



**NS**

**18**

**NIAGARA  
SUMMIT**

**CONNECTING  
THE WORLD**

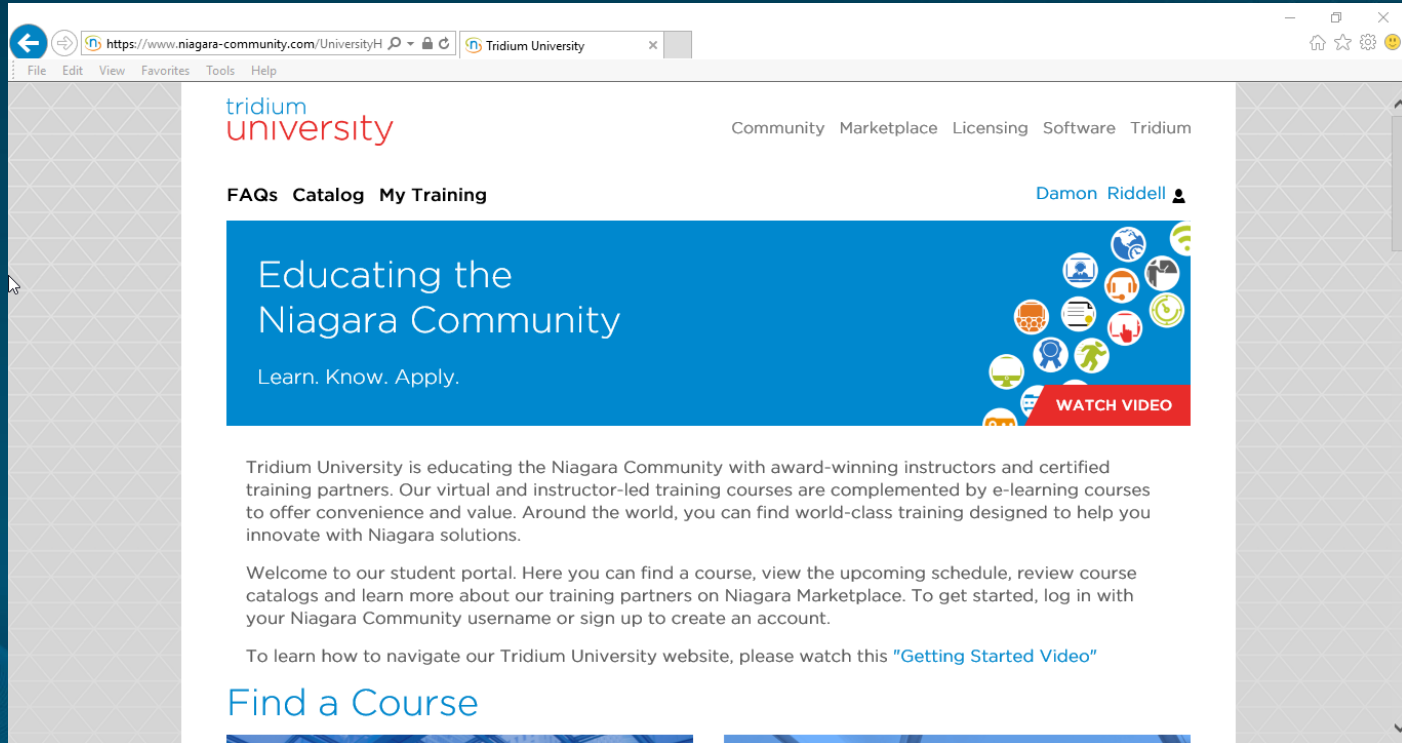


CONNECTING  
THE WORLD

# Niagara 4 TCP Advanced Training

*Damon Riddell*  
*Senior Training Engineer*

# Training at Tridium



The screenshot shows a web browser window with the URL <https://www.niagara-community.com/UniversityH>. The page features the Tridium University logo and navigation links for Community, Marketplace, Licensing, Software, and Tridium. A user profile for Damon Riddell is visible. The main content area includes a blue banner for 'Educating the Niagara Community' with the tagline 'Learn. Know. Apply.' and a 'WATCH VIDEO' button. Below the banner, there is a paragraph of text about Tridium University's training partners, a welcome message to the student portal, and a link to a 'Getting Started Video'. At the bottom of the visible content, there is a 'Find a Course' link.

tridium university

Community Marketplace Licensing Software Tridium

FAQs Catalog My Training Damon Riddell

## Educating the Niagara Community

Learn. Know. Apply.

WATCH VIDEO

Tridium University is educating the Niagara Community with award-winning instructors and certified training partners. Our virtual and instructor-led training courses are complemented by e-learning courses to offer convenience and value. Around the world, you can find world-class training designed to help you innovate with Niagara solutions.

Welcome to our student portal. Here you can find a course, view the upcoming schedule, review course catalogs and learn more about our training partners on Niagara Marketplace. To get started, log in with your Niagara Community username or sign up to create an account.

To learn how to navigate our Tridium University website, please watch this ["Getting Started Video"](#)

### Find a Course

# Problem?

- Too much time to engineer a job
- Not being consistent within a given office
- Having to prove programming each job
- Inefficient with labor
- Waste money

# Problem?

- Too much time to engineer a job
- Not being consistent within a given office
- Having to prove programming each job
- Inefficient with labor
- **Waste money**

# Solution!

- Develop a Strategy
- Use consistent practices in an office
- Reuse work
- Prove programming once
- More efficient with time
- Save money

# Solution!

- Develop a Strategy
- Use consistent practices in an office
- Reuse work
- Prove programming once
- More efficient with time
- **Save money**



# Developing a Strategy

- Naming Conventions
- Shared Palettes
- Tag Dictionaries
- Tag Rules
- Templates and Station Templates



# Developing a Strategy

- Naming Conventions
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# Naming Conventions

## Program Service

Bql Query Builder

Find

In:  Of type:

Match

FirstFloor

- ZoneTemp\_101
- ZoneTemp\_102
- ZoneTemp\_103
- ZoneTemp\_104
- ZoneTemp\_105
- ZoneTemp\_106
- ZoneTemp\_107
- ZoneTemp\_108
- ZoneTemp\_109

ZoneTemp_104	ZoneTemp_109
Numeric Writable	Numeric Writable
Out 75.1 °F [ok] @ def	Out 70.2 °F [ok] @ def
In10 - [null]	In10 - [null]
In16 - [null]	In16 - [null]

ZoneTemp_105	ZoneTemp_110
Numeric Writable	Numeric Writable
Out 76.3 °F [ok] @ def	Out 68.9 °F [ok] @ def
In10 - [null]	In10 - [null]
In16 - [null]	In16 - [null]

# Naming Conventions

# Tags

The screenshot shows the 'Edit Tags: ZoneTemp\_101' window in the Niagara Workbench. The 'Tag Dictionary' tab is active, displaying a table of tag properties. The table has two columns: 'Name' and 'Type'. Below the table, there are tabs for 'Direct Tags' and 'Implied Tags', with the 'Implied Tags' tab selected. The 'Implied (Component)' section contains several entries, with 'n:name' highlighted by a red box.

Name	Type
bindHints	String
device	Marker
displayName	String
geoAddr	String
geoCity	String
geoCoord	String
geoCountry	String
geoCounty	String

Implied (Component)	Type
n:name	ZoneTemp_101
n:displayName	ZoneTemp_101
n:type	control:NumericWritable
n:ordInSession	station: h:2ac0
n:station	N4ADV00
n:point	marker

# Naming Conventions

# Tags

The screenshot shows the Niagara Workbench interface. At the top, there is a menu bar with 'File', 'Edit', 'Search', 'Bookmarks', 'Tools', 'Window', and 'Help'. Below the menu bar is a toolbar with various icons. The main area is divided into a left sidebar and a main content area. The sidebar has a 'Nav' section with a tree view showing the project structure, including 'My Host: VA51LTG1C62H2\_global.ds.honeywell.com', 'My File System', 'My Modules', 'My Tools', 'Platform', and 'Station (N4ADV00)'. The main content area has a search bar at the top with the text 'n:name like 'ZoneTemp.\*''. Below the search bar is a table of search results. The table has three columns: the tag name, the tag path, and the tag value. The results are as follows:

Tag Name	Tag Path	Tag Value
ZoneTemp_101	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_101	73.6 °F [ok] @ def
ZoneTemp_102	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_102	74.3 °F [ok] @ def
ZoneTemp_109	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_109	70.2 °F [ok] @ def
ZoneTemp_110	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_110	68.9 °F [ok] @ def
ZoneTemp_103	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_103	71.8 °F [ok] @ def
ZoneTemp_104	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_104	75.1 °F [ok] @ def
ZoneTemp_105	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_105	76.3 °F [ok] @ def
ZoneTemp_108	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_108	72.9 °F [ok] @ def
ZoneTemp_106	station:/slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_106	72.5 °F [ok] @ def

[https://127.0.0.1/ord?station=%7Cslot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp\\_105](https://127.0.0.1/ord?station=%7Cslot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_105)

# Developing a Strategy

- Naming Conventions
- **Shared Palettes**
- Tag Dictionaries
- Tag Rules
- Templates and Station Templates

# Shared Palettes

## Custom Palette

My Host: VA51LTG1C62H2.global.ds.honeywell.com (N4ADV00) : My File System : User Home : NewSitePalette.palette

Nav

My Network

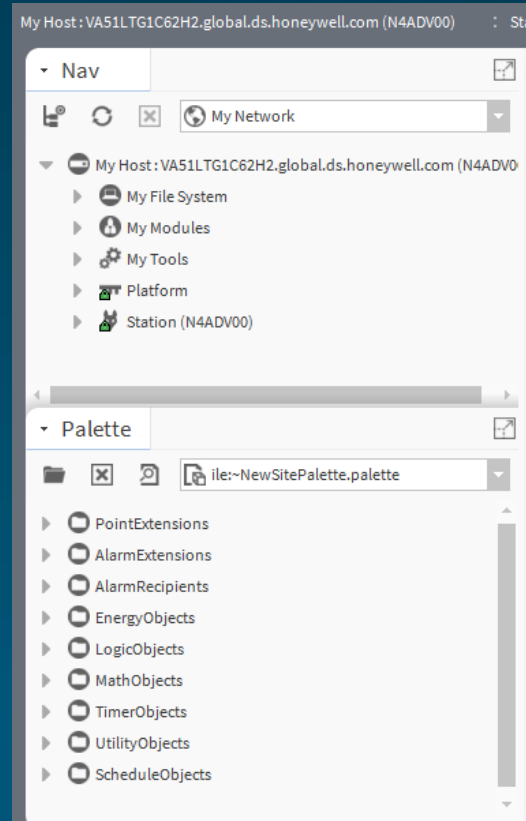
- security
- shared
- stations
- stationTemplates
- sw
- tagDictionaries
- temp
- templates
- Integration\_ProxyPoints.bog
- NewSitePalette.palette**
  - PointExtensions
  - AlarmExtensions
  - AlarmRecipients
  - EnergyObjects
  - LogicObjects
  - MathObjects
  - TimerObjects
  - UtilityObjects
  - ScheduleObjects

Wire Sheet

- PointExtensions Unrestricted Folder
- AlarmExtensions Unrestricted Folder
- AlarmRecipients Unrestricted Folder
- EnergyObjects Unrestricted Folder
- LogicObjects Unrestricted Folder
- MathObjects Unrestricted Folder
- TimerObjects Unrestricted Folder
- UtilityObjects Unrestricted Folder
- ScheduleObjects Folder

# Shared Palettes

## Custom Palette





# Shared Palettes

## New Components bog file

My Host: VA51LTG1C62H2.global.ds.honeywell.com (N4ADV00) : My File System : Sys Home : defaults : workbench : newComponents.bog

Nav

- My Network
- My Host: VA51LTG1C62H2.global.ds.honeywell
  - My File System
    - Sys Home
      - bin
      - cleanDist
      - conversion
      - defaults
        - workbench
          - migrationTemplates
          - newfiles
          - newStations
          - facetKeys.properties
          - newComponents.bog**
          - newWidgets.bog
          - bacnetObjectTypes.xml

Wire Sheet

The Wire Sheet diagram shows a sequence of components connected in a staircase pattern:

- Folder
- IconFolder
- sep Separator
- BooleanWritabl (Boolean Writable): Out false [ok], In10 -, In16 -{null}
- NumericWritabl (Numeric Writable): Out 0.0 [ok], In10 -, In16 -{null}
- EnumWritabl (Enum Writable): Out 0 [ok], In10 -, In16 -{null}
- StringWritabl (String Writable): Out {ok}, In10 -, In16 -{null}

The Shared Palettes grid contains the following folders:

- PointExtensions (Unrestricted Folder)
- MathObjects (Unrestricted Folder)
- AlarmExtensions (Unrestricted Folder)
- TimerObjects (Unrestricted Folder)
- AlarmRecipients (Unrestricted Folder)
- UtilityObjects (Unrestricted Folder)
- EnergyObjects (Unrestricted Folder)
- ScheduleObjects (Folder)
- LogicObjects (Unrestricted Folder)

# Shared Palettes

## New Components bog file

The screenshot displays the Niagara Workbench interface. On the left is a navigation tree showing a project structure with folders for 'Station (N4ADV00)', 'Alarm', 'Config', 'Services', 'Drivers', 'NiagaraNetwork', 'JACE01', 'Alarm Source Info', 'Client Connection', 'Points', and 'FirstFloor'. The 'FirstFloor' folder is expanded, showing a list of components including 'ZoneTemp\_101' through 'ZoneTemp\_110'. The main workspace is a 'Wire Sheet' grid containing ten 'ZoneTemp' components, each with a 'Numeric Writable' property and three input/output fields. A context menu is open over the 'ZoneTemp\_105' component, showing a 'New' submenu with a list of component types: Folder, IconFolder, TextBlock, BooleanWritable, NumericWritable, EnumWritable, StringWritable, PointExtensions, AlarmExtensions (with sub-items LoopAlarmExt, ElapsedActiveTimeAlarmExt, ChangeOfStateCountAlarmExt, AlarmCountToRelay, OutOfRangeAlarmExt, BooleanChangeOfStateAlarmExt, and BooleanCommandFailureAlarmExt), AlarmRecipients, EnergyObjects, LogicObjects, MathObjects, TimerObjects, UtilityObjects, and ScheduleObjects.

# Developing a Strategy

- Naming Conventions
- Shared Palettes
- **Tag Dictionaries**
- Tag Rules
- Templates and Station Templates

# Tag Dictionaries

## Niagara Tag Dictionary

My Host: VA51LTG1C62H2.global.ds.honeywell.com (N4ADV00) : Station (N4ADV00) : Config : Services : TagDictionaryService : Niagara

Nav

- My Network
  - HierarchyService
  - HistoryService
  - AuditHistoryService
  - LogHistoryService
  - ProgramService
  - SearchService
  - TagDictionaryService
    - Niagara**
      - Tag Definitions
      - Tag Group Definition
      - Relation Definitions
      - Tag Rules

Property Sheet

Niagara (Niagara Tag Dictionary)

Status	{ok}
Fault Cause	
Namespace	n
Enabled	<input checked="" type="checkbox"/> true
Frozen	<input checked="" type="checkbox"/> true
Tag Definitions	Tag Info List
Tag Group Definitions	Tag Group Info List
Relation Definitions	Relation Info List
Tag Rules	Tag Rule List

# Tag Dictionaries

## Haystack Tag Dictionary

My Host: VA51LTG1C62H2.global.ds.honeywell.com (N4ADV00) : Station (N4ADV00) : Config : Services : TagDictionaryService : Haystack

Nav

My Network

- HierarchyService
- HistoryService
- AuditHistoryService
- LogHistoryService
- ProgramService
- SearchService
- TagDictionaryService
  - Niagara
  - Haystack**
    - Tag Definitions
    - Tag Group Definition
    - Relation Definitions
    - Tag Rules

Property Sheet

Haystack (Hs Tag Dictionary)

Status	{ok}
Fault Cause	
Namespace	hs
Enabled	<input checked="" type="checkbox"/> true
Frozen	<input checked="" type="checkbox"/> true
Tag Definitions	Tag Info List
Tag Group Definitions	Tag Group Info List
Relation Definitions	Relation Info List
Tag Rules	Tag Rule List
Version	3.0.2

# Tag Dictionaries

## Custom Tag Dictionary

My Host: VA51LTG1C62H2.global.ds.honeywell.com (N4ADV00) : Station (N4ADV00) : Config : Services : TagDictionaryService : ABC\_Co

Nav

My Network

- HierarchyService
- HistoryService
- AuditHistoryService
- LogHistoryService
- ProgramService
- SearchService
- TagDictionaryService
  - Niagara
  - Haystack
  - ABC\_Controls**
    - Tag Definitions
    - Tag Group Definition
    - Relation Definitions
    - Tag Rules

Property Sheet

ABC\_Controls (Smart Tag Dictionary)

Status	{ok}
Fault Cause	
Namespace	abc
Enabled	<input checked="" type="checkbox"/> true
Frozen	<input type="checkbox"/> false
Tag Definitions	Tag Info List
salesman	String
yearSold	Integer
controllerBrand	String
Tag Group Definitions	Tag Group Info List
Relation Definitions	Relation Info List
Tag Rules	Tag Rule List

# Developing a Strategy

- Naming Conventions
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- **Tag Rules**
- Templates and Station Templates



# Tag Rules

## Custom Tag Rules

The screenshot displays a software interface with a navigation pane on the left and a 'Property Sheet' on the right. The navigation pane shows a tree structure under 'My Network' with 'ABC\_Controls' selected. The 'Property Sheet' shows the configuration for 'ABC\_Controls (Smart Tag Dictionary)'. The configuration includes:

- Status: [ok]
- Fault Cause: [ ]
- Namespace: abc
- Enabled: true
- Frozen: false
- Tag Definitions: Tag Info List
  - salesman: String
  - yearSold: Integer
  - controllerBrand: String
- Tag Group Definitions: Tag Group Info List
- Relation Definitions: Relation Info List
- Tag Rules: Tag Rule List
  - AllSetpoints: AllSetpoints
    - Condition: And
      - NumericWritable: Is control:NumericWritable
        - Object Type: control, NumericWritable
      - CheckName: Boolean Filter
        - Filter: n:name like '.\*Setpoint'
    - Tag List: Tag Info List
      - setpt: Marker
    - Tag Group List: Tag Group Info List

Buttons for 'Refresh' and 'Save' are visible at the bottom right of the Property Sheet.

# Tag Rules

## Custom Tag Rules

Property Sheet

- Tag Rules (Tag Rule List)
  - AllSetpoints AllSetpoints
    - Condition And
      - NumericWritable Is control:NumericWritable
        - Object Type control NumericWritable
      - CheckName Boolean Filter
        - Filter n:name like '.\*Setpoint'
    - Tag List Tag Info List
      - setpt Marker
      - Tag Group List Tag Group Info List
      - Relation List Relation Info List

# Developing a Strategy

- Naming Conventions
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- Tag Rules
- **Templates and Station Templates**

# Templates and Station Templates

# Template

My Host: VA51LTG1C62H2.global.ds.honeywell.com (N4ADV00) : My File System : UserHome : templates : AHU\_Type01.ntpl

Nav

- My Network
- UserHome
  - backups
  - etc
  - help
  - library
  - logging
  - registry
  - security
  - shared
  - stations
  - stationTemplates
  - sw
  - tagDictionaries
  - temp
  - templates
    - AHU\_Type01.ntpl**
    - LightingSystem.ntpl
  - Integration\_ProxyPoints.bog
  - NewSitePalette.palette
  - pxEditor.properties

Template:AHU\_Type01 Vendor:Tridium Version:1.0

Template Info Component Configuration Relations Template I/O Graphics Subtemplates

Add Reverse Rename Remove Move Up

Direction	Slot	Ord	
▶ Out	OutsideTemp_in16	/points/MyPoints/OutsideTemp/out	The BindHints content is empty.

Dictionary Haystack Tag ShowAll

Tags IO Tags

NameSpace	TagName	Type	value
hs	absorption	Marker	M
hs	ac	Marker	M
hs	active	Marker	M
hs	ahu	Marker	M
hs	air	Marker	M

No I/O selected

Delete Delete All

Save Duplicate

# Templates and Station Templates

## Station Template

The screenshot shows a web-based configuration interface for a station template. The browser address bar indicates the host is `VA51LTG1C62H2.global.ds.honeywell.com` and the current page is `LincolnCoSchools.ntpl`. The interface is divided into a left navigation pane and a main configuration area.

**Navigation Pane:** Shows a tree view of the file system. The `stationTemplates` folder is expanded, and `LincolnCoSchools.ntpl` is selected.

**Main Configuration Area:** The title bar reads `Template:LincolnCoSchools Vendor:Tridium Version:1.0`. The `Subtemplates` tab is active. The configuration fields are as follows:

- Filename:** LincolnCoSchools
- Title:** LincolnCoSchools
- Vendor:** Tridium
- Version:** 1.0
- State:** Draft
- Description:** (Empty text area)
- Info:** (Empty text area)
- Icon:** NO ICON SELECTED

Below the fields, there are two informational messages:

- Message 1:** Subtemplates have been updated. Review Subtemplate tab. Click Save to complete.
- Message 2:** Direct tags can be converted to tag groups on the following components: /LincolnCoSchools/Drivers/LonNetwork/AHU01/points/MyPoints/SpaceTemp /LincolnCoSchools/Drivers/LonNetwork/AHU01/points/MyPoints/OutsideTemp. Clicking button will prompt user to choose.

A `Tags->TagGroups...` button is located below the second message. At the bottom right, there are `Save` and `Duplicate` buttons.

# What's next?

## Niagara 4 Advanced Technical Certification Program (TCP) (AMER)

STATUS: Enrolled | KEYWORDS: ilt english amer | LANGUAGE: English | TYPE: Event



Educates students to an Advanced level of technical expertise to effectively and efficiently design, engineer, and program "cyber-secure", enterprise-wide, supervisor projects using the Niagara 4 Framework and demonstrate how to migrate existing Niagara AX stations to the N4 model. | Prerequisites: Niagara 4 certification | Audience: Systems Integrators, OEMs, distributors, and other business partners | Certification: Niagara 4 Advanced TCP | 5-day, Instructor Led Training, Part #: TRN-CRS-N4-ADV, Price: \$2890 USD

Material	Description	Instructions	Downloads
Agenda N4 Advanced TCP (5.15.17)	Brief class agenda.	Download PDF and review.	[ Niagara 4 Advanced Training Agenda (5.15.17).pdf ]
Training Locations (10.24.16)	List of recommended accommodations and travel instructions.	Don't book travel until you have received enrollment confirmation.	[ Training Locations AMER 10-24-16.pdf ]

# Problem?

- Want to go farther than the 'Programming for the non-programmer' level
- Feel I have the capability but don't know where to look



# Solution!

- Built-in Help documentation
- [www.niagara-community.com](http://www.niagara-community.com)
- Co-worker support
- [www.tridiumuniversity.com](http://www.tridiumuniversity.com) “Niagara 4 Advanced Course”

# Niagara Type Spec

- Slot Sheet
- Property Sheet
- Spy Remote
- Baja Docs

# Niagara Type Spec

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# Niagara Type Spec

# Slot Sheet

My Host: VA51LTG1C62H2.global.ds.honeywell.com (N4ADV00) : Station (N4ADV00) : Config : Drivers : NiagaraNetwork : JACE01 : Points : FirstFloor

Nav

- My File System
- My Modules
- My Tools
- Platform
- Station (N4ADV00)
  - Alarm
  - Config
    - Services
    - Drivers
      - NiagaraNetwork
        - JACE01
          - Alarm Source I
          - Client Connect
          - Points
          - FirstFloor

Slot	#	Name	Display Name	Definition	Flags	Type	Facets
Action	0	forceUpdateNiagaraProxyPoints	Force Update Niagara Proxy Points	Frozen	c	baja:Ord (void)	
Property	1	ZoneTemp_101	ZoneTemp_101	Dynamic		control:NumericWritable	
Property	2	ZoneTemp_102	ZoneTemp_102	Dynamic		control:NumericWritable	
Property	3	ZoneTemp_103	ZoneTemp_103	Dynamic		control:NumericWritable	
Property	4	ZoneTemp_104	ZoneTemp_104	Dynamic		control:NumericWritable	
Property	5	ZoneTemp_105	ZoneTemp_105	Dynamic		control:NumericWritable	
Property	6	ZoneTemp_106	ZoneTemp_106	Dynamic		control:NumericWritable	
Property	7	ZoneTemp_107	ZoneTemp_107	Dynamic		control:NumericWritable	
Property	8	ZoneTemp_108	ZoneTemp_108	Dynamic		control:NumericWritable	
Property	9	ZoneTemp_109	ZoneTemp_109	Dynamic		control:NumericWritable	
Property	10	ZoneTemp_110	ZoneTemp_110	Dynamic		control:NumericWritable	

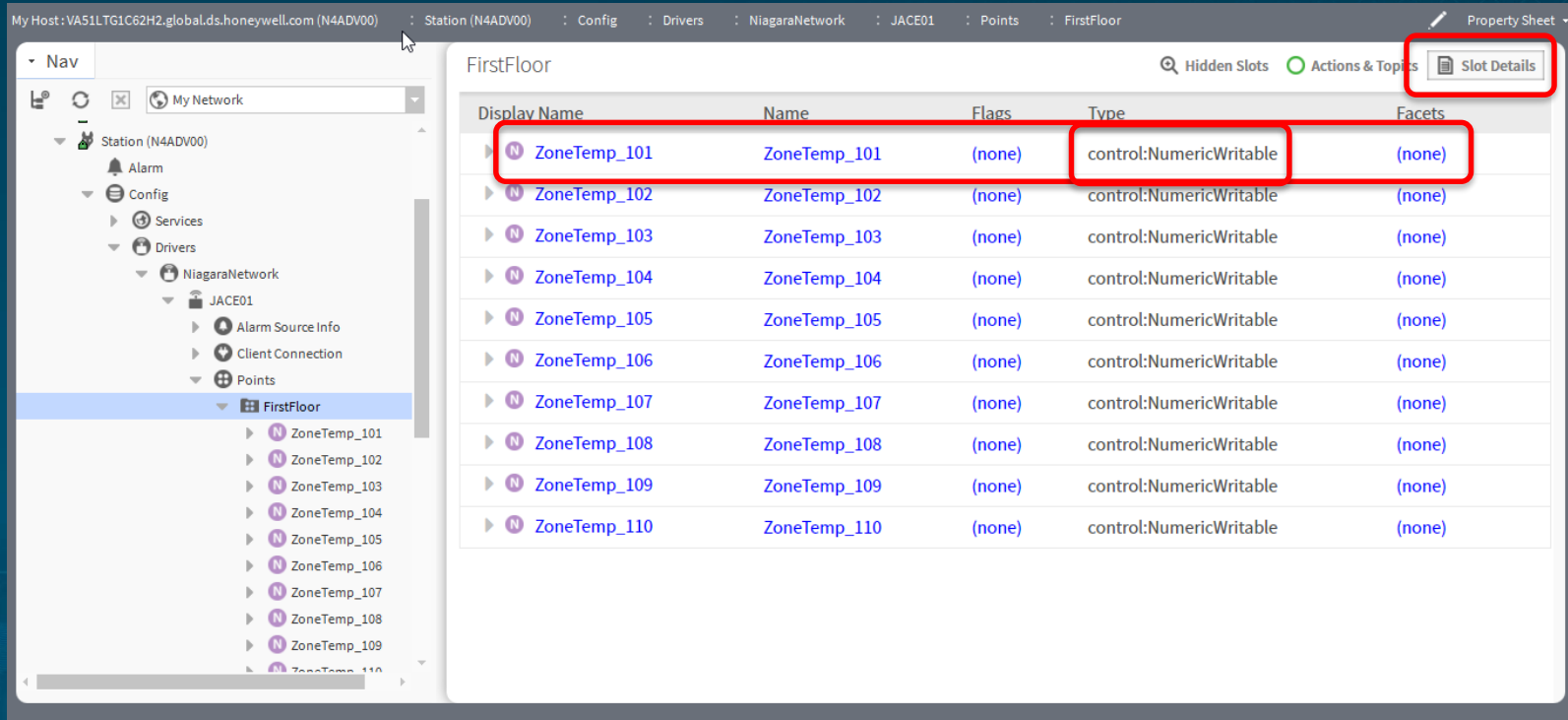
# Niagara Type Spec

- Slot Sheet
- **Property Sheet**
- Spy Remote
- Baja Docs



# Niagara Type Spec

## Property Sheet – HTML5



The screenshot shows the Niagara Type Spec interface. On the left is a navigation tree with 'FirstFloor' selected. The main area displays a table of properties for 'FirstFloor'. The first row is highlighted with a red box, and the 'control:NumericWritable' value in the 'Type' column is also highlighted with a red box. A 'Slot Details' button is highlighted in the top right corner.

Display Name	Name	Flags	Type	Facets
ZoneTemp_101	ZoneTemp_101	(none)	control:NumericWritable	(none)
ZoneTemp_102	ZoneTemp_102	(none)	control:NumericWritable	(none)
ZoneTemp_103	ZoneTemp_103	(none)	control:NumericWritable	(none)
ZoneTemp_104	ZoneTemp_104	(none)	control:NumericWritable	(none)
ZoneTemp_105	ZoneTemp_105	(none)	control:NumericWritable	(none)
ZoneTemp_106	ZoneTemp_106	(none)	control:NumericWritable	(none)
ZoneTemp_107	ZoneTemp_107	(none)	control:NumericWritable	(none)
ZoneTemp_108	ZoneTemp_108	(none)	control:NumericWritable	(none)
ZoneTemp_109	ZoneTemp_109	(none)	control:NumericWritable	(none)
ZoneTemp_110	ZoneTemp_110	(none)	control:NumericWritable	(none)

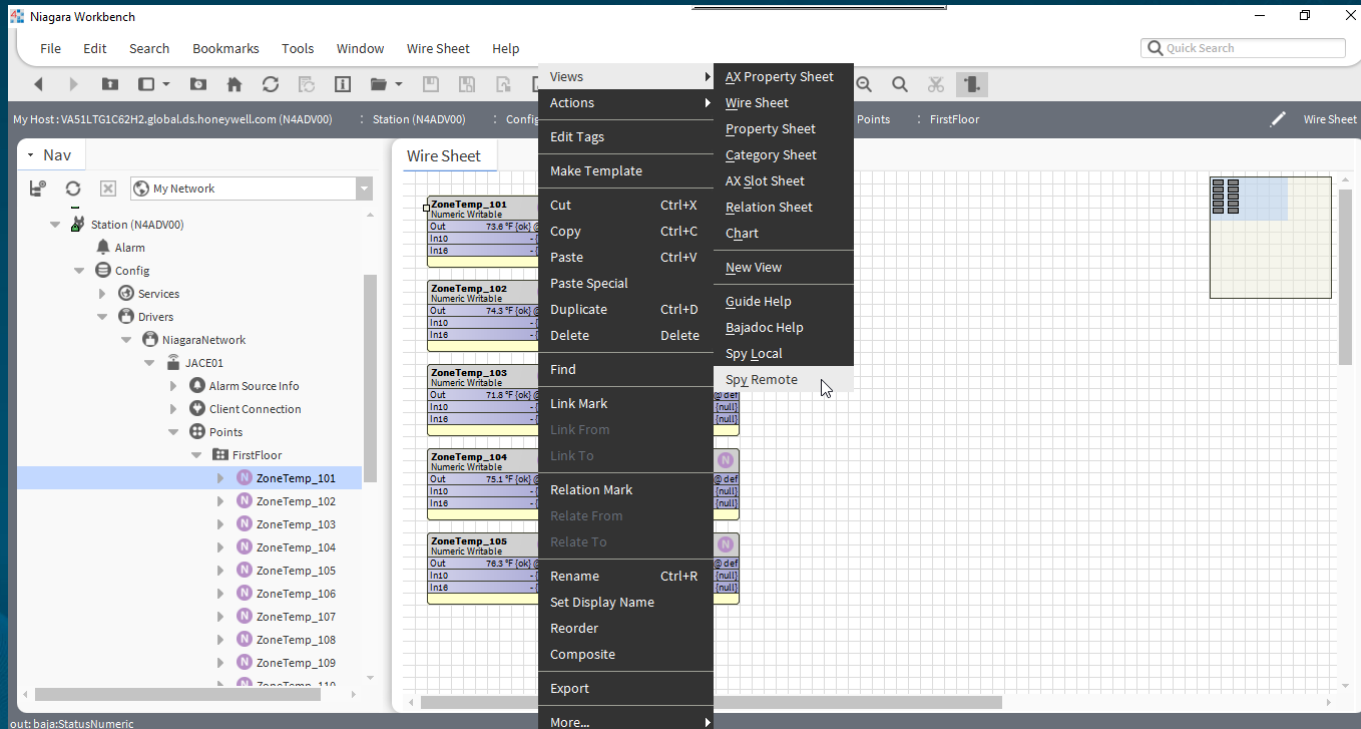


# Niagara Type Spec

- Slot Sheet
- Property Sheet
- **Spy Remote**
- Baja Docs

# Niagara Type Spec

# Spy Remote



# Niagara Type Spec

# Spy Remote

The screenshot shows the Niagara Workbench interface. On the left, a navigation tree shows the hierarchy: Station (N4ADV00) > Config > Drivers > NiagaraNetwork > JACE01 > Points > FirstFloor > ZoneTemp\_101. The main area displays the 'Tags Implied' table for the selected tag.

Tags Implied	
n.name	ZoneTemp_101
n.displayName	ZoneTemp_101
n.type	control:NumericWritable
n.displayName	Station/h.2ac0
n.station	N4ADV00
n.point	M
hs.cur	M
hs.curErr	
hs.curStatus	ok
hs.curVal	73.60
hs.id	h.2ac0
hs.kind	Number
hs.maxVal	85.00
hs.minVal	55.00
hs.point	M
hs.tz	New_York
hs.unit	°F
hs.writable	M
hs.writeErr	
hs.writeLevel	17
hs.writeStatus	ok
hs.writeVal	73.60

Below the table, the 'Relations Implied' section shows:

Relations Implied	
n.parent	(Out) local station slot/Drivers/NiagaraNetwork/JACE01/points/FirstFloor
n.child	(In) local station slot/Drivers/NiagaraNetwork/JACE01/points/FirstFloor

# Niagara Type Spec

- Slot Sheet
- Property Sheet
- Spy Remote
- **Baja Docs**

# Niagara Type Spec

# Baja Docs

The screenshot shows the Niagara Workbench interface. The Help menu is open, showing options: Help Contents, On View (F1), Guide On Target, Bajadoc On Target, Find Bajadoc (Ctrl+F1), and About. The 'Bajadoc On Target' option is highlighted. In the background, a table displays the 'ZoneTemp\_101' type specification details.

Display Name	Flags	Type	Facets
Facets	(none)	baja:Facets	(none)
Proxy Ext	(none)	control:NullProxyExt	(none)
Out	rtso	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In1	r	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In2	t	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In3	t	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In4	t	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In5	t	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In6	t	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In7	t	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In8	r	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In9	t	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In10	ts	baja>StatusNumeric	units=°F,precision=1,min=55,max=85
In11	t	baja>StatusNumeric	units=°F,precision=1,min=55,max=85

# Niagara Type Spec

# Baja Docs

The screenshot shows the Niagara Help application interface. The main content area displays the documentation for the `public class BNumericWritable`. A red rounded rectangle highlights the class signature and its metadata:

```
public class BNumericWritable  
  
module part: control-rt  
package: javax.baja\_control  
extends: BNumericPoint  
implements: BWritablePoint
```

Below the class signature, there are sections for Subclasses and Properties. The Subclasses section lists `BNumericWritable`. The Properties section lists several properties, each with a blue expandable icon:

- `BStatusNumeric fallback`
- `BStatusNumeric in 1`
- `BStatusNumeric in 10`
- `BStatusNumeric in 11`
- `BStatusNumeric in 12`
- `BStatusNumeric in 13`
- `BStatusNumeric in 14`
- `BStatusNumeric in 15`
- `BStatusNumeric in 16`
- `BStatusNumeric in 2`
- `BStatusNumeric in 3`

The left sidebar shows a navigation menu with a search bar and a list of document categories, including DocA Xto N4, DocAaapup, DocAlarms, DocAsset Manager, DocBaa S, DocBackup Restore, DocBacnet, DocData Recovery Svc, DocDeveloper, DocDeveloper Analytics, DocDrivers, DocEng Notes, DocExport Tags, DocGraphics, DocHierarchies, DocHistories, DocJ8 Startup, DocJ8 Wi Fi, DocJace N4 Startup, DocKit Control, DocLdap, DocLexicon, DocLinux, and DocLonworks.

# Niagara Object Model

- JAVA Methods
- BFormat

# Niagara Object Model

- JAVA Methods
- BFormat



# Niagara Object Model

# JAVA Methods

The screenshot shows the Niagara Help application interface. The search bar contains the text 'alarmData'. The search results are displayed in a list on the left, with 'BAlarmRecord' selected. The right pane shows the 'Methods' section for the selected class, listing various public methods. The method 'public BFacets getAlarmData()' is highlighted with a red box.

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Find:

- alarm-LinePrinterRecipient
- BFormat default scripts
- Filters window
- bajaScript Module: baja/alarm/Alarm
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- Alarm Database Maintenance view
- quicksearch.html
- AlarmDeviceExt
- email-EmailRecipient
- Alarm Record window
- alarm-AlarmPortal
- Alarm Db view
- BAlarmRecord.java
- AlarmSupport.java
- BAlarmRecord**

Methods

- public **BAlarmRecord**([BOrd](#) source, [String](#) alarmClass, [BFacets](#) alarmData)
- public void **ackAlarm**()
- public void **ackAlarm**([String](#) user)
- public void **addAlarmFacet**([String](#) key, [BIDataValue](#) value)
- public boolean **getAckRequired**()
- public [BackState](#) **getAckState**()
- public [BAbsTime](#) **getAckTime**()
- public [String](#) **getAlarmClass**()
- public [String](#) **getAlarmClassDisplayName**([Context](#) cx)
- public [BFacets](#) getAlarmData()**
- public static [String](#)[] **getAlarmDataFields**()
- public [BObject](#) **getAlarmFacet**([String](#) key)
- public [BSourceState](#) **getAlarmTransition**()

## BFormat

- ▶ ◆ public [BAbsTime](#) **getAckTime()**
- ▶ ◆ public [String](#) **getAlarmClass()**
- ▶ ◆ public [String](#) **getAlarmClassDisplayName([Context](#) cx)**
- ▶ ◆ **public [BFacets](#) getAlarmData()**
- ▶ ◆ public static [String](#)[] **getAlarmDataFields()**
- ▶ ◆ public [BObject](#) **getAlarmFacet([String](#) key)**
- ▶ ◆ public [BSourceState](#) **getAlarmTransition()**

# Niagara Object Model

# BFormat

Property Sheet

TemperatureAlarm (Alarm Source Ext)

- Alarm Inhibit: false {ok}
- Inhibit Time: 00000h 00m 00s [0ms--+inf]
- Alarm State: Normal
- Time Delay: 00000h 00m 00s [0ms--+inf]
- Time Delay To Normal: 00000h 00m 00s [0ms--+inf]
- Alarm Enable:  toOffnormal  toFault
- To Offnormal Times: Alarm Timestamps
- To Fault Times: Alarm Timestamps
- Time In Current State: +00000h 46m 40s
- Source Name: `parent.displayName`
- To Fault Text: `alarmData.sourceName` has failed 'High'

# Problem?

- Finding objects quickly
- Can use BQL but challenging at times

# Solution!

- Use 'BQL' Query Builder from 'Menu' bar
- Use 'Search' capability in NEQL

# Query Tools

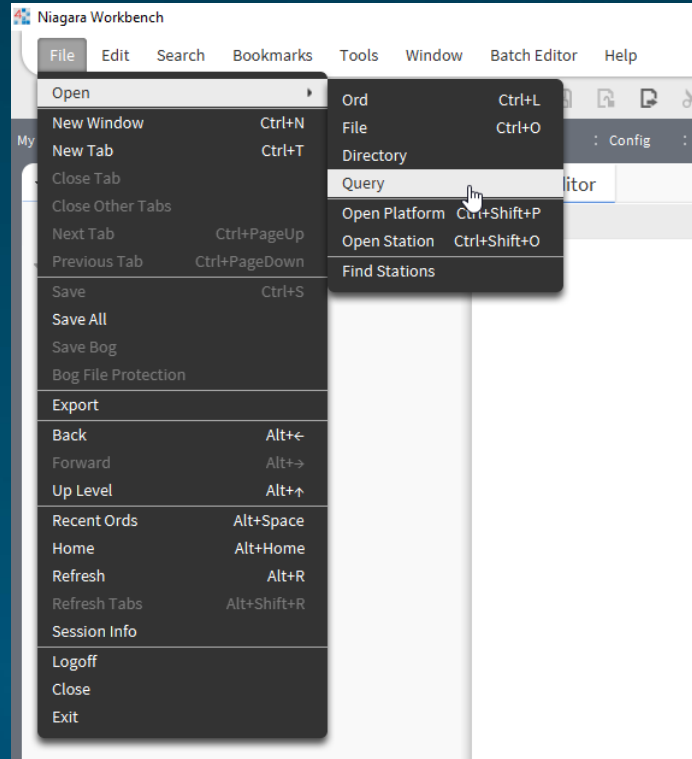
- BQL Queries
- NEQL Queries

# Query Tools

- BQL Queries
- NEQL Queries

# Query Tools

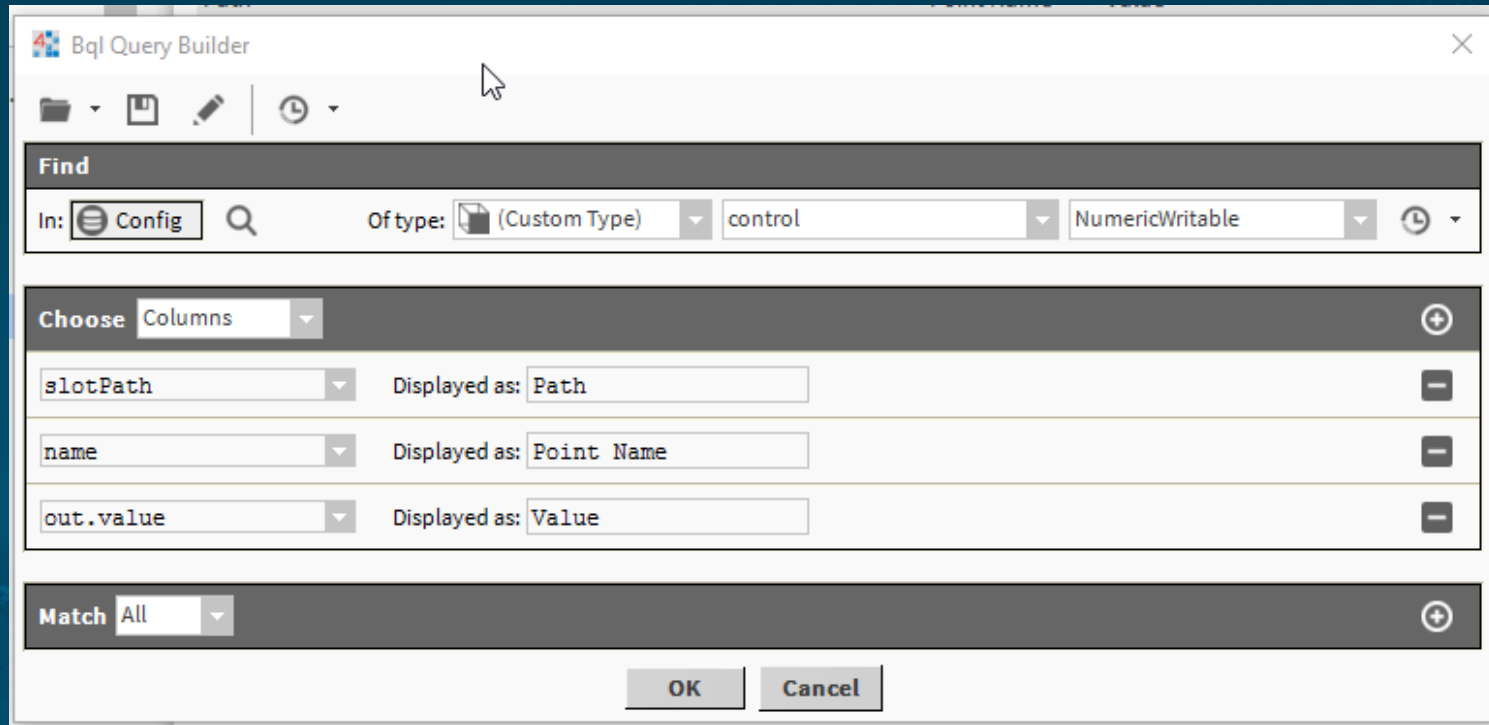
# BQL Queries





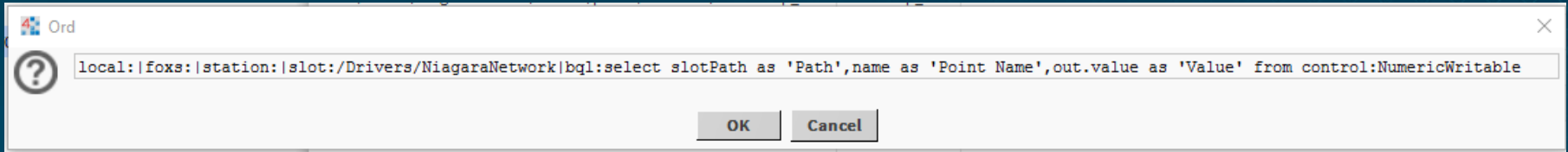
# Query Tools

# BQL Queries



# Query Tools

# BQL Queries



# Query Tools

# BQL Queries

The screenshot shows the Niagara Workbench interface. The address bar contains the query: `bql:select slotPath as 'Path',name as 'Point Name',out.value as 'Value' from control:NumericWritable`. The left sidebar shows a navigation tree with 'Station (N4ADV0)' selected. The main window displays a table with the following data:

Path	Point Name	Value
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_101	ZoneTemp_101	73.60
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_102	ZoneTemp_102	74.30
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_103	ZoneTemp_103	71.80
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_104	ZoneTemp_104	75.10
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_105	ZoneTemp_105	76.30
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_106	ZoneTemp_106	72.50
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_107	ZoneTemp_107	74.40
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_108	ZoneTemp_108	72.90
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_109	ZoneTemp_109	70.20
slot:/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneTemp_110	ZoneTemp_110	68.90

# Query Tools

- BQL Queries
- **NEQL Queries**

# Query Tools

# NEQL Queries

The screenshot shows the Niagara Workbench application interface. At the top, there is a menu bar with 'File', 'Edit', 'Search', 'Bookmarks', 'Tools', 'Window', and 'Help'. Below the menu is a toolbar with various icons for navigation and editing. The address bar shows the host 'My Host: VA51LTG1C62H2.global.ds.honeywell.com (N4ADV00)' and the search path ': Station (N4ADV00) : SearchService'. On the left, a navigation pane shows a tree view with 'My Network' selected, and sub-items for 'My File System', 'My Modules', 'My Tools', 'Platform', and 'Station (N4ADV00)'. The main area displays a search query 'n:type = 'schedule:BooleanSchedule'' with '2 Results'. The results are:

Item Name	Path	Status
FanSchedules	station: slot:/Reporting/Data/FanSchedules	Off {ok}
OccSchedule	station: slot:/Schedules/OccSchedule	Unoccupied {ok}

# Problem?

- Too much time required to make changes to many objects
- Want to make 'global' edits with minimal time

# Solution!

- Use 'Batch Editor' in the 'Program Service'

# Batch Editor

- Add Slots
- Add Tags
- Global changes



# Batch Editor

- Add Slots
- Add Tags
- Global changes

# Batch Editor

## Add Slots

The screenshot shows the Niagara Workbench interface with the Batch Editor open. The 'Add Slot' dialog box is displayed, allowing the user to configure a new slot. The dialog includes the following fields and options:

- New Name:** HiTempAlarm
- New Type:** alarm (dropdown menu)
- Alarm Source Ext:** AlarmSourceExt (dropdown menu)
- Set if exists**
- New Value:**
  - Alarm Source Ext:** Alarm Source Ext (dropdown menu)
  - Alarm Inhibit:** false [ok] (checkbox)
  - Inhibit Time:** 00000h 00m 00s [0ms - +inf] (time field)
  - Alarm State:** Normal (dropdown menu)
  - Time Delay:** 00000h 00m 00s [0ms - +inf] (time field)
  - Time Delay To Normal:** 00000h 00m 00s [0ms - +inf] (time field)
  - Alarm Enable:**  toOffnormal  toFault (checkboxes)
  - To Offnormal Times:** Alarm Timestamps (text field)

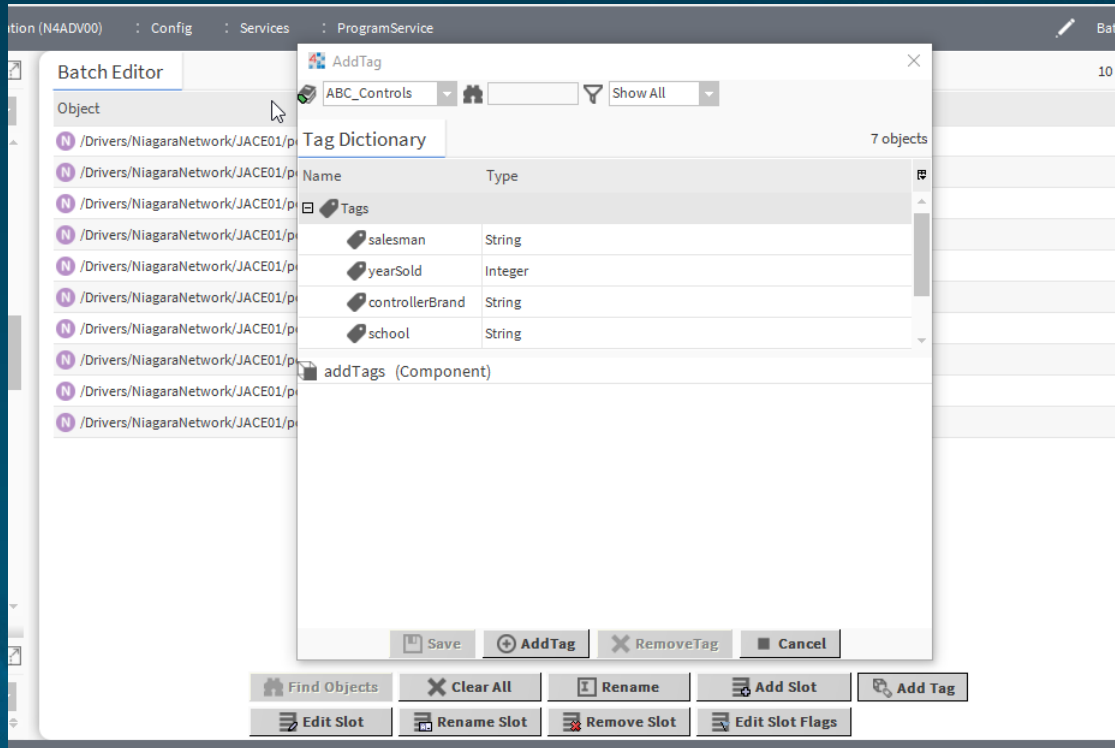
At the bottom of the dialog are 'OK' and 'Cancel' buttons. Below the dialog, a toolbar contains buttons for 'Find Objects', 'Clear All', 'Rename', 'Add Slot', 'Add Tag', 'Edit Slot', 'Rename Slot', 'Remove Slot', and 'Edit Slot Flags'.

# Batch Editor

- Add Slots
- **Add Tags**
- Global changes

# Batch Editor

## Add Tags



# Batch Editor

- Add Slots
- Add Tags
- Global changes

# Batch Editor

# Global Changes

The screenshot displays the Niagara Workbench interface. The main window is titled "Batch Editor" and shows a list of 10 objects under the "Object" column. The objects are all of type "N" and represent various points in a Niagara network, such as "/Drivers/NiagaraNetwork/JACE01/points/FirstFloor/ZoneSetpoint\_101".

An "Edit Slot" dialog box is open, showing the "Property" set to "fallback". The "New Value" section contains a text input field with the value "{null}" and a checkbox labeled "null" with the value "75" next to it. The dialog has "OK" and "Cancel" buttons at the bottom.

The interface includes a navigation pane on the left with a tree view of the project structure, including folders like "My Network", "Drivers", "Apps", "Schedules", "Power", "Ventilation", "Structures", "Reporting", and "SeriesTransform". The "ProgramService" folder is currently selected.

At the bottom of the Batch Editor window, there is a toolbar with the following buttons: "Find Objects", "Clear All", "Rename", "Add Slot", "Add Tag", "Edit Slot", "Rename Slot", "Remove Slot", and "Edit Slot Flags".

# Break for Lunch

