IDOC Instructions for services

IDOC-OD-008

Préparation

	Nom et Fonction	Date
Rédacteurs	Gilles Poulleau	Décembre 2017 Janvier 2019
Vérificateur		
Approbateur		

Liste de diffusion

Nom	Fonction	Société

Evolutions

Edition	Date	Modifications
0.0	27/12/2017	1st draft
1.0	30/01/2019	1st released version
1.1	15/06/2020	particulars and denominations
1.2	15/06/2022	IDOC departments

SOMMAIRE

1 SCOPE OF THE DOCUMENT

This document describes the rules and practices that govern the introduction and monitoring of the various services that can be set up at IDOC to serve the projects of OSUPS and its partners.

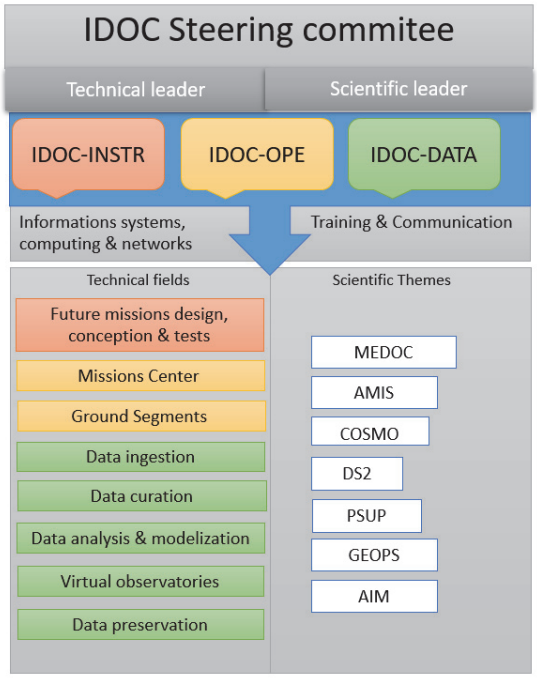
2 REFERENCE DOCUMENTS

Acronym	Reference of the document	Document full name
RD1	IDOC-EX-001	IDOC-EX-001 IDOC executive summary
RD2	IDOC-OD-002	IDOC-OD-002 IDOC Risk analysis and management
RD3	IDOC-INS-003	IDOC-INS-003 IDOC Instructions applicable to project design
RD4	IDOC-INS-004	IDOC-INS-004 IDOC-DATA Instructions for Data Ingestion and Curation
RD5	IDOC-INS-005	IDOC-INS-005 IDOC-OPE Instructions for Ground Segments
RD6	IDOC-INS-006	IDOC-INS-006 IDOC-DATA Instructions for Data Preservation
RD7	IDOC-INS-007	IDOC-INS-007 IDOC-OPE Instructions for Instrument Operations
RD8	IDOC-INS-008	IDOC-INS-008 IDOC Instructions for Services
RD9	IDOC-INS-009	IDOC-INS-009 IDOC-DATA Instructions for Data Provision
RD10	IDOC-INF-010	IDOC-INF-010 IDOC Organigrammes
RD11	IDOC-DW-011	IDOC-DW-011 Diverses schemas for documentation
RD12	IDOC-INS-012	IDOC-INS-012 IDOC instructions for architecture and coding practices
RD16	IDOC-EX-016	IDOC-EX-016 OSUPS Schéma Stratégique Numérique
RD17	IDOC-OD-017	IDOC-OD-017 Services offerts par IDOC
RD30	IDOC-HO-030	IDOC-HO-030 Presentation IDOC-public-english
RD31	IDOC-HO-031	IDOC-HO-031 Presentation IDOC Français

3 WHAT DEFINES AN IDOC SERVICE ?

A service will be implemented by one of the three IDOC departments IDOC-INSTR, IDOC-OPE, IDOC-DATA, supported in their actions by the two transversal components "infrastructure" and "training and communication"

In order to integrate IDOC, a new service requires approval from the steering committee which will make its decision according to the usefulness for the members of the OSUPS and the communities gathered around IDOC. After approval, it is examined both scientifically and technically.



IDOC-OPE: Missions Center
is the service called when IDOC will be responsible to operate a space instrument. This service includes going through the process of best observations determinations, considering the constraints of the spacecraft (other instruments, orientation, trajectory, power, available data stream, etc) and observed objects. Once this has been done, it will securely ensure the translation of these observational elements towards a telecommand stream, validating it against instrument limitations. It will then dispatch this stream to the appropriate space agency and will monitor its execution and the instrument health.

IDOC-OPE: Ground segments is the service called when a dataset is to be built in the IDOC infrastructure for a specific scientific mission. IDOC must produce a set of interdependent tasks taking in account various sets of data including the instrument data, leading to the production of coherent scientific data. This sets of tasks are frequently named as “pipelines”. This service thus includes all applications that can operate on raw data or an existing dataset to build a new dataset...

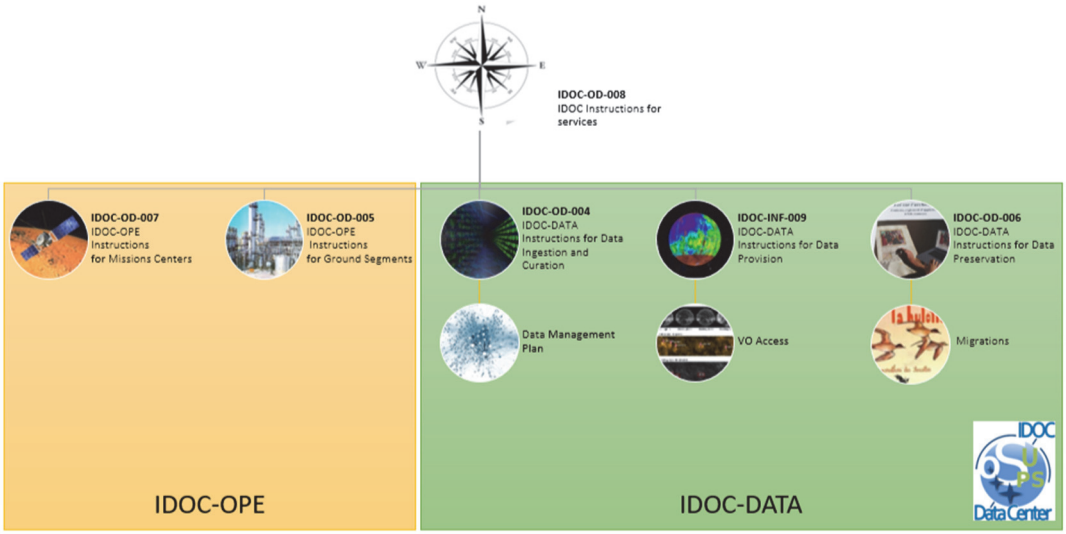
IDOC-DATA: Data integration is the service called when an existing external dataset is to be integrated in the IDOC infrastructure. It includes ingestion of data and as this external dataset might not be complete, organized, documented, or presents other insufficiencies for long-term preservation (metadata, format..), processes are applied to remove or mitigate these defects. It also ensure data integrity The implementation of this service may involve the implementation of the pipeline service and may lead to the creation of a data management plan.

IDOC-DATA: Dataset curation is the service in which an application is built to allow users to access a dataset hosted at IDOC. This application can be a simple interface to request a database but might also allow users to trigger added value processing of a part of the dataset. As far as possible, this dissemination will be integrated into the available virtual observatories of the theme concerned, or at least will also be accessible through web services.

IDOC-DATA: Dataset Archive long term preservation deals with the ability to enable effective use of the data hosted at IDOC in the long term.

This document details the general principles implemented at IDOC regarding the dataset management. It also includes general questions to be answered to and inputs to be given before IDOC starts to implement the requested service.

In addition, for a specific service, complementary instructions provide more specific items to be questioned and answered to. The next schema gives the relationship between the service, the hierarchy of the instructions documents and the requirement document (:"the plan") to be provided.



4 PARTICULARITIES TO BE TAKEN INTO ACCOUNT IN THE IMPLEMENTATION OF SERVICES WITHIN IDOC

4.1 GENERAL CONSIDERATIONS

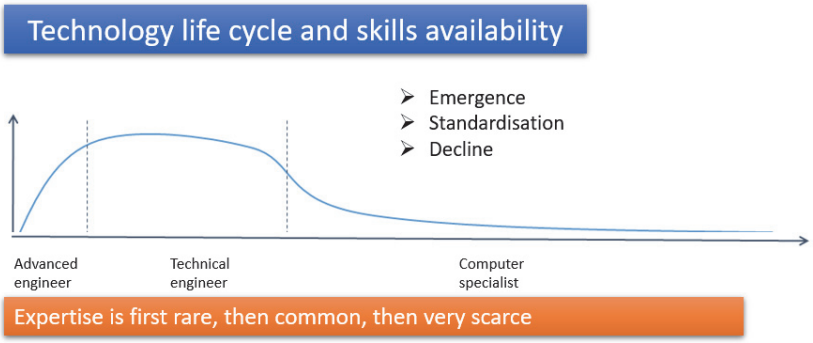
The particularities of a space project are detailed below, but three major aspects can be summarised:

- duration of the projects with a very strong impact on technologies and skills
- distance of the instruments from their designers and operators
- hostile environments

These particularities, which turn out to be constraints, must be kept in mind at all times during the design and implementation of any service within IDOC.

Of course, among these considerations, it should also be noted that some of these particularities may also have a positive side on the service to be delivered. For example, predictions of changes in the capabilities of computer technologies will make certain platforms easier or more readily achievable at lower cost.

Conversely, certain technologies implemented at one point in the project may not only become technically difficult to maintain but the skills.
The following diagram summarises this skill obsolescence function for a given technology:



4.2 PROJECT DURATION BEFORE IMPLEMENTATION :

- Anticipate power and costs
- Avoid over-optimism

4.3 PROJECT DURATION AFTER IMPLEMENTATION :

- Anticipate sustainability and migration to future platforms.
- Do not be too dependent on hardware or software specificities
- Isolate these points of dependence

4.4 HAZARDOUS BEHAVIOUR OF HARDWARE OR SOFTWARE ELEMENTS:

- Anticipate non-linear behaviour
- Describe and experiment with incident recovery scenarios

4.5 HUMAN ASPECTS

- Complexity of collaborations:
  - Encourage synergies while controlling exchanges

- Confronting difficulties as early as possible

4.6 SPACE VEHICLE

– Hostile" environment

5 OVERALL PROCESS OF INTEGRATION OR EVOLUTION OF A SERVICE

5.1 DETERMINATION OF SERVICE SCOPE

These instructions are based on principles and rules for implementation. In order to adapt these principles and rules to the specificities of the application being assessed, the documents list parameters or state a set of questions in the chapter(s) « PROCEDURE TO PREPARE ». Identifying the appropriate parameters and their values and answering the questions allows the service to be finely defined.
The process is for the customer to interact iteratively with the IDOC Scientific and/or technical leader until all questions are answered to the satisfaction of all those involved for a consumption of resources compatible with what is available for the project concerned.
Once this iterative process has been completed, it can be formalized in its service objectives.

5.2 IMPLEMENTATION OF SERVICE

The project can then be implemented according to the development rules described for IDOC, before going into production, and this also in compliance with the recommendations and protocols in progress within IDOC.

5.3 SERVICE FOLLOW-UP

At regular intervals, and never more than one year, the operating conditions of the service are reassessed in their scientific and technical context.
Any feedback, suggestions, etc. are added to the problems encountered during the operation of the services in order to establish a prioritised schedule of actions.
These actions are confronted with IDOC's overall workload, other requests priorities and available resources to integrate an implementation schedule broken down into actions in the project monitoring tool (redmine).