# SPIRE I-EGSE Set-up Procedure

**Prepared by:**

**Allan Dowell (a.dowell@rl.ac.uk +44 (0)1235 77 8016)**

Date 27-September-2007

**Checked:**

**Steve Guest**

Date

**Sunil Sidher**

Date

**Approval:**

Date

## Distribution

**RAL**                      Steve Guest
                             Sunil Sidher
                             Eric Sawyer
                             Ken King


**EADS Astrium**             Siegmund Idler
                             Nico Sonn
                             Markus Koelle


**MPE (PACS)**               Erich Wiezorrek


**TERMA AS**                 Simon Hamer
                             Valentina la Giotta


**Alcatel Alenia Space**     Felix Chatte
                             Bernard Collaudin
                             Benoit Gobillot


**ESA**                      Carsten Scharmberg
                             Kevin Goodey

| Host system | Windows 2000 SP2 |
|---|---|
| Word Processor | Microsoft Word 2000 SR1 |
| File | |

## Document Change Record

| Date | Index | Affected Pages | Changes |
|---|---|---|---|
| 2-March-2007 | Issue 1.0 | | First version based on AVM test log at Astrium, Friedrichshafen and SPIRE-RAL-DOC-001630 SPIRE EGSE-ILT Startup Procedures Issue 1.0. |
| 6-March-2007 | Issue 1.1 | | Correction of SCOS computer name HOSS2K4-2 in Section 5.3. Specify HOS4-D in each step of Section 5.2 |
| 28-March-2007 | Issue 1.2 | | Add more details of physical network set-up. There are two network socket options in the Friedrichshafen IEGSE room for network connections 1) remote access and 2) CCS connection. |
| 6-August-2007 | Issue 2.0 | | Re-write after shared instrument EGSE is split into separate instruments on 18/19 April 2007. |
| 27 Sept 2007 | Issue 2.1 | | Corrections to CCS Handler procedure<br>Comments about SPIRE EGSE-CCS APID 2044.<br>Updated Figure 1.<br>Updated extensively following the successful completion of WFTs |
| | | | |

## Contents

# 1    Scope of Document

This document describes the procedures for the safe startup of the SPIRE I-EGSE and the DPU for the IST RMS testing (AD4) at Astrium, Friedrichshafen, Germany.  The steps in Section 5 must be carried out in the order given for the I-EGSE to function correctly. See the section 4 for the prerequisite configuration.

# 2    Applicable Documents

| | Title | Author | Reference | Date |
|---|---|---|---|---|
| AD 1 | SPIRE On-Board Software User Manual | Sergio Molinari | SPIRE-IFS-PRJ-001391, Issue 2.2.G | 16/01/2007 |
| AD 2 | DRCU Simulator User Manual | H-G Florén & Göran Olofsson | Issue 1.0 Draft 1.5 (?) | 26/11/2003 |
| AD 3 | IEGSE setup at Friedrichshafen – Technical Note | Erich Wiezorrek | PICC-ME-TN-021, Issue 1.0 | 03/07/2007 |
| AD 4 | Herschel Satellite IST – Reference Mission Scenario (RMS) | S. Hamer (TERMA AS) | HP-2-ASED-PRxyz_1.d0c | 04/08/2007 |

# 3    Constraints

## 3.1    Safety Issues

Standard Astrium Cleanroom and ESD Safety procedures must be observed when (de-/)connecting the DRCU Simulator PC to the SVM inside the Cleanroom.

# 4    Configuration

## 4.1    Properties

Certain user configuration properties must be correctly configured before the system can be run. These properties should generally be entered into the **user.props** file, located in the **.hcss** subdirectory of the home directory (**$HOME**) on spire@spireqla. These properties will then apply to all applications run from the spire account on spireqla machine. Following the splitting of the shared (HIFI/PACS/SPIRE) instrument EGSE the APID to communicate with the CCS has been changed to 2044 for SPIRE. The property for setting this APID (viz. hcss.ccshandler.apid) has been added to user.props. It is used by the CCS handler server application to respond to requests from the CCS received via the EGSE router over the Pipe Gateway.

Properties can also be entered into a file in the same directory called **<application-name>.props***,* for example **QLA.props**. These properties will apply to that application only, and will *override* the value in **user.props**. From the QLA, if "properties" is selected from the popup right-click menu, it will by default save changed properties to this file.

Historically, a file called **hcss.props** was also used and located in the same directory. The SPIRE team felt that this led to too much confusion, and this file is no longer used. When it *would* be useful is to specify a set of properties that are *shared* across multiple user accounts. For this to work, the path of this file has to be specified in the **HCSS_PROPS** environment variable. Any file name is possible,

and multiple ones can be present, separated by colons. Note that this file has lower precedence than the ones described above.

## 4.2   Logging

The level at which the (Java) applications log messages can be configured by editing the file **userlogging.properties**, also located in the **.hcss** directory. The exact format of this file is defined by the Java logging mechanism. This is described in the java.util.logging package documentation, particularly the classes LogManager, ConsoleHandler, FileHandler.

## 4.3   Distribution of Tasks

The following section ("I-EGSE Setup Procedure") specifies procedures for way of setting up tasks running over a number of machines. It is not the only way to configure it – there is quite some flexibility available. Here are some general guidelines for how to (and how not to) organise this distribution.

1. Where possible, avoid running non-SCOS tasks on a SCOS machine. The operating system and setup might not be compatible. SCOS should be run from the **sops23e** account on **spires2k** machine.
2. Make sure the **var.database.server** and **var.router.server** properties are pointing to the correct machine where the database and router are running respectively.
3. Run **tmingestion/tmingest** on the same account and machine where the database exists (**spire@spireqla**). This is not compulsory, but recommended for performance reasons, given the criticality of this task. For similar reasons, try to avoid overloading this machine.
4. To simplify the configuration the router, EGSE Gateway, and the Pipe Gateway are run on the same machine (**hspireegse)**. TCP/IP port connections are then localised in a single place.

## 4.4   EGSE Server Settings

The following definitions were made in file ~/resources/MISCConfig on sops23e@spires2k:
> **EGSE_EGW_SERVER  192.168.202.103**        (IP address of hspireegse)
> **EGSE_EGW_SERVER_PORT  9876**              **(**EGSE Gateway Port)

## 4.5   Network Settings

These settings were made on 19th April 2007 when the shared EGSE was split into separate instrument's EGSE.

Gateway added to the SPIRE machines 192.168.202.140.
Name server added to the SPIRE machines 192.168.0.1.

On **spires2k:**
Under the **/admin** folder created symbolic link:

**ln –s s2kenv.standalone s2k.env.spires2k**

The following files were updated under the **~/Installation** folder on sops23e@**spires2k**:
rhosts, s2k.hosts, session.dat, CMD_HOST_FILE.

## 4.6   SPIRE MIB

The SPIRE MIB (SPIRE_MIB_FM_2.2.G6_PR_IEGSE_19092007.tar.gz) was unpacked in the new directory ~/SPIRE/FM_2.2.G6_PRwithCDMSSim11TFCS15TFTS13.

## 4.7   SCOS Symbolic Links

The following symbolic links were created on SCOS machine (sops23e@spires2k):

- **~/hfiles**             linked to **/data/SPIRE/hfiles/IST_FM1/**

- **~/TMD**             linked to **/data/SPIRE/TMD/ IST_FM1/**

- **~/data/ASCII**      linked to **~/SPIRE/FM_2.2.G6_PRwithCDMSSim11TFCS15TFTS13/**

These symbolic links are for the SCOS archive, TM Cache and SPIRE MIB respectively. They were created by running the shell script ~/SPIRE/bin/ArchiveLinks:

 **ArchiveLinks IST_FM1 FM_2.2.G6_PRwithCDMSSim11TFCS15TFTS13**


## 4.8   SPIRE MIB Import

The MIB was imported only after completing sections 4.6 and 4.7 above. Then the shell script loadMIB.csh was run from the command line:

> **loadMIB.csh**

(Another way of loading importing the MIB is to select and start the **IMPORT** process from the SCOS 2000 task launcher). The ~/Import.log produced has been renamed to ~/Import_19092007.log.


# 5   I-EGSE Set Up Procedure

## 5.1   SPIRE I-EGSE Machine Network Cable Connection

The I-EGSE has been split from the shared configuration to machines specific to instruments. This is a fixed set-up which allows remote access to instrument teams. A schematic is shown in Figure 1.
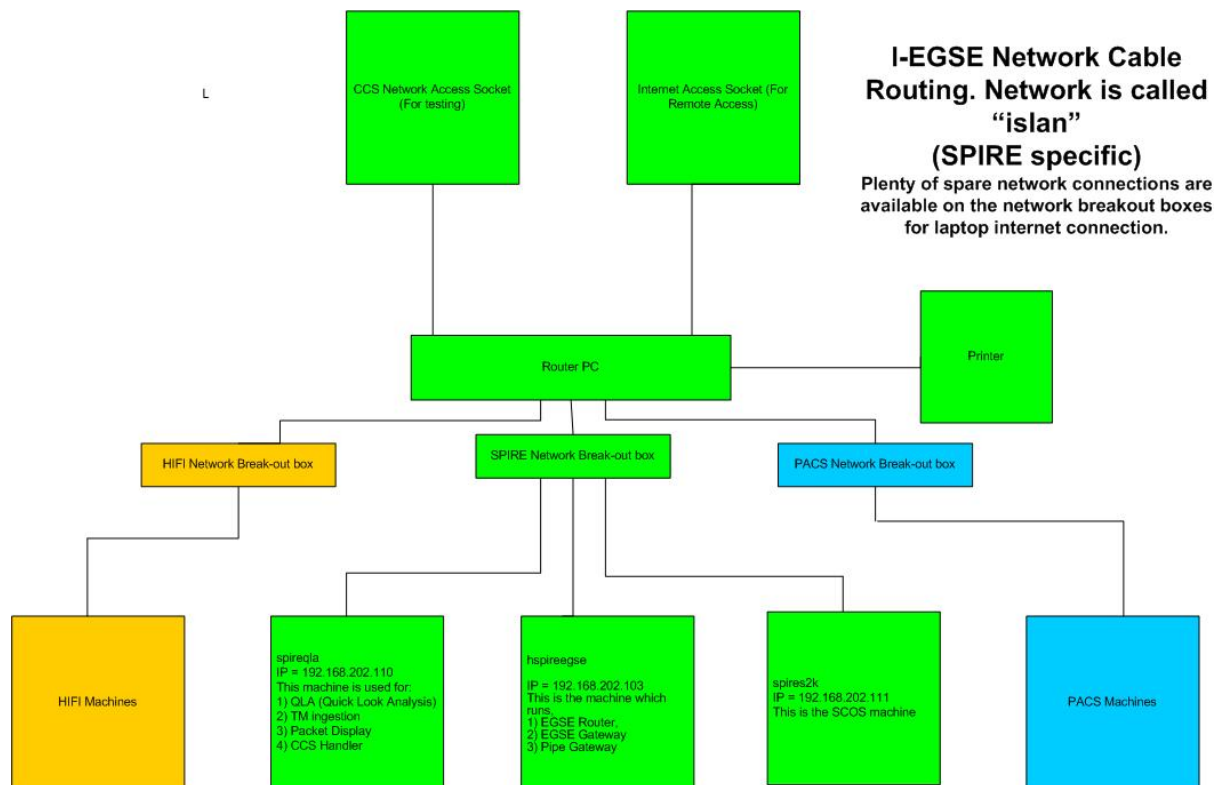
Figure 1: Network Cable Routing for the I-EGSE Room at Astrium, Friedrichshafen.

## 5.2   I-EGSE Machine Set Up

| | |
|---|---|
| **Objective:** | To startup the I-EGSE computers – Step 2 should be automatic now but may need to be for example during future Reference Mission Scenarios set in the future. |
| **Initial Conditions:** | I-EGSE computers off and not running |
| **Final Conditions:** | I-EGSE computers on and logged-in |
| **Constraints:** | |
| **Total Duration:** | 15 minutes |

| Step. | Action |
|---|---|
| 1 | Switch on and log in to the I-EGSE computers.<br><br>Computer: **hspireegse** (192.168.202.103)<br>User: spire<br>Password: tektronix<br><br>Computer: **spireqla** (192.168.202.110)<br>User: spire<br>Password: tektronix<br><br>Computer: **spires2k** (192.168.202.111)<br>User: sops23e<br>Password: s2ks2k<br><br>(For reference:<br>Computers: **hspireegse & spireqla**<br>User: hcss<br>Password: WhatASystem!<br><br>Computers: **hspireegse & spireqla**<br>User: dbsa  (for Versant set-up)<br>Password: WhatAMess!<br><br>Computers: **All SPIRE I-EGSE computers**<br>User: su<br>Password: hwa2bpwFS |

| 2 (now automatically configured to synchronise on boot for hspireegse and spireqla) | (**hspireegse** *and* **spireqla** *have already been configured from yast2 so that they run the ntp update protocol automatically. The status of the synchronisation can be checked with ntpq –p.)*<br><br>Earlier instructions how to Synchronise time by Konsole (It is much simpler to use network/time settings under Yast2 in our new Linux version 10.3.)<br><ul><li>Open a konsole on **spires2k** by hitting the console icon.</li><li>Log in as System Administrator on all 3 computers to synchronise the time to the CCS2 UTC server. Failure to synchronise the time leads to the CCS showing errors for late packets.<br><br>**su**   (password = hwa2bpwFS)</li><li>Kill any ntp jobs which are running<br><br>**ps -u root \| grep ntp \| awk '{print $1}' \| xargs kill  -9**</li><li>Perform an initial synchronization. (192.168.202.51 is the IP of the CCS time server.)<br><br>**ntpdate 192.168.202.51**</li><li>Modify the file **/etc/ntp.conf** and enter the following line into it:<br><br>**server 192.168.202.51**</li><li>Start the ntp daemon by entering<br><br>**xntpd**</li><li>Verify synchronisation with<br><br>**ntpq –p**</li></ul> |

## 5.3   Starting the  EGSE Router, EGSE Gateway and Pipe Gateway

**Objective:**          To startup the EGSE router and gateway

**Initial Conditions:**   EGSE router, EGSE Gateway and Pipe Gateway not running
**Final Conditions:**    EGSE router, EGSE Gateway and Pipe Gateway running
**Constraints:**

**Total Duration:**      2 minutes

| Step. | Action |
|---|---|
| 1 | Start the EGSE router<br><br>On the **hspireegse** computer,<br><br>• First start the router:<br><br>    o   Open a konsole<br><br>    o   Select "Rename session" option from the  "Session" tab and  rename the session to be "EGSE Router"<br><br>    o   By default this is a bash shell start a tcsh shell from this konsole by typing<br><br>        **tcsh**<br><br>    o   Start the router from this konsole by typing<br><br>        **java herschel.egserouter.Router 9877**<br><br>        **(or Router R)**<br><br>        **(router R gives  a process ID but does not give any useful information about builds or ServerSockets)** |
| 2 | Start the EGSE gateway<br><br>On the **hspireegse** computer,<br><br>    o   Open another konsole<br><br>    o   Select "Rename session" option from the  "Session" tab and  rename the session to be "EGSE Gateway"<br><br>    o   By default this is a bash shell start a tcsh shell from this konsole by typing<br><br>        **tcsh**<br><br>    o   Start the EGSE gateway from this konsole by typing<br><br>**java herschel.egserouter.EGSEInterface localhost 9877 9876 1280-1283**<br><br>        **(or Router S -–scosapids 1280-1283)**<br>        **(router S gives  a process ID but does not give any useful information)**<br><br>*Notes:*<br>• *APID 1280 is for all instrument TCs and prime instrument critical HK and event reports.*<br>• *APID 1281 is for redundant instrument critical HK and event reports.*<br>• *APIDs 1282 and 1283 are for nominal HK reports from the prime and redundant instrument respectively.* |

| 3 | Start the Pipe gateway |
|---|---|
| | On the **hspireegse** computer, |

- o Open another konsole
- o Select "Rename session" option from the "Session" tab and rename the session to be "Pipe Gateway"
- o By default this is a bash shell start a tcsh shell from this konsole by typing

    **tcsh**

- o Start the Pipe gateway from this konsole by typing

**java herschel.egserouter.PipeGW localhost 9877 server 9875 2044 PipeGateWay 2044**


(**router –P** or **~hcss/bin/pipeGW** were previous alternative commands. )

## 5.4   Starting SCOS 2000

**Objective:**          To startup SCOS 2000 on spires2k

**Initial Conditions:**   EGSE Router, EGSE Gateway and Pipe Gateway running
**Final Conditions:**    EGSE Router, EGSE Gateway and Pipe Gateway and SCOS 2000 running

**Constraints:**

**Total Duration:**      5 minutes

| Step. | Action |
|---|---|
| 1 | Start SCOS 2000<br><br>On the **spires2k** computer,<br><br>• Open a console window by clicking on the screen icon of the desktop environment<br><br>• Start SCOS 2000 typing<br><br>      **s2.start**<br><br>from the command line. The SCOS 2000 task launcher GUI should appear |
| 2 | • From the SCOS 2000 task launcher click on the **EGSEsrv** button. The mandatory EGSE server processes will become highlighted.<br><br>• Start the highlighted processes by clicking on the **Start** button at the bottom left corner of the SCOS 2000 task launcher. Confirmation will be requested. The processes will take about a minute to start.  A horizontal task appears at the top of the screen and an alarm will begin to sound – this is perfectly normal and not a cause for concern. |
| 3 | • Click on the **Alarm Tone Enabled** button on the horizontal task bar that appears at the top of the screen. Select the option to disable the alarm but only do this if you are confident that you do not want to monitor the alarms – the alarms will sound when housekeeping parameters go in and out of limits. |
| 4 | • Click on the **Users** button in the horizontal task bar and login as<br><br>**User name**: Matt          **Password**: Matt<br><br>Select the **SOFT_001** role from the **Role** drop down menu.  Then click "Login"<br><br>• Wait until the highlighted processes on the SCOS 2000 task launcher have green borders, indicating that SCOS 2000 server processes have started up correctly.<br><br>*A scrolling Regis window appears at the bottom of the screen and displays various messages:* ==red ones are alarms==*,* ==yellow ones are warnings== *and* ==green ones are for normal messages==*. All red alarms regarding the NCTRS connections can be ignored.* |
| 5 | • To monitor telemetry select the **MON1** process from the SCOS 2000 task launcher and click on the **Start** button. A Telemetry Desktop display appears on the second SCOS screen.<br><br>• From the Telemetry Desktop display click on the **AND…** button and select the Alphanumeric Display of interest for the AVM test (e.g. **DPU AND OBS PARAMETERS, DCU Parameters,  SCU Parameters,  MCU Parameters**)<br><br>SCOS is now ready to receive OBS TM packets and to display the DPU/OBS parameter values. |

## 5.5   Starting programs on the HCSS machine

| | |
|---|---|
| **Objective:** | To start the following software: tmingestion, Packet Display, Quick Look Analysis (QLA) and CCSHandler on the spireqla computer. |
| **Initial Conditions:** | EGSE Router, EGSE Gateway and Pipe Gateway and SCOS 2000 running |
| **Final Conditions:** | |
| | EGSE Router, EGSE Gateway and Pipe Gateway and SCOS 2000, tmingestion, Packet Display, Quick Look Analysis (QLA) and CCSHandler running |
| **Constraints:** | |
| **Total Duration:** | 5 minutes |

| Step. | Action |
|---|---|
| 1 | Start tmingestion<br><br>On the **spireqla** computer,<br><br>    o  Open a konsole by hitting the console icon<br><br>    o  Select "Rename session" option from the "Session" tab and rename the session to be "tmingestion"<br><br>    o  Select the tcshell by typing<br><br>        **tcsh**<br><br>    o  Start the router from this konsole by typing<br><br>        **tmingest**<br><br>(Note for information: this command pipes output from the tmingestion to the Konsole window and also to unique log file (date and time appended to log file name) to directory in ~/logs/tmingest). |
| 2 | Start PacketDisplay<br><br>On the **spireqla** computer,<br><br>    o  Open a konsole by hitting the console icon<br><br>    o  Select "Rename session" option from the "Session" tab and rename the session to be "PacketDisplay"<br><br>    o  Start the Packet Display from this konsole by typing<br><br>        **PacketDisplay &**<br>(Note for information: Depending on whether the Prime or Redundant instrument is being operated the file script **SetupPrime.csh** or **SetupRed.csh** has to be executed from the command line). |

| 3 | Start the CCS Handler |
|---|---|
| | On the **spireqla** computer, |
| | o   Open another konsole by hitting the console icon |
| | o   Select "Rename session" option from the "Session" tab and rename the session to be "CCS Handler" |
| | o   Select the tcshell by typing |
| | **tcsh** |
| | o   Start the CCS Handler from this konsole by running shell script ccshandler: |
| | **ccshandle** |
| | (Note for information: this command pipes output from the CCS Handler to the Konsole window and also to unique log file (date and time appended to log file name) to directory in ~/logs/ccshandler). |
| 4 | Start the **qla** |
| | On the **spireqla** computer, |
| | o   Open another konsole by hitting the console icon |
| | o   Select "Rename session" option from the "Session" tab and rename the session to be "Quick Look Analysis" |
| | o   Start the Quick Look Analysis from this konsole by typing |
| | **qla** |
| | *(Note for information: QLA is useful for investigating Packets received by the I-EGSE from the CCS but was not a crucial measure for the Warm Unit Functional Tests. It is becoming increasingly necessary now IST testing is beginning (Sept/Oct 2007).* *Useful QLA notes: Display using Packetviewer from the Process Selection drop down menu. Can use local database for historical packets and EGSE router for live packets on the source tab.* *Packet Dump is useful for HK data. (This is also selected from the Process Selection drop down menu).* *Parameterselector shows housekeeping data and science graphs e.g. bolometer temperature.)* |