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# Quick Start Guide

## 1. Preface



The purpose of this document is to help you get started using HIPE with the minimum of fuss, confusion, time wasted, and helpdesk tickets raised.

It is assumed that you have installed HIPE without any issues, you have registered with the Herschel system (go [here](#) if not), you have an account with permission to access the Herschel Science Archive (HSA), and you know the observation ID for at least one set of data.

By the end of this document you will: have got one observation from the HSA into your HIPE session; have a broad understanding of the data structure that you see; know how to look at your data; and, begin to have an understanding of where you can go from here - and where in the documentation to look for this.

This document is intended to be read as you carry out these actions in HIPE, without describing any of the other views you will see in HIPE; for that, please see the [HIPE Owner's Guide](#).

## 2. Open the Herschel Science Archive within HIPE

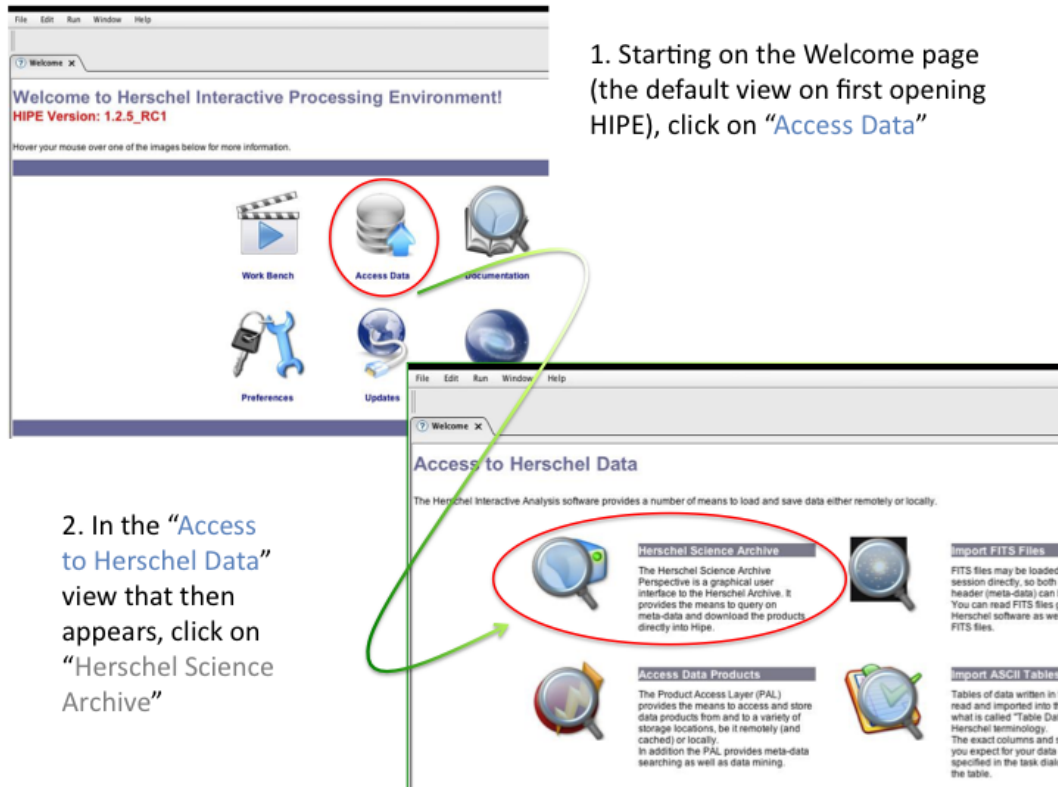


Figure 1. Accessing the Herschel Science Archive

The following view - the Herschel Science Archive view - appears, use this to log into the Herschel system and open the archive applet.

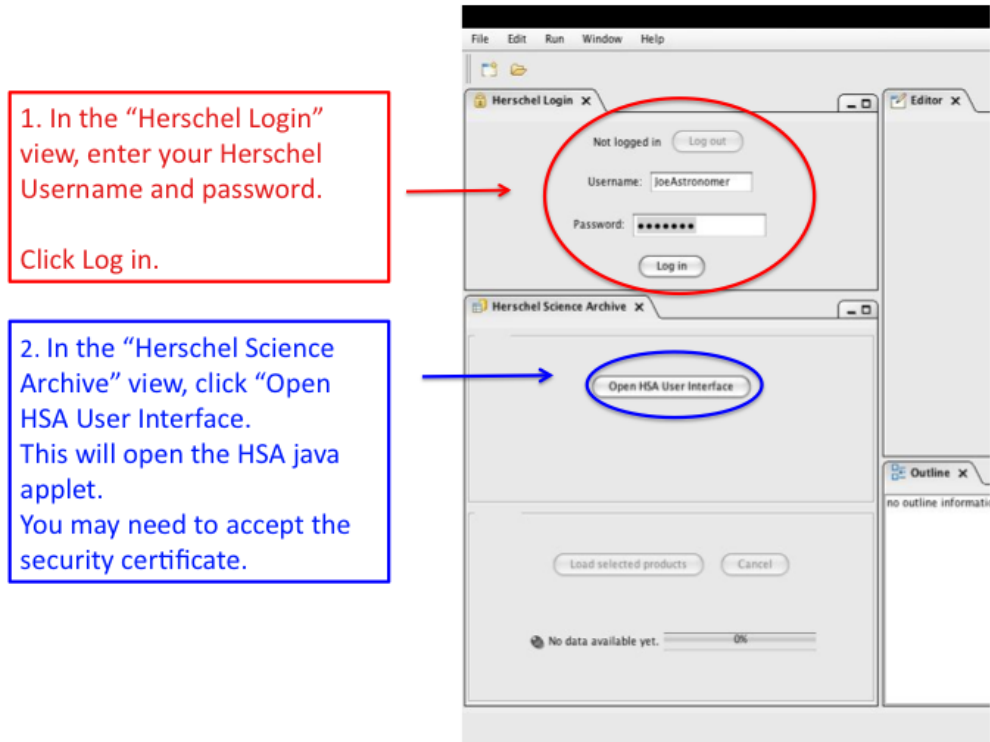


Figure 2. The HSA view

### 3. Query the HSA

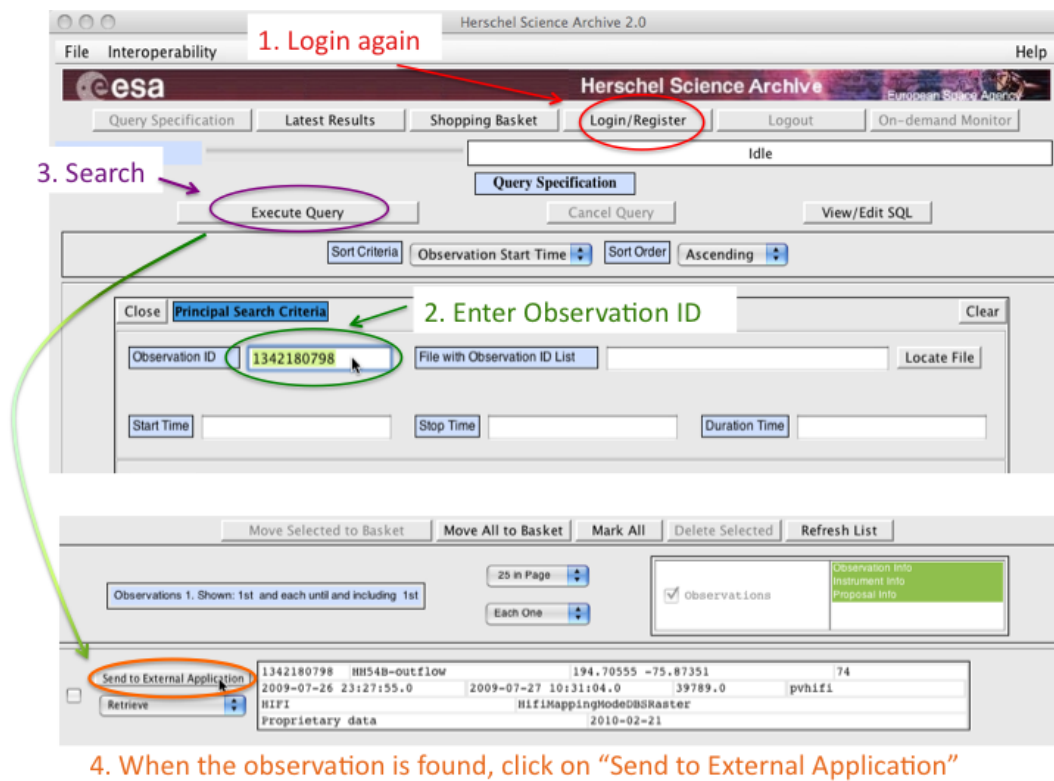
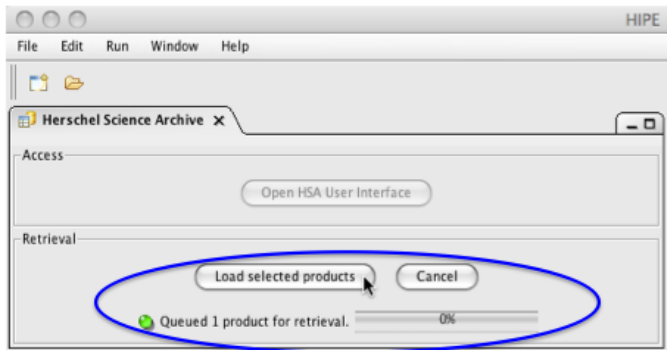


Figure 3. Querying the HSA

Observation IDs are unique so it is sufficient to enter this to find your data. You can also do more involved queries, e.g., per instrument and/or observing mode, see the [Retrieving Data from the Herschel Science Archive User Interface](#).

## 4. Download data into HIPE

### 4.1. Get the data into HIPE



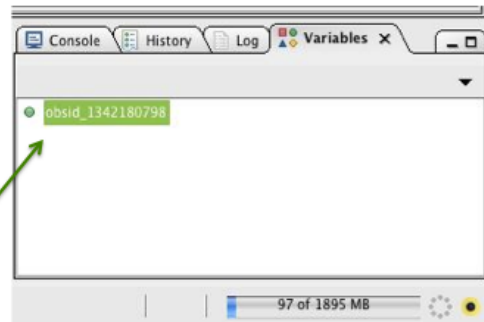
5. Go back to HIPE:

- Click “Load selected Product” in the Herschel Science Archive view
- Be patient...
- The message changes to:
  - “initiating retrieval...”
  - “processing product 1 of 1...”
  - “Retrieval finished: 1 Products processed”

The product retrieved from the HSA appears in the Variables view.

While download is occurring a variable of the name “hsastore” is created.

When the download is complete, this is replaced by your data with the name “obsid\_XXXXXXXX”

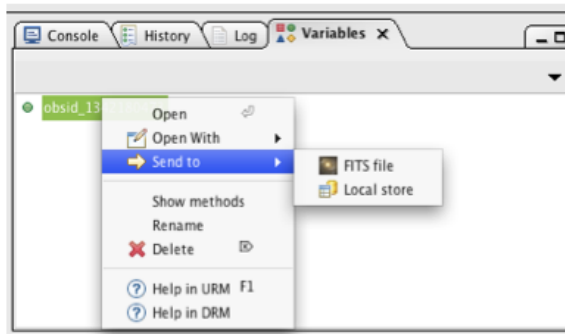


**Figure 4. Loading data into HIPE**

There are other ways in which to get your data. The method described above is ideal if you want to get a small number of observations and immediately be able to work on it in HIPE. To download, store and then access a larger number of observations see [Retrieving data through the shopping basket](#).

### 4.2. Save the data

You should note that with the method of data import described above, the data are not stored on your machine but referenced for fetching as needed during your session. If you still want to have access to this data the next time you open HIPE you need to save it.



- Right click on obsid\_XXXXXXXXXX
- Click on “Send to”
- Then select “Local store”
- The localStoreWriter view will open in the Editor view

Enter a name for the store this data will be saved in (you will not be able to rename it)

Click “Accept”

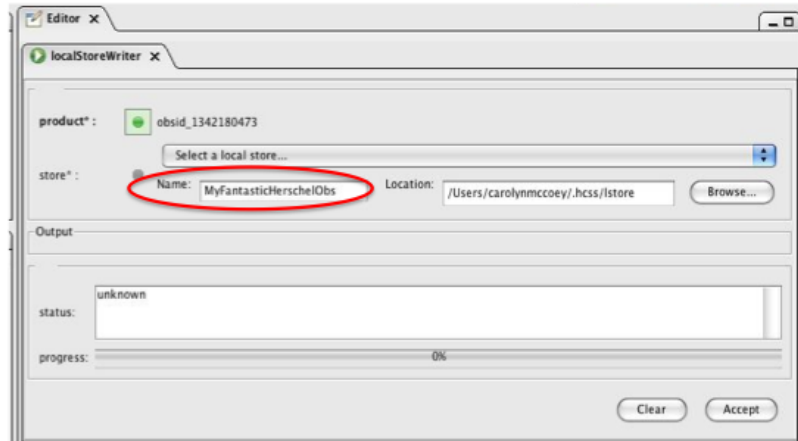


Figure 5. Saving data

## 5. Inspect your data

- Right click on your data (here obsid\_1342180473)
- Open with ContextViewer, which opens in the Editor view
- Use this to navigate through and view your data

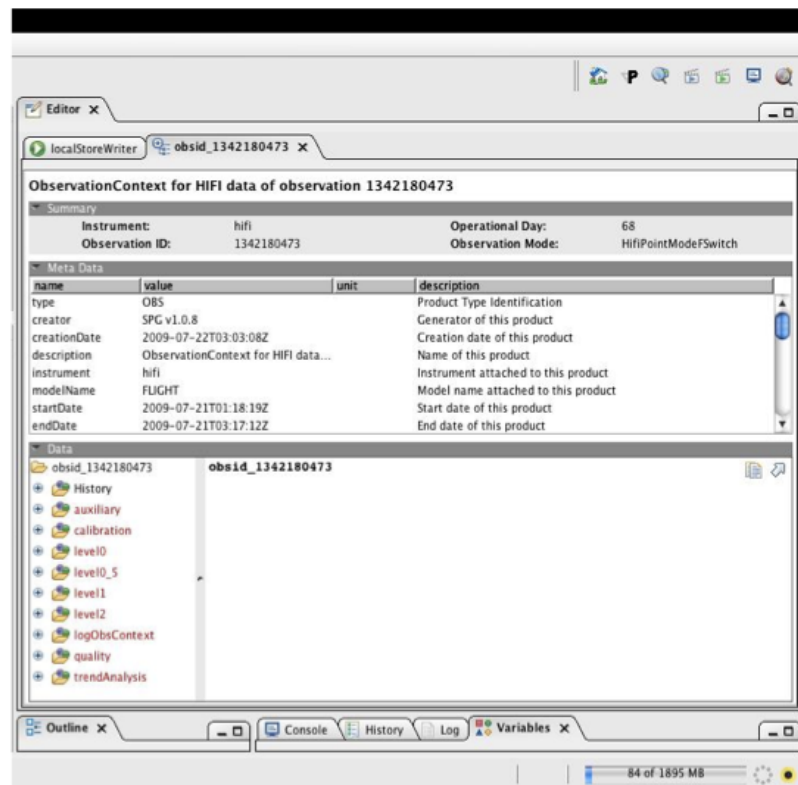
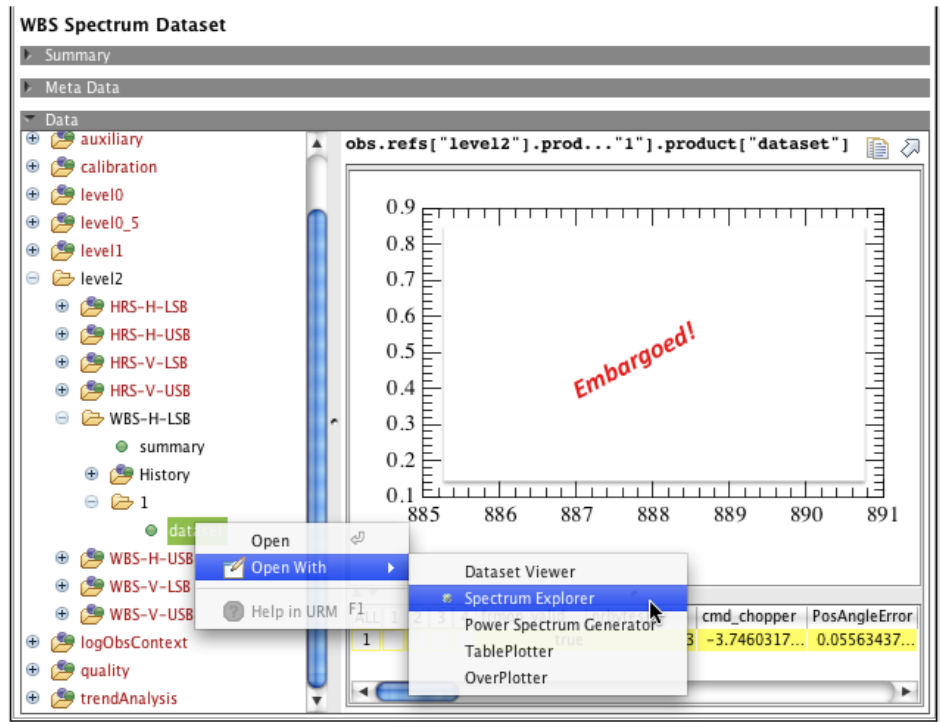


Figure 6. Inspecting an Observation Context

Using the ContextViewer you can navigate through and inspect the contents of your ObservationContext.

To look at your Level-2 data, click on the Level-2 product in the ObservationContext. The Level-2 product contains other products, which can themselves contain other products. This onion skin arrangement of products is represented in the ContextViewer by a hierarchical structure. The data you want are right in the middle of the onion so click on through until you reach the bottom Product and inside that you will find your data.



**Figure 7. Opening a spectrum with the Spectrum Explorer**

Typically, double-clicking on this will open the data in the most appropriate tool with which to view them. You can also right click - a preview will appear in the rest of the Editor view - and "Open with":

- [SpectrumExplorer](#) - single point spectra (all instruments)
- [CubeAnalysisToolbox](#) - SpectralCubes (all instruments)
- [StandardImageViewer](#) - PACS and SPIRE photometry.

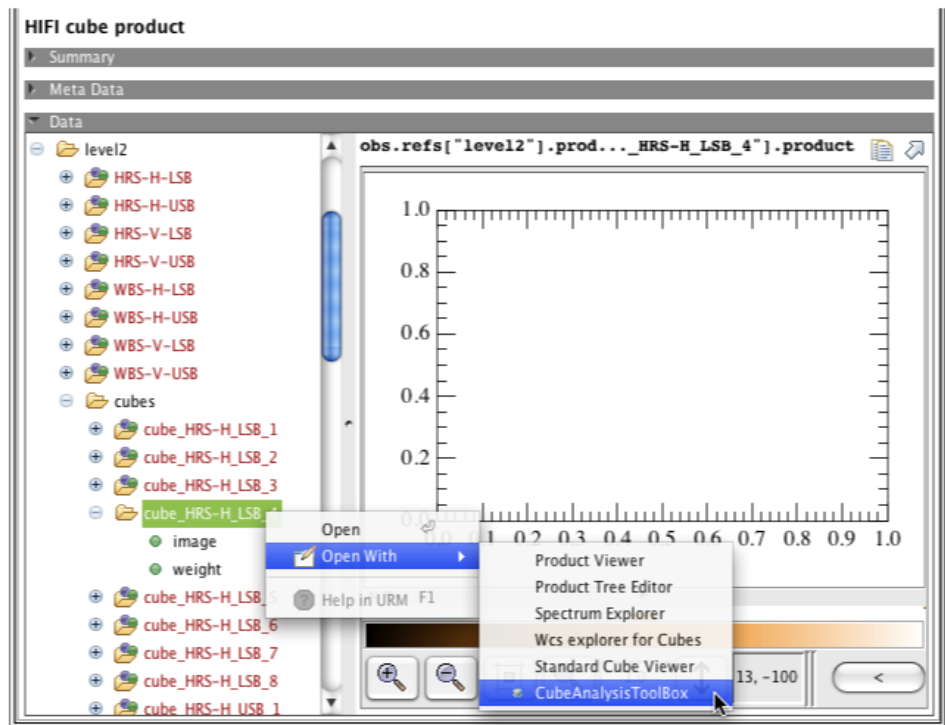


Figure 8. Opening a cube with the Cube Analysis Toolbox



### What is an ObservationContext?

HIPE is littered with this curious type of (un)grammatical construct. Ignoring the Java/Jython implications for now, all you need to know is that an ObservationContext contains all the meta data and data products associated with your observation - it is the box we give you your data in.

The structure of an ObservationContext is the same for all instruments and all observing modes. As you can see in [Figure 6](#) above, an ObservationContext contains the following products:

History:	Contains the automatically generated script of actions performed on your data, a history of the tasks applied to the data, and the parameters belonging to those tasks.
Auxiliary Context:	All Herschel non-science spacecraft data required directly or indirectly in the processing and analysis of the scientific data.
Calibration Context:	The parameters that characterise the behaviour of the satellite and the instruments. Used for reprocessing data.
Level-0 Context:	Raw data, minimally manipulated.
Level-0.5 Context:	Data processed to an intermediate point adequate for inspection
Level-1 Context:	Detector readouts calibrated and converted to physical units, in principle instrument and observatory independent.

Level-2 Context:	Scientific analysis can be performed. These data products are at a publishable quality level and should be suitable for Virtual Observatory access.
Level-3 Context: (optional)	Publishable science products with level 2 data products as input. Possibly combined with theoretical models, other observations, laboratory data, catalogues, etc. Formats should be Virtual Observatory compatible.
LogObsContext:	A log of actions performed on the Products in the ObservationContext
Quality Context:	Issues flagged by the pipelines that indicate possible issues with the quality of the data or pipelining. An empty quality report indicates no problems in processing.
Trend Analysis Context	Products useful for tracking systematic changes in instrument response over time.
Telemetry Context:	Optional - only included when the HSC deems it necessary because of a serious problem in the processing to level-0 data.

## 6. Moving into Data Analysis and Reprocessing data

### 6.1. Starting Data Analysis

Now that you have had a first look at your data, you will probably want to do so a little more quantitatively by, for example, fitting spectral features, or [comparing with other fits files](#), such as data from other observatories. You may wish to do some basic [photometry](#) or other [image analysis](#) among other things, for all of which you should look in the [Data Analysis Guide](#).

### 6.2. Reprocessing Data

After looking at your data, you may decide that you are not happy with how they were reduced. Indeed it is expected that re-processing will be required, especially in the earlier stages of the mission.

Because you are supplied with raw data and all calibration and auxilliary products, it is possible for you to reprocess your data yourself. The information you need to reprocess data can be found in the separate instrument guides: the HIFI User Manual, the PACS data reduction guide, and the SPIRE User Manual.