Niagara Framework 4.11

Features Overview
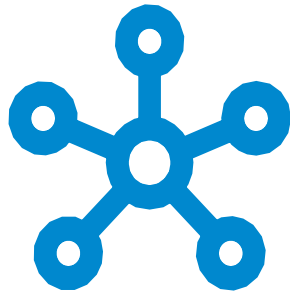
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Niagara 4.11

Features Review

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Niagara Framework®: Always Evolving – 4.11

Niagara 4.11 brings exciting new features that continue to evolve Niagara's key tenets of visualization, rapid deployment, security, Edge, connectivity, certification and IT compliance.

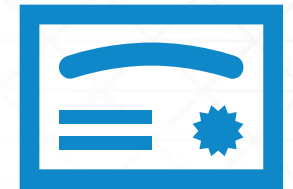| **Visualization**	**Connectivity**	**Security**	**Deployment**	**Certification & Compliance**
WebWiresheet WebChart Enhancements	BACnet/SC Archive History Provider	Critical Support/Enhancements TLS 1.3	Edge Tools Updates Optimized JACE® Memory Added Support Infrastructure	Archive Alarm Provider

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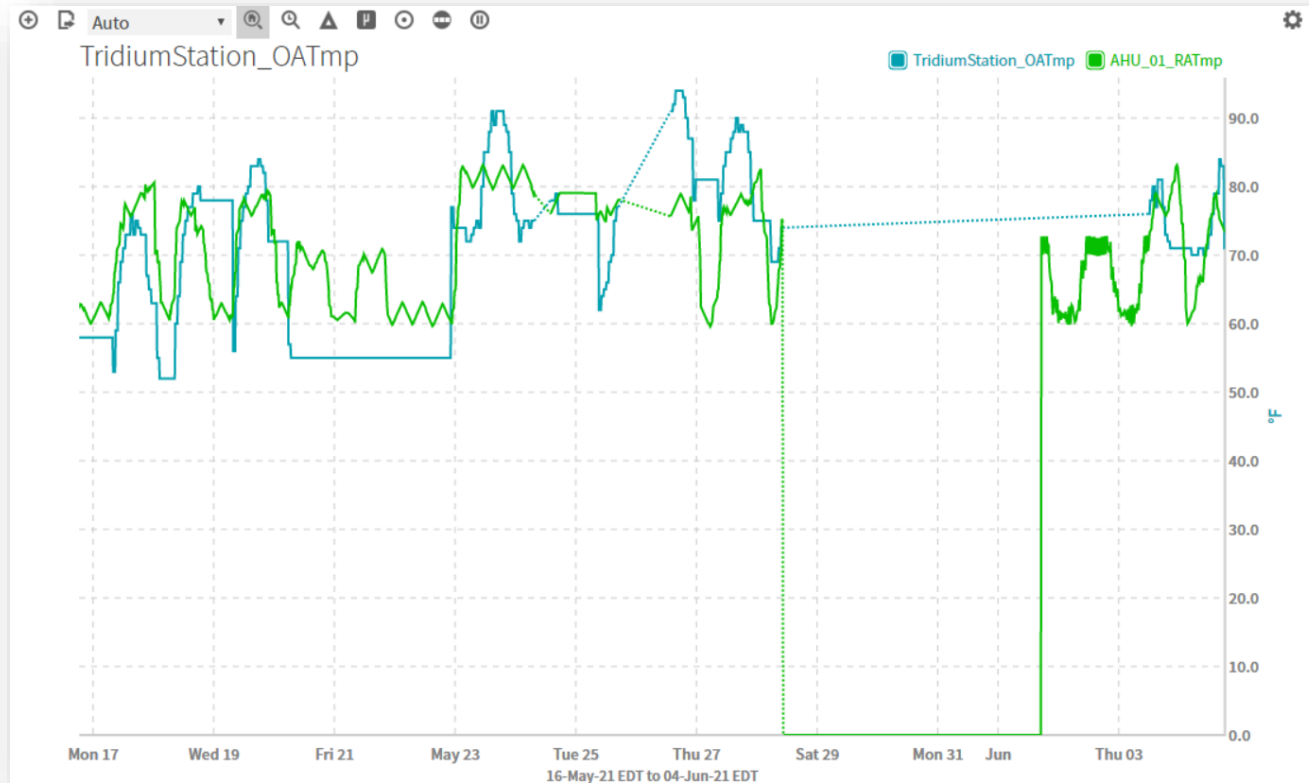# Niagara 4.11

Visualization

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WebWiresheet

WebWiresheet is a native HTML5 configuration tool which extends the power of the Workbench Wiresheet Application into a Browser Environment

- Reduces truck rolls

- Improved user experience

- Enhances your workflow efficiency

- Provides Added Flexibility – Create and configure using a mobile device

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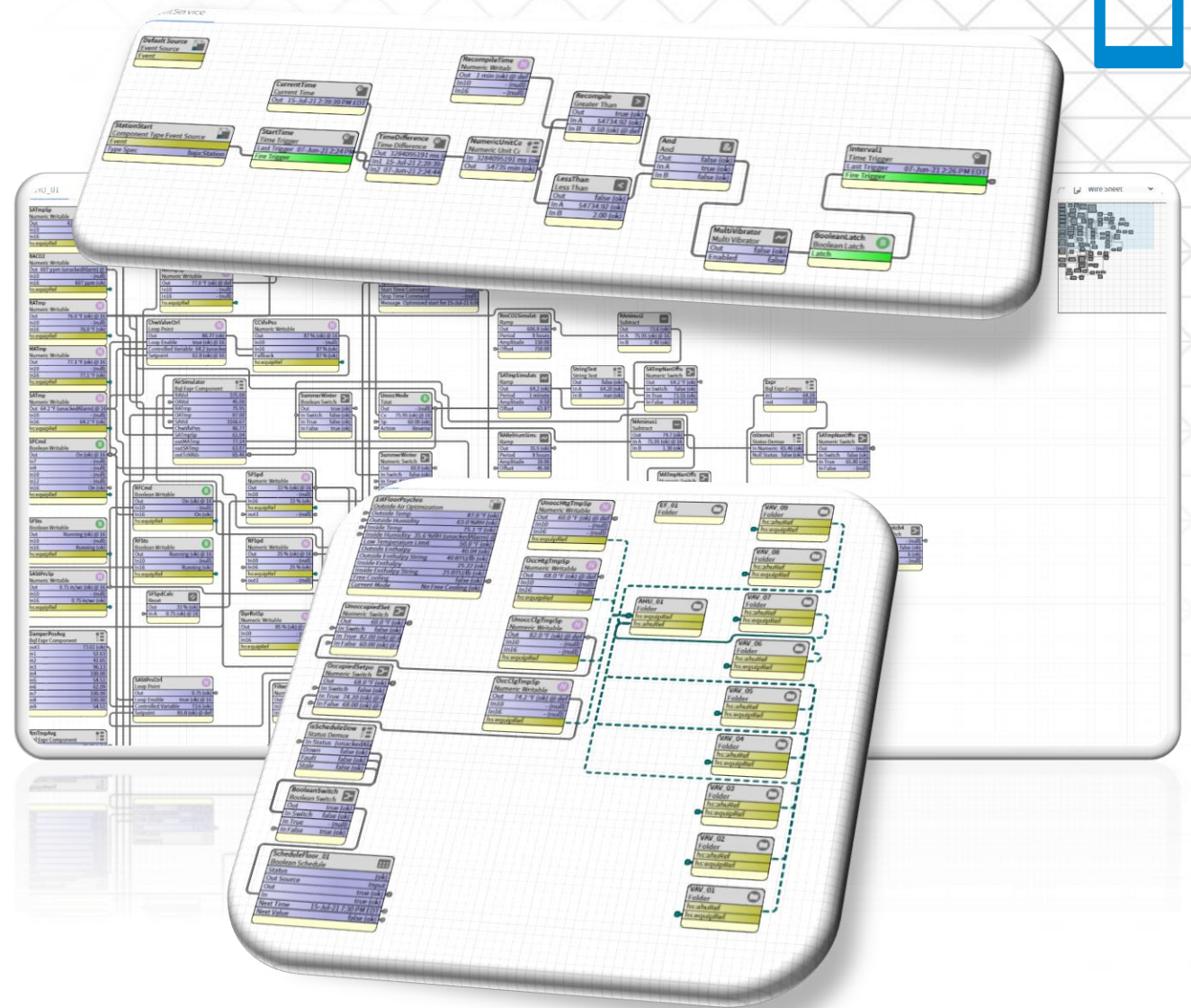
WebChart Enhancements

In Niagara 4.11, WebChart has never been more powerful and performant!

- Provides Interpolation of Missing or Invalid Data

- Choose from a variety of visualization options

- Improved UX and workflow efficiency for end users such as Energy Managers Building O&M Personnel, Facility Engineers

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Connectivity

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Archive History Provider

The Archive History Provider streamlines access to years of historical Niagara data stored in a relational database (RDB) for rapid visualization and analysis.

- Removes the need to Import Histories to the Supervisor for Visualization
- Instantly query years of archived data and baseline against new locally stored data
- Enables well-informed analyses of equipment operation
- Improves facility systems operational efficiency

Relational DB

Niagara Supervisor

Supported using MSSQL, MySQL and Oracle DBs

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BACnet/SC

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What is BACnet Secure Connect?

BACnet Secure Connect (BACnet/SC) is a new BACnet datalink that eliminates many of the concerns Owners, Facility Managers, and IT professionals have with BACnet today. It eliminates the need for static IP addresses and network broadcasts, while **simplifying the configuration** of its networks' parameters.

- Provides enhanced security for your BMS network and associated devices
  - Features encrypted communications
  - Full compatibility with all existing BACnet systems and devices through normal BACnet routing
- Alleviates IT concerns related to BMS network management
  - BACnet/SC provides a sophisticated network security solution that uses standards widely accepted by the IT community
  - BACnet/SC works easily with firewall devices that are common in IT infrastructure
    - Based on TLS 1.3
    - Uses standard HTTPS ports and standard WebSocket protocols
    - No UDP
    - Fixed IP Addresses are no longer required

From ASHRAE's BACnet Secure Connect *A Secure Building Infrastructure for Building Automation*

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How does BACnet/SC work?

The hub…
- **Directs** traffic between any number of connected nodes.
- Includes both **Primary** and **Failover**, which provides redundancy
- **Is required** for every BACnet/SC network (**at least 1**)

A node can be a…
- Device Controller
- A Thermostat
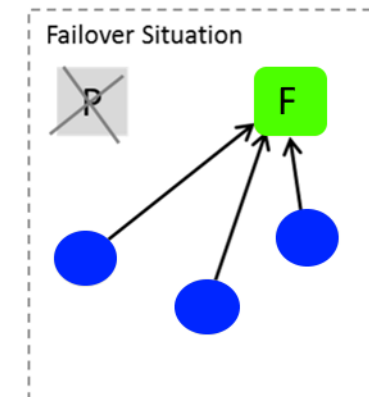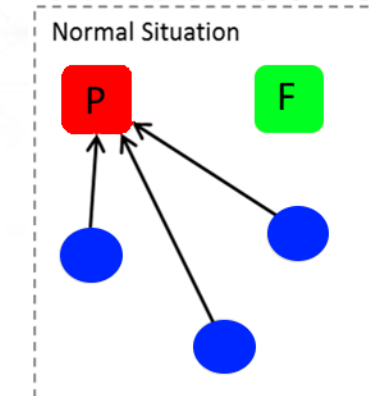- Facility Workstation
- Router to an existing BACnet system

A node has the option of…
- Performing **direct** connections to **other nodes** in addition to going through a hub
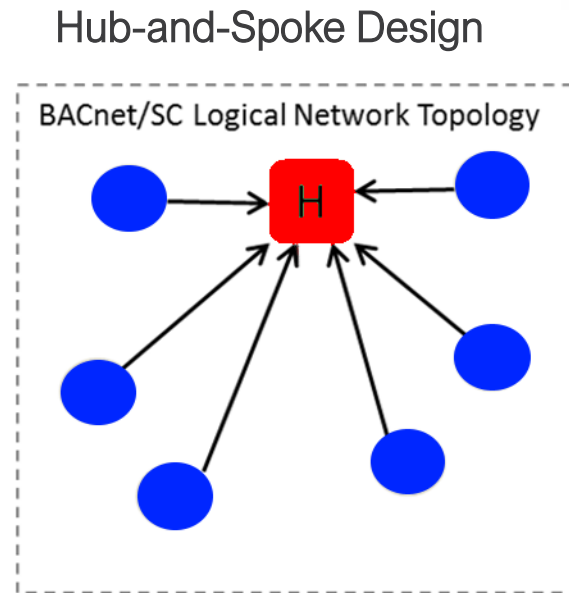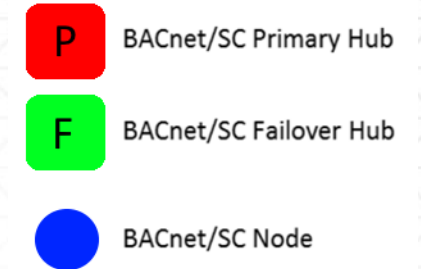
Hub-and-Spoke Design

From ASHRAE's BACnet Secure Connect A Secure Building Infrastructure for Building Automation

Typical Hub Operations

Legend

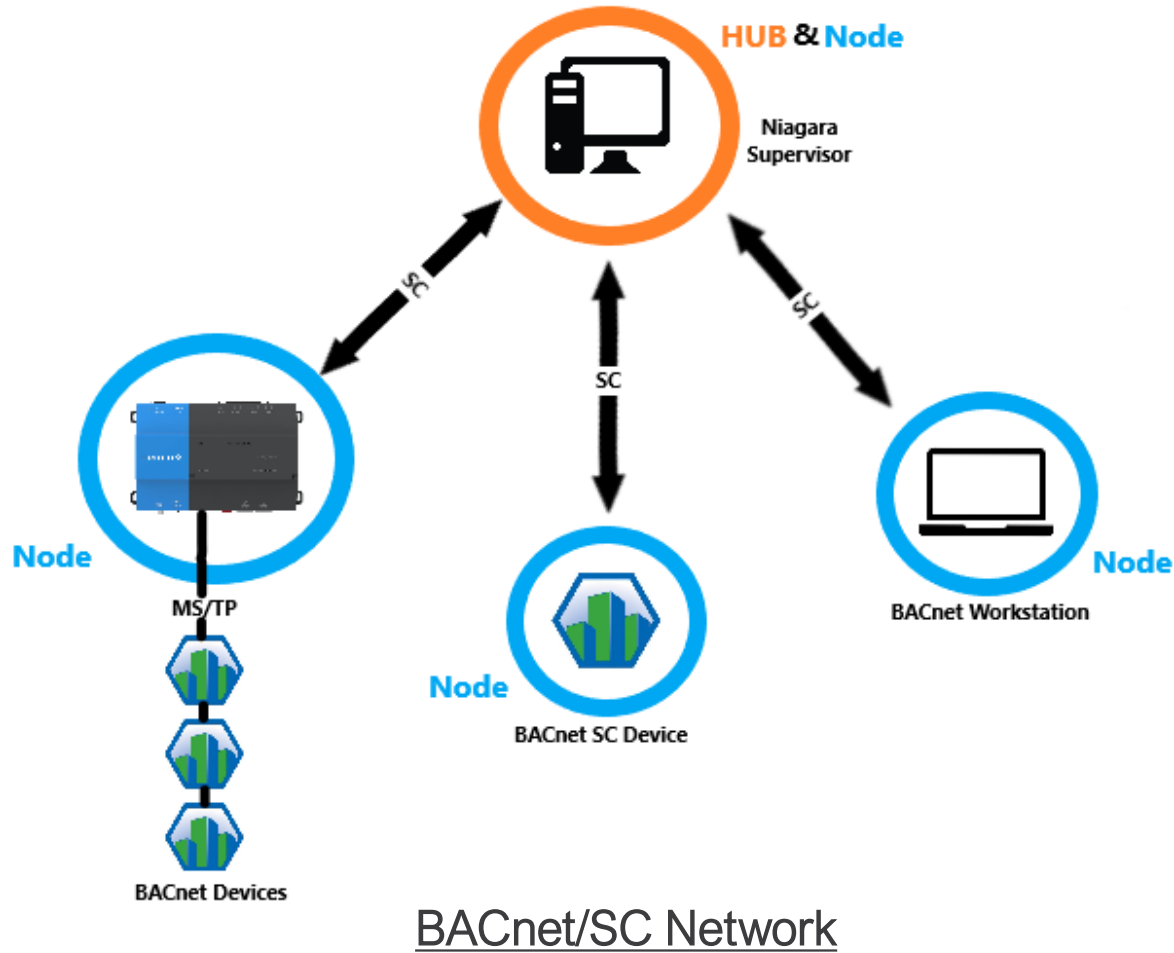P BACnet/SC Primary Hub

F BACnet/SC Failover Hub

● BACnet/SC Node

Node Direct Connections

11
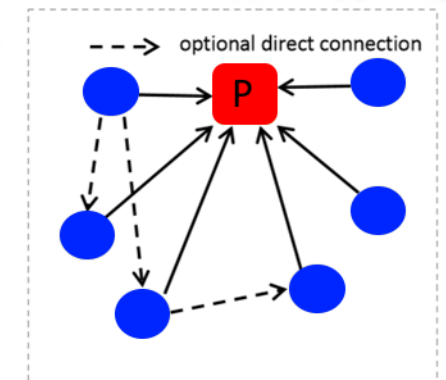
BACnet/SC Architecture in Niagara

BACnet/SC Network

Includes…
- Devices that support BACnet/SC

- BACnet Operator Workstation that supports BACnet/SC

- BACnet/IP and/or BACnet MS/TP Devices – Requires BACnet/SC to BACnet/IP and/or MS/TP router(s) for legacy connections

For this scenario, the Niagara 4 Supervisor is the…
- Primary Hub

The JACE® 8000 can also serve as the…
- Primary OR Failover Hub

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Security

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TLS 1.3

- TLS 1.3 is the latest standard for secure communications over IP
  - Enhances Station Performance
  - Critical Enabler for BACnet/SC
  - Features stronger security profile than TLS 1.2

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Securing Niagara - 3rd Party Module Signing

Default Verification Mode by Version

Low   **Medium**   **High**

Niagara 4.8   **Niagara 4.9/4.10**   **Niagara 4.x (Future)**
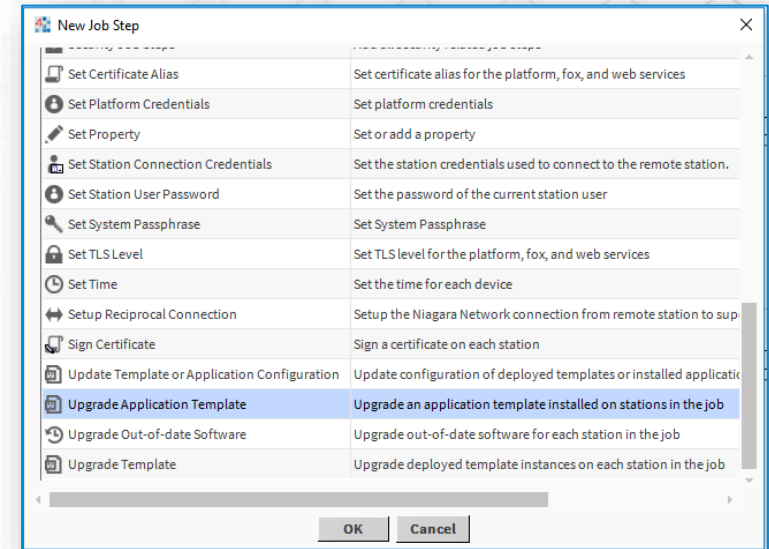   **Niagara 4.11**
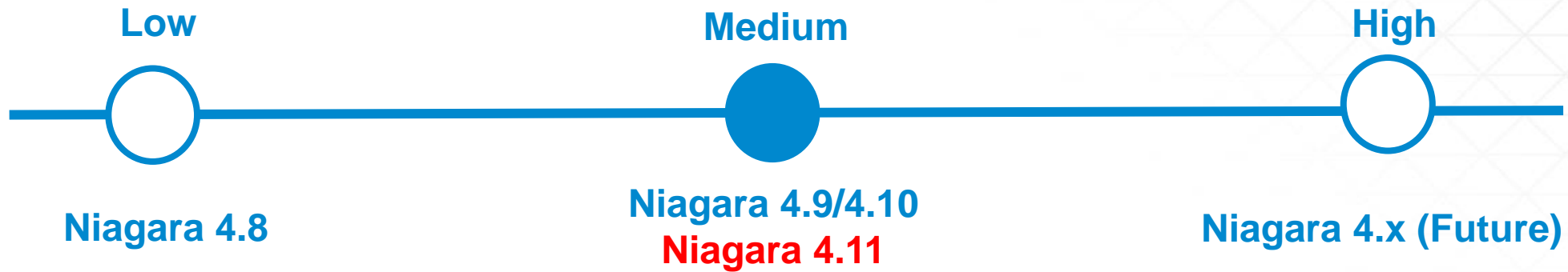
Verification Mode	Description
Low	Modules that are unsigned, untrusted, or have expired certificates will cause warnings but still function. Error if signed module modified after it was signed. Can be increased to Medium or High.
Medium	All modules must be signed by valid, trusted certificate (may be self-signed). Can be decreased to Low or increased to High.
High	All modules must be signed with CA Certificate. Can be decreased to Medium.

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Deployment

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Facilitating Niagara at the Edge

EDGE TOOLS

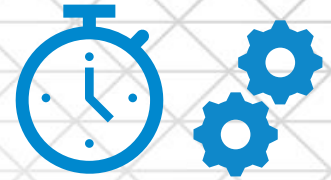| New Job Step	
Set Certificate Alias	Set certificate alias for the platform, fox, and web services
Set Platform Credentials	Set platform credentials
Set Property	Set or add a property
Set Station Connection Credentials	Set the station credentials used to connect to the remote station.
Set Station User Password	Set the password of the current station user
Set System Passphrase	Set System Passphrase
Set TLS Level	Set TLS level for the platform, fox, and web services
Set Time	Set the time for each device
Setup Reciprocal Connection	Setup the Niagara Network connection from remote station to sup...
Sign Certificate	Sign a certificate on each station
Update Template or Application Configuration	Update configuration of deployed templates or installed applicatic...
Upgrade Application Template	Upgrade an application template installed on stations in the job
Upgrade Out-of-date Software	Upgrade out-of-date software for each station in the job
Upgrade Template	Upgrade deployed template instances on each station in the job

OK   Cancel

Reduce time spent installing, commissioning, and configuring multiple Niagara devices with application templates and provisioning. The latest updates to Edge Tools include:

❑ Ability to export variety of application template configurations

❑ Provisioning job builder now shows more detail on job steps

❑ Provisioning job steps can now be edited prior to running the job

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Optimized JACE® Performance

Default NRE Settings

Niagara Ver	4.9	4.10	4.11
System Reserve	192	208	**480**
Heap Space	384	360	**384**
Meta Space	48	56	**128**
Code Cache	16	16	**32**
RAM Disk	384	384	**0**

Prior to 4.11, alarms and histories were written to RAM disk then stored in flash. Refactoring this architecture has allowed for 384MB of RAM to be reallocated to system use.
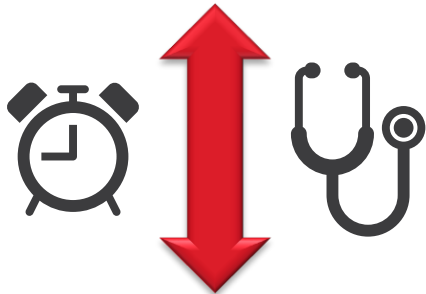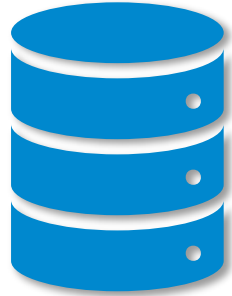
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Certification & Compliance

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Archive Alarm Provider

Relational DB (RDB)

Niagara Supervisor

The Archive Alarm Provider enhances the stability of your building systems! Cleared alarms using the Alarm Orion Service will persist in a station during a loss of connectivity with your RDB. Upon reconnection, the Alarm Archive Provider will update your database tables with the application records.

- Enables more well-informed analyses of equipment operation
- Improves facility systems operational efficiency
- Provides a compliance mechanism for CFR 21 part 11
- Quickly query closed exported alarm records

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Supported Infrastructure

Keeping pace with advancing infrastructure to enable more efficient, long-term support.

Supported Operating Systems

Windows
- Windows 10 64-bit Professional / Enterprise
- Windows Server 2016
- Windows Server 2019

Linux
- Red Hat Enterprise Linux 7.x 64-bit
- RedHat Enterprise Linux 8.x 64-bit
- **Ubuntu Desktop & Server 20.04 LTS**

Virtual Machine
- VMWare ESXi 6.7

Mobile
- iOS 12
- iOS 13
- Android 8 (Oreo)
- Android 9 (Pie)
- Android 10 (Queen Cake)

Supported Databases

SQL Database
- MySQL Server 8.0 (mysql-connector-java-8.0.24)
- MS SQL Server 2016 (v13)
- MS SQL Server 2017 (v14)
- MS SQL Server 2019 (v15)

SQL Database
- Oracle 12c.1/2
- Oracle 18c
- Oracle 19c LTS

Niagara SystemDB
- Orient v3

Supported Browsers

Browser
- Chrome (v85)
- Firefox (v81)
- Microsoft Edge (v85)
- Web Launcher

Mobile Browser
- Safari on iOS (v13.1)
- Chrome on Android (v85)
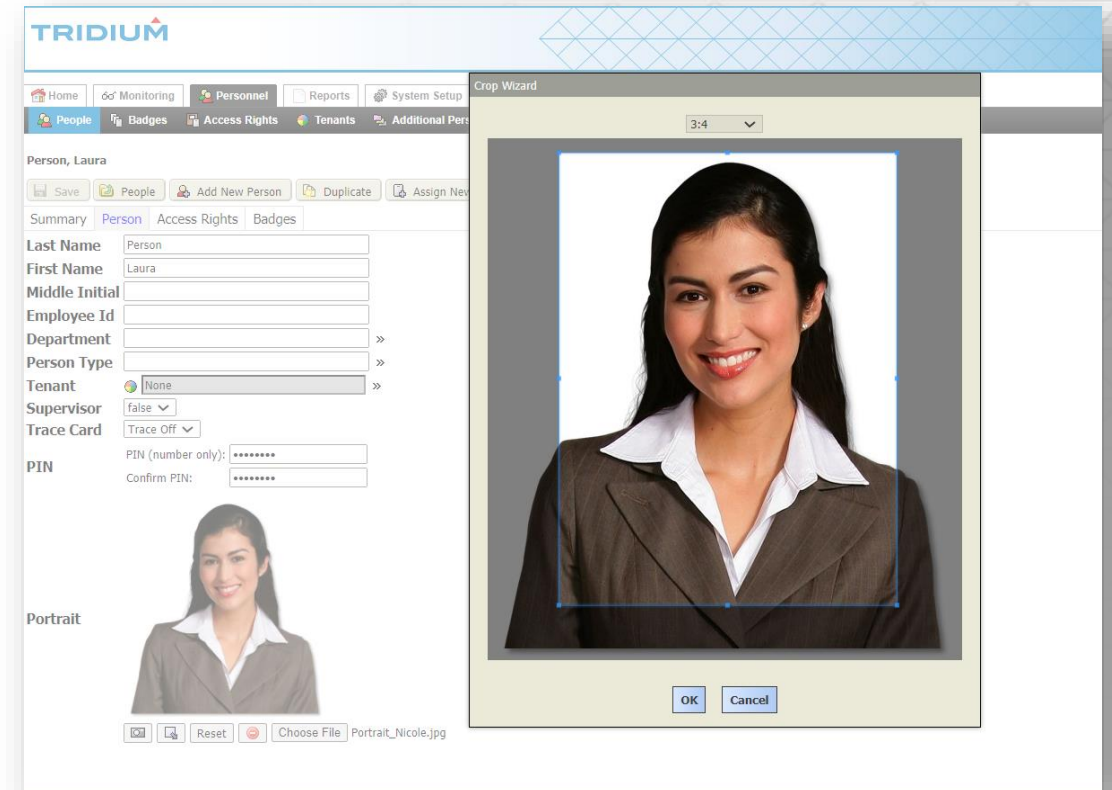
New Additions Shown in Bold

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Updated PhotoID Badge Management

HTML5 Photo Capture

- Photo Capture, Crop, Save

Card Template Management and Printing

- Updated card template management and printing that eliminates java dependencies
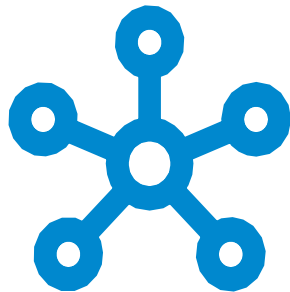
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Summary Review

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