Creating a workflow with Taverna for the 1ˢᵗ time

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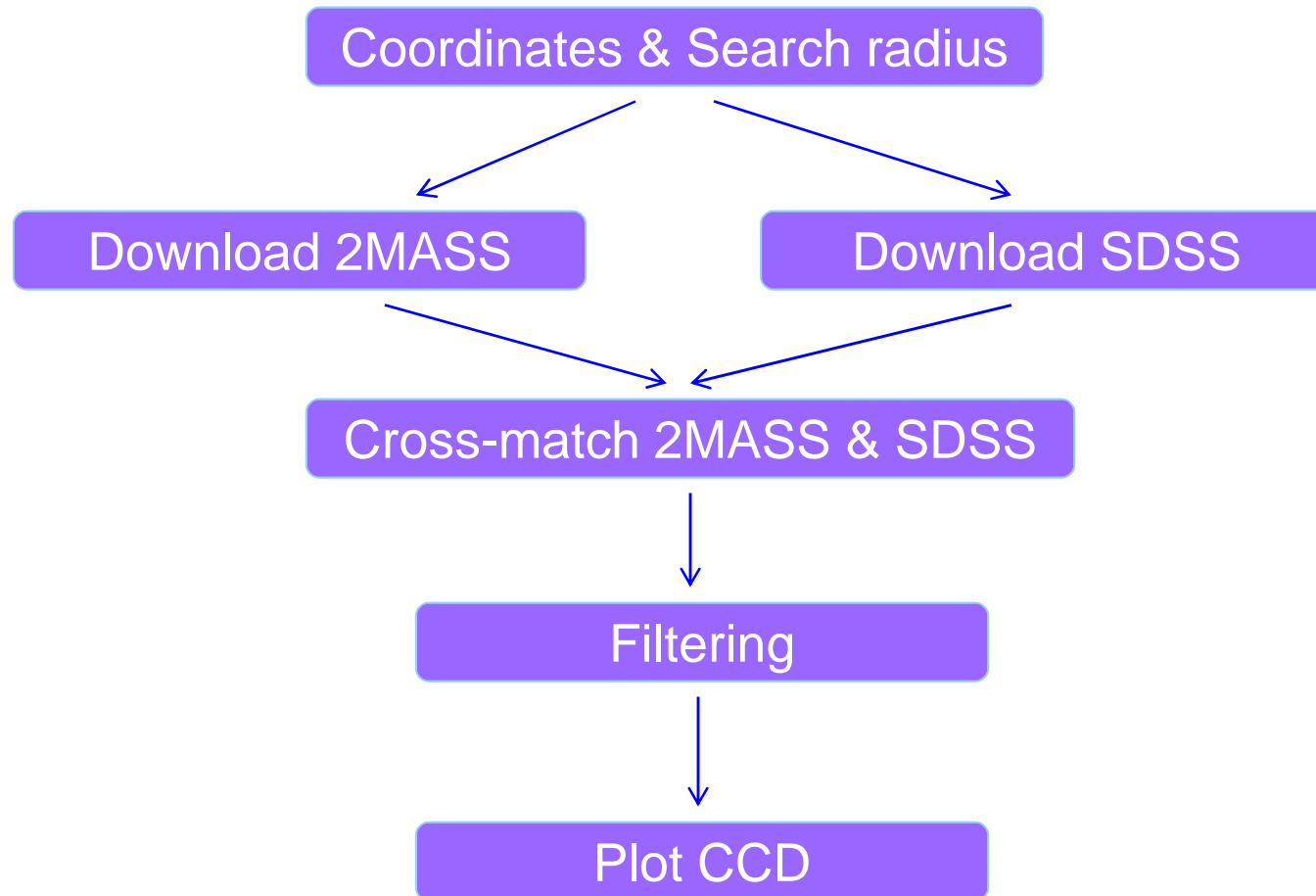
CAB / SVO (INTA-CSIC)

My 1st workflow with Taverna

The workflow

Coordinates & Search radius

Download 2MASS

Download SDSS

Cross-match 2MASS & SDSS

Filtering

Plot CCD

Step 0: Install the software

- Aladin:
  - Download the file aladin.jar

  > java -jar aladin.jar

- Stilts:
  - Download the file stilts.jar

  > java -jar stilts.jar

My 1ˢᵗ workflow with Taverna

- Taverna
  - Windows/Mac/Linux
  - Linux: dowload the file tarverna-workbench-2.4.0.tar.gz

  > tar zxfv tarverna-workbench-2.4.0.tar.gz
  >./taverna.sh

  Note: Make sure that you have **Oracle/SUN Java 1.6 JRE** and **Graphviz** installed – please check the system requirements section.

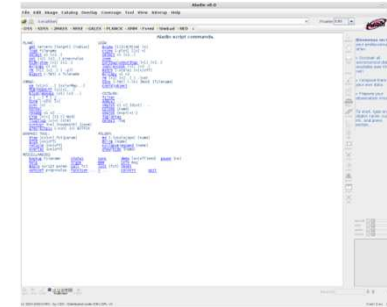 **Note:** It was necessary to install Astro Taverna Plugin
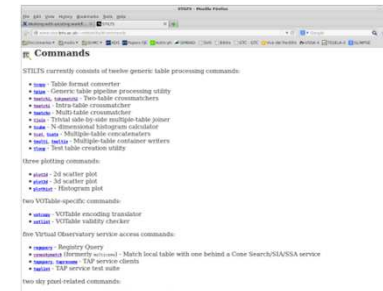
My 1ˢᵗ workflow with Taverna

- Aladin:
  - Specific help on script commands

    2mass = get VizieR(II/246) $1 $2 $3

- Stilts:
  - Webpage with extend explanations
    and clear and useful examples

  stilts coneskymatch serviceurl=http://vizier.u-strasbg.fr/viz-bin/votable/-A?-source=II/246 ifmt=csv in=coord.csv ra=RA dec=DEC sr=SR out=2mass.xml find=all

  Note: stilts == java -jar stilts.jar

My 1ˢᵗ workflow with Taverna

- Taverna:
  - Help – Did not work. If it works, it is incomplete and confusing.

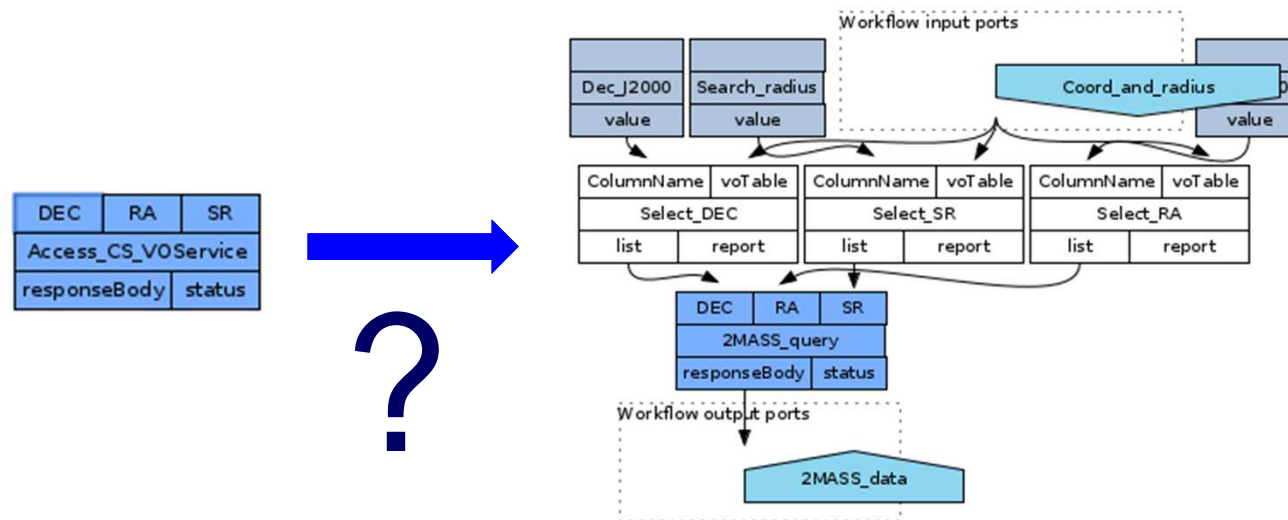| DEC	RA	SR
Access_CS_VOService		
responseBody	status	

My 1ˢᵗ workflow with Taverna

Step 1: Downloading

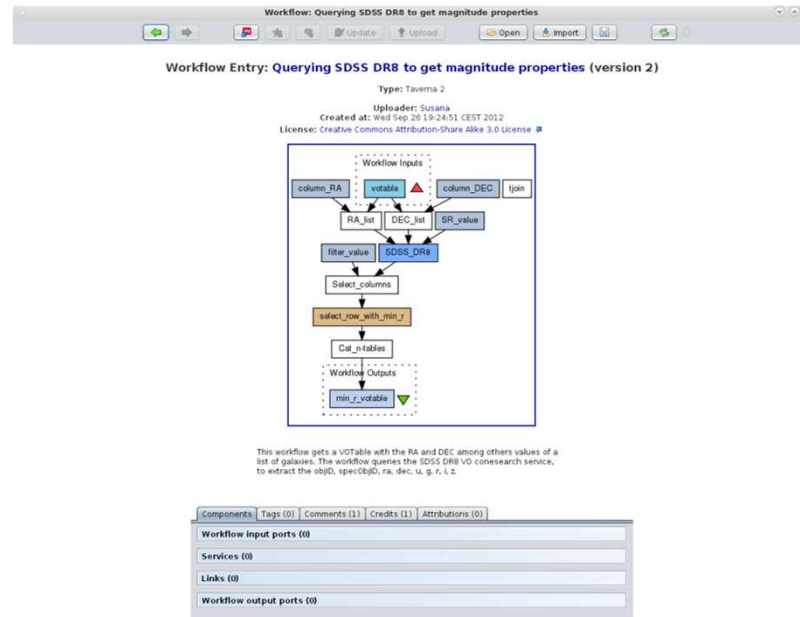- Taverna:
  - Asking for help (Thanks Pique!!)

My 1ˢᵗ workflow with Taverna

Step 1: Downloading

- Taverna:

  - myExperiment/Astrotaverna tool: there is a well handful of useful examples, but sometime they are complex and normally not exactly what you need.
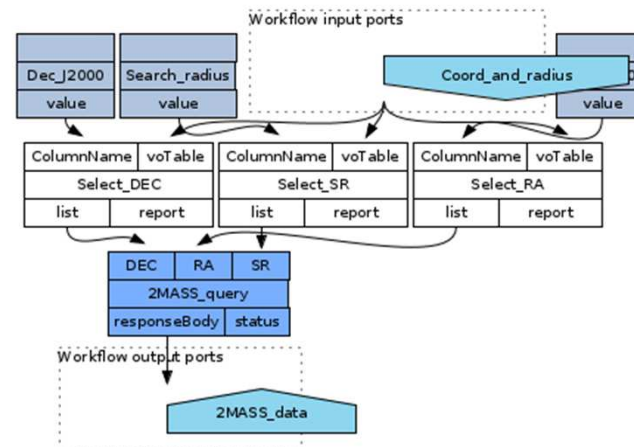
My 1ˢᵗ workflow with Taverna

- Aladin:

  2mass = get VizieR(II/246) $1 $2 $3

- Stilts:

  stilts coneskymatch serviceurl=http://vizier.u-strasbg.fr/viz-
  bin/votable/-A?-source=II/246 ifmt=csv in=coord.csv ra=RA
  dec=DEC sr=SR out=2mass.xml find=all

- Taverna

Step 2: Duplicating step 1

- Aladin:

  2mass = get VizieR(II/246) $1 $2 $3

  sdss9 = get VizieR(SDSS-DR9) $1 $2 $3

- Stilts:

  stilts coneskymatch serviceurl=http://vizier.u-strasbg.fr/viz-bin/votable/-A?-source=II/246 ifmt=csv in=coord.csv ra=RA dec=DEC sr=SR out=2mass.xml find=all
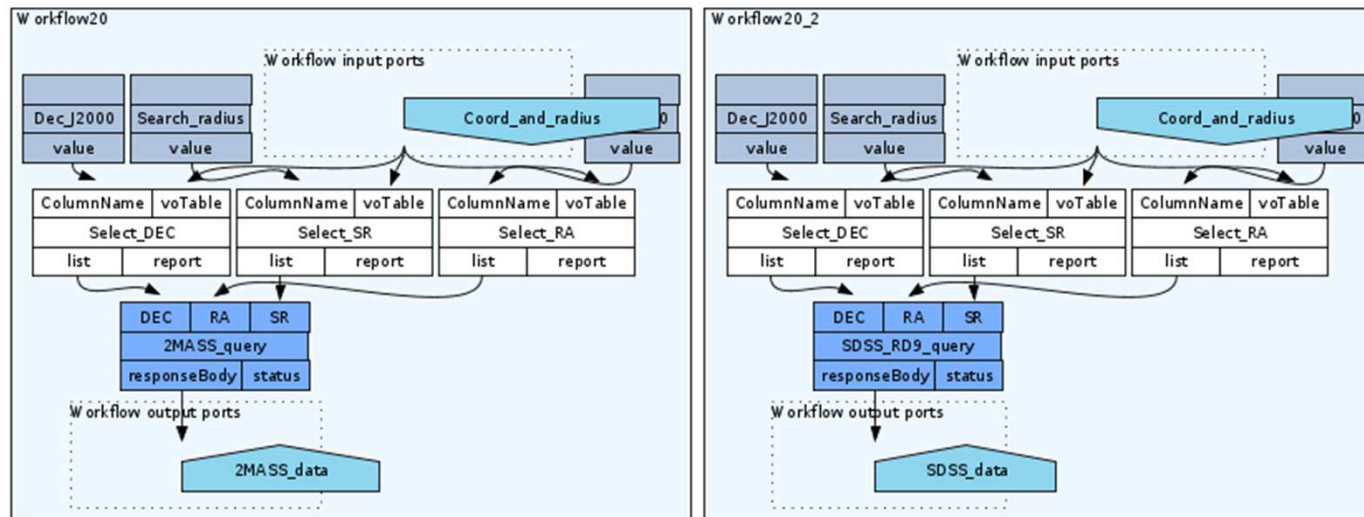
  stilts coneskymatch serviceurl=http://vizier.u-strasbg.fr/viz-bin/votable/-A?-source=V/139/sdss9 ifmt=csv in=coord.csv ra=RA dec=DEC sr=SR out=sdssdr9.xml find=all
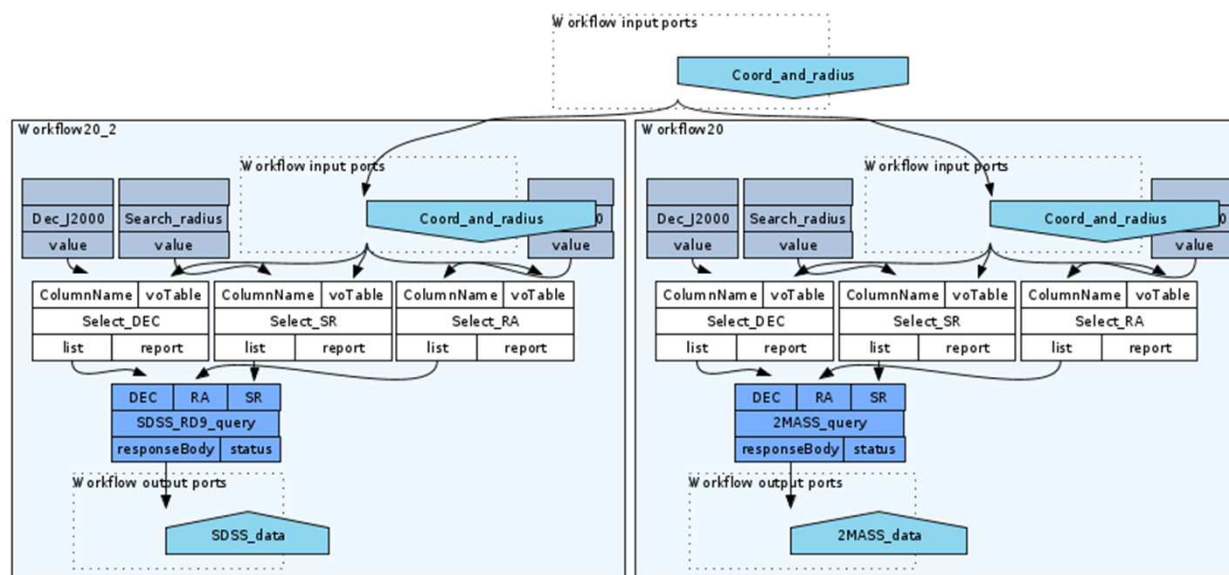
My 1st workflow with Taverna

Step 2: Duplicating step 1

- Taverna:
  - Save the workflow
  - Modify URL and save as a new workflow
  - Created a nested workflow (??)
  - Include both workflows

Step 2: Duplicating step 1

- Taverna:
  - Save the workflow
  - Modify URL and save as a new workflow
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  - Include both workflows

  - When runnig the workflow, it never ends and gives this error:

Processor 'SDSS_RD9_query' - Port 'responseBody'Set of ErrorDocuments to follow.ErrorDocument 1<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN"><html><head><title>502 Proxy Error</title></head><body><h1>Proxy Error</h1><p>The proxy server received an invalidresponse from an upstream server.
The proxy server could not handle the request GET /sdssdr9-dsa/DirectCone.<p>Reason: Error reading from remote server</p></p><hr><address>Apache/2.2.22 (Debian) Server at wfaudata.roe.ac.uk Port 80</address></body></html>

?

My 1ˢᵗ workflow with Taverna

- Taverna:
  - Save the workflow
  - Modify URL and save as a new workflow
  - Created a nested workflow (??)
  - Include both workflows
  - Add a new imput port (??)

My 1ˢᵗ workflow with Taverna

Step 3: Cross-matching

- Aladin:

    Crossmatch = xmatch 2mass sdss9 4 bestmatch

- Stilts:

    stilts tskymatch2 ifmt1=votable in1=2mass.xml ifmt2=votable
    in2=sdssdr9.xml ra1=RAJ2000 dec1=DEJ2000 ra2=RAJ2000
    dec2=DEJ2000 error=4 find=best join=1and2 ofmt=votable
    out=cruce.xml

My 1st workflow with Taverna

Step 3: Cross-matching

- Taverna:

params	tuning	values1	values2	VOTable1	VOTable2
Add_Cross_match_tables					
outputTable			report		

- Where is the help?

Step 3: Cross-matching

- Taverna:
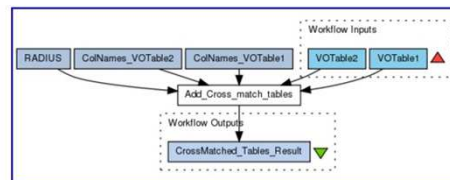   - myExperiment/Astrotaverna: Crosmatching VO tables

Step 3: Cross-matching

- Taverna:

My 1ˢᵗ workflow with Taverna

Step 4: Filtering

- Aladin:

  filter stars { ${cl_tab2}==6 {draw} }

- Stilts:

  stilts tpipe ifmt=votable in=cruce.xml cmd='select "cl == 6"'
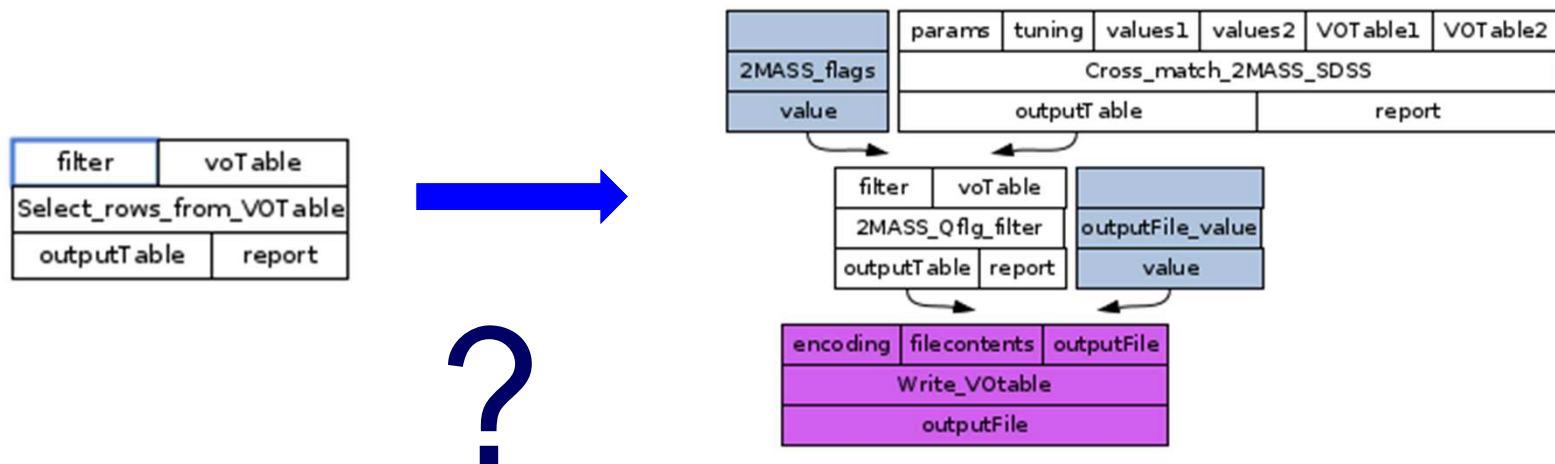 ofmt=votable out=2MASS-SDSS-cross-Stilts.xml
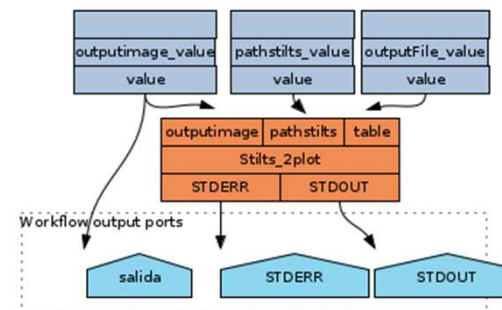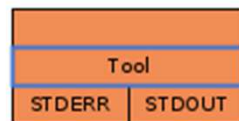
Step 4: Filtering

- Taverna:

Step 5: plotting

- Stilts:

    stilts plot2d in=2MASS-SDSS-cross-Stilts.xml xdata=Hmag-Kmag
    ydata=Jmag-Hmag out=CCD-stilts.eps

- Taverna
    - How? Run a stilts command
    - But How? Tool: A service that allows tools to be used as a service !?!?!

Step 6: putting together

- Aladin:

```
2mass = get VizieR(II/246) $1 $2 $3
sync
sdss9 = get VizieR(SDSS9) $1 $2 $3
sync

crossmatch = xmatch 2mass sdss9 4 bestmatch
sync

filter stars { ${cl_tab2}==6 {draw} }
sync

select crossmatch
sync
cplane candidates
sync

export -votable candidates /pcdisk/muller/fran/RESEARCH/Talk/201405_Interop-ESAC/2MASS-
SDSS9-cross-Aladin.xml
```

Step 6: putting together

- Stilts:

  stilts coneskymatch serviceurl=http://vizier.u-strasbg.fr/viz-bin/votable/-A?-source=II/246
  ifmt=csv in=coord.csv ra=RA dec=DEC sr=SR out=2mass.xml find=all

  stilts coneskymatch serviceurl=http://vizier.u-strasbg.fr/viz-bin/votable/-A?-source=V/139/sdss9
 ifmt=csv in=coord.csv ra=RA dec=DEC sr=SR out=sdssdr9.xml find=all

  stilts tskymatch2 ifmt1=votable in1=2mass.xml ifmt2=votable in2=sdssdr9.xml ra1=RAJ2000
  dec1=DEJ2000 ra2=RAJ2000 dec2=DEJ2000 error=4 find=best join=1and2 ofmt=votable
  out=cruce.xml

  stilts tpipe ifmt=votable in=cruce.xml cmd='select "cl == 6"' ofmt=votable out=2MASS-SDSS-
  cross-Stilts.xml

  stilts plot2d in=2MASS-SDSS-cross-Stilts.xml xdata=Hmag-Kmag ydata=Jmag-Hmag
  out=CCD-stilts.eps

Step 6: putting together
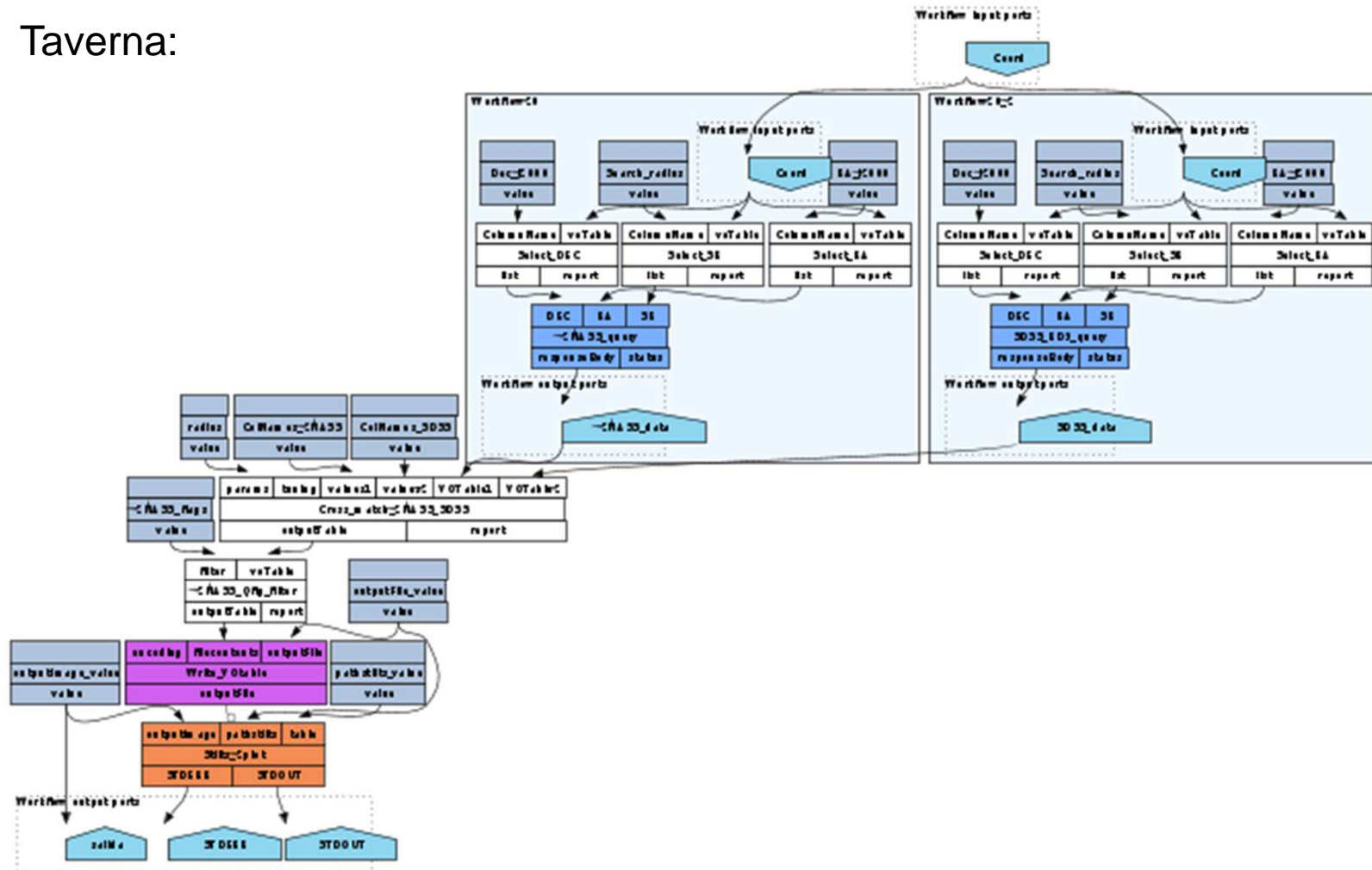
- Taverna:

Conclusions

Taverna may have great potential but it is far from being a tool for final VO-users

• Installation was not straightforward

• Starting was incredible difficult

• It is not intuitive

• Help is not always a help

• There are other easier VO-tools