

Chapter 1 — Introduction to BR-UTM

1.1 What Is BR-UTM?

BR-UTM is the **Brazilian UAS Traffic Management** system, operated and overseen by **DECEA** (Departamento de Controle do Espaço Aéreo), the Brazilian Department of Airspace Control, under the Brazilian Air Force.

Its purpose is to safely coordinate the operation of Unmanned Aerial Systems (UAS — drones) in Brazilian low-altitude airspace. As the number of commercial and industrial drone operations grows, it becomes critical to ensure that multiple operators can share the same airspace without conflict, and that public safety is maintained at all times.

A useful analogy: **BR-UTM works like a central bank for drone flight planning**. Just as a central bank does not conduct commerce itself but provides the infrastructure, rules, and oversight that allow banks to operate reliably and interoperably — DECEA does not fly drones, but it provides the infrastructure, protocols, and oversight that allow companies to fly drones safely and in coordination with one another.

1.2 The Role of DECEA

DECEA is responsible for:

- **Defining and maintaining the standards and protocols** that govern how drone operations are planned, coordinated, and tracked.
- **Operating the central services** of the BR-UTM ecosystem, including the Authentication Server, the Discovery and Synchronization Service (DSS), and the Portal UTM.
- **Validating and authorizing** companies that wish to integrate their software systems into the BR-UTM ecosystem.
- **Creating and managing airspace constraints** — restrictions that reflect no-fly zones, ATM (manned aviation) traffic, DASA-sourced airspace reservations, and other regulatory limitations.
- **Overseeing conformance** — monitoring whether drone operations are being conducted within their declared volumes.

DECEA also operates its own USS (UAS Service Supplier) instance, which it uses to inject high-priority constraints and respond to emergency situations in the airspace.

1.3 The Ecosystem — Key Players

The BR-UTM ecosystem has three main categories of participants:

DECEA (the Authority)

The regulator and infrastructure provider. Operates the DSS, Auth Server, Portal UTM, Interface UTM, and DECEA's own USS. Creates constraints. Validates and approves new USSs.

USS — UAS Service Suppliers (Integrated Companies)

Companies that have been validated and authorized by DECEA to operate within the BR-UTM ecosystem. A USS manages its own drone operations: it creates flight plans, coordinates with other USSs, activates flights, tracks conformance in real time, and exposes telemetry.

A USS is a software system that must:

- Communicate with DECEA's DSS to register and discover flight intentions.
- Communicate peer-to-peer with other USSs to share operational details.
- Expose a set of public HTTP APIs so other USSs and DECEA can query flight information.
- Monitor its own drones for conformance and react automatically to airspace changes.

Drone Operators / End Users

The humans or organizations that operate the physical drones. They interact with the USS software (which the company provides) to submit flight plans, receive approvals, and conduct operations. Their interaction is with the USS, not directly with DECEA's APIs.

1.4 BR-UTM Services

The ecosystem exposes several services, all available under the **Sandbox environment** base domain `*.sandbox.brutm.dcta.mil.br`:

Service	URL	Description
Portal UTM	<code>http://portal.sandbox.brutm.dcta.mil.br/</code>	Web portal for companies. Manage accounts, API keys, UTM zones, developer documentation, and support.
Interface UTM	<code>http://interface.sandbox.brutm.dcta.mil.br/</code>	3D airspace visualization tool. Displays live OIRs, Constraints, ISAs, UTM Zones, and Remote ID telemetry.
API Gateway	<code>http://api.sandbox.brutm.dcta.mil.br/</code>	Entry point for all machine-to-machine APIs.
Auth Server	<code>http://api.sandbox.brutm.dcta.mil.br/token</code>	OAuth2 token endpoint for acquiring JWT access tokens.
DSS	<code>http://api.sandbox.brutm.dcta.mil.br/dss</code>	Discovery and Synchronization Service — the coordination index for airspace operations.
UTM Zones API	<code>http://api.sandbox.brutm.dcta.mil.br/zonautm</code>	API for querying the UTM Zones a company is authorized to operate in.

Note: The production environment URLs are separate and are only accessible after a company has completed the homologation process. The old `montreal.icea.decea.mil.br` URLs found in older documentation are **deprecated** and must not be used.

1.5 International Standards

BR-UTM is built on internationally recognized standards:

- **ASTM F3548-21** — Standard Specification for UAS Traffic Management (UTM) UAS Service Supplier (USS) Interoperability. Defines the strategic coordination protocol between USSs and the DSS.
- **ASTM F3411-22A** — Standard Specification for Remote ID and Tracking. Defines how UASs broadcast and share their identity and location.
- **InterUSS Platform** — An open-source implementation of the ASTM standards, upon which DECEA's DSS is based. This ensures the system is fully interoperable with other international UTM implementations.

The OpenAPI contracts that define the exact HTTP interfaces are published by DECEA and are the definitive reference for integration. They are provided in this repository under the `interfaces/` directory.

1.6 Phases of the Project

BR-UTM is being deployed incrementally. The current operational phase is **Phase 1**, which defines:

- The permission level for validated software: **U1**.
- All operational intents in Phase 1 operate at **priority level 0**. No priority differentiation between operators exists yet.
- All flight types (VLOS, EVLOS, BVLOS) are supported in terms of the protocol, but the business and regulatory rules for each are defined by ANAC and ANATEL separately.

Future phases will introduce priority differentiation based on USS scores, use cases (e.g., medical emergency), and other factors.

1.7 What This Guide Covers

This guide is intended for **software engineers and technical teams** at companies wishing to integrate their systems into BR-UTM as a USS. It covers:

- How to onboard your company and obtain API credentials.
- How authentication and authorization work.
- How to plan, register, activate, execute, and close a drone flight.
- What APIs your system must implement and expose.
- The non-functional requirements your system must satisfy.
- How the homologation (validation) process works.

For regulatory compliance (ANAC, ANATEL, SISANT, SARPAS), consult the applicable Brazilian aviation regulations separately — those topics are outside the scope of this guide.

Revision #5

Created 12 July 2026 20:04:54 by João Pedro Favoretti

Updated 14 July 2026 13:19:47 by João Pedro Favoretti