



Niagara JSON Toolkit FAQs

Frequently Asked Questions

What is the JSON Toolkit?

The JSON Toolkit is a module which adds support for JSON messages within a Niagara station. This lets you create bespoke JSON string messages that can contain live point values, point tags and facet values, history data, alarm data and the results of queries such as bql or neql etc.

The USP is that rather than mandating a fixed 'Niagara' JSON format, we allow the end user to build up JSON messages to suit their requirements. It also gives you tools for some handling of incoming JSON messages.

What would it be used for?

- JSON messages have many uses, the typical use cases could include:
- Sending/Receiving JSON messages via an MQTT broker (cloud connectivity)
- Sending/Receiving JSON messages via HTTP (web services).
- Creating a JSON message to populate a chart in a web page.
- Sending/Receiving JSON messages to control/monitor a local device.
- Exporting station data in JSON format to save in a file

Does it handle incoming messages?

We have provided some basic components to help users route incoming JSON messages, select values from them and some components for acknowledging alarms/changing point values.

Are there examples?

The modules palette contains several example Schema setups for study, and the docs modules contains some good explanations of the key concepts with examples.

What versions of Niagara is it compatible with?

There are 4.4 and 4.7 versions available.

Does it work on both supervisor and JACE?

Yes indeed.

How is it licensed?

Contact your account manager for pricing. Software options: DR-JSON for JACE and portability controllers and DR-S-JSON for Supervisors. Each has a flat charge for a 'jsonToolkit' license feature, however they do also require active SMA on the host.

It is free to use and evaluate with any DEMO license without active SMA.

What happens when SMA expires?

The ability to generate JSON strings and route incoming messages will cease on expiry of SMA. The JsonSchemaService however lets you configure early warnings for this occurrence and will generate an alarm when SMA expires.

Frequently Asked Questions

Does it work with MQTT?

Yes, however the toolkit does not depend on mqtt. The toolkit is intentionally decoupled from any single transport. The JSON schema objects and message handlers may simply be linked to any transport mechanism you desire including MQTT String points.

What is a json schema?

A JSON schema is a component within the JSON toolkit which allows you to build bespoke JSON strings. You may build up a nested structure of objects/arrays/properties and include within them: live point vales / history data / alarm data / query results / facet values / tag values.

How many points will it work with? Does it scale?

At the time of writing we do not have any official limitations, but we have tested the following scenario without issue:

- JACE 8000 default settings
- JSON schema subscribed to 50'000 points
- 8 points changing value every second (so 8 JSON messages per second)
- Running for 10 hours with no increase observed in memory usage, no 'stop-the-world' garbage collections pauses, and CPU stable at an average of 17%

Please note: You can include bql/neql query results in JSON schema messages. This comes with the same warnings and caveats that you would

expect when running these queries outside of a JSON schema. As the results are held in memory then care should be taken to limit the scope and size of such queries.

What if my JACE does not have internet connectivity and I want to send JSON to the cloud?

The best 2 options are either to

- a) Use JSON Schemas on the JACE and then export them to the Supervisor which has your outside connectivity or
- b) b) Have the JSON schemas on the supervisor and use the system database. Then use sys: queries in the JSON schemas.

Is it secure?

A specific user may optionally be set for applying permissions on any outgoing JSON messages (to restrict which data is exported). Many sensitive data types are excluded regardless. Any point values / alarms which are changed by incoming messages are subjects to a permissions check.

Where can I find more info?

The toolkit doc module contains lots of descriptions of the toolkit components plus some examples and a developer guide. You may also contact Tridium EMEA support to find out more.

