

# SPIRE ICC Interactions Document

SPIRE-RAL-DOC-003117

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Draft 0.1

Generated: 06 Aug 2008 - 12:59

# Table of Contents

<b>SPIRE ICC Interactions Document.....</b>	<b>1</b>
<b>1. Introduction.....</b>	<b>2</b>
<b>2. Interactions between ICC at RAL and HSC.....</b>	<b>3</b>
2.1 Overview of Interfaces.....	3
2.1.1 Working Groups and Mailing Lists.....	3
2.2 Overview of the HSC-ICC data types being exchanged.....	4
2.3 Delivery of downlink calibration products from the ICC to the HSC.....	5
2.4 Delivery of updated DP software to HSC.....	5
2.5 Quality Control Interactions with the HSC.....	5
2.6 Helpdesk interactions between HSC and ICC.....	6
2.6.1 Raising a ticket originating in the HSC in the SPIRE system.....	6
2.6.2 Raising a ticket in the HSC system which originated in the SPIRE system.....	6
2.7 Anomaly Reporting.....	7
2.8 Delivery of Cus Scripts and Calibration Tables To The HSC.....	7
2.9 Mission Planning Interactions With HSC.....	7
2.9.1 Mission Planning During PV Phase.....	7
2.9.2 Mission Planning During Routine Phase.....	7
<b>3. Interactions within the SPIRE ICC.....</b>	<b>8</b>
3.1 ICC Mailing Lists.....	8
3.2 The SPIRE Configuration Control Board.....	8
3.2.1 Membership.....	8
3.2.2 Configuration Item List.....	8
3.3 Helpdesk Interactions.....	8
3.3.1 Helpdesk Operation.....	8
3.3.2 Oversight.....	9
3.4 Videoconferencing.....	9
3.5 Distribution of Test Versions of Calibration Files.....	10
3.6 Distribution of Test Versions of Software.....	10
3.7 Delivery of Calibration Data From External Sites to RAL.....	10
3.8 Access to SPIRE Website(s).....	11
3.9 Access to SPIRE FTP Site.....	11

# SPIRE ICC Interactions Document

## 1. Introduction

## 2. Interactions between ICC at RAL and HSC

- 2.1 Overview of Interfaces
  - ◆ 2.1.1 Working Groups and Mailing lists
- 2.2 Overview of data types being exchanged
- 2.3 Delivery of Downlink calibration products to HSC
- 2.4 Delivery of updated DP software to HSC
- 2.5 Quality Control interactions with the HSC
- 2.6 Helpdesk interactions with the HSC
- 2.7 Anomaly Reporting
- 2.8 Delivery of Cus Scripts and Calibration Tables to the HSC
- 2.9 Mission Planning Interactions
  - ◆ 2.9.1 Mission Planning During PV Phase
  - ◆ 2.9.2 Mission Planning During Routine Phase

## 3. Interactions Within the SPIRE ICC

- 3.1 ICC Mailing Lists
- 3.2 The SPIRE Configuration Control Board
- 3.3 SPIRE Helpdesk Interactions
- 3.4 Videoconferencing
- 3.5 Distribution of Test Versions of Calibration Files
- 3.6 Distribution of Test Versions of Software
- 3.7 Delivery of calibration files from external sites to RAL
- 3.8 Access to the SPIRE website(s)
- 3.9 Access to the SPIRE ftp site

# 1. Introduction

This document is intended to capture a list of SPIRE ICC interactions. These generally fall into two categories:

1. Interactions with the HSC
2. Interactions within the ICC

The interactions in the first category are described in Section 2 of this document. For many interactions section 2 only needs to refer to the document "HSC-ICC Interactions Document" (HERSCHEL-HSC-DOC-1184) while for others more detail is required relating specifically to the SPIRE ICC. The approach taken here is to avoid duplication of information as much as possible hence sections of the HSC document relating to sections of this document are referred to specifically in those sections.

Section 3 of this document then covers interactions within the SPIRE ICC and as such is specific to SPIRE. As this document is currently in early draft form the list of interactions may well be far from complete and new interactions will be added as required. As this is a TWiki based document an open policy on editing the document will be maintained at least until routine operations.

Many of the interactions described here also have associated interfaces. The requirements for the SPIRE interfaces are described separately in SPIRE-RAL-DOC-003125.

## 2. Interactions between ICC at RAL and HSC

### 2.1 Overview of Interfaces

The transfer mechanisms envisaged to support the exchange of different data types and information sets between the HSC and the ICCs throughout the course of the mission are:

- Propagation Mechanism: Science & HK TM Object data are transferred from the HSC to the ICCs through the nominal ODBMS Propagation process. Additional data such as OOL and TCH data are also provided here.
- Bulk Product transfer mechanism – This mechanism is used to retrieve a product from the Herschel Science Archive (HSA) in an automatic and transparent way.
- FTP Server – this server is located at HSC and is accessible via the lease line only. It shall be used as the location where the HSC shall place files received by the HSC from the MOC and that are to be forwarded to the ICC e.g. Orbit file, PSF, OBSM image dump, Attitude History file, Time correlation file, and those that are received by the HSC from the ICC and transferred on to the MOC after evaluation e.g. OBSM image for uplink. The mechanism is also foreseen to transfer other files that the ICC would need to perform mission planning & Proposal Handling e.g. Horizons files, SIAM file, SSO Ephemerides file.
- CVS Server: Typical data & software exchanged via the CVS includes: CUS Script updates, Uplink Calibration Tables transfer, DP & HCSS Software deliveries.
- HSA Interface - Standard Herschel Science Archive for accessing products at HSC

Besides the above data interactions, there will be interactions related to Helpdesk, Quality Control, instrument anomalies as well as regular status meetings during the operations phase.

#### 2.1.1 Working Groups and Mailing Lists

The following working groups and existing mailing lists are chaired by the HSC with SPIRE ICC participation:

Group	acronym	mailing list	SPIRE Representative	notes
HGS Steering Group	HGSSG	hsgssg@sciops.esa.int	Ken, Tanya	
HCSS Management Group	HCSSMG	hcssmg@sciops.esa.int	Ken, Tanya	
Herschel Core (operations) CCB			Tanya	
HCSS CCB		dpcsb@sciops.esa.int	Steve	
Herschel Calibration Steering Group	HCalSG	hcalsg@rssd.esa.int	Sarah	
Ground Segment System Engineering WG			Sunil	
Science Operations Working Group	SciOps	SciOpsWG@esa.int	Ken, Sunil	
DP Management Group	DPMG		Steve	
DP System Architecture Group	DPSAG		Steve	
DP Users Group	DPUG	ia-wg-users@ster.kuleuven.ac.be	Mattia	

Documentation WG			Brian
Products Working Group		dp-pdg@ster.kuleuven.be	Steve, Pasquale
End to End Test WG			Dave
Training Group		dp-training@sciops.esa.int	George
Herschel DP Editorial Board		dpeboard@sciops.esa.int	Brian

The following mailing lists are in common usage and are either ex-working groups or general distribution lists

Common Software Development Team	CSDT	csdt@ster.kuleuven.be	Most SPIRE ICC Members	Steve was ICC representative
All IA interested people	IA-ALL	ia-all@ster.kuleuven.ac.be	Most SPIRE ICC Members	This was never a WG

## 2.2 Overview of the HSC-ICC data types being exchanged

The table here appears in the HSC-ICC Interactions document section 3.2 and is reproduced here for convenience.

Files being transferred	File Description	Generation Details	Transfer Mechanism
S/C TM Pkts	Spacecraft HK TM Objects	ESOC DDS provided data	Propagation
HK TM Pkts	Instrument HK TM Objects	ESOC DDS provided data	Propagation
SCIENCE TM Pkts	Instrument Science TM Objects	ESOC DDS provided data	Propagation
Data Frames	Instrument Science TM Data Frames <sup>1</sup>	Generated at HSC	Propagation
OOL	Out of Limit data	HSC DDS ingested data (OOL)	Propagation
TCH	Telecommand History data	HSC DDS ingested data (TCH)	Propagation
TCO	Time Correlation packets	ESOC DDS provided data	Propagation
Products	SPG generated products	Generated at HSC	Product transfer
OBSM/IOBS	Instrument Image File from MOC	ESOC FTS provided data	FTP
Orbit file	Auxiliary Data File from MOC	ESOC FTS provided data	FTP
SIAM	Spacecraft Instrument Alignment	ESOC FTS provided data	FTP
SSO Ephem	SSO Ephemerides file	ESOC FTS provided data	FTP
PSF	Planning Skeleton file	ESOC FTS provided data	FTP
TSF	Timeline Summary file	ESOC FTS provided data	FTP
EPOS	Enhanced POS File	ESOC FTS provided data	FTP
HCSS S/W	HCSS Software releases	CSDT software	CVS
QCR	Quality Control Report	Kayako Software	Internet

AHF	Attitude History File	ESOC provided data	FTP
MPS & PHS Aux data	All data not mentioned above required to run MPS & PHS e.g. Horizons file	HSC provided data	FTP
HPSTDB/MIB	Spacecraft DB / MIB files	ESOC provided data	FTP
MPSSF	ICC Mission Planning Schedule File	Generated using MPS at ICCs	CVS server
IOBS	OBSM Image File	ICC OBSM Export tool output	FTP Server
CAL – Uplink	Calibration object update	Calibration software	CVS Server
CAL Downlink	Calibration object update	Calibration software	CVS Server
CUS	CUS DB Script update	CUS Software	CVS Server
DP S/W	Data Processing Scripts & S/W	Generated at ICCs	CVS Server
CALOBS	Calibration Observations	Generated at ICCs	CVS Server
TPF	Task Parameter File	Generated at ICCs	FTP Server
MIB	Instrument DB updates	Generated at ICCs	FTP Server
QCR	Quality Control Reports	Kayako Software	Internet

## 2.3 Delivery of downlink calibration products from the ICC to the HSC

The procedure for this is given in Herschel-HSC-Doc-1184 (section 5.1.2 in draft 1.0C)

## 2.4 Delivery of updated DP software to HSC

The procedure for this is given in Herschel-HSC-Doc-1184 (section 5.1.3 in draft 1.0C)

## 2.5 Quality Control Interactions with the HSC

The manual Quality Control analysis is divided into three different levels:

- Quality Control Level 1 (QCL1): This is the first step in the analysis of the observation and is executed by the Scientific Product Analyst (SPA). During this phase, some basic checks, using well known rules (TBW) are performed on the QCR. At the end of this process, the SPA decides if the observation passes or needs further analysis at level 2 or level 3.
- Quality Control Level 2 (QCL2): This analysis is performed by the Instrument Calibration Scientists (CS) on those observations forwarded by the SPA which are affected by processing problems or instrument malfunction. The CS forwards the result of his/her analysis back to the SPA.
- Quality Control Level 3 (QCL3): This phase is performed by an astronomer of the Herschel Community Support Group (HCSG) on those observations forwarded by the SPA because they possibly need to be re-scheduled. The member of the HCSG forwards the result of his/her analysis back to the SPA.

There is a fourth level of Quality Control (QCL4) which represents those situations where the owner of the observation requests further analysis of its quality through Helpdesk. In these cases the astronomer of the HCSG initialises the process (TBD).

The details of how the QCL2 requests are passed to the ICC is TBD. The Herschel HSC-ICC Interactions Document currently states: "The intention is that staff accounts will be assigned to pre-identified individuals

at the corresponding ICCs so that they can have access to these Kayako departments when they are requested to provide comments on a specific observation. They answer the ticket suggesting what text to add to the report and then the SPA append these comments to the QCR."

Irrespective of the precise mechanism the working assumption within the SPIRE ICC is that QCL2 requests will need to be raised as separate tickets within the SPIRE Kayako system.

Once these have been raised all investigations will be tracked through the SPIRE Kayako system. The management of this is TBD but will either be via the SPIRE CCB or via an individual assigned to the task.

## 2.6 Helpdesk interactions between HSC and ICC

The interface between the two helpdesks shall be the Instrument Calibration Scientist(s) based at the HSC. They shall have staff accounts at both helpdesks and as such, are permanently informed on the questions arriving at both helpdesks. Transferring tickets from one helpdesk to the other is his/her interface task.

The exchange of tickets between both Helpdesk systems in just two particular cases:

- when a ticket arrived at the HSC Helpdesk refers to a SPIRE-specific issue which cannot be directly answered by the SPIRE Calibration Scientist at the HSC (e.g. because it contains a question which requires the specific expertise from someone at the SPIRE ICC on a particular problem).
- when a ticket arrived at the SPIRE Helpdesk refers to a non-SPIRE specific issue which should have better been directed to the central HSC Helpdesk

### 2.6.1 Raising a ticket originating in the HSC in the SPIRE system

- The Instrument Calibration Scientist(s) based at the HSC will raise a new ticket at the SPIRE ICC Helpdesk (and appropriate Department) containing the question from the user.
- An expert from the ICC will then be assigned to investigate this.
- The answer will be reviewed by the ICC - The reviewers here are TBD, potentially this could be done by either the SPIRE CCB or the SPIRE ICC Management team or a separate body may be formed for this.
- The answer is then provided by the expert through the SPIRE Helpdesk
- The HSC calibration scientist then communicates the answer to the user through the HSC Helpdesk.
  - ◆ The ticket will start with the sentence: "Your ticket was transferred to the SPIRE ICC Helpdesk and this was the answer provided:". And it should be formally ended with the following signature: "'SPIRE-ICC-member-name-who-provided-the-answer' for the SPIRE Instrument Control Centre Helpdesk".

### 2.6.2 Raising a ticket in the HSC system which originated in the SPIRE system

The SPIRE Helpdesk operator will take one of the following actions:

- answer the question directly from the SPIRE Helpdesk (especially if this is a very general one) informing the user that similar questions in the future should be better addressed to the central HSC Helpdesk.
- in case the question requires a formal answer by the HSC Helpdesk and/or the answer is unknown by the SPIRE Helpdesk operator, he/she will transfer the ticket ownership to the HSC SPIRE Calibration Scientist, who will:
  - ◆ raise a ticket at the HSC Helpdesk (and appropriate Department) with the question received from the user

- ◆ wait until an answer is provided through the HSC Helpdesk
- ◆ communicate the answer to the user through the SPIRE ICC Helpdesk. The ticket will start with the sentence: "Your ticket was transferred to the Herschel Science Centre Helpdesk and this is the answer provided:" And it should be formally ended with the following signature: "HSC-member-name-who-provided-the-answer' for the Herschel Science Centre Helpdesk"

The main points to note therefore is that:

- the user should always receive the answer from the same Helpdesk to which the question was addressed.
- it should always be clear who generated the answer to the message, if it was a different Helpdesk.

Finally, it should be noted that the Calibration Scientist@HSC for each instrument will have access to the ICC dedicated helpdesk.

## **2.7 Anomaly Reporting**

## **2.8 Delivery of Cus Scripts and Calibration Tables To The HSC**

The procedure for this is given in the Herschel HSC Interactions Document HERSCHEL-HSC-DOC-1184 (section 7.1 in Draft 1.0C)

## **2.9 Mission Planning Interactions With HSC**

### **2.9.1 Mission Planning During PV Phase**

### **2.9.2 Mission Planning During Routine Phase**

## 3. Interactions within the SPIRE ICC

### 3.1 ICC Mailing Lists

The following mailing lists are in use by the SPIRE team

spire-all@jiscmail.ac.uk	All SPIRE consortium and ICC members
spire-icc@jiscmail.ac.uk	All SPIRE ICC
spire-isdt@jiscmail.ac.uk	SPIRE development team
spire-obst@jiscmail.ac.uk	SPIRE operations team
spire-sxr@jiscmail.ac.uk	SPIRE SPRs and SCRs

The contact person for further information is Sunil Sidher S.Sidher@rl.ac.uk

### 3.2 The SPIRE Configuration Control Board

The SPIRE configuration board is responsible for the management of SPIRE configurable items and the terms of reference are described at <http://herschel.be/twiki/bin/view/Spire/SpireCcbTor>.

The overall configuration management for Herschel is via the Operations CCB and the ICC's each have representation on this board. The operations CCB member also sits on the SPIRE board.

#### 3.2.1 Membership

The CCB is composed of these representatives, or their delegated deputies.

- Dave Clements (Imperial College, observations team)
- Trevor Fulton (Lethbridge)
- Steve Guest (chair, software team)
- Sarah Leeks (calibration team)
- Tanya Lim (cCCB)
- Pasquale Panuzzo (CEA)
- Julio Ramirez (HSC QA)
- Bernhard Schulz (NHSC)
- Sunil Sidher (operations team)
- Ivan Valtchanov (HSC ops team)
- Ken King (uplink)

Other experts on particular topics may be invited to participate in discussions on those topics.

#### 3.2.2 Configuration Item List

### 3.3 Helpdesk Interactions

#### 3.3.1 Helpdesk Operation

The SPIRE Helpdesk interactions with the HSC are described in section 2.6. A ticket will be raised in the SPIRE helpdesk system under the following circumstances:

1. The ESA calibration scientist raises a ticket requesting a level 2 quality check
2. The ESA calibration scientist raises a ticket containing a question from a user

3. A member of the SPIRE ICC encounters a problem which is unlikely to be software related and raises a ticket

New tickets will be checked periodically by a helpdesk operator (this is likely to be daily early on in the mission dropping to every few days later).

The helpdesk operator will then consult a list of known problems (TBD whether this can be held within the helpdesk system or separately).

1. If this is a known problem with a solution the standard answer will be added to the ticket by the operator.
2. If this is a known problem that does not yet have a solution the procedure is TBD:
  - ◆ either the ticket could be closed and referred to an earlier ticket
  - ◆ or if the system does not allow this an answer can be attached to this ticket referencing the earlier ticket and the earlier ticket will need to reference the later one.
3. If this is a new problem the helpdesk operator will:
  - a. Decide which expert is appropriate to deal with the problem
  - b. Assign the problem and inform the relevant expert (note we may also assign deputies (TBD))
  - c. Update the ticket to show that it has been assigned

It is assumed that ICC members can answer tickets directly.

1. In the case of an answer received on an ESA scientist raised ticket it is assumed that no further action is needed. It is not yet clear whether the ESA calibration scientist will receive automatic notification of an answer or will need to check the system manually.
2. For ICC internally raised tickets a similar assumption is made.
3. On the regular checks the operator will add answered tickets to the known problem list.

### 3.3.2 Oversight

Periodic (approximately monthly in routine phase) reviews will take place. It is TBD whether this will be part of the work of the SPIRE CCB or whether a separate board is needed (the main reason being the respective workloads of the boards from the SxR and Helpdesk systems). These reviews will cover.

- Tickets which may require NCRs
- Tickets which have been open for some time
- Tickets raised by ESA calibration scientist
- Any other tickets raised by board members

## 3.4 Videoconferencing

The SPIRE ICC has a dedicated videoconferencing facility located in the operations centre meeting room. Any SPIRE ICC member may book the meeting room and along with it the videoconferencing facility. For non-RAL ICC members the booking will have to be made through an email to the project administrator Jane Porter (J.A.Porter@rl.ac.uk).

A remote control and instructions are located in the meeting room. For SPIRE DapSas centres the coordinates are programmed with a short cut. A list of the full coordinates are:

Name*	*System	IP Address	Tel. No. in case of problems
Blue Sky Spectroscopy, Lethbridge	Polycom V500	70.65.131.68	+1 403 317 1273

CEA, Saclay	VSX7000E	132.166.8.231	+33 169083055
Imperial College, London	?		
IPAC, Pasadena	Polycom FX VS4000	134.4.40.77	
LAM, Marseille	?	195.221.212.248	
RAL, Didcot	Polycom HDX 9002XLP	130.246.239.55	xtn 1519

### 3.5 Distribution of Test Versions of Calibration Files

There are at least two possible scenarios for this.

1. The new calibration files constitute a *release candidate*. In this case they are distributed in the same way as software, by including them in the build. The new versions are checked into CVS and different version sets identified with CVS tags. This approach may be reviewed if the size of the calibration dataset becomes large.
2. Versions of calibration data for informal testing may be distributed by packaging them as a `jar` file and making them available via e-mail, ftp or a web site. A *complete* calibration dataset should be packaged in this way, not just the updated files. This `jar` file may then be *imported* for use. This procedure must not be used for formal acceptance testing or scientific validation. Formal distribution may only be done using the CVS/build mechanism described above.

### 3.6 Distribution of Test Versions of Software

Test versions of software are distributed in the same manner as other versions.

- The build may be downloaded from the HSC site. This contains the compiled software.
- The sources are available in the CVS repository and can be checked out and compiled locally.
- If it is desired to make a test *release*, then this is identified in the usual manner by issuing a CVS tag. If a version of the installer is required for a such a release, it must be specially requested from the HSC.
- Specially crafted builds containing specific versions of modules are also possible. These must be requested from the HSC, specifying the HCSS/DP build and the CVS developer tags for the SPIRE modules that it is to contain.

### 3.7 Delivery of Calibration Data From External Sites to RAL

The interactions when new or updated calibration data are supplied to RAL are as follows:

- An email containing the new data file and updated technical note is sent to the SPIRE Operations email address, and copied to Sarah and Ed.
- In the case that it is not possible to email the file (due to sender's email attachment size limit the data) can be placed on an ftp server (sender's or receiver's) and then an email containing details of how to get the data from the ftp site (if sender's site used), the location and name of the file, and the updated technical note is sent to the SPIRE Operations email address, and copied to Sarah and Ed.
- This email will be acknowledged within 1 day (or sooner during rapid changes) by sending email back to the supplier.
- If the person supplying the data does not receive this confirmation within 1 day, they should telephone the calibration team using the SPIRE Operations telephone number to check what has happened.
- The new data will be turned into a new calibration product using the procedure to update calibration products.

These interactions apply equally to calibration data supplied from inside RAL.

## 3.8 Access to SPIRE Website(s)

SPIRE currently have several web sites. To some extent this is inefficient and confusing, and should be rationalised prior to operations. These are:

- <http://www.spire.rl.ac.uk/>. This is the current "main" SPIRE web site. However, it is limited and inflexible and should be phased out, with its pages being hosted by the `wakefield` site. The "spire" address should be reused (and if possible made shorter), redirecting to `wakefield`.
- <http://chichester.bnsc.rl.ac.uk> is used as an IST test machine by the operations team. It (still) hosts a web site for historical reasons, containing test team pages and data. This web site should be phased out and its pages and data moved to `wakefield`.
- <http://wakefield.bnsc.rl.ac.uk> currently hosts the data server applications for external ICC sites. These are for access to telemetry and a PAL interface to products at RAL. It does not contain any static pages or data at the moment, but should replace the services provided by the previous two sites. This site will also host the Kayako help desk system.
- <http://www.herschel.be/twiki/bin/view/Spire/WebHome>, This is a Twiki site hosted by PACS at Leuven, and is now extensively used by SPIRE. There seems little benefit in replacing it with another system running on `wakefield`, however cross-links can be used to give an appearance of a single site.
- <http://astro.imperial.ac.uk/research/herschel/spire/BulletinBoard>. This bulletin board site was used in the past but is now hardly used, if at all, and the Wiki site above used instead.

## 3.9 Access to SPIRE FTP Site

The ICC at RAL provides an FTP service on `wakefield`. To access it, use an ftp client such as:

```
ftp wakefield.bnsc.rl.ac.uk
```

The site supports both anonymous ftp and password protected user access for registered ICC users only. Anonymous ftp access is restricted to a *sandbox* and has no visibility of any potentially proprietary data.