



Data Access Overview

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Data Access: Basic Concepts



- One data repository: The Herschel Science Archive (HSA)
- Two ways to access the data:
 - Directly from the HSA UI (and then importing it into HIPE)
 - Accessing the data in HSA through HIPE
- Two different data structures:
 - Tar file from the HUI
 - Local stores
- Who has rights to access proprietary data?
The PI and all the Co-users (~~Co-Is~~)

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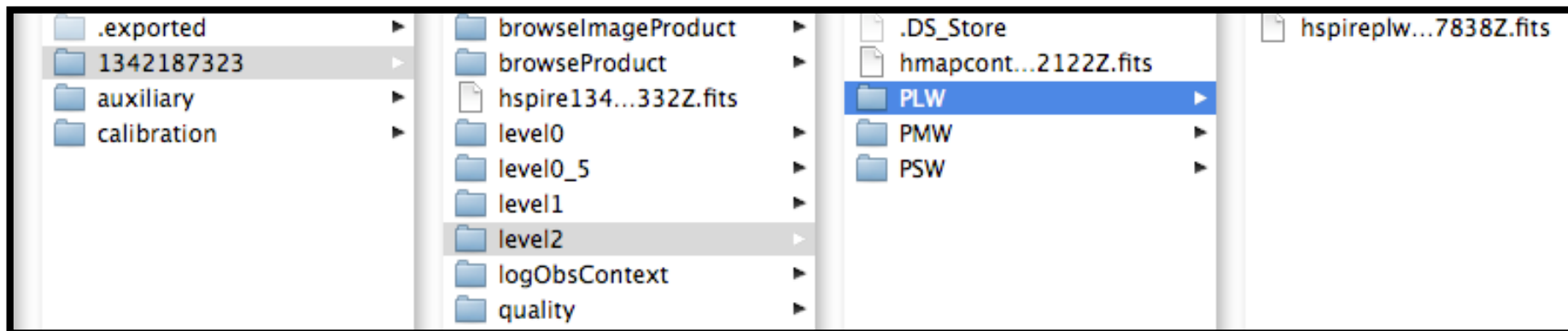
Data Access: HSA User Interface



Retrieving data from the HUI: (Always log-in required even for public data)

- **Direct retrieval:**
 - Direct ftp download of the data to the user disk
 - Observation per observation
 - One tar file per observation
- **Shopping basket retrieval:**
 - Request to the HSA that process it and send you an e-mail
 - Ftp retrieval of data from an ftp area
 - A single tar file (compressed or not) with all the observations requested

Structure of the tar file: Tree structure of the ObservationContext in directories

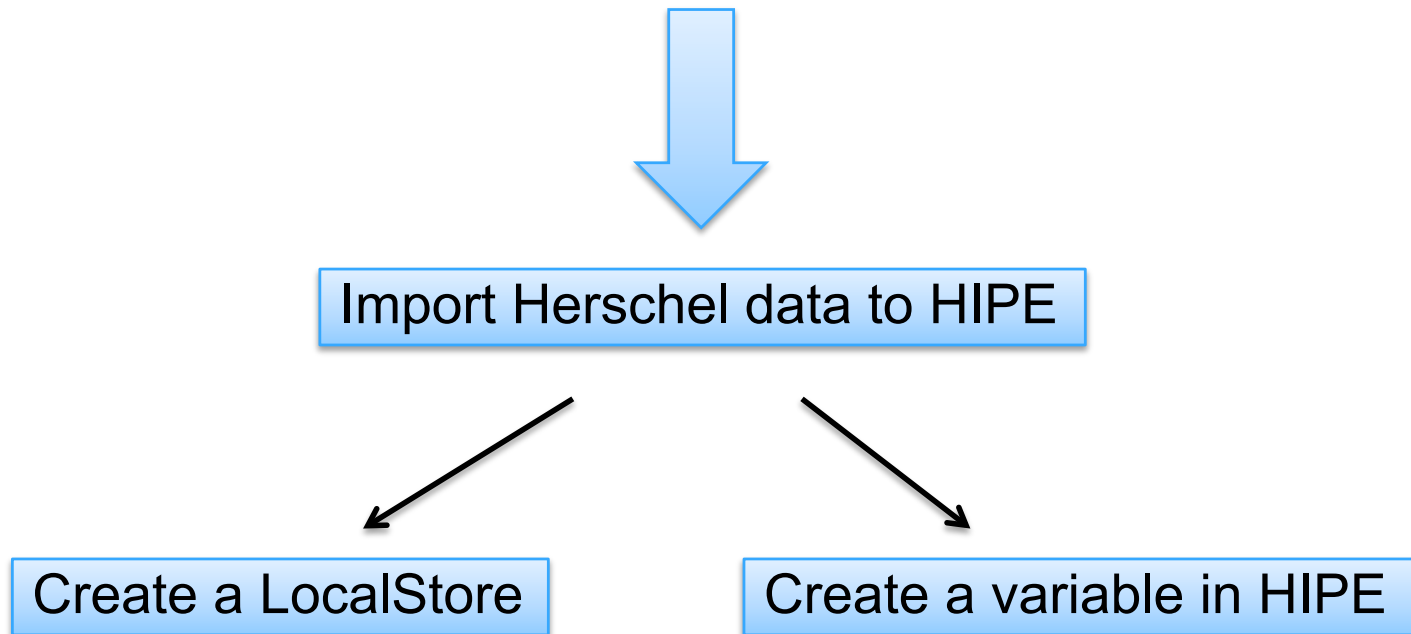


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Data Access: Importing HSA tar file to HIPE



- HIPE only understands LocalStore format data
- HSA tar data has to be converted to LocalStore format



Data Access: Importing HSA tar file to HIPE



- Currently: The Import view only works with tar files containing the **whole Observation Context** → Option “ALL” in HUI when retrieving data
(Individual FITS files (e.g. Level2) can be read into HIPE with a simple fitsReader task)
- The Import view requires the **.exported** directory inside the tar provided by the HSA.
If you want to share your data be sure the tar file is complete.

Data Access: Through HIPE (I)



- HUI functionality: **Send to external Application**
- HIPE perspective: **Herschel Science Archive**
- **PLASTIC/SAMP** connection between the two

Log-in
Please!

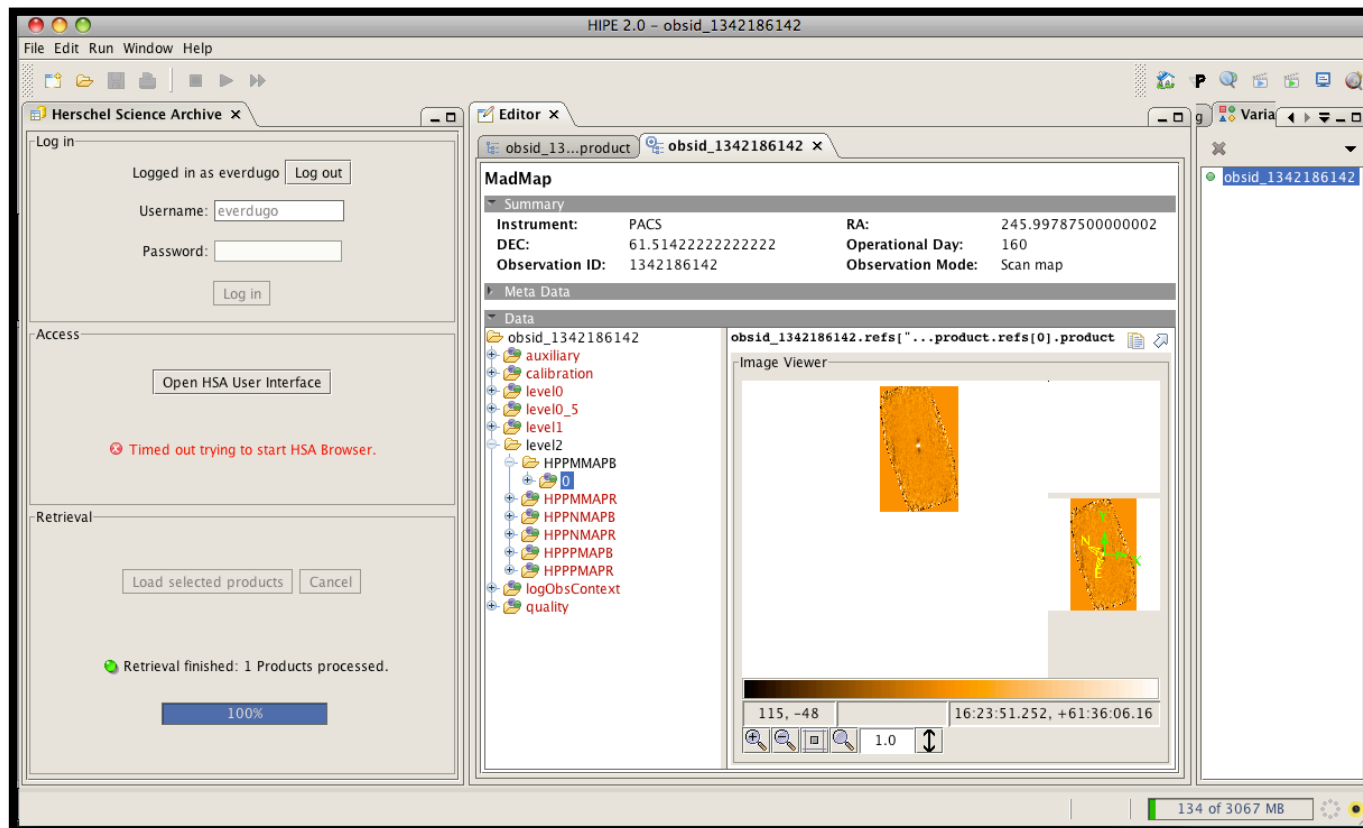
The screenshot displays the HIPE (Herschel Interactive Processing Environment) interface. On the left, a table lists observation data with columns for observation ID, name, date, and instrument. The 'Send to External Application' button for the first row is circled in red. A red arrow points from this button to the 'Herschel Login' dialog box in the center. The dialog box contains fields for 'Username:' and 'Password:', a 'Log in' button, and a 'Log out' button. Below the dialog, a 'Herschel Science Archive' window shows a progress bar at 100% and the text 'Queued 1 product for retrieval.' Another red arrow points from the 'Load selected products' button in this window to the 'Log in Please!' text box.

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Data Access: Through HIPE (II)



- A variable called `obsid_xxxxxxx` appears in HIPE which contains the whole `ObservationContext`
- All files can be inspected → This requires internet connection to HSA opened at all time
- **THE DATA is NOT in YOUR DISK YET!**



Data Access: Through HIPE (III)



- How to save your data?
 - GUIs: **PAL Storage Manager + Save Products to Storage**
 - It guides you on the process of creating Pools and Storages
 - You can save several observations in one go
 - Right click on the observation variable and select **Send to LocalStore** → A different GUI is opened
 - Per observation

Data is saved in LocalStore Format

Data Access: Pools & Storages (I)



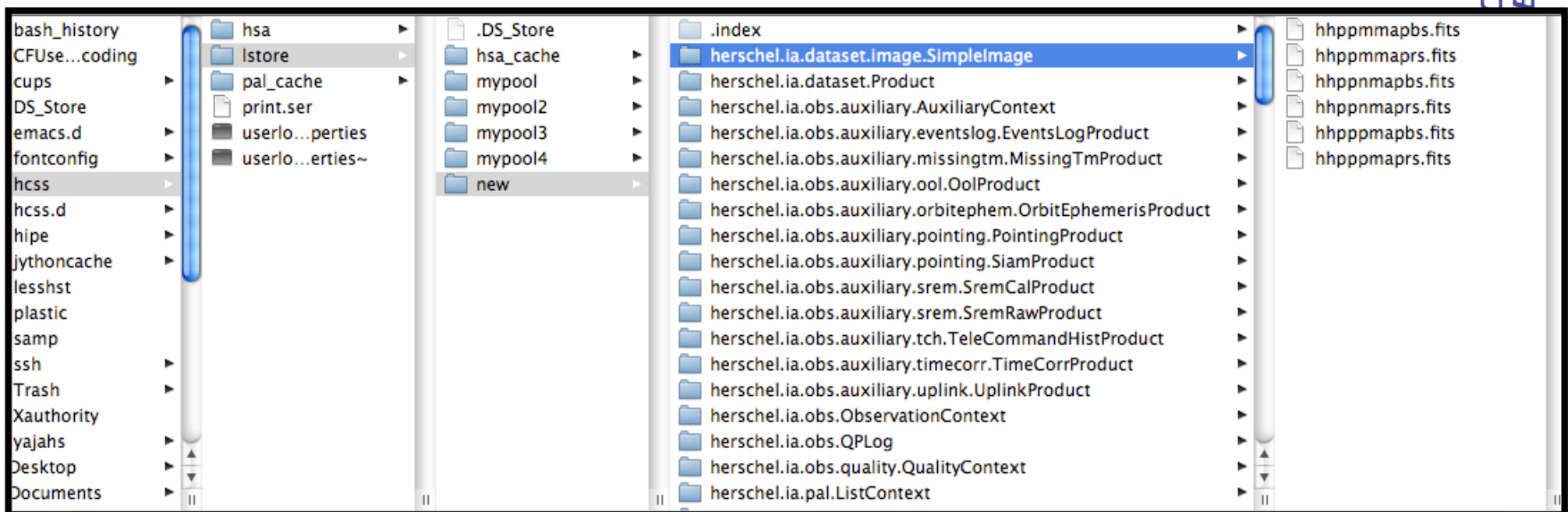
- Products Pools are data storage areas that could be:
 - On your local machine → **LocalStore**
 - A remote pool:
 - » Herschel Science Archive
 - » Versant database
 - » A pool to share in a remote computer

Data Access: Pools & Storages (II)



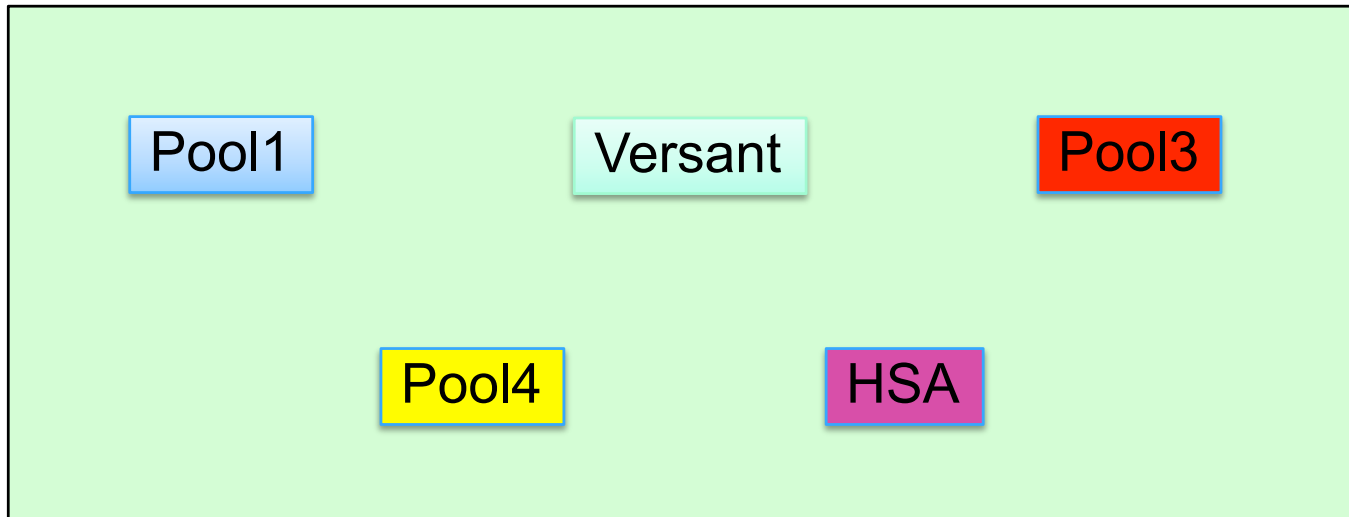
A LocalStore Pool in your disk:

- By default is always under:
 users_home_directory/.hcss/lstore/
- Pools are subdirectories on that location
- Structure of a pool:



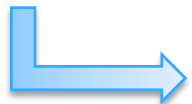
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Data Access: Pools & Storages (III)



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STORAGE
Mini database



New HIPE Product
Browser perspective

The screenshot shows the HIPE 2.0 interface with several panels:

- Product Browser:** A table with columns for Observation, Metadata, and Free Metadata. Fields include Target Name, Proposal, Instrument, Operational Day, and Observation Id.
- Product Tree:** A tree view showing the hierarchy of observation data for PACS data of observation 1342186142. It includes nodes for type, creator, creation date, description, instrument, model, and start date.
- Console:** A terminal window showing HIPE commands and their output. The commands include creating a ProductStorage, loading observation contexts, deleting them, and writing to a local store.

```
HIPE> hsaStore = ProductStorage(CachedPool(HsaReadPool()))
HIPE> obsid_1342187323 = hsaStore.load('urn:hsa:herschel.ia.obs.ObservationContext:17012')
HIPE> del( hsaStore )
HIPE> del(obsid_1342187323)
HIPE> hsaStore = ProductStorage(CachedPool(HsaReadPool()))
HIPE> obsid_1342186142 = hsaStore.load('urn:hsa:herschel.ia.obs.ObservationContext:13496')
HIPE> del( hsaStore )
HIPE> localStoreWriter(product=obsid_1342186142,store="new")
HIPE>
```

Data Access: News on HSA 2.5



Herschel Science Archive 2.5

File Interoperability Help

esa Herschel Science Archive European Space Agency

Query Specification Latest Results Shopping Basket Login/Register Logout everdugo On-demand Monitor

User: everdugo Idle

Move Selected to Basket Move All to Basket **Send to External Application** Mark All Delete Selected Refresh List

Observations 157. Shown: 1st and each until and including 25th

25 in Page Each One

Observations

Observation Info
Instrument Info
Proposal Info

<input type="checkbox"/>	1342183046	ngc 6946	20h34m51.40s +60d09'18.0"	111
	2009-09-01 14:16:17.238	2009-09-01 15:25:47.575	4170.337	pvpallel
	PACS		SpirePacsParallel	
	Proprietary data		9999-09-09	
<input type="checkbox"/>	1342183046	ngc 6946	19h23m51.05s +52d00'28.7"	111
	2009-09-01 14:21:17.0	2009-09-01 15:26:29.0	3912.0	pvpallel
	SPIRE		SpirePacsParallel	
	Proprietary data		9999-09-09	
<input type="checkbox"/>	1342183047	ngc 6946	20h34m51.40s +60d09'18.0"	111
	2009-09-01 15:25:53.342	2009-09-01 16:32:08.623	3975.281	pvpallel
	PACS		SpirePacsParallel	
	Proprietary data		9999-09-09	
<input type="checkbox"/>	1342183047	ngc 6946	20h34m59.22s +60d08'56.5"	111
	2009-09-01 15:27:38.0	2009-09-01 16:32:50.0	3912.0	pvpallel
	SPIRE		SpirePacsParallel	
	Proprietary data		9999-09-09	
<input type="checkbox"/>	1342183048	ngc 6946	20h34m51.40s +60d09'18.0"	111
	2009-09-01 16:32:14.325	2009-09-01 17:09:54.571	2260.246	pvpallel
	PACS		SpirePacsParallel	
	Proprietary data		9999-09-09	

Start of List Previous Next End of List

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Data Access: Quality Information



The screenshot displays the Herschel Science Archive interface. On the left, the 'Outline' pane shows a tree structure for observation 'obsid_1342185569' with sub-items: auxiliary, calibration, level0, level0_5, level1, level2, logObsContext, quality, and qualitySummary. A red arrow points from 'qualitySummary' to the main editor window. The editor window, titled 'obsid_13...product', shows the following metadata:

- Obsid: 0x0050002061 (1342185569)
- Intrument: PACS
- Obs.mode: Unknown
- Level: LEVEL2_PROCESSED
- SW version: SPG v1.2.0
- Date: 2009-10-22T16:07:07.537000
- State: PASSED
- Action: NONE

Below the metadata is a 'Quality flags' section containing a table:

Concept	Value
Percentage of blue photometer saturated pixels in cal bloc...	0.0143753854851...
Percentage of red photometer saturated pixels in cal block...	0.0019787397540...

Below the table is a 'Logs' section with the message: '*** NO QUALITY LOGS AVAILABLE ***'. The 'Comments' section contains a 'Registered comment' with the following text:

herdpops 1:31 PM, Oct 28, 2009
Observation checked by PACS Calibration Scientist at HSC: Successful.

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