Registration of Space Objects with the United Nations

United Nations/China/APSCO Workshop on Space Law
"The Role of National Space Legislation in Strengthening the Rule of Law"
Beijing, China, 17-20 November 2014

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Status of the Registration Convention

- **As of 14 November 2014, there are 62 States Parties and 4 Signatory States:**
  - Algeria, Antigua and Barbuda, Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Burundi (Signature only), Canada, Chile, China, Colombia, Costa Rica, Cuba, Cyprus, Czech Republic, Democratic People's Republic of Korea, Denmark, France, Germany, Greece, Hungary, India, Indonesia, Islamic Republic of Iran (S), Italy, Japan, Kazakhstan, Kuwait, Lebanon, Libya, Liechtenstein, Lithuania, Mexico, Mongolia, Montenegro, Morocco, Netherlands, Nicaragua (S), Niger, Nigeria, Norway, Pakistan, Peru, Poland, Qatar, Republic of Korea, Russian Federation, Saint Vincent and the Grenadines, Saudi Arabia, Serbia, Seychelles, Singapore (S), Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay.

- **Three international intergovernmental organizations have declared their acceptance of rights and obligations:**
  - European Space Agency (ESA);
  - European Organization for the Exploitation of Meteorological Satellites (EUMETSAT);
  - European Telecommunications Satellite Organization (EUTELSAT-IGO).

Function of the United Nations Register on Objects Launched into Outer Space

Preamble:

- OST (Art VI and VIII); ARRA (Art 5); LIAB (general);
- To make provision for the national registration by launching States of objects launched into outer space;
- To serve as a central register of objects launched into outer space (established and maintained on mandatory basis);
- To provide for State parties additional means and procedures to assist in the identification of space objects;
- No distinction between civil and military space objects

Some figures

- "Resolution Register" established in 1961 in accordance with GA resolution 1721 B (XVI) of 20 December 1961. To date 427 documents issued containing registration data on nearly 6,000 space objects (series A/AC.105/INF/…)

- "Convention Register" established in 1976 under the Registration Convention. To date 730 documents issued containing registration data on nearly 8,000 space objects (series ST/SG/SER.E/…).

- Since 1957, over 40,000 space objects have been tracked in Earth orbit or beyond. Over 7,000 "functional" (satellites, probes, manned spacecraft and space station components). Remaining "non-functional" (rocket boosters, shrouds and detached components or other residual components resulting from the launch, operation or termination of the space object). Presently, approximately 3,900 functional or previously functional space objects remain in Earth orbit or beyond (less than 1000 active).

- 24 States Parties to REG have notified the Secretary-General of the establishment of national registries. ESA and EUMETSAT have also notified.

- The following States have used OOSA registration template: Algeria, Austria, Azerbaijan, China, Denmark, Germany, Japan, Poland, South Africa, Sweden, Turkey and the United Kingdom. ESA also uses the template.

Application of the Registration Convention

- **Practice:**
  - Information on space objects can be broken down into three classes: 1) Information on all space objects, including non-functional objects and objects that are generated during and after launch. This includes objects generated through impacts, explosions; 2) Information on functional objects and non-functional objects (such as third-stages) that are produced during or just after launch. They do not include information on objects created after the launch phase; 3) Information on functional objects only.
  - Registration of launcher and “foreign” objects (payload)
  - Status of objects (information on active de-orbiting, decaying objects, change of status (ownership, jurisdiction and control)
  - Complementary nature of resolution register and convention register;

Examples of current registration practice of "launcher" States

China: Registers functional objects only. Sometimes registers objects built and/or launched by China on behalf of foreign client. Uses OOSA registration template.

France: Registers functional objects, upper stages and payload adapters from the launch vehicle. Does not register foreign space objects. Mentions the launch of foreign space objects in its submissions. Does not use OOSA template, but provides comparable information as recommended in resolution 62/101.

India: Registers functional objects and upper stages of launch vehicles. Does not register foreign space objects.

Japan: Registers functional objects only. Does not register foreign space objects. Uses OOSA template.

Russian Federation: Registers functional objects only. Does not register foreign space objects. Mentions such objects in its submissions.

USA: Registers functional objects and upper stages and some secondary objects deriving from the launch. Prior to 2008 registered all its objects in orbit deriving from a launch, including new objects tracked from break-ups of previously registered space objects. Does not register foreign space objects. Does not use OOSA template, but provides comparable information as recommended in resolution 62/101.

LSC WG on registration practice: Concerns

- The United Nations Register of Objects Launched into Outer Space is the sole source of information provided by governments and international organization on all types of space objects.
- All States involved in the launching or operation of space objects should be party to the Registration Convention.
- Where a space object's launch and operation involves several States, parties should determine who is the State of Registry.
- Change of ownership of a space object in orbit.
- Use of common format of information assists the function of the Register:
  - Use COSPAR International Designator.
  - Use GMT/UTC.
  - Use kilometers, minutes and degrees as standard units.
  - Final operational orbit of a space object.
- Additional information that would be useful to facilitate the maintenance of the Register:
  - GSO location.
  - Date of decay/re-entry based on GMT/UTC.
  - Web-link to official information on space object.
  - Notification when a space object is no longer "functional"/moved to graveyard orbit

UNITED NATIONS REGISTER OF OBJECTS LAUNCHED INTO OUTER SPACE

Registration Information Submission Form (as at 1 January 2009)

Note: This form is available from http://www.unoosa.org/oosa/SORegister/resources.html. Please see annex for instructions and definitions. Completed forms should be sent by hardcopy through Permanent Missions to UNOOSA **and** electronically to soregister@unoosa.org.

Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721 B (XVI)

New registration of space object	Yes ☐	Check box
Additional information for previously registered space object (see below for reference sources)	Submitted under the Convention: ST/SG/SER.E/ _____ Submitted under resolution 1721B: A/AC.105/INF. _____	UN document number in which previous registration data was distributed to Member States
Launching State/ States / international intergovernmental organization		
State of registry or international intergovernmental organization		Under the Registration Convention, only one State of registry can exist for a space object. Please see annex.
Other launching States (where applicable. Please see attached notes.)		
Designator		
Name		
COSPAR international designator (see below for reference sources)		
National designator/ registration number as used by State of registry		
Date and territory or location of launch		
Date of launch (hours, minutes, seconds optional)	dd/mm/yyyy hrs min sec	Coordinated Universal Time (UTC)
Territory or location of launch (see below for reference sources)		
Basic orbital parameters		
Nodal period		minutes
Inclination		degrees
Apogee		kilometres
Perigee		kilometres
General function		
General function of space object (if more space is required, please include text in a separate MSWord document)		
Change of status		
Date of decay/ reentry/ deorbit (hours, minutes, seconds optional)	dd/mm/yyyy hrs min sec	Coordinated Universal Time (UTC)

Sources of information

UN registration documents	http://www.unoosa.org/oosa/SORegister/docsstatidx.html
COSPAR international designators	http://nssdc.gsfc.nasa.gov/spacewarn/
Text of the Registration Convention and resolution 1721 B (XVI)	http://www.unoosa.org/oosa/SORegister/resources.html
Global launch locations	http://www.unoosa.org/oosa/SORegister/resources.html
Online Index of Objects Launched into Outer Space	http://www.unoosa.org/oosa/osoindex.html

UNITED NATIONS REGISTER OF OBJECTS LAUNCHED INTO OUTER SPACE

Part B: Additional information for use in the United Nations Register of Objects Launched into Outer Space, as recommended in General Assembly resolution 62/101

Change of status in operations		
Date when space object is no longer functional (hours, minutes, seconds optional)	dd/mm/yyyy hrs min sec	Coordinated Universal Time (UTC)
Date when space object is moved to a disposal orbit (hours, minutes, seconds optional)	dd/mm/yyyy hrs min sec	Coordinated Universal Time (UTC)
Physical conditions when space object is moved to a disposal orbit (see COPUOS Space Debris Mitigation Guidelines)		
Basic orbital parameters		
Geostationary position (where applicable, planned/actual)		degrees East
Additional Information		
Web-site:		

Part C: Information relating to the change of supervision of a space object, as recommended in General Assembly resolution 62/101

Change of supervision of the space object		
Date of change in supervision (hours, minutes, seconds optional)	dd/mm/yyyy hrs min sec	Coordinated Universal Time (UTC)
Identity of the new owner or operator		
Change of orbital position		
Previous orbital position		degrees East
New orbital position		degrees East
Change of function of the space object		

Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space

Basic information	
Space object owner or operator	
Launch vehicle	
Celestial body space object is orbiting (if not Earth, please specify)	
Other information (information that the State of registry may wish to furnish to the United Nations)	

Sources of information

General Assembly resolution 62/101	http://www.unoosa.org/oosa/SORegister/resources.html
COPUOS Space Debris Mitigation Guidelines	http://www.unoosa.org/oosa/SORegister/resources.html
Texts of the Registration Convention and relevant resolutions	http://www.unoosa.org/oosa/SORegister/resources.html

Annex

Section A. Instructions for completing the form

1. Download the electronic version of the form from http://www.unoosa.org/oosa/SORegister/resources.html.
2. Reference sources and other resources for completion of the form are available from the above web-link.
3. Review definitions in Section B below and complete the form. If there are any queries, please email soregister@unoosa.org.
4. The **completed hardcopy form** should be sent through official government channels to the relevant Permanent Mission to the United Nations (Vienna) to be formally transmitted to the United Nations.
5. The **completed electronic form** should be sent by the appropriate government entity to the United Nations Office for Outer Space Affairs using email soregister@unoosa.org.

Section B. Definition of terms

Part A: Information provided in conformity with the Registration Convention or General Assembly resolution 1721B (XVI)

Launching State/ States / international intergovernmental organization

State of registry/ international intergovernmental organization:	The State of registry is the launching State which carries the space object on its national registry of objects launched into outer space. The international intergovernmental organization is an organization which has declared its acceptance of the rights and obligations provided for in accordance with Article VII of the Registration Convention. **Note:** In accordance with Article II of the Registration Convention, **only one State of registry can exist for a space object**. When more than one launching State exists, they should jointly determine which State should register the space object.
Other Launching States:	As defined in the Registration Convention, "launching State" means: (i) A State which launches or procures the launching of a space object; (ii) A State from whose territory or facility a space object is launched;

Designator

Name:	The common name/names used to identify the space object.
COSPAR international designator:	Alphanumeric designator assigned by the Committee on Space Research (COSPAR) to space objects that successfully reach Earth orbit or beyond. The SPACEWARN Bulletin (available at http://nssdc.gsfc.nasa.gov/spacewarn) confirms the designators assigned by the World Warning Agency for Satellites on behalf of COSPAR. The designator can also be obtained from the Online Index of Objects Launched into Outer Space at http://www.unoosa.org/oosa/osoindex.html
National designator/ registration number:	Designator or registration number assigned to a space object by the State of registry.

Date and territory or location of launch

Date of launch:	The date of launch of the space object using Coordinated Universal Time (UTC) (also referred to as Greenwich Mean Time (GMT)).
Territory or location of launch:	The territory or location of the launch of the space object. For a table of global launch locations, see http://www.unoosa.org/oosa/SORegister/resources.html.

Basic orbital parameters: Basic data on the space object's orbit around the Earth or a celestial body such as the Sun, Moon, etc. If object is orbiting a body other than Earth, please specify. The parameters are:

Nodal period:	Time taken by the space object to complete one revolution around the body it is orbiting.
Inclination:	The angle relative to the equator of the Earth or celestial body the space object is orbiting. Measured counter-clockwise from the equator.
Apogee:	The furthest distance in the space object's orbit from the surface of the body it is orbiting.
Perigee:	The closest distance in the space object's orbit from the surface of the body it is orbiting.

General function:	General information on the space object. Can include mission objectives, frequency plans, etc. If required, please attach text in a separate page.
Change of Status:	The date of the space object's decay, reentry, recovery, deorbit or landing.

UNITED NATIONS REGISTER OF OBJECTS LAUNCHED INTO OUTER SPACE

Part B: Additional information for use in the United Nations Register of Objects Launched into Outer Space, as specified in General Assembly resolution 62/101

Change of status in operations

Date when space object is no longer functional:	The date using Coordinated Universal Time (UTC) (also referred to as Greenwich Mean Time (GMT)) when the space object ceases to perform operational functions for the State of registry.
Date when space object is moved to a disposal orbit:	The date using Coordinated Universal Time (UTC) when the space object is moved into a disposal orbit. See COPUOS Space Debris Mitigation Guidelines for recommendations on disposal orbits, http://www.unoosa.org/oosa/SORegister/resources.html.
Physical conditions when space object is moved to a disposal orbit:	The physical conditions when the space object is moved into a disposal orbit. Conditions can include the change in orbit (eg. +300 km above GSO), passivation of the space object and other measures as recommended in the COPUOS Space Debris Mitigation Guidelines.

Basic orbital parameters

Geostationary position:	Applicable only to space objects in the geostationary orbit. Planned and/or actual location of space object in ± degrees East along the equator from the Greenwich meridian (eg. for 10.5 degrees West, use -10.5 degrees East).

Additional Information

Web-site:	Address on the World Wide Web for information on the space object/mission/operator.

Part C: Information relating to the change of supervision of a space object, as recommended in General Assembly resolution 62/101

Change of supervision of the space object

Date of change in supervision:	The date using Coordinated Universal Time (UTC) (also referred to as Greenwich Mean Time (GMT)) when the new owner or operator takes supervision of the space object.
Identity of the new owner or operator:	The identity of the new owner or operator of the space object.

Change of orbital position in the geostationary orbit

Previous orbital position:	The previous operational location of the space object in ± degrees East along the equator from the Greenwich meridian.
New orbital position:	The new operational location of the space object in ± degrees East along the equator from the Greenwich meridian.
Change of function of the space object:	The function of the space object following change in supervision.

Part D: Additional voluntary information for use in the United Nations Register of Objects Launched into Outer Space

Basic information

Space object owner or operator:	The entity that owns or operates the space object.
Launch vehicle:	The launch vehicle used to launch the space object into Earth orbit or beyond.
Celestial body space object is orbiting:	The body that the space object is in orbit around, if not Earth (i.e. the Moon, the Sun, Mars, Jupiter, etc.) .
Other information:	Information relating to the space object that the State of registry may wish to furnish to the United Nations.

Outcome of WG on NSL

- "Regulative categories – set of elements for consideration by States in enacting national space legislation"

- Scope of application; authorization and licensing; safety; continuing supervision of activities of non-governmental entities; registration; liability and insurance; transfer of ownership or control of space objects in orbit

Registration element

- Corresponding instruments: Articles VIII and XI of OST; articles II and IV of REG; GA resolutions 1721 B and 62/101. Elements for consideration: Establishment of appropriate registry at the national level; obligation to submit information to the competent authority; submission of data to the Secretary-General

THANK YOU

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