

# Advanced ways to find and retrieve data in the LTA

There are some useful ways to find and retrieve your data in the LTA that might not be immediately obvious. This page explains some of the more advanced options you have.

## Queries

- You can use colons in numeric queries, to select ranges. This will for example give all observations and pipelines that have a SAS/Observation ID in the range from 432000 to 432190:

<b>Observation Id</b>	432000:432190
<b>Observing or Pipeline Run Date</b>	From 0000-00-00 00:00:00 To 0000-00-00 00:00:00
<b>Project</b>	any
<b>Maximum Number of Rows</b>	

In textual entries, wildcards can be used.

- You can put a list of SAS/Observation IDs in the query:

<b>Observation Id</b>	146112,147775,151778
<b>Observing Date</b>	From 0000-00-00 00:00:00 To 0000-00-00 00:00:00

## Viewing data

When you are looking at the results of a query you might see something like this:

Number Of Correlated DataProducts
0 / 488

This means that the observation is known in the LTA, it knows what data was produced, the produced data was not archived, but further processing happened on the raw data and the results of some of those pipelines were archived. If you click on the zero, you will see something like this:

#	<input type="checkbox"/>	DataProduct Identifier	SubArray Pointing Identifier	Subband	Stations	Observations	Pipeline	Derived DataProducts
1	<input type="checkbox"/>	7260485	293855	479	show	1		AveragingPipeline
2	<input type="checkbox"/>	7260483	293855	477	show	1		AveragingPipeline
3	<input type="checkbox"/>	7260488	293855	482	show	1	back to observation	AveragingPipeline
4	<input type="checkbox"/>	7260489	293855	483	show	1		AveragingPipeline
5	<input type="checkbox"/>	7260492	293855	486	show	1		AveragingPipeline
6	<input type="checkbox"/>	7260490	293855	484	show	1		AveragingPipeline
7	Can not be downloaded	7260493	293855	487	show	1		AveragingPipeline
8		7260486	293855	480	show	1		AveragingPipeline
9	<input type="checkbox"/>	7260487	293855	481	show	1	To pipeline	AveragingPipeline
10	<input type="checkbox"/>	7260482	293855	476	show	1		AveragingPipeline
11	<input type="checkbox"/>	7260491	293855	485	show	1		AveragingPipeline
12	<input type="checkbox"/>	7260484	293855	478	show	1		AveragingPipeline
13	<input type="checkbox"/>	7260436	293854	430	show	1		AveragingPipeline

This allows you to navigate from a pipeline back to the original observation, or from the observation to any pipelines that have run on the raw data.

## Retrieving data

- You can retrieve data on the Observation and Pipeline level, you don't have to select all files individually.

#	<input type="checkbox"/>	Observation Id	Observing Mode	Antenna Set	Instrun Filte
1	<input checked="" type="checkbox"/>	146448	Interferometer	HBA Dual Inner	110-190
2	<input type="checkbox"/>	146447	Interferometer	HBA Dual Inner	110-190
3	<input checked="" type="checkbox"/>	146446	Interferometer	HBA Dual Inner	110-190
4	<input type="checkbox"/>	146445	Interferometer	HBA Dual Inner	110-190
5	<input checked="" type="checkbox"/>	146444	Interferometer	HBA Dual Inner	110-190
6	<input checked="" type="checkbox"/>	146443	Interferometer	HBA Dual Inner	110-190
7	<input type="checkbox"/>	146442	Interferometer	HBA Dual Inner	110-190
8	<input checked="" type="checkbox"/>	146441	Interferometer	HBA Dual Inner	110-190
9	<input checked="" type="checkbox"/>	146456	Interferometer	HBA Dual Inner	110-190
10	<input checked="" type="checkbox"/>	146455	Interferometer	HBA Dual Inner	110-190
11	<input type="checkbox"/>	146454	Interferometer	HBA Dual Inner	110-190
12	<input type="checkbox"/>	146453	Interferometer	HBA Dual Inner	110-190
13	<input type="checkbox"/>	146452	Interferometer	HBA Dual Inner	110-190

- If you have a query with more than 1000 results, you can open the multiple pages each in a separate tab/window.

Observation 1001 to 1100 (showing 100 of total 1156) ▾

edit columns | stage selected

first | previous | ... | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | next | last

r Of SubArray	Start Time	Duration	Nr Stations	Nr Stations
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- With the small triangle next to a list, you can fold or unfold the list to get a better overview.

### Folded entries

**Observation 1 to 100 (showing 100 of total 1156)** ▲

**Averaging Pipeline 1 to 100 (showing 100 of total 4060)** ▲

**Calibration Pipeline (total 30)** ▲

**Imaging Pipeline (total 0)** ▲

**UnspecifiedProcess 1 to 100 (showing 100 of total 125)** ▲

Unfolded entries

Calibration Pipeline (total 30) -														
db-view   stop view														
#	Process Name	Process Version	Process Identifier	Observation ID	Start Time	Duration (s)	End Time	Strategy Name	Strategy Description	Frequency Integration Step	Time Integration Step	Flag Rate Correlation	Stimulus Database	Source DataProduct
1	P101_CalibrationPipeline	1.0.0	101001	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
2	P101_CalibrationPipeline	1.0.0	101002	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
3	P101_CalibrationPipeline	1.0.0	101003	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
4	P101_CalibrationPipeline	1.0.0	101004	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
5	P101_CalibrationPipeline	1.0.0	101005	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
6	P101_CalibrationPipeline	1.0.0	101006	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
7	P101_CalibrationPipeline	1.0.0	101007	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
8	P101_CalibrationPipeline	1.0.0	101008	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
9	P101_CalibrationPipeline	1.0.0	101009	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
10	P101_CalibrationPipeline	1.0.0	101010	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
11	P101_CalibrationPipeline	1.0.0	101011	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
12	P101_CalibrationPipeline	1.0.0	101012	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
13	P101_CalibrationPipeline	1.0.0	101013	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
14	P101_CalibrationPipeline	1.0.0	101014	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
15	P101_CalibrationPipeline	1.0.0	101015	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
16	P101_CalibrationPipeline	1.0.0	101016	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
17	P101_CalibrationPipeline	1.0.0	101017	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
18	P101_CalibrationPipeline	1.0.0	101018	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
19	P101_CalibrationPipeline	1.0.0	101019	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
20	P101_CalibrationPipeline	1.0.0	101020	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
21	P101_CalibrationPipeline	1.0.0	101021	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
22	P101_CalibrationPipeline	1.0.0	101022	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
23	P101_CalibrationPipeline	1.0.0	101023	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
24	P101_CalibrationPipeline	1.0.0	101024	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
25	P101_CalibrationPipeline	1.0.0	101025	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
26	P101_CalibrationPipeline	1.0.0	101026	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
27	P101_CalibrationPipeline	1.0.0	101027	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
28	P101_CalibrationPipeline	1.0.0	101028	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
29	P101_CalibrationPipeline	1.0.0	101029	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
30	P101_CalibrationPipeline	1.0.0	101030	123456	2010-01-01 00:00:00	0.0	2010-01-01 00:00:00	Preprocess Pipeline (no device)	Preprocessing no device	no	0	0	0	no
Imaging Pipeline (total 0) -														
db-view   stop view														
UnspecifiedProcess 1 to 100 (showing 100 of total 125) -														
db-view   stop view														
#	Observation ID	Observation Name	Process Identifier	Process Description	Start Time	Duration (s)	Number of Unspecified DataProducts							
1	123456	Unspecified process, information generated by target	101001	2010-01-01 00:00:00	0.0	0								
2	123457	Unspecified process, information generated by target	101002	2010-01-01 00:00:00	0.0	0								
3	123458	Unspecified process, information generated by target	101003	2010-01-01 00:00:00	0.0	0								
4	123459	Unspecified process, information generated by target	101004	2010-01-01 00:00:00	0.0	0								
5	123460	Unspecified process, information generated by target	101005	2010-01-01 00:00:00	0.0	0								
6	123461	Unspecified process, information generated by target	101006	2010-01-01 00:00:00	0.0	0								
7	123462	Unspecified process, information generated by target	101007	2010-01-01 00:00:00	0.0	0								
8	123463	Unspecified process, information generated by target	101008	2010-01-01 00:00:00	0.0	0								
9	123464	Unspecified process, information generated by target	101009	2010-01-01 00:00:00	0.0	0								
10	123465	Unspecified process, information generated by target	101010	2010-01-01 00:00:00	0.0	0								
11	123466	Unspecified process, information generated by target	101011	2010-01-01 00:00:00	0.0	0								
12	123467	Unspecified process, information generated by target	101012	2010-01-01 00:00:00	0.0	0								
13	123468	Unspecified process, information generated by target	101013	2010-01-01 00:00:00	0.0	0								
14	123469	Unspecified process, information generated by target	101014	2010-01-01 00:00:00	0.0	0								
15	123470	Unspecified process, information generated by target	101015	2010-01-01 00:00:00	0.0	0								
16	123471	Unspecified process, information generated by target	101016	2010-01-01 00:00:00	0.0	0								
17	123472	Unspecified process, information generated by target	101017	2010-01-01 00:00:00	0.0	0								
18	123473	Unspecified process, information generated by target	101018	2010-01-01 00:00:00	0.0	0								
19	123474	Unspecified process, information generated by target	101019	2010-01-01 00:00:00	0.0	0								
20	123475	Unspecified process, information generated by target	101020	2010-01-01 00:00:00	0.0	0								
21	123476	Unspecified process, information generated by target	101021	2010-01-01 00:00:00	0.0	0								
22	123477	Unspecified process, information generated by target	101022	2010-01-01 00:00:00	0.0	0								
23	123478	Unspecified process, information generated by target	101023	2010-01-01 00:00:00	0.0	0								
24	123479	Unspecified process, information generated by target	101024	2010-01-01 00:00:00	0.0	0								
25	123480	Unspecified process, information generated by target	101025	2010-01-01 00:00:00	0.0	0								
26	123481	Unspecified process, information generated by target	101026	2010-01-01 00:00:00	0.0	0								
27	123482	Unspecified process, information generated by target	101027	2010-01-01 00:00:00	0.0	0								
28	123483	Unspecified process, information generated by target	101028	2010-01-01 00:00:00	0.0	0								
29	123484	Unspecified process, information generated by target	101029	2010-01-01 00:00:00	0.0	0								
30	123485	Unspecified process, information generated by target	101030	2010-01-01 00:00:00	0.0	0								

## DBView

There is a server that gives the option to run your own queries on the database

<http://lofar-dbview.target.rug.nl/>

A useful query might be this one, that gives you all files for a certain Obs Id (SAS VIC tree ID).

```
SELECT fo.URI, dp."dataProductType", dp."dataProductIdentifier",
       dp."processIdentifier"
FROM AWOPER."DataProduct+" dp,
       AWOPER.FileObject fo,
       AWOPER."Process+" pr
WHERE dp."processIdentifier" = pr."processIdentifier"
      AND pr."observationId" = '123456'
      AND fo.data_object = dp."object_id"
```

```
AND dp."isValid" > 0
```

In this '123456' should be replaced with the Obs Id of an Observation/Pipeline you're looking for.

## AstroWise Python Interface

There is also a python interface to the LTA. With this you can also script some advanced queries. This for example gives all observations on a certain patch of the sky:

```
# python code
from pprint import pprint
from common.database.Context import context
from awlofar.main.aweimports import Observation, Pointing, SubArrayPointing
result = {}
for project in sorted(context.get_projects()) :
    print "Project %(project)s" % vars()
    ok = context.set_project(project)
    # do your query
    obs_ids = set()
    query = (Pointing.rightAscension > 95) & \
            (Pointing.rightAscension < 105) & \
            (Pointing.declination > 20) & \
            (Pointing.declination < 30)
    print "Total Pointings %d" % len(query)
    for pointing in query :
        print "Pointing found RA %f DEC %f" % (pointing.rightAscension,
        pointing.declination)
        query_subarr = SubArrayPointing.pointing == pointing
        for subarr in query_subarr:
            query_obs = Observation.subArrayPointings.contains(subarr)
            for obs in query_obs :
                obs_ids.add(obs.observationId)
    result[project] = sorted(list(obs_ids))
    print result[project]

pprint(result)
```

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