Aviotix Security Whitepaper

Version 1.0 — DT360 Cloud Platform
Aviotix Ltd., Dublin, Ireland

1. Overview

Aviotix Ltd. provides DT360, a cloud-based photogrammetry and digital-twin platform that processes imagery captured by drones, cameras, and mobile devices. Security, data privacy, and operational integrity are core architectural principles. This document summarizes the key controls, safeguards, and compliance measures implemented across the platform.

2. Security Architecture

2.1 Infrastructure & Hosting

- All production systems are hosted in **EU-based data centers**, compliant with ISO 27001 and ISO 27018 standards.
- Multi-zone architecture ensures isolation between compute nodes, orchestration services, and storage layers.
- GPU processing nodes operate in isolated worker clusters with no inbound public access.

2.2 Data Transmission & Storage

- **Encryption In Transit:** TLS 1.2+ enforced for all connections (dashboard, APIs, upload endpoints).
- **Encryption At Rest:** Encrypted storage volumes for raw images, intermediate outputs, logs, and final 3D models.
- **Dataset Segregation:** Each customer's data is logically isolated in the storage layer to prevent cross-access.

3. Access Control & Authentication

- **Role-based access control (RBAC)** within the admin layer restricts operational privilege.
- Internal access is granted only to authorized engineers under the principle of **least privilege**.
- Full access audit trails are preserved for all administrative actions.
- Optional multi-factor authentication (MFA) is available for enterprise clients.

4. Data Privacy & GDPR Compliance

Aviotix acts as a **Data Processor** under GDPR.
Key commitments include:

- **Data residency:** All customer data processed within the EU.
- **Retention control:** Customers may delete datasets at any time; automatic expiry can be configured by plan.
- **Right to erasure:** Immediate irreversible deletion upon request.
- **Right to access & portability:** Customers may export all models and metadata.
- **DPA available** for contractual agreements.

Aviotix does **not** use customer imagery for model training. No datasets are repurposed or shared with third parties.

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5. Photo Integrity & Anti-Manipulation Controls

DT360 includes a dedicated **Photo Integrity Check & Deepfake Detection** pipeline:

- EXIF consistency analysis (timestamps, device signatures, GNSS drift).
- JPEG quantization tables, ELA entropy, noise residual anomalies.
- GNSS vs DEM altitude checks; Galileo HAS correction cross-validation.
- AI-based manipulation scoring (non-biometric, content-agnostic).
  These protections help prevent fraudulent, altered, or synthetic datasets from entering the reconstruction pipeline.

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6. Operational Security

- **Continuous monitoring** of worker nodes, queues, GPU loads, and storage integrity.
- **Automated failover** for stalled or incomplete pipelines.
- **Strict separation of duties** between development and production.
- **Regular software patching** of OS, Python/PHP runtimes, and dependencies.
- **Backup and recovery procedures** tested periodically.

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7. Incident Response

Aviotix maintains a structured incident response flow:

- Triage within **1 hour** for critical incidents.
- Root cause analysis and containment steps documented.
- Customer notification for any incident affecting data integrity or availability.
- Post-incident reports provided for enterprise clients upon request.

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8. Customer Responsibilities

To maintain platform security, customers must:

- Protect login credentials and enable MFA where possible.
- Upload only lawful, non-malicious datasets.
- Report suspicious activity or anomalies via support channels.

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9. Summary

Aviotix delivers a secure, EU-compliant digital-twin platform with strong controls across infrastructure, data protection, access management, and operational processes. Its native Photo Integrity pipeline provides additional assurance that uploaded imagery is authentic and uncompromised—an advantage for industries requiring trust and auditability.

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