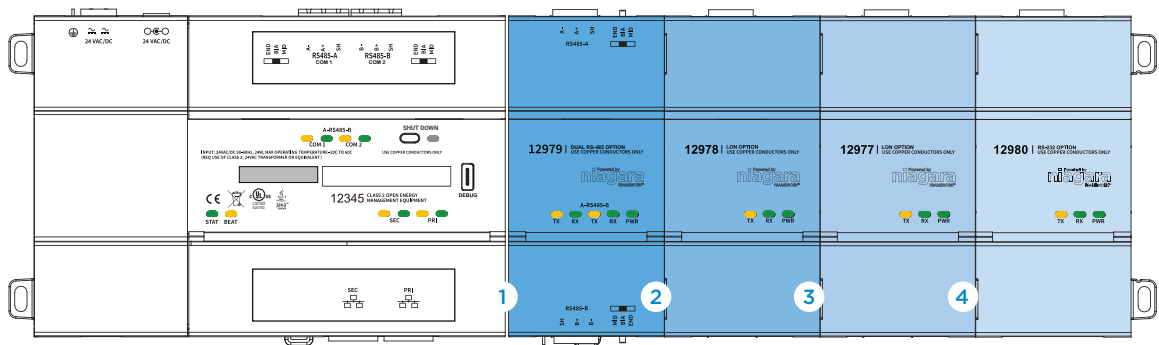
- IO-R-16 (16)\*
- IO-R-34 (8)\*

*\*See JACE IO R data sheet for configuration details*

## MAXIMUM NIAGARA ENTERPRISE SECURITY (MODULES SUPPORTED)\*

- T-SEC-R2R\*
- T-SEC-RIO\*

*\*16 total each or combined*



## MAXIMUM COMBINATIONS

EXPANSION 1	EXPANSION 2	EXPANSION 3	EXPANSION 4
232 or LON	232 or LON	232 or LON	232 or LON
485	232 or LON	232 or LON	232 or LON
485	485	232 or LON	
485	485		

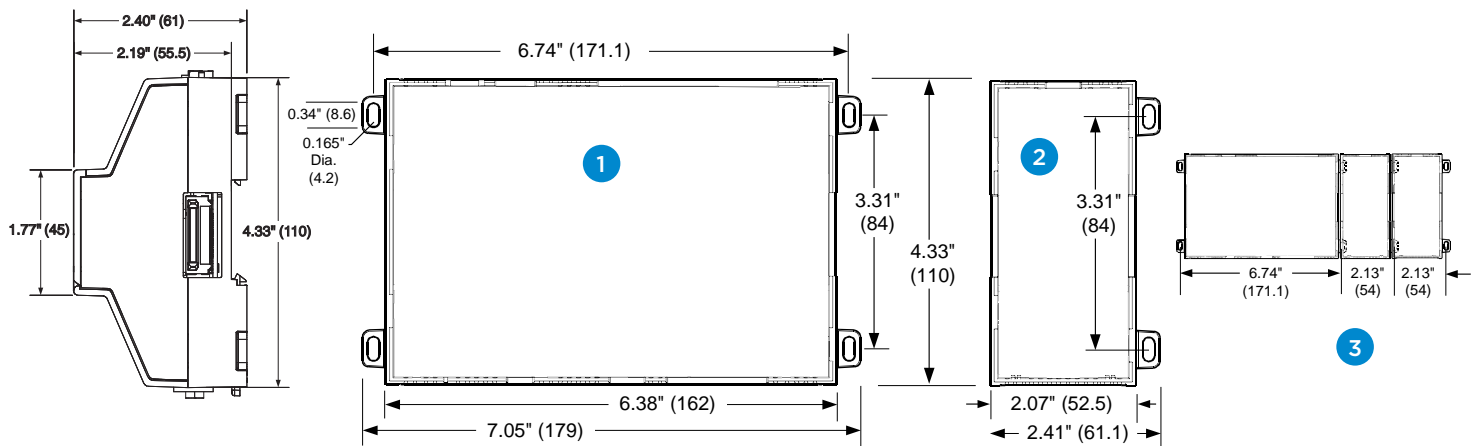
*Expandability is dependent on the type of expansion module used*





# JACE® 9000 CONTROLLER MOUNTING & DIMENSIONS

- 1 JACE 9000 controller. Allow at least 1.5" (38mm) clearance around all sides and minimum 3" (76mm) at bottom for optional Wi-Fi antenna
- 2 Expansion module. Up to four (4) may be used. See "Expansion Module and IO Configurations"
- 3 Distances between center of tabs from one unit to another unit



Compatible with (DIN43880) enclosures

Suitable for mounting to a panel or to an EN50022 standard 35mm rail

Vizio stencils available upon request

## AGENCY CERTIFICATIONS

- UL 916
- CE EN 61326-1
- RCM
- FCC Part 15 Subpart B, Class B
- FCC Part 15 Subpart C
- C-UL listed to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment"
- 1999/5/EC R&TTE Directive
- SRRC
- RSS
- RoHS

## ENVIRONMENTAL SPECIFICATIONS

- **Operating temperature:** -20-60°C
- **Storage temperature:** -40-85°C
- **Humidity:** 5%-95% — Non condensing
- **Shipping & vibration:** ASTM D4169, Assurance Level II
- **MTTF:** 10 years+

Contact [support@tridium.com](mailto:support@tridium.com)  
for the latest agency certifications  
or global shipping guide

# JACE IO R

## PRODUCT DEFINITION

IO R is part of Tridium's portfolio of hardware, software and tools designed for remote monitoring and control applications that enables end-to-end automation and device-to-enterprise integration. IO R allows a JACE® controller to interface directly with simple non-intelligent inputs and outputs remotely located up to 4,000 feet from the JACE. The connection is established via an industry-standard RS 485 multi-drop communications bus. Multiple IO R devices can be utilized on a single JACE, providing 250+ IO points on a single JACE.

### IO-R-16



### IO-R-34



## SPECIFICATIONS

**Niagara 4** – Requires Niagara 4.3 or later

**Niagara AX** – Requires Niagara 3.8u3 or later

### IO-R-16

8 Universal inputs: Type 3 (10k) thermistors, 0-100K ohm, 0-10VDC, 0-20 mA with external resistor

4 Relay outputs (Form A contacts, 24VAC @ .5 amp rated)

4 Analog outputs (0-10VDC)

Powered from IO-R-34

Connected to JACE remotely over a shielded RS485 bus

### IO-R-34

16 Universal inputs: Type 3 (10k) thermistors, 0-100K ohm, 0-10VDC, 0-20 mA with external resistor

10 Relay outputs (Form A contacts, 24VAC @ .5 amp rated)

8 Analog outputs (0-10VDC)

Powered from a 24VAC/DC source

Can power up to 4 IO-R-16 modules

Connected to JACE remotely over a shielded RS485 bus

# EXPANDABILITY

## MAXIMUM EXPANSION

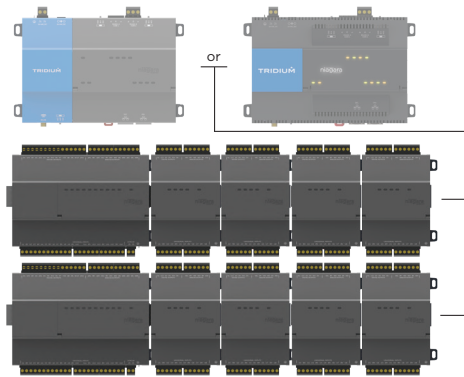
- (8) IO-R-34s
- or*
- (16) IO-R-16s

## POWER

One IO-R-34 can power four IO-R-16 modules

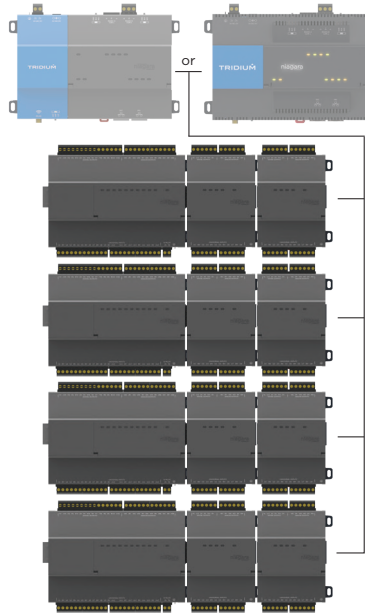
## COMMON CONFIGURATIONS

### Maximum configuration for 2 panels

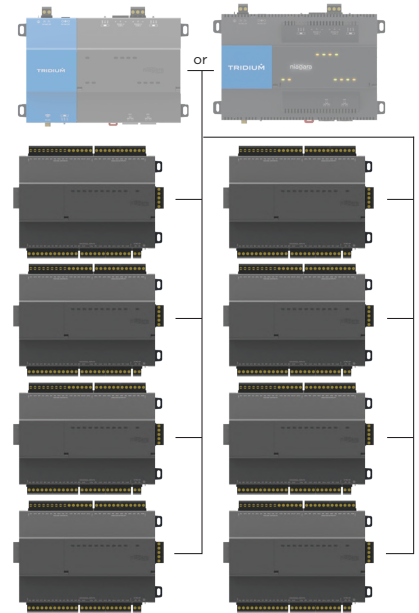


Shown with maximum of 4 IO-R-16s per IO-R-34

### Maximum configuration for 4 panels



### Maximum configuration for 8 panels



# AGENCY CERTIFICATIONS

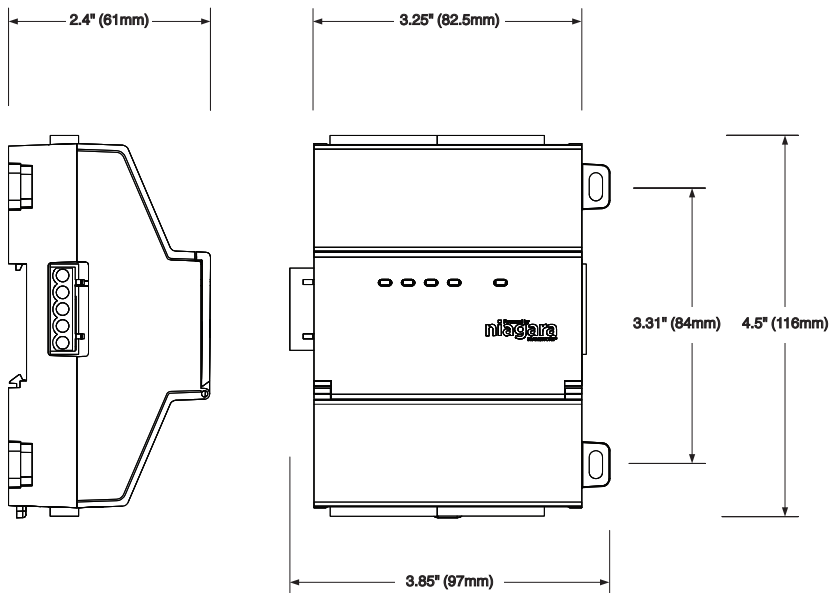
- UL 916
- C-UL
- CE EN 61326-1:2013
- RCM
- FCC part 15, class b
- RoHS2
- REACH
- WEEE
- China ROHS
- Open Energy Management Class 2

## MOUNTING & DIMENSIONS

The JACE IO modules support mounting on EN50022 standard 7.5mm x 35mm DIN rail or panel mounting.

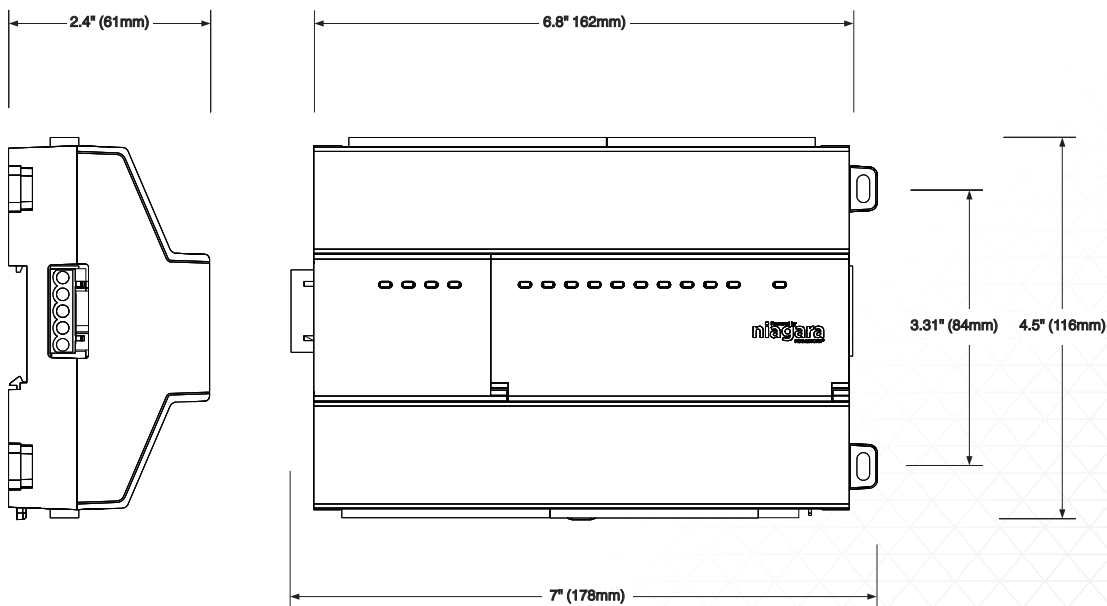
### IO-R-16

82.5mm (w) x 116mm (h) x 61mm (d) (3.25 in x 4.5 in x 2.4 in)



### IO-R-34

162mm (w) x 116mm (h) x 61mm (d) (6.8 in x 4.5 in x 2.4 in)



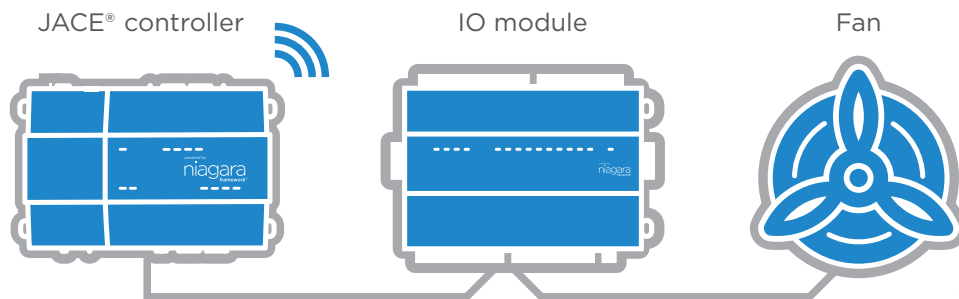




## ORDERING INFORMATION

Part number	Description
IO-R-16	16 Point IO Module. Powered by IO-R-34. Connected to JACE® 8000 or 9000 remotely over RS485.
IO-R-34	34 Point IO Module. Powered by 24VAC. Capable of powering 4 IO-R-16 modules. Connected to JACE 8000 or 9000 remotely over RS485.

## NIAGARA FOR REMOTE MONITORING APPLICATIONS



The JACE IO R is available through a wide variety of original equipment manufacturers. Our open distribution business model and open protocol support allow a vendor-neutral application compatible with devices and systems throughout the world.



tridium.com

### Locations and customer support, worldwide

**Headquarters**  
North America  
1 804 747 4771

**Support**  
North America & Latin America  
1 877 305 1745

Europe, Middle East & Africa  
44 1403 740290

Asia Pacific  
86 400 818 6088

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UPDATED LIST

niagara  
framework®

# Compatible Drivers & Applications

## NIAGARA COMMUNITY HAS A DRIVER FOR EVERY NEED

Niagara Framework® offers an open platform that developers all over the world are utilizing to create solutions to real-world problems. This fast growing collection of drivers is unmatched in the industry. In many cases, the right driver for your integration work is available off-the-shelf from one of our development partners. This document strives to list all drivers available for purchase or, in some cases, for free at the current time. Note that Tridium has not tested all listed drivers and does not certify conformance. We have compiled this list as a convenience to our customers and, as new offerings are introduced by Niagara Community developers all the time, it may not be comprehensive. If you don't find the driver or application you are looking for on this list, the openness of the Niagara environment means you can relatively easily develop the solution you need. Moreover, Tridium's developer support team and others in the Niagara Community are here to help.

TRIDIUM

Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
Access Control Idemia Driver	This driver enables Idemia access control devices to Integrate with Niagara. Access Allow/Deny can be based on logics built in Niagara	Access Control	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	JACE and Supervisor	N4.8 and higher
Accruent Alarm Driver	Send configured alarms to the accruent server	Any system that generates an Alarm including HVAC, Refrigeration and Lighting	Accruent		IP	JACE	N4
Accruent Configuration Driver	To clone the JACE device to the Accruent system for mapping telemetry data values	Any System that needs a collection of Telemetry data or changing values on a JACE	Accruent	N/A	IP	JACE	N4
Accruent IOT Driver	Works with the Accruent Configuration Driver to change the values on a JACE from the Accruent System	Any System that needs values changed for a period of time including Turning on/off Lights, Temps on HVAC and Refrigeration Devices Mainly.	Accruent	N/A	IP	JACE	N4
Accruent Telemetry Driver	Transmits telemetry data from interesting points to the Accruent system for further processing and analysis	Any system that can be distilled into operational information using the Accruent rules engine	Accruent	N/A	IP	JACE	N4
Aktion	Bi-directional communication with Access control system	Access Control System	SAFECONTROL s.r.o.	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="mailto:safecontrol@safecontrol.cz">safecontrol@safecontrol.cz</a>	IP	JACE or Supervisor	N4.8 and higher
Alarm Console (Enhanced)	Multi Client, Multi Group, Multi Workstation	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	TCP/HTTP/UDP, configurable	JACE and Supervisor	N4.0 and higher
Allen Bradley CIP Driver	Allen Bradley AbLogix5, PLC/ SLC 2 and 5	Building Automation	Infocon/MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Ethernet using , 1756-ENBT/A Ethernet module or 1769-L32E Ethernet port	JACE and Supervisor	N4.0 and higher
Allen Bradley CSPV4 TCP Driver	Allen Bradley	Building Automation	Infocon/MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	TCP	JACE and Supervisor	N4.0 and higher
ALVASYS-DR-VKF	VKF/AEAI hail protection Internet connection to the Server weather is needed	Any application	Alvasys Automation AG	<a href="http://www.alvasys.ch">www.alvasys.ch</a> <a href="mailto:info@alvasys.ch">info@alvasys.ch</a> +41 44 261 00 70	IP	JACE and Supervisor	N4.7 and higher
American Auto-Matrix PHP	AAM PHP version 8.10	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	Serial RS-232 or RS-485	JACE	N4.0 and higher
American Auto-Matrix PUP	AAM PUP version 8.35	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	Serial RS-232 or RS-485	JACE	N4.0 and higher
Andover AC256	Andover AC256	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	Serial RS-232	JACE	N4.0 and higher
Andover Infinity/ Continuum Driver	Andover Infinty	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	Serial RS-233	JACE	N4.0 and higher
ASI Controls Driver	ASIC 6000, 8055, 8255, 8355, 8655, 8755	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE	N4.0 and higher
Asset Manager System Driver	Complete ecosystem that takes full care of Asset Management. Maintaining, Tracking, Ticketing, Inventory, Costs and much more.	Building Automation	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	Supervisor	N4.8 and higher
Ateas	Bi-directional communication with NVR	CCTV Surveillance	SAFECONTROL s.r.o.	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="mailto:safecontrol@safecontrol.cz">safecontrol@safecontrol.cz</a>	IP	Supervisor	N4.8 and higher
Automated Logic WebCTRL® SOAP Driver	WebCTRL Building Automation System	Building Automation	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	TCP/IP	JACE and Supervisor	N4.4 and higher
BACnet MSTP Driver	BACnet MSTP Devices	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	RS-485	JACE	N4.0 and higher
BACnet/IP Driver	BACnet IP Devices	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	Ethernet IP	JACE and Supervisor	N4.0 and higher
Barber Colman ASD	Barber Colman ASD	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE	N4.0 and higher

Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
Barber Colman GCM	Barber Colman GCM	Building Automation	MaxLine	controlsplus.uk.com	Serial	JACE	N4.0 and higher
Beckhoff ADS driver	Data point driver for all Beckhoff PLC	Any application	Alvasys Automation AG	www.alvasys.ch info@alvasys.ch +41 44 261 00 70	IP	JACE and Supervisor	N4.7 and higher
Carel Driver	IR32, MPX, IR33, pCO, pCO II, IOM, EVD	Refrigeration, Air Conditioning	QuickLink Solutions	qlsol.com	Serial RS-485	JACE	N4.4 and higher
CCN Driver	Carrier Comfort Network	Building Automation	Tridium	tridium.com or niagara-central.com	Serial RS-485	JACE	N4.0 and higher
Clipsal Cbus Driver	Clipsal (now Schneider) Cbus	Building/Lighting	MaxLine	controlsplus.uk.com	Serial and TCP (CNI)	JACE	N4.0 and higher
Clipsal CgateTCP Driver	Clipsal (now Schneider) Cgate TCP	Building Automation	MaxLine	controlsplus.uk.com	TCP	JACE	N4.0 and higher
Cloud APP notification Driver	The O-Connect driver lets you send any Niagara alarms as SMS/APP/WhatsApp notification	Building Automation	Conexao Technology Solutions Pvt. Ltd.	https://conexaotechsolutions.com/drivers/	IP	JACE and Supervisor	N4.8 and higher
CNS-Enocean	EnOcean Wireless Network Devices	Building Automation	Control Network Solutions Ltd.	cns-enocean.com	Ethernet	JACE and Supervisor	N4.0 and higher
CSI Inet driver	CSI TAC I/Net 7801X	Building Automation	MaxLine	controlsplus.uk.com	Serial	JACE	N4.0 and higher
CSV Mapper	Convert CSV files into Niagara Histories	Building Automation	ActiveLogix	https://www.activelogix.com/ifttt/	IP	Supervisor	N4
CSV/File Driver	CSV/FTP/sFTP/XML	Import/Export CSV, XML, FTP files as points	Kodaro	https://www.kodaro.com/drivers	IP/Ethernet	JACE and Supervisor	N4.0 and higher
Danfoss Danbuss driver for AKC devices	AKC25H1, AKC25H3, AKC114A, AKC115A, EKC201C, EKC531D1, EKC414A1, EKC204A	Refrigeration	QuickLink Solutions	qlsol.com	Serial RS-232 through AKA24x gateway	JACE	N4.4 and higher
Danfoss Lon Works driver for EKC devices	EKC series devices	Refrigeration	QuickLink Solutions	qlsol.com	LonWorks through TP78-05 (Network Bridge FTT10-RS485)	JACE	N4.4 and higher
DIRC	DotControls IRC	Home & building automation	SAFECONTROL	www.safecontrol.cz http://license.safecontrol.cz	IP	JACE and Supervisor	N4.4 and higher
Dixell Driver for X-WEB gateway	X-WEB gateway 500	Refrigeration, Air Conditioning	QuickLink Solutions	qlsol.com	IP	JACE and Supervisor (only IP in the same LAN)	N4.4 and higher
Dynalite DyNet Driver	Philips Dynalite distributed intelligence lighting control system.	Building automation. Control and monitoring of blinds/curtains, lighting levels, scenes. DALI input device, driver and lamp status, sensor lux level, HVAC temperature actual and setpoint control.	Philips Dynalite	https://www.dynalite.org	Serial and TCP	JACE	N4 and higher
EasyTunnel	Create a secure tunneling between JACEs and Web Supervisor without a static IP address in the JACE	Building Automation	QuickLink Solutions	qlsol.com	IP	JACE and Supervisor	N4.4 and higher
Echo Driver	Enables Amazon Echo Devices to control Niagara based systems.	Building automation, Lighting and enfironmental control, hvac, residential appliances,voice control, room control	Tyrell Products Ltd	www.tyrellproducts.com	IP	Jace and Supervisor	N4.3
EIB/KNX Driver	EIBNET/IP Devices	Building Automation	Tridium	tridium.com or niagara-central.com	IP	JACE and Supervisor	N4.0 and higher



Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
elitedali™	elitedali™ Multidrop for Niagara, is an interface module which transforms any controller running Niagara Software Framework into a smart IoT convergent lighting commissioning and control product.	Seamless DALI integration with N4 for Intelligent Lighting Controls	Leap Info Systems Pvt. Ltd.	<a href="https://leapinfosys.com">https://leapinfosys.com</a>	DALI	JACE and Supervisor	N.4.0 and higher
elitedim2	elitedim2 is DALI-2 interface and driver, designed to bring seamless, IP-based lighting control into the Niagara Framework. Built on the IEC 62386 standard, elitedim2 empowers any Niagara controller to act as a native DALI-2 Application Controller—eliminating the need for separate lighting control systems.	DALI2 Lighting Controls	Leap Info Systems Pvt. Ltd.	<a href="https://leapinfosys.com">https://leapinfosys.com</a>	IP	JACE and Supervisor	N.4.14 and higher
eliteNotify	eliteNotify for Niagara is a driver that enables Niagara Alarm portal notifications to be sent from any controllers or PC running Niagara Software without needing any hardware gateway or GPRS SIM	Niagara Alarm Notifications via WhatsApp	Leap Info Systems Pvt. Ltd.	<a href="https://leapinfosys.com">https://leapinfosys.com</a>	IP	JACE and Supervisor	N4.3 and higher
Emalytics Room Switch Driver	Room operating panel ERS 1000	Building Automation	Phoenix Contact	<a href="https://www.phoenixcontact.com">https://www.phoenixcontact.com</a>	Ethernet IP	JACE and Supervisor	N4.8 and higher
Emerson Climate Communication Driver for Multiflex I/O Boards	Emerson Multiflex I/O	Building Automation	QuickLink Solutions	<a href="https://qlsol.com">qlsol.com</a>	Optional card or external RS-485 or IP interface	JACE all series	N4.4 and higher
Emerson Cpc Einstein	Emerson Cpc Einstein E1 and E2 controller - BX (HVAC) - CX (Convenience stores) - RX (Refrigeration)	Building Automation	QuickLink Solutions	<a href="https://qlsol.com">qlsol.com</a>	IP	JACE all series	N4.4 and higher
Energy Star Driver	Access and Display Building Metrics from Portfolio Manager	Building Automation	ActiveLogix	<a href="https://www.activelogix.com/ifttt/">https://www.activelogix.com/ifttt/</a>	IP	Supervisor	N4
Espa-X driver	ESPA-X driver for TCP/IP (send and acknowledge alarms)	Any Application	Alvasys Automation AG	<a href="http://www.alvasys.ch">www.alvasys.ch</a> <a href="mailto:info@alvasys.ch">info@alvasys.ch</a> +41 44 261 00 70	IP	JACE and Supervisor	N4.7 and higher
ESSER	Esser IQ8Control & FlexES	Fire & Security	SAFECONTROL	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="http://license.safecontrol.cz">http://license.safecontrol.cz</a>	RS232/IP	JACE and Supervisor	N4.4 and higher
Facilio IoT Edge	Enables N4 supervisor/ JACE 8000 to connect, acquire, and stream performance data in real-time from dispersed building systems controllers to Facilio data platform. Directs cloud-based commands to system controllers	Any system that needs to respond to events and stay operational in real-time, automate trigger based function using Facilio's AI driven models.	Facilio Inc.	<a href="https://facilio.com/iot-edge">https://facilio.com/iot-edge</a> <a href="mailto:getsmart@facilio.com">getsmart@facilio.com</a>	MQTT over Internet	JACE and Supervisor	N4.3 and higher
FLEX Serial Driver	Simple Serial communicating devices	Generic	Tridium	<a href="https://tridium.com">tridium.com</a> or <a href="https://niagara-central.com">niagara-central.com</a>	Serial RS-232 or RS-485	JACE	N4.0 and higher

Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
Galaxy	Bi-directional communication with security panel	Security System	SAFECONTROL s.r.o.	www.safecontrol.cz safecontrol@safecontrol.cz	IP	JACE or Supervisor	N4.8 and higher
GCMAscend	Barber Colman GCM Network Controller Driver	Building Automation	Kodaro	http://www.kodaro.com/products/driver-software.html			N4 (4.2.36.34.1)
Haystack+	Haystack can migrate building analytics data to Niagara	Building Automation	Kodaro	http://www.kodaro.com/products/driver-software.html			N4 V1.0.17.8 V1.0.17.1
HID Asure ID Driver	PC running Asure ID software	Photo ID/Badging Software	Tridium	tridium.com or niagara-central.com	IP	Enterprise Security Supervisor	Enterprise Security 2.2
Honeywell C-Bus Connectivity Kit	Allows integration of Honeywell C-Bus into Niagara	Building Automation	Neopsis GmbH	http://www.neopsis.com	IP, serial RS-485	JACE and Supervisor	N4.7 and higher
Honeywell Cbus TCP Driver	Honeywell Cbus bus driver (hardware + software solution)	Building Automation	MaxLine	controlsplus.uk.com	TCP link to MIG112	JACE and Supervisor	N4.0 and higher
Honeywell Galaxy Driver	Honeywell Galaxy Dimension security panels	Security and Access Control	QuickLink Solutions	qlsol.com	Serial RS-232 or IP	JACE and +E10+G10	N4.4 and higher
HTTP Client	HTTP Client Driver for all Niagara Platforms	Any application	Tridium	tridium.com or niagara-central.com	TCP/IP	JACE and Supervisor	Niagara 4.12 and higher
IFTTT Driver	Connects Niagara 4 to Alexa	Comfort Control	ActiveLogix	https://www.activelogix.com/ifttt/	IP	JACE and Supervisor	N4.4 and higher
ILON Driver	Lonworks IP Devices	Building Automation	Tridium	tridium.com or niagara-central.com	IP	JACE and Supervisor	N4.0 and higher
iNELS ASCII	iNels wired system	Home & building automation	SAFECONTROL	www.safecontrol.cz    http://license.safecontrol.cz	IP	JACE and SUPERVISOR	N4.4 and higher
INNCOM	CINnet	Hotel Control	Fastek	www.fastekintl.ca/	RS-485		
Invoconics	Invoconics wireless Devices	Building Automation	Kodaro	http://www.kodaro.com/products/driver-software.html	Serial	JACE	N4 V1.0.17.8 V1.0.17.1
Johnson N2 Open driver	Johnson N2 devices, VMA, VND and others	Building Automation	MaxLine	controlsplus.uk.com	Serial	JACE	N4.0 and higher
Johnson N2 Slave TCP Driver - JACE as VND	JACE acts as Johnson device on N2 network - TCP to serial converter (MIG112) incl. in price	Building Automation	MaxLine	controlsplus.uk.com	Serial	JACE	N4.0 and higher
Josam Grease Trap Driver	Josam EGLD series	Food Preparation	Tridium	tridium.com or niagara-central.com	Serial RS-232	JACE	
LON FTT10 Driver	Lonworks FTT10 Devices	Building Automation	Tridium	tridium.com or niagara-central.com	FTT10	JACE	N4.0 and higher
LoRA WAN integration Driver	Driver for LoRa WAN gateways to bring data into Niagara	Building Automation	Conexao Technology Solutions Pvt. Ltd.	https://conexaotechsolutions.com/drivers/	IP	JACE and Supervisor	N4.8 and higher
MadMax	Integrate Niagara with IBM Maximo	Any application	MadMax IoT, LLC.	https://madmaxiot.com/	IP	JACE or Supervisor	N4.0 and higher
M-Bus Driver	M-Bus Master Devices	Building Automation/ Energy	Tridium	tridium.com or niagara-central.com	Serial RS-232	JACE	N4.0 and higher
Milestone VMS integration Driver	This driver enable Milestone Video feed in O-Insights Alarm console and Workspace	CCTV Surveillance	Conexao Technology Solutions Pvt. Ltd.	https://conexaotechsolutions.com/drivers/	IP	JACE and Supervisor	N4.8 and higher
Modbus IP Driver	Modbus IP Devices	Building Automation, Metering etc.	Forest Rock Systems Ltd	forestrocks.co.uk	IP	JACE	
Modbus RTU Driver	Modbus RTU Devices	Building Automation	Tridium	tridium.com or niagara-central.com	Serial RS-232 or RS-485	JACE	N4.0 and higher
Modbus RTU Slave Driver	Enables JACE to function as a Modbus RTU Slave Device	Building Automation	Tridium	tridium.com or niagara-central.com	Serial RS-232 or RS-485	JACE	N4.0 and higher
Modbus TCP Driver	Modbus TCP Devices	Building Automation	Tridium	tridium.com or niagara-central.com	TCP-IP	JACE and Supervisor	N4.0 and higher
Modbus TCP Slave Driver	Enables Station to function as a Modbus TCP Slave Device	Building Automation	Tridium	tridium.com or niagara-central.com	TCP-IP	JACE and Supervisor	N4.0 and higher
MQTT Client	MQTT client driver	Enterprise Integration	Tridium	tridium.com or niagara-central.com	IP	JACE and Supervisor	N4.2 and higher
Notifier AM series CEI-ABI driver for Italian Market	Notifier AM-2000, AM-4000, AM-6000, AM-8000	Fire Detection	QuickLink Solutions	qlsol.com	Serial RS-485 or IP through	JACE or Supervisor (only IP in the same LAN)	N4.4 and higher

Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
Novar Driver	Novar UVC-03 and UVC-11	Building Automation	MaxLine	controlsplus.uk.com	Serial	JACE	N4.0 and higher
nProtex	Elevates Awareness of Niagara Security	Building Automation	ActiveLogix	<a href="https://www.activelogix.com/ifttt/">https://www.activelogix.com/ifttt/</a>	IP	Supervisor	N4
OAS-BACNETUTIL_UNL	Export Niagara points to BACnet using a GUI. Select which Niagara point types should be exported as which BACnet type and define the priorities to be exported.	Building Automation	OAS Open AutomationSystem GmbH	<a href="http://www.niagaramarketplace.com/oas-bacnet-utilities.html">www.niagaramarketplace.com/oas-bacnet-utilities.html</a> sales@oa-systems.de	Serial/IP	JACE	N4.4 and higher
OAS-BASICFUNCTIONS	OAS BasicFunctions - module provides general function blocks like SR-flip-flop (latch), flank detection or step controller. Contains function blocks for programming of HVAC plants.	Building Automation	OAS Open AutomationSystem GmbH	<a href="http://www.niagaramarketplace.com/oas-basic-functions.html">www.niagaramarketplace.com/oas-basic-functions.html</a> sales@oa-systems.de		JACE and Supervisor	N4.8, 4.10
OAS-GRAPHIC-LIBRARY	OAS GraphicLibrary - standardized and configurable graphics and widgets from building services engineering and HVAC-Plants. Use oasGraphicLibrary with oasSupervisorUtilities create supervisor applications.	Building Automation	OAS Open AutomationSystem GmbH	<a href="https://www.niagaramarketplace.com/preview/catalog/view/id/3716/">https://www.niagaramarketplace.com/preview/catalog/view/id/3716/</a> sales@oa-systems.de		JACE and Supervisor	N4.10
OAS-MACs	OAS Niagara Plant and Function Macros. Predesigned N4 software modules used for building services applications with N4 controllers.	Building Automation	OAS Open AutomationSystem GmbH	<a href="http://www.openautomationsystems.store/en/products/oas-niagara-plant-macros">www.openautomationsystems.store/en/products/oas-niagara-plant-macros</a> sales@oa-systems.de		JACE	N4.10
OAS-MMETERDIS	OAS Modbus Meter driver for discovery of PM5563, PM820, MULTICAL630 meters (extensible). Available for 1, 5, 10 and 12 Devices	Energy Management	OAS Open AutomationSystem GmbH	<a href="http://www.niagaramarketplace.com/preview/catalog/view/id/3632/">www.niagaramarketplace.com/preview/catalog/view/id/3632/</a> sales@oa-systems.de	Serial	JACE	N4.10 and higher
OAS-MODBUSUTILS-16	OAS web-based module configurator for integration of up to 16 OAS I/O Modbus fieldbus modules. Configure inputs and outputs of the module using the web based GUI and retrieve data from the modules.	Building Automation	OAS Open AutomationSystem GmbH	<a href="https://www.openautomationsystems.store/en/products/sbs-iom-i/o-fieldbus-modules">https://www.openautomationsystems.store/en/products/sbs-iom-i/o-fieldbus-modules</a> sales@oa-systems.de	Serial	JACE	N4.8 and higher
OAS-OPCUTIL	Integrate OPC-DA data with N4. Discover and export Niagara points to the ProSystems-OPC-DA-Server and integrate it with existing OPC-DA network. Available for 500, 1000, 5000, 10000 and 20000 points.	Building Automation	OAS Open AutomationSystem GmbH	<a href="http://www.niagaramarketplace.com/preview/catalog/view/id/3653/">www.niagaramarketplace.com/preview/catalog/view/id/3653/</a> sales@oa-systems.de	IP	JACE and Supervisor	N4.8 and higher
OAS-SMARTROOMUTILS	OAS smartroomUtils - enables access of sensor data as well as configuration and control of the actuators.	Room Automation	OAS Open AutomationSystem GmbH	<a href="http://www.niagaramarketplace.com/preview/catalog/view/id/3689/">www.niagaramarketplace.com/preview/catalog/view/id/3689/</a> <a href="http://www.openautomationsystems.store/en/products/sbs-smart-room-system-automations-system">www.openautomationsystems.store/en/products/sbs-smart-room-system-automations-system</a> sales@oa-systems.de	IP	JACE	N4.8, 4.10

Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
OAS-SUPUTIL	OAS Niagara 4 Supervisor Utilities for creation of bespoke supervisor application using data from Niagara controller. Available for 1, 10, 100 and unlimited JACE controllers.	Building Automation, BMS, Graphics, Web Tools, Navigation	OAS Open AutomationSystem GmbH	<a href="http://www.niagaramarketplace.com/pre-view/catalog/view/id/3680/">www.niagaramarketplace.com/pre-view/catalog/view/id/3680/</a> <a href="http://www.openautomationsystems.store/en/products/oas-supervisor-utilities-application">www.openautomationsystems.store/en/products/oas-supervisor-utilities-application</a> sales@oa-systems.de		JACE and Supervisor	N4.8, 4.10
oBIX Driver	oBIX servers	Enterprise Integration	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	TCP-IP	JACE and Supervisor	N4.0 and higher
O-Insights-Advanced Reporting Driver	Completely automated Reporting Engine that handles any complex reports. Support scheduling, auto emailing and customization of reports. This application is suitable for Pharmaceutical (21 CFR) and Data centres	Building Automation	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	Supervisor	N4.8 and higher
O-Insights-Alarm Console Advanced Driver	O-Insights Alarm solution elevates the user experience by delivering on-the-fly alarm analytics, including alarm count, duration, and reason along with escalation levels, user notification, raising tickets, and much more. This application is suitable for Pharmaceutical and Data centres	Building Automation	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	Supervisor	N4.8 and higher
O-Insights-Workspace Driver	Workspaces for KPIs and Actionable insights, and Trends to power assets, equipment, and systems.	Building Automation	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	Supervisor	N4.8 and higher
OPC- DA Client Driver	Servers implementing OPC Data Access Specifications 1.x-2.x	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	IP	Supervisor (Windows only)	N4.0 and higher
OPC UA Client	OPC UA Client	Industrial Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	IP	JACE and Supervisor	N4.3 and higher
OPC UA Server	OPC UA Server	Industrial Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	IP	JACE and Supervisor	N4.3 and higher
Otis	Control of Destination Dispatching System	Elevator Control	SAFECONTROL s.r.o.	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> safecontrol@safecontrol.cz	IP	JACE or Supervisor	N4.8 and higher
Fagerhult Organic response	Bi-directional communication via OR cloud API	Lighting Control	SAFECONTROL s.r.o.	<a href="http://fagerhult.com">fagerhult.com</a>	IP	JACE or Supervisor	N4.8 and higher
People Counting Driver	Integration with Delopt people counting sensors	Building Automation	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	JACE and Supervisor	N4.8 and higher
PostgreSQL Database Driver	PostgreSQL database 8.4, 9.0 and 9.1	Generic	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	JDBC	Supervisor	N4.4 and higher
Profinet Driver	PLC Siemens S7 series control devices	Industrial Automation	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	IP	JACE and Supervisor	N4.4 and higher

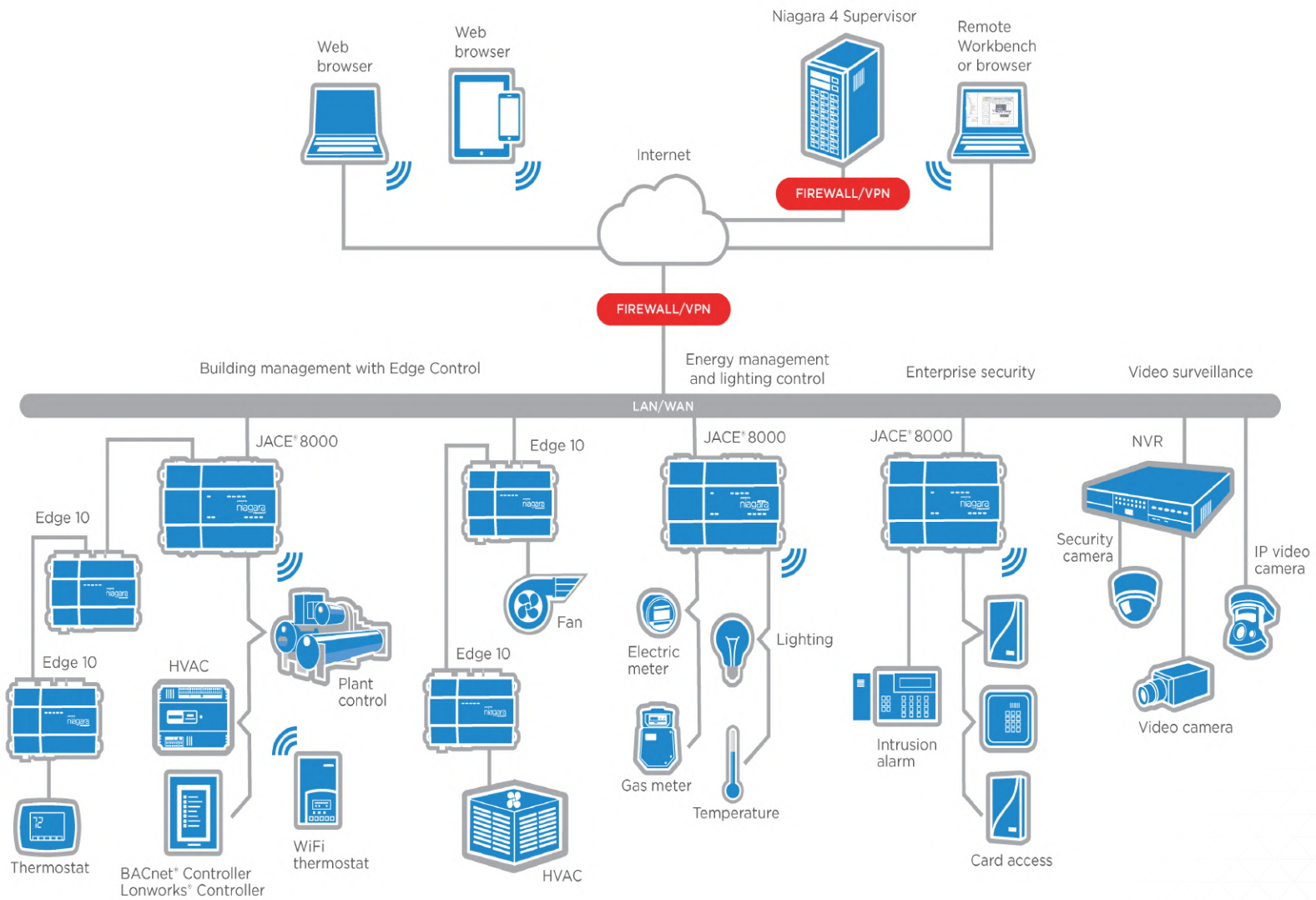


Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
PRWS for Alarms Driver	PRWS is a software that allows e-signing of reports with workflows. This driver for Niagara allows reports from Niagara to be integrated to the PRWS software. PRWS is a 21 CFR compliant software suitable for regulated environments such as Pharmaceuticals	Building Automation	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	Supervisor	N4.8 and higher
RDBMS - MySQL	Relational DataBase Management Systems	MySQL	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	IP	Supervisor	N4.0 and higher
RDBMS - Oracle	Relational DataBase Management Systems	Oracle	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	IP	Supervisor	N4.0 and higher
RDBMS - SQL Server	Relational DataBase Management Systems	SQLServer	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	IP	Supervisor	N4.0 and higher
Robertshaw DMS Driver	Robertshaw DMS	Building Automation	MaxLine	Local MaxLine Distributor	Serial	JACE	N4.0 and higher
Robertshaw Microsmart TCP Driver	Robertshaw Microsmart 9.4C and above TCP to serial converter (MIG112) incl. in price	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	TCP link to MIG112 then Serial RS485 Microsmart	JACE	N4.0 and higher
Rotronic Hydroflex Driver	Hydroflex Series	Building Automation	Baudrate	<a href="https://baudrate.io/">https://baudrate.io/</a>	RS-485 or TCP/IP	JACE	N4
S7	Bi-directional communication via Siemens proprietary protocol	Industrial Automation	SAFECONTROL s.r.o.	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="mailto:safecontrol@safecontrol.cz">safecontrol@safecontrol.cz</a>	IP	JACE or Supervisor	N4.8 and higher
SAFE CSV	Hotel system Horec	Hotel booking and room management	SAFECONTROL	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="http://license.safecontrol.cz">http://license.safecontrol.cz</a>	IP	JACE and SUPERVISOR	N4.4 and higher
SAFE SMS	Secomea Site Manager	Industrial Automation	SAFECONTROL	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="http://license.safecontrol.cz">http://license.safecontrol.cz</a>	IP	JACE and SUPERVISOR	N4.4 and higher
SAIA S-Bus driver	Data point driver for all SBC PLC	Any application	Alvasys Automation AG	<a href="http://www.alvasys.ch">www.alvasys.ch</a> <a href="mailto:info@alvasys.ch">info@alvasys.ch</a> +41 44 261 00 70	IP	JACE and Supervisor	N4.7 and higher
Satchwell SNP	MMC 3601, MMC 4601, IAC 200, IAC 400, IAC 420, AC 600	Building Management Retrofit	Baudrate	<a href="https://baudrate.io/">https://baudrate.io/</a>	Serial RS-485	JACE	
Sauter novaNet Driver	Sauter EY292 Router, Sauter EY291	Building Automation	Baudrate	<a href="https://baudrate.io/">https://baudrate.io/</a>	Serial, IP	JACE and Supervisor	N4
Schneider Electric OVA Dardo Driver	Schneider OVA Dardo Plus Control Units	Emergency Lighting	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	Serial RS-485	JACE	N4.4 and higher
Siemens Apogee 600 TEC Driver	Siemens 600 FLN compatible devices	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE	N4.0 and higher
Siemens Desigo PX Driver	Siemens Desigo PX Controllers	Building Automation	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	LON - It needs EM-8000-LON interface	JACE	N4.4 and higher
SMS Driver	Send JACE & Supervisor SMS messages via GPRS or GSM modem	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	GPRS or GSM Modem	JACE and Supervisor	N4.0 and higher
SMS Driver for Multirecipient, Multi-Group SMS	Axeon GSM, C35i GSM or similar	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial/TCP	JACE and Supervisor	N4.0 and higher

Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
SMS/ EMAIL/ Call Driver	The O-Connect can send any Niagara alarms as SMS/ EMAIL/CALL/APP notification via the O-Connect notification IP gateway device	Building Automation	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	JACE and Supervisor	N4.8 and higher
SNMP Driver	SNMP Devices (SNMPv1, SNMPv2 and SNMPv3)	Building Automation	Tridium	<a href="http://tridium.com">tridium.com</a> or <a href="http://niagara-central.com">niagara-central.com</a>	IP	JACE and Supervisor	N4.2 and higher
SOAP Client	SOAP 1.2 configurable client able to import external services into the Niagara Framework®	Building Automation	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	IP	JACE and Supervisor	N4.4 and higher
SOAP Server	SOAP 1.2 configurable service able to export points, alarms schedules and histories	Building Automation	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	IP	JACE and Supervisor	N4.4 and higher
SQL	Bi-directional communication with SQL database	Database	SAFECONTROL s.r.o.	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="mailto:safecontrol@safecontrol.cz">safecontrol@safecontrol.cz</a>	IP	JACE or Supervisor	N4.8 and higher
SSI-DR-AKSC	Integration for the data points over IP the Danfoss AK255 Network	Any application	Alvasys Automation AG	<a href="http://www.alvasys.ch">www.alvasys.ch</a> <a href="mailto:info@alvasys.ch">info@alvasys.ch</a> +41 44 261 00 70	IP	JACE and Supervisor	N4.7 and higher
SSI-DR-AKSER	Integration for the data points over IP the Danfoss AK255 Network	Any application	Alvasys Automation AG	<a href="http://www.alvasys.ch">www.alvasys.ch</a> <a href="mailto:info@alvasys.ch">info@alvasys.ch</a> +41 44 261 00 70	Serial	JACE	N4.7 and higher
SSI-DR-DANLON	Integration for the data points over LON the Danfoss Network	Any application	Alvasys Automation AG	<a href="http://www.alvasys.ch">www.alvasys.ch</a> <a href="mailto:info@alvasys.ch">info@alvasys.ch</a> +41 44 261 00 70	LON	JACE	N4.7 and higher
SSI-DR-SMSIP	SMS driver for TCP/IP for Teltonika router (send and acknowledge alarms)	Any application	Alvasys Automation AG	<a href="http://www.alvasys.ch">www.alvasys.ch</a> <a href="mailto:info@alvasys.ch">info@alvasys.ch</a> +41 44 261 00 70	IP	JACE and Supervisor	N4.7 and higher
Staefa Smart 2 Driver	Staefa Smart 2 Driver, AETI-485 converter to purchase separately	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE	N4.0 and higher
Symetrix	Monitoring and control of audio system via Composer control protocol	Audio Control	SAFECONTROL s.r.o.	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="mailto:safecontrol@safecontrol.cz">safecontrol@safecontrol.cz</a>	IP	JACE or Supervisor	N4.8 and higher
TAP Pager Driver	TAP (Telocator Alphanumeric Protocol) pagers	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE	N4.0 and higher
TCOM Driver	EasyIO Controllers	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	TCP	JACE and Supervisor	N4.0 and higher
Tecnoalarm driver	TP8-64 BUS, TP16-256, TP16-512	Intrusion Detection	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	Serial	JACE	N4.4 and higher
Telegram Client	Telegram	Social Media client interface	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	IP	JACE and Supervisor	N4.4 and higher
Tenant Billing Driver	Tenant Billing with Automated Monitoring, Dashboarding, Billing and Emailing	Building Automation	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	Supervisor	N4.8 and higher
Trane Comm3 Non-isolated Driver	Trane Comm Three Varitrane VAV	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE	N4.0 and higher
Trane Comm4 Driver (Isolated)	Trane Comm Four devices	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE	N4.0 and higher
Trend IQ2 serial Driver	Trend IQ2 serial devices	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE and Supervisor	N4.0 and higher
Trend IQ3 TCP Universal Driver - all IQ3 networks including tunneling (replaces older EINC and IQ3 drivers)	IQ 3Xcte, IQ 3Xtend, IQ EINC and networked IQ2xx, IQ3xx, IQ4xx and IQL	Building Automation	MaxLine	<a href="http://controlsplus.uk.com">controlsplus.uk.com</a>	Serial	JACE and Supervisor	N4.0 and higher
Trend IQx Driver	Trend IQ Controller IQeco, IQ1, IQ2, IQ3, and IQ4	Building Automation	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	TCP/IP protocol (EIN, IQ3, IQ4)	JACE and Supervisor	N4.4 and higher
Twitter client	Twitter	Social Media client interface	QuickLink Solutions	<a href="http://qlsol.com">qlsol.com</a>	IP	JACE and Supervisor	N4.4 and higher

Driver Name	System Detail	Type of System	Developer	For More Information	Connection Type	Niagara Platform	Niagara Version
VISAPP	DotControls HVAC control	Home & building automation	SAFECONTROL	<a href="http://www.safecontrol.cz">www.safecontrol.cz</a> <a href="http://license.safecontrol.cz">http://license.safecontrol.cz</a>	IP	JACE and SUPERVISOR	N4.4 and higher
Workplace Locatee Driver	The Locatee driver connects to the Locatee workplace analytics application and brings in the occupancy data into Niagara	Occupancy	Conexao Technology Solutions Pvt. Ltd.	<a href="https://conexaotechsolutions.com/drivers/">https://conexaotechsolutions.com/drivers/</a>	IP	JACE and Supervisor	N4.8 and higher

# Enterprise Application / Integration Architecture Powered by Niagara 4



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# Niagara Easy Dashboard

## PRODUCT DEFINITION

The Niagara Easy Dashboard is a platform to show IoT data with excellent user experience and few configuration efforts. This product is usually used to demonstrate KPI data on the large screens in exhibition center, company lobby, monitoring center and other places. And it can help clients quickly locate potential problems, enhance corporate identity and make good impression to the leaders and customers.

## Key Features

- 28 Professional Visual Widgets  
Multiple data types (weather, real-time data, history, alarm, energy, integration, etc.)  
Multiple demonstration types (map, line chart, bar chart, circular gauge, etc.)  
Carousel and specific screen locking supported
- Front-end Layout Configuration  
WYSIWYG front-end layout editor  
Relative position supported for different screen resolution
- Customized Configuration  
Embedded PX view supported  
Background image and color customization supported
- Standardized Data Integration Method  
Data binding based on Niagara Workbench



# ORDER INFORMATION

Part Number	Description
EASY-DASHBOARD	An easy-to-use configurable dashboard to show data in Niagara with better UI design, max to 5 tab-pages supported.

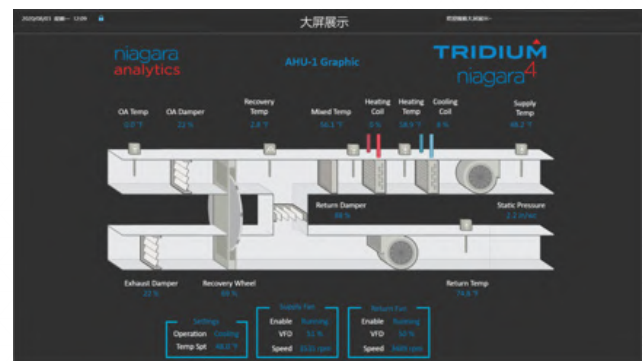
## PLATFORM REQUIREMENTS

Niagara Easy Dashboard may run acceptably on lower-rated platforms, or may even require more powerful platforms, depending on the application, number of data points integrated, data poll rate, number of concurrent users, performance expectations, etc.

- Processor: Intel® Xeon® CPU E5-2640 x64 (or better), compatible with dual- and quad-core processors
- Operating System: Windows 7 Professional/Enterprise/Ultimate (64 bit), Windows 8.1 Professional/Enterprise/Ultimate (64 bit), Windows 10 (64 bit), Windows Server 2012 R2 (SP2) Standard/Enterprise, Windows Server 2016, Red Hat Enterprise Linux 7.5
- Software Dependency: Niagara 4.7 or higher
- Memory: 6 GB minimum, 8 GB or more recommended for larger systems
- Hard Drive: 100 GB minimum, more recommended depending on archiving requirements
- Network Support: Ethernet adapter (10/100 Mb with RJ-45 connector)
- Connectivity: Full-time high-speed ISP connection recommended for remote site access (i.e., T1, ADSL, cable modem) and IPv6 compliant

## CLIENT REQUIREMENTS

- Browser : Browser with HTML5 supported, Google Chrome is recommended
- Display: Video card and monitor capable of displaying 1024 x 768 - pixel resolution or greater, 1920 x 1080 recommended



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2020-0003

## case study

# Integrating Access Control, HVAC, Lighting & Video Surveillance

Buist Electric is a diverse electrical company specializing in engineering, design, and installation of electrical and electronic solutions. Buist has worked on some of the largest commercial projects in West Michigan including retail centers, corporate headquarters, and entertainment venues. Some of the biggest healthcare and industrial projects in the region are also in its portfolio. Buist's Automation and Engineering departments have a long and successful reputation for helping owners, general contractors and other engineering professionals not only with their electrical system design challenges, but with integrating every piece of an engineered solution toward an end goal. Buist Electric operates from four facilities across two connected sites in Grand Rapids and Kalamazoo. Buist Engineers wanted their own Building Automation System (BAS) to optimize comfort, safety and energy use across campuses, while also being a showcase project to demonstrate to customers the full potential of open-protocol integration with Niagara Framework®.

### CHALLENGE

Starting with a focus on occupant experience, the Buist team outlined what could be achieved in terms of an office worker's comfort, safety, ease and energy conservation expectations through advanced integration of building infrastructure services. They recognized their opportunity to create an 'office of the future' experience using existing technology. Their vision for conference rooms and other shared spaces like corridors and cafeterias would require bringing HVAC, access control, lighting, and Audio Visual equipment into a centralized control console where they could program logic to orchestrate how all these systems should work together under various scenarios. For occupants, the interface into this autonomous experience started with their familiar Microsoft Office mobile messaging and calendar apps. However, for the most part, no human input would be required. The intelligent-building design would anticipate occupant needs and resolve issues automatically such that building services would be delivered to the right degree and at the right time without human asks, clicks or calls. Building automation logic would not only orchestrate the operation of rooftop air handlers, boilers and other HVAC equipment based on schedules, it would harvest all the information about occupant presence from both the cameras and occupancy sensors included in the access security network and the sensors included in the lighting control network to enable the building to respond to what was happening in the building in the moment.

### SOLUTION

Here are how the advanced BAS integrations at the Buist Electric campuses work today under both typical scenarios and some edge cases:



***"The big difference for owners when they have a Master Systems Integrator (MSI) like Buist who understands all these different systems and how they work together is that they have one person — or one partner - to call should they need help with any area of automation, be it card access, HVAC, lighting, audio-video equipment and whatever comes next."***

**Brad Kuipers**  
Automation Department Manager  
Buist Electric

### FAST FACTS

**Project Type:** Advanced Integration

**Building Type:** Office building

**Systems Integrated:**

- HVAC - RTUs | VAVs | Boilers
- Access Security
- White Noise
- Lighting Control
- Power Metering
- Audio Visual - Crestron
- Enterprise - Office 365
- Surveillance Camera Systems

**Tridium Distributor:** Jackson Control



**JacksonControl**  
FACILITIES MANAGEMENT TECHNOLOGIES



► **Conference Room Workflow:** Occupants book a conference room via their Microsoft Office Outlook calendar application. Outlook sends room reservations to the Crestron audio-visual conferencing application. This application sends the room, date, time and occupant list (both number attending and email identifiers for attendees) to the BAS to inform HVAC, lighting and access security systems. HVAC system adjusts for the meeting time and occupant load. Lighting system is programmed to illuminate the room at meeting start time and to give a three- second dim / rise notice when meeting has ten minutes remaining. If the meeting is scheduled to extend after normal business hours, doors remain unlocked and building unarmed until after the meeting ends.

► **After-Hours Employee Enter/Exit:** Doors are scheduled to auto-lock and auto-unlock at set times. The building will auto-lock doors and auto-arm the security system at close-of-business or other set time when employees have typically left for the day. Building will unarm security when someone badges in. The integrated sound system will announce to the occupant that the alarm has been deactivated. The access security, lighting, and camera occupancy sensors will monitor and track the occupant's movement throughout the building after hours. When the occupant leaves, the building will auto re-arm. To ensure the building has been vacated, the sound system will announce a three-minute warning before re-arming the facility.

► **Reception Area:** Camera at reception will identify a guest waiting and send an alert with video feed. In the event that a visitor poses a threat, there is a lockdown button at reception that if pushed, will lock all doors on campus and announce a call for help over the white-noise sound system.

► **Loading Dock Areas:** All overhead doors in the back and sides of the building are monitored and controlled

through the BAS. If an overhead door is left open outside business hours, the building will send an alert with a camera snippet to the facilities manager. If the area under the door is clear, the overhead door can be opened or closed remotely from the facility manager's mobile device or PC.

► **After-Hours Security Event:** If an alarm is triggered, the building sends a notification to a user list with the alarm info and a video clip. This recording captures activity from 10 seconds before the triggering event to 10 seconds after. The recipient can review the footage and decide to acknowledge the alarm or escalate it to a third-party monitoring service to dispatch authorities. If the alarm is not acknowledged by anyone in the user group, the alarm is automatically escalated to the third-party monitoring service for dispatch.

► **Energy Conservation:** The BAS monitors and displays electrical power meter data, tracking power usage trends and sending notifications to Buist engineers should there be an anomaly. With lighting integrated into the BAS, it is possible to monitor the total connected load for each lighting room controller from the central console. The alert system has been set up to send notification if an LED driver has failed. Buist Electric is working to gain a more granular level of control to their HVAC, metering, RTUs, and boilers in order to better understand and optimize energy usage. The BAS roadmap includes an integration to enable energy utilization reports to be automatically sent to the facilities manager via Office 365.

► **Ancillary Monitoring:** Some other systems across the Buist campus that are monitored and integrated via the BAS include the standby generator, the fire alarm, a license-plate recognition application, facial recognition, and video intercom. In the near future, the Buist engineers intend to integrate automatic gate control utilizing a long-range reader and vehicle tags. They also have plans to add and to integrate a snow-melt system.

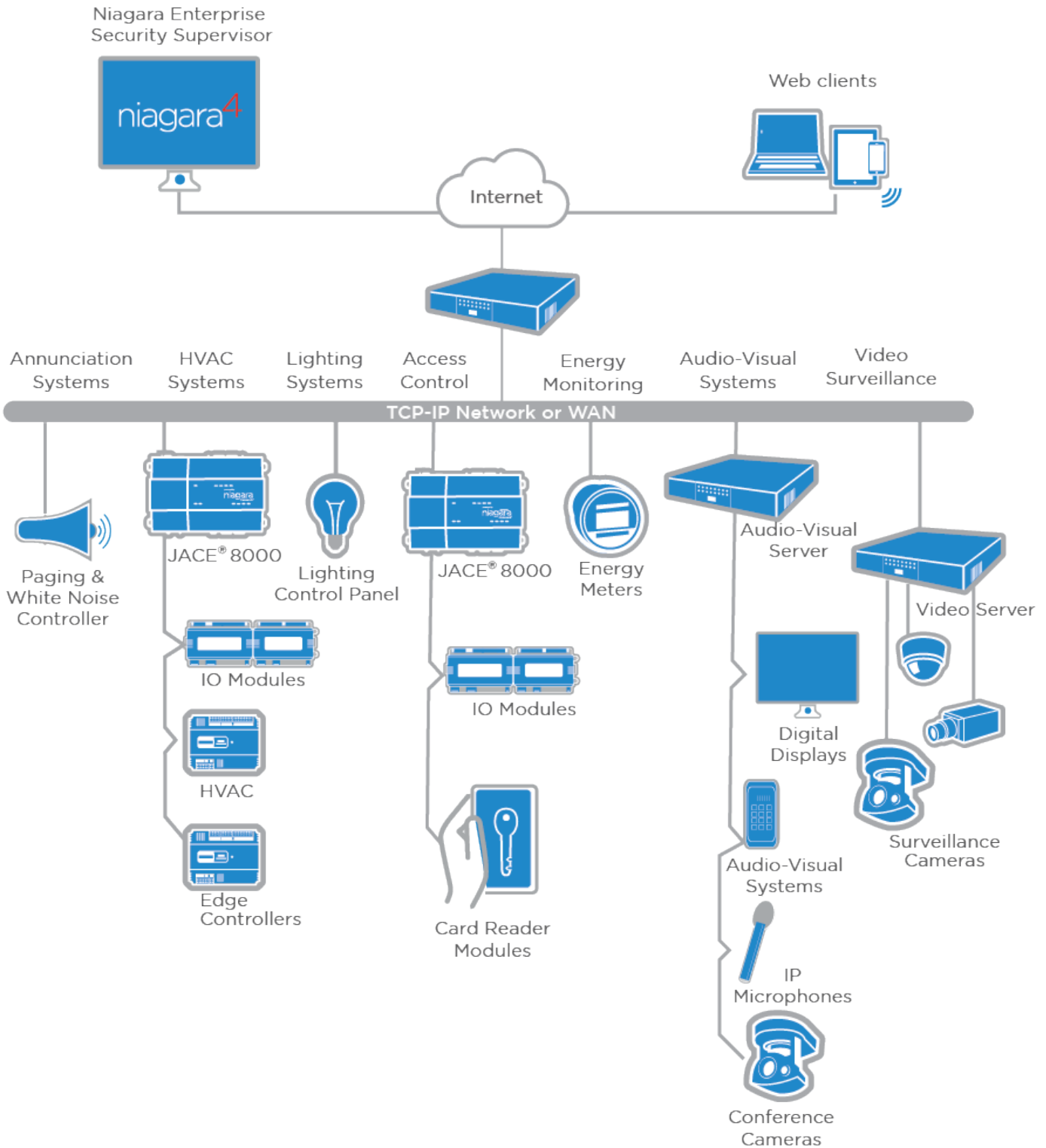
## ABOUT BUIST ELECTRIC

Buist Electric offers valuable assistance in managing the complexities of the design and construction process. Our engineering team is well-equipped to aid owners, general contractors and other engineering professionals in providing timely solutions to today's construction challenges. By including Buist Electric during the design phase of the construction process, every single piece of the engineering process is uniquely integrated to the end goal.





# NETWORK SCHEMA

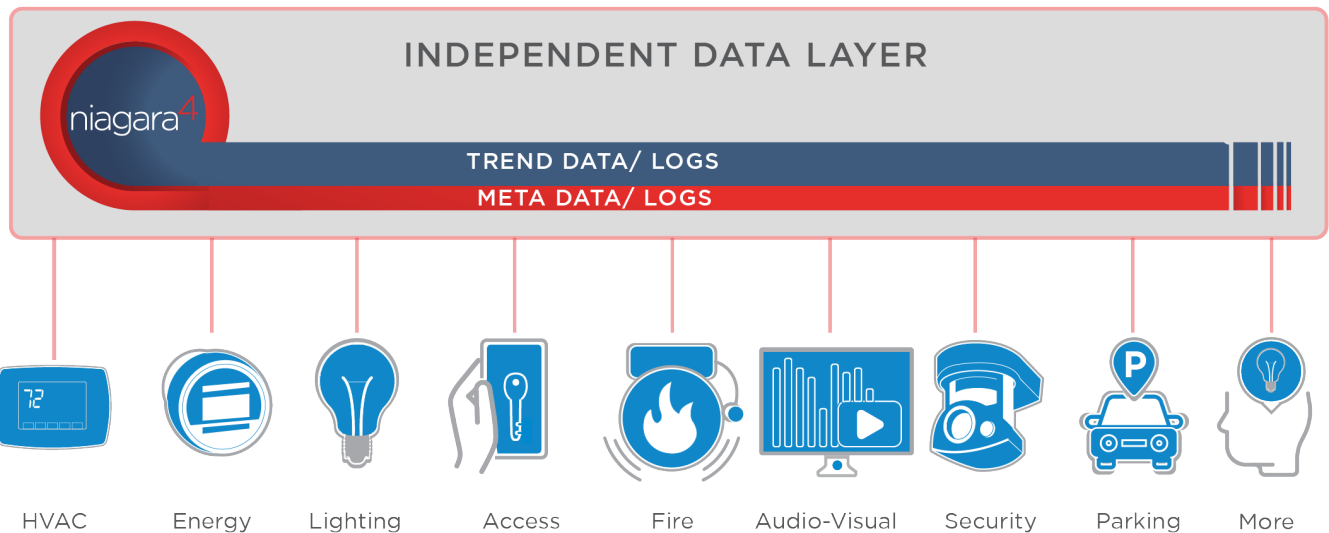


Niagara Enterprise Security seamlessly integrates access control, identity, video surveillance, intrusion and visitor management systems with other building automation services such as lighting, HVAC and energy management. It is a powerful access control and security application built on the Niagara Framework software platform with features such as advanced threat-level management, integrated photo ID, LDAP database integration, and API access to ease visitor management app integration. Niagara Video is a built-in

HTML5 video streaming capability that enables adding VMD (Video Motion Detection) data to the logic programmed for lighting, security and occupancy controls. The Niagara 4 Drivers Library now includes Milestone XProtect® Professional, Professional+ and Corporate NVR and Axis® camera drivers. Learn [more about Niagara Enterprise Security here](#) and more about [Niagara Video here](#). Start your exploration of the [Niagara 4 Driver Library here](#).

# WHAT DOES 'OPEN ARCHITECTURE' MEAN TODAY?

Niagara Framework exists as an independent data layer, allowing integrations that break down the vertical data silos conventionally associated with different building services. In addition to its support for open protocols like BACnet, Niagara enables an 'open' approach in other ways too: 1) Tridium offers an open API for developers to build robust drivers to popular applications—for example, to Milestone and Axis -based video solutions 2) Tridium delivers Niagara software and the JACE® controller and server platform through an open distribution business model which allows the end-customer the freedom to shop among name-brand hardware manufacturers. 3) The large Niagara Community of system integrators enables customers to find a partner in their area with whom to build rapport and trust.



## RESULTS

The Buist team attests that it can be a challenge to convince customers of the importance of specifying an open, interoperable BAS architecture. They estimate that there can be a 10% first-cost premium to go this route. However, they have also seen a large payback over time when the building owner can achieve multiple high-impact outcomes from the same investment.

"Integration is important, but it is just as - if not more - important to select open products that can be integrated on the front-end. No integration is possible if you are selecting proprietary products," comments Brad Kuipers.

Buist now has its own facilities to point to when they want to demonstrate what is possible.

## ABOUT JACKSON CONTROL

Jackson Control is a high-value-add building technologies distributor providing world-class products and a technology platform that delivers healthy, efficient, and secure building environments. Jackson Control's objective is to serve as a trusted advisor and provide the ultimate open platform, and best-in-class solution. Technology is ever-changing. Jackson Control partners with brands and providers that steer innovation within their respective markets. This gives Jackson Control the opportunity to provide the best solutions that target specific facility portfolio challenges. Jackson Control is a premier one-stop shop for all building technologies.

## ABOUT TRIDIUM

Tridium is a world leader in business application frameworks, advancing open data environments and seamless data interoperability. Our Niagara Framework® universal multi-protocol integration engine has fundamentally changed the way people connect and control devices and systems. With over one million instances deployed worldwide, Niagara is helping a significant number of businesses, manufacturing enterprises and government entities improve performance and reduce energy, operating and other costs, and be more strategic and competitive. The Niagara Community is a large and active community of innovative developers, integrators, consultants, manufacturers, resellers and end users. Tridium is an independent business entity of Honeywell International Inc.