Azure Data Factory

What is Azure Data Factory?

→ It is a cloud based data integration service that allows you to create data driven workflows in the cloud for orchestrating and automating data movement and data transformation.

→ It does not store data itself.
→ It basically helps to transfer data from one place to another.
→ It allows you to monitor and manage workflows using both programmatic and UI mechanisms.
→ Used for data movement and transformation.

ADF can be used for:-

→ Supporting data migration.
→ Creating data from a client's server or azure data to an azure data lake.
→ Carrying out various data integration processes.
→ Integrating data from different ERP systems and loading it into Azure Synapse for reporting.

hosted on Azure

Service / tools for azure

sql python pyspark sparkSql.	⇒	azure databricks azure data lake / adls gen 2 azure data factory azure Synapse

azure DevOps

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Page

How Azure Data Factory Works?

- Basically it will move, transform or run data in pipeline.
  ~~used to transfer~~ data from source to destination.
- ADF allows you to create data pipelines which move & transform data and then ~~move~~ run the pipelines on a specified schedule (hourly, daily, weekly, etc.)

~~Step1:- Connect and Collect & Transform~~

Step 1:- Connect and Collect.

→ Connect to all the required sources of data and processing such as SaaS services, file share, FTP and web services.

→ Then, move the data as needed to a centralized location for subsequent processing by using the Copy Activity in a data pipeline to move data from both on-premise and cloud source data stores to a centralization data store in the cloud for further analysis.

Step 2:- Transform and Enrich.

→ Once data is present in a centralized data ~~storage~~ store in the cloud, it is transformed using compute services such as HDInsight Hadoop, Spark, Azure Data Lake Analytics, and Machine Learning.

Step 3:- Publish

→ Deliver transformed data from the cloud to on-premise sources like SQL server or keep it in your cloud storage sources for consumption by BI and analytics tools and other applications.

Data Migration Activities with Azure Data.

→ By using Microsoft Azure Data Factory, data migration occurs between two cloud data stores & between an on-premise data store and a cloud data store.

→ Copy activity in ADF copies data from a source data store to a sink data store.

→ Azure supports various data stores such as source or sink data stores like Azure Blob Storage, Azure Cosmos DB (DocumentDB API).

Pipeline is a group of activities:- They are used to group activities into a unit that together performs a task. A Data factory may have one or more pipelines.

- Activities define the actions to perform your data. Currently, Azure data factory supports two types of activities:- data movement and transformation.

- Linked services define the information needed for Azure data factory to connect to external resources. For eg:- an Azure Storage linked service specifies a connection string to connect the Azure Storage Account.

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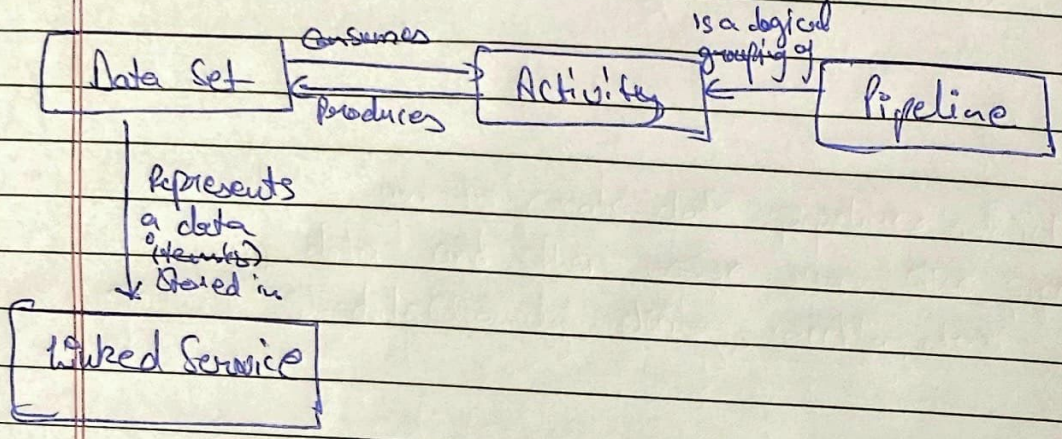
How the Azure Data Factory Components work together.



Following tools or API's can be used to create data pipelines in Azure Data Factory.

- Azure Portal
- Visual Studio
- PowerShell
- .Net API
- REST API
- Azure Resource Manager Template.