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Internet of Things (IoT)

Visualize Historian Device Data in Watson IoT Platform

Visualizing the device data stored in Historical Data Storage using Line Chart Cards in a dashboard

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Overview

Skill Level: Intermediate

Recipe describes about the steps needed to visualize the device data stored in Cloudant NoSQL I
Storage on the Watson IoT Platform Dashboard using Line Chart Cards.

Ingredients

Software Requirements:

- Bluemix Acoount

- IBM Watson IoT Service on Bluemix

- Cloudant NoSQL DB Service on Bluemix

- Configure Cloudant NoSQL DB as Historian Data Storage for IBM Watson IoT

Step-by-step

1   Introduction

This recipe is continuation of recipes on Cloudant NoSQL DB as Historian Data Storage for I

To know about:

- Device Data Stograge details in Cloudant NoSQL DB

- Configuring Cloudant NoSQL DB as Historical Data Storage for IBM Watson IoT Platform
Refer to the recipe – Configure Cloudant NoSQL DB as Historian Data Storage for IBM Wats

To know about:

- How Cloudant NoSQL DB stores device data in different databases

- Different Map Views available for users to query the device data stored in Cloudant NoS

- Sample query statements using cURL

- Sample query code in Python

- How to retrieve device data from multiple Cloudant NoSQL databases
Refer to next recipe on this series – Query and Process Watson IoT Device Data from Cloud

In the Part-III of this series, we are going to describe about the steps required to visualiz
Cloudant NoSQL DB as Historical Data Storage on the Watson IoT Platform Dashboard usin

2   Before Proceeding Further

Before going to use Line Chart Cards from Watson IoT Platform Dashboard, we need to hav

- • Configure Cloudant NoSQL DB as Watson IoT Platform Historian Data Storage.
     The IoT Recipe discussed here, makes use of the *Create Toolchain* button to h
     services on to Bluemix. Click on the *Create Toolchain* button provided below, prov
     application and choose to click on Create button, to quickly deploy the Watson IoT
     (and Node-RED application on top of it) and Cloudant NoSQL DB, as part of the
     successful deployment, you shall have all three of the above mentioned servi
     Bluemix environment.

     Create toolchain
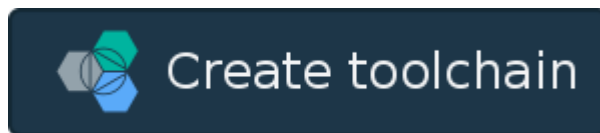
     Note: If you are a *User* using the **United Kingdom Region** in your Bluemix environmen
     the steps mentioned in the IoT Recipe *Deploy Internet of Things Platform Starter ser*
     the setup. Alternatively, you can also try using the *Deploy to Bluemix* button, to de
     United Kingdom Region, provided your *Jazzhub account is validated*. **Users of US So**
     step.

     Deploy to Bluemix

- • Send some device data on to IBM Watson IoT Platform following the steps described
     Data in Watson IoT Platform.

- • Connect to IBM Watson IoT Platform and keep sending device events in real time till v
     between Line Chart Cards and Cloudant NoSQL DB Instance to visualize device data on

3   Line Chart Cards to display Historian data

We can link between line chart cards and the device data stored in Cloudant NoSQL D
displayed on Watson IoT Platform dashboard using Boards.

Open the Bluemix Dashboard and click on the Application service that you have currently
Toolchain button), if you have already moved away from it. You should see the Watson Io
Connections. Click on the WIoTP service and choose the click on Launch button to launch t

To know complete details about how to use Boards and different types of cards su

Configuring Boards & Cards in the new Watson IoT Dashboard.

Storage for Watson IoT Platform and display using Line Chart Cards. To proceed, we

connected on Watson IoT Platform for which we have already configured Cloudant NoSQL

Data Storage and keep sending device data in real time till we complete the linking betwee

Line Chart Card:

- • From Watson IoT Platform Navigation window, select Boards and click on Create New E
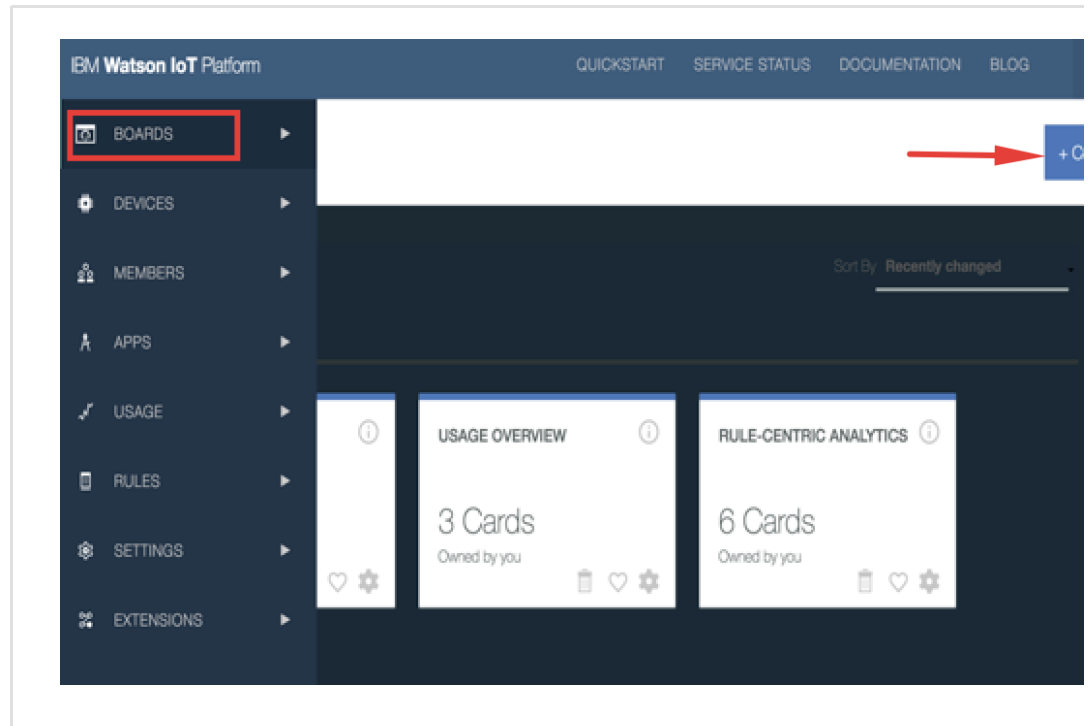
- • Fill in the information about new board and click next:
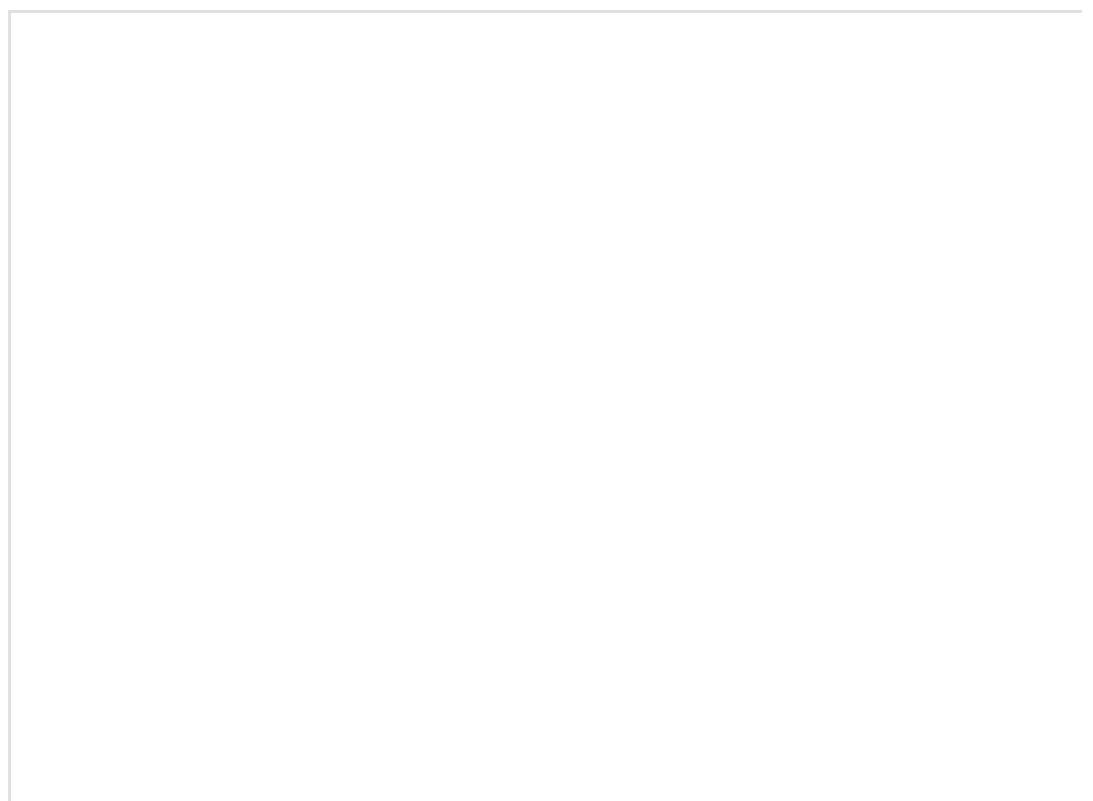
Information

Create a new board

Provide a name and description for your new board.

Back

Historian Data for piCam-1

Description

Card to link between piCam-1 Historian Data and Line Char

☑ Make this board my landing page.

☑ Favorite (this also adds this board to your navbar)

→

- Add any members to access the card and click create:

Information

Members

Create a new board

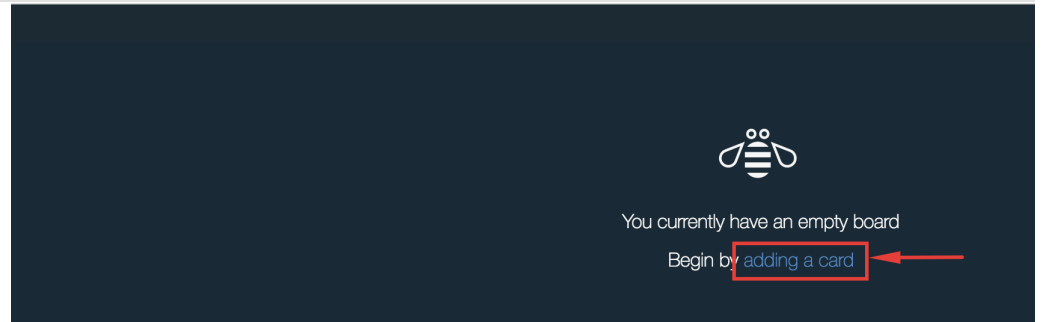Adding viewers allows them to see your dashboard.

Owner

▬▬▬▬▬▬▬▬ (YOU)

Members
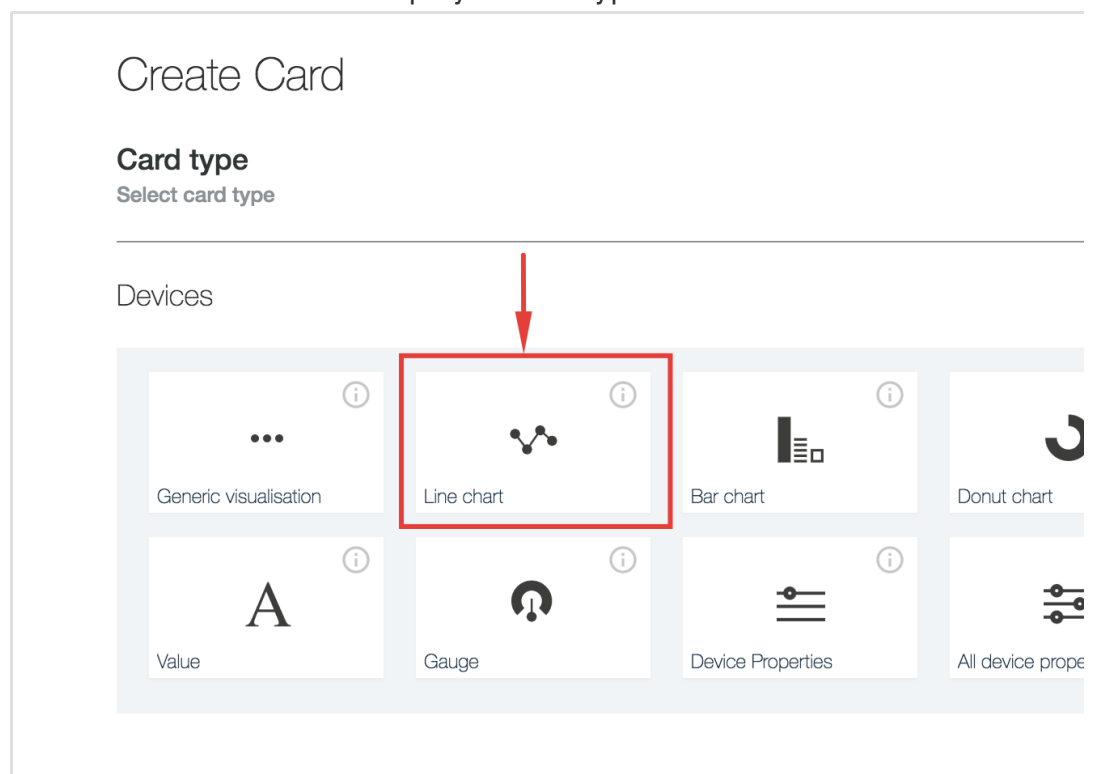
☑ Share as read-only with everyone?

+ add user ID

Name

Back

- ■ • Click on newly created board and select Add New Card:

You currently have an empty board

Begin by adding a card

- ■ • Select Line Chart from the list of the displayed card types:

Create Card

Card type
Select card type

Devices

Generic visualisation

Line chart

Bar chart

Donut chart

Value

Gauge

Device Properties

All device prope

- ■ • From the displayed devices list, select the required one (In our, we are selecting piCam

Create Line chart Card

Card source data

Card preview

Card information

Devices

Search for data sources using the filter

	Device ID	Device Type
○	piCam-3	elevator
○	egDevice	egType
○	piCam-2	elevator
○	piCam-4	elevator
○	RpiUno	attached
✓	piCam-1	elevator

- • Click on Connect New Data Set and fill in the required details, value type, min and max

Create Line chart Card

Card source data

　　piCam-1

Card preview

Card information

Connect data set

≡ value

Event
event

Property
value

Name
value

Type
Float

Unit

Precision
3

Back

- Card Preview window gets displayed. Select Settings and we should see configured Clo~~appear with in couple of seconds. Change the Window Size to required time say 24 Hou~~

- In the Card Information Window, provide the appropriate title to get displayed and sele~~scheme, click on Submit:

Card source data

piCam-1

Create Line chart Card

Enter title and description of the card

Card information

piCam-1 Device Data from Historian
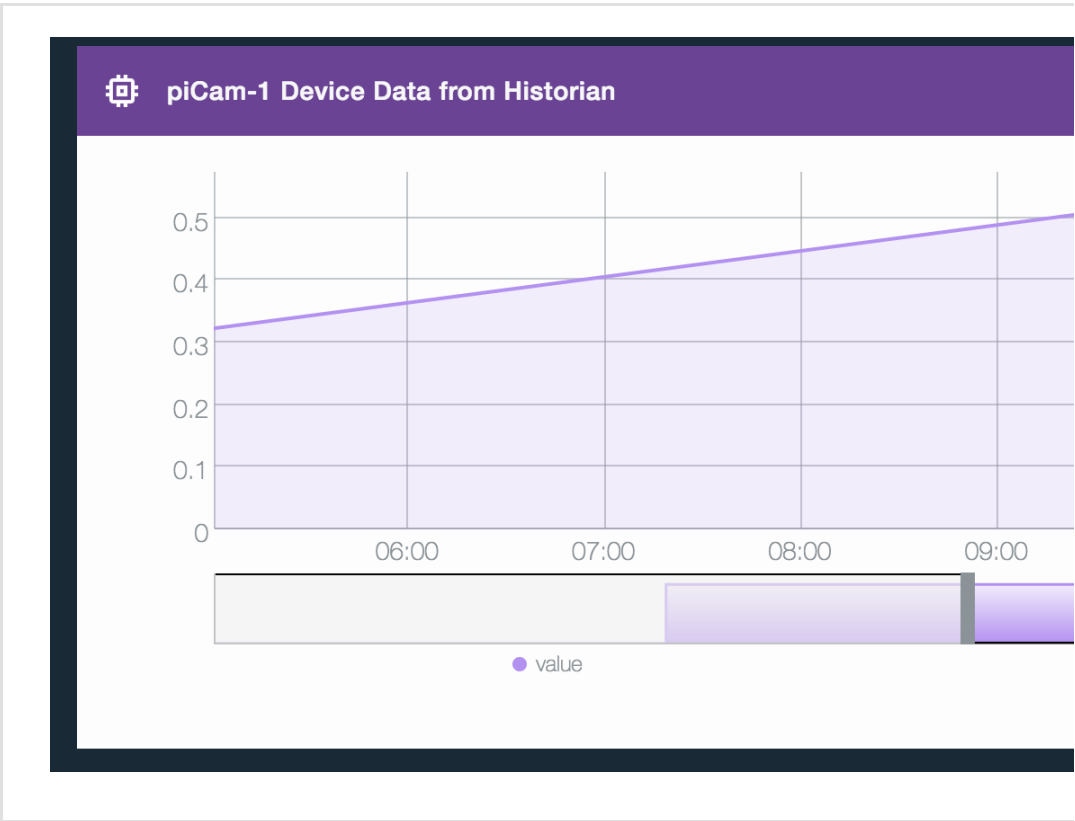
Color scheme

A line chart to display time series information with historic and live d

Back   S

- Now, we should be able to see the device data for the selected device sent to Cloudant
  card:

piCam-1 Device Data from Historian

0.5

0.4

0.3

0.2

0.1

0

        06:00   07:00   08:00   09:00

● value

Following the above given steps, we can add separate line chart cards for each of the devi
from Cloudant NoSQL DB and display using Line Chart cards on Watson IoT Platform dash

4   Conclusion & Next Steps

In this recipe, we have show cased the steps to:

- • Link between Cloudant NoSQL DB and Line Chart Card
- • Visualize the device data stored in Cloudant NoSQL DB on Watson IoT dashboard

Here are the links to other recipes of this series:

- • Configure Cloudant NoSQL DB as Historian Data Storage for IBM Watson IoT
- • Query and Process Watson IoT Device Data from Cloudant NoSQL DB

TAGS **#PYTHON,   ANALYTICS,   APPLICATION,   CLOUDANT DB,   CLOUDANT NOSQL,   CURL,   HISTORIAN,   HISTORIC,   IBM WATSON IOT**

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