**Lakehouse Platform**

**for**



**LLD Author:**  Kyndryl

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**CONTENTS**

[1. Introduction 6](#_Toc143090307)

[1.1. Purpose 6](#_Toc143090308)

[1.2. Audience 6](#_Toc143090309)

[1.3. Scope 6](#_Toc143090310)

[1.4. Design considerations 7](#_Toc143090311)

[1.5. Related documents 8](#_Toc143090312)

[2. Solution design 9](#_Toc143090313)

[2.1. Service concept 9](#_Toc143090314)

[2.1.1. High level reference architecture 9](#_Toc143090315)

[2.1.2. Workflow 10](#_Toc143090316)

[2.1.3. Service context 11](#_Toc143090317)

[2.2. Service technology 12](#_Toc143090318)

[2.2.1. Landing zone design 12](#_Toc143090319)

[2.2.2. Communication 13](#_Toc143090320)

[2.2.3. Analytics 13](#_Toc143090321)

[2.2.4. Data storage 13](#_Toc143090322)

[2.2.5. Data orchestration 13](#_Toc143090323)

[2.2.6. Configuaration 14](#_Toc143090324)

[2.2.7. Secrets 14](#_Toc143090325)

[2.2.8. Log collection 14](#_Toc143090326)

[2.3. Architectural decisions 14](#_Toc143090327)

[2.3.1. IP addressing 14](#_Toc143090328)

[2.3.2. Location of the resources 15](#_Toc143090329)

[2.4. Security posture 16](#_Toc143090330)

[2.4.1. Environments 16](#_Toc143090331)

[2.4.2. Communication 16](#_Toc143090332)

[2.4.3. Resource access 16](#_Toc143090333)

[2.4.4. Platform security model 17](#_Toc143090334)

[2.5. Monitoring 18](#_Toc143090335)

[2.6. RACI 18](#_Toc143090336)

[2.7. Risks, assumptions, issues, and dependencies 19](#_Toc143090337)

[3. Baseline 20](#_Toc143090338)

[3.1. Resource parameters 20](#_Toc143090339)

[3.1.1. Subscriptions 20](#_Toc143090340)

[3.1.2. Resource groups 20](#_Toc143090341)

[3.1.3. Virtual networks 20](#_Toc143090342)

[3.1.4. Network security groups 22](#_Toc143090343)

[3.1.5. Network security rules 24](#_Toc143090344)

[3.1.6. Route table 24](#_Toc143090345)

[3.1.7. Flow logs 24](#_Toc143090346)

[3.1.8. Private ~~DNS zones~~ 26](#_Toc143090347)

[3.1.9. Private endpoints 27](#_Toc143090348)

[3.1.10. Databricks services 34](#_Toc143090349)

[3.1.11. Access Connector for Azure Databricks 35](#_Toc143090350)

[3.1.12. Data factories 35](#_Toc143090351)

[3.1.13. Key vaults 35](#_Toc143090352)

[3.1.14. Storage accounts 36](#_Toc143090353)

[3.1.15. Data lakes 37](#_Toc143090354)

[3.1.16. SQL servers 37](#_Toc143090355)

[3.1.17. SQL databases 38](#_Toc143090356)

[3.1.18. Log analytics workspaces 38](#_Toc143090357)

[3.1.19. Virtual machines 39](#_Toc143090358)

[3.2. IAM 40](#_Toc143090359)

[3.3. IP Addressing 40](#_Toc143090360)

[3.4. Automation 41](#_Toc143090361)

[3.5. Cost estimation 42](#_Toc143090362)

[4. Abbreviations and definitions 43](#_Toc143090363)

List of changes

|  |  |  |  |
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| Version | Date | Description | Author(s) |
| 0.1 | 12-06-2023 | Initial version | Wojciech Pazdzierkiewicz, Kyndryl |
| 0.2 | 20-06-2023 | Updates after Infra Team review:   * option to reuse existing CORPAPPS subscriptions * option to reuse existing CORPAPPS vnets * architectural decisions introduced * IP addressing changed * premium block blob storage introduced for datalake storage account * private DNS zones removed from spoke vnets * “lakehouse” management group replaced by “insight” * naming of the resources corrected | Cloud Infra Team, Dufry |
| 0.3 | 28-06-2023 | Updates after Platform Team review:   * reference to HLD introduced * RACI updated * cost estimations updated * security posture introduced * monitoring introduced * custom net communication for initial phase added | Platform Team, Dufry |
| 0.4 | 12-07-2023 | Updates after Partner Team review:   * dev/qa databricks workspaces on premium pricing tier * cluster specification for databricks compute added * storage account changed from blob to “General Purpose v2” kind * RBAC roles for service principals specified * SQL DB pricing tier added * VM guest OS changed to Windows 10 * missing private endpoints added * landing zone design diagrams updated * security posture section updated * nsg flow logs added * costs re-estimated | Partner Team, Advancing Analytics |
| 0.5 | 25-07-2023 | Updates before provisioning DEV env.:   * option-1 as target solution in “2.2.1. Landing zone design” * option-2 as alternative solution in “2.3 Architectural decision” * “test” term replaced by “qa” * diagram updated | Wojciech Pazdzierkiewicz, Kyndryl |
| 0.6 | 28-07-2023 | Updates after provisioning DEV env.:   * Azure DevOps agent pool VM guest OS changed to Windows Server 2022 Datacenter * IP address spaces changed * service principal names changed * NSG rule updated: added outbound rule for IaaS subnet to AzureDevOps service * diagram updated | Wojciech Pazdzierkiewicz, Kyndryl |
| 0.7 | 09-08-2023 | Updates after AA review:   * 2.4.3 Resource access tuned * private endpoints’ names changed * KV changed * SQL admin name changed * VM RBAC roles removed * IAM tuned * Databricks Unity Catalog introduced | Alvaro Seron, Daniel, Accenture  Wojciech Pazdzierkiewicz, Kyndryl |

Document release

|  |  |  |
| --- | --- | --- |
| Role | Name | Date |
| Author | Wojciech Pazdzierkiewicz, Kyndryl | Jun-2023 |
| Reviewers, Cloud Infra Team | Besim Bislimi, Dufry  Faton.Fejzullahu, Dufry  Alvaro Seron, Daniel, Accenture  Amit Kumar Prasad, Movate | Jun-2023 |
| Reviewers, Platform | Ruben Pertusa, Lopez, Dufry | Jun-2023 |
| Reviewers, Partner | Chris Williams, Advancing Analytics | Jul-2023 |
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| Cloud Architect | Wojciech Pazdzierkiewicz, Kyndryl |  |
| Platform Lead | Ruben Pertusa, Lopez, Dufry |  |
| Target Audience | Platform Operations  Application Development and Operation Team |  |

1. Introduction
   1. Purpose

The purpose of this document is to provide detailed design and architectural guidance required to implement Lakehouse service and infrastructure components provisioned in dedicated Azure landing zone in accordance with Dufry delivery standards and portfolio services.

The mission is to create a cost-effective, application owner attractive and flexible landing zone for application workloads on Azure. It must be ready to utilize various components and architectures based on application requirements, industry standards, vendor recommendations and operation capabilities.

* 1. Audience

This document is intended to application and infrastructure owners, architects, designers, and specialists tasked for provisioning and configuring the required Azure infrastructure, services and resources needed to implement the solution described in application architecture document.

* 1. Scope

The scope of the solution covers the following:

Design of the components used by the workload in Azure is based on native capabilities of Azure, including IaaS and PaaS resources described in detail in “2.2. Service technology” section.

The following areas are explicitly out of scope:

* Management and maintenance of non-native Azure services and resources
* Network topology
* ITSM integration
  1. Design considerations

The following principles will apply to the creation of the landing zone:

* Isolation between environments is done on subscription level. PROD subscription utilizes “Enterprise agreement” MS offer. NON-PROD subscription for QA and DEV environments uses “Enterprise Dev/Qa” MS offer to achieve cost effectiveness following MS recommendations.
* Isolation between infrastructure and applications components is done on resource group level to simplify IAM delegation model and keep consistency between resources during life-cycle of entire platform or particular PaaS service like Azure Databricks.
* Two dedicated virtual machines (VM) are provisioned and implemented as a DevOps agent with the required tools installed. These machines act as the staging platform to deploy changes in each area of the platform and are hosted inside each spoke’s VNet.
* In addition, the following principals from HLD are also considered:

“…

* + PaaS first – server management can be a huge drain on team capacity, the solution uses platform-as-a-service offerings first where possible.
  + No Monoliths – data pipelines are a complex network of inter-related jobs, which breeds inflexibility. The solution has been designed to maximize loose coupling of tasks to tackle this, designed for maximum reusability.
  + Reusability Is Key – we are building a framework, a platform for growth. Point solutions & one-off hacks are not acceptable.
  + Cost Focus – Each layer has been designed with the total run cost in mind, striking a balance between cost of development and cost of operation.
  + Just Enough Governance – Data governance is hugely important for running a successful data platform, but it should not be prohibitive. Lake operating models should be designed with reactive governance in mind, rather than prohibitive governance which restricts creativity.

…”

Ref.: [AA - Dufry - Hydr8 Solution & Technical Overview Document.pdf](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=o%2F0JUdV%2Bs9vVqkq5y9ucIBJKwtfEHa6CCGgbKBLb9wk%3D&docid=2_12cd249e7810e4d4594e2a2601f360c7e&rev=1&e=J8xKyf)

* 1. Related documents

Several vendor best practice documentations have been used in this blueprint.

|  |  |
| --- | --- |
| Vendor | Document Name |
| Microsoft | What is Azure Databricks?  <https://learn.microsoft.com/en-us/azure/databricks/introduction/> |
| Microsoft | What is the Databricks Lakehouse?  <https://learn.microsoft.com/en-us/azure/databricks/lakehouse/> |
| Microsoft | What are all the Delta things in Azure Databricks?  <https://learn.microsoft.com/en-us/azure/databricks/introduction/delta-comparison> |
| Microsoft | Microsoft Azure Offer Details  <https://azure.microsoft.com/en-us/support/legal/offer-details/> |
| Microsoft | Allowed address lists and network connections - Azure DevOps  https://learn.microsoft.com/en-us/azure/devops/organizations/security/allow-list-ip-url?view=azure-devops&tabs=IP-V4#ip-addresses-and-range-restrictions |
| Microsoft | What is Unity Catalog?  https://learn.microsoft.com/en-us/azure/databricks/data-governance/unity-catalog/ |
| Advancing Analytics | Project Discovery Phase: Solution Architecture  [Hydr8 - Overview.pdf](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=gOrzxm4rx%2FLszSH6uz3mogsbCjhuCn%2Bhqx9moOj7OWE%3D&docid=2_1f532383cddbc4beea215c5c895303f27&rev=1&e=6VWGKi) |
| Advancing Analytics | Data Lakehouse Technical Overview  [AA - Dufry - Hydr8 Solution & Technical Overview Document.pdf](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=o%2F0JUdV%2Bs9vVqkq5y9ucIBJKwtfEHa6CCGgbKBLb9wk%3D&docid=2_12cd249e7810e4d4594e2a2601f360c7e&rev=1&e=RN2n2f) |
| Dufry | Azure Landing zone design document  [Dufry Azure Landing zone design document\_v5.1.docx](https://dufry0.sharepoint.com/sites/DufryHybridCloud/Shared%20Documents/General/04%20RFP%20Due%20Diligence/Azure%20Landing%20Zone%20Design%20Workshop/Dufry%20Azure%20Landing%20zone%20design%20document_v5.1.docx?d=w0e040262b07143df9597535b6ec47354&csf=1&web=1&e=NfvBzd) |
| Dufry | Azure Landing zone low level design document  [Dufry\_Azure\_Landing\_Zone\_LLD\_v0.1.docx](https://dufry0.sharepoint.com/:w:/r/sites/DufryHybridCloud/Shared%20Documents/General/07%20Operations/Azure%20Landing%20Zone%20LLD/Dufry_Azure_Landing_Zone_LLD_v0.1.docx?d=w8c90a29d78494d7883c72e3dbe9490d2&csf=1&web=1&e=xTpxvB) |

1. Solution design
   1. Service concept
      1. A picture containing text, screenshot, diagram, font

         Description automatically generatedHigh level reference architecture

“…

One of the key objectives of this solution is to implement an extensible framework, rather than individual data processing tasks. The structuring of reusable code, automation of common tasks and implementation of metadata-driven transformations is central to Advancing Analytics’ reference architecture and this is achieved with our Hydr8 framework accelerator.

The platform visualized in above, can be broken down into five distinct components that describe the functionality offered:

* Data Acquisition & Landing
* Data Lake Storage
* Orchestration
* Data Processing
* Data Serving

…”

Ref.: [AA - Dufry - Hydr8 Solution & Technical Overview Document.pdf](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=o%2F0JUdV%2Bs9vVqkq5y9ucIBJKwtfEHa6CCGgbKBLb9wk%3D&docid=2_12cd249e7810e4d4594e2a2601f360c7e&rev=1&e=elXkME)

* + 1. Workflow

A picture containing text, screenshot, diagram, font

Description automatically generated

A picture containing text, screenshot, font, document

Description automatically generated

Ref.: [Hydr8 - Overview.pdf](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=gOrzxm4rx%2FLszSH6uz3mogsbCjhuCn%2Bhqx9moOj7OWE%3D&docid=2_1f532383cddbc4beea215c5c895303f27&rev=1&e=6RhFhR)

* + 1. Service context

A screenshot of a computer

Description automatically generated with low confidence

Ref.: [DufryInsights.jpg](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=ss6YPPQLUbe96%2Bxnj2eal9jOZR1p007nM87nq6kbkak%3D&docid=2_1a948fc413909403c88d097007e05b629&rev=1&e=aTFgPc)

* 1. Service technology
     1. Landing zone design

The following Azure application landing zone architecture incorporates recommend best practices from scalable and modular perspective to meet a range of deployment requirements.

A repeatable infrastructure, utilizing IaC approach, allows to consistently apply configurations and controls to each subscription, intended to separate PROD and NON-PROD environments.

IaC modules make it easy to deploy and modify specific components of the Azure landing zone architecture if requirements evolve.

As target solution, there are introduced new entities on all levels of landing zone posture, starting from management groups, over subscriptions, to the infrastructure resources like virtual networks, PaaS resources, etc.

A screenshot of a computer

Description automatically generated

Ref.: [DUF Lakehouse Platform\_v0.7.png](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=EbYqAbpFGSXedVd5aw0MU7ZX0%2B5KJ1BktLVXMTfmVz4%3D&docid=2_131cd1802b3e545f88c80390f87cf0625&rev=1&e=fgZYjS)

It allows to not mix already existing workload from various perspectives like networking, IAM or cost management, also simplify delegation model for operational activities and have a space for further extension. In addition, there is one single point of “switch off” entire solution from entire organization IT ecosystem.

* + 1. Communication

Solution utilizes **hub-spoke network topology**. Existing hub virtual network manages external traffic, including internet and on-prem communication. Spoke virtual networks isolate communication between PROD and NON-PROD environments.

Platform components communicate where possible over private endpoints. PaaS resources are not exposed for internet consumption.

Traffic in spoke virtual networks is controlled over network security groups.

Ref.: [Hub-spoke network topology in Azure - Azure Architecture Center | Microsoft Learn](https://learn.microsoft.com/en-us/azure/architecture/reference-architectures/hybrid-networking/hub-spoke?tabs=cli)

The following communication is required in the initial phase of the project to feed data lake storage account:

|  |  |  |
| --- | --- | --- |
| Id | Source | Destination |
| 1 | ADF services | Subscription: DUFRY DEV/QA/POC  Resource group: RG\_DUFRY\_CORPAPP\_DEV\_QA\_POC  SQL Server: rgdufryinsightssql.database.windows.net |
| 2 | ADF integration runtime: self-hosted | GDC: CHSQL023P  ref. configuration: rgdufryinsightsadf |

* + 1. Analytics

**Azure databricks** was chosen as a unified set of tools for building, deploying, sharing, and maintaining enterprise-grade data solutions at scale for analytics and AI workloads.

As it’s fully optimized for Azure and tightly integrated with Azure Data Lake Storage, Azure Data Factory, Azure Synapse Analytics, Power BI and other Azure services is capable to store data on a simple, open lakehouse way.

Data processing is done over the Notebooks.

Ref.: [What is Azure Databricks? - Azure Databricks | Microsoft Learn](https://learn.microsoft.com/en-us/azure/databricks/introduction/)

* + 1. Data storage

**Azure standard general-purpose v2 storage account** is used for the secure “landing zone” of collected and transformed data from external sources.

Ref.: [Storage account overview - Azure Storage | Microsoft Learn](https://learn.microsoft.com/en-us/azure/storage/common/storage-account-overview?toc=%2Fazure%2Fstorage%2Fblobs%2Ftoc.json&bc=%2Fazure%2Fstorage%2Fblobs%2Fbreadcrumb%2Ftoc.json)

As a centralized repository that ingests and stores large volumes of data in its original form there is chosen **Azure data lake**. The data is processed and used as a basis for a variety of analytics by Databricks.

Ref.: [Azure Data Lake Storage Gen2 Introduction - Azure Storage | Microsoft Learn](https://learn.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-introduction)

* + 1. Data orchestration

**Azure data factory** is used for data orchestration to connect to source system, copy data and orchestrate pipelines and ETL notebooks.

Ref. [Introduction to Azure Data Factory - Azure Data Factory | Microsoft Learn](https://learn.microsoft.com/en-us/azure/data-factory/introduction)

* + 1. Configuaration

**Azure SQL server** and **Azure SQL database** are used to host and store all configuration and metadata to constructs the process queue for each entity.

Ref.: [What is Azure SQL? - Azure SQL | Microsoft Learn](https://learn.microsoft.com/en-us/azure/azure-sql/azure-sql-iaas-vs-paas-what-is-overview?view=azuresql)

* + 1. Secrets

**Azure Key vault** is used for storing all keys and secret information requires be the solution.

Ref.: [Azure Key Vault Overview - Azure Key Vault | Microsoft Learn](https://learn.microsoft.com/en-us/azure/key-vault/general/overview)

* + 1. Log collection

**Log analytic workspace** is used to capture logging details across the entire solution.

Ref: [Log Analytics workspace overview - Azure Monitor | Microsoft Learn](https://learn.microsoft.com/en-us/azure/azure-monitor/logs/log-analytics-workspace-overview)

* 1. Architectural decisions
     1. IP addressing

|  |  |
| --- | --- |
| Property | Description |
| Id | AD001 |
| Requirement / problem | IP address spaces to use |
| Decision | 10.250.60.0/22  10.250.168.0/22  10.250.126.192/28 |
| Justification | Next, not used free spaces |
| Alternative | 10.250.68.0/22  Next, not used free spaces to CORPAPPS related addressing:  vnet-duf-weu-corpapps-prod, 10.250.64.0/22  If alternative solution (option-2):  - extend existing vnet-duf-weu-corpapps-prod, from 10.250.64.0/22 to 10.250.64.0/21  - introduce into existing vnet-duf-weu-corpapps-infra-non-prod, add: 10.250.168.0/22 |

* + 1. Location of the resources

|  |  |
| --- | --- |
| Property | Description |
| Id | AD002 |
| Requirement / problem | Location of Lakehouse platform resources detailed in *2.2.1 Landing zone design* |
| Decision | Introduce new management group structure and new subscriptions for deployment of the landing zone |
| Justification | * requirement from security team “to split it in two subscriptions for non prod and prod” * one, single point of “switch off” entire platform from organization IT ecosystem * simple cost management, including tracking cost utilization, notification, etc. * clear location of analytic, AI, ML, and data science tooling * flexibility in extension of the platform to introduce next related tooling like Auto ML, etc. |
| Alternative | Reuse existing CORPAPPS structure, including management group, subscriptions and vnets:  Optionally (option-2), Lakehouse solution can incorporate already existing resource structure. Existing *CORPAPPS* management group, existing *duf-corpapps-001* and *duf-corpapps-non-prod* subscriptions, and existing *vnet-duf-weu-corpapps-prod* and *vnet-duf-weu-corpapps-infra-non-prod* virtual networks will be reused. Lakehouse related PaaS services are introduced in the CORPAPPS context  A screenshot of a computer  Description automatically generated  Ref.: [DUF Lakehouse Platform\_v0.6-Option\_2.png](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=6coKI76QWf4OKLGzvkEtgLizBhMEKuM4hIiej%2BlHYfA%3D&docid=2_196820d9abfce48a68a55924eff2f4536&rev=1&e=YNk1X3)  It minimizes network traffic costs as Lakehouse Platform is close to the existing data sources in CORPAPPS area. |

* 1. Security posture
     1. Environments

Environments are planned to work in the development, quality, and production stages.

Isolation between environments is done on subscription level:

* + PROD subscription utilizes “Enterprise agreement” MS offer
  + NON-PROD subscription for QA and DEV environments uses “Enterprise Dev/Qa” MS offer to achieve cost effectiveness following MS recommendations.

Isolation between infrastructure and applications components is done on resource group level to simplify IAM delegation model and keep consistency between resources during life-cycle of entire platform or particular PaaS service:

* + INFRA resource group includes all resources to control communication between platform components like virtual network, network security groups. It also includes common resources like Azure DevOps agent pool VM and log analytics workspace. IAM is delegated to infrastructure team only.
  + LAKEHOUSE resource groups include all platform related resources like Azure Databricks, Azure Data Factory, etc. and IAM is delegated to platform developer/qa team only.
    1. Communication

To enable organization to securely access and manage Azure resources, the following technologies are used:

* + all subnets denied internet access in any direction over network security groups
  + all PaaS services are using Azure private link services to connect resources to virtual network to enforce private and protected communication without exposure to the public internet
  + all traffic is monitored using NSG log flow and examine using Azure network watcher service
  + data in transit from external data sources are encrypted with supported protocols and all sources in the scope are using HTTPS and TLS1.2
  + data at rest in Azure storage account is encrypted by default using Microsoft managed keys as no PII class data, including credit card numbers, personal data, data classified by Dufry as confidential, etc., is not in scope of the solution
    1. Resource access

Advancing Analytics recommends that developers have the Azure Contributor role on the developer resource group, and then the Reader role on the quality and production resource groups to troubleshoot issues in those environments. Storage account data access can be granted separately by using the Storage Blob Data Contributor and Storage Blob Data Reader Roles on the storage account, along with folder level Access Control Lists (ACL’s).

Where it is not possible to provide developers with the Contributor role on the development resource group, the following permissions are needed for each of the individual resources in the development resource group.

|  |  |  |
| --- | --- | --- |
| Resource type | Role | Scope |
| Azure Data Lake Gen 2 | Storage Blob Data Contributor | Resource group |
| Storage Queue Data Contributor | Resource group |
| Azure Blob Storage | Storage Blob Data Contributor | Resource group |
| Storage Queue Data Contributor | Resource group |
| Azure SQL Server | Reader | Resource |
| Azure SQL DB – Config DB | db\_owner | Database Role |
| Azure Databricks | Contributor | Resource |
| Azure Databricks | Admin | Databricks Role |
| Azure Data Factory | Data Factory Contributor | Resource group |
| Azure Key Vault | Key Vault Administrator | Resource group |
| Azure Log Analytics | Reader | Resource |

* + 1. Platform security model

Platform security model is described in detail in HLD in section “3.5. Platform Security Model”:

“…

The security model for Dufry’s Data Lakehouse Platform can be broken down into three security planes to best describe how they are managed and applied:

* + Data Lake Security – relating to storage level security.
  + Process Security – relating to how resources interact with each other.
  + User Access Routes – describes how people interact with the data.

…”

Ref.: [AA - Dufry - Hydr8 Solution & Technical Overview Document.pdf](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=o%2F0JUdV%2Bs9vVqkq5y9ucIBJKwtfEHa6CCGgbKBLb9wk%3D&docid=2_12cd249e7810e4d4594e2a2601f360c7e&rev=1&e=elXkME)

* 1. Monitoring

Platform monitoring is described in HLD in section “3.5. Platform Security Model”:

“…

Monitoring of Dufry’s Data Lakehouse Platform is conducted primarily using Azure Log Analytics. Telemetry data, including latency, refresh and access logs is collected for all components in the framework and all default telemetry data is sent to Log Analytics.

…”

Ref.: [AA - Dufry - Hydr8 Solution & Technical Overview Document.pdf](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=o%2F0JUdV%2Bs9vVqkq5y9ucIBJKwtfEHa6CCGgbKBLb9wk%3D&docid=2_12cd249e7810e4d4594e2a2601f360c7e&rev=1&e=elXkME)

* 1. RACI

**R&R Legend: R = Responsible / A = Accountable / C = Consult / I = Information**

|  |  |  |  |
| --- | --- | --- | --- |
| Id | Description | App team | Infra team |
| Setup platform for delivery (template repositories & Azure DevOps service) | | | |
|  | Create organization for a project in Azure DevOps service | R | C |
|  | Onboard delivery engineers to the organization created | R | C |
|  | Onboard developers to the organization created | R | C |
|  | Create/re-use project for deploying landing zone | I | R |
|  | Create template repositories to store the specific templates | R | I |
|  | Generate the token in template repository | R | I |
|  | Configure Azure DevOps service to access template repository using token | R | I |
|  | Create repository in Azure DevOps service to store the specific parameters / inputs | R | I |
|  | Provide service principal to connect to the cloud. Service principal should have enough (at least contributor) credentials to create and configure resources | I | R |
|  | Create service connection to the cloud environment using service principal | I | R |
|  | Create pipeline in Azure DevOps to deliver the landing zone | I | R |
|  | Verify ability to create qa resources using service principal | I | R |
| Prepare for the Landing Zone | | | |
|  | Validation of the architecture | R | A |
|  | Identify standard templates | I | R |
|  | Identify gaps in standard templates | I | R |
|  | Develop IaC for additional custom templates for identified gaps | I | R |
|  | Define the final build sheet | I | R |
|  | Validate/ review the build sheet and any associated documents | I | R |
|  | Clone all the required templates and other artifact to meet requirement to the template repositories | I | R |
|  | Prepare input files using build sheet | I | R |
|  | Store the input in Azure DevOps repository | I | R |
| Test Landing Zone | | | |
|  | Execute the pipelines on dev/qa/prod environment | I | R |
|  | Plan for validation of dev/qa/prod landing zone | I | R |
|  | Prepare the test cases for testing the landing zone | A | R |
|  | Run the test cases for landing zone | A | R |
|  | Address the missing configuration through code | I | R |
| Build landing zone and hand over to opearation | | | |
|  | Execute the pipeline for the production environment | I | R |
|  | Verify if the resources have been created in accordance with requirement | A | R |
|  | Execute the QA test cases | A | R |
|  | Address the missing configuration through code | I | R |
|  | Provide confirmation of successful deliverable of landing zone | I | R |
| Decommission | | | |
|  | Decommission the organization, project, service principals | I | R |
|  | Tag the version delivered to template repository and archive it | I | R |

* 1. Risks, assumptions, issues, and dependencies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Id | Type | Description | Action | Owner |
| A001 | Assumption |  |  |  |
| A002 | Assumption |  |  |  |
| R001 | Risk |  |  |  |
| R201 | Risk | Option 2:  Potential communication disruption of already existing CORPAPPS workload during implementation |  |  |
| D101 | Dependency | Option 1:  New peering | Introduce peering between new vnet-duf-weu-insights-prod spoke vnet and existing rg-duf-weu-infra-hub-prod hub vnet | Network Team |
| D102 | Dependency | Option 1:  New peering | Introduce peering between new vnet-duf-weu-insights-non-prod spoke vnet and existing rg-duf-weu-infra-hub-prod hub vnet | Network Team |
| D201 | Dependency | Option 2:  Update of vnet-duf-weu-corpapps-prod vnet | Introduce 4 new subnets | Network Team |
| D202 | Dependency | Option 2:  Update of vnet-duf-weu-corpapps-infra-non-prod vnet | Introduce 8 new subnets | Network Team |

1. Baseline
   1. Resource parameters
      1. Subscriptions

|  |  |  |  |
| --- | --- | --- | --- |
| Name | MS Offer | Offer id | Environment |
| duf-insights-prod | Enterprise Agreement | 0017P | PROD |
| duf-insights-non-prod | Enterprise Dev/Test | [0148P](https://azure.microsoft.com/en-us/pricing/offers/ms-azr-0148p/) | DEV, QA |

* + 1. Resource groups

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource type | Region | Environment |
| rg-duf-weu-insights-infra-prod | Microsoft.Resources/resourceGroups | West Europe | PROD |
| rg-duf-weu-insights-lakehouse-prod | Microsoft.Resources/resourceGroups | West Europe | PROD |
| rg-duf-weu-insights-lakehouse-adb-prod | Microsoft.Resources/resourceGroups | West Europe | PROD |
| rg-duf-weu-insights-unitycatalog-prod | Microsoft.Resources/resourceGroups | West Europe | PROD |
| rg-duf-weu-insights-lakehouse-qa | Microsoft.Resources/resourceGroups | West Europe | QA |
| rg-duf-weu-insights-lakehouse-adb-qa | Microsoft.Resources/resourceGroups | West Europe | QA |
| rg-duf-weu-insights-lakehouse-dev | Microsoft.Resources/resourceGroups | West Europe | DEV |
| rg-duf-weu-insights-lakehouse-adb-dev | Microsoft.Resources/resourceGroups | West Europe | DEV |
| rg-duf-weu-insights-infra-non-prod | Microsoft.Resources/resourceGroups | West Europe | DEV, QA |

* + 1. Virtual networks

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/virtualNetworks | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **vnet-duf-weu-insights-prod** |
| address\_space | 10.250.60.0/22 |
| subnets | snet-duf-weu-insights-lakehouse-adb-priv-10.250.60.0-26  snet-duf-weu-insights-lakehouse-adb-pub-10.250.60.64-26  snet-duf-weu-insights-lakehouse-iaas-10.250.60.128-26  snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| peering | vnet-duf-weu-infra |
| Microsoft.Network/virtualNetworks | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-unitycatalog-prod |
| location | westeurope |
| name | **vnet-duf-weu-insights-unitycatalog-prod** |
| address\_space | 10.250.168.0/22 |
| subnets | snet-duf-weu-nsights-unitycatalog-paas-10.250.126.192-28 |
| peering | vnet-duf-weu-infra |
| Microsoft.Network/virtualNetworks | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **vnet-duf-weu-insights-non-prod** |
| address\_space | 10.250.168.0/22 |
| subnets | snet-duf-weu-insights-lakehouse-adb-priv-qa-10.250.168.0-26  snet-duf-weu-insights-lakehouse-adb-pub-qa-10.250.168.64-26  snet-duf-weu-insights-lakehouse-iaas-qa-10.250.168.128-26  snet-duf-weu-insights-lakehouse-paas-qa-10.250.168.192-26  snet-duf-weu-insights-lakehouse-adb-priv-dev-10.250.169.0-26  snet-duf-weu-insights-lakehouse-adb-pub-dev-10.250.169.64-26  snet-duf-weu-insights-lakehouse-iaas-dev-10.250.169.128-26  snet-duf-weu-insights-lakehouse-paas-dev-10.250.169.192-26 |
| peering | vnet-duf-weu-infra |

* + 1. Network security groups

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-adb-priv-prod** |
| subnet | snet-duf-weu-insights-lakehouse-adb-priv-10.250.60.0-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-adb-pub-prod** |
| subnet | snet-duf-weu-insights-lakehouse-adb-pub-10.250.60.64-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-iaas-prod** |
| subnet | snet-duf-weu-insights-lakehouse-iaas-10.250.60.128-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-paas-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-adb-priv-qa** |
| subnet | snet-duf-weu-insights-lakehouse-adb-priv-qa-10.250.168.0-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-adb-pub-qa** |
| subnet | snet-duf-weu-insights-lakehouse-adb-pub-qa-10.250.168.64-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | Westeurope |
| name | **nsg-duf-weu-insights-lakehouse-iaas-qa** |
| subnet | snet-duf-weu-insights-lakehouse-iaas-qa-10.250.168.128-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-paas-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-qa-10.250.168.192-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-adb-priv-dev** |
| subnet | snet-duf-weu-insights-lakehouse-adb-priv-dev-10.250.169.0-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-adb-pub-dev** |
| subnet | snet-duf-weu-insights-lakehouse-adb-pub-dev-10.250.169.64-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | Westeurope |
| name | **nsg-duf-weu-insights-lakehouse-iaas-dev** |
| subnet | snet-duf-weu-insights-lakehouse-iaas-dev-10.250.169.128-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |
| Microsoft.Network/networkSecurityGroups | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **nsg-duf-weu-insights-lakehouse-paas-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-dev-10.250.169.192-26 |
| rules | rl-duf-lakehouse-deny-outbound-internet |

* + 1. Network security rules

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/networkSecurityGroups/securityRules | nsg name | nsg-duf-weu-insights-lakehouse-iaas-dev | -qa | -prod |
| name | **rl-duf-lakehouse-allow-outbound-ado** |
| access | Allow |
| direction | Outbound |
| priority | 4095 |
| protocol | \* |
| source\_port\_range | \* |
| destination\_port\_range | \* |
| source\_address\_prefix | \* |
| destination\_address\_prefix | AzureDevOps |
| Microsoft.Network/networkSecurityGroups/securityRules | nsg name | nsg-duf-weu-insights-lakehouse-iaas-dev | -qa | -prod |
| name | **rl-duf-lakehouse-deny-outbound-internet** |
| access | Deny |
| direction | Outbound |
| priority | 4096 |
| protocol | \* |
| source\_port\_range | \* |
| destination\_port\_range | \* |
| source\_address\_prefix | \* |
| destination\_address\_prefix | Internet |

* + 1. Route table

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/routeTables | subscription | duf-insights-prod |
| name | **rt-duf-weu-insights-prod** |
| Route: default-route | subnet: snet-duf-weu-insights-lakehouse-iaas-10.250.60.128-26 |
| Address prefix: 0.0.0.0/0 |
| Next hope type: VirtualAppliance |
| Next hope IP address: 10.250.0.196 |
| Microsoft.Network/routeTables | subscription | duf-insights-non-prod |
| name | **rt-duf-weu-insights-non-prod** |
| Route: default-route | subnet: snet-duf-weu-insights-lakehouse-iaas-dev-10.250.169.128-26 |
| Address prefix: 0.0.0.0/0 |
| Next hope type: VirtualAppliance |
| Next hope IP address: 10.250.0.196 |

* + 1. Flow logs

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-prod |
| resource | nsg-duf-weu-insights-lakehouse-adb-priv-prod |
| name | **nsgflowlog-duf-weu-insights-lakehouse-adb-priv-prod** |
| storage account | stdufweuinsightslogsprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-prod |
| resource | nsg-duf-weu-insights-lakehouse-adb-pub-prod |
| name | **nsgflowlog-duf-weu-insights-lakehouse-adb-pub-prod** |
| storage account | stdufweuinsightslogsprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-prod |
| resource | nsg-duf-weu-insights-lakehouse-iaas-prod |
| name | **nsgflowlog-duf-weu-insights-lakehouse-iaas-prod** |
| storage account | stdufweuinsightslogsprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-prod |
| resource | nsg-duf-weu-insights-lakehouse-paas-prod |
| name | **nsgflowlog-duf-weu-insights-lakehouse-paas-prod** |
| storage account | stdufweuinsightslogsprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-prod |

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-non-prod |
| resource | nsg-duf-weu-insights-lakehouse-adb-priv-qa |
| name | **nsgflowlog-duf-weu-insights-lakehouse-adb-priv-qa** |
| storage account | stdufweuinsightslogsnprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-non-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-non-prod |
| resource | nsg-duf-weu-insights-lakehouse-adb-pub-qa |
| name | **nsgflowlog-duf-weu-insights-lakehouse-adb-pub-qa** |
| storage account | stdufweuinsightslogsnprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-non-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-non-prod |
| resource | nsg-duf-weu-insights-lakehouse-iaas-qa |
| name | **nsgflowlog-duf-weu-insights-lakehouse-iaas-qa** |
| storage account | stdufweuinsightslogsnprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-non-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-non-prod |
| resource | nsg-duf-weu-insights-lakehouse-paas-qa |
| name | **nsgflowlog-duf-weu-insights-lakehouse-paas-qa** |
| storage account | stdufweuinsightslogsnprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-non-prod |

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-non-prod |
| resource | nsg-duf-weu-insights-lakehouse-adb-priv-dev |
| name | **nsgflowlog-duf-weu-insights-lakehouse-adb-priv-dev** |
| storage account | stdufweuinsightslogsnprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-non-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-non-prod |
| resource | nsg-duf-weu-insights-lakehouse-adb-pub-dev |
| name | **nsgflowlog-duf-weu-insights-lakehouse-adb-pub-dev** |
| storage account | stdufweuinsightslogsnprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-non-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-non-prod |
| resource | nsg-duf-weu-insights-lakehouse-iaas-dev |
| name | **nsgflowlog-duf-weu-insights-lakehouse-iaas-dev** |
| storage account | stdufweuinsightslogsnprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-non-prod |
| Microsoft.Network/networkWatchers/FlowLogs | subscription | duf-insights-non-prod |
| resource | nsg-duf-weu-insights-lakehouse-paas-dev |
| name | **nsgflowlog-duf-weu-insights-lakehouse-paas-dev** |
| storage account | stdufweuinsightslogsnprd |
| retention days | 7 |
| traffic analytics | <enabled> |
| log analytics workspace | law-duf-weu-insights-infra-non-prod |

* + 1. Private ~~DNS zones~~

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| name | **privatelink.adf.azure.com** |
| vnet | vnet-duf-weu-insights-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| name | **privatelink.datafactory.azure.net** |
| vnet | vnet-duf-weu-insights-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| name | **privatelink.vaultcore.azure.net** |
| vnet | vnet-duf-weu-insights-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| name | **privatelink.blob.core.windows.net** |
| vnet | vnet-duf-weu-insights-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| name | **privatelink.dfs.core.windows.net** |
| vnet | vnet-duf-weu-insights-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| name | **privatelink.database.windows.net** |
| vnet | vnet-duf-weu-insights-prod |

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| name | **privatelink.adf.azure.com** |
| vnet | vnet-duf-weu-insights- non-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-lakehouse- non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| name | **privatelink.datafactory.azure.net** |
| vnet | vnet-duf-weu-insights-non-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| name | **privatelink.vaultcore.azure.net** |
| vnet | vnet-duf-weu-insights-non-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| name | **privatelink.blob.core.windows.net** |
| vnet | vnet-duf-weu-insights-non-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| name | **privatelink.dfs.core.windows.net** |
| vnet | vnet-duf-weu-insights-non-prod |
| Microsoft.Network/privateDnsZones | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| name | **privatelink.database.windows.net** |
| vnet | vnet-duf-weu-insights-non-prod |

* + 1. Private endpoints

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/privateEndpoints  Databricks | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | Westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.azuredatabricks.net |
| service connection name | psc-duf-weu-insights-lakehouse-adb |
| resource | adb-duf-weu-insights-lakehouse-prod |
| sub-resource | databricks\_ui\_api |
| Microsoft.Network/privateEndpoints  Data Factory | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.datafactory.azure.net |
| service connection name | psc-duf-weu-insights-lakehouse-adf |
| resource | adf-duf-weu-insights-lakehouse-prod |
| sub-resource | dataFactory |
| Microsoft.Network/privateEndpoints  Data Factory Portal | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-portal-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.adf.azure.com |
| service connection name | psc-duf-weu-insights-lakehouse-adf |
| resource | adf-duf-weu-insights-lakehouse-prod |
| sub-resource | portal |
| Microsoft.Network/privateEndpoints  Key Vault | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-kv-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.vaultcore.azure.net |
| service connection name | psc-duf-weu-insights-lakehouse-kv |
| resource | kv-duf-weu-insights-lakehouse-prod |
| sub-resource | vault |
| Microsoft.Network/privateEndpoints  Storage Account Blob | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-blob-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.blob.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-blob |
| resource | st-duf-weu-insights-lakehouse-prod |
| sub-resource | blob |
| Microsoft.Network/privateEndpoints  Storage Account Queue | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-queue-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.queue.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-queue |
| resource | st-duf-weu-insights-lakehouse-prod |
| sub-resource | queue |
| Microsoft.Network/privateEndpoints  Storage Account Dfs | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-dfs-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.dfs.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-dfs |
| resource | st-duf-weu-insights-lakehouse-prod |
| sub-resource | dfs |
| Microsoft.Network/privateEndpoints  Data Lake Blob | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-dls-blob-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.blob.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-dls |
| resource | dls-duf-weu-insights-lakehouse-prod |
| sub-resource | blob |
| Microsoft.Network/privateEndpoints  Data Lake Dfs | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-dls-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.dfs.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-dls-dfs |
| resource | dls-duf-weu-insights-lakehouse-prod |
| sub-resource | dfs |
| Microsoft.Network/privateEndpoints  SQL Server | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-sql-prod** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 |
| private dns zones | privatelink.database.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-sql |
| resource | sql-duf-weu-insights-lakehouse-prod |
| sub-resource | sqlServer |

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/privateEndpoints  Databricks | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.azuredatabricks.net |
| service connection name | psc-duf-weu-insights-lakehouse-adb |
| resource | adb-duf-weu-insights-lakehouse-qa |
| sub-resource | databricks\_ui\_api |
| Microsoft.Network/privateEndpoints  Data Factory | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.datafactory.azure.net |
| service connection name | psc-duf-weu-insights-lakehouse-adf |
| resource | adf-duf-weu-insights-lakehouse-qa |
| sub-resource | dataFactory |
| Microsoft.Network/privateEndpoints  Data Factory Portal | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-portal-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.adf.azure.com |
| service connection name | psc-duf-weu-insights-lakehouse-adf |
| resource | adf-duf-weu-insights-lakehouse-qa |
| sub-resource | portal |
| Microsoft.Network/privateEndpoints  Key Vault | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-kv-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.vaultcore.azure.net |
| service connection name | psc-duf-weu-insights-lakehouse-kv |
| resource | kv-duf-weu-insights-lakehouse-qa |
| sub-resource | vault |
| Microsoft.Network/privateEndpoints  Storage Account Blob | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-blob-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.blob.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-blob |
| resource | st-duf-weu-insights-lakehouse-qa |
| sub-resource | blob |
| Microsoft.Network/privateEndpoints  Storage Account Queue | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-queue-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.queue.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-queue |
| resource | st-duf-weu-insights-lakehouse-qa |
| sub-resource | queue |
| Microsoft.Network/privateEndpoints  Storage Account Dfs | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-dfs-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.dfs.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-dfs |
| resource | st-duf-weu-insights-lakehouse-qa |
| sub-resource | dfs |
| Microsoft.Network/privateEndpoints  Data Lake Blob | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-dls-blob-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.blob.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-dls |
| resource | dls-duf-weu-insights-lakehouse-qa |
| sub-resource | blob |
| Microsoft.Network/privateEndpoints  Data Lake Dfs | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-dls-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.dfs.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-dls-dfs |
| resource | dls-duf-weu-insights-lakehouse-qa |
| sub-resource | dfs |
| Microsoft.Network/privateEndpoints  SQL Server | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-sql-qa** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.168.192-26 |
| private dns zones | privatelink.database.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-sql |
| resource | sql-duf-weu-insights-lakehouse-qa |
| sub-resource | sqlServer |

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Network/privateEndpoints  Databricks | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.azuredatabricks.net |
| service connection name | psc-duf-weu-insights-lakehouse-adb |
| resource | adb-duf-weu-insights-lakehouse-dev |
| sub-resource | databricks\_ui\_api |
| Microsoft.Network/privateEndpoints  Data Factory | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.datafactory.azure.net |
| service connection name | psc-duf-weu-insights-lakehouse-adf |
| resource | adf-duf-weu-insights-lakehouse-dev |
| sub-resource | dataFactory |
| Microsoft.Network/privateEndpoints  Data Factory Portal | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-adf-portal-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.adf.azure.com |
| service connection name | psc-duf-weu-insights-lakehouse-adf |
| resource | adf-duf-weu-insights-lakehouse-dev |
| sub-resource | portal |
| Microsoft.Network/privateEndpoints  Key Vault | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-kv-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.vaultcore.azure.net |
| service connection name | psc-duf-weu-insights-lakehouse-kv |
| resource | kv-duf-weu-insights-lakehouse-dev |
| sub-resource | vault |
| Microsoft.Network/privateEndpoints  Storage Account Blob | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-blob-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.blob.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-blob |
| resource | st-duf-weu-insights-lakehouse-dev |
| sub-resource | blob |
| Microsoft.Network/privateEndpoints  Storage Account Queue | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-queue-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.queue.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-queue |
| resource | st-duf-weu-insights-lakehouse-dev |
| sub-resource | queue |
| Microsoft.Network/privateEndpoints  Storage Account Dfs | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-st-dfs-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.dfs.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-st-dfs |
| resource | st-duf-weu-insights-lakehouse-dev |
| sub-resource | dfs |
| Microsoft.Network/privateEndpoints  Data Lake Blob | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-dls-blob-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.blob.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-dls |
| resource | dls-duf-weu-insights-lakehouse-dev |
| sub-resource | blob |
| Microsoft.Network/privateEndpoints  Data Lake Dfs | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-dls-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.dfs.core.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-dls-dfs |
| resource | dls-duf-weu-insights-lakehouse-dev |
| sub-resource | dfs |
| Microsoft.Network/privateEndpoints  SQL Server | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **pl-duf-weu-insights-lakehouse-sql-dev** |
| subnet | snet-duf-weu-insights-lakehouse-paas-10.250.169.192-26 |
| private dns zones | privatelink.database.windows.net |
| service connection name | psc-duf-weu-insights-lakehouse-sql |
| resource | sql-duf-weu-insights-lakehouse-dev |
| sub-resource | sqlServer |

* + 1. Databricks services

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Databricks/workspaces | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-prod |
| location | westeurope |
| name | **adb-duf-weu-insights-lakehouse-prod** |
| sku | premium |
| managed\_resource\_group\_name | rg-duf-weu-insights-lakehouse-adb-prod |
| public\_network\_access\_enabled | false |
| virtual\_network | vnet-duf-weu-insights-prod |
| private\_subnet\_name | snet-duf-weu-insights-lakehouse-adb-priv-10.250.60.0-26 |
| public\_subnet\_name | snet-duf-weu-insights-lakehouse-adb-pub-10.250.60.64-26 |
| Compute: access mode | Custom |
| Compute: runtime version | <default> |
| Compute: worker type | Standard\_DS3v2 |
| Compute: driver type | Same as worker |
| Compute: min workers | 1 |
| Compute: max workers | 10 |
| Compute: enable autoscaling | <checked> |
| Compute: terminate after | 30 min. |
| Microsoft.Databricks/workspaces | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-qa |
| location | westeurope |
| name | **adb-duf-weu-insights-lakehouse-qa** |
| sku | premium |
| managed\_resource\_group\_name | rg-duf-weu-insights-lakehouse-adb-qa |
| public\_network\_access\_enabled | false |
| virtual\_network | vnet-duf-weu-insights-non-prod |
| private\_subnet\_name | snet-duf-weu-insights-lakehouse-adb-priv-qa-10.250.168.0-26 |
| public\_subnet\_name | snet-duf-weu-insights-lakehouse-adb-pub-qa-10.250.168.64-26 |
| Compute: access mode | Custom |
| Compute: runtime version | <default> |
| Compute: worker type | Standard\_DS3v2 |
| Compute: driver type | Same as worker |
| Compute: min workers | 2 |
| Compute: max workers | 2 |
| Compute: enable autoscaling | <unchecked> |
| Compute: terminate after | 30 min. |
| Microsoft.Databricks/workspaces | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-dev |
| location | westeurope |
| name | **adb-duf-weu-insights-lakehouse-dev** |
| sku | premium |
| managed\_resource\_group\_name | rg-duf-weu-insights-lakehouse-adb-dev |
| public\_network\_access\_enabled | false |
| virtual\_network | vnet-duf-weu-insights-non-prod |
| private\_subnet\_name | snet-duf-weu-insights-lakehouse-adb-priv-dev-10.250.169.0-26 |
| public\_subnet\_name | snet-duf-weu-insights-lakehouse-adb-pub-dev-10.250.169.64-26 |
| Compute: access mode | Custom |
| Compute: runtime version | <default> |
| Compute: worker type | Standard\_DS3v2 |
| Compute: driver type | Same as worker |
| Compute: min workers | 2 |
| Compute: max workers | 2 |
| Compute: enable autoscaling | <unchecked> |
| Compute: terminate after | 30 min. |

* + 1. Access Connector for Azure Databricks

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Databricks/accessConnectors | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-unitycatalog-prod |
| location | westeurope |
| name | **ac-duf-weu-insights-unitycatalog-prod** |

* + 1. Data factories

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.DataFactory/factories | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-prod |
| location | westeurope |
| name | **adf-duf-weu-insights-lakehouse-prod** |
| integration runtimes | Azure-SSIS: E16\_v3 (16 Core(s), 131072 MB)  Self-Hosted: CHSQL023P |
| Microsoft.DataFactory/factories | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-qa |
| location | westeurope |
| name | **adf-duf-weu-insights-lakehouse-qa** |
| integration runtimes | Azure-SSIS: E4\_v3 (4 Core(s), 32768 MB) |
| Microsoft.DataFactory/factories | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-dev |
| location | westeurope |
| name | **adf-duf-weu-insights-lakehouse-dev** |
| integration runtimes | Azure-SSIS: D2\_v3 (2 Core(s), 8192 MB) |

* + 1. Key vaults

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.KeyVault/vaults | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-prod |
| location | westeurope |
| name | **kvdufweuinsightslakeprd** |
| sku\_name | standard |
| tenant\_id | ea8e7a95-b109-4fa7-ae4c-f5372b7619ae |
| Microsoft.KeyVault/vaults | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-qa |
| location | westeurope |
| name | **Kvdufweuinsightslakeqa** |
| sku\_name | standard |
| tenant\_id | ea8e7a95-b109-4fa7-ae4c-f5372b7619ae |
| Microsoft.KeyVault/vaults | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-dev |
| location | westeurope |
| name | **kvdufweuinsightslakedev** |
| sku\_name | standard |
| tenant\_id | ea8e7a95-b109-4fa7-ae4c-f5372b7619ae |

* + 1. Storage accounts

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-prod |
| location | westeurope |
| name | **stdufweuinsightslakeprd** |
| account\_kind | Standard general-purpose v2 |
| account\_tier | Standard |
| account\_replication\_type | GRS |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **stdufweuinsightslogsprd** |
| account\_kind | Standard general-purpose v2 |
| account\_tier | Standard |
| account\_replication\_type | GRS |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-qa |
| location | westeurope |
| name | **stdufweuinsightslakeqa** |
| account\_kind | Standard general-purpose v2 |
| account\_tier | Standard |
| account\_replication\_type | LRS |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-dev |
| location | westeurope |
| name | **stdufweuinsightslakedev** |
| account\_kind | Standard general-purpose v2 |
| account\_tier | Standard |
| account\_replication\_type | LRS |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **stdufweuinsightslogsnprd** |
| account\_kind | Standard general-purpose v2 |
| account\_tier | Standard |
| account\_replication\_type | GRS |

* + 1. Data lakes

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-unitycatalog-prod |
| location | westeurope |
| name | **dlsdufweuinsightsucprd** |
| account\_kind | StorageV2 |
| account\_tier | Premium |
| account\_replication\_type | ZRS |
| is\_hns\_enabled | true |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-prod |
| location | westeurope |
| name | **dlsdufweuinsightslakeprd** |
| account\_kind | StorageV2 |
| account\_tier | Premium |
| account\_replication\_type | ZRS |
| is\_hns\_enabled | true |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-qa |
| location | westeurope |
| name | **dlsdufweuinsightslakeqa** |
| account\_kind | StorageV2 |
| account\_tier | Standard |
| account\_replication\_type | LRS |
| is\_hns\_enabled | true |
| Microsoft.Storage/storageAccounts | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-dev |
| location | westeurope |
| name | **dlsdufweuinsightslakedev** |
| account\_kind | StorageV2 |
| account\_tier | Standard |
| account\_replication\_type | LRS |
| is\_hns\_enabled | true |

* + 1. SQL servers

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Sql/servers | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-prod |
| location | westeurope |
| name | **sql-duf-weu-insights-lakehouse-prod** |
| administrator\_login | dufadmn |
| administrator\_login\_password | <random> |
| version | 12.0 |
| Microsoft.Sql/servers | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-qa |
| location | westeurope |
| name | **sql-duf-weu-insights-lakehouse-qa** |
| administrator\_login | dufadmin |
| administrator\_login\_password | <random> |
| version | 12.0 |
| Microsoft.Sql/servers | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-dev |
| location | Westeurope |
| name | **sql-duf-weu-insights-lakehouse-dev** |
| administrator\_login | Dufadmin |
| administrator\_login\_password | <random> |
| version | 12.0 |

* + 1. SQL databases

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Sql/servers/databases | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-prod |
| location | westeurope |
| name | **sqldb-duf-weu-insights-lakehouse-prod** |
| server\_name | sql-duf-weu-insights-lakehouse-prod |
| pricing tier | Standard S0: 10 DTUs |
| Microsoft.Sql/servers/databases | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-qa |
| location | westeurope |
| name | **sqldb-duf-weu-insights-lakehouse-qa** |
| server\_name | sql-duf-weu-insights-lakehouse-qa |
| pricing tier | Standard S0: 10 DTUs |
| Microsoft.Sql/servers/databases | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-dev |
| location | westeurope |
| name | **sqldb-duf-weu-insights-lakehouse-dev** |
| server\_name | sql-duf-weu-insights-lakehouse-dev |
| pricing tier | Standard S0: 10 DTUs |

* + 1. Log analytics workspaces

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Operationalinsights/workspaces | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **law-duf-weu-insights-infra-prod** |
| Microsoft.Operationalinsights/workspaces | subscription | duf-lakehouse-infra-non-prod |
| resource\_group\_name | rg-duf-weu-insights-lakehouse-non-prod |
| location | westeurope |
| name | **law-duf-weu-insights-infra-non-prod** |

* + 1. Virtual machines

|  |  |  |
| --- | --- | --- |
| Resource type | Property | Value |
| Microsoft.Compute/virtualMachines | subscription | duf-insights-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-prod |
| location | westeurope |
| name | **AZUDUFLAK001WP** |
| size | Standard B2s (2 vcpus, 4 GiB memory) |
| os | Windows Server 2022 Datacenter |
| image | 2022-datacenter-g2 |
| vm arch | x64 |
| subnet | snet-duf-weu-insights-lakehouse-iaas-10.250.60.128-26 |
| Microsoft.Compute/virtualMachines | subscription | duf-insights-non-prod |
| resource\_group\_name | rg-duf-weu-insights-infra-non-prod |
| location | westeurope |
| name | **AZUDUFLAK001WD** |
| size | Standard B2s (2 vcpus, 4 GiB memory) |
| os | Windows Server 2022 Datacenter |
| image | 2022-datacenter-g2 |
| vm arch | x64 |
| subnet | snet-duf-weu-insights-lakehouse-iaas-qa-10.250.168.128-26 |

* 1. IAM

|  |  |  |
| --- | --- | --- |
| Resource group | AAD Group | Role |
| rg-duf-weu-insights-infra-prod | azg-duf-insights-infra-prod-owner-rg | Owner |
| azg-duf-insights-infra-prod-reader-rg | Reader |
| azg-duf-insights-infra-prod-contributor-rg | Contributor |
| rg-duf-weu-insights-lakehouse-prod | azg-duf-insights-lakehouse-prod-owner-rg | Owner |
| azg-duf-insights-lakehouse-prod-reader-rg | Reader |
| azg-duf-insights-lakehouse-prod-contributor-rg | Contributor |
| rg-duf-weu-insights-lakehouse-qa | azg-duf-insights-lakehouse-qa-owner-rg | Owner |
| azg-duf-insights-lakehouse-qa-reader-rg | Reader |
| azg-duf-insights-lakehouse-qa-contributor-rg | Contributor |
| rg-duf-weu-insights-lakehouse-dev | azg-duf-insights-lakehouse-dev-owner-rg | Owner |
| azg-duf-insights-lakehouse-dev-reader-rg | Reader |
| azg-duf-insights-lakehouse-dev-contributor-rg | Contributor |
| rg-duf-weu-insights-infra-non-prod | azg-duf-insights-infra-prod-owner-rg | Owner |
| azg-duf-insights-infra-prod-reader-rg | Reader |
| azg-duf-insights-infra-prod-contributor-rg | Contributor |

* 1. IP Addressing

|  |  |  |  |
| --- | --- | --- | --- |
| VNet | Range | Subnets | Range |
| vnet-duf-weu-insights-prod | 10.250.60.0/22  :  - 10.250.60.0  - 10.250.61.0  - 10.250.62.0  - 10.250.63.0 | snet-duf-weu-insights-lakehouse-adb-priv-10.250.60.0-26 | 10.250.60.0/26 |
| snet-duf-weu-insights-lakehouse-adb-pub-10.250.60.64-26 | 10.250.60.64/26 |
| snet-duf-weu-insights-lakehouse-iaas-10.250.60.128-26 | 10.250.60.128/26 |
| snet-duf-weu-insights-lakehouse-paas-10.250.60.192-26 | 10.250.60.192/26 |
| vnet-duf-weu-insights-unitycatalog-prod | 10.250.0.0/23 | snet-duf-weu-nsights-unitycatalog-prod-10.250.126.192-28 | 10.250.126.192/28 |
| vnet-duf-weu-insights-non-prod | 10.250.168.0/22:  - 10.250.168.0  - 10.250.169.0  - 10.250.170.0  - 10.250.171.0 | snet-duf-weu-insights-lakehouse-adb-priv-qa-10.250.168.0-26 | 10.250.168.0/26 |
| snet-duf-weu-insights-lakehouse-adb-pub-qa-10.250.168.64-26 | 10.250.168.64/26 |
| snet-duf-weu-insights-lakehouse-iaas-qa-10.250.168.128-26 | 10.250.168.128/26 |
| snet-duf-weu-insights-lakehouse-paas-qa-10.250.168.192-26 | 10.250.168.192/26 |
| snet-duf-weu-insights-lakehouse-adb-priv-dev-10.250.169.0-26 | 10.250.169.0/26 |
| snet-duf-weu-insights-lakehouse-adb-pub-dev-10.250.169.64-26 | 10.250.169.64/26 |
| snet-duf-weu-insights-lakehouse-iaas-dev-10.250.169.128-26 | 10.250.169.128/26 |
| snet-duf-weu-insights-lakehouse-paas-dev-10.250.169.192-26 | 10.250.169.192/26 |

* 1. Automation

Implementation of the solution components utilizes Hashicorp Terraform product, an open-source IaC (Infrastructure-as-Code) tool for provisioning and managing cloud infrastructure.

Code is stored in Azure DevOps Repo in the following location:

|  |  |
| --- | --- |
| Component | Location / Url |
| Organization | DufryGlobal |
| Project | [Infrastructure Automation](https://dev.azure.com/DufryGlobal/Infrastructure%20Automation) |
| Production service principal name | app-reg-duf-insights-infra-prod |
| Production service principal RBAC | Scope:   * subscription: duf-insights-prod   Role:   * Owner |
| Non-production service principal name | app-reg-duf-insights-infra-non-prod |
| Non-production service principal RBAC | Scope:   * subscription: duf-insights-non-prod   Role:   * Owner |

Implementation of the resource content, including feed of Databricks, etc. is isolated from infrastructure development and is delivered over separate to above Azure DevOps Repo and identieties:

|  |  |
| --- | --- |
| Component | Location / Url |
| Organization | DufryGlobal |
| Project | [Dufry Insights Lakehouse](https://dev.azure.com/DufryGlobal/Dufry%20Insights%20Lakehouse) |
| Production service principal name | app-reg-duf-insights-lakehouse-prod |
| Production service principal RBAC | Scope:   * storage account: st-duf-weu-insights-lakehouse-prod   Roles:   * EventGrid EventSubscription Contributor * Storage Blob Data Owner |
| Scope:   * datalake: dls-duf-weu-insights-lakehouse-prod   Roles:   * Contributor, EventGrid EventSubscription Contributor * Storage Blob Data Owner * Storage Queue Data Contributor |
| Non-production service principal name | app-reg-duf-insights-lakehouse-non-prod |
| Non-production service principal RBAC | Scope:   * storage account: st-duf-weu-insights-lakehouse-qa * storage account: st-duf-weu-insights-lakehouse-dev   Roles:   * EventGrid EventSubscription Contributor * Storage Blob Data Owner |
| Scope:   * datalake: dls-duf-weu-insights-lakehouse-qa * datalake: dls-duf-weu-insights-lakehouse-dev   Roles:   * Contributor, EventGrid EventSubscription Contributor * Storage Blob Data Owner * Storage Queue Data Contributor |

* 1. Cost estimation

|  |  |  |
| --- | --- | --- |
| Env | Estimation per month | Details |
| PROD | 7,966.07 CHF | [DUF Lakehouse Platform\_v0.4 - cost estimation PROD.xlsx](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=cdXeWrnJferU5UPYTsVAfHSiL6NnvscK%2BtwjHZ109Rs%3D&docid=2_1f6f551329175479ca3a5be5df106c8a7&rev=1&e=l87Ghn) |
| QA | 3,348.17 CHF | [DUF Lakehouse Platform\_v0.4 - cost estimation QA.xlsx](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=me8yyYTLjan4MGzEDZUsTmqVJir1bWikGdDz3UGA%2FWk%3D&docid=2_175f8518ea7e24a13bf2e9aee62972f97&rev=1&e=y0Wgtq) |
| DEV | 2,031.71 CHF | [DUF Lakehouse Platform\_v0.4 - cost estimation DEV.xlsx](https://dufry0.sharepoint.com/sites/DufryHybridCloud/_layouts/15/guestaccess.aspx?guestaccesstoken=%2BUUiUMHlfTR5TrmxDsB%2F6tJRUJDnM8mR%2F1NFDUQu6qk%3D&docid=2_1ef56667dfe1a4399adeb8c9252e945ec&rev=1&e=I9fE6q) |

1. Abbreviations and definitions

|  |  |
| --- | --- |
| Abbreviation / term: | Meaning |
| IaC | Infrastructure as a code |
| AI | Artificial intelligence |
| ML | Machine learning |
| LZ | Landing zone |
| IAM | Identity and access management |
| HLD | High level design |
| LLD | Low level design |
| RACI | R = Responsible / A = Accountable / C = Consult / I = Information |