## ****Section 8: RAID and Mitigation****

This section outlines the potential **Risks**, underlying **Assumptions**, current or anticipated **Issues**, critical **Dependencies**, and corresponding mitigation strategies. The RAID log helps proactively manage uncertainties and ensures smooth execution of automation testing.

### **8.1 Risks and Mitigation**

| **Risk ID** | **Risk Description** | **Impact** | **Likelihood** | **Mitigation Plan** |
| --- | --- | --- | --- | --- |
| R01 | Delays in CDA data availability from AWS S3 | High (Delays testing and production readiness) | Medium | Interim validation using Read Replica ingestion path prioritized; parallel testing initiated once CDA data is stable and available. |
| R02 | Connectivity or access issues with S3 data via VPN-based Databricks clusters | High (Blocks CDA ingestion validation) | Medium | Early verification and continuous monitoring of VPN tunnels; dedicated support from Cloud Ops/Data Engineering team. |
| R03 | Missing or incomplete data in staging layers | High (Incomplete validation results) | Medium | Daily data integrity checks performed by Data Engineering before automation execution; manual team verification of staging layers prior to testing. |
| R04 | Schema drift between Read Replica and CDA files | Medium (Rework and retesting efforts) | Low | Continuous schema monitoring implemented as part of the automation; proactive communication with source data teams. |
| R05 | Environment downtime (Databricks or ADF) | High (Disruption in validation timelines) | Low | Regular backup schedules and predefined recovery plans; scheduled maintenance windows coordinated across teams. |
| R06 | Data anomalies or duplicates not identified during initial testing | Medium (Data accuracy risks in production) | Medium | Robust validation checks including anomaly detection and duplicate checks as standard part of automation framework. |
| R07 | Firewall restrictions affecting manual JIRA updates | Low (Delayed reporting processes) | High | Manual JIRA reporting procedures clearly documented and integrated into the QA workflow; dedicated resource allocated for manual updates. |

### **8.2 Assumptions**

| **Assumption ID** | **Description** |
| --- | --- |
| A01 | Automation team granted required read-only access to all source systems (Oracle, PostgreSQL, CDA via AWS S3). |
| A02 | Staging layers are fully provisioned, contain accurate 7-day historical data via version control. |
| A03 | Test data scenarios and data provisioning are managed outside the automation scope by the manual QA/UI teams. |
| A04 | Databricks and Azure DevOps environments fully operational, appropriately sized, and available before test execution. |
| A05 | Databricks clusters securely configured for VPN-based S3 access managed by Cloud Ops/Data Engineering teams. |
| A06 | Parallel validation (Read Replica and CDA) performed only if both sources are simultaneously available; otherwise, prioritization of Read Replica validation applies. |
| A07 | Automation tests focus on delta (incremental) loads only; historical data validation explicitly excluded. |

### **8.3 Issues and Mitigation**

| **Issue ID** | **Issue Description** | **Impact** | **Current Status** | **Mitigation Plan** |
| --- | --- | --- | --- | --- |
| I01 | Direct integration between Databricks (cloud) and JIRA (self-hosted) not feasible due to firewall | Low (Manual overhead) | Accepted (Long-term constraint) | Manual reporting workflows established; regular checks to maintain reporting accuracy. |
| I02 | Limited availability of CDA initial full-load data from Guidewire | High (Testing delays) | Open (Being tracked) | Interim solution using Read Replica ingestion path fully implemented and tested. |

### **8.4 Dependencies**

| **Dependency ID** | **Dependency Description** | **Impact** | **Mitigation** |
| --- | --- | --- | --- |
| D01 | Availability and readiness of Databricks clusters configured for secure VPN-based S3 access by Data Engineering team | High (Essential for CDA validation) | Confirmed readiness checks performed before scheduled testing begins; regular status checks with Data Engineering team. |
| D02 | Timely provisioning and refresh of staging layers by Data Engineering | High (Critical for daily validation runs) | Clearly defined SLA for staging layer data refresh, daily communications, and status monitoring. |
| D03 | Timely availability of approved and agreed-upon table lists from Data Engineering for validation scope | Medium (Influences testing scope) | Regular sync meetings with Data Engineering and QA team to finalize and confirm scope; changes documented clearly. |
| D04 | Azure DevOps integration and CI/CD pipeline readiness | Medium (Affects deployment of automation scripts) | DevOps team engagement early in test preparation phase; thorough testing of CI/CD pipeline prior to execution. |
| D05 | Test scenario creation and test data provisioning managed by manual QA/UI teams | Medium (Required input for automation) | Continuous coordination and tracking of test data availability between manual QA and automation teams. |

## ****Section 14: RAID and Mitigation Table Matrix****

### 🛑 **14.1 Risks**

| **Risk ID** | **Risk Description** | **Impact** | **Likelihood** | **Owner** | **Mitigation Strategy** |
| --- | --- | --- | --- | --- | --- |
| R-01 | Delay in CDA file availability from S3 | High | Medium | Data Engineering | Interim Read Replica ingestion path used for early validation. Parallel test enabled when CDA becomes available. |
| R-02 | Cluster VPN access to AWS S3 not configured in time | High | Medium | Cloud Ops / Infra | Request and test VPN connectivity early in the schedule. Define a fallback schedule with Read Replica validation only. |
| R-03 | Missing or stale data in staging layers | High | Medium | Data Engineering | Staging layer refresh SOP to be established. 7-day snapshot versioning enforced. |
| R-04 | Schema drift between Oracle, Read Replica, and CDA | Medium | Low | Automation Lead / Data Engg | Schema validation automated in early phase. Trigger alerts if structural mismatches are detected. |
| R-05 | Limited compute resources in Databricks during peak testing | Medium | Medium | DevOps / Infra | Pre-allocate test window compute clusters. Add autoscaling buffer if required. |
| R-06 | Manual JIRA updates delayed due to firewall limitations | Low | High | QA / Test Manager | Define reporting cadence. Automate export from Databricks and manual update process in checklist. |
| R-07 | Stakeholder unavailability for defect triaging | Medium | Medium | QA / Product Team | Schedule recurring triage sessions. Escalate unresolved blockers after 24h. |

### ✅ **14.2 Assumptions**

| **Assumption ID** | **Assumption Description** | **Impact if False** | **Mitigation Plan** |
| --- | --- | --- | --- |
| A-01 | Access is granted to Oracle, Read Replica, and S3 before test start | High | Submit access requests 2 weeks in advance. Escalate to Security/IT if delayed. |
| A-02 | Staging layers are refreshed daily with 7-day version control | High | Include staging validation as pre-check in workflow. Request email alerts on data refresh. |
| A-03 | VPN and IAM permissions are active for S3 access | High | Infra team to test VPN prior to test window. Confirm on cluster via dry-run. |
| A-04 | All automation environments (Test/Prod) are pre-provisioned | Medium | Use Dev environment for simulation. Delay execution if Prod not ready. |
| A-05 | Test data is prepared and available via UI team in Oracle | Medium | Manual QA team to confirm readiness 48h before test run. |
| A-06 | Azure DevOps pipeline is ready and linked to Databricks | High | Include pipeline dry run in pre-execution checklist. Have manual fallback for deployments. |

### ⚠️ **14.3 Issues**

| **Issue ID** | **Issue Description** | **Current Status** | **Impact** | **Resolution Strategy** |
| --- | --- | --- | --- | --- |
| I-01 | JIRA is self-hosted and cannot integrate directly with Databricks | Open | Low | Maintain manual sync through exportable test result templates. |
| I-02 | Delay in table list approval from Data Engineering | Open | Medium | QA lead to follow up weekly and log blocker in JIRA for visibility. |
| I-03 | Test data provisioning delayed due to dependency on manual team | Risk Observed | Medium | Manual team to provide committed timeline. Have backup test data preloaded where possible. |
| I-04 | Performance metrics comparison (ADF vs. Databricks) partially missing | In Progress | Medium | Define exact test tables and automate timing capture in next sprint. |

### 🔗 **14.4 Dependencies**

| **Dependency ID** | **Dependency Description** | **Owner** | **Impact if Blocked** | **Contingency** |
| --- | --- | --- | --- | --- |
| D-01 | Secure VPN-based access to AWS S3 for CDA | Cloud / Infra Team | High | Proceed with Read Replica testing as primary source |
| D-02 | Staging layer creation and refresh logic | Data Engineering | High | Use historical mock dataset in Dev to simulate delta load |
| D-03 | DevOps pipeline CI/CD setup for notebook deployment | DevOps | High | Deploy manually from Git until pipeline is ready |
| D-04 | Approved list of tables from Data Engineering | Data Engineering | Medium | Proceed with approved subset. Freeze scope mid-cycle. |
| D-05 | QA manual team delivers input test scenarios in time | QA Manual Team | Medium | Parallel run automation with test-ready tables only |

-------------------------------------------------------------