InfluxDB Driver for Tridium Niagara

User Guide

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niagara4

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1 Introduction

InfluxDB[1] is an open-source time series database developed by InfluxData. It is widely used for operations monitoring, application metrics, IoT sensor data, and real-time analytics.

The InfluxDB driver for Tridium Niagara enables bidirectional data exchange between Niagara stations and InfluxDB instances. It supports both major InfluxDB generations: **v2** (Cloud, OSS, Enterprise) and **v3** (Core, Enterprise, Cloud Dedicated). A station can use either or both at the same time.

For each version the driver discovers the available data hierarchy, lets you import histories from InfluxDB into Niagara's local history database, and lets you export Niagara histories back to InfluxDB.

The driver runs on Supervisor or on a JACE; the InfluxDB instance can be on-premises, in a private VLAN, or in a cloud-hosted region.

2 Requirements

- Niagara-powered device with software v4.8 or later, such as JACE, Supervisor, or their OEM versions [2]
- InfluxDB driver license
- An InfluxDB instance:
  - **v2.x**: OSS, Cloud, or Enterprise – with an organization, a bucket, and an All Access API token
  - **v3**: Core, Enterprise, or Cloud Dedicated – with a database and (optionally) an auth token

3 Quick Start

1. Copy `influx-rt.jar` to the Niagara `/modules` folder and restart the software.
   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 **InfluxNetwork** to the station's Drivers container.
3. Enter the license code in the network's **License** property.
4. Add either an **InfluxDevice** (v2) or an **InfluxV3Device** (v3) under the network. Both can coexist under the same network.

[1] All trademarks or registered trademarks are the property of their respective owners
[2] If support for older Niagara versions is required, please contact the vendor

5. Configure host address, port, and token. For v2 set https, organization, and bucket; for v3 set database.
6. Verify the device status is **ok**. If it stays in fault, right-click the device and **Ping**.
7. Open the device's **Histories** extension to import or export data.

4 InfluxDB v2 vs v3

The driver exposes two distinct device types because the underlying APIs differ. Pick the one that matches your InfluxDB instance.

InfluxDB v2 – use the `InfluxDevice` type:

- Top-level container: Organization → Bucket
- Query language: Flux
- Write endpoint: `POST /api/v2/write?org=&bucket=&precision=ms`
- Default port: 443 (Cloud, HTTPS); 8086 for OSS
- Default scheme: https
- Discovery hierarchy: Org → Bucket → Measurement → Field
- Auth: `Authorization: Token <api-token>`

InfluxDB v3 – use the `InfluxV3Device` type:

- Top-level container: Database (no organizations in v3 Core/Enterprise)
- Query language: InfluxQL via `/api/v3/query_influxql`
- Write endpoint: `POST /api/v3/write_lp?db=&precision=ms`
- Default port: 8181 (Core/Enterprise, HTTP); 443 for Cloud Dedicated
- Default scheme: http
- Discovery hierarchy: Database → Measurement → Field
- Auth: `Authorization: Token <api-token>` (or no auth if the server runs with `--without-auth`)

v3 Cloud Serverless still accepts the v2 API and can be used via `InfluxDevice` if you have organizations and buckets configured – in that case it behaves like v2 for the driver.

5 Network

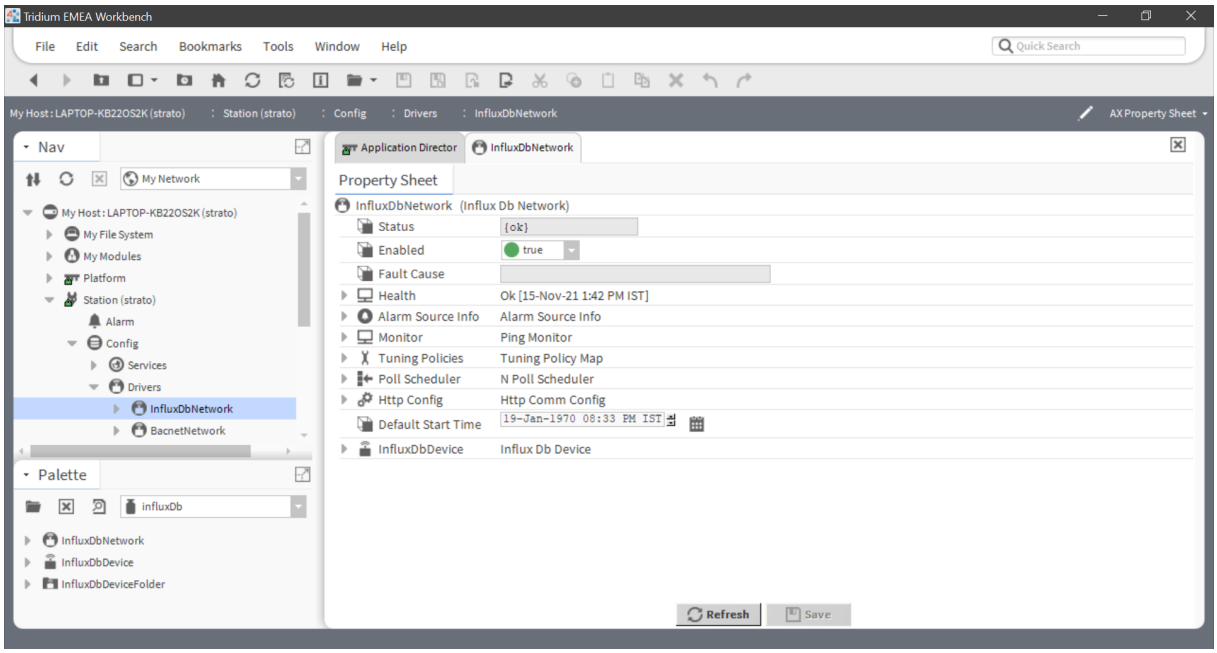
Network properties:

- **License** – the code that allows the driver to run on your host.

In most cases only the **License** property needs to be configured at the network level.

To start communication between Tridium Niagara and InfluxDB, make sure the Niagara host has network access to the InfluxDB endpoint (local, VLAN, or internet for cloud).

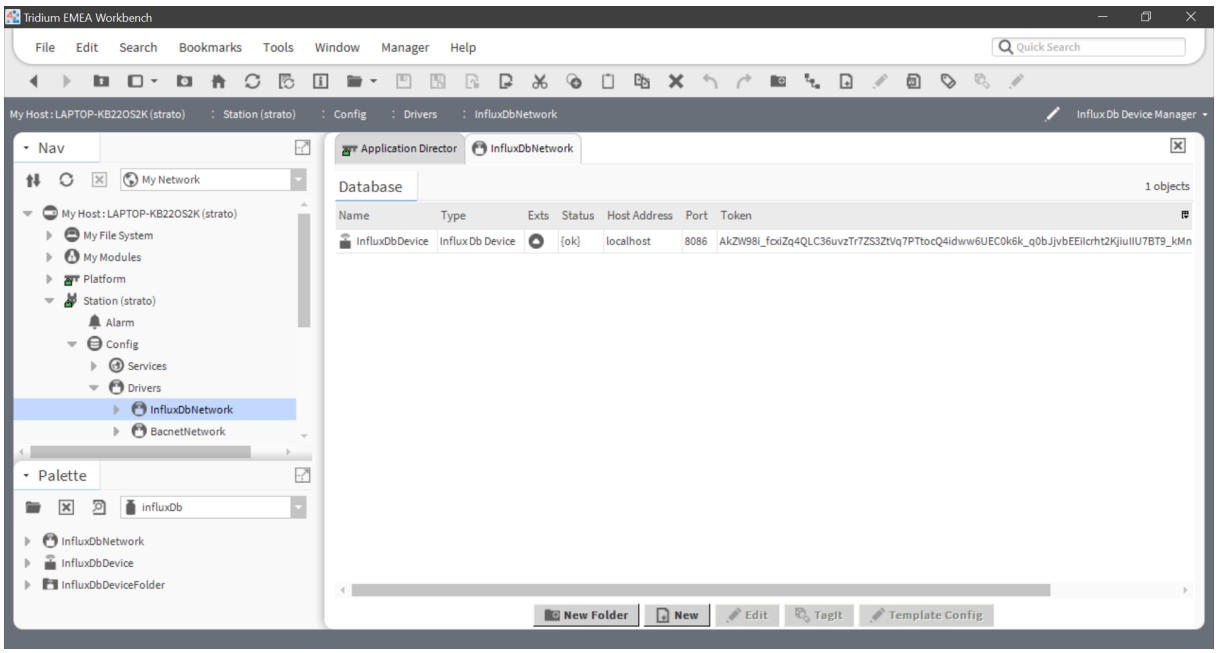
1. Install **influx-rt.jar** and all dependent modules via Software Manager.
2. Start the station and add a new **InfluxNetwork**.
3. In the network **Properties Sheet** enter the license number and press **Save**.



6 InfluxDB v2 Device

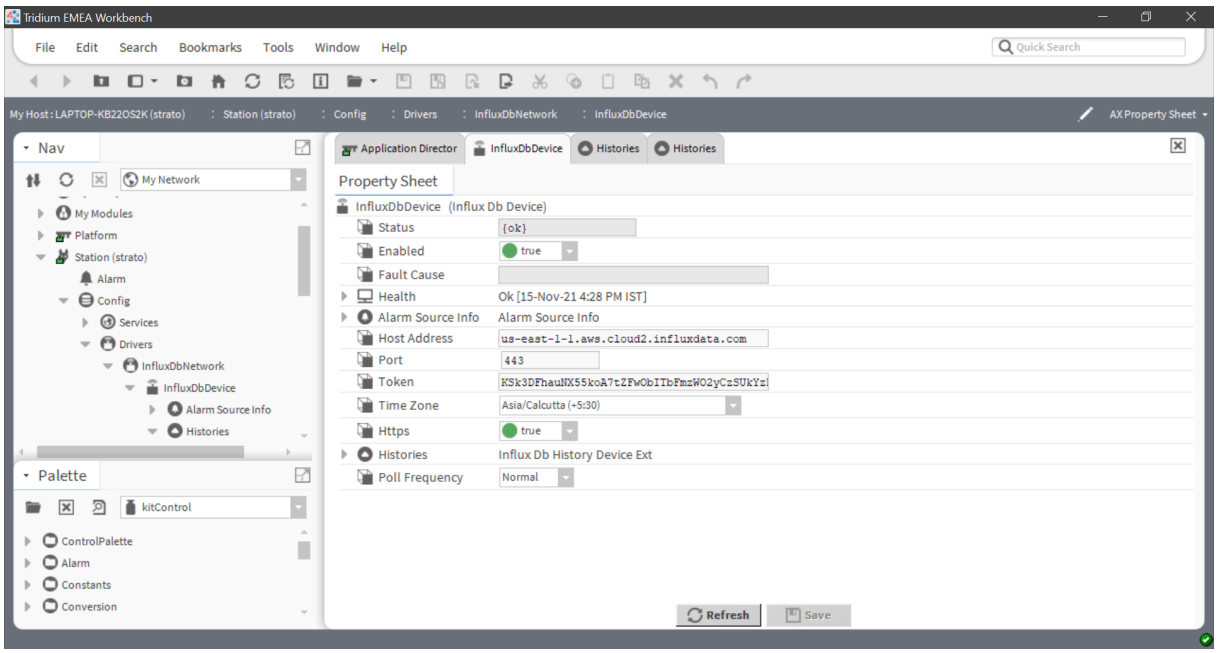
Add an **InfluxDevice** under the **InfluxNetwork** for InfluxDB **v2.x** (OSS, Cloud, Enterprise) or v3 Cloud Serverless.

Open the **Device Manager** and press **New** to add the device.



Device properties:

- **Host Address** – IP or hostname of the InfluxDB endpoint (e.g. `localhost`, `eu-central-1-1.aws.cloud2.influxdata.com`).
- **Port** – HTTP/HTTPS port number. Defaults to **443** for Cloud. For an OSS install set to **8086**.
- **Https** – defaults to **true** (Cloud); set to **false** for plain HTTP against OSS.
- **Token** – the API token generated in InfluxDB (under *Load Data → API Tokens → Generate API Token*). It must have read/write permission on the relevant bucket. Leave blank only against a non-authenticated test instance.
- **Time Zone** – time zone used when interpreting and writing history timestamps.



7 InfluxDB v3 Device

Add an **InfluxV3Device** under the **InfluxNetwork** for InfluxDB **v3** Core, Enterprise, or Cloud Dedicated.

The configuration mirrors the v2 device, with these differences:

- **Port** – defaults to **8181** (the v3 Core HTTP port). Use **443** for Cloud Dedicated.
- **Https** – defaults to **false** (v3 Core does not enable TLS by default). Enable for Cloud Dedicated or any TLS-fronted deployment.
- **Token** – can be left blank against a v3 Core instance started with `--without-auth`. Otherwise create one via `influxdb3 create token --admin` or the v3 management UI.
- There is **no organization or bucket** field; v3 Core and Enterprise do not have orgs.

Both v2 and v3 devices can coexist under the same **InfluxNetwork**. Each maintains its own connection, token, and discovery state.

8 Import Histories

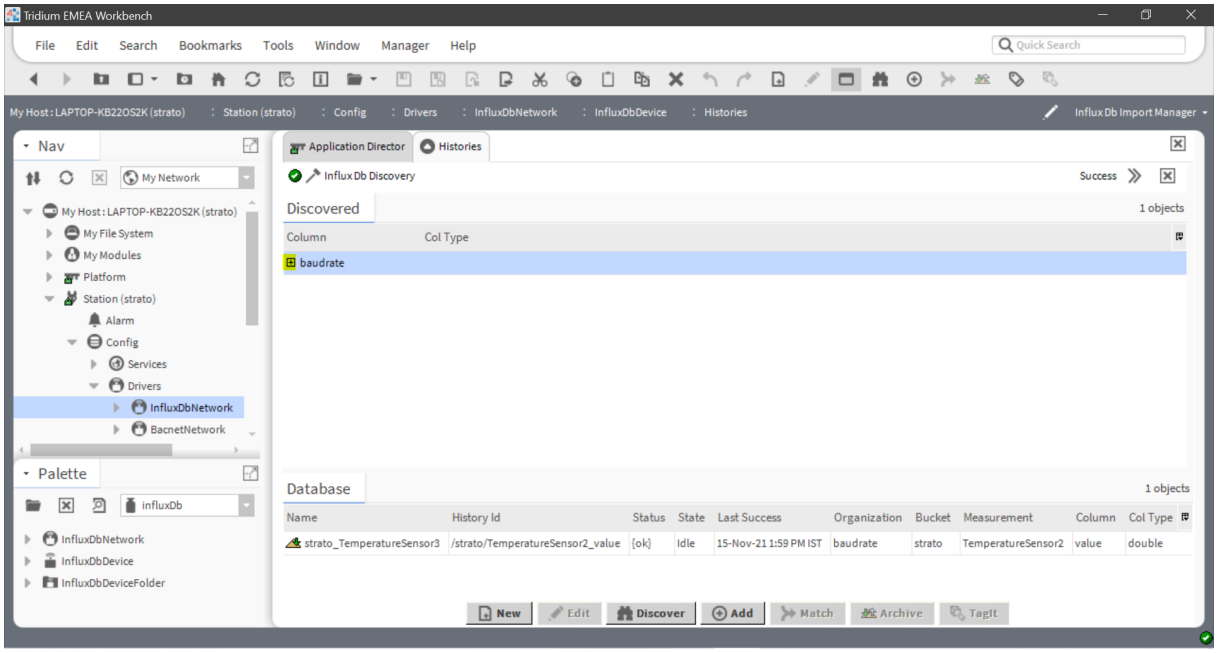
Note – the driver does not create databases, organizations, or buckets on InfluxDB. These must exist beforehand. For v2 the API token must have read access; for v3 it must have read access (or the server

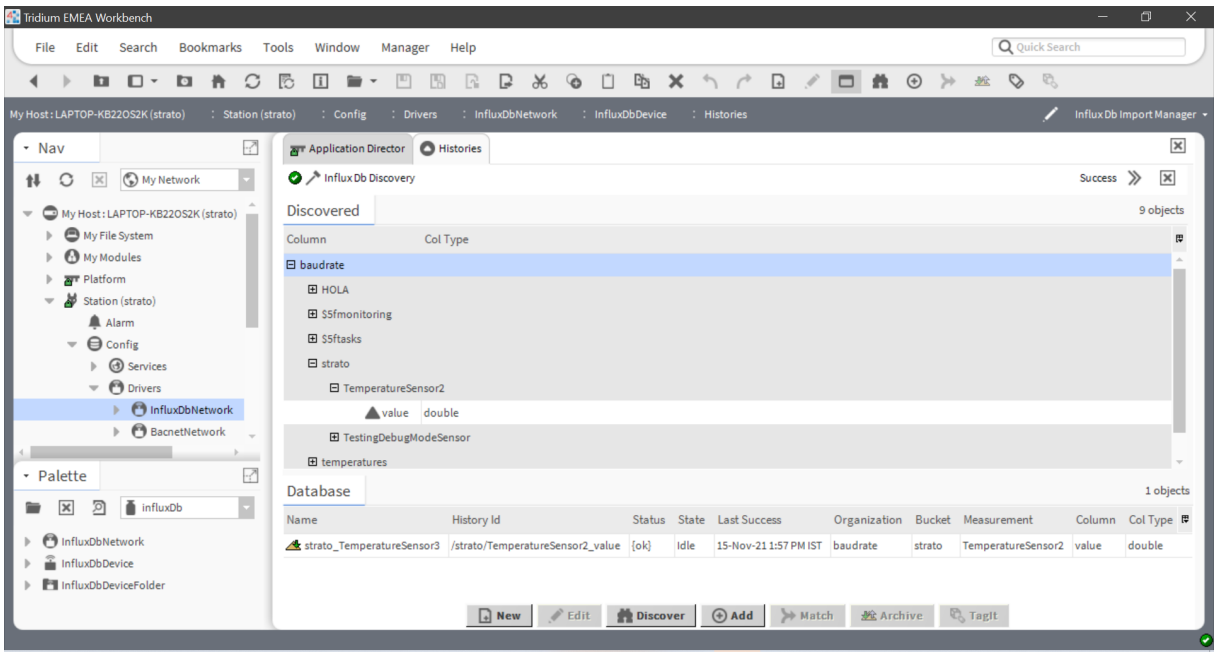
must allow anonymous queries).

1. Drill into the device, open the **Histories** extension. The header should read **Influx Import Manager** (v2) or **Influx V3 Import Manager** (v3).
2. Press **Discover**. The driver queries InfluxDB and builds a tree:

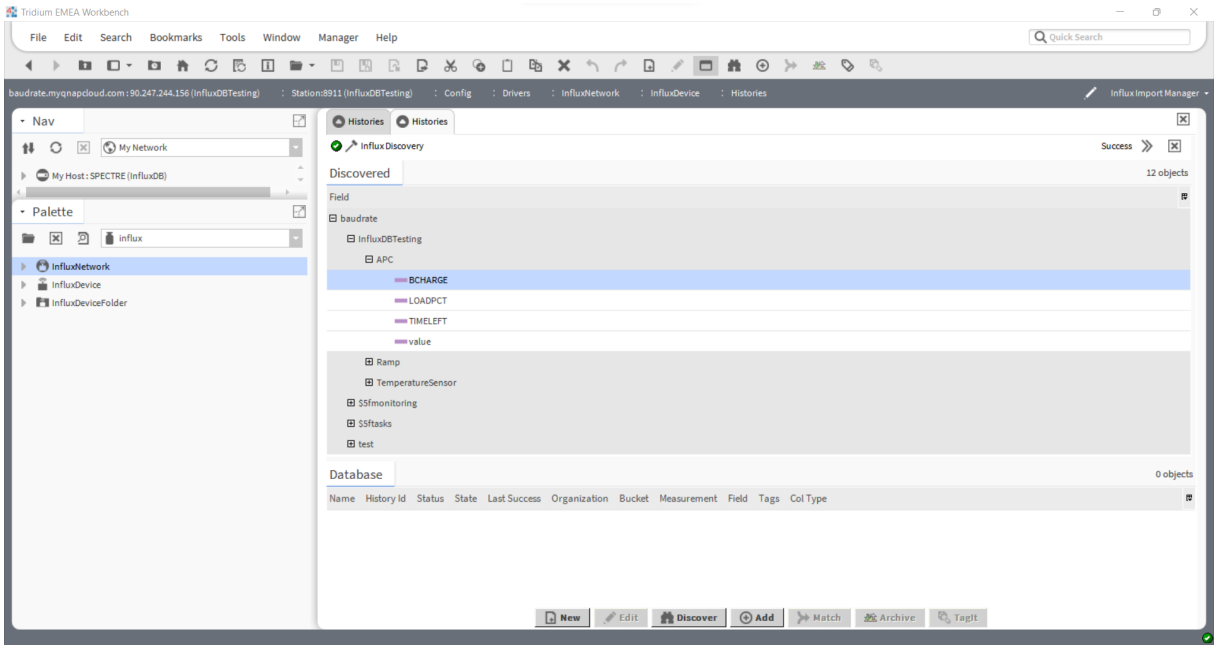
   - **v2**: Organization → Bucket → Measurement → Field
   - **v3**: Database → Measurement → Field

   Expand a node with the **+** icon to descend a level.

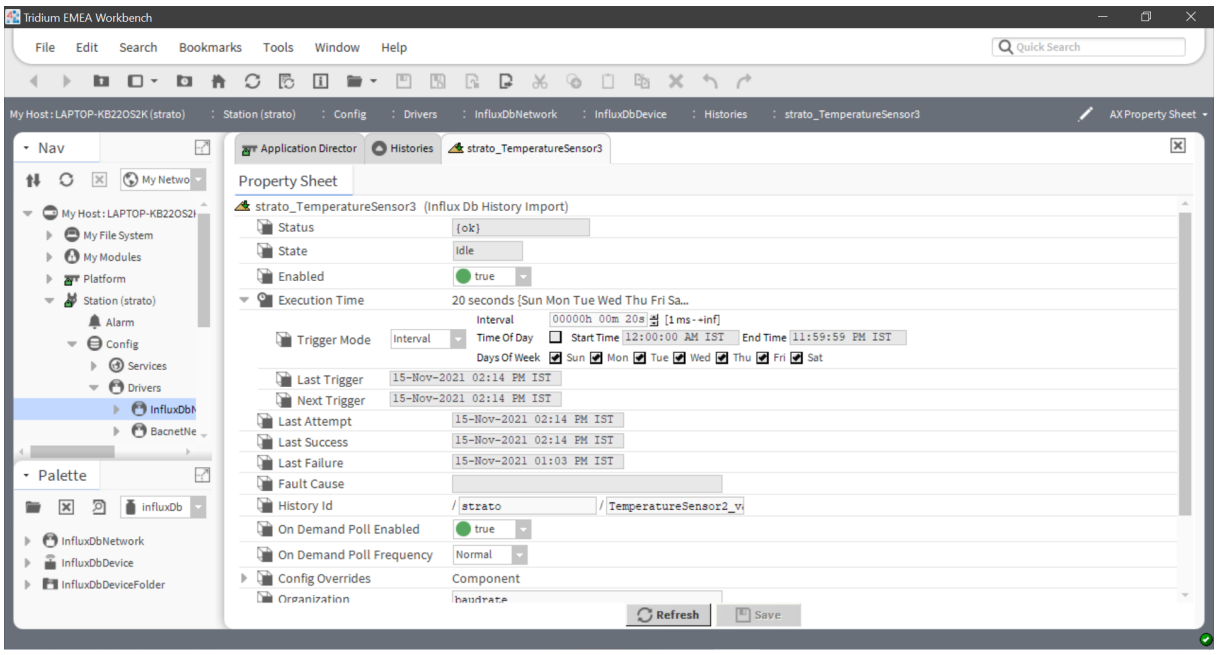




3. Select a field (the leaf of the tree) and press **Add** to create an import in Niagara. The history ID is derived from the measurement and field name.



4. Right-click the import → **Views → AX Property Sheet** to tune the import interval and other settings.

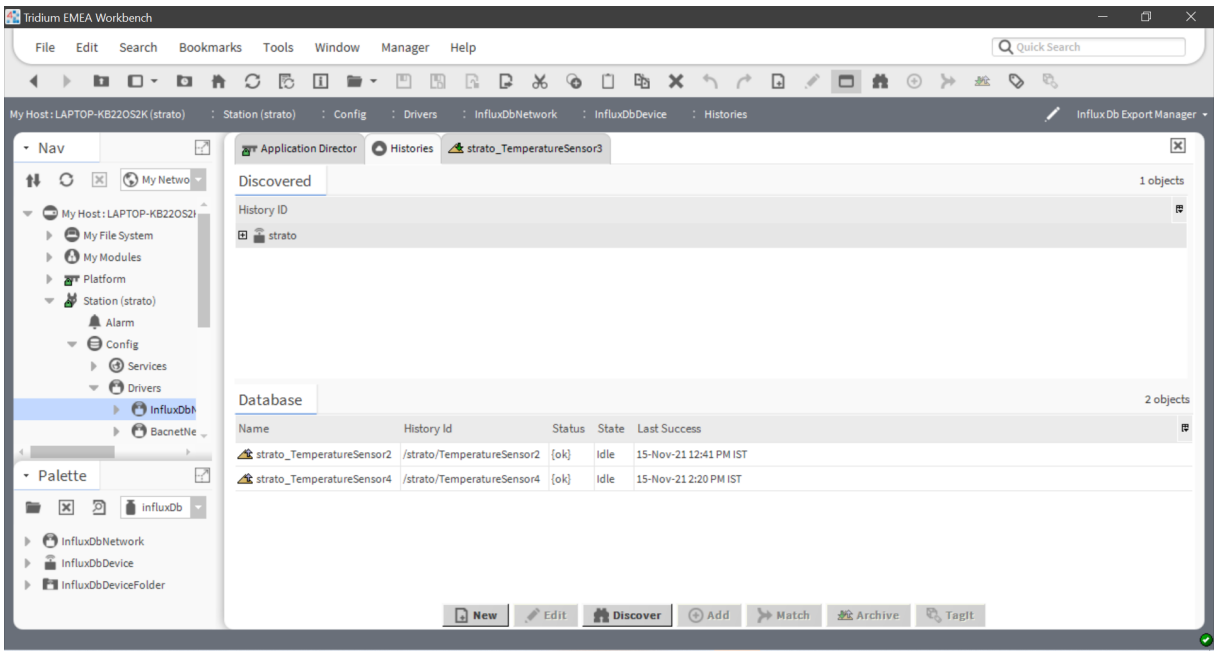


5. The **Status** and **Fault Cause** properties of the import surface any runtime errors (auth, network, query failures).

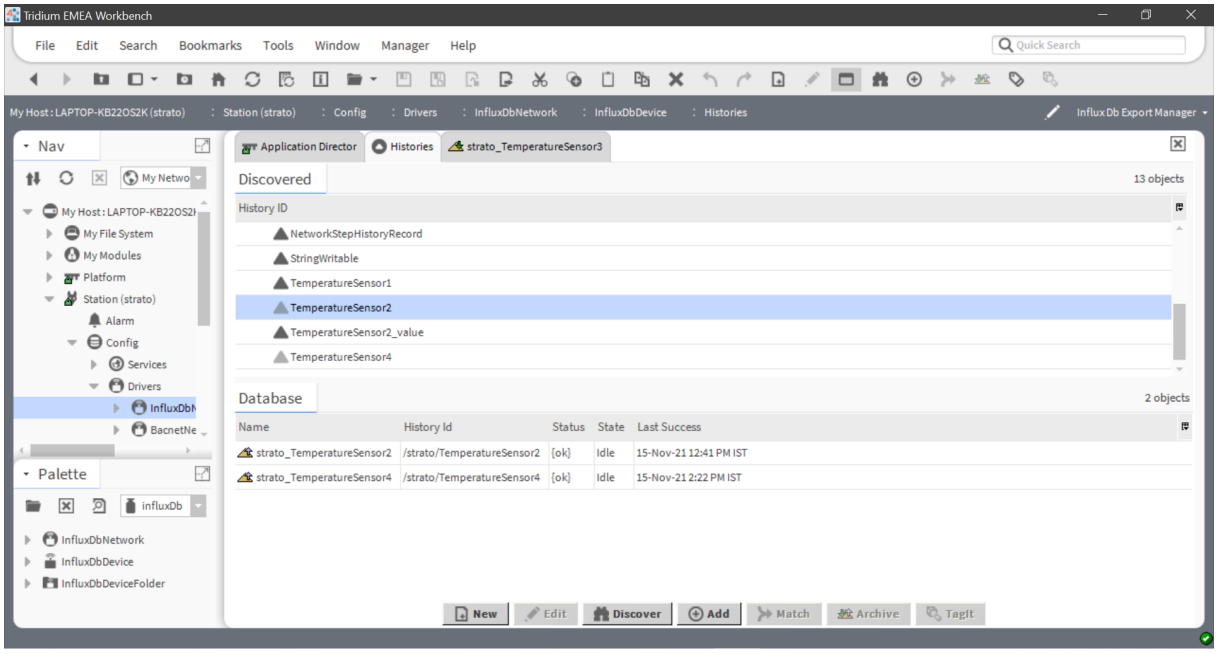
9 Export Histories

The export flow takes a local Niagara history and writes its records into InfluxDB.

1. Open the device's **Histories** extension. The header should read **Influx Export Manager** (v2) or **Influx V3 Export Manager** (v3).
2. Press **Discover** – the manager lists the station's local Niagara history database.

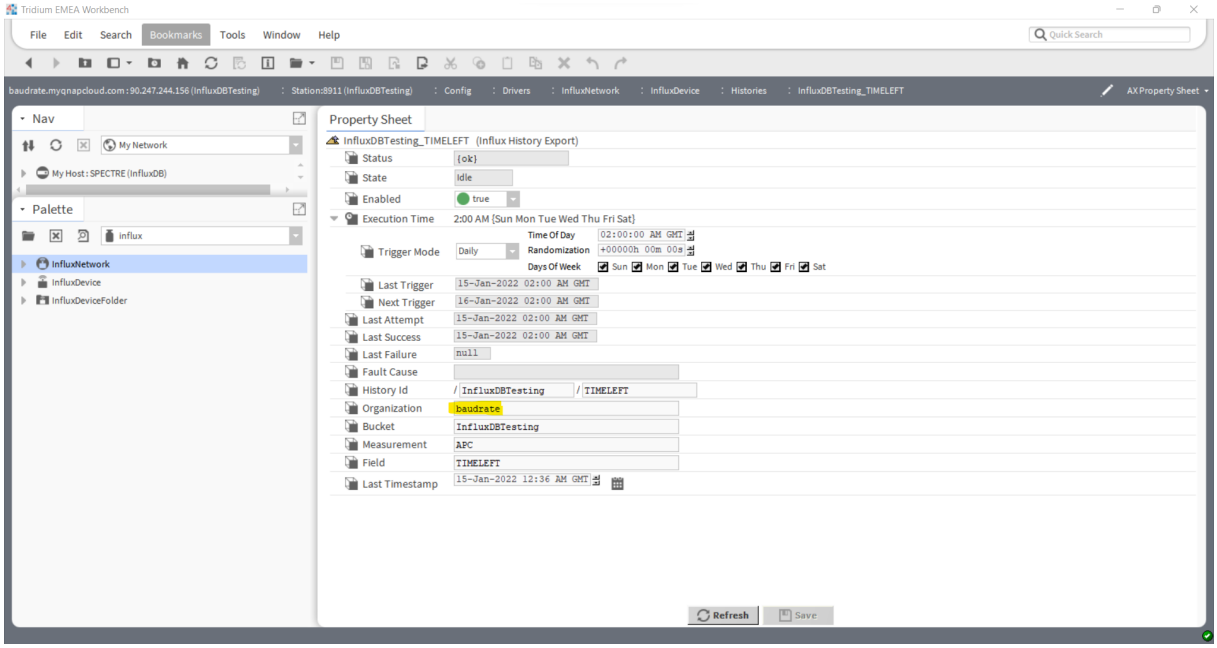


3. Expand the tree to find the history you want to export.

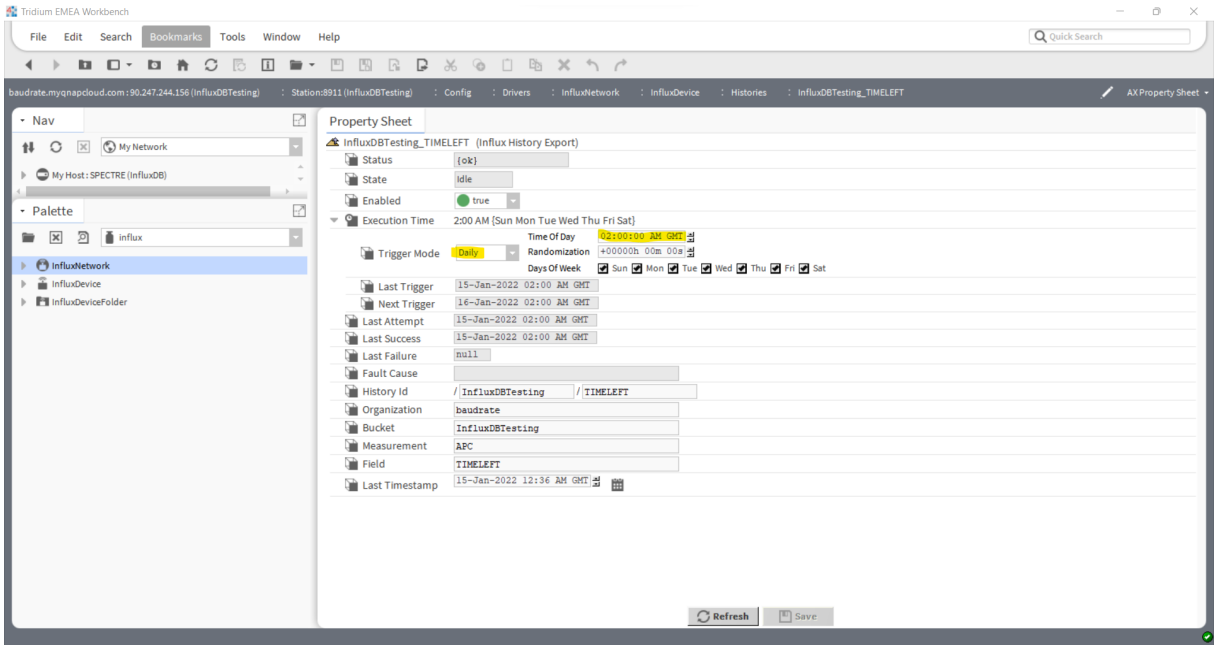


4. Press **Add** (or drag the history onto the manager table). The driver auto-populates the **Measurement** and **Field** properties from the dropped history's device name and history display name. You still need to fill in:

- **v2**: **Organization** and **Bucket** – these must already exist in InfluxDB.
- **v3**: **Database** – must already exist.



5. Set the export interval and other behaviour via the standard Niagara export properties.



10 FAQ

10.1 Device shows fault: “organization name not found” (v2)

The **Organization** value on the export does not match an organization in the InfluxDB instance. v2 organizations are created during initial InfluxDB setup (via `influx setup` or the web UI). Fix the value on the export to match exactly – it is case-sensitive.

10.2 Device shows 401 Unauthorized

The API token is missing, expired, or does not have permission on the target bucket/database. Generate a new token with All Access (or at least read+write on the specific bucket/database) and paste it into the device’s **Token** property.

10.3 Device shows 400 “Authorization header was malformed”

This happens when an InfluxDB v3 instance running with `--without-auth` receives a malformed `Authorization` header. The driver omits the header entirely when the **Token** property is empty, so the fix is to leave **Token** blank for unauthenticated test instances.

10.4 Discovery hangs or returns nothing

- Verify the device status is **ok**. If not, ping it.
- Check that the token has read access (v2: org-level; v3: database-level).
- For v3, confirm the instance has at least one database with at least one measurement and one field. The driver enumerates all three levels via `SHOW DATABASES`, `SHOW MEASUREMENTS`, and `SHOW FIELD KEYS` over `/api/v3/query_influxql`.

10.5 Import points have empty value or wrong timestamps (v3)

The driver parses ISO 8601 timestamps both with and without the Z suffix (v3 returns them without Z) and falls back to nanosecond epoch numbers. If you still see “Could not parse timestamp” warnings in the station log, capture the raw timestamp string from the trace log and report it – the parser may need an extra format.

10.6 Export adds rows but reads back empty in InfluxDB

- Confirm the measurement and field names on the export match what you query against in InfluxDB.
- For v3 the precision is milliseconds (`precision=ms`); a query that expects nanoseconds will appear "empty" because of unit mismatch.
- Check the v2 organization/bucket on the export are the ones you are querying.

10.7 Both v2 and v3 manager views show up on a v3 device

Because the v3 history extension inherits from the v2 one, Niagara lists both the v2 and v3 managers as valid agents. The **Influx V3 Import Manager** and **Influx V3 Export Manager** are marked as the preferred default view on v3 components, so a double-click opens the v3 manager. The v2 entries remain available in the Views menu but do not need to be used.