# Azure Discovery Days 2019

## Data Analytics & Near Real Time Intelligence with Azure - Hands-On Lab Guide

## Lab 4: Streaming Dashboard

### Summary

In this hands-on lab, you will:

1. Create an Azure Stream Analytics Job which will process the enriched stream emitted by the Azure Function you built in lab 3
2. Create Stream Analytics functionality to send specific events to a streaming dashboard in PowerBI.com (“hot path analytics”)
3. Create Stream Analytics functionality to send all events to the SQL database you created in lab 2 (“cold path analytics”)

### General Notes

Before starting this lab, please ensure you have completed the Power BI pre-requisite in Lab 0.

### References

* Azure Stream Analytics Documentation: <https://docs.microsoft.com/azure/stream-analytics/>
* Power BI Documentation: <https://docs.microsoft.com/power-bi/>
* Stream Analytics output to Power BI Dashboard: <https://docs.microsoft.com/azure/stream-analytics/stream-analytics-power-bi-dashboard>

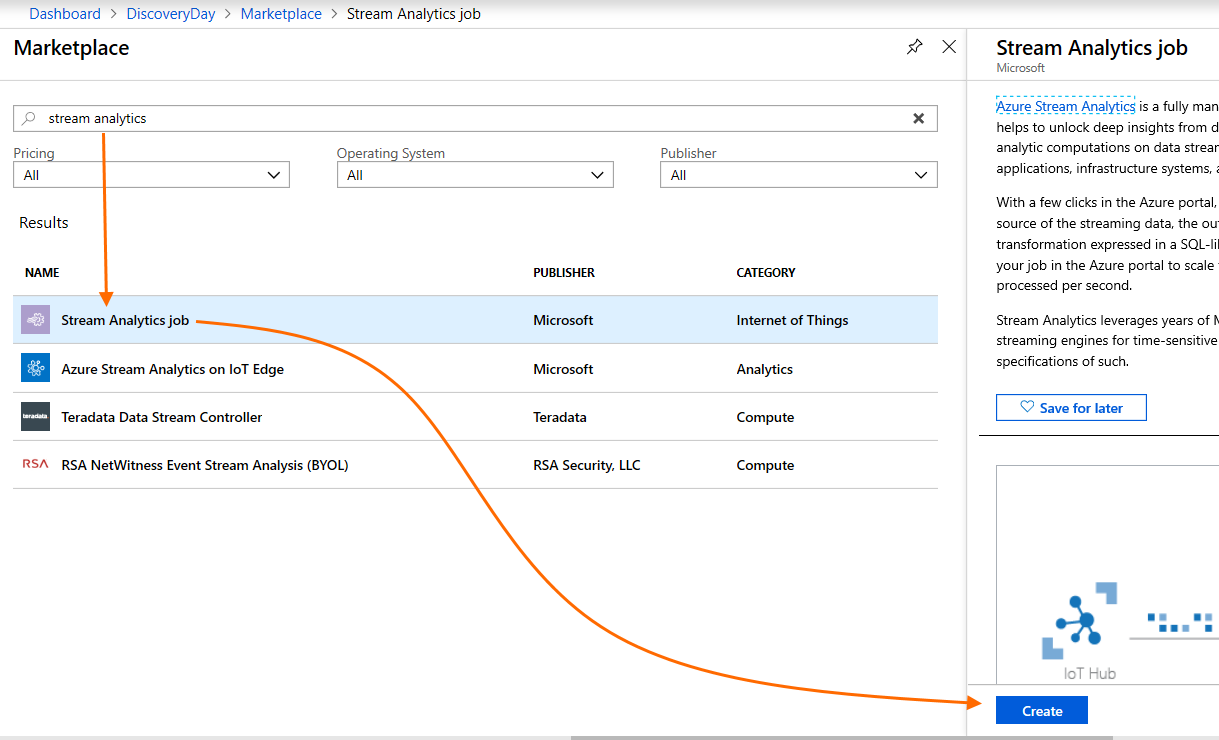
### Architecture for this Lab

The tasks in this lab cover the following components of the overall architecture.

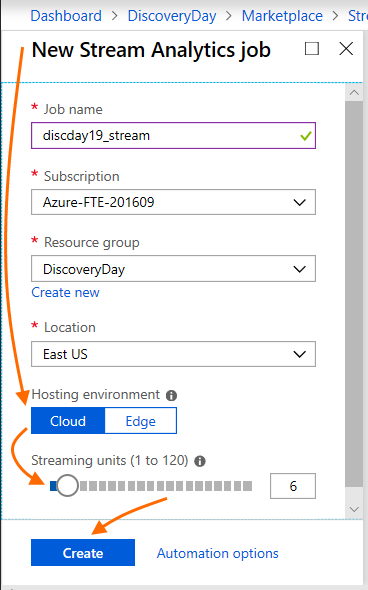


### Task 1 – Create an Azure Stream Analytics Job

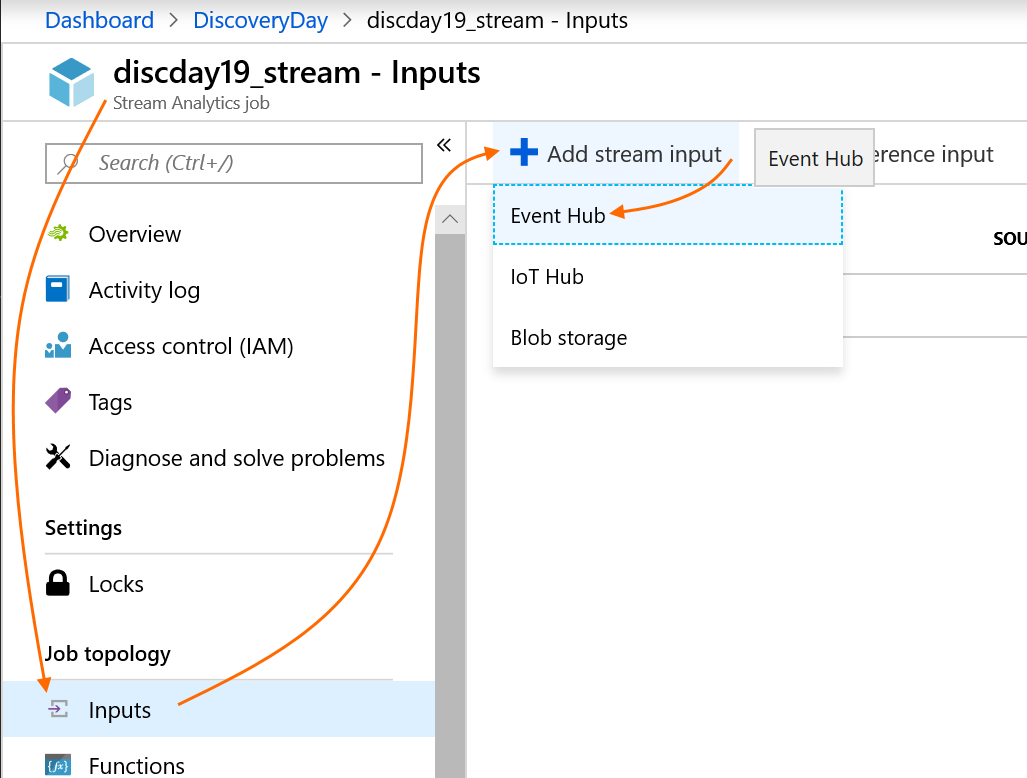
Start in your Resource Group in the Azure portal. As before, click “+ Add” to create a new Azure resource in your Resource Group. Type “stream analytics” in the search box, then click on the “Stream Analytics job” result. In the product blade, click “Create”.



Provide appropriate information to create the new Stream Analytics job. Ensure you are using the same Resource Group and Azure region as in previous labs and tasks. Ensure that “Hosting environment” is set to “Cloud”. Set a starting value for “Streaming units” to 6 (best practice for an initial setting per Azure Stream Analytics documentation; can be scaled as metrics/load indicate need). Then click “Create”, return to your Resource Group, and wait for deployment to finish.



After deployment of your Stream Analytics Job completes, click on its entry in your Resource Group. In the left nav bar, under “Job topology”, click “Inputs”. Next, in the main view, click “+ Add stream input”, then click “Event Hub”.

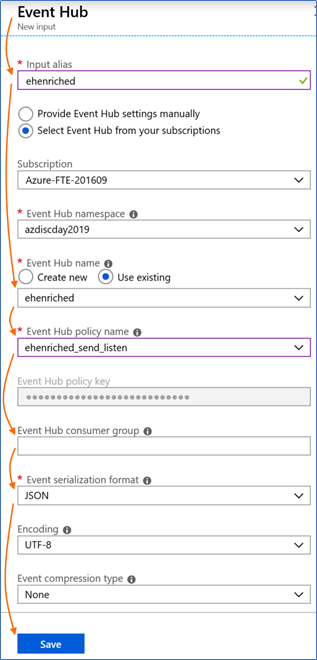


On the new input screen, provide the required information: provide an input alias (this is a name by which you will refer to this input in analytic queries you will write later in this lab). Confirm that “Select Event Hub from your subscriptions” is selected, and then ensure that all the following settings are correct.

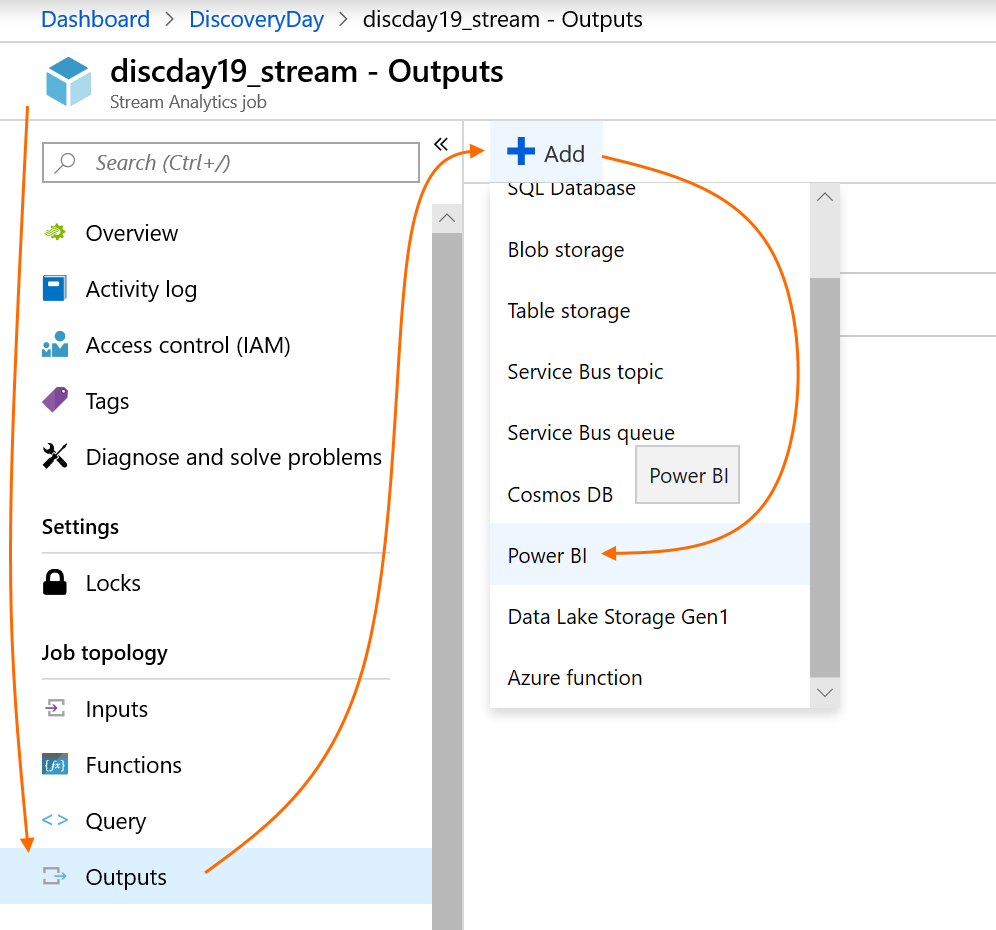
Ensure that you select the enriched Event Hub and the Send + Listen policy you created on the enriched Event Hub in lab 3.

You can leave “Event Hub consumer group” blank. The default (“$Default”) will be used. In environments with multiple listeners for an Event Hub, you would have created additional consumer groups per listener purpose in lab 3, but we will keep it simple in this case.

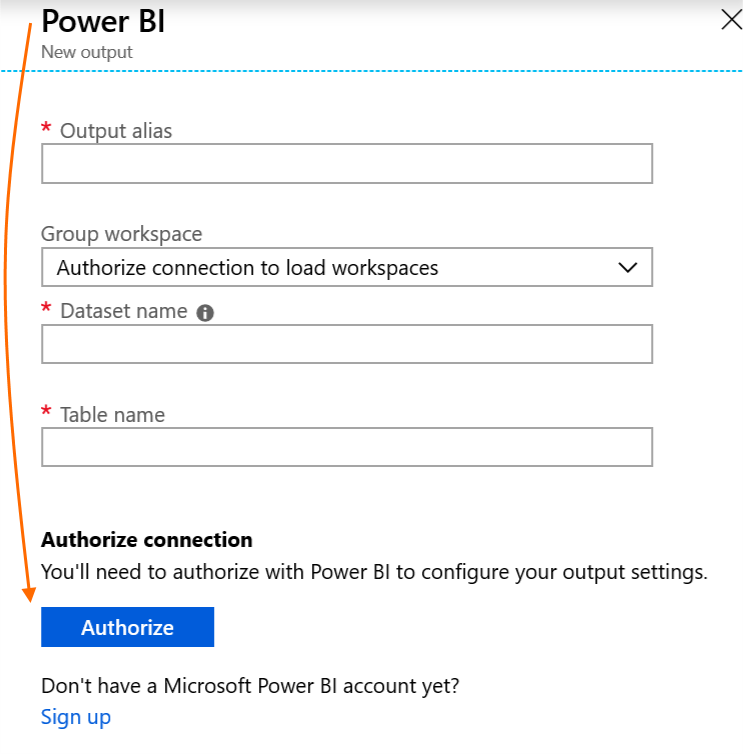
When you have specified all input information, click “Save” to start the creation of this input.



Next, in your Stream Analytics view left nav bar, again find “Job topology” and click “Outputs”. Next, click “+ Add”, then click on “Power BI”.



On the new output view, you will now need to authorize a connection to your PowerBI.com account, so that you can specify where Azure Stream Analytics should send enriched event messages. Click “Authorize”.



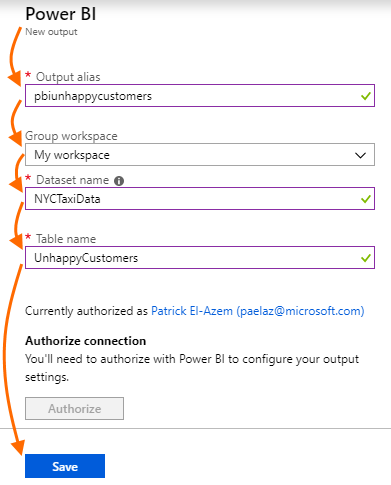
After you click “Authorize”, you will be asked to authenticate with credentials for PowerBI.com.

If you were given Azure credentials for this workshop and you logged into Azure with those credentials at the start of this event, please use those credentials now to authorize the connection to Power BI.

If you are using your own Azure credentials, note that this step requires you to have a valid PowerBI.com subscription. If you do not have one, please use the credentials you were given for the lab, or provision a free trial PowerBI.com subscription. Please see lab 0 for details.

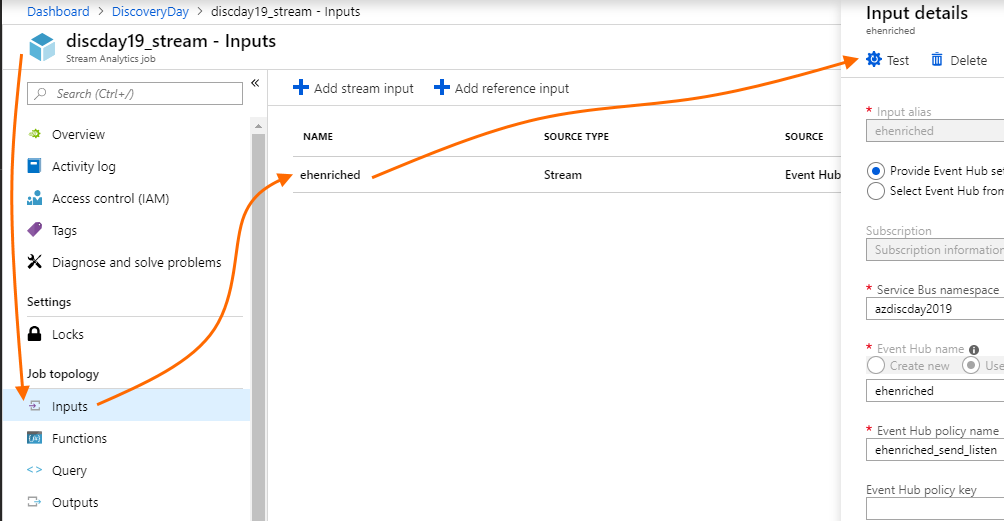
After you successfully authorize the connection to PowerBI.com, provide an output alias (again, this is the name by which you will refer to this output in queries). Select a Power BI workspace (you can create one in PowerBI.com if needed, or select “My workspace”). Provide a name for the streaming dataset, then a name for the output of the first query you will write, which will project only customers with low sentiment scores. Then click “Save”.

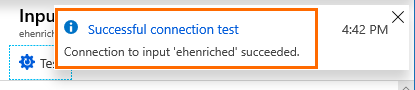
Please note: output alias names have very specific naming requirements. We suggest you use a name that is all lower case letters, only.



After you have created the input and the output, you can test them at any time (note: the Stream Analytics Job must be stopped for tests).

Click your input, then click “Test”. A few seconds later, you will see a notification with the outcome. You can test your output the same way.





Next, we will add a simple Stream Analytics Query which will read incoming messages from the Event Hub input, and project selected messages to the Power BI output. Our intent is to create a streaming dashboard showing trips with unhappy customers, so our query will emit only trip messages where the sentiment score from text analytics is < 0.5. Naturally, you can adjust this threshold in your query.

### Conclusion

Congratulations! You have completed lab 4.

In these four labs, you have built a simple modern data estate with hot and cold storage and analytics paths. Great work!