



COMMERCIAL PROPOSAL FOR IRIDIUM SBD & CSD SERVICES



ALL OUR TEAMS ARE COMMITTED TO MEETING YOUR NEEDS





OGS needs IRIDIUM SBD and CSD services to operate its Kongsberg AUV.

CLS, world leader in satellite services and environmental in-situ data collection, has been working in cooperation with the operational oceanography community for nearly 40 years. Providing satellite services (ARGOS and IRIDIUM) to a wide range of institutes, research centers, including partnerships with most of the main global oceanographic research programs such as ARGO, DBCP, OceanSites, CLS has the relevant capacity to respond to the OGS request.

This document and the full proposal remain valid for 3 months from the final date of submission.

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CHRONOLOGY ISSUES

Version	Date	Reference	Written by
1	27/05/2025	CLS-ENVS-PC-25-0218	S. Routaboul

INFORMATION ON THE OFFER

Type of sale	Type of order	Type of service	Activity code	Technology code
Service	Direct sale	SBD 0 and CSD	Oceanography	IRIDIUM

For any request, feel free to contact one of our experts

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OUR COMPANY



CLS – Short presentation

Collecte Localisation Satellite – CLS – is a subsidiary of CNES (French Space Agency – 34%) and CNP (66%). We have been operating satellite systems and providing **high value-added products and services since 1986**.

CLS is a worldwide **leader** in providing space-based solutions for environmental applications.



Working with the operational ocean & wildlife tracking community for over 40 years, CLS is also operating a full set of in-situ data collection and Earth observation satellite services for Hydrology & Agriculture, Soil & Air monitoring

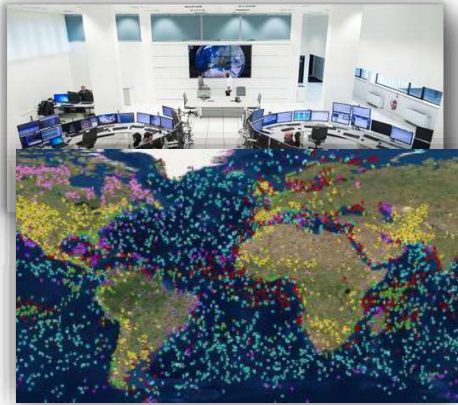


We are now a group of **1000 employees** with headquarters in Toulouse, France and an international network of **32 offices**.



CLS provides **2 global coverage** satellite systems solutions (hardware & services)

- **ARGOS – legacy & KINEIS**
- **IRIDIUM**



With **2 processing centers** operated and **monitored 24/7**, CLS is receiving, processing, validating, distributing, and archiving data from these both satellite systems, everywhere on Earth.

CLS currently tracks more than **100,000 platforms** each day and is the partner of choice for all environmental projects that rely on satellite telemetry, with highly trained customer support and unmatched expertise in this field.



Operational excellence

- ✓ **2 redundant** processing centers, **operated 24/7**,
- ✓ More than **40 years of experience** in the operational ARGOS telemetry community
- ✓ More than **100 000 platforms tracked** worldwide by CLS satellite systems



CLS Experience

- ✓ CLS is dealing with the worldwide wildlife satellite tracking community since 1986. We have gathered a huge experience in term of operational practices, satellite data processing, archiving and all related data exchanges.
- ✓ CLS is **ISO 9001 certified** and applies quality management to all its activities, including those with suppliers.



COMMITTED



**HIGHLY
QUALIFIED**



EXPERIENCED

OUR SATELLITE TELEMETRY SOLUTIONS



The IRIDIUM satellite system

CLS is a Value-Added Reseller since 2007 and is the only company capable of providing both IRIDIUM & ARGOS/KINEIS solutions for environmental applications.

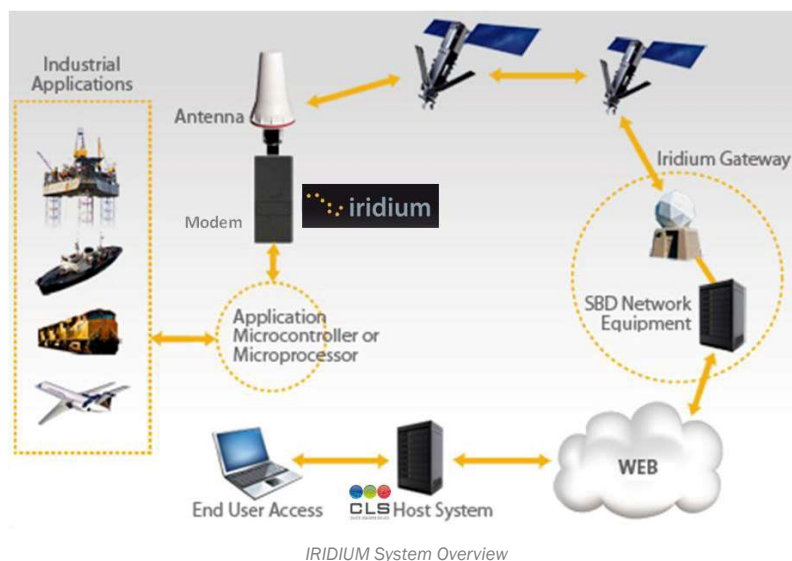
THE IRIDIUM SYSTEM

With 66 Low Earth Orbit satellites, IRIDIUM is the world's largest commercial satellite constellation.

This global mobile satellite communications system, with voice and data solutions is owned by the IRIDIUM Communications Inc. Company (McLean, VA, United States). The IRIDIUM System is a satellite-based, wireless communications network providing a robust suite of data services to virtually any destination anywhere on earth. Its three principal components are: the satellite network, the ground network and the IRIDIUM subscriber products including ocean platforms fitted with IRIDIUM modems.

The design of the IRIDIUM network allows data to be routed virtually anywhere in the world. Data calls are relayed from one satellite to another until they reach the satellite above the IRIDIUM Subscriber Unit and the signal is relayed back to Earth. Gateways are the terrestrial infrastructure

that provides interconnection to the terrestrial data networks. Gateways also provide network management functions for their own network elements and links.

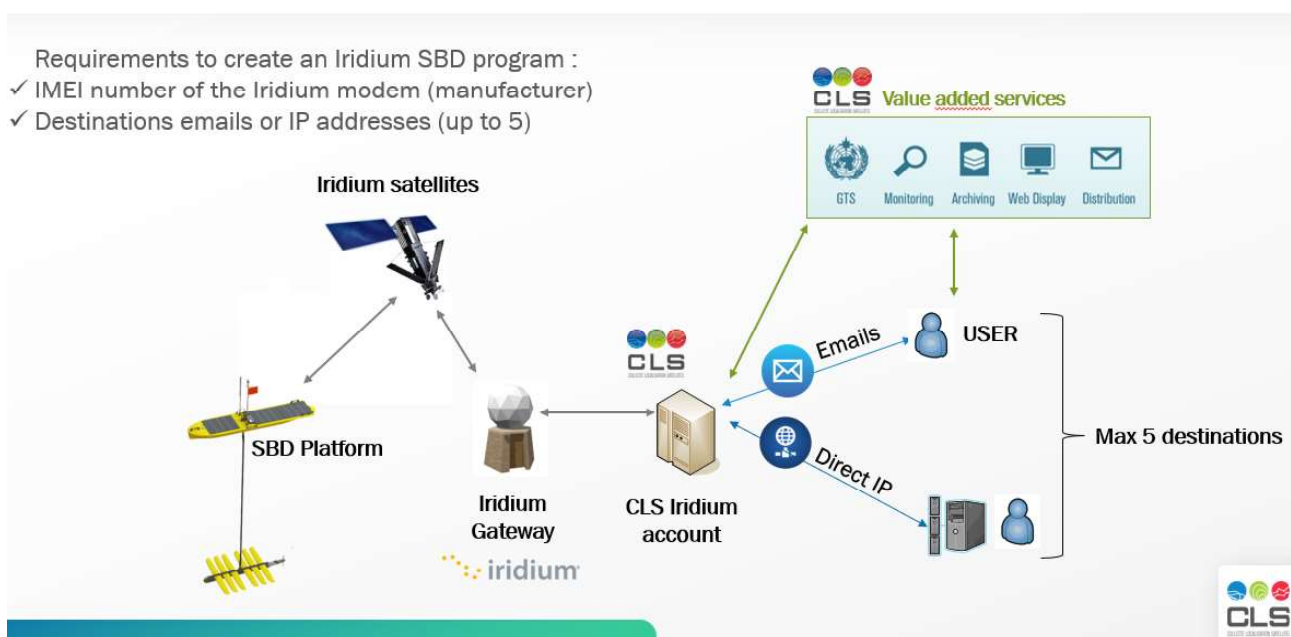


CLS provides a range of IRIIDIUM airtime solutions, including SBD, RUDICS, CSD and CERTUS protocols.

CLS IRIIDIUM SBD Service

Iridium Short Burst Data (SBD) Service is an efficient network protocol designed for shorter sized data messages. SBD uses a proprietary network protocol to transfer data messages to and from the remote terminal. It is possible to send Mobile Originated (MO-SBD) and Mobile Terminated (MT-SBD) messages. The data message is transmitted across the Iridium satellite network utilizing inter-satellite links to reach the Iridium Gateway. From there the data message is transferred via IP connection to CLS host computer system. Here the message is stored in a database and sent via email to the users. Five different email addresses can be set up per unit.

- ✓ Designed for **shorter sized** data messages
- ✓ Average transmission power = **1W**
- ✓ Message size
 - MO message size up to **340** bytes
 - MT message size up to **270** bytes
- ✓ **9602 & 9603** modems
 - MO message size up to **1960** bytes
 - MT message size up to **1890** bytes
- ✓ **9523** modem
 - MO message size up to **1960** bytes
 - MT message size up to **1890** bytes
- ✓ Messages are delivered with a raw Iridium Doppler location (best accuracy = 1Km - 80% within 10 km)
- ✓ Transmission latency ranges from 5 to 20 seconds (short to longest messages)
- ✓ Data are received **by email** in attached file **or Direct IP** (Iridium proprietary protocol)
- ✓ **Up to 5** different recipients email/IP addresses
- ✓ Service is billed **according to volume** of data exchanged



CLS IRIIDIUM SBD Service

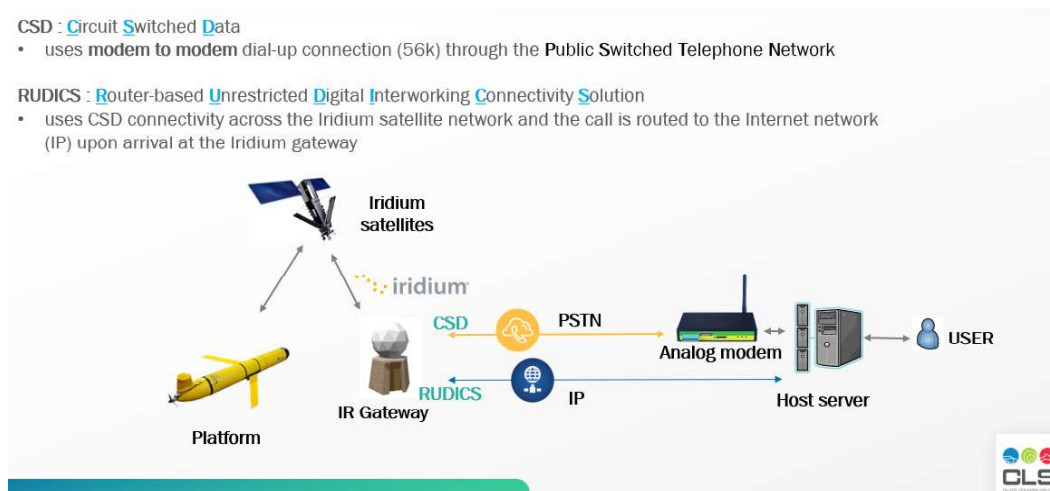
CLS IRIIDIUM CSD Service

The Circuit Switched Data (CSD) Service supports the transfer of relatively large data volumes (tens of kilobytes) using the Iridium dial-up capability. The Iridium Data Module (IDM) places a call to the Public Switched Telephone Network (PSTN) or to another IDM then exchanges the data through that open circuit at approximately 2400 bits per second.

When to use CSD:

CSD is best suited for the transmission of large data sets, for applications with a small number of deployed platforms.

- ✓ Bi-directional continuous communication (dial-up)
- ✓ Average transmission power: 8W
- ✓ Effective data rate: 10 to 12 Kbytes / min
- ✓ Data transferred by a data call from an Iridium modem (9523N), relayed through PSTN or to another Iridium modem
- ✓ Service is billed according to the call duration
- ✓ Requires a SIM card (to be activated)



CLS IRIIDIUM CSD Service

OUR FINANCIAL OFFER



Financial proposal

SERVICE PRICE

CLS IRIIDIUM SBD Service

IRIDIUM SBD Services	Unit price excl. VAT
Activation/Reactivation fee** (one time set up fee), per unit	€ 30.00
Deactivation fee, per unit	€ 0.00
Monthly fee per unit	€ 17.00
Monthly fee per unit , if no transmission (MO & MT) in a calendar month	€ 17.00
Fee per Kbyte (the minimum billable message size is 10 bytes)	€ 1.10
Mailbox check* and SBD registration** , per event	€ 0.07

* A mailbox check event is a message issued by any iridium SBD modem to the satellites to check for any pending remote message to download

** A SBD registration event is a message sent by any Iridium SBD modem to register the transmitter on the system after a long inactive period

CLS IRIIDIUM CSD Service

IRIDIUM CSD Services	Unit price excl. VAT
Activation/Deactivation fee, per unit	€ 0.00
Reactivation fee, per unit	€ 280.00
Monthly fee per active unit	€ 26.00
CSD minute (increment 20 sec)	€ 0.95

Contractual and warranty conditions

- **Validity** : This offer remains valid until 01/09/2025
- All prices are in Euros excluding taxes and are indicative. They are subject to modification according to technical needs.
- **Conditions of payment** :
 - **Service** – Bimonthly invoice payable within 30 days of invoice receipt
- CLS is **ISO 9001 certified** and applies quality management to all its activities, including those with suppliers.
- CLS general conditions and clauses applicable to the sale of services and equipment apply.
- CLS services may be interrupted at any time during working days at the user's request, with one month's notice.