

Table of Contents

Setup Your TIBCO Cloud Streaming & Visualisation Solutions	2
TIBCO Cloud Data Streams	2
Sign up for TIBCO Cloud Data Streams trial	2
Configure Cloud Data Streams to connect to TCM -eFTL	2
TIBCO Cloud Spotfire	12
Configure Cloud Spotfire Visualization	12

Setup Your TIBCO Cloud Streaming & Visualisation Solutions

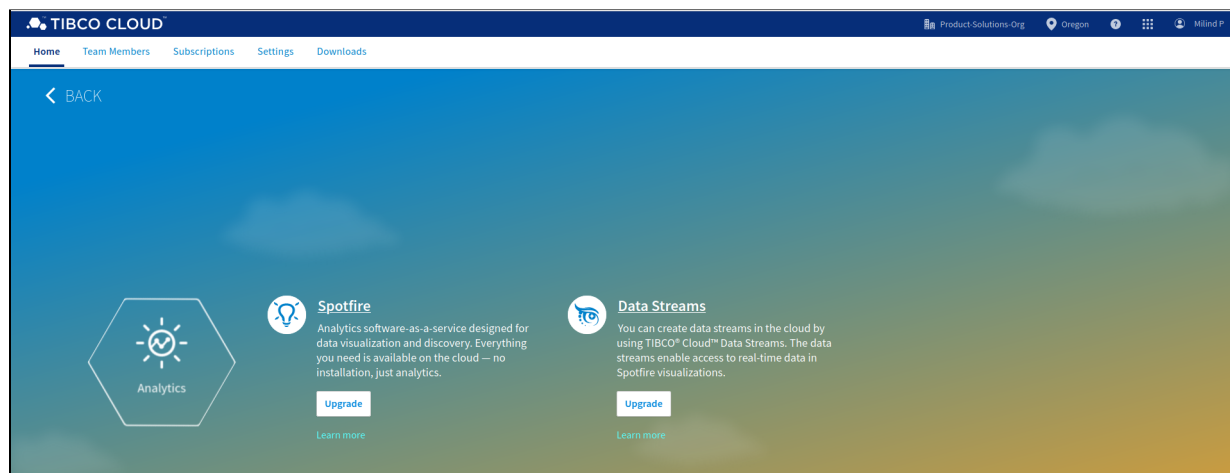
Here, we will go through steps that will demonstrate how users can quickly import and configure the outlined data streams and spotfire dashboard in the previous section.

TIBCO Cloud Data Streams

- ❑ **Sign up for TIBCO Cloud Data Streams trial**
 - ❑ TIBCO Cloud Data Streams software brings the power of real-time analytics to the cloud. It is TIBCO's zero-install, browser-based, cloud-based, wizard-driven, real-time streaming business intelligence (BI) and analytics platform.
 - ❑ You can try out TIBCO Cloud Data Streams for free for 30 days. With your trial, you get both TIBCO Cloud Data Streams and a TIBCO Cloud Spotfire trial. You can share your streaming analysis with your team as your free trial includes 2 Analyst, 2 Business Author, and 2 Consumer roles for TIBCO Spotfire.
 - ❑ Click here for more information:
<https://community.tibco.com/wiki/tibco-cloud-data-streams-trial-toolkit>

❑ Configure Cloud Data Streams to connect to TCM-eFTL

- ❑ Login to <https://account.cloud.tibco.com/>
- ❑ Select the Oregon Region and Organisation



❑ Click on Data Streams and that will take you to Data Streams page



- ❑ TIBCO Cloud Data Streams supports connecting to open source messaging frameworks like Kafka and MQTT. Here, we are going to use TIBCO Cloud Messaging as our streaming data source. Click on TIBCO

Cloud Messaging and continue.

Create new Data Stream

To get started, choose a data source.

TIBCO Cloud™ Messaging

Apache Kafka®

File (CSV)

MQ Telemetry Transport (MQTT)

Sample data sources

Sample: Race car data - Data Source: Apache Kafka®

Sample: OpenSky data - Data Source: Apache Kafka®
Powered by OpenSky from The OpenSky Network

Help

Continue

<< Create new Data Stream

Data Streams collect data from a supported streaming data source. If you are just getting started, consider trying out any available Sample data source.

Don't have a data source? Get started right away with TIBCO Cloud Messaging (TCM). (Find the Quick Start Guide [here](#).) Don't see the data source you're looking for? [Let us know](#)

Read more about TIBCO Cloud Data Streams [here](#).

- ❑ The wizard will automatically discover TCM channels that are running within the same region of your TIBCO Cloud account. If TIBCO Cloud Messaging is running in a different region then you need to click another channel and fill in the TCM channel URL and authentication key that is

provided during the configuration of TCM.

TIBCO Cloud™ Messaging - Connect to data source

Select channel

☒ Your organization's channels

eFTL_key

[Generate authentication key](#)

[Refresh list](#)

☐ Other channel

Enter channel URL

Authentication key

[Help](#)

[Back](#)

[Continue](#)

<< Connect to data source

Choose a channel and authentication key to connect your Data Stream to:

- If you have an existing TIBCO Cloud Messaging (TCM) channel, select it and the authentication key for your Data Stream to use.
- To generate a new key, click **Generate Authentication key** to do so at the TCM Authentication Keys page. You may use the same key for all Data Streams.
- To connect to a different channel using a URL, select **Other channel** and enter the channel URL and valid authentication key.

- ❑ We need to configure 2 Data Streams as below Content Matcher {"_dest":"SydneyBuses_NormalFeedStream"}. One Data Stream will be used to visualise Latest Data and another one will be used for historical

data. Time window will be 60 minutes. Click Continue.

TIBCO Cloud™ Messaging - Filter data source

Content Matcher Setting

To browse available data and create a content matcher with a wizard, click **Assist me**. Or enter the content matcher that defines data for the channel you're interested in.

Entering "{}" as the content matcher returns all the data.

Content matcher

{ "_dest": "SydneyBuses_NormalFeedStream" }

Assist me

e.g. - {"field": "value"}

Help

Back

Continue

<< Filter data source

Set up content matching for your Data Stream.

- Click **Assist me** to select from discovered fields and specify matching values. Matching messages are shown in a Preview area.
- Directly enter one or more {"field": "value"} pairs to match. Separate multiple pairs with commas: {"field1": "value1", "field2": "value2"}

Confirm that the content matcher selects only the data that you want to query for in your Data Stream. Memory requirements depend on the content you select and the data collection interval.

Read more about content matching [here](#).

❏ The schema will be automatically fetched. And click Continue

TIBCO Cloud™ Messaging - Define Data Stream

Select a data stream type and define the stream's schema

☒ Stream - Store every event in full ⓘ

☐ Latest - Maintain the latest values as events arrive using a specified primary key ⓘ

Table fields

Indexes

Reset schema

	Field name	Path	Type	Primary key
	EventID		long	1
⋮	v_id	v_id	string	X
⋮	delayStatus	delayStatus	string	X
⋮	trip_id	trip_id	string	X
⋮	route_id	route_id	string	X
⋮	congestion_level	congestion_level	string	X
⋮	bearing	bearing	double	X
⋮	latitude	latitude	double	X
⋮	schedule_relationship	schedule_relationship	string	X
⋮	speed	speed	double	X
⋮	start_time	start_time	string	X
⋮	occupancy_status	occupancy_status	string	X
⋮	v_timestamp	v_timestamp	string	X
⋮	longitude	longitude	double	X

+ Add new field

🗑 Delete all fields

Fields are mapped by name based on the data source. If you rename a discovered field, it no longer maps to its original field.

Define Data Stream

Use this page to configure the data schema and select the Data Stream type (Latest or Stream).

- A "Latest" Data Stream captures the latest event values for every unique primary key (that you configure). To select a field as part of the primary key, click in the Primary key column for the field. Click again to remove it from the key.
- A "Stream" Data Stream stores information for every event (the generated primary key guarantees every event is uniquely identifiable and ordered).

Help

Back

Continue

- ❑ You need to define the retention policy for the data stream and memory size, we need at least 512 MB to store the incoming data. Click Continue.

TIBCO Cloud™ Messaging - Define data retention policy

Define the data retention policy for the data stream.

☒ Store data based on time

☐ Store a specified number of events

☐ Retain all data ⓘ

Store data for

60

Minute(s)

Based on time field

☐ Select field from schema

No time fields available

☒ Create a new column with the arrival time for each event

EventTime

Size of in-memory data store: 512 MB ⓘ

☒ If the data store fills up, delete events based on when they arrived (oldest first)

[Help](#)

[Back](#)

[Continue](#)

<< Define data retention policy

Create a storage policy that determines what data to retain from the Data Stream.

Store data based on time

For a time-based policy, specify the storage interval and a time field. Select an existing time field from the data schema or create a new field that uses the arrival time for each event as its event time.

Store a specified number of events

For an event-count policy, all events are kept up to the specified number. When the maximum number of events is exceeded, older events are removed as newer ones come in. There is no time limit on the retained data.

Retain all data

For a keyed Data Stream, this option retains the latest value for all keyed events. The option shouldn't be used with a time series Data Stream, because retaining all data removes any limit on the volume of collected data.

Time field

Select a field to use as the basis of time passing, or elect to have a field created with the time of event arrival and use it.

Memory settings

Use the sliding control to allocate sufficient memory for data

- ❑ Provide meaningful name to Data Stream name and select the Authentication method (preferred TIBCO Cloud Authentication). Click

Continue.

TIBCO Cloud™ Messaging - General settings

Data stream name

NormalDataFeed_detail_clone

Authentication method

☒ TIBCO Cloud authentication

☐ Password protected

Enter a name to identify the Data Stream.

Choose an authentication option. If available, the public option allows anyone to access the Data Stream without authenticating. For a password protected policy, enter and confirm the password (some clients might prompt you for a username, in this case use 'user'). You can also use TIBCO Cloud™ Authentication, if available, to restrict access further.

Help

Back

Continue

9

- ❑ Final Step before your data stream gets ready for use. Click Finish.

TIBCO Cloud™ Messaging - Summary

<< Summary

Data source

Data source

Channel URL

Authentication key

Content matcher

TIBCO Cloud™ Messaging

wss://01esnqmrkq3kdr810wjmxcpzw-apps.messaging.cloud.tibco.com/channel

eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9.eyJnc2JjioiMDFFU05RTUtSUTNLRFI4MTBXSks1YUUNQWliclCjpYXQJOE2MTEtMDgslN1YiOiJJQ4MTNIYTE1YTktZTMQTQ5YWJmImVmlwNjBhYTZhbnVmlnOifjig-mXXNiDvDocOrthgqWmxIKIMjrYenuhAZblwZkKxZq9upHz9Mg_fVNnSH9EkOGgyNqbTJ-j-z-qazBgXhXWHXlvrm_otXDBUNNWlxGHvfFv4P-E-LeziGN3Btz4rr_QfZ6FSN8UF3k5Lkl_J0taRWByBrnz49yoJ_r5FOXaJEE9nKi4NPp5-W9tSWProD4_sETqqutIQMIJCtuwjl_g-2456jh_h1pBNA2L79Yex62QWo9CuDRuD_4imRI53o5b-PKUJUWZJPkuJZUI6NDxdmdXjfnnWelfnpog9XYTeITRNtcjgu4tlIRnaQHqMapQ3Ahy1wbVnNTBXHU2h_OMmM8g

{"_dest":"SydneyBuses_NormalFeedStream"}

Retention policy

Time window

60 minutes

Fields

v_id

delayStatus

trip_id

route_id

congestion_level

bearing

latitude

string

string

string

string

string

double

double

HelpBackFinish

- ❑ You will see live data coming through as shown below when you start the data stream.

Product Solutions-Org
Oregon
Milind P

Data Streams

Create new

Search for Data Streams

↓

DTVD_incidentDataStream

IncidentData

NormalDataFeed_detail

NormalDataFeed_detail_clone

NormalDataFeed_header

Start

Stop

Edit

Clone

Delete

Connection Info

General

Data Stream name

NormalDataFeed_detail

Authentication

TIBCO Cloud authentication

Created by

pvilena@tibco.com

Created time

16 days ago

Last modified by

pvilena@tibco.com

Last modified time

12 days ago

Status

Status

Running

Data Stream

Primary index

EventID

Retention policy

Time window

60 minutes

Data source

Data source

TIBCO Cloud™ Messaging

Channel URL

wss://01esnqmkrq3kdr810wjmqqcpow-apps.messaging.cloud.tibco.com/channel

Authentication key

eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJnc2JjIjo1

Data Stream preview

v_id	delayStatus	trip_id	route_id
38743_12589043_2435_T...	2	1304222	2435_T80
8896_122948360039_243...	1	1085391	2433_752
33553_20195360_2436_7...	2	1346604	2436_711
33553_20489698_2436_6...	1	1275669	2436_632
33553_20489423_2436_6...	1	1271430	2436_651
3936_267614_2453_24_1	2	1202486	2453_24
33553_20194835_2436_6...	2	1303805	2436_600
33553_20193849_2436_6...	1	1195848	2436_604
9578_278775175385_245...	1	909541	2458_90
8266_120433_2445_194_1	2	1213994	2445_194
8266_93229_2445_193_1	2	1144358	2445_193
3936_235588_2453_28_1	1	1293107	2453_28
38743_12588405_2435_8...	2	1141448	2435_804
38743_12588535_2435_8...	1	708241	2435_804
33553_20191087_2436_6...	1	1271117	2436_665
8266_348294_2445_280_1	2	1293777	2445_280
33553_20194262_2436_6...	1	1159248	2436_664
12534_116899790062_24...	1	950376	2452_5364
33553_20192262_2436_6...	1	1039601	2436_610X
10291_204722_2434_870...	1	1282932	2434_870

- ❑ Repeat above steps for NormalDataFeed_header data stream that will populate the latest stream of data in spotfire dashboard visualisation. Select **Latest** option on the Select data stream type and define the stream's Schema page. And Choose trip_id as a primary_key here.

Content matcher = {"_dest":"SydneyBuses_NormalFeedStream"}

- ❑ Repeat above steps for incident details data stream that will populate the incident details in spotfire dashboard visualisation.

Content matcher = {"_dest":"SydneyBuses_incidentStream"}

- ❑ You get final outcome something like below

The screenshot shows the TIBCO Cloud Data Streams console. On the left, a list of data streams includes 'IncidentData', which is highlighted. The main panel shows the configuration for 'IncidentData'. The status is 'Running'. The primary index is 'incident_id'. The retention policy is '30 minutes'. The data source is 'TIBCO Cloud Messaging'. The channel URL is 'wss://01esnqmrq3kdr110wjmegpzw-apps.messaging.cloud.tibco.com/channel'. The authentication key is a long alphanumeric string. The content matcher is set to {'_dest':'SydneyBuses_incidentStream'}. On the right, a 'Data Stream preview' table shows a list of incident records with columns: incident_id, alert_type, caseRef, and case_state.

incident_id	alert_type	caseRef	case_state
23537_3592870_2444_N3...	Alert_MEDICAL_EMERGEN...	4165281	Reported
23537_3592830_2444_N4...	Alert_MEDICAL_EMERGEN...	4165441	Reported
23537_3592772_2444_N4...	Alert_TECHNICAL_PROBL...	4165451	Reported
38743___T80_1	Alert_TECHNICAL_PROBL...	4165481	Reported
43054___420_1	Alert_MEDICAL_EMERGEN...	4165621	Reported
43054___618a_1	Alert_TECHNICAL_PROBL...	4165761	Reported
23537_841147_2442_M92...	Alert_TECHNICAL_PROBL...	4165821	Reported
23537_841596_2444_M90...	Alert_TECHNICAL_PROBL...	4165841	Reported
23537_842320_2444_907_1	Alert_ACCIDENT	4165851	Reported
23537_843700_2444_S1_1	Alert_TECHNICAL_PROBL...	4165871	Reported
23537_841815_2442_452_1	Alert_MEDICAL_EMERGEN...	4165881	Reported
23537_842967_2442_958_1	Alert_TECHNICAL_PROBL...	4165971	Reported
23537_843614_2442_975_1	Alert_TECHNICAL_PROBL...	4166181	Reported
11954___207_1	Alert_ACCIDENT	4166311	Reported
11954___100_1	Alert_TECHNICAL_PROBL...	4166521	Reported
11954___698w_1	Alert_ACCIDENT	4166781	Reported
38743___804_1	Alert_TECHNICAL_PROBL...	4166901	Reported
23537_843609_2442_975_1	Alert_MEDICAL_EMERGEN...	4166911	Reported
23537_842385_2444_908_1	Alert_ACCIDENT	4166941	Reported
23537_841502_2442_993_1	Alert_MEDICAL_EMERGEN...	4166951	Reported

TIBCO Cloud Spotfire

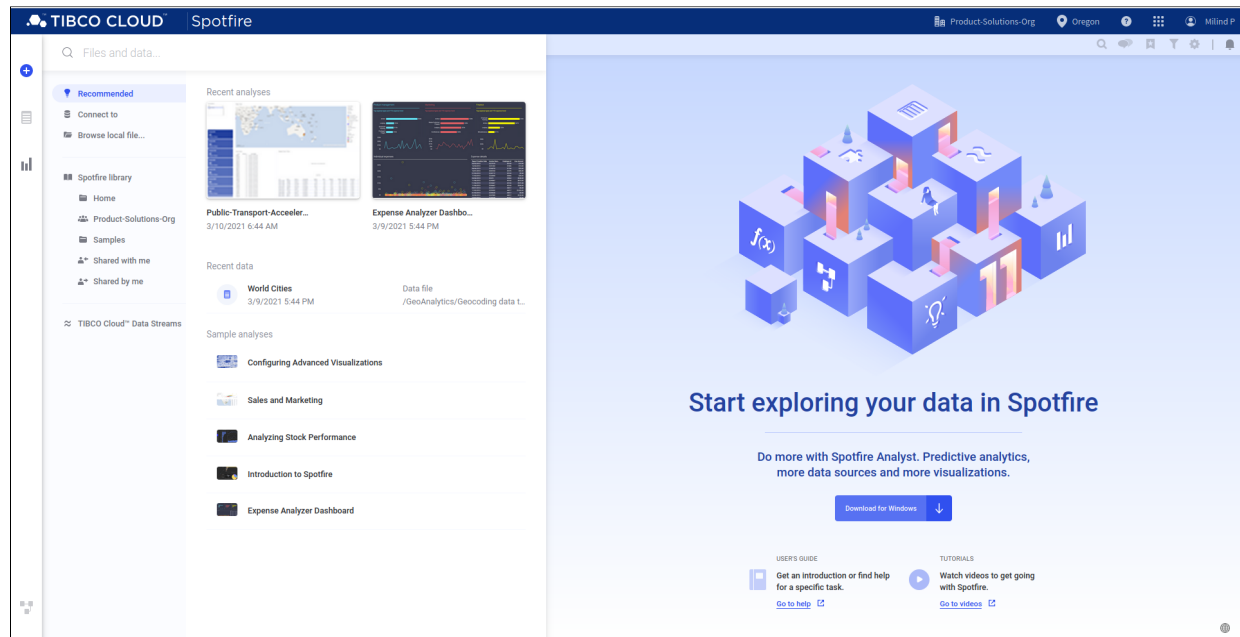
❑ Configure TIBCO Cloud Spotfire


The end result of the accelerator is to provide visualisation on the real time data that we have generated through different TIBCO Cloud products for running buses in Sydney.

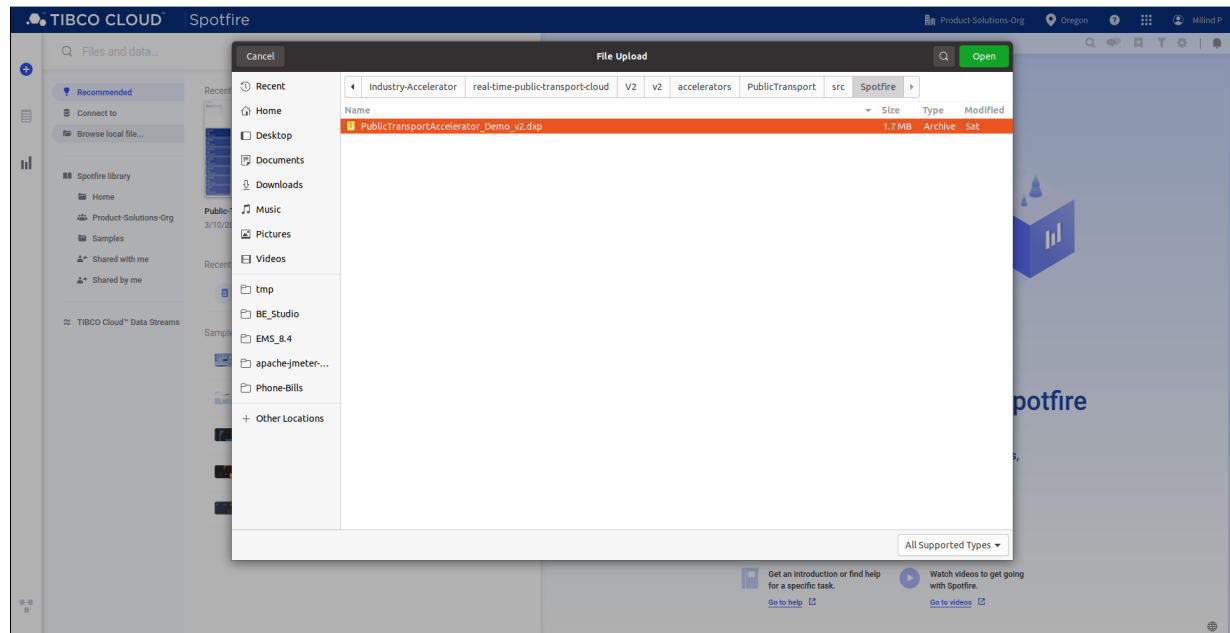
The spotfire dashboard is available under
~/.src/Spotfire/SmartTransportAccelerator_v2.dxp

To access the spotfire visualisation

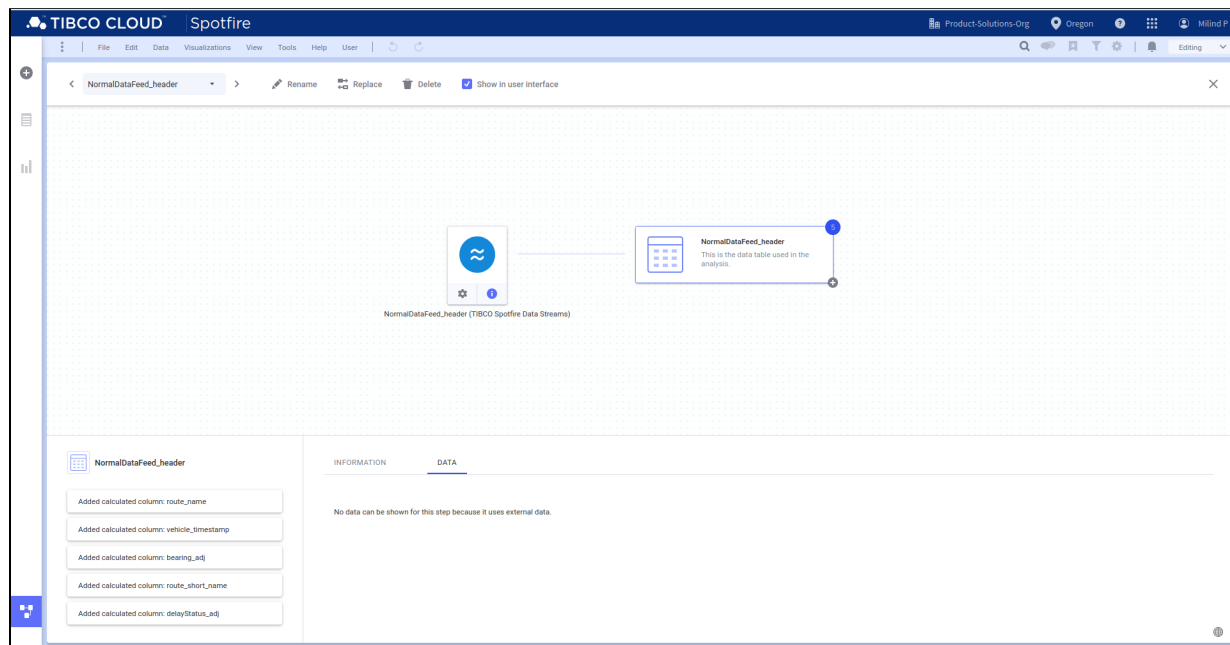
- ❑ Log on the TIBCO Cloud and select appropriate Organisation and region
- ❑ Select Analytics --> Spotfire --> This will open the cloud spotfire page



- ❑ You need to click on the  on the left side menu bar and select 'Browse local file...' and select the dashboard from the local file system.



- ❑ You need to configure the data streams for the dashboard to supply the data from the TCM-eFTL channel. Click on the Data Canvas on Left - Bottom corner of the dashboard.

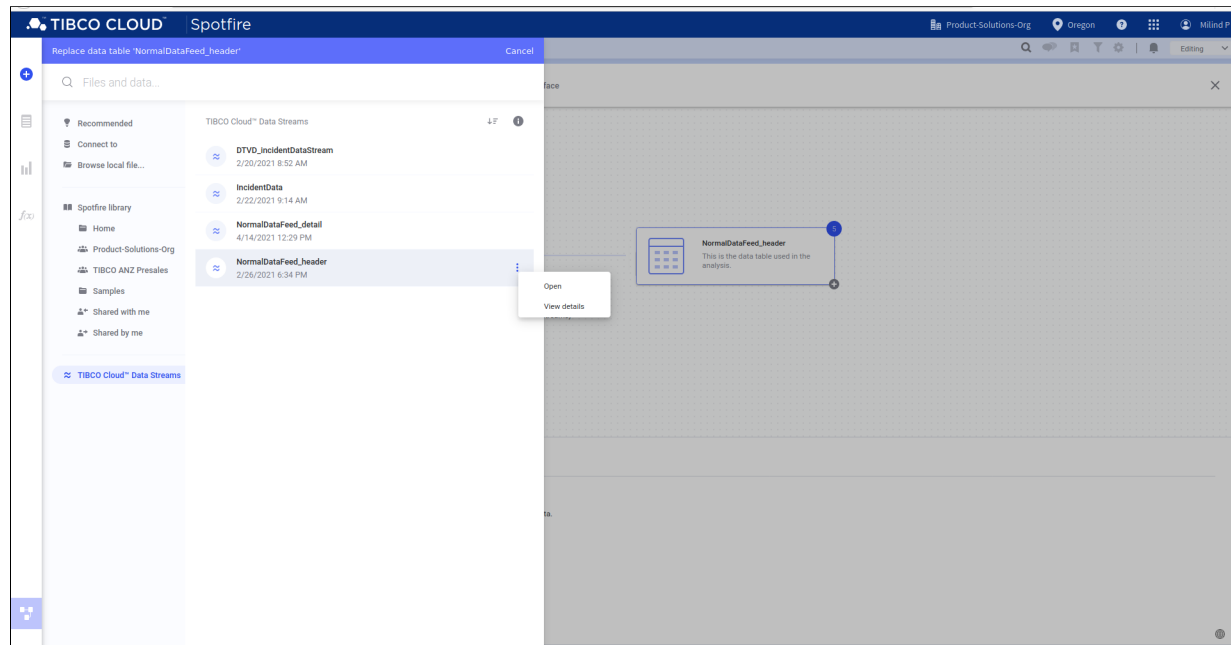
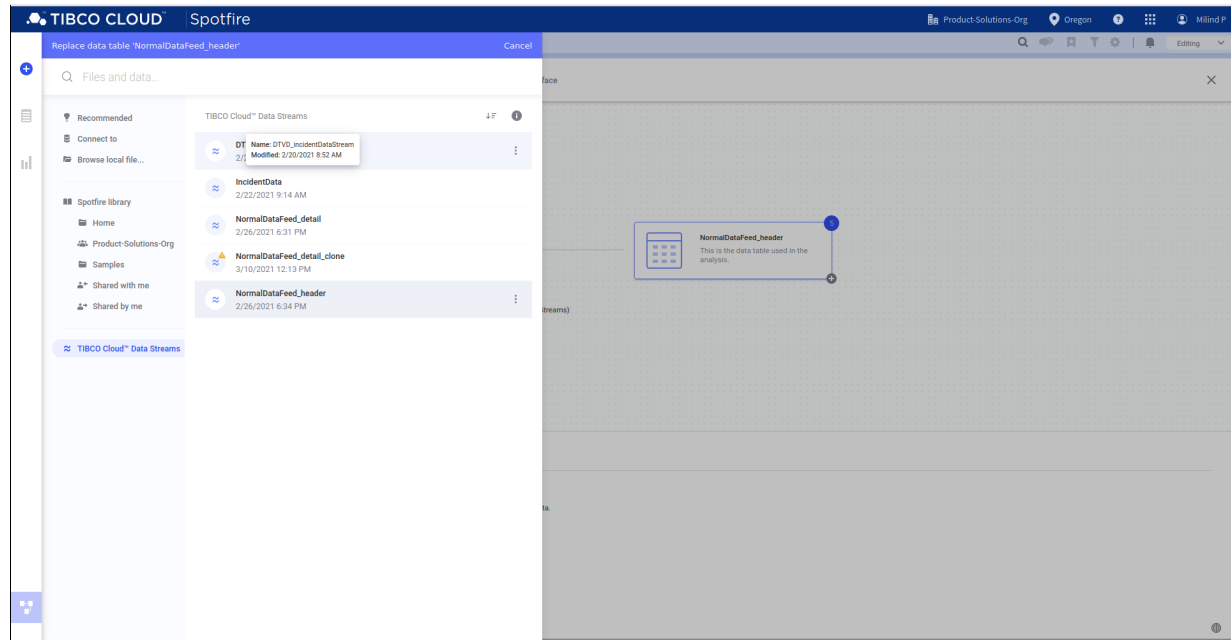


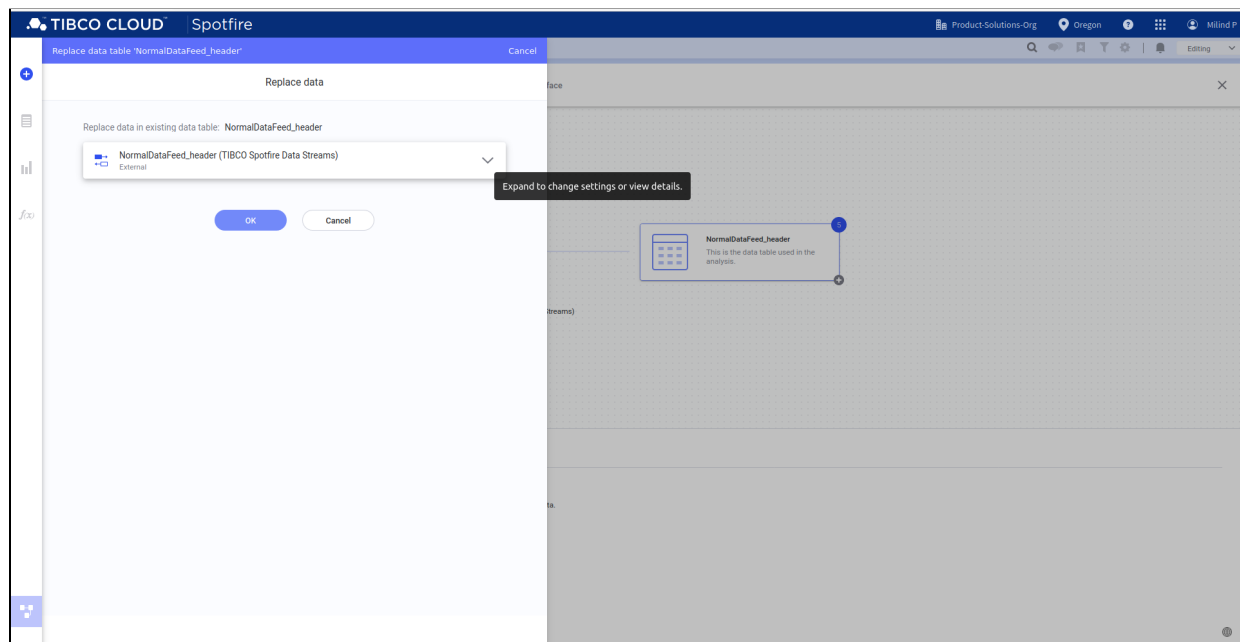
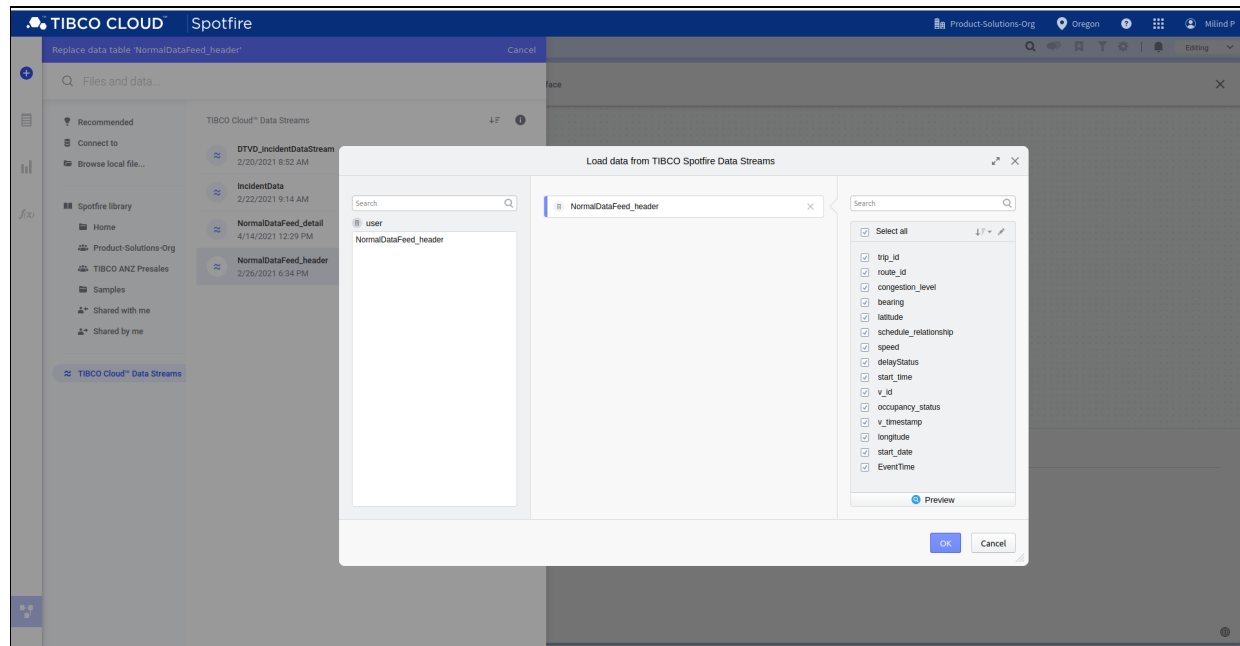


❑ Select the data stream from drop-down box and click on the

≈ TIBCO Cloud™ Data Streams

button and click on the and select appropriate data streams as shown in below snaps and click OK.





- ❑ Repeat the above process for all the TIBCO Cloud Data Streams that you have created in the first half.
- ❑ Once you configure all the TIBCO Cloud Data Streams for the dashboard then exit the mode.

- Now, you will be able to visualise the incoming data from TIBCO Cloud Datastream in TIBCO Cloud Spotfire.

