

Terms of Reference

Data Migration Specialist

Document Type	Terms of Reference
Position	Data Migration Specialist
Engagement Focus	Data migration, ETL/ELT, business intelligence, Linux, Kubernetes, automation, and database modernization

1. Background

The organization seeks to engage a Data Migration Specialist to support the migration, modernization, validation, and operationalization of data from legacy systems, databases, files, APIs, and existing platforms into new or upgraded digital systems.

The assignment requires strong experience in Linux systems, database technologies, ETL pipelines, business intelligence, data marts, automation, containerized infrastructure, system integration, and production-grade deployment practices.

2. Objective

The objective of this assignment is to plan, design, execute, validate, and document data migration activities while improving data quality, interoperability, accessibility, reporting capability, and long-term maintainability.

The specialist will also support automation, technical training, and knowledge transfer so internal teams can operate and maintain the migrated environment.

3. Scope of Work

1. Review existing source systems, databases, files, APIs, data warehouses, and reporting platforms.
2. Assess data quality, completeness, duplication, consistency, structure, and migration readiness.
3. Develop a detailed data migration strategy covering methodology, risks, dependencies, validation, rollback, and cutover.
4. Prepare source-to-target data mapping documents.
5. Design and implement ETL/ELT pipelines using Apache NiFi, Talend, Python, SQL, Bash, or equivalent tools.

6. Support development or modernization of data marts, data warehouses, BI dashboards, and analytical datasets.
7. Clean, transform, normalize, reconcile, and load data into target systems.
8. Analyze source and target data structures, design migration workflows, and execute migration activities across approved data platforms in line with the agreed migration strategy.
9. Handle structured and semi-structured data formats including CSV, Excel, JSON, XML, SQL dumps, API data, logs, and object storage sources.
10. Work with Linux server environments for migration execution, automation, troubleshooting, scheduling, and monitoring.
11. Deploy and manage migration tools or supporting services using Docker, Kubernetes, Helm, Ansible, CI/CD pipelines, or similar technologies.
12. Work with S3-compatible storage, MinIO, or other object storage platforms where required.
13. Develop validation scripts, reconciliation reports, exception logs, audit trails, and data quality checks.
14. Support interoperability, metadata management, open data, reporting, and data dissemination requirements.
15. Where applicable, support geospatial data processing and integration.
16. Conduct test migrations, resolve defects, tune performance, and prepare production migration procedures.
17. Support production cutover, rollback readiness, post-migration monitoring, and stabilization.
18. Prepare technical documentation, operational guides, and knowledge transfer materials.

4. Deliverables

19. Data migration assessment report.
20. Data migration strategy and implementation plan.
21. Source-to-target data mapping document.
22. Data cleansing and transformation rules.
23. ETL/ELT workflows, Apache NiFi flows, SQL scripts, Python/Bash scripts, Ansible playbooks, or equivalent automation assets.
24. Database migration scripts and schema conversion documentation.
25. BI, data mart, or data warehouse design inputs, where required.
26. Data quality and validation framework.
27. Test migration report and issue log.
28. Reconciliation and exception reports.
29. Production migration execution report.
30. Rollback and contingency plan.
31. Final verified migrated dataset.
32. Technical documentation and handover notes.
33. Knowledge transfer or training session for technical staff.

5. Required Qualifications and Experience

34. A master's degree in information technology, Computer Science, Software Engineering, Information Systems, Data Engineering, or a related field.
35. At least 7 years of professional experience in data migration, database engineering, ETL development, business intelligence, DevOps, software development, systems integration, or IT architecture.
36. Proven experience designing and implementing data migration strategies for production or mission-critical systems.
37. Proven experience modernizing databases, data pipelines, data marts, reporting platforms, or data dissemination systems.
38. Strong ability to translate complex technical and business requirements into practical, scalable, and maintainable solutions.
39. Experience preparing technical documentation, operational guides, and knowledge transfer materials.
40. Experience working with technical teams, business users, vendors, and senior stakeholders.

6. Required Specialties

41. Linux server administration, shell scripting, scheduling, troubleshooting, and production operations.
42. Kubernetes, Docker, Helm, container orchestration, and deployment automation.
43. ETL/ELT design and implementation using tools such as Apache NiFi, Talend, Python, SQL, Bash, or equivalent.
44. Business intelligence, data marts, data warehousing, OLAP, dashboards, and analytical reporting.
45. Database systems including MySQL, PostgreSQL, MariaDB, Cassandra, SQL Server, NoSQL databases, and file-based repositories.
46. Data migration across relational, non-relational, structured, semi-structured, and file-based data sources.
47. API-based data integration using JSON, XML, REST/SOAP services, CSV, Excel, SQL dumps, logs, and object storage.
48. Infrastructure and migration automation using Ansible, CI/CD pipelines, scripting, or equivalent tools.
49. Data quality assurance, reconciliation, validation scripts, audit trails, exception handling, and performance tuning.
50. Object storage and S3-compatible platforms such as MinIO or equivalent.

7. Desirable Experience

51. Experience with government, statistical, telecom, enterprise, or development-sector data systems.

- 52. Experience with large-scale or mission-critical production data environments.
- 53. Experience with open-source technologies and Linux-based production platforms.
- 54. Experience with monitoring and observability tools such as Prometheus, Grafana, or Opsgenie.
- 55. Experience with geospatial data integration and dissemination.
- 56. Experience with database modernization, legacy system replacement, and data dissemination platforms.
- 57. Experience leading technical teams, coordinating vendors, or managing cross-functional delivery.
- 58. Experience providing technical training or capacity building to internal IT teams.

8. Key Competencies

- 59. Strong analytical and problem-solving ability.
- 60. Strong understanding of database structures, relationships, indexing, performance, and migration risks.
- 61. Attention to detail in validation, reconciliation, and data quality assurance.
- 62. Ability to work independently and deliver within agreed timelines.
- 63. Strong communication skills with technical and non-technical stakeholders.
- 64. Commitment to data confidentiality, integrity, and security.
- 65. Practical understanding of Linux, containerized environments, and production operations.
- 66. Ability to mentor, train, and support internal technical staff.
- 67. Professionalism, reliability, and ability to work in collaborative project environments.

9. Reporting Arrangement

The Data Migration Specialist shall report to the Project Manager, Technical Lead, Head of IT, Chief Technology Officer, or another designated official.

The specialist shall coordinate with application teams, database administrators, infrastructure teams, BI/reporting teams, business units, vendors, and data owners.

10. Duration

The duration of the assignment shall be determined based on the volume and complexity of data, number of source systems, readiness of the target platform, and agreed migration timeline.

11. Acceptance Criteria

- 68. Required data has been migrated to the target system.
- 69. ETL/ELT workflows and migration scripts are tested and handed over.
- 70. Data validation and reconciliation meet agreed acceptance thresholds.
- 71. BI, data mart, or reporting datasets are available where required.

- 72. Critical data quality issues are resolved or documented with approved exceptions.
- 73. Migration automation assets and operational procedures are handed over.
- 74. Technical documentation is complete.
- 75. Relevant staff have received knowledge transfer.
- 76. The migrated system is stable after production migration and post-migration support.

12. Recommended Documents

Interested candidates should submit;

- A letter of interest
- Detailed CV
- National ID card copy
- Experience letters
- Previous similar works undertaken by the developer

Schedule of payment: The developer will be paid monthly upon submission of the timesheet and invoice.

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