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INTEGRAL SPECTROMETER



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ANNEX 20

INSTRUMENT TEAMS TO GROUND SEGMENT DELIVERY DOC

(including files description, and correction procedure to MOC serveur)



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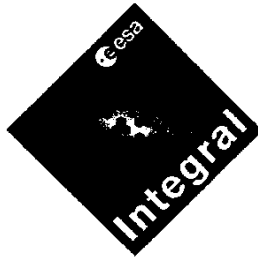
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**International Gamma-Ray Astrophysics Laboratory
(INTEGRAL)**

**Instrument Teams to Ground Segment Delivery Document
(IT-GS-DD)**



INT-SOC-ICD-034

Draft 4

May 2002





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Document Status Sheet

Date	Issue/Rev.	Section	Description
August 2001	Draft 1		First draft.
September 2001	Draft 2	All	Updated following local discussions.
February 2002	Draft 3	All	Updated following comments from some other parties.
May 2002	Draft 4	All	Main updates coming from the decision to have a direct interface between MOC and the ITs.



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1 INTRODUCTION

1.1 Purpose

The interfaces and exchanges among the three INTEGRAL ground segment centers are documented in [DD-1], [DD-2], [RD-1] and [RD-3]. The Ground Segment Design Report ([RD-4]) describes the same things at a higher level. None of those documents consider the INTEGRAL Instrument Teams (ITs) to a party to any interface, although certain sections do imply certain interfaces with the ITs. Many interfaces are also covered or implied in local documents - see in section 1.4 below.

This document defines the interface between the Instrument Teams and the rest of the Ground Segment. The purpose of the IT-GS Delivery Document is to point to the previous dispersed documents where deliveries from (or occasionally to) ITs are specified, completing the definitions if/as needed. The document will be equal in rank to the above-mentioned ICDs though not applicable to them in a formal sense. Since it is being compiled at a rather late stage, it will be an objective to maintain compatibility with already documented interfaces where possible.

1.2 Scope of the Document

The document aims to cover all formal interactions with ITs, which are required to support the INTEGRAL ground segment operations and maintenance. The associated data definitions are referenced, including procedural details as necessary, and including a mention of the source, destination, and physical mechanism for transfer. The data being transferred may be:

- formatted data transferred between software processes,
- formatted data transferred between humans,
- any other information transferred in computer-readable form,

where one end is an IT and the other end is the particular GS center to which the IT "talks". Anything that happens before or after the transfer is in principle not a part of the "Mechanism for Transfer" but may be described under "Comments". That includes, in particular, any secondary forwarding of files from one GS center to another.

The scope is limited to the routine operations phase.

The interactions with the general community - more general than just the ITs - for example, helpdesk queries, certain web interfaces, proposal submission, delivery of resulting data products are excluded from the scope of this document.



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1.3 Acronyms

ARTS	Anomaly Report Tracking System (at MOC)
CCB	Configuration Control Board
CSSW	Common Services Software
CVS	Concurrent Versions System
dec	Declination
DPE	Data Processing Electronics
DRB	Delivery Review Board
FITS	Flexible Image Transport System
GS	Ground Segment
IASW	Instrument Application Software
IBIS	Gamma-ray Imager
ICD	Interface Control Document
IFTS	INTEGRAL File Transfer System
INTEGRAL	INTErnational Gamma Ray Astrophysics Laboratory
ISOC	INTEGRAL Science Operations Centre
ISDC	INTEGRAL Science Data Centre
ISSW	Instrument Specific Software (for ISDC)
IT	Instrument Team
JEM-X	X-ray Monitor
LUT	Look-Up Table
MOC	Mission Operations Centre
OBSMS	On-Board Software Maintenance System
ODB	Operational Data Base
OGS	Operational Ground Segment
OMC	Optical Monitor Camera
PHS	Proposal Handling System (at ISOC)
PSD	Pulse Shape Discriminator
PV	Performance Verification
RA	Right Ascension
SA	Standard Analysis (at ISDC)
SCOS	Spacecraft Control and Operation System (at MOC)
SCREW	Software Change Request (and Extra Wishes)
SCW	Science Window (at ISDC)
SGS	Science Ground Segment (= ISOC plus ISDC)
SPI	Gamma-ray Spectrometer
TAC	Time Allocation Committee
TBC	To Be Confirmed
TBD	To Be Defined
TPF	Task Parameter File (at MOC)
TBW	To Be Written



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1.4 Reference Documents

1.4.1 Reference Documents for Data Definition

- DD-1 OGS-SGS ICD (INT-MOC-SYS-ICD-0001-OGI)
- DD-2 ISOC-ISDC ICD (INT-SOC-ICD-001)
- DD-3 OMC-ISOC ICD (INT-SOC-ICD-002)
- DD-4 Overview of In-Flight Calibration Plan (INT-SAG-01/TN/158)
- DD-5 INTEGRAL OBSMS-SGS ICD (INT-MOC-ICD-0003, part of [DD-1])
- DD-6 SPI PSD Library Uplink ICD (INT-MOC-SYS-ICD-1003-TOS-OGI)
- DD-7 IBIS Tables Handling within the INTEGRAL Ground Segment (INT-TN-35406)
- DD-8 IBIS Parameter Handling (Draft TN by M. Schmidt, September 2001, no document reference yet)

1.4.2 Other Reference Documents

- RD-1 Flight Operations Plan
- RD-2 ISOC Operations Concept (INT-SOC-DOC-001)
- RD-3 ISOC-ISDC Interactions Document (INT-SOC-DOC-007)
- RD-4 INTEGRAL Ground Segment Design Report (INT-RP-22519)
- RD-5 IREM-ISDC ICD (ICDIREM)
- RD-6 OMC ISSW ADD (ADDOMC)
- RD-7 JEM-X ISSW ADD (ADDJEMX)
- RD-8 SPI ISSW ICD (ADDSPI)
- RD-9 IBIS SCW ISSW ICD (ICDIBISSCW)
- RD-10 IBIS SA ISSW ICD (ICDIBISSA)
- RD-11 Configuration Control Concept for the INTEGRAL Ground Segment (INT/SAG/00-0042/TN)
- RD-12 ISOC Facility Operations Manual (INT-SOC-DOC-012)
- RD-13 Minutes of ISOC Calibration Proposal/Observation Handling Meeting on July 13th 2001 (INT-SAG-01/Mn/155)
- RD-14 SCOS 2000 Stack Import ICD (S2K-MCS-ICD-0002-TOS-GCI)
- RD-15 INTEGRAL File Transfer System ICD (Appendix A of [DD-1])
- RD-16 ISGRI Context Handling (F. Lebrun Tech Note, IN-IB-SAP-RP-052)
- RD-17 SCOS-2000 TPF ICD (S2K-MCS-ICD-0003-TOS-OGI)
- RD-18 IBIS/ISGRI Context Table Handling at ISDC (IBIS-ISSW-IITH-V1.1, A. Goldwurm, 22/8/2001)
- RD-19 ISDC Interactions with Instrument Teams (ISDC/ITsOps)
- RD-20 Instrument Characteristics Organization (ISDC/TEC024)
- RD-21 SCOS-2000 Database Import ICD (S2K-MCS-ICD-0001-TOS-GCI)
- RD-22 ARTS General Concept (draft TN, September 2001, S. Scaglioni)
- RD-23 Database updates ICD [TBW]. See rules in e-mail "I/F to MOC" from M. Schmidt dated 16/04/2001.
- RD-24 Definition of the MOC FTP server for IT deliveries to MOC. See e-mail "I/F for S/W images" from M. Schmidt dated 02/05/2002.



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- RD-25 Definition of the ISOC FTP server for IT deliveries to ISOC [TBW]
 - RD-26 User Manual for the IBIS Instrument
 - RD-27 SPI to MOC TPF ICD : INT-MOC-SYS-ICD-1004-TOS-OGI



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2 THE PARTIES INVOLVED

Each GS center has an Operations Manager :

- The SOM (Spacecraft Operations Manager) at MOC
- The SCOM (Science Operations Manager) at ISOC
- The DCOM (Data Center Operations Manager) at ISDC

Each IT also has one Operations Manager acting on behalf of all collaborating sites for the instrument in question. These people are the ones formally carrying out all routine exchanges, whether or not some approval by a CCB is required. The University of Southampton is a peculiar case, in that it represents more than one instrument; hence its deliveries will not originate from any of the Operations Managers.

At each GS center the Operations Manager is also responsible for setting up procedures for a local CCB and other local staff; those procedures are not a subject of this document, but in certain cases may be mentioned under "Comments".

For the updates of items used by more than one GS center, the involvement of the GS-CCB will be required. For more details on the GS-CCB see Volume 1 Book 4 of [RD-1].

The general rules for IT-GS interactions are :

- All exchanges are between the IT and the GS center that "owns" the item.
- Each of the three GS centers has an e-mail address to be used to notify the delivery on an updated item. They are :
 - ISOC : isoclib @ rssid.esa.int
 - MOC : [TBD]
 - ISDC : isdc_lib @ obs.unige.ch
- The GS that "owns" the item will acknowledge the delivery by replying to the e-mail notifying the delivery.
- A DRB (Delivery Review Board) will take place to check that the delivered item is compliant with the documentation.
- A timeline for installation of the new item will be provided.

A number of the items listed in this document impact several GS centers. For these "multi site CIs" the assessment of the impact in all the affected GS centers is required before (a) deciding the operational usage of the new item and (b) defining a timeline for its installation in all the GS centers. This is done under the responsibility of the GS-CCB.



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It is expected that as soon as an item is foreseen to be updated a notification is sent to the GS-center that owns the item describing (a) the update foreseen, (b) the impact of its installation, (c) the impact of its non-installation, (d) the dependence on other updates, (e) the required testing and (f) the expected date for the delivery. This early warning will allow the GS centers - and the GS-CCB - to assess the impact of the foreseen update and to work out the schedule for its implementation as soon as possible, in order to avoid delaying the usage of the new item once it is delivered.

Each of the three centers will operate a web-based change control system. The ITs should be granted read-access to all those web-based systems.



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3 ITEMS MAINTAINED BY ISOC

This section covers items, for which ISOC has the primary responsibility for configuration control.

The document [RD-12] will address the detailed procedures for these interactions, however the following general procedure applies to all items being delivered from an IT to ISOC. (Actually the procedure applies equally to deliveries from MOC or ISDC to ISOC.)

An e-mail is sent by the originating institute, with implicit approval of the relevant Operations Manager, to the ISOC librarian. The e-mail serves as a cover note for the actual delivery and must contain the following information.

- Scope of the delivery (complete product or specific parts). If the delivery is not the complete product then there should be an itemised list of the parts contained in the delivery.
- Baseline identification (version number).
- Version that the delivery replaces (normally the previous one).
- Changes from the version that it replaces (bugs fixed, new functions, updated data, etc.).
- Any special dependence on another delivery, in cases when more than one item must be simultaneously updated by ISOC. E.g. new versions of pointing software and OMC catalogue at the same time.
- For software items, detailed installation instructions (including build instructions where ISOC may need to do this).
- Report on testing performed prior to delivery. Normally items should have been tested in a formal manner according to an agreed strategy, but if that is not the case then ISOC need a report on the status of testing.
- The location of the delivery itself (attachment, remotely located directories/ filenames, whatever). It is important that the delivery is packaged in such a way (e.g. tar or zip file) that it is clear what is part of the delivery itself and what is not (additional information, other items, etc.).

If the location of the delivery is at a remote site, then it is implicit that the ISOC librarian should fetch the delivery by ftp and acknowledge the successful transfer by sending a reply by e-mail to the originator's reply-address. The originator must ensure the security of the remote files involved at least until such an acknowledgement has been received from ISOC.



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3.1 *Delivery of OMC Pointing Software*

Purpose: Provision by OMC team of a new version of the source code for inclusion in ISOC system, for the purpose of selecting OMC subwindows for a specified target location.

Source: OMC.

Destination: ISOC.

Mechanism for Transfer: Source file(s) are transferred by ftp, in line with the above general delivery procedure. Details on the FTP will be available in [RD-25].

Reference for Data Definition: Not applicable.

Other Reference Documents: [DD-3].

Configuration Control: By ISOC local CCB.

Comments:

3.2 *Delivery of OMC Catalogue*

Purpose: Provision by OMC team of a new version of the optical source catalogue used in connection with planning OMC operations and analyzing the resulting OMC data products.

Source: OMC

Destination: ISOC.

Mechanism for Transfer: The catalogue is transferred by ftp, in line with the above general delivery procedure. Details on the FTP will be available in [RD-25].

Reference for Data Definition: [DD-3] for detailed layout of OMC catalogue applicable to both ISOC and ISDC.

Other Reference Documents: [RD-12] for further details of transfer procedure. [RD-3] for onward transfer from ISOC to ISDC by a further ftp.

Configuration Control: By ISOC local CCB. Since it is also used at ISDC the GS-CCB involvement is needed.

Comments: Each new catalogue version must have been received by ISDC before it starts being used operationally by ISOC. Each new catalogue version must have a distinct filename from all previous versions; this is effectively ensured by including a version number within the file name.



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3.3 List of AO targets

Purpose : Provision by ISOC of the list of RA/dec of all approved targets per AO to OMC for inclusion in the OMC Catalogue.

Source : ISOC

Destination : OMC

Mechanism for transfer : [TBD]

Reference for Data Definition : [TBD]

Other Reference Documents :

Configuration Control : The list of AO targets is not a configurable item. Procedures are in place at ISOC to ensure a proper tracking of all proposals accepted by the TAC.

Comments: The list should be made available following each AO evaluation, such that a new OMC catalogue gets delivered in time for AO execution.

3.4 Calibration Observation Requests

Purpose: Provision by an IT of the details specific to one instrument for a calibration observation (modes, parameters, telemetry allocation, coordinates, etc.), to allow ISOC staff to generate a calibration proposal.

Source: Any IT.

Destination: ISOC

Mechanism for Transfer: E-mail to [TBD]. The above general delivery procedure does not apply here, as long as the data involved are small in volume (as expected). Acknowledgement by ISOC via return e-mail. A request must be received by ISOC at least 21 (TBC) days before the expected date of the observation (only in cases where a fixed date might be critical); during Commissioning Phase a different time constraint will apply, as decided by operations staff.

Reference for Data Definition: [DD-4].

Other Reference Documents: [RD-13].

Configuration Control: Not a configurable item.

Comments: JEM-X1 and JEM-X2 are separate instruments, with their calibration requests submitted in separate e-mails.

Following receipt of the IT request(s), ISOC validate them against the calibration strategy, merge them as necessary/possible for different instruments, and generate a proposal for all instruments. Each such proposal is sent back to the ITs for information purposes; proposals will be in the same format and on the same medium as generated by ISOC for TAC purposes.



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The interface applies to all periods of the mission which are based on ISOC-generated planning files, thus including part of Commissioning Phase. The interface does not apply to any part of Commissioning Phase, which is controlled directly from MOC, not being based upon planning inputs from ISOC. Also, during Commissioning Phase some ISOC staff may be located at ISDC, but this does not affect the "destination" specified above.

3.5 *Delivery of Simulation Tools*

Purpose: Provision of new versions of either Observation Time Estimator (in support of future AOs) or Instrument Performance Validator (in support of operations).

Source: University of Southampton (on behalf of all ITs).

Destination: ISOC.

Mechanism for Transfer: Source code together with related data files are transferred by ftp, in line with the above general delivery procedure. Details on the FTP will be available in [RD-25].

Reference for Data Definition: Not applicable.

Other Reference Documents: Software documentation is contained within existing and future deliveries from the University of Southampton. ISOC have no documentation which places constraints on how these tools should be integrated with the rest of the ISOC system.

Configuration Control: By ISOC local CCB.

Comments: Within these tools there are certain data files representing instrument sensitivities and performances. Each IT will supply to Southampton the values to populate their relevant files (the interface with ISOC is only through the University of Southampton).

Delivery of a new version of the Observation Time Estimator (reflecting up-to-date instrument characteristics) is on the critical path leading to the release of a corresponding AO, so will be expected by a definite date derived from ISOC's planning.

3.6 *Delivery of Inputs for AO Documentation*

Purpose: Provision of updated information for editing into the documentation for future AOs prior to their release by ISOC.

Source: Each IT.

Destination: ISOC.



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Mechanism for Transfer: Ad hoc electronic transfers, with no adherence to the general ISOC delivery procedure given above.

Reference for Data Definition: Not applicable.

Other Reference Documents: The scope and structure of the AO documentation is as for previous AOs (see ISOC public web pages).

Configuration Control: Not applicable.

Comments: Among the important information to be updated are the instrument performances and sensitivities - in other words similar data to what is required in section 3.5 by the University of Southampton though not necessarily in the same format. The format required here by ISOC will, by default, be as for already achieved deliveries.

Delivery of these performances and sensitivities to ISOC is on the critical path for preparing the release of each corresponding AO, so will be expected by a definite date derived from ISOC's planning. It is, however, recognized that the full analysis of PV and calibration observations cannot be forced onto that same critical path and will not have been completed in time for the AO-2 release. But the above-mentioned "definite date" still applies for AO-2, even if that means lower accuracy of published sensitivities. Additional fuller deliveries at later dates, e.g. linked to the evaluation of received AO-2 proposals, should then be foreseen as needed.



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4 ITEMS MAINTAINED BY MOC

This section covers interactions and exchanges between instrument teams and MOC, with MOC having the primary responsibility for configuration control, i.e. the formal ownership of the item under a configuration management system.

4.1 Delivery of ODB Modification Request

Purpose: to submit formally a request for an update of the following fields of the ODB :

- Telecommand parameter default values
- Telemetry & Telecommand parameters calibration curves
- Telemetry & Telecommand parameters

Source : IT

Destination: MOC

Mechanism for Transfer: A text file (*.txt) attached to an e-mail. The body of the e-mail should contain supporting information, for example justification, references to discussions or to anomaly reports, with the formal request inside the attachment.

Reference for Data Definition: [RD-23]

Other Reference Documents: The structure of the ODB itself is explained in [RD-21].

Configuration Control: The ODB is under configuration control by the MOC local CCB. Since these updates impact other GS centers the implementation of the updates will require the involvement of the GS-CCB.

Comments:

4.2 Delivery of CSSW

Purpose: To make an updated version of the CSSW available to those ITs who need it for the purpose of DPE software maintenance.

Source: MOC

Destination: some or all ITs

Mechanism for Transfer: ftp with e-mail to relevant ITs.

Reference for Data Definition: As source code.

Other Reference Documents:



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Configuration Control: By MOC local CCB. A new version of the CSSW is likely to impact the other centers and therefore requires GS-CCB involvement.

Comments:

4.3 Delivery of DPE Software

Purpose: To deliver an updated version of any DPE core image (IASW linked together with previously delivered CSSW).

Source: An IT

Destination: MOC

Mechanism for Transfer: ftp with e-mail and acknowledgement. See [RD-24].

Reference for Data Definition: [DD-5].

Other Reference Documents:

Configuration Control: The DPE software is under MOC local CCB configuration control. Since an update of the DPE software is likely to impact all GS centers, the GS-CCB involvement is needed.

Comments:

4.4 Delivery of On-Board Tables

On-board tables are handled in many (but not all) cases in a similar way to "DPE Software". However, the usage of the OBSMS format for tables (as opposed to software) implies certain GS-imposed restrictions, which are specified in Appendix A of [DD-5].

ISOC and ISDC also need the new On-Board Tables, therefore for all of these deliveries the involvement of the GS-CCB is required. MOC will forward the tables to ISOC and ISDC following [DD-1] (to be updated). This is not in the scope of this document.

Note that there is no delivery of On-Board Tables foreseen for OMC.

4.4.1 Delivery of SPI PSD Library

Purpose: To deliver an updated version of SPI on-board tables. Currently only 2 tables are involved:

- PSD Library (DPE1)
- PSD Library (DPE2)



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Source: SPI

Destination: MOC

Mechanism for Transfer: A new table is created by SPI and transferred by ftp/e-mail. See [RD-24].

Reference for Data Definition: [DD-6].

Other Reference Documents: [RD-14] for definition of "SCOS 2000 Stack Import Format" referred to in [DD-6].

Configuration Control: By MOC local CCB. And needs GS-CCB involvement.

Comments: The delivery to MOC will include both the files needed by MOC (See [DD-6]) and the FITS files used by ISDC.

4.4.2 Delivery of SPI TPF files

Purpose : To deliver TPF files for configuration setting parameters. 24 for the DPE1 and 24 for the DPE2.

Source : SPI

Destination : MOC

Mechanism for transfer : New tables are transferred by ftp/e-mail. See [RD24]

Reference for Data Definition : [RD-27]

Other Reference Documents:

Configuration Control : By MOC local CCB. And needs GS-CCB involvement.

Comments : The delivery to MOC will include both the files needed by MOC (See [DD-6]) and the FITS files used by ISDC.

4.4.3 Delivery of On-Board Tables for IBIS (Look-Up Tables and Context Tables, except the ISGRI Start-up context table)

Purpose: To deliver an updated version of IBIS on-board tables. The following tables are identified :

- HEPI
- IASW LUT 1
- IASW LUT 2
- PICsIT Context & Faulty Pixels
- VETO Context

Source: IBIS

Destination: MOC



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Mechanism for Transfer: For any table to be transferred, two forms are created by IBIS: OBSMS-format and the equivalent FITS-format. Both files are transmitted by ftp/e-mail. See [RD-24].

Reference for Data Definition: [DD-7].

Other Reference Documents: [RD-16].

Configuration Control: By MOC local CCB. And needs GS-CCB involvement.

Comments: The delivery to MOC will include both the files needed by MOC (See [DD-7]) and the FITS files used by ISDC.

4.4.4 Delivery of On-Board Tables for IBIS (ISGRI Start-Up Context Tables)

This section refers to the 8 tables (one per MCE) called ISGRI Dynamic Pixel Status & Threshold & Gain. A new version of these tables will be uplinked at the start of each revolution. This is done by ISDC - on behalf of IBIS - and delivered to MOC. Since it is not done by the IBIS IT it is not in the scope of this document. For details see [DD-1] and [RD-18].

4.4.5 Delivery of On-Board Tables for JEM-X

Three tables have been identified for JEM-X1 and JEM-X2 :

- Integer Software Parameters
- Floating-Point Software Parameters
- Energy Linearisation

However, there is no special interface for updates to those tables. Updates are instead implemented via "ODB Modification Requests", the procedure being as described in section 4.1.

The changes would not be effective on-board, however, until appropriate telecommands have been uplinked by MOC. That extra action should be coordinated via GS-CCB.



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5 ITEMS MAINTAINED BY ISDC

This section covers items for which ISDC has the primary responsibility for configuration control or processing. Some interactions between ISDC and ITs have already been documented by ISDC in [RD-19]; further details can be found in that document. Here we focus only on the formal aspects of the interaction with the ITs.

ISDC do have a significant involvement in the ground processing of on-board tables but are not the party with primary configuration control responsibility; hence this subject has been dealt with only in section under "MOC".

At ISDC the term "ICD" is also used in the context of sharing development work between each IT site and ISDC - see [RD-5], [RD-8], [RD-9], [RD-10]. In those cases the information being exchanged is source code for maintained ISSW etc.

5.1 Software Delivery from ISDC

Purpose: To make available to ITs the "reference platform" (libraries, scripts, documentation) needed to build an ISDC-compatible software development/maintenance environment at another site. Delivery of analysis packages to the general community is out of the present scope.

Source: ISDC

Destination: ITs

Mechanism for Transfer: The creation of a new version is at ISDC's initiative; the transfer to an IT site is at the ITs initiative. Transfer is via WWW, downloading a set of files from a known location on the ISDC office network.

Reference for Data Definition: Not applicable.

Other Reference Documents: The ISDC WWW has further information and instructions under the links *Software/Reference Platform* and *Software/Download*.

Configuration Control: By ISDC local CCB.

Comments:

5.2 Software Delivery to ISDC

Purpose: To deliver new or maintained ISSW to ISDC, for integration into the operational ISDC system.

Source: ITs

Destination: ISDC



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Mechanism for Transfer: The delivery is at either ISDC's or IT's request and is achieved by (a) storing a set of files on a known location on the ISDC office network and (b) reporting the delivery to the ISDC Configuration Manager via a WWW interface.

Reference for Data Definition: Not applicable.

Other Reference Documents: The ISDC WWW has further information and instructions under the link *Software/Deliveries*, including a "Delivery Form Template Document". The documents [RD-5], [RD-8], [RD-9] & [RD-10] include the definition of which particular components of ISSW are under the responsibility of IT personnel not located at ISDC, in other words they specify the scope of the deliveries.

Configuration Control: By ISDC local CCB.

Comments:

5.3 Calibration File Modification Request

Purpose: To deliver new or improved calibration files, also known as "instrument characteristics", to ISDC for use in the office or operational environment.

Source: IT

Destination: ISDC

Mechanism for Transfer: As for delivery of ISSW, but using a different WWW interface to report the deliveries.

Reference for Data Definition: See ISDC WWW under the links *Data / Data Structures / Instrument Characteristics Data Structures*.

Other Reference Documents: The mechanism for delivery and the architecture of those files are further documented in [RD-20] and [RD-19]. The ISDC WWW has a link *Config. Mgt./Submit a calibr. file*, which guides the IT through the delivery procedure - the "Calibration File Modification Request".

Configuration Control: By ISDC local CCB.

Comments: The above section refers to the calibration files, which are not generated during the running of any pipeline at ISDC but are generated independently/externally.

5.4 Software Configuration Modification Request

Purpose: To request a change in an instrument-related configurable parameter of the ISDC system, especially the subsystem "Operational Status Monitoring".

Source: IT



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Destination: ISDC

Mechanism for Transfer: Section 3.5 of [RD-19].

Reference for Data Definition: Not applicable.

Other Reference Documents: [RD-19] describes a WWW form.

Configuration Control: By ISDC local CCB.

Comments:

5.5 *Request for Private Data*

Purpose: To request access to or delivery of private data to an IT person who is not the owner of the data but who requires it for an operational purpose. Such delivery could be a pre-requisite for calibration analysis at a remote IT site, leading to later delivery of calibration files, as described in section 5.3.

Source: IT

Destination: ISDC

Mechanism for Transfer: Section 3.1 of [RD-19] defines a WWW form.

Reference for Data Definition: Not applicable.

Other Reference Documents:

Configuration Control: Not a configurable item.

Comments: The actual access to the data will be via data distribution out of the ISDC archive, with a special procedure to bypass the ownership protection. Data products which are not yet in that archive (e.g. only in near-real-time repository at ISDC) are not within the scope of this interface.



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6 REPORTS ON OPERATIONS

The generation and circulation of reports is an activity common to all GS sites (MOC, ISOC, ISDC & Its). Although the whole range of reports is listed below, the rest of this section focuses just on a small number of cases, where IT-GS exchanges are involved. For the other cases, the default is that the reports of each party are just exchanged between ITs and GS.

Among the types of reports and follow-ups to be considered are:

- Observation Reports
- Anomaly Reports (for spacecraft and instruments)
- Reports on Quality Control of Science Data Products
- Shift Reports
- End-of-Revolution Reports (possibly including information about context table evolution, for example)
- Monthly Reports
- Quarterly Reports
- Annual Reports
- End-of-Mission Reports

6.1 *Observation Reports*

ISOC or ISDC or IT may report any unusual situation or apparent problem via an Observation Report. Such reports pertaining to a particular observation from different origins would be merged and discussed as necessary either locally or at a Science Operations Co-ordination Meeting. It is expected that ISDC would be the major originator, with most such reports coming out of their science data analysis.

The Observation Report is otherwise considered to be internal to the GS centers, with visibility from IT sites, but without an active notification to ITs. It deals with low-level matters, for which the originator might not know whether a problem exists or not or precisely where the problem is located. The intention is to encourage operators to record such matters via an easy-to-use interface.

The analysis of Observation Reports might in turn lead to the generation of a "Request for Private Data" or "Instrument Anomaly Reports".



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6.2 *Instrument Anomaly Reports*

Instrument Anomaly Reports, by contrast, are confirmed problems, formally notified to an agreed set of parties including the involved IT, and expected to require follow-up action. (Non-instrument anomaly reports are not necessarily notified to ITs.)

Anomaly Reports are also tracked on one of two alternative web-based systems, allowing visibility by all parties. Reports originating from MOC are tracked via the ARTS system [RD-22], while reports originating from ISOC, ISDC or ITs are tracked via a web page at ISDC, the interface to which is specified in section 3.2 of [RD-19].

ISDC currently use the single term "anomaly" to refer to both anomaly reports and observation reports, but it is recommended that they should reserve the term "anomaly" for the more serious cases with a confirmed and localized problem.

6.3 *Reports on Quality Control of Science Data Products*

At present it is assumed that quality control can be carried out entirely locally at ISDC by a combination of local experts, some of which may originate from IT institutes. In that case there is no external IT-GS interface. If any involvement from remote IT personnel turns out to be needed, a new interaction would be worked out and documented in this paragraph.



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Instrument Database Update

It is now foreseen that it would be possible to receive, during the Post Launch Phase, the following Database Update Request:

- Telecommand Parameter Default Value
- Telemetry & Telecommand Parameters Calibration Curves
- Telemetry & Telecommand Parameters Limits.

Format of the incoming data

The reference DB for the incoming data shall be the SDB.
The data shall be organized as a table subdivided by the necessary fields, each field shall be Tab delimited and shall not contain a Text Qualifier.
The data shall be provided as a text file (.txt).

Telecommand Parameter Default Value

The Telecommand Parameter Default Value shall be composed by the following 2 fields:

1. PREF = Telecommand Parameter ID
2. DEF_VAL = Default Value (in Decimal format)

As for the following example:

PREF	DEF_VAL
E9012	0.1875

Calibration Curves

The Calibration Curves shall be composed by the following 3 fields:

1. CAL_REF = Calibration Curve ID
2. RAW = Raw Value (in Decimal format)
3. ENG. = Engineering value (in Decimal format)

As for the following example:

CAL_REF	RAW	ENG.
220	0	0
220	2	0
220	3	0.29
220	255	25

Note: It is important to provide the complete Calibration in order to avoid misinterpretation.



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Telemetry Limits

The Telemetry Parameter Limits shall be composed by the following six fields:

1. TM_PREF = Telemetry Identifier
2. TM_LIM_CHECK_PARA = Telemetry Limits Conditioning Parameter
3. TM_SOFT_LO = Soft limit Low (in Decimal format)
4. TM_SOFT_HIGH = Soft limit High (in Decimal format)
5. TM_HARD_LO = Hard Limit Low (in Decimal format)
6. TM_HARD_HI = Hard Limit High (in Decimal format)

As for the following example:

TM_PREF	TM_LIM_CHECK_PARA	TM_SOFT_LO	TM_SOFT_HI	TM_HARD_LO	TM_HARD_HI
A5047	X1244	620	3500	420	3700

In this case, if is necessary to update just a single limit, the test file must be entirely provided as well, but the values that have not to be updated can be left null.

Telecommand Parameter Min/Max Value

The Telecommand Parameter Min/Max Value shall be composed by the following 3 fields:

1. TC_PARA_NAME = Telecommand Parameter Identifier
2. MINVAL = Parameter Minimum Value (in Decimal format)
3. MAXVAL = Parameter Maximum Value (in Decimal format)

As for the following example:

TC_PARA_NAME	MINVAL	MAXVAL
A2730	-0.0002909	0.0002909

In this case, if is necessary to update just a single limit, the test file must be entirely provided as well, but the value that has not to be updated can be left null.

Naming Convention

The file name shall be composed by 3 fields separated by underscore:

1. Identifier:

TCPDEFVAL	[Telecommand Parameter Default Value]
TCPCAL	[Telecommand Parameter Calibration Curve]
TLMCAL	[Telemetry Parameter Calibration Curve]
TLMLIM	[Telemetry Parameter Limits]
TCPLIM	[Telecommand Parameter Min / Max Value]
2. Date [the format shall be: ddmmyy] (no separator)
3. RunningNumber [four digit progressive numeration]

As for the following example:

TLMLIM_260401_0001