HCL AION v2.0.0 – General Availability Release Notes

Release Date: *July 31st 2025*

HCL proudly introduces the General Availability (GA) release of **HCL AION v2.0.0**, a comprehensive AI platform designed to seamlessly manage the entire machine learning lifecycle, from data ingestion to deployment and continuous monitoring. HCL AION provides a robust, scalable, and intuitive environment, enabling organizations to rapidly develop and deploy AI-driven solutions.

Key Capabilities

Platform and Architecture

- **Microservices-Based Architecture:** Modular, scalable architecture built around microservices, delivering exceptional scalability, resilience, and flexibility.
- **API-First Design:** RESTful APIs for streamlined automation and integration with external tools and workflows.
- **Intuitive User Interface:** Responsive UI with simplified navigation, optimized content access, and powerful search capabilities.
- **Centralized Diagnostics:** A unified diagnostics and debugging dashboard for real-time monitoring, performance profiling, resource utilization tracking, proactive alerts, and efficient troubleshooting.

Security and Access Control

- **Role-Based Access Control (RBAC):** Granular user permissions and streamlined user management through Keycloak integration.
- **Single Sign-On (SSO):** Simplified user authentication leveraging existing enterprise credentials for secure and convenient platform access.
- **Secure API Authorization:** Robust protection mechanisms ensuring secure and compliant programmatic interactions.

Key Features

Data Management & Quality

Extensive Data Source Compatibility

- Support for structured and unstructured sources:
  - Databases: Actian, Apache Nifi, Microsoft SQL, MySQL, PostgreSQL, SKLearn
  - Structured files: .csv
  - Unstructured files: .txt, .log, .pdf
- Integration with PySpark for scalable real-time analytics.

Advanced Data Quality Checks

- Automated data validation for errors, missing values, duplication, and column integrity.

Exploratory Data Analysis (EDA)

- Robust EDA tools for data overview, correlation analysis, fairness assessment, clustering, and time series analytics.
- Easy generation and download of comprehensive EDA reports.

Data Cleaning and Transformation

- Extensive numeric and textual data cleaning capabilities, including advanced imputation methods and text normalization (stemming, lemmatization).
- Rich feature transformation toolkit, including encoding, normalization, and derived column creation.

Scalable Data Ingestion

- Efficient processing and ingestion of large datasets through PySpark.
- Flexible dataset management supporting multiple datasets with lifecycle control (FIFO expiration after 3 months).

AI Model Development and Training

Automated Problem Type Recommendation

- AION automatically analyses the uploaded dataset to recommend the most suitable problem type.

Intelligent AutoML Capabilities

- Automated AI model development optimized for use-case-specific efficiency, requiring minimal manual intervention.

Feature Engineering Techniques

- Principal Component Analysis (PCA)
- Singular Value Decomposition (SVD)
- Independent Component Analysis (ICA)
- Factor Analysis

Advanced Hyperparameter Optimization

- Grid Search, Random Search, and Bayesian Optimization techniques to refine model performance.

Robust Model Evaluation

- Extensive evaluation tools including ROC curves, precision-recall curves, and predicted vs actual data analysis.

Real-Time Training Insights

- Instant notifications via Redis, comprehensive training logs, and interactive leaderboards for streamlined monitoring of model training status and performance metrics.

Model Chaining (Pipelining)

- Support for sophisticated model workflows by chaining multiple models for complex predictions, inference tasks, and feature extraction.

Comprehensive Model Metadata

- Clear visibility into model attributes such as trainer, algorithm type, performance metrics, dataset characteristics, and ethical considerations for informed model selection.

Deployment Readiness

- Robust pre-deployment evaluation including baseline performance assessments, uncertainty quantification, and built-in support for A/B testing.

Model Deployment Options

- Python script package deployment
- Docker container deployment
- Machine Learning as Code (MLAC)
- Bring Your Own Model (BYOM): Import externally trained models in standard formats (HDF5, ONNX, Pickle) directly into HCL AION for immediate use.

Secure Deployment Mechanisms

- Docker image security through integrated signing and verification processes (Docker Content Trust), ensuring integrity and authenticity of deployed models.
- Enhanced Docker security with authentication file handling.

Prediction and Explainability

Comprehensive Prediction Capabilities

- Single-instance predictions, batch predictions, and automatic REST API invocation via auto-generated Python code.

Transparent Model Explainability

- Integrated explainability tools (SHAP, Alibi), providing clear insights into model behaviour, feature importance, and prediction rationale.

Model Monitoring and Iteration

Drift Monitoring

- Continuous monitoring of model input and performance drift for maintaining model accuracy and relevance.

Easy Iterative Model Refinement

- Effortless reconfiguration and retraining options facilitating rapid iteration of AI models.

Known Bugs

Unable to Download "Download Report" for Anomaly Detection Using Isolation Forest and OneclassSVM Algorithm
Date Column Missing in Features Used in Model Summary page for all the algorithms
BYOM Explain Batch Displays Only 0,0,0,0 for Clustering Problem Type
BYOM Explain Batch Fails with 503 Error for Regression Problem Type
Data Keeps Loading in Explain Batch Prediction for Anomaly Detection Using DBSCAN (Even with Only 10 Records)
Data Keeps Loading in Explain Batch Prediction for Anomaly Detection Using OneClassSVM (Even with Only 10 Records)
“Download Report” button intermittently fails – 500 Internal Server Error
Duplicate UseCase name is allowed in application
While creating Use Case In alert message(mandatory field) table border is not proper (Enhancement)
Simple Model Comparison button is not working
EDA Graph is not interactive (Readable/Hoverable)
New version can be created(Retrain or Reconfigure) without the previous version being trained - Enhancement
Target Feature is Displayed in Prediction for Time-Series Problem Type
Outlier Detection Missing on Model Summary for Anomaly Detection Problem Type
After Clicking 'GET STARTED' button home page is displayed for few seconds before login page (Inconsistent)
Testing Data Evaluation shows score for only one algorithm despite multiple algorithms being used
Apart from Target Feature, all features should be selected by default in the configuration
Incorrect message when invalid file is uploaded for Batch Prediction (Request failed with status code 500)
Incorrect message when invalid file is uploaded for Explain Batch Prediction (500 Internal Server Error)
Incorrect message when invalid file is uploaded for Drift (Request failed with status code 503)
Disable the "Model Drift" tab from BYOM for Clustering problem type
Explain batch prediction takes long time for 50 records. (Performance Issue)
Reports (Column name) needs to be modified- In Downloaded Reports- Evaluated Models- ModelUncertainty/ModelConfidenceScore are not displayed like model summary UI (Regression- Lasso,Random Forest, Ridge, Decision tree algo)
KDE Chart Not Displayed in Time Series-Pair Graph - EDA. - Enhancement
Implement Proper Error Handling and User Messages for All Functionalities - Enhancement
Pyspark Training is extremely slow (Inconsistent)
Algorithm Name Missing in Prediction Output for All Models Except ARIMA, ARIMA-GARCH, and FBProphet
Add MAPE and WMAPE to Scoring Criteria for Time Series Problem Type in AION V2
Model Training Fails When Selecting Multiple Algorithms for Anomaly Detection
AutoML process fails — No model configuration details populated
Inconsistent Date Format in MLP and LSTM Predictions – Includes Timestamp (00:00:00)
Alignment issue in downloaded EDA report (PDF File)
Model Training Fails When "Optuna" Optimization Technique is Selected Under Advanced Configuration for Classification Problem Type

Model Training Fails When "BayesOpt" Optimization Technique is Selected Under Advanced Configuration for Classification Problem Type
Alignment issue in Input Drift (HTML File)
Internal server error while switching to version/Or opening any use case (Intermittently)
Shadow displays in Page, when In Model Configuration page clicking on 'Advanced Configuration' or 'Next Step'(Inconsistent)
Text Alignment issue in Explainability
AION Enabled training failing-MODEL_TRAINING_SERVICE Disconnected without sending a response (Problem Type-Classification, Algo-Bagging)
AION Enabled training failing-MODEL_TRAINING_SERVICE Disconnected without sending a response (Problem Type-Classification, Algo-Support Vector Machine)
Incorrect initMode Value Under Testing Data Evaluation for PySpark Clustering.(Pyspark, Clustering).
Specific Case- AI471 Not able to Retrain from version 1. It is failing without any log details.
On EDA, Graphs Under Single Tab Are Not Downloaded Together
'Restore Defaults button looks disabled (Model Configuration page) - Enhancement
Incorrect Capitalization of "Regression" in Problem Type Field on BYOM
Single Prediction Not Working for KMeans on Clustering Data Enhanced Dataset (Works for DBSCAN)
Bar Plot Not Clearly Visible in Pair Graph under Anomaly Detection on EDA
Correlation Type Automatically Resets to Pearson When Changing Tabs under Correlation Analysis in EDA
Single Prediction Output Shows 'date' String Instead of Valid Results – After Importing Time-Series Use Case from V1 to V2
Mismatch in the UI value and Downloaded report.(PySpark)
Restore Defaults button is Not working (Model Configuration page)
Home Page- Notifications(Top bell icon) are not enabled
Improper Logging in Model Input Drift for AX3_exp_resolution – Regression (Linear Regression)
Improper Logging in Model Input Drift for AX1_group_prediction – Classification (XGBoost)
EDA output is not refreshed after a new dataset is uploaded
Inconsistent Date Format in Forecast Output for LSTM Model
Selected Features Get Merged When Changing Problem Type from Time Series to Classification with VAR Algorithm
On EDA not able to generate REF graph for Anomaly detection
Unable to Generate REF Graph in EDA for Clustering Problem Type
Blank pages in downloaded EDA report (Word File)
PySpark Batch Prediction is failing for large dataset (91 MB)-Classification
Filter Functionality Not Working or Not Showing Proper Error for Categorical/Text Features
Unable to Proceed to Model Training Page After Uploading JSON in Advanced Configuration
Multiple Issues in EDA Graphs & Report Generation for Regression Problems
Unable to Generate SHAP Graph Under Feature Importance for Anomaly Detection on EDA
Unable to Generate SHAP Graph Under Feature Importance for Clustering Problem Type on EDA
EDA:Incorrect Boundary Validation and Error Message for Custom Order in Timeseries Univariate Analysis
No Proper Error Message Displayed When Graph Generation Fails on EDA
PySpark Failed to injest data (2.7 GB dataset)

Model Training Failed When Selecting Pivot Params Under Time-Based Interpolation in Time Series Settings
PDF File Accepted in Structured Data Upload – Validation Missing
On BYOM for Regression Problem type algorithm name and problem type should not be same. It is showing regression for both
Time Series Univariate – EDA PDF Report Fails with TypeError: '<= not supported between instances of 'str' and 'int'`
PySpark Regression training failed: Generalised Linear Regression
Cap limit missing on Custom Order field in Time Series Univariate Analysis under EDA
Box Plot Not Clearly Visible in Pair Graph under Anomaly Detection on EDA
Cramér's Graph Displayed Despite Zero Categorical Features in Data Overview under EDA

End of Release Notes