

# Useful Links & Resources

## Overviews

### Project Overview

ECDC Website for Covid-19 Data - <https://www.ecdc.europa.eu/en/covid-19/data>

Euro Stat Website for Population Data - <https://ec.europa.eu/eurostat/estat-navtree-portlet-prod/BulkDownloadListing?file=data/tps00010.tsv.gz>

### Azure Storage Solutions

Introduction to Azure Storage services - <https://docs.microsoft.com/en-us/azure/storage/common/storage-introduction>

Azure SQL Database - <https://docs.microsoft.com/en-us/azure/azure-sql/database/sql-database-paas-overview>

Azure Synapse Analytics - <https://docs.microsoft.com/en-us/azure/synapse-analytics/overview-what-is>

Azure Cosmos DB - <https://docs.microsoft.com/en-us/azure/cosmos-db/introduction>

Azure Data Lake Storage Gen2 - <https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-introduction>

## Environment Setup

### Creating Azure Free Account

Free Account - <https://azure.microsoft.com/en-gb/free/>

Students Free Account - <https://azure.microsoft.com/en-gb/free/students/>

### Azure Portal Overview

Azure Portal - <https://azure.microsoft.com/en-gb/free/students/>

### Creating Azure Data Factory

<https://docs.microsoft.com/en-gb/azure/data-factory/quickstart-create-data-factory-portal>

### Creating Azure Storage Account

<https://docs.microsoft.com/en-us/azure/storage/common/storage-account-create?tabs=azure-portal>

## Create Azure Data Lake Gen2

<https://docs.microsoft.com/en-us/azure/storage/blobs/create-data-lake-storage-account>

## Creating Azure SQL Database

<https://docs.microsoft.com/en-us/azure/azure-sql/database/single-database-create-quickstart?tabs=azure-portal>

## ADF Control Flow

### Copy Activity Introduction

<https://docs.microsoft.com/en-us/azure/data-factory/copy-activity-overview>

### Linked Services & Datasets

<https://docs.microsoft.com/en-us/azure/data-factory/concepts-linked-services>

<https://docs.microsoft.com/en-us/azure/data-factory/concepts-datasets-linked-services>

### Create Pipeline

<https://docs.microsoft.com/en-us/azure/data-factory/concepts-pipelines-activities>

### Control Flow Activities

Validation Activity - <https://docs.microsoft.com/en-us/azure/data-factory/control-flow-validation-activity>

Get Metadata Activity - <https://docs.microsoft.com/en-us/azure/data-factory/control-flow-get-metadata-activity>

If Condition Activity - <https://docs.microsoft.com/en-us/azure/data-factory/control-flow-if-condition-activity>

Delete Activity - <https://docs.microsoft.com/en-us/azure/data-factory/delete-activity>

### Triggers

<https://docs.microsoft.com/en-us/azure/data-factory/concepts-pipeline-execution-triggers>

### Link to ECDC Website -

<https://www.ecdc.europa.eu/en/covid-19/data>

### Lecture: Control Flow Activities

<https://docs.microsoft.com/en-us/azure/data-factory/control-flow-lookup-activity>

### Linked Service Parameters

<https://docs.microsoft.com/en-us/azure/data-factory/parameterize-linked-services>

# ADF Data Flows

## Introduction to Data Flows

Overview - <https://docs.microsoft.com/en-us/azure/data-factory/concepts-data-flow-overview>

Available Regions - <https://docs.microsoft.com/en-us/azure/data-factory/concepts-data-flow-overview>

## Source Transformation

Overview - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-source>

Supported Source Type - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-source#supported-sources>

Inline Datasets - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-source#supported-sources>

## Filter Transformation

Overview - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-filter>

Expression Builder - <https://docs.microsoft.com/en-us/azure/data-factory/concepts-data-flow-expression-builder>

Expression Language - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-expression-functions>

## Select Transformation

<https://docs.microsoft.com/en-us/azure/data-factory/data-flow-select>

## Pivot Transformation

<https://docs.microsoft.com/en-us/azure/data-factory/data-flow-pivot>

## Lookup Transformation

<https://docs.microsoft.com/en-us/azure/data-factory/data-flow-lookup>

## Sink Transformation

<https://docs.microsoft.com/en-us/azure/data-factory/data-flow-sink>

Supported Sink Types - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-sink>

## Conditional Split Transformation

Overview - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-conditional-split>

## Derived Column Transformation

Overview - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-derived-column>

## Aggregate Transformation

Overview - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-aggregate>

## Join Transformation

Overview - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-join>

## Sort Transformation

Overview - <https://docs.microsoft.com/en-us/azure/data-factory/data-flow-sort>

## Create ADF Pipeline

<https://docs.microsoft.com/en-us/azure/data-factory/control-flow-execute-data-flow-activity>

# ADF Orchestration

## Databricks Activity

Architecture - <https://docs.microsoft.com/en-us/azure/databricks/getting-started/overview>

## Create Azure Databricks Service

<https://docs.microsoft.com/en-us/azure/databricks/scenarios/quickstart-create-databricks-workspace-portal?tabs=azure-portal>

## Create Azure Databricks Cluster

<https://docs.microsoft.com/en-us/azure/databricks/scenarios/quickstart-create-databricks-workspace-portal?tabs=azure-portal#create-a-spark-cluster-in-databricks>

## Mounting Azure Data Lake Storage

<https://docs.microsoft.com/en-us/azure/databricks/data/data-sources/azure/azure-datalake-gen2>

## Create ADF Pipeline Databricks Notebook Activity

<https://docs.microsoft.com/en-us/azure/data-factory/transform-data-using-databricks-notebook>

## Copy Data to Azure SQL

Copy Activity - <https://docs.microsoft.com/en-us/azure/data-factory/copy-activity-overview>

Azure Data Studio download - <https://docs.microsoft.com/en-us/sql/azure-data-studio/download-azure-data-studio?view=sql-server-ver15>

# Making Pipelines Production Ready

## Option 1 - Pipeline Dependency

Execute Pipeline Activity - <https://docs.microsoft.com/en-us/azure/data-factory/control-flow-execute-pipeline-activity>

Activity Dependency - <https://docs.microsoft.com/en-us/azure/data-factory/concepts-pipelines-activities#activity-dependency>

## Option 2 - Trigger Dependency

Trigger Overview - <https://docs.microsoft.com/en-us/azure/data-factory/concepts-pipeline-execution-triggers>

Create Tumbling Window Trigger - <https://docs.microsoft.com/en-us/azure/data-factory/how-to-create-tumbling-window-trigger>

Tumbling Window Trigger Dependency - <https://docs.microsoft.com/en-us/azure/data-factory/tumbling-window-trigger-dependency>

## Monitoring

### Azure Data Factory Monitor

<https://docs.microsoft.com/en-us/azure/data-factory/monitor-visually>

### Creating Alerts

<https://docs.microsoft.com/en-us/azure/data-factory/monitor-visually#alerts>

### Re-run Failed Pipelines

<https://docs.microsoft.com/en-us/azure/data-factory/monitor-visually#rerun-pipelines-and-activities>

### Introduction to Azure Monitor

<https://docs.microsoft.com/en-us/azure/data-factory/monitor-using-azure-monitor>

### Introduction to Log Analytics

Overview - <https://docs.microsoft.com/en-us/azure/azure-monitor/log-query/log-analytics-tutorial>

Kusto Query Language - <https://docs.microsoft.com/en-us/azure/data-explorer/kusto/query/tutorial?pivot=azuredatexplorer>

KQL Quick Reference - <https://docs.microsoft.com/en-us/azure/data-explorer/kql-quick-reference>

### Azure data factory analytics

<https://docs.microsoft.com/en-us/azure/data-factory/monitor-using-azure-monitor#install-azure-data-factory-analytics-solution-from-azure-marketplace>

### Power BI Reports

Software Download - <https://powerbi.microsoft.com/en-us/downloads/>

