Niagara 4 Automated Logic WebCtrl Driver Guide

Technical Document

baudrate.io



March 12, 2024

Contents

1	Introduction	2
2	Requirements	2
3	Quick Start	4
4	WebCtrl Networks	5
5	WebCtrl Devices	5
6	WebCtrl Points	6

1 Introduction

Automated Logic or ALC¹, now part of Carrier Corporation, is one of the first building automation manufacturers who embraced BACnet standard and released a full line of BACnet products. They include fully programmable controllers for unitary / zone applications, small, medium and large extendable and non- extendable controllers, as well as front-end software WebCTRL with many advanced features like Environmental Index, Time-Lapse and Fault Detection and Diagnostics.

There is one thing ALC did differently from the rest of BACnet vendors. They chose ARCNET as a fieldbus, instead of more popular and slow MS/TP. Although ALC ARCNET uses RS-485 physical layer, it is not supported by Niagara JACE nor by almost anyone else.

Our ALC driver for Tridium Niagara communicates with ALC controllers indirectly via WebCTRL server — the standard front-end software deployed on virtually every Automated Logic BMS site. It provides access to the data in all connected controllers, ALC and third-party BACnet ones, as well as legacy ALC CMnet communication protocol.

The driver allows to automatically discover devices and points, import points into Niagara station, read point values and write into them. Points retain their names, types and unit facets, which greatly simplifies integration process.

The driver can be deployed in JACE or in Niagara Supervisor, which could reside either locally on site, or on remote premises, or on a cloud.

2 Requirements

- Niagara-powered device with software v4.4 (N4) or later, including Jace8000, Supervisor or their OEM versions
- WebCTRL driver module and license
- Login and password with permissions to access WebCTRL SOAP API.
- WebCTRL software with *Enterprise feature* enabled. This feature allows WebCTRL to communicate with Niagara via SOAP API. Check if this feature is enabled in your WebCTRL *About* window.

¹All trademarks or registered trademarks are the property of their respective owners

WebCTRL for OEMs Server Version:	8.5
Build:	8.5.002.20230323-123687 Final
	Copyright(c) 2023 OEMCtrl
Licensed to:	
For use at:	
Total Points:	unlimited
Enabled Features:	Adv. Alarming, Adv. Reporting, Adv. Security Enterprise
Available Features:	None
S No:	
Issue Number:	5
Browser:	Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/122.0.0.0 Safari/537.36

Figure 1: WebCTRL About Window

In order to test if SOAP API is enabled, open a web browser and navigate to the following URL: https://yourWebCTRLAddress/_common/webservices/Eval?wsdl. Use HTTP if your WebCTRL server does not use HTTPS. If you see XML content, then SOAP API is enabled.

If you see 403 error instead, WebCTRL server version is 8.0 or later, and it uses HTTP, then you need to enable SOAP API for HTTP as it is disabled by default. To do this, start ALC SiteBuilder software, open Preferences and select *Enable SOAP applications over HTTP* option.

) 🧼 🖩 🛛 🔏 🐚	Location:		· +
eographic	Preferences	× ce Environn	nental Index
	General Language Font Connections Web Server		
	Restrict to IP Address:		
	Restrict to IP Address:		
	(Leave blank unless Web Server has multiple IP Addresses.)		
	Enabled Web Server Ports:	_	
	Both HTTP and HTTPS	1	
	Redirect HTTP requests to HTTPS		
	HTTP Port:	_	
	80		
	HTTPS Port:		
	443		
	Keystore Password:	2	
	(Must match the password used to generate the keys.)		
	Make Certificate Delete Certificate		
	Place Cel uncale		
	Selecting the following options will decrease the security of your system.		
	TLS Level		
	TLS 1.3		
	Allow SOAP applications over HTTP		
	Allow unsigned add-ons		
	Automica Davida Ala Casta Davidas Intela C		
	Authentication Provider (No Custom Providers Installed) Default		
ady	L'eraun		



3 Quick Start

- 1. Copy webCtrl-rt.jar to the Niagara /modules folder of your PC and restart Niagara Workbench.
 - a. If the driver is hosted on PC: restart Supervisor station.
 - b. If the driver is hosted on JACE: import the module with all its dependencies into JACE and restart it.
- 2. Add **WebCtrlNetwork** to the station.
- 3. Open **WebCtrlNetwork** property sheet and copy the license code into the **License** property.
- 4. Add **WebCtrlDevice** to the network.
- 5. Set **Username**, **Password**, **Address** and **Port** properties of **WebCtrlDevice**. If the WebCTRL server uses HTTPS, set the **Https** property to true.

- 6. Open the device **Points** extension and click on **Discover** you should be able to see the hierarchy of WebCTRL contents. There are many levels of components available on the server.
- 7. Navigate to the desired points and import them to the Niagara station. While adding a point it can be configured as a read only point or a read-write point using the type property.

4 WebCtrl Networks

WebCtrlNetwork contains many standard Niagara properties, as well as driver-specific ones:

• License – the code which allows the driver to run on your host.



Figure 3: WebCtrl network properties

5 WebCtrl Devices

Devices are added to Niagara by pressing **New** button. Each device represents a WebCTRL server and has the following properties:

- Username Username of the WebCTRL server
- Password Password used to access the WebCTRL server
- Address IP address WebCTRL server
- Port Port number of the WebCTRL server. It is normally 80 for HTTP and 443 for HTTPS.
- Https If the WebCTRL server uses HTTPS, set this property to true.
- **Point Group Size** The number of points to be read in a single request. The default value is 100. If the WebCTRL server is slow, changing this value might improve performance.

• **Current Number of Groups** – The number of point groups. This value is automatically calculated based on the number of points and the point group size.

🕵 Tridium EMEA Workbench			- 0 ×
File Edit Search Bookmarks Tools Window	Help		Q Quick Search
		$\mathbf{P} \And \diamond \Box \triangleq X \land A$	
My Host : LAPTOP-KB22OS2K (strato) : Station (strato) : Confi			
• Nav 🖾 🗃	Application Director	WebCtrlDevice	×
11 O 🛪 🕲 My Network Pro	operty Sheet		
Wy Host: LAPTOP-KB22OS2K (strato)	WebCtrlDevice (Web Ct	rl Device)	
My File System	Status	(unackedAlarm)	
	Enabled	true -	
	Fault Cause		
	Health	Ok [05-Oct-21 9:29 AM IST]	
	Alarm Source Info	Alarm Source Info	
	Auth	Username wadl	
c2-34-247-37-206.eu-west-1.compute.amazonaws.	Auth	Password ••••••	
P C CL 04 141 01 150C0 WESt 160mpdetainatonom2.	Address		
, constant de	Port	443	
1	Https	🔵 true 🔍	
	Poll Frequency	Normal -	
• Palette	+ Poll Scheduler	N Poll Scheduler	
	Points	Web Ctrl Point Device Ext	
🖿 🗶 🖸 🎽 plotly			
PlotlyService			
PlotlyService PlotlytWidget			
Generation HistoryGen			
> O 3DCharts		C Refresh	
		Nerress Save	

Figure 4: WebCtrl devices

6 WebCtrl Points

Point discovery allows to obtain point information directly from the server. Navigate to the desired points by expanding the tree and once you have reached the points level you can click on **Add** to import the point into the Niagara Station. The Add popup will have a Type property under which you can either choose it to be a read-only point or a read-write point.

		OB		- Int	m	150	B P	*	0	(Ť)	Bb	×	6	a	iller:	۲.,	D		46		(+)	5	0	0.	
lost : LAPTOP-KB22OS2K (str	- "	ition (strato)		Config	: Drive	1001	WebCtrl				trlDevice		Points			54			**	÷	0	100 1	~	Ctrl Poin	t Manar
				comig			mebeur		• •	mooc	and the		onnes									1	meo	curr on	
Application Director	Points	WebCtrll	Device																						×
🔮 🥕 Web Ctrl Discovery																							Succes	ss 🚿	×
Discovered																								55	objects
Id	Object Nam	e	P	resent Val	ue	Obje	t Type		Units																ø
🗉 🖽 #geb_a																									-
🖽 🎛 #hzg_a_und_b																									
⊟ 🖽 ≠a_hzg_dis	playio																								
	FHI-C-K09H0	04-ME-TFRL	il· 4	.73		Analo	gInput		Degree	s Celsiu	IS														
m119	FHI-C-K09H0	04-ME-TFRL	4	.76		Analo	gInput		Degree	s Celsiu	15														
	FHI-C-K09H0	04-ME-TFVL	1- 5	6.03		Analo	gInput		Degree	s Celsiu	IS														
	FHI-C-K09H0	04-ME-TFVL3	1- 5	.12		Analo	gInput		Degree	s Celsiu	IS														
m 074	FHI-C-K09H0	04-RM-PU00	21- 1			Binar	Input		No Uni	ts															
	FHI-C-K09H0	04-AL-TW00	1- 1			Binar	Input		No Uni	ts															
	FHI-C-K09H0	04-YB-VE002	1- 1	0.0		Analo	gOutput		Percen	t															
	FHI-C-K09H0	04-YB-VE001	1- 2	8.606		Analo	g Output		Percen	t															
	FHI-C-K09H0	04-SB-PU00	1- 1				Output		No Uni																
Database	P. I. A. 1188114																								object

Figure 5: WebCtrl point discovery

File Edit Search	Bookmarks Tools	Window	Manager	Help												Q	Quick Se	sarch		
· • D • •		1 🖿	• 🖻 🛛	9 B	P	* @	Û	Db (× h	C ⁺	C	${}^{t}\!t_{a}$	Ð		1 #	= (• >	0	B	
																		/ w		
ar Application Director	🕀 Points 🚡 WebCtrlDev	ice																		3
📀 🥕 Web Ctrl Discovery																		Suc	cess 🕅	×
Discovered	8	Add												×					1	55 objec
Id	Object Name	Name			Туре	Fac	aka .				ld									
m119 m122 m120	FHI-C-K09H004-ME-TFRLI FHI-C-K09H004-ME-TFRLI FHI-C-K09H004-ME-TFVLE FHI-C-K09H004-ME-TFVLI	Name	09H004-ME-T FHI-C-K09 Numeric P units="C,pred #a_hzg_di	ision=1*	-TFRL61- C,min=-inf	'C,max=+ii	nf°C ≫	• •	•											
m074	FHI-C-K09H004-RM-PU00 FHI-C-K09H004-AL-TW0021*					No UI		Cancel												
m0/3	FHI-C-K09H004-YB-VE0021-	100.0		Analog C		Perce														
	FHI-C-K09H004-YB-VE0011-	28.606		Analog		Perce														
	FHI-C-K09H004-SB-PU0021-	1		Binary O	utput	No Ur	nits													
Database		••				le is														0 obje

Figure 6: WebCtrl point adding

WebCtrl points are identified by a type. Types could be:

- Analog Input / Output / Value
- Binary Input / Output / Value
- Multistate Input / Output / Value

Points are physical inputs and outputs, depending on controller model and configuration. Software points are variables, they could be writable – also called setpoints – or read-only. Writing into point overwrites its value, i.e. the old value will be replaced.