# SPIRE

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| **SUBJECT:** | **ICC Interface Requirements** |
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# 1. INTRODUCTION

## 1.1 Purpose

This document specifies high-level requirements for the SPIRE ICC interfaces, both within the ICC and with external organisations.

## 1.2 Documents

### 1.2.1 Applicable Documents

| **AD1** | SPIRE ICC Interactions Document | SPIRE-RAL-DOC-003117 | 1.0 | 6th August 2008 |
|---------|----------------------------------|----------------------|-----|-----------------|
| **AD2** | HERSCHEL HSC-ICC Interactions Document | HERSCHEL-HSC-DOC-1184 | 1.0 | 5th August 2008 |

### 1.2.2 Reference Documents

| **RD1** | Herschel Bulk Product Transfer ICD | HERSCHEL-HSC-ICD-1083 | 1.0 | 19th February 2008 |
|---------|-------------------------------------|-----------------------|-----|--------------------|
| **RD2** | Herschel Science Ground Segment FTP ICD | HERSCHEL-HSC-ICD-0968 | draft 1.0 | 5th August 2008 |
| **RD3** | Herschel Science Ground Segment CVS ICD | HERSCHEL-HSC-ICD-0967 | draft 1.0 | 5th August 2008 |
| **RD4** | SPIRE ICC Operational Hardware | SPIRE-RAL-DOC-003123 | 1.0 | 5th August 2008 |

## 1.3 Acronyms

| CVS | Concurrent Versions System |
|------|-----------------------------|
| FTP | File Transfer Protocol |
| HAIO | Herschel Archive Interoperability |
| HSA | Herschel Science Archive |
| HSC | Herschel Science Centre |
| HOD | Herschel Operational Database |
| HTTP | Hypertext Transfer Protocol |
| ICC | Instrument Control Centre |
| IOD | ICC Operational Database |
| MOC | Mission Operations Centre |
| PAL | Product Access Layer |
| RAL | Rutherford Appleton Laboratory |
| SFTP | Secure File Transfer Protocol |
| SSH | Secure Shell |

# 2. INTERFACES WITH THE HSC

## 2.1 Database Propagation

Database propagation is the means by which data in the (Versant) object database at the HSC (HOD) is transferred to the ICC object database at RAL (IOD). The configuration from a RAL-centric perspective is described in [RD4].

| **PROP-010** | Propagation shall take place over the leased line connection to the HSC. |
|---|---|
| **PROP-020** | There shall be a backup mechanism in place in case of failure of the leased line. It shall be possible to either correct the failure or switch to the backup within 24 hours. *It is unclear whether there is a backup line or whether the internet can be used.* |
| **PROP-030** | Propagation shall use the ports 2378 (primary), 2379, 2380 (used for simultaneous propagation of multiple databases). *If the internet is used as backup, these ports must be open to the HSC at the RAL firewall.* |
| **PROP-040** | It shall be possible to run propagation continuously without need for manual starting and stopping. |
| **PROP-050** | At any time when data propagation is complete i.e. all data had been transferred, the contents of the HOD and the IOD shall be identical. |
| **PROP-060** | Messages from the propagation process shall be logged. |
| **PROP-070** | The minimum acceptable average transfer rate is 100 Kbyte/s. |

## 2.2 Bulk transfer of products from HSC to ICC

This is the systematic transfer of data products from the HSC to the ICC, see [RD1].

| **BULK-010** | Data transfer shall use the HAIO protocol, backed by HTTP. |
|---|---|
| **BULK-020** | Messages from the bulk transfer process shall be logged. |
| **BULK-030** | It shall be possible to run the process automatically without user intervention. |
| **BULK-040** | The minimum acceptable average transfer rate is 1MByte/s. *In practice this means that the transfer should bypass the RAL HTTP proxy.* |

## 2.3 Herschel Archive access

This refers to "standard" usage of the archive system, both internal and external to RAL.

| **ARCH-010** | It shall be possible to issue queries on the archive system. |
|---|---|
| **ARCH-020** | It shall be possible to retrieve the data products resulting from a query. |

## 2.4 Transfer of files from HSC to ICC

| **TFHI-010** | It shall be possible to transfer files from the HSC to the ICC using FTP via the leased line, see [RD2]. A user name and password is required. |
|---|---|
| **TFHI-020** | It shall be possible to transfer files from the HSC CVS repository to the ICC via the internet, see [RD3]. The leased line shall not be required for this. A user name and password is required. |

## 2.5 Transfer of files from ICC to HSC

| **TFIH-010** | It shall be possible to transfer files from the ICC to the HSC using FTP via the leased line, see [RD2]. A user name and password is required. |
|---|---|
| **TFIH-020** | It shall be possible to transfer files from the ICC to the HSC CVS repository via the internet, see [RD3]. The leased line shall not be required for this. A user name and password is required. |

## 3. INTERFACES WITHIN THE ICC

### 3.1 Access to the IOD at RAL

This is the ICC operational object database, located at RAL.

| IOD-010 | The IOD shall only be directly accessible using the Versant protocol from within the RAL firewall with one exception: the HSC may access it via the leased line for propagation purposes. |
|---|---|
| IOD-020 | No user account shall have write access to the IOD with the exception of the account used for propagation. Only users who have completed and signed the ICC User application may access the IOD. |
| IOD-030 | A subset of the IOD shall be accessible by registered ICC users external to RAL. This subset shall include telemetry packets and a summary of available observations. A user name and password are required for external users to be granted access. This interface shall use the HTTP protocol and be read-only. |
| IOD-040 | All external access to the IOD shall be logged. |

### 3.2 Access to data products at RAL

Typically, although not exclusively, these are the products transferred by bulk data transfer, see section 2.2.

| PROD-010 | Normal users shall have only read access to the data products area. Exceptions are user accounts used for bulk data transfer and trend analysis processing (these may be the same account). Only users who have completed and signed the ICC User application may access the data products. |
|---|---|
| PROD-020 | The data products shall be accessible with a PAL interface at RAL. |
| PROD-030 | The data products shall be accessible with a PAL interface external to RAL using the HTTP protocol. A user name and password is required. |
| PROD-040 | The data products shall be accessible with an FTP interface on the standard port 21. |
| PROD-050 | All external access shall be logged. |

### 3.3 Transfer of files from RAL

| TFFR-010 | It shall be possible to transfer files from RAL via the RAL web site using the HTTP protocol. A username and password is required for private data. File transfers shall be logged. |
|---|---|
| TFFR-020 | It shall be possible to transfer files from RAL using the FTP protocol. A username and password is required for private data. Anonymous FTP shall be available for public or non-protected data. File transfers shall be logged. |
| TFFR-030 | It shall be possible to transfer files from RAL using the SFTP protocol. A username and password is always required for this. |

## 3.4  Transfer of files to RAL

| **TFTR-010** | Upload of files to the RAL web site via HTTP shall be forbidden. *Note that this means that the save operation of the remote PAL interface is also forbidden.* |
|---|---|
| **TFTR-020** | It shall be possible to transfer files to RAL using the FTP protocol. A username and password is required. Uploading files via anonymous FTP shall be forbidden. File transfers shall be logged. |
| **TFTR-030** | It shall be possible to transfer files to RAL using the SFTP protocol. A username and password is required. |

## 3.5  Remote logon to server at RAL

This applies to ICC users external to RAL, including travelling RAL staff.

| **RLOG-010** | Registered ICC users external to RAL shall be able to logon to operational servers on which they have an account. |
|---|---|
| **RLOG-020** | All login access shall be via SSH running on the standard port 22. |
| **RLOG-030** | All access shall be logged. |
| **RLOG-040** | External logon access shall be restricted to a single server. Access to other servers is possible in turn from the entry server. |

## 3.6  ICC web sites

| **WEB-010** | The ICC shall provide a web server at RAL. |
|---|---|
| **WEB-020** | The ICC shall also have a Wiki site available. *This may or may not be the same as the RAL web site. Currently this is envisaged to be the service hosted by PACS/Leuven.* |
| **WEB-030** | Each web site shall function as an entry point into the SPIRE documentation and data distribution system. Cross links shall be used to facilitate this. |

Requirements on a web server at RAL:

| **WEB-040** | The web server shall use the HTTP protocol running on port 80. Servers installed for test purposes may use other non-privileged ports, typically 8080. |
|---|---|
| **WEB-050** | The web server shall contain both public and private areas. Designated private areas require a username and password for access. |
| **WEB-060** | The web server shall support Java servlets and Java Server Pages. *This is needed for the remote telemetry and data product services.* |
| **WEB-070** | The web server shall support PHP. *This is needed for the Kayako help desk software.* |

Requirements on a Wiki system:

| **WEB-080** | A username and password shall be required to view the site. |
|---|---|
| **WEB-090** | It shall be possible to restrict modification of certain pages to specified users. |

## 4. OTHER INTERFACES

## 4.1 Remote access to ICC@MOC

| MOC-010 | It shall be possible to logon to the ICC machines at the MOC. *This is for configuration and monitoring purposes.* |
|---|---|
| MOC-020 | The ICC shall be able to remotely monitor housekeeping telemetry in real-time. |