



JOB DESCRIPTION

Post Details:

Post Title: **Data Engineer** Organizational Element: CTO
 Military/Civilian: CIV Location: The Hague, NDL

Organisation context:

This is a position within the NATO Communications and Information Agency (NCIA), an organization of the North Atlantic Treaty Organization (NATO).

To strengthen the Alliance through connecting its forces, the NCIA delivers secure, coherent, cost effective and interoperable communications and information systems in support of consultation, command & control and enabling intelligence, surveillance and reconnaissance capabilities, for NATO, where and when required. It includes IT support to the Alliances' business processes (to include provision of IT shared services) to the NATO HQ, the Command Structure and NATO Agencies.

Organisational Element Statement of Functions:

The Chief Technology Office (CTO) is enabling the digital transformation of NATO ICT, establishing the Agency's technical vision and IT engineering strategy including management of the research and development of emerging technology.

Job role description:

A Data Engineer is responsible for deploying, operating, and evolving the data infrastructure and tooling required for the efficient, secure, and reliable processing of data across connected and airgapped environments. He/She deploys and maintains data platform components on various infrastructure settings with varying requirements, applies DataOps principles to automate and govern the data lifecycle, and provides basic MLOps support to enable AI/ML workloads. Beyond technical delivery, this role advises NATO Enterprise and Alliance partners on data architectural frameworks, including Data Mesh, Data Space, and federated governance models, contributing to standardisation efforts and capability coherence across the Alliance. The post-holder is expected to drive initiatives with a high degree of autonomy, taking ownership of cross-cutting platform and architectural challenges without requiring detailed direction.

Duties and Responsibilities:

Data infrastructure deployment and operations

- Deploys, configures, and maintains data platform components (orchestrators, catalogues, object stores, query engines, and lakehouse tooling) on containerized infrastructure using GitOps practices.
- Operates and supports the data platform in both cloud-connected and airgapped/disconnected environments, including tactical edge deployments; adapts tooling and configuration to meet the constraints of classified and operationally isolated networks.
- Troubleshoots platform issues, manages storage and networking configuration, and contributes to platform hardening in line with applicable security policies.

DataOps and MLOps practice

- Applies DataOps methodologies to automate, monitor, and continuously improve data pipelines; implements pipeline observability, data quality automation, CI/CD for data, and metadata management practices.
- Provides basic MLOps support including packaging of ML pipelines, model registry integration, experiment environment reproducibility, and support for inference serving infrastructure.

Enterprise data architecture guidance

- Engages with NATO Enterprise and Alliance stakeholders to guide data architectural decisions; contributes to standardisation efforts, interoperability frameworks, and the adoption of federated data architectures.
- Advises on the design and implementation of Data Mesh and Data Space paradigms at organisational scale, including domain ownership models, data product thinking, and federated governance structures.
- Proactively identifies opportunities to improve platform capability and data architectural coherence; leads or co-leads initiatives with a high degree of self-direction, driving outcomes without requiring detailed guidance.

Data engineering

- Designs and implements data pipelines and data stores to acquire and prepare data.
- Applies data engineering standards and tools to create and maintain data pipelines and extract, transform and load data.
- Carries out routine data quality checks and remediation.

Programming/software development

- Designs, codes, verifies, tests, documents, amends and refactors moderately complex programs/scripts.
- Applies agreed standards and tools to achieve a well-engineered result.
- Monitors and reports on progress.
- Identifies issues related to software development activities.
- Proposes practical solutions to resolve issues.
- Collaborates in reviews of work with others as appropriate.

Systems integration and build

- Defines the software modules needed for an integration build and produces a build definition for each generation of the software.
- Accepts completed software modules, ensuring that they meet defined criteria.
- Produces software builds from software source code for loading onto target hardware.
- Configures the hardware and software environment as required by the system being integrated.
- Produces integration test specifications, conducts tests and records and reports on outcomes.
- Diagnoses faults and records and reports on the results of tests.
- Produces system integration reports.

Data management

- Assesses the integrity of data from multiple sources.
- Provides advice on the transformation of data from one format/medium to another.
- Maintains and implements information handling procedures.
- Enables the availability, integrity and searchability of information through the application of formal data and metadata structures and protection measures.

Data modelling and design

- Applies standard data modelling and design techniques based upon a detailed understanding of requirements.
- Establishes, modifies and maintains data structures and associated components.
- Communicates the details of data structures and associated components to others using the data structures and associated components.

Additional duties for this post:

Deputize for higher grade staff; if required.

Performs other duties as may be required.

Education, Experience and Training (essential):**Education:**

A minimum requirement of a Bachelor's degree at a nationally recognised/certified University in a related discipline, such as Computer Science, Data Science and Engineering, and 2 years post-related experience. Or exceptionally, the lack of a university degree may be compensated by the demonstration of a candidate's particular abilities or experience that is/are of interest to NCIA, that is, at least 6 years extensive and progressive expertise in duties related to the function of the post.

Experience:

- Hands-on experience deploying and operating data platform tooling (e.g. orchestrators, metadata catalogues, object stores, query engines) in cloud and/or airgapped environments.
- Solid understanding of DataOps principles: pipeline observability and alerting, data quality automation, CI/CD for data assets, lineage tracking, and metadata management.
- Basic familiarity with MLOps practices: ML pipeline packaging, model versioning and registry, experiment reproducibility, and integration of model serving infrastructure into the broader data platform.
- Strong understanding of data engineering concepts, including data warehousing, ETL/ELT processes and data governance
- Experience in planning and maintaining data lakes and pipeline processes, both batch-wise and (near) real-time;
- Experience in using of data engineering tools to support development of data science, data analytics and AI applications for both, structured and unstructured, data
- Demonstrated ability to advise on or contribute to enterprise data architecture decisions, including data interoperability, federated governance, or large-scale data platform design.
- Experience with monitoring and logging tools to ensure the reliability and performance of data pipelines and AI systems.
- Solid understanding of containerization and orchestration tools such as Docker and Kubernetes.
- Experience with cloud platforms such as AWS, Google Cloud or Azure

- Solid understanding of good software development principles such as version control, CI/CD, unit/functional testing.
- Strong proficiency in Python for building and integrating various data engineering components
- Solid understanding of data security best practices, including data encryption, access controls, authentication/authorization mechanisms, and compliance requirements.

Desirable experience:

- Practical experience working in airgapped, disconnected, or operationally isolated environments; ability to adapt data platform tooling and workflows to cross-domain and multi-classification network constraints.
- Familiarity with federated data architectures and frameworks.
- Knowledge of data standards and governance frameworks, such as DCAT, ODPS etc.
- Experience in multi-classification, including attribute-based access control (ABAC) or policy-enforcement mechanisms (e.g. OPA) for data-centric security.
- Exposure to Data Mesh principles and domain-oriented data ownership models in the context of large-scale or federated organisations.
- Experience with AI/ML libraries such as TensorFlow, PyTorch and Transformers

Behavioural competencies:

- *Delivering Results and Meeting Customer Expectations* - Focuses on customer needs and satisfaction; sets high standards for quality and quantity; monitors and maintains quality and productivity; works in a systematic, methodical and orderly way; consistently achieves project goals.
- *Adapting and Responding to Change* - Adapts to changing circumstances; tolerates ambiguity; accepts new ideas and change initiatives; adapts interpersonal style to suit different people or situations; shows an interest in new experiences.
- *Taking Initiative and Driving Results* - Proactively identifies opportunities to improve platform capability, data quality, and architectural coherence; drives technical and organisational initiatives without requiring detailed direction; takes ownership of cross-cutting challenges and guides others toward solutions; demonstrates self-discipline in managing competing priorities and delivering outcomes in complex, multi-stakeholder environments.

Language:

A thorough knowledge of one of the two NATO languages, both written and spoken, is essential and some knowledge of the other is desirable.

NOTE: Most of the work of the NCIA is conducted in the English language.