

Mistral Data Limited
Product Review
Q1 2023 (January - March)



Q1 2023 (January to March) Delivered

Mistral successfully delivered several new **integrations, APIs** and completed **preparation work to support the wider Sarma** project delivery. Completed and progressed work includes:

Hitachi Schedule module (delivered, AWC): Completed ahead of schedule, this module enables the delivery of the on-board modules for the Hitachi programme (SRS, APC, SOS and SCH).

Service Now Feed (delivered, AWC): Provision of real-time service updates, stock allocation and staff roster data to Service Now, replacing legacy Digital API.

Sarma enabling (in progress, SWR/TPE): Derivation tuning to allow scaling to a larger TOC - necessary for the future deployment of Sarma at SWR and TPE.

Ventoux SRS Integration phase 1 (delivered, GWR/TPE): An interface to allow real-time reservations, overcoming the previous 4-seat restriction on reservations as a consequence of the LARS legacy stats file.

Q2 2023 (April to June) Planned Deliverables

Mistral resource for Q2 will focus on delivery of:

- Staff App API changes: Enables Solano to look at services due to call at a location, regardless of origin or prior location to meet a requirement to provide a set of data with the services to all the stations that can be reached directly from a single (user defined) station in the next hour
- Further Sarma project enabling
- Service cancellation flag: Enhancement to the relating to the data to more accurately represent service cancellations
- Ventoux integration (Phase 2)
- Papagayo phase 2, catering for automated messaging scenarios (cancellations, set swaps etc)
- Technical changes for security and performance
- Relocates: Removal of reservations where there is a variation in reserved stock versus actual stock - assisting in short form situations, with the ability to retain some reservations.

Q1 2023 (January to March) Delivered

Sirocco development effort across Q1 focussed primarily on the release of **Papagayo**, alongside improvements to both **virtual allocations (stock)** and **delay reporting**. Completed and progressed work includes:

Papagayo (delivered SWR, AWC, TPE): Messaging from Sirocco to Solano. End to end functionality for manual messaging and automatic notifications of full service cancellations and reminders to take manual passenger counts, improving communications between control and crew.

GSMR based virtual allocations: Improvements to the information displayed when stock mismatches (GSM-R verses Genius allocation) occur.

GPS based virtual allocations: Improvements to the information displayed when Sirocco identifies from GPS data that a unit is not where the allocation suggests it should be.

Delay Reason improvements: Minor improvements to the delay dashboard and station delay processing based on user feedback.

Q2 2023 (April to June) Planned Deliverables

Sirocco resources for Q2 will concentrate on the following projects:

- Completion of project to show non-TPE services on the TPE map
- Implementation of a report on delays on red signals coming out of depots onto Network Rail track
- Include phone numbers for Guards within the train service details view
- Papagayo ph 2 - further automated use cases (single/multiple cancelled stops, start forward etc).

Q1 2023 (January to March) Delivered

First quarter effort has progressed two key workstreams for Berth Maps.

Map creation (AWC network): Maps have been created from Warrington north to Glasgow/Edinburgh. These maps will continue to be populated and connected before moving to UAT.

Service List: Creation of a service list within Berth Maps, showing service punctuality -aligning Berth Maps with the features available in CCF, P2, TMIS - forming part of the Berth Maps MVP.

Q2 2023 (April to June) Planned Deliverables

Second quarter effort will deliver:

- Completion of the Service List, which will be available to all users
- Continued work on AWC map consultancy
- The addition of Trust Berths, ensuring visibility of services where GPS or TD data is unavailable, including visibility of other TOC services in non TD areas
- Interactive Berth Maps for depot management. A proof of concept, developing the capability to use drag/drop to document location of units in depots

Q1 2023 (January to March) Delivered

Significant effort continues to be invested into the **wider development of Sarma**, to scale for larger operators and manage both rostering and crew allocation alongside stock allocations. In addition to the core development workstream, **automated diagram uploads** has been released to the platform. Full details of completed and progressed work includes:

Automated diagram uploads (complete): The manual upload of diagrams to the system by Hull/Lumo users has now been superseded by automation from Worldline Voyager Plan.

Crew rostering (in progress): Capability is in development, and on schedule for creation and allocation of base, planned, weekly and daily rosters.

Business rules dashboard (creation and management of rules) in progress and remains on schedule.

Fatigue index (on 30d trial) has been applied by the development team.

Both Sarma APIs have been developed and shared for use by the Solano development team.

Q2 2023 (April to June) Planned Deliverables

Confirmed Sarma activity for Q2 includes:

- Complete crew rostering development by April
- Complete On the day allocations development by May
- Complete integration with key interface systems such as HR/Payroll and Maintenance
- Complete Internal testing and UAT by late June for Hull/Lumo deployment

Q1 2023 (January to March) Delivered

Solano has seen significant development and adoption during this quarter. Design continues to **support Sarma requirements** including diagram annotation and partial service display. New features were completed and deployed for a '**Station view**' as well as **Papagayo**, the transformative messaging capability bridging both operational/control teams with front line staff. Completed and progressed work includes:

Papagayo (delivered): New capability within Sirocco, to send text messages to Solano users, based on role, service, platform/station or route, improving communication between control and operational staff.

Station View (delivered, AWC): Station user version of the App with emphasis on live arrivals and departures, journey planning, delay reporting, disruption messages and defect reporting.

Station Information (delivered, AWC): National Rail Enquiries maintained Station Information integrated in Solano Station View, providing better information to staff and customers.

Journey Planner (delivered, AWC): Google Journey Planner integrated in Solano Station View.

Q2 2023 (April to June) Planned Deliverables

Solano resources for Q2 will concentrate on the following projects:

- Solano Station view configured for Southwestern Railway
- Station Defects view and reporting feature for Southwestern Railway
- Train Defects API integration for Southwestern Railway
- Operational Incident Reporting for Southwestern Railway, including incidents/security and revenue/illness
- Continued development and delivery of Operational Incident reporting for Avanti West Coast
- Sarma phase 1 for both Hull and Lumo



Q1 2023 (January to March) Delivered

Denali has completed a busy development period, focused on the delivery of **Message Orchestration modules** (both Timetable Comparator for Hull Trains and Cancellations) and progressing the full **Denali deployment at Hull Trains**. Full details of completed and progressed work includes:

Message Orchestration - Cancellations: Technical delivery is complete and available for UAT for all TOCs.

Message Orchestration - Timetable Comparator (HT): Technical delivery is complete and available for UAT by HT.

Denali implementation (in progress, HT): Progression of Hull Trains Denali implementation, including new data sources and DG Consent implementation across customer registration touchpoints.

Q1 2023 (January to March) Additional Deliverables

During Q1, the Denali service desk fielded 106 tickets.

- 72 tickets were closed due to completion
- 16 tickets were closed due to cancellation
- 11 tickets are open with third parties/customers
- 7 remain open as work in progress

Q2 2023 (April to June) Planned Deliverables

Denali resource for Q2 will focus on delivery of:

- GDPR: Business rules and test cases complete. Customer consent analysis to be carried out once valid account list and last login data supplied from Worldline.
- Completion of Hull Trains Denali implementation
- AWC Refunds data to be pulled into Denali and sent to SFMC
- Legal basis (AWC): Adjusting consent status for Service messages to 'Legitimate Interest'
- U16 (AWC, SWR): Applying DG Consent widget changes and mandatory age consent updates
- PMS datafeed: Completion of Reference Data that is required for both Message Orchestration and Denali to ensure data such as ticket types and station names are always kept up to date
- Address data into SFMC (AWC)
- Wifi sessions data ingest (SWR, AWC)
- Purple wifi data ingest (AWC)



Q1 2023 (January to March) Delivered

Across Q1, build effort has focused on the ongoing development to **deploy Kamet** into Hull Trains, and **support Message Orchestration distribution**.

The Kamet release at the end of March provided email templates required for both Timetable Comparator (HT) and Cancellations (Lumo and HT) communications via Message Orchestration, and progressed the wider Kamet implementation at HT for all customer communications, initially focussing on the Welcome email, newsletters and pre-journey communications.

Q2 2023 (April to June) Planned Deliverables

Effort for Q2 will complete the implementation of Kamet at Hull Trains alongside a wider review of customer communication opportunities at both Hull Trains and Lumo.

Q1 2023 (January to March) Delivered

Ventoux has delivered several **optimisations** and new features including **enhanced forecasting** and visualising **split ticketing opportunities**. Completed work includes:

Split ticketing (complete): Display all split ticketing opportunities on a single service - forerunner of future features to add CSIs and action rules to manage split ticketing. This reduces revenue leakage from split ticketing, which is now more obvious to passengers since trainline.com identifies the opportunity on their main website.

Automated optimisations (complete): Optimise during the working day automatically if physical availability changes (stock change), preventing loss of revenue due to sudden capacity increases or overcrowding due to sudden decreases.

Mistral/Ventoux interface ph 1 (complete): Passing real time reservation data into Mistral (to inform SRS), overcoming the previous 4-seat restriction on reservations as a consequence of the LARS legacy stats file

Q2 2023 (April to June) Planned Deliverables

In Q2 Ventoux will deliver:

- Expansion on split ticketing visualisation
- Perform automated optimisations due to bursts of bookings
- Optimisations for APOD
- Switch from QL2 to Wiremind as price scraping source
- UI visualisation of a whole day with own and competitor pricing.

Q1 2023 (January to March) Delivered

During the first quarter of 2023, Zonda has made several improvements including **UI enhancements**, **memory optimisation** and expanding **historical data availability**. Completed and progressed work includes:

Geofencing/rules enhancement (in UAT for approvals): Capability to set a rule and alert specific to a geo location. This was developed to support a specific SWR use case.

Historical data (in UAT for approval): Making historical data (>30 days) available to both Notus and Zonda for analysis, assisting performance and operational analysis.

UI enhancements (complete): Continued improvement of the Zonda User Interface based on user feedback and UI analysis.

Memory optimisation (complete): Code changes to improve memory optimisation - improving performance and cost efficiency.

Q2 2023 (April to June) Planned Deliverables

Zonda resources for Q2 will concentrate on the following projects:

- UI enhancements (SWR): Continued improvements to the core platform
- Instrumental (SWR): Data ingest of fuel monitoring data from
- Geofencing/rules enhancement (SWR): Further use cases for the use of targeted geogencing, associated with rules to generate location specific alerting
- G30 trial - data ingest (GWR): Set up Grinsty feed for data ingest for electric vehicle trial for one train
- G30 trial - visualisation and alerts (GWR): Create the appropriate graphs, visualisations, data tables, rules creation, rules editing and alert distribution
- G30 trial - battery management feed (GWR): Create a battery management feed including the introduction of a IOT collector to ingest and distribute battery related data from the vehicle PLC
- G30 trial - battery management mapping (GWR): Create and introduce all relevant data mapping associated with converting raw data feeds into meaningful channel and event data

Q1 2023 (January to March) Delivered

Q1 was a major development period for **Datahub 2**, which is specifically designed to handle **sub-sectional data sources** and provide more **detailed performance analysis**.

This new data warehouse builds upon the success of Datahub 1, which allowed for efficient and accurate sectional analysis by pre-processing, cleaning, and integrating data into a single source of truth.

Datahub 2 takes things further by integrating additional data sources such as OTMR and S-Class data, along with the established sources from DH1 (Bugle, Trust, TD, and GPS). We have also redesigned the GPS data processing to record timestamps for any passing location, making it even more precise.

With Datahub 2, analysts can gain a better understanding of the root causes of incidents or delays. They can create dashboards that highlight sub-sections where trains accumulate delay over time, with precise geography such as berth or signal level. They can demonstrate how sub-dwell events oscillate over time using different parameters. DH2 timestamps and aggregates measures for sub-dwell events such as Wheels Stop, Doors Open, Doors Closed, Train Ready to Start Signal, and Wheels Start, sliced by time periods, headcode groups, or crew.

Overall, Datahub 2 provides analysts with even more detailed insights into train performance, enabling them to identify areas for improvement and make data-driven decisions to enhance operational efficiency and customer satisfaction.

Q2 2023 (April to June) Planned Deliverables

Resource for Q2 will focus on post launch support of Datahub 2, with new development opportunities to be discussed after teams have had an opportunity to use and assess the new release.

Q1 2023 (January to March) Delivered

During Q1, Cloud Operations (CLOPS) has continued to enhance the suite of tools and services which enables users to **streamline processes, enhance security, and improve overall system performance**. Specific developments during the first quarter include:

CLOPS Dashboard Reporting Tool: Developed for both Operators and FirstGroup Security, this tool provides data insights and reports, enabling better monitoring, analysis and optimisation of AWS Account Security.

CLOPS Managed Remediation Service with GWR: Our Managed Remediation Service has commenced with GWR, demonstrating impressive results in reducing security issues in the first period:

- CRITICAL: Reduced from 1 to 0 (100% improvement)
- HIGH: Reduced from 43 to 31 (27% improvement)
- MEDIUM: Reduced from 226 to 149 (34% improvement)
- LOW: Reduced from 41 to 23 (43% improvement)

Q1 2023 (January to March) Delivered

BI has been focussing efforts on the **migration of commercial datasets to Snowflake** to enable better insights and reporting, with **BPC developments** and technical projects. Work included:

Gateline Reporting (GWR, SWR, TPE): developed and made available for user testing in Snowflake.

Passenger Counts reporting migration to Snowflake (All TOCs): data models developed in Snowflake to capture all real time counts via Mistral and datahub, for all fleets. Internal testing in progress.

Payroll reporting (AWC, SWR): developed and made available for user testing in SAP BW and BPC, to enable financial reporting and planning. Enhancements to SWR payroll reporting, to enable reconciliation using rail and payroll periods.

BPC: change requests were developed and delivered including – Fleet & Mileage model improvements, import of revenue data from Snowflake into BPC, uploader for Revenue actuals

SAP RISE program (discovery & planning): Rail finance initiative to move SAP systems (including BW) to SAP cloud, and upgrade SAP ECC to S4HANA. Discovery phase completed with identification of tasks, roles and responsibilities of various parties involved. Planning phase is in progress, with detailed project plan with dates being worked on.

Q2 2023 (April to June) Planned Deliverables

BI resource for Q2 will focus on delivery of:

- Passenger counts in snowflake: delivery of all the real time counts from datahub, and discovery phase of rest of the count sources into Snowflake
- eTVD datasets in Snowflake: enable all eTVD scanning data reporting in Snowflake
- CRM change request & migration: redevelop CRM data models from Denali in Snowflake, to enable historical insights for customer consents reporting, and improved insights of CRM data
- TPE Payroll: Validate and reconcile data with finance, and create reports for financial reporting
- BPC: below change request are planned to be delivered in next quarter –
 - Fleet and mileage Actuals
 - Switching initiatives on and off
 - SWR – fleet Maintenance
- SAP RISE: preparations and delivery of phase 1 (BW servers to move from AWS to SAP cloud), and planning for phase 2 (amending/adapting SAP extractors to new S4HANA)