System Release Specification: August 12, 2026 Platform Upgrade

Installation · https://cbotai.shahrear.msf.bd/docs/system-release-specification-august-12-2026-platform-upgrade/

This document details the architecture, deployment sequence, data migration strategy, and contingency procedures for the enterprise infrastructure upgrade scheduled for August 12, 2026. This release introduces version 5.0.0 of the core telemetry platform, enabling real-time stream ingestion, zero-downtime database failover, and updated REST and gRPC application programming interfaces.

Executive Summary & Operational Overview

The August 12, 2026 release represents A major architectural shift from legacy batch processing to an event-driven, microservices-based model. System components will undergo rolling upgrades across all global edge locations to ensure continuous uptime during the high-throughput observational event period coinciding with the total solar eclipse astronomical event on the same date.

> **Critical Notice:** All automated deployment pipelines will enter A strict code freeze on August 5, 2026, at 23:59 UTC. Only emergency hotfixes validated through the staging environment will be permitted prior to the primary deployment window.

Key Deliverables

- Deployment of the high-throughput telemetry pipeline for real-time sensor processing.
- Migration from PostgreSQL 14 to A multi-region distributed database cluster.
- Deprecation of API v3 endpoints in favor of API v5 JSON-API and gRPC interfaces.
- Implementation of multi-region zero-downtime deployment strategies across AWS, Azure, and on-premises edge nodes.

Release Timeline & Maintenance Windows

The deployment strategy utilizes A phased execution model across three geographic regions to maintain system stability and prevent service interruption for mission-critical services.

Phase	Target Region	Start Time (UTC)	End Time (UTC)	Service Impact
Phase 1	Asia-Pacific (APAC)	01:00:00	03:00:00	Zero downtime (rolling update)
Phase 2	Europe/Middle East (EMEA)	05:00:00	07:00:00	Zero downtime (rolling update)
Phase 3	Americas (AMER)	09:00:00	11:00:00	Brief API latency increase (< 200ms)
Phase 4	Global Verification	11:00:00	12:00:00	None (Read-only integration test)

System Architecture & Telemetry Pipeline

The updated architecture introduces distributed event streaming via Apache Kafka, allowing edge nodes deployed in high-altitude and solar-observation zones to stream high-density telemetry directly to central analytics storage.

Data Flow Architecture

1. **Edge Collection:** Sensor nodes collect environmental and optical measurement payload at 100 Hz.
2. **Ingestion Layer:** Edge proxy authenticates data packets using mutual TLS (mTLS) and forwards them to regional Kafka brokers.
3. **Processing Engine:** Apache Flink jobs calculate anomaly metrics and index data into the primary time-series database.
4. **Client Layer:** Real-time dashboards consume state updates through WebSocket subscriptions and gRPC streams.

Kafka Topic Schema Definition

Below is the JSON Schema contract for the incoming telemetry payload active as of the August 12, 2026 deployment:

```
{
  "$schema": "https://json-schema.org/draft/2020-12/schema",
  "title": "TelemetryPayload2026",
  "type": "object",
  "properties": {
    "node_id": {
      "type": "string",
      "format": "uuid"
    },
    "timestamp": {
      "type": "string",
      "format": "date-time"
    },
    "metrics": {
      "type": "object",
      "properties": {
        "solar_irradiance": { "type": "number" },
        "ambient_temperature": { "type": "number" },
        "atmospheric_pressure": { "type": "number" }
      },
      "required": ["solar_irradiance", "ambient_temperature"]
    }
  },
  "required": ["node_id", "timestamp", "metrics"]
}
```

API Reference & Endpoint Mapping

Clients interfacing with the telemetry system must update their HTTP request headers and base URLs to target the v5 API gateway. Detailed OpenAPI specifications are accessible on the Developer Portal.

Endpoint Migration Table

Method	Legacy Endpoint (v3/v4)	New Endpoint (v5)	Status

`GET`	`/api/v3/telemetry/live`	`/api/v5/streams/telemetry/live`