

# Space Object Registration by the European Space Agency: **current policy and practice**

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UN COPUOS Legal Subcommittee

14 April 2015

- Convention on Registration of Objects Launched into Outer Space (REG) opened for signature on 14Jan75 and entered into force on 15Sep76
- **December 1978:** Council of the European Space Research Organisation (**ESRO**) **declared acceptance** of the REG
- First international intergovernmental organisation (IGO) to accept the rights and obligations provided for in the REG
- To date, two more IGOs have followed ESA's example:
- **EUMETSAT** in 1997 and
- **EUTELSAT-IGO** in 2014.

- ESA has responded to the following obligations:
  1. establishment of a “national” space object **registry** (Art.II para.1 REG);
  2. information of the UN Secretary-General of the **establishment** of this registry (Art. II para.1 REG);
  3. **registration of space objects** launched by ESA as launching State into Earth orbit or beyond, by means of entry in this registry (Art.II para.1 REG);
  4. **notification** to the UN Secretary-General of certain information regarding each space object carried on its registry (Article IV para.1 REG) and of
  5. space objects concerning which ESA has previously transmitted information, and which have been but **no longer are** in Earth orbit (Article IV para.3 REG).

# The new ESA Registration Policy



- Recently, the ESA Director General issued a **policy for the registration of ESA space objects** based on the best practice of the Agency :
- and developing it further to meet the goals of
  - guaranteeing, at any time, up-to-date, centralised information about all ESA space objects
  - giving a “guiding example in space object registration”.
- Entry into force in March 2014

ESA  
Director General's Office

ESA/ADMIN/IPOL(2014)3  
Att.: Annex  
Paris, 28 March 2014  
(Original: English)

Distribution: all staff  
ESA unclassified – “Releasable to the Public”

**ESA Space Object Registration Policy**

**1. INTRODUCTION**

An accurate and transparent overview over space objects in orbit around Earth is an indispensable requisite for space traffic management by the international community. This includes space debris mitigation and re-entry safety measures. ESA Council has taken the decision to accept the rights and obligations codified in the Convention on Registration of Objects Launched into Outer Space, and as such ESA is committed to respect its resulting international obligations and to give a guiding example in space object registration.

The present Instruction establishes the ESA policy for internal and external registration of ESA space objects, which is based on the best practice of the Agency and which shall guarantee – at any time – up-to-date, accurate and centralised information about space objects launched under its responsibility and associated potential liability.

**2. POLICY**

It is the Agency's policy that:

- all ESA space objects shall be registered in the ESA-internal register maintained by the Department in charge of legal affairs;
- registration information for each ESA space object shall be provided to the Department in charge of legal affairs by the Programme/Project/Mission Managers in accordance with Annex 1 to this instruction;
- in conformity with its international obligations, ESA will notify the Secretary-General of the United Nations of ESA space objects; and
- the above notification shall be furnished to the UN in reasonable time after the launch or status change of an ESA space object (not later than one month), using the appropriate UN registration format.

**3. SCOPE OF APPLICATION**

This policy shall apply to all ESA space objects, defined as:

- ESA assets embarked on an ESA or non-ESA launch, entering an orbit.
- Launcher stages for launches under an ESA development programme, entering an orbit.

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- The ESA Registration Policy formalises the elements of ESA’s space object registration process, i.e. that:
  1. all ESA space objects shall be registered in an ESA-internal register maintained by the ESA department in charge of legal affairs;
  2. all related information is to be provided for that purpose by the respective programme / project / mission manager in accordance with a **structured process**;
  3. ESA will continue to notify the UN Secretary-General of ESA space objects in conformity with its international obligations, and
  4. this notification shall be furnished to the UN in reasonable time after the launch or status change of an ESA space object, but **not later than one month after the launch or status change**.

# SWARM



“The three Swarm satellites are expected to reach their final orbits in April 2014; the orbital parameters provided in the registration forms are those of the expected final orbits and do therefore not correspond to the actual position of the satellites during the transit phase. ESA will confirm the final Swarm orbits upon arrival of the spacecraft and start of their scientific mission.”



# “ESA space object”



- working definitions, including of the term “ESA space object”:
  - a) ESA assets embarked on an ESA or non-ESA launch, entering an orbit around Earth;
  - b) launcher stages for launches under an ESA development programme, entering an orbit around Earth;
  - c) adaptors, fairings and other elements associated to a) or b).
  - d) ESA space objects being launched beyond Earth orbit are also registered and notified accordingly.

# The new ESA Space Object Register



- **central element** for implementing the ESA Registration Policy
- represents the “**national registry**” required under Article II REG.
- REG **leaves room** for determining the contents of each registry and the conditions under which it is maintained.
- The ESA Space Object register was developed in 2014 and released in March 2015 as internal administrative tool maintained by the **ESA Legal Services Department**.



- The ESA Space Object Register presents the authoritative list of all ESA space objects that currently are or ever have been in Earth orbit or beyond.**

- **main section** containing all ESA space objects registered and duly notified to the UN Secretary-General under the REG
- **annex section** listing additional objects such as non-functional ESA space objects, in particular operational debris.
- For each registered or listed ESA space object, an **associated subsection** contains:
  - A. the space object name, type and international designator;
  - B. physical, launch-related and orbit-related information;
  - C. registration, notification and, where applicable, additional legal information.

- linked to the ESA **"DISCOS"** database.
- "single-source reference for information on launch details, orbit histories, physical properties and mission descriptions for about 38.700 objects"
- allows retrieving, at any time, **up-to-date orbital status information for each registered or listed ESA space object**, including re-entry prediction.
- comprehensive legal database + accurate technical traceability
- Register information open to the public via the respective notifications submitted by ESA to the UN Secretary-General

- ESA responds to Article IV para.3 REG
- programme / project / mission managers notify the legal department 6 months < a foreseen controlled or un-controlled re-entry and provide additional information (e.g. predicted re-entry time window and the expected object fragmentation)
- [GOCE](#) satellite (2013; un-controlled re-entry) and the [ATV-5](#) cargo craft (2015; controlled re-entry).



- ESA responds to Article IV para.2 REG
- “each State of registry may, from time to time, provide the UN Secretary-General with additional information concerning a space object carried on its registry.”
- The ESA Registration Policy define that such additional information includes:
  1. significant, permanent changes of orbital parameters of a space object;
  2. permanent changes of the space object status and functionality.

- “only those objects ... launched in Earth orbit or beyond”
- ESA has recently informed the UN Secretary-General of a **sub-orbital object**, ESA’s Intermediate eXperimental Vehicle (IXV)



- ESA's enhanced registration practice is characterised by:
  - i. an **internal, binding policy** to substantiate and develop the various obligations provided for by the Registration Convention;
  - ii. a **new, multi-functional "national registry"** according to Article II REG;
  - iii. an **internal interpretation** of the terms "as soon as practicable" used in Article IV para.1 REG and "additional information" used in Article IV para.2 REG.
- ... underlines ESA's on-going commitment to respond to obligations rooted in international space law.