

SPIRE ICC Operations Manual

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ICC Operations Manual

1. Introduction

The ICC Operations Manual is the document which contains all the ICC procedures. For this page I've listed an initial set of headings which myself, Ken, Steve and Sunil have discussed. This document should be a living document and in the spirit of a Twiki all members of the ICC should feel free to update it.

2. The ICC In The Herschel System

- 2.1. The MOC
- 3.2 The HSC
- 3.3 The SPIRE ICC

3. The ICC Structure

- 3.1. Introduction
- 3.2 ICC Teams
- 3.3 List of Telephone Numbers

4. Instrument Calibration

- 4.1 Calibration Processing (Sarah/Tanya)
- 4.2 Performance Verification (Sarah/Tanya)
- 4.3 Provision of OD Files To ESA (Sarah)
 - ◆ 4.3.1 Plan for Using the System
 - ◆ 4.3.2 CUS Script and/or Calibration Table updates (Sarah)
 - ◆ 4.3.3 Updating the Test System (Sarah)
 - ◆ 4.3.4 Updating the Operational System (Sarah)
 - ◆ 4.3.5 Making and Updating Proposals (Sarah)
 - ◆ 4.3.6 Scheduling ODs (Sarah)
 - ◆ 4.3.7 Making Tar File for Delivery (Sarah)

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- 5.1 On-Board Software Update (Sunil)
- 5.2 Create A New Configuration (Sunil)
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 - ◆ 5.2.3 Make Changes to Engineering Calibration Tables (Sunil)
 - ◆ 5.2.4 Updating AOTs (Sunil)
 - ◆ 5.2.5 Updating AOT Calibration Tables (Sunil)
 - ◆ 5.2.6 Delivery of Uplink System (Sunil)
- 5.3 Instrument Health Monitoring (Ken/Ed)
 - ◆ 5.3.1 Update Script (Ken/Ed)
 - ◆ 5.3.2 Scheduling Script to Run (Ken/Ed)
 - ◆ 5.3.3 Monitoring Of Daily Reports (Ken/Ed)
- 5.4 Performance Monitoring and Trend Analysis (Pete/Tanya)
 - ◆ 5.4.1 Update Script (Pete)
 - ◆ 5.4.2 Scheduling Script to Run (Pete)
 - ◆ 5.4.3 Monitoring Of Daily Reports (Pete)

- 5.5 Generating/Scheduling Observations (Ken/Sunil)
 - ◆ 5.5.1 Scheduling Observations for a Day (Ken/Sunil)
 - ◆ 5.5.2 Check Configuration (Ken/Sunil)
 - ◆ 5.5.3 Schedule Observations (Ken/Sunil)
 - ◆ 5.5.4 Generate File (Ken/Sunil)
- 5.6 Operational Day Logging (Ken/Ed)
- 5.7 Creating a Cron Job (Steve/Sunil)

6. System Administration

- 6.1 Adding a New User (Steve)
- 6.2 System Recovery (Steve)
- 6.3 New Version of Software (Steve)
- 6.4 System Backups (Steve)
- 6.5 Monitoring Of Cron Jobs (Steve)

7. Problem Handling

- 7.1 Helpdesk (Dave/Ken)
 - ◆ 7.1.1 Access to Helpdesk System
 - ◆ 7.1.2 Management of Helpdesk Questions
- 7.2 Problem Reporting (Dave/Ken)

8. Data Management

- 8.1 Database Management
 - ◆ 8.1.1 Creating a Database
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- 8.2 Data Products
 - ◆ 8.2.1 Copying Products From HSC (Steve)
 - ◆ 8.2.2 Management of Re-Processed Data (Steve)
- 8.3 Data Delivery
 - ◆ 8.3.1 MIB (Sunil/Steve)
 - ◆ 8.3.2 Delivery Of New Cal Files to the ICC (Sarah/Steve)
 - ◆ 8.3.3 Delivery of new Cal Files to the Consortium (Sarah/Steve)
 - ◆ 8.3.4 Delivery of New Cal Files to ESA (Sarah/Steve)
 - ◆ 8.3.5 Delivery of Files to ESA for a PV OD (Sarah)
 - ◆ 8.3.6 Delivery of Data To The ICC From The Consortium (Dave/Sarah)

9. Data Processing

- 9.1 Executing a Pipeline (Steve)
- 9.2 Making Trend Analysis Queries (Steve)
- 9.3 Software Delivery (Steve)
- 9.4 Quality Control (Dave)

10. Software

- 10.1 Update AOT Implementation (Ken/Sunil)

11. RAL Facility Procedures

- 11.1 Access To The Facility (Tanya/Ken)
 - ◆ 11.1.1 Request access to ICC
 - ◆ 11.1.2 Get a RAL access card
- 11.2 Meeting Room
 - ◆ 11.2.1 Booking the Meeting Room
 - ◆ 11.2.2 Videoconferencing
- 11.3 (Re-)Starting The EGSE (Sunil/Steve)

1. Introduction

The SPIRE Operations Manual is the document which houses all SPIRE ICC operational procedures. For the purposes of this document an operational procedure is required when an operational activity either needs to be recorded for product assurance purposes and/or needs to be carried out by more than one person. These activities include:

1. Computer and Database Administration
2. Data Management and Delivery
3. Problem Handling Procedures
4. Facility Procedures

Non operational procedures will be covered in separate documents, so far identified are:

1. Derivation of calibration files

Currently the SPIRE procedures are in development therefore this document is in development. It is housed on the SPIRE TWiki page to allow ICC members who are developing the procedures to edit it as the procedures are developed.

2. The ICC In The Herschel System

The Herschel Ground Segment (HGS) consists of three major decentralised components. The Mission Operations Centre (MOC) located at ESOC, the Instrument Control Centres (ICCs) located at (or near) the PI institutes and the Herschel Science Centre (HSC) located at ESAC (Spain).

2.1 The MOC

The MOC is responsible for all aspects of spacecraft (S/C) operation as well as the safety of the instruments during the in-orbit phase only. This includes generating all commands to be up-linked to the satellite, receiving, recording for safekeeping, and consolidation of the telemetry data and making these data available to the rest of the Ground Segment. It is also responsible for maintaining the instrument and spacecraft databases shared by the MOC, ICCs, and HSC, and of the SCOS-2000 system used by the MOC and the ICCs.

2.2 The HSC

The HSC is the single-point interface to the outside world for all Herschel observatory matters. In particular, it will issue calls for observing time proposals, it will handle proposals, it will provide general community support and give support to ESA Public Relations and science communications activities.

To do this task it will provide the framework for the interfaces with the astronomer for all community interaction, e.g. for information gathering, proposing, data browsing and retrieval, on-demand data processing, and generation of quick-look products.

It will also perform the detailed scientific mission planning and provide quality control information on all observational data.

It will provide, manage, and maintain the central Herschel data base, and all the HSC software subsystems and will also populate, along with the ICCs, the Herschel database with characterisation, science, and operational data to ensure overall ground segment consistency with respect to instrument configuration, including onboard software.

Another role will be to co-ordinate the cross-calibration between Herschel instruments, and between Herschel and other facilities.

Additionally the NASA Herschel Science centre will act as an interface between the HSC and the US community.

2.3 The SPIRE ICC

During the Operations Phase the Herschel instrument ICCs are responsible for:

1. Maintaining the health and safety of the instrument and continuously monitoring its operation and performance in order to identify possible future problems
2. Optimising the scientific quality of the data produced for the users of SPIRE and Herschel by monitoring the scientific data products and updating the observing modes and data processing software, as necessary
3. Supporting the Herschel Science Centre's activities and liaison with Herschel users by providing expert advice and answers to technical queries

The first of these activities will be carried out under the control of the SPIRE Operations Team based at the SPIRE Operations Centre (SPOC), located at RAL. This centre forms the single formal point of contact between the ICC and the HSC and MOC for deliveries of software, data files and other information identified in the ICC/HSC and ICC/MOC interface documents. Because of this all the daily activities requiring access to real-time data or to software systems in the Herschel Science Centre (HSC), for example delivery of calibration or engineering observations and access to telemetry data, shall be carried out at the SPOC. In addition, the testing and delivery of new software and/or calibration data shall be handled through the SPOC.

The second activity will include monitoring and reviewing the instrument performance and calibration status and the quality of its scientific products, identifying and investigating processing imperfections, anomalies and effects, determining solutions and implementing them in terms of improved observations and data processing software. It will be carried out jointly by the ICC Data Processing and Science Analysis Software (DAPSAS) Centres (located at ICSTM, CEA and Lethbridge), with significant support and participation by other major SPIRE hardware groups - these are: LAM Marseille (FTS hardware behaviour and low-level FTS data processing), IFSI Rome (OBS maintenance), Cardiff University (detector and filter expertise, instrument photometric modelling and simulation, absolute calibration, FTS data processing expertise) and IPAC (Interactive Analysis and scientific data processing software support).

The third activity will be channelled through the SPOC, but will involve participation by the instrument experts in various SPIRE institutes, especially the ones mentioned above.

3. The ICC Structure

3.1 Introduction

3.2 ICC Teams

The SPIRE ICC operational team management structure will be similar to the ICC development team structure. Activities will be carried out by the ICC teams under the control of the ICC Manager:

- The Operations Team are responsible for:
 - ◆ Scheduling PV phase observations and entering these into the mission planning system
 - ◆ Instrument health monitoring
 - ◆ Data retrieval, processing and ensuring the data is available at RAL for use by the other teams
 - ◆ Delivery of updated calibration information for the Herschel planning and data processing systems

- The Data Processing Team are responsible for:
 - ◆ validation of the implementation, operation and scientific performance of the AOTs

- The Software Team are responsible for:
 - ◆ Data Processing Software
 - ◆ SPIRE contribution to the HCSS

- The Calibration Team are responsible for:
 - ◆ Analysing the data and feeding the results back into the planning
 - ◆ Producing updated calibration information both for uplink and downlink purposes
 - ◆ Updating the sensitivity estimate

3.2.1 Team Membership

ICC Manager: Tanya Lim

Team	Operations	Calibration	Data Processing	Software
Leader	Sunil Sidher	Sarah Leeks	Dave Clements	Steve Guest
Members	Ken King	George Bendo	George Bendo	George Bendo
	Andreas Papageorgiou	Tanya Lim	Pierre Chanial	Dominique Benielli
	Michael Pohlen	Nanyao Lu	Peter Davis	Ralph Boland
	Ed Polehampton	Pasquale Panuzzo	Tanya Lim	Nieves Castro
	Markos Trichas	Michael Pohlen	Brian O'Halloran	Pierre Chanial
		Ed Polehampton	Seb Oliver	Sheng Chen
		Bernhard Schulz	Chris Pearson	Trevor Fulton
		David Schupe	Ed Polehampton	Rene Gastaud
		Markos Trichas	Mattia Vaccari	Bo Li
		Kevin Xu		Jingjing Li
				Gabriele Mainetti
				Huw Morris
				Brian O'Halloran
				Pasquale Panuzzo
				Andreas Papageorgiou

3.3 ICC Contact List

Name*	*Email	*Work No.*	*Mobile No.	Comments
SPIRE Operations	spire@rl.ac.uk	+44 1235 445021		Hunts for the current Operations responsible
SPIRE Meeting Room		+44 1235 446322		Videoconferencing system is on extn 6405
SPIRE Visitors Room		+44 1235 445675		
SPIRE Project Office	j.a.porter@rl.ac.uk	+44 1235 445518		Jane Porter
SPIRE Test Lab		+44 1235 446241		
Dave Clements	d.clements@ic.ac.uk	+44 207 5947693		
Peter Davis-Imhof	peter.davis@blueskyinc.ca	+1 403 3171273		
Steve Guest	s.guest@rl.ac.uk	+44 1235 445910		
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Tanya Lim	T.Lim@rl.ac.uk	+44 1235 445045		
Nanyao Lu	lu@ipac.caltech.edu	+1 626 3953471		
Huw Morris	h.morris@rl.ac.uk	+44 1235 446755		
Pasquale Panuzzo	pasquale.panuzzo@cea.fr	+33 169087906		
Chris Pearson	c.pearson@rl.ac.uk	+44 1235 445047		
Ed Polehampton	E.T.Polehampton@rl.ac.uk	+44 1235 445047		
Bernhard Schulz	bschulz@ipac.caltech.edu	+1 626 3951874		
Sunil Sidher	s.sidher@rl.ac.uk	+44 1235 445114		
Mattia Vaccari	mattia.vaccari@gmail.com	+39 049 8278251	+39 348 2541209	+44 77 60421086 (UK)

3.3.1 ICC Video-Conferencing Coordinates

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	

4. Instrument Calibration

4.1 Calibration Processing

TBW

4.2 Performance Verification

4.3 Provision of OD Files To ESA

Introduction

Note this isn't one procedure it is many, this page mostly links to the different procedures and might be located elsewhere in the future.

This following pages gives the list of procedures to implement the plan for using the system (the next page). The procedures are on their own wiki pages. Here is the flowery text to link them (currently coming from the plan but needs to be converted more into procedures).

There are several parts...

Other things not to be forgotten and to be fitted in some sections

All the set up steps in case we have to start again, like making the Calibration programme... Download correct HSpot etc... making database, populating database with right stuff including the correct MIB. Making sure that right versions of things are in database. To check the mib do

```
mibchecker -properties hcsm.mib.datadir=$PWD
```

4.3.1 Plan for Using the System

The plan for how we use and interact with Expert HSpot, PHS and MPS to generate PV ODs.

Plan updated as a result of telecon between Ken, Michael and Sarah on 12th March 2008.

Background: what put on operational server HAS to be correct (it is operational straight away). So we have to be strict with the test database/server as it is we test and verify that what we put on the operational server will work. So we must know what everyone is doing on the test server/database. Therefore we will make one person responsible for the next test version (a successful version will result in a 'release' which is then put on the operational server and used).

Interactions: CUS writers develop new scripts on their own setup (having retrieved latest versions from SPIRE Mission Planning DB - retrieve from CVS the scripts with a certain tag. This can be done with the CVS s/w).

check scripts work via full testing in CUSGUI (full tests including trying out the limits on values, to catch as many errors as possible before script goes into the test database, to reduce the number of loops of the process). several scripts writers doing this at once.

When happy with new script(s) deliver the scripts to one person responsible on that day to get the scripts put on the test server. The person who made the updates in the scripts will also provide information on the expected new TE results (for a set(s) of parameters), how changes effect time estimates for AORs (the

consequences of the update), and info about changes to parameter definitions (for testing the front end).

This person then start with new/empty database add in a copy of the operational database (or at least the MIB and the MC (aors/proposals not there)) [is this a new database or the same database as before but wiped clean? (to be followed up with Huw)]. puts the new/updated scripts for testing into the database and makes the new mc* (do they also link PHS to that new mission config and make the .prop files available? and do they still make the tests or each person..?).

[*recreate the test database all the time from operational one so MC=1 for test server (do we want to use TE version incrementing for HSpot?).]

use test database to check updates/everything works properly (in HSpot, and maybe in CUSGUI?). That one 'admin' person of the day tests that the changes that have been made will run under hspot.

Requests for changes to scripts, new for new scripts etc will be via SXR. Developer will implement functionality as developer see fit (modification of existing script, new script etc [note need to think about the consequences for observations that are already in the database (do we still need them with the old way - in which case we need new script, if we want them with the new way then more likely want old script updated])). when change script say what been changed and for what SXR. When developer adds scripts to cvs link submit all saying which SXR(s) are solved with these scripts. We have to say this kind of information in the delivery note to ESA.

Person can, as well as trying out making new AORs, have (a standard set of) already made AORs that we load into the system to try out. The standard set of AORs can be on each testers disk, (if changed much we can consider to put in CVS or something). Note there won't be any proposals in or submitted to the database so we can safely remove MCs.

Note that whoever is doing these tests (one (default) or more of the cus script writers) will need to have a version of PHS pointing to new mission config. Also need a HSpot pointing to test JBoss server with this mission configuration set (having a 2nd JBoss allows the test version and the real one to be running at the same time). The CUS writes control which JBoss (and hence also which database) to point HSpot to with the 3 settings in user-prefs (the same version of the HSpot software is used on users computer).

Meanwhile the operational PHS(linked to Mission Config (MC)) and MPS that are used to submit and schedule observations.

CUS writer will make changes on the test database/system to correct mistakes in the delivered scripts (to avoid going back to local setup up) [see Question 2.1 below re confirmation that if editing script on a database no one else can edit it at same time]. Admin person of the day then make updated script(s) work with new MC etc and redo relevant testing. It is noted that if we aren't happy with the new mission config/database then Scripts will be updated and a new/empty database is made, again starting from a copy of the operational one (scripts and MIB) as before.

When CUS writers happy and the go ahead is given to update the operational server with the changes on that are on the test database.

Then export all the changed things from test db. put on cvs, tag and then put the changes on the operational db.

Then the proposals on the operational database should be updated (straight away/ASAP) to work with latest scripts [note at HSC we evolve the scripts but I think some code needs to be written to do this. Also we check that the proposals work with the new scripts before we go operational with them]. Any observation day that has already been planned that uses out of date scripts should be decommitted and remade with the AORs that point to the new scripts. [note obviously if that day has already been sent to HSC for being carried out then I

guess it is too late to iterate...?] Decommitting sets the flag back from scheduled to released, so the observations can be scheduled again.

4.3.2 CUS Script and/or calibration Table Updates

CUS Scripts and Calibration tables will **only** be updated as a result of SXR(s).

Once developer has received SXR he should:

On own setup retrieve the latest operational versions of scripts and calibration tables from SPIRE Mission Planning DB, this is done via CVS with a certain tag.

On own setup proceed to implement the SXR in the scripts.

Then check that the scripts work via full testing in CUSGUI (full tests including trying out the limits on values, to catch as many errors as possible before script goes into the test database, to reduce the number of loops of the process).

All changes to each script and each calibration file should be documented in the top of their files to say what been changed, when and by who (or is this done by CVS) and for what SXR.

Then test harness information should be produced giving the expected new time estimation results (for a set(s) of parameters), how the changes effect time estimates for AORs (the consequences of the update), and info about changes to parameter definitions (for testing the front end).

When the developer adds the updated scripts and calibration files to cvs a comment saying which SXR(s) are solved with these scripts should be given.

When the developer is happy with new scripts and calibration files he should deliver (via CVS or information re CVS tags or versions) the scripts, calibration file and test harness to the Admin of the Day.

This information should also be delivered to the Calibration Scientist.

4.3.2.1 An overview of the Admin of the Day Responsibilities and Tasks

SpireIom040300PvPhaseOdUpdate#The_Test_System_Updating_CUS_scr

4.3.3 Updating the Test System

There is an operational system and a test system each comprised of:

- JBoss Server for HSpot
- PHS
- MPS

Each system has its own database and copies of various other files. There will be a person whose duty it is to put updated CUS scripts onto the test system and test them out, then to subsequently update the operational day system. This person is called 'Admin of the Day'.

1. The Admin of the Day starts with a new/empty database and then adds in a copy of the operational database to the test system (or at least the MIB and the MC (aors/proposals not there)) [is this a new database or the same database as before but wiped clean? (to be followed up with Huw)].

- ♦ Note that whoever is doing these tests (one (default) or more of the cus script writers) will need to have a version of PHS pointing to new mission config.
 - ♦ Also need a HSpot pointing to test JBoss server with this mission configuration set (having a 2nd JBoss allows the test version and the real one to be running at the same time).
 - ♦ The CUS writes control which JBoss (and hence also which database) to point HSpot to with the 3 settings in user-prefs (the same version of the HSpot software is used on users computer).
1. This person then puts the new/updated scripts for testing into the database on the test system.
 1. They then make new mission configuration following procedure SpireIom050200CreateNewConfig (do they also link PHS to that new mission config and make the .prop files available? and do they still make the tests or each person..?). [*recreate the test database all the time from operational one so MC=1 for test server (do we want to use TE version incrementing for HSpot?).]
 1. The Admin of the day then uses the test system to check the updates and that everything works properly (in HSpot, and maybe in CUSGUI?).
 1. Person can, as well as trying out making new AORs, have (a standard set of) already made AORs that we load into the system to try out. The standard set of AORs can be on each testers disk, (if changed much we can consider to put in CVS or something). Note there won't be any proposals in or submitted to the database so we can safely remove MCs.

CUS writer will make changes on the test database/system to correct mistakes in the delivered scripts (to avoid going back to local setup up) [see Question 2.1 below re confirmation that if editing script on a database no one else can edit it at same time]. Admin person of the day then make updated script(s) work with new MC etc and redo relevant testing. It is noted that if we aren't happy with the new mission config/database then Scripts will be updated and a new/empty database is made, again starting from a copy of the operational one (scripts and MIB) as before.

When CUS writers happy and the go ahead is given to update the operational server with the changes on that are on the test database.

Then export all the changed things from test db. put on cvs, tag

4.3.4 Updating the Operational System

The operational system is updated by the admin of the day.

The changes in the scripts and calibration files should be retrieved from CVS and put in the operational database.

- Procedure to make the .prop files from CUS scripts in database:

Note that when doing this all of the available scripts should be made into .prop files - so press Ctrl A to select them all:

- ♦ In the propHandler tool, go to menu **Calibration Observations** and select **HSpot Files**
- ♦ In the pop-up window press Ctrl A to select all of the scripts.
 - ♦ Press button **Export**.
 - ♦ In the pop up choose the location of where you want the files to be written to... TBD [the following location should be selected to write the files to PUT LOCATION HERE, include information about making a subdirectory to write this set to and naming convention (so that in

the future you know what these .prop files are related to, i.e. v068_v3_4_3 [TE version followed by HSpot version] or some text related to the -test- you are performing.]).

4.3.4.1 Putting .prop files in the right place

- Procedure performed by PHS Operator to make the Calibration Programme [NOTE this doesn't normally need to be done, it has to happen once per database]:
 - ♦ In the propHandler tool, go to menu **Observation Programmes** and select **Manage Programmes**
 - ♦ In the subsequent pop-up window in box **Create a new programme** type **Calibration** (it must be called exactly that with only the C in capitals) and make sure that **HOTAC approval needed** is set to **No**.
 - ♦ Then press the button **Add** to make the programme.
- Procedure to open Calibration Programme:

Purpose: This is to open the programme which means proposals can be submitted to it. If the programme is set to closed (via following same procedure but selecting closed rather than open) then this procedure will need to be done to allow proposals to be submitted again.

- ♦ In the propHandler tool, go to menu **Observation Programmes** and select **Manage Programmes**
- ♦ In the subsequent pop-up window in box **Select a programme** choose **Calibration**.
- ♦ In box **Programme status**, item **Open or Close Programme**, select **Open**.
- ♦ Then press button **Save**
- ♦ Ignore HOTAC things, they aren't relevant to us.

Then the proposals on the operational database should be updated (straight away/ASAP) by the calibration team to work with latest scripts. Any observation day that has already been planned that uses out of date scripts should be decommitted and remade with the AORs that use the new scripts. Decommitting sets the flag back from scheduled to released, so the observations can be scheduled again. [This all needs to be tested with the latest version of the PHS s/w]

4.3.4.1 Putting .prop files in the right place

They should be saved to a directory with name fileHolder_ where something_meaningful is the name of the subdirectory in the previous procedure.

The fileHolder directory is specified in the properties file (to change this you would have to stop jboss). But to keep copies and to avoid copying things around and deleting files etc without stopping jboss we make a symbolic link to the actual directory where the files are (i.e where you just copied them to). Here is what to do:

first remove the already existing symbolic link:

```
rm fileHolder_test
```

then answer:

```
y
```

then make the new symbolic link:

```
ln -s fileHolder_<something_meaningful> fileHolder
```

4.3.4 Updating the Operational System

4.3.5 Making and Updating Proposals

This is all done on the operational server (however the activities can also be used on the test sever for testing purposes). AORs are made with Expert HSpot and submitted in a proposal to the Calibration (CAL) programme. Then propHandler is used to set AORs to released so that they are then picked up by MPS where they can be made into observational days.

Some reference material (some of the pages are extracted to use as our procedures):

Expert HSpot, PHS and MPS roll out workshop viewgraphs

Update to Expert HSpot since workshop, presented at Zurich meeting

Viewgraphs on how we are using the system

The Procedures:

Expert HSpot Version and Settings

Using Expert HSpot to create observations and proposals

expertHSpotProposalUpdate Updating a proposal in Expert HSpot

4.3.5.1 Expert HSpot Version and Settings

Version

A particular version of HSpot is used, this is not the AO version. If you do not already have the version that is used then XXX put in the latest link or say to ask person. prefer former but means updating... but can have a table.

To check that you have the correct version start HSpot Go to

Help

menu and select

About . . .

In the pop up window check that it says Development Version!! in large red letter near the top And that the Version is the latest version in the table below XXX

Note that ones you have the correct version it should auto update to later versions as long as you have the server host etc pointing to the correct place.

Version	Date starting using	Download link
3.4.4	before May 2008	XXXX

Server Settings

including going back to AO version...

Enabling Expert HSpot

4.3.5.2 Using Expert HSpot to create observations and proposals

1. Start HSpot
2. Go to menu Help select About to check you are connected to the correct server (i.e. the RAL operational one)
3. Go to menu Calibration select Manage generic AOTs
4. Press Download prop files from the server (this will make sure you only use the latest available AOTs)
5. [Check All the entries - this is done by default]
6. Press Load checked generic AOTs
7. Go to menu File and select Read AOR(s) and Target(s).
8. Select files of type *.tgt
9. Load in one/all of the target files available from XXon wikiXX
10. Now make your observations by selecting the desired target from the target list (put some information re visibility checking) then selecting the relevant observation from the Observation menu.
11. Make all of the observations needed for your proposal.
12. Make sure all your observations have Time Estimates (via the Tools menu).
13. Save AORs into a file for future reference (work out where to keep these and naming convention).
14. Go to menu Tools select Proposal Submission Tool.
15. Enter Proposal Title (guidelines to be written).
16. Under Proposal Type select CAL.
17. Put in the hours requested (its given in the bottom right of the main window).
18. Add proposal abstract (guidelines to be written).
19. Add proposal PDF file - this is needed at the moment due to an SPR. You can make a file called file.pdf for example, note it only has to have a .pdf extension, it doesn't have to be a real pdf.
20. Go to menu Submit
21. Select Submit proposal to HSC (note this submits it to our database if you have the correct settings setup)
22. Enter at least your first name as the username (guidelines to be written). Do not use any special characters, only use letters.

4.3.6 Scheduling ODs

Mission planning system a link to the latest user release documentation

4.3.7 Making Tar File for Delivery

Finally procedure to get all the files into tar ball and deliver to ESA:

SpireIom080305DeliverEsaPvFiles

5. Operations

5.1 On-Board Software Update

5.2 Create A New Configuration

New mission configurations should be made following a naming convention (to be added here).

Some existing mission Config names

List contains the Test/delivery name then the name of the Mission Config used for that test/delivery

PV Validation (May 2008): pv_vconfig4

5.2.2 Make Changes to Engineering MIB

TBW

5.2.2 Make Changes to Engineering CUS Scripts

TBW

5.2.3 Make Changes to Engineering Calibration Tables

TBW

5.2.4 Updating AOTs

TBW

5.2.5 Update AOT Calibration Tables

TBW

5.2.6 Delivery of Uplink System

TBW

5.3 Instrument Health Monitoring

TBW

5.3.1 Update Script

TBW

5.3.2 Scheduling A Script To Run

TBW

5.3.3 Monitoring Of Daily Reports

TBW

5.4 Performance Monitoring and Trend Analysis

5.4.1 Update Script

5.4.3 Scheduling a Script To Run

TBW

5.4.3 Monitoring Daily Reports

TBW

5.5 Generating and Scheduling Observations

5.5.1 Scheduling Observations for a Day

TBW

5.5.2 Check Configuration

TBW

5.5.3 Schedule Observations

TBW

Generate File

TBW

5.6 Operational Day Logging

There are 2 scripts used for Operational Day Logging:

- `ObservationLog.py` contains the classes that are used - the web page class, the comma separated variable (CSV) formatter class and the log class that holds the data
- `observationLogScript.py` is the script that fills the log, writes it to files/pools and combines these to one big log

The following properties must be defined:

`hcss.ia.pal.pool.lstore.dir` the local store in which the log products are written
`loggingDir` the directory in which to store the CSV files
`loggingDatabase` the database name
`loggingTimesFile` the file in which to find the start and end times

The start and end times read from `loggingTimesFile` should have the following format(at the moment):

1, 2006-12-01T07:00:33.000000 TAI (1543647633000000), 2006-12-01T10:00:33.000000 TAI (15436584330

The first number is the Operational Day Number. Eventually, start and end times should be read automatically from the daily file that defines the start and end of the OD.

Run the script `observationLogScript.py` in JIDE or HIPE

It should write out the following files:

- `database_DailyLog_dayNum.csv`
- `combinedLog.csv`
- `observationLog.html`

It should write the following pools:

- `database_daily_log`
- `database_combined_log`

6. System Administration

6.1 Adding a New User

6.1.1 Main Procedure

1. If the user is a new user requesting access to the ICC, the procedure 11.1.1 must be followed before continuing. The form can be found at <http://herschel.be/twiki/bin/view/Spire/SpireIccApplication>.
2. When approved, user accounts are created on each operational machine as marked on the completed form. The user name given should be the federal id where possible.
3. Give the user web server access. Note that the password is less secure and *should not* be the same as used on the Linux machines.
4. Give the user ftp server access. Note that the password is less secure and *should not* be the same as used on the Linux machines.

6.1.2 Create accounts on Linux machines

User accounts are created on each requested machine. Note that an account must always be defined on `chesterfield` in order for database authentication to be set up, although the account is by default disabled unless a password is set. New users should be added to group `spire` with a default home directory of `/home/spire`. This can be done with the command

```
/usr/sbin/useradd -g spire -m -d /home/spire/<user-name> <user-name>
```

(There must also be a GUI for doing this sort of thing). Superuser privilege is required.

6.1.3 Give access to web server

This procedure is carried out using the `hcssbld` account on `wakefield`. Note that the web server has to be restarted before the change takes effect.

This is necessary in order to access protected pages and applications.

1. Get a user name and password. Passwords should not be the same as login passwords, as while they are encrypted, the means used is not particularly secure. There are no restrictions on passwords. The main purpose is to offer some protection and log who is doing what and when.
2. Encrypt the password. The command is `java -cp $CATALINA_HOME/lib/catalina.jar:$CATALINA_HOME/bin/tomcat-juli.jar org.apache.catalina.realm.RealmBase -a SHA password`. Fortunately the `hcssbld` account defines a `genpwd` alias for this.
3. Edit the file `$CATALINA_HOME/conf/tomcat-users.xml` and add a new user line. password should be set to the encrypted password and `roles` should normally be set to `spire_user`.

6.1.4 Give access to FTP server

This procedure is carried out on `wakefield`.

There is a script available to enable ease of use administering the FTP server. The script is called `spire_ftp_user` and can be found in `/usr/local/bin`

To create a new ftp user account then run the following command:


```
spire_ftp_user --add "account name"
```

This will create directory `/disks/data1/ftp/users/"account name"` and ask for a passwd to be set for the account. Please ensure that this is not the same as the persons local password as the point of virtualising accounts is to de-couple the local and "virtualised" ftp accounts.

6.2 System Recovery

6.3 New Software Versions

Updating software on the operational machines is subject to TBD change control.

6.3.1 Updating the HCSS and SPIRE builds

This procedure updates the HCSS and SPIRE software simultaneously. They are therefore guaranteed to be compatible.

1. Logon as `hcssbld`
2. Download the desired build from the HSCDT page.
3. Put the build file in the home directory.
4. Unzip it with `gunzip <file-name>`
5. Remove the `spire` symbolic link: `rm spire`
6. Untar the build file: `tar -xf <file-name>`
7. Rename the new `spire` directory to append the build number: `mv spire spire_nnn`
8. Reinstall the link to the new file: `ln -s spire_nnn spire`

6.3.2 Updating the Java version

Java is currently installed under `hcssbld`. This procedure will change if it is instead installed system-wide.

1. Logon as `hcssbld`.
2. Download the required version from the Sun download site. Make sure to get the development kit (JDK) version. Select "Linux x64", then choose the "Linux x64 self-extracting file".
3. Put it in the `java` directory and `cd` to it.
4. Make the download file executable: `chmod +x <file-name>`
5. Run it: `./<file-name>`
6. Edit the `$HOME/.herschel` file and change the value of `JAVA_ROOT` to point to the new version.

6.3.3 Updating Versant

The procedure for installing Versant 7.0.1.3, plus applying the 7.0.1.3.7 patch, is described in `SpireWorkstationConfiguration`. Installing other versions should be similar. Note in particular that:

- The procedure is carried out as user `vdba`.
- It is necessary to shut down all databases to switch the version.

6.4 System Backups

6.5 Monitoring of Cron Jobs

7. Problem Handling

7.1 Helpdesk

Helpdesk will be handled through the Kayako software system similar to that used by the HSC.

Software has been purchased. Installation and configuration have yet to be completed as the system will necessitate some changes to the overall webserver system.

Once this is completed the procedures will be written and tested.

7.1.1 Access to the Helpdesk System

This will be controlled through the Kayako system by designated administrators.

7.1.2 Management Of Helpdesk Questions

Day to day management will be under the control of Helpdesk administrators. ICC Management will provide general oversight of the system operation. The Kayako software allows response rates etc. to be tracked and the ICC will use this to monitor performance.

7.2 Problem Reporting

This will be handled within the Kayako system used for the SPIRE ICC helpdesk.

8. Data Management

8.1 Database Management

8.1.1 Creating a database

Operational databases are located on `chesterfield`. Most commands will work from other machines using the `@` syntax. However, as database creation only partially works remotely it should be done on `chesterfield`. Databases should be created using the `sg55` account. It will work from any account, but a single owner for all the databases simplifies database administration.

8.1.1.1 Creating A New Database

This procedure applies when creating a *new* database. To create a database to be a repository for a copy of another one, refer to Copying a Database.

1. Setup the default properties by editing the `user.props` file in `.hcss` subdirectory of the home directory. This is not strictly necessary but certain HCSS functions such as MIB ingestion, CUS and test control may not work as expected otherwise. These properties are inspected by the `db_admin` command. If this is not done for whatever reason, it can be corrected later using the HCSS `missetup` command. The relevant properties are:
 - ◆ `hcss.ccm.mission.config`
 - ◆ `hcss.ccm.mission.basic.models`
2. Create the database with

```
db_admin -i <db-name>@<host-name>
```

If this command fails the database will generally be unrecoverable. The solution is to correct whatever was the problem, then remove the database and try again:

```
removedb -rmdir <db-name>  
db_admin -i <db-name>@<host-name>
```

Typically the property settings will look something like:

```
var.model = FM  
hcss.ccm.mission.config = pv_vconfig1  
hcss.ccm.mission.basic.models = {HIFI.WHOCARES, PACS.WHOCARES, SPIRE.${var.model}}
```

8.1.1.2 Setting Up User Authentication

By default a database can only be accessed by the user that created it (the *owner*). A database can be made accessible to all users with the command:

```
dbuser -add -P <db-name>
```

This command (`dbuser`) is the Versant command. While variations on the same command exist to add particular users, the HCSS `db_admin` command also provides the means. The basic syntax is:

```
db_admin -user <db-name> [-r] -a <user1 [user2] ...>
```

The `-r` switch makes access read-only. Passwords should normally be set to an empty string. If multiple users are added at once, this happens automatically, otherwise just press `Return` at the prompt. See the

HCSS Database Administration Manual for full details.

Note that for this to work the user must be known on the server machine i.e. the one where the database exists. A user account must be created, but may be left in a disabled (no password) state if desired. Additionally the user needs to be granted access to the database directory itself. For example, to set read-write access for all members of the same group and read-only for anyone else, use:

```
chmod 775 <database-dir>
```

On `chesterfield` the prime location of the database directories is `/disks/data1/versant/db`, and new database directories are always created there. Note however that additional database volumes may also be present in `/disks/data2/versant/db`.

8.1.2 Database Backups

A database *must* be backed up before performing *any* non-routine operation on it. Included in this category are:

- Schema Evolutions

Backup files are placed in `/misc/winchester2/sg55/backups` (note that this will still be available even in case of hardware failure on `chesterfield`). *Closed off* i.e. databases no longer ingesting data, may be compressed using `gzip` to save disk space (note that such databases should also be set to *read-only*). Backups of active databases should not be compressed in order to minimise recovery time.

The backup operation itself is run on `chesterfield` as `sg55`. This procedure does not interrupt or otherwise invalidate other running operations in any way.

More than one procedure refers to making a backup. The basic command is:

```
vbackup -dev <filename> -backup <db-name>
```

This command allows any filename, but to allow the contents of the backup to be easily identified, follow the convention of naming the files `<db-name>_<schema-number>.backup`. So if the database name is `pfm4_test` and the schema version is 33, the file name would be `pfm4_test_33.backup`. If necessary a date can be appended before the "." to distinguish between multiple backups with the same schema version.

Note that this makes a database backup to a file, and is not a substitute for system backups to tape.

8.1.3 Database Recovery

This section contains the procedures to follow when database problems are encountered.

8.1.3.1 Restoring from backup

The basic command is

```
vbackup -dev <filename> -restore <db-name>
```

Note that this command renders the target database *unusable* for the duration of the operation.

Sometimes it is useful to restore a database with a different name to which it was backed up. This can avoid overwriting the original database for example. This command is

```
vbackup -dev <filename> -restore <old-name> -rename <new-name>
```

8.1.1.2 Setting Up User Authentication

The backup files are stored in `/misc/winchester2/sg55/backups`.

8.1.3.2 Dealing with incorrect data

8.1.3.3 Getting Help

The first port of call is the resident ESA expert, currently Tilmann Zaeschke (tzaeschk@rssd.esa.int, +31.71.56.54096). The e-mail address for Versant support is support@versant.net.

8.1.4 Data Propagation

Propagation refers to the transfer of data from the HSC Versant object database (HOD) to the ICC object database (IOD). This procedure results in data being automatically transferred to the ICC database on `chesterfield` as it is ingested into the HSC database. It will continue unless interrupted or otherwise killed.

The propagation daemon automatically sends e-mails to the specified **TBS** address when certain events occur (starting, stopping etc.). These mails must be monitored for any indication of problems.

8.4.4.1 Setting Up Propagation

These instructions refer to setting up propagation from ESAC to `chesterfield`. All commands are run on `chesterfield`.

These commands create a database ready for propagation:

1. Create the target database: `db_admin -i <db-name>@chesterfield`.
2. Add a receiver for e-mail messages:

```
db_admin -prop <db-name>@chesterfield -n ADD <e-mail-address>
```

3. Define the port on which to listen for data. Here the source database at ESAC has the same name as on `chesterfield`. Ports 2379 and 2380 can also be used to propagate multiple databases simultaneously.

```
db_admin -prop <db-name>@chesterfield -l START herdb01.esa.esa.int <db-name> 2378
```

Propagation will only start when the daemon is started:

```
repld <db-name>@chesterfield
```

The propagation status of a database can be checked with:

```
db_admin -prop <db-name>@chesterfield -d
```

8.2 Data Products

8.2.1 Copying Products From HSC

This procedure is also known as *bulk data transfer*. This covers the transfer of data *products* i.e. the output of SPG, from the HSC (via the HAIO interface) to the ICC. From the ICC perspective the interface is a PAL one. The data is transferred over the internet. Note that transfer of telemetry data is handled by the propagation method.

This procedure is run from `wakefield`. Note that this mechanism relies on HTTP over the internet, so it is necessary to configure it to go through the RAL proxy. These properties should be defined in `user.props`:

```
proxySet = true
proxyHost = wwwcache.rl.ac.uk
proxyPort = 8080
```

8.2.1.1 Running the copy procedure

Normally the procedure will run automatically from a `cron` job. Here's how to do it manually.

Details TBW, but there is a test setup on `wakefield`, see `~sg55/scripts` and `~sg55/.hcss/hsa.xml`.

8.2.2 Management of Reprocessed Data

8.3 Data Delivery

8.3.1 MIB

8.3.2 Delivery of New Cal Files To The ICC

8.3.3 Delivery of New Cal Files to the Consortium

8.3.4 Delivery of New Cal Files to ESA

8.3.5 Delivery of Files to ESA for a PV OD

TBW include the following:

Confirm the names of the operational MPS files used via: On `wakefield`

```
ls -laR mpsdata/
```

Confirm the mission configuration used to make the files on the operational server: Look at the mission configuration as reported when starting `propHandler`.

Once files in on CVS, download and untar it to make sure it untars successfully.

Email ESA at `hscops@sciops.esa.int` to inform of delivery

8.3.6 Delivery of Files to the ICC From the Consortium

9. Data Processing

9.1 Executing A Pipeline

9.2 Making Trend Analysis Queries

9.3 Software Delivery

9.4 Quality Control

10. Software

10.1 Update AOT Implementation

TBW

11. RAL Facility Procedures

11.1 Facility Access

For access to the RAL test facility ICC members will need a RAL staff card.

11.1.1 HS-RAL-FAC-0110: Request access to ICC

To access the ICC facilities the following procedure will be followed:

- Applicant: Complete a Spire ICC User Application form (request a copy from the Project Office) and return to the SPIRE Project Office
- Project Office: pass the completed form to the PI or ICC Manager to review and sign
- if rejected
 - ◆ Project Office: notify the applicant
- if accepted
 - ◆ Project Office:
 - ◇ request the user to be added to the RAL database by completing the form Q:\ICC\Operations\RALDatabaseApplication.txt and emailing it to Valerie Gilbert
 - ◇ after successful entry on to the database, update the form (with federal ID) and forward it to SSTDHelpDesk to get computing facilities setup
 - ◇ copy the User Application form to the ICC SWAdmin staff (Steve or Huw)
 - SWAdmin:
 - identify the machines to which the applicant needs access
 - create the relevant accounts on the ICC machines
 - notify Project Office that accounts are ready and add the access rights given to the form
 - ◇ notify the applicant that the application has been successful
 - ◇ file the application form

11.1.1 Get A RAL Access Card

11.2 Meeting Room

11.2.1 HS-RAL-FAC-0210: Booking the Meeting Room

The meeting room bookings are handled by a special calendar in the SPIRE Operations Centre mailbox and availability can be checked by looking at this calendar.

11.2.1.1 Procedure for arranging a meeting

- Create a new appointment in the meeting Room Calendar in the usual way, and invite the attendees (including yourself)
- If coffee/biscuits are required, send an email to the Project Office specifying
 - ◆ the expected number of attendees
 - ◆ the times at which coffee/biscuits are required
- If attendees are from outside RAL, send an email to RAL Security (security@rl.ac.uk) giving:
 - ◆ the names of the visitors
 - ◆ a contact telephone extension for security to call if there are any problems (normally this will be your extension)
- the responses to the invitation to the meeting will appear in the Spire Operations Centre inbox. It is the responsibility of the meeting organiser to remove these from the inbox as soon as possible

11.2.2 HS-RAL-FAC-0220: Videoconferencing

1. Switching on the Equipment
 - a. Switch on the TV monitor using the remote control (the input channel 'EXT5' should be selected, by default, but if not, this will have to be selected using the remote control)
 - b. Switch on the projector using the remote control (the input channel 'Computer 2' should be selected by default, but if not, this can be selected by pressing the 'computer' key on the remote control several times)
 - c. Check that the Polycom system is on and that the VGA switch is set to PC1 (both are in the cupboard)
 - d. Press 'home' on the polycom remote
2. Calling a remote site
 - a. Press 'home' on the polycom remote
 - b. Either enter the IP address of the remote site into the field provided, select from the 'Recent Calls' list, or select from the Directory. Contact addresses can be found here
3. Accepting remote calls
 - a. When a remote call comes in, press the green telephone button on the Polycom remote. Note that your sound will be muted, by default, press the mute key to be heard in the conference
4. Ending a conference
 - a. Press the red telephone button on the Polycom remote
5. Useful additional operations
 - a. By default the PC1 input will be displayed on the Screen. To display the PC2 input, press the PC2 VGA button in the cupboard.
 - b. Selecting the 'video' input on the projector will copy the polycom output on to the screen (useful for displaying content from remote users)
 - c. A single audio telephone line can join the conference. To allow more telephone callers, set up a teleconference using the phone in the meeting room, include the videoconference system as a caller, then replace the handset on the meeting room phone. Useful phone numbers can be found here

11.3 (Re-)Starting The EGSE