# IoTWorX – Hyper Collector

**Description:** This document describes IoTWorX™ Hyper Collector and how to configure it.

**General Requirements:**
- An IoTWorX project set up in Workbench (see *IoTWorX – Quick Start*) and a provisioned edge device.
- Some examples use the Visualizer module. For these examples, make sure the Visualizer module is deployed (see the "Deploying ICONICS Modules to the Device" section of *IoTWorX – Quick Start*).

## Introduction

The IoTWorX Hyper Collector allows users to buffer data locally on their IoTWorX devices and optionally send that data to a server running in the cloud, either via an IoT Hub or direct connection.

## Configuring the Logger and Publish List

1) In **Workbench**, expand your IoT project > **Device Templates** > **Default Template** > **Internet of Things**.
2) In the **Loggers** folder, add a new logger.
3) Give the logger a name.
4) Configure the settings for the buffered data. The default values indicate a week's worth of data will be kept as long as the max total size of 10240 MB is not exceeded. Once the storage limits have been met, the oldest storage would be removed until the limit is reached.
5) Apply the changes.
6) Edit your publish list.
7) On the **General** tab, choose the logger you created as the **Default Logger**.
8) Go to the **Published Points** tab.
9) Add a new point to your publish list.
10) Give the new point a **Publish Name**. (For example, **ramp2**.)
11) For the new point, enable **Local Buffering and HDA** and **Cloud Buffering and HDA**.

   Note: **Local Buffering and HDA** makes the historical data available locally on the edge device. **Cloud Buffering and HDA** makes the historical data available to external servers connected via the cloud. Local buffering must be enabled to allow cloud buffering.

12) Apply the changes.

## Setting Up Data Communication

There are two ways to send historical data from the edge device to the ICONICS server, using the Azure IoT Hub or FrameWorX communication.

The next sections will describe how to configure each of these connections and give you some factors to consider when choosing one for your project. For demonstration purposes you can follow the examples in one or both sections, but a real project will likely use just one connection type for historical data.

### Platform Services Connection

A Platform Services connection uses direct FrameWorX communication and bypasses the Azure IoT Hub. This communication method may be less expensive, since it doesn't use any IoT Hub messages, but requires the FrameWorX communication port (usually 8778) to be opened on the subscriber side.

1) In **Workbench**, expand your IoT project > **Device Templates** > **Default Template** > **Internet of Things**.
2) In the **Publisher Connections** folder, create a new publisher connection.
3) Give it a name (for example, **HistoricalPlatformServices**).
4) Set the **Connection Type** to **Platform Services**.
5) For **Publish List**, choose the publish list we were working with in the "Configuring the Logger and Publish List" section.
6) In the **Platform Services Setting** section, set **Publish Machine Name** to the DNS name or IP address of the Hyper Historian where the collected data will be sent.
7) Apply the changes.
8) Expand **Internet of Things** > **Nodes**.
9) Open the **Publish Nodes** form.
10) Add a new entry and associate this new connection with your device. (Make sure not to change the existing entry for your device. We will use the Edge Hub connection in the next section if we are configuring an Edge Hub connection as well.)
11) Apply the changes.
12) Expand your local (non-IoT) project > **Historical Data** > **Hyper Historian** > **Data Collections**.
13) Create a folder with the same name as the Platform Services connection in the IoT project (for example, **HistoricalPlatformServices**).
14) Add a new point to this folder.

15) Set this point's **Name** to be the **Publish Name** of one of your published points (for example, **ramp2**).

> **Note**: You can use "." or "/" characters in the publish name of points in your in Publish List of IoT project to match folders in your Hyper Historian Data Collections tree. For instance, a tag with a publish name of "building1.room2.temp3" or "building1/room2/temp3" using the "mypub" publisher connection would match with a Hyper Historian tag named "temp3" in the Data Collections > mypub > building1 > room2 folder.

16) Uncheck the **Is Collected** checkbox
17) Apply your changes.
18) Start the Hyper Historian service if it's not already running.
19) Go to your IoT project.
20) Right-click your device and select **Deploy Device(s) Configuration**.
21) Open a web browser.
22) Browse to the landing page for the device (http://*IPaddressOfDevice*).
23) Click the link to launch the **Visualizer**.
24) In the **Tag Browser**, browse to **Home** > **IoT Publisher** > **Buffered Data** > *your publish list*. There you will see your buffered tag listed.
25) Drag your tag into the main dashboard. You will see a **Trend Viewer** widget is automatically created and the buffered data is shown.
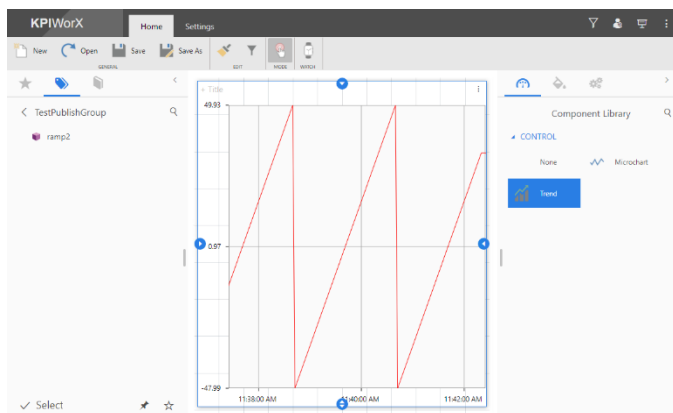


26) You can use a **TrendWorX64 Viewer** in **GraphWorX64** on your Hyper Historian machine to confirm that the data is being logged there as well.
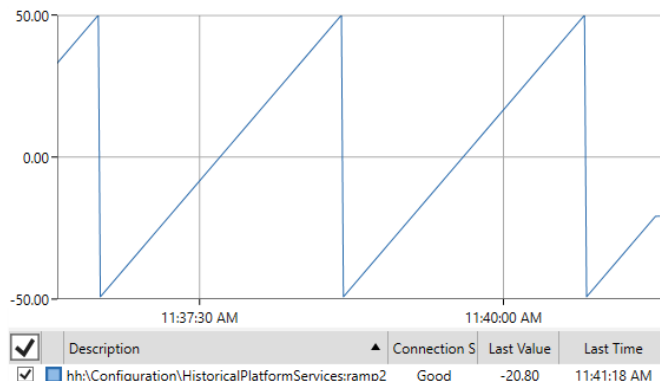


## Azure Edge Hub Connection

An Azure Edge Hub connection uses the IoT Hub. This method will send messages to the IoT Hub and could increase the cost of your hub; however, it doesn't require any additional ports to be opened on the subscriber side. Also, there isn't a need to manually define each tag in the Hyper Historian configuration as there is with the Platform Services connection.

1) In **Workbench**, expand your IoT project > **Device Templates** > **Default Template** > **Internet of Things** > **Publisher Connections**.
2) Edit your existing publisher connection, which should have a **Connection Type** of **Azure Edge Hub**.
3) For **Publish List**, choose the publish list we were working with in the "Configuring the Logger and Publish List" section.
4) Apply the changes.
5) Right-click your device and select **Deploy Device(s) Configuration**.
6) Expand your local (non-IoT) project > **Internet of Things**.
7) In the **Loggers** folder, create a new logger.
8) Give the logger a name.
9) Enable **The logger is used by all subscriber connection to retrieve the collected data**.
10) Apply the changes.
11) Expand **Internet of Things** > **Subscriber Connections**.
12) Edit your existing subscriber connection.
13) Enable **Collect the logged data retrieved with this subscription**.
14) Apply the changes.
15) The IoT subscriber can now process the buffered data. To see this in action, open **Data Explorer**.
16) Browse to **Internet of Things** > *your subscription name* > *your device name* > **Buffered Data**.

17) Select one of the points. You'll see a Trend Viewer populated that contains the buffered data for that point.
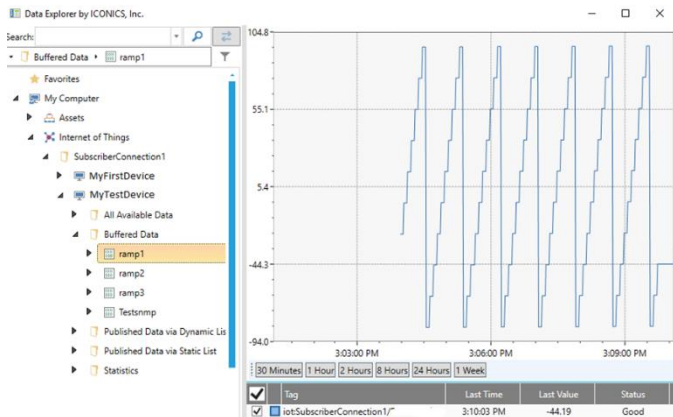


18) We can also store this logged data into Hyper Historian. To do so, expand your local (non-IoT) project > **Historical Data** > **Hyper Historian** > *your logger*.

19) Under your logger, in your logging group, create a new **Merge Group**.

20) Configure the **Synchronization Trigger** section. This trigger will determine how often you want the data to be merged from the IoT Subscriber into the Hyper Historian.

21) Expand **Historical Data** > **Hyper Historian**.

22) Right click on **Data Collections** and choose **Merge Another Historian**.

   **Note**: The "Merge Another Historian" action will automatically generate tags in the Hyper Historian configuration.

23) Click the browse button next to the **Source Historian Folder** field.

24) In the **data browser**, browse to **My Computer** > **Internet of Things** > **Subscriber Connections** > *your subscriber connection* > *the device you want to merge*, then click **OK**.

25) For **Merge Group**, select the merge group created earlier.

26) Select **Start Merging**.
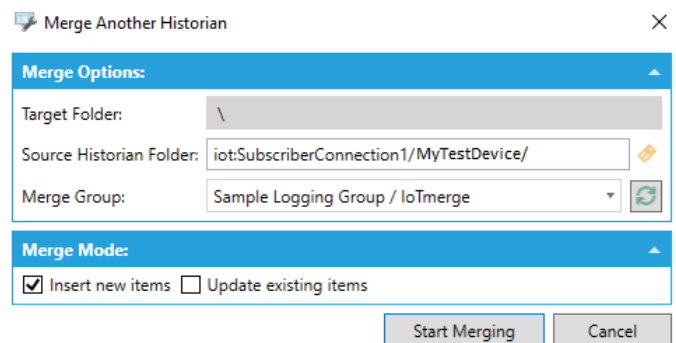


27) A task to add the tags will be automatically added. Once it is complete, you will see that the tags have automatically been added to the Hyper Historian configuration. To see the historical data, you can again use **Data Explorer**. Browse to the tags **My Computer** > **Historical Data** > **Hyper Historian** > **Configuration** and see a trend viewer populate with the buffered data.