

Source Catalog Tool

This presentation is an introduction to the EVLA SSS Group's Source Catalog Tool (SCT).

This presentation is geared toward those users who are helping us modify the tool to make it useful to the observing community.

By the time we have implemented the suggestions of those users, much of this presentation is expected to be out of date.

Purposes of SCT

Allow Observers To

- Create and maintain personal catalog(s) of target and calibrator sources.
- View and copy sources from standard calibrator catalogs.
- Share catalog(s) with other observers via text export / import.
- Select sources for use in proposals and observations.

Overview of SCT

This screenshot shows the opening page for a user who has one personal catalog (Dave's Fav) and read-only access to six standard calibrator catalogs.

The next few screens will look at the various sections of this web page.

The test version is available at <http://webtest.aoc.nrao.edu/sct/>.

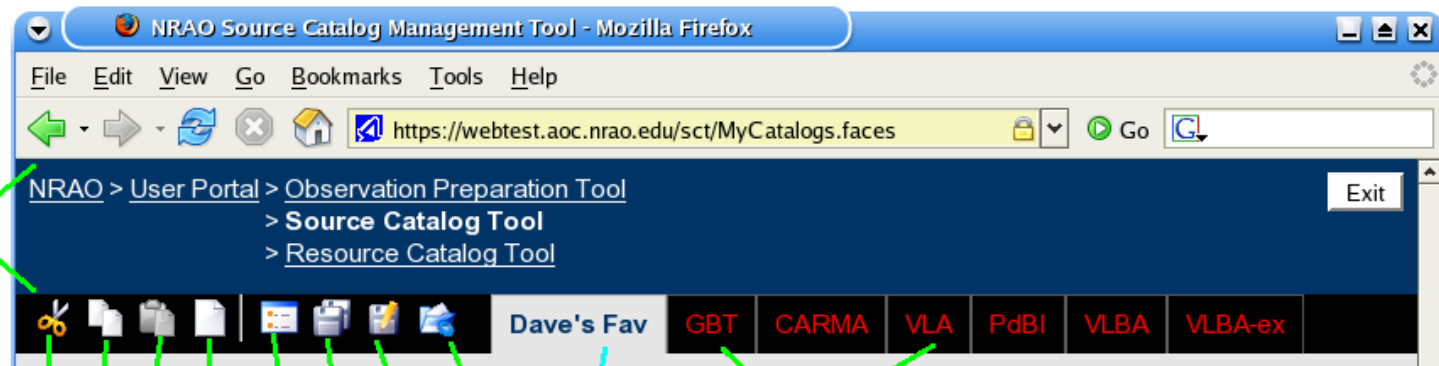
More information is available on the [SSS Documentation Pages](#).



Top of Page

Navigation

Access Obs Prep, etc., from here.



Cut Copy Paste New Details Save Export Import

Red text indicates that these are read-only standard calibrator catalogs.

Highlight indicates that "Dave's Fav" is the catalog currently in view.

A couple of points:

- The New button at this level creates a new catalog.
- The Details button allows you to change the name of the catalog in view.

Groups Pane (1 of 2)

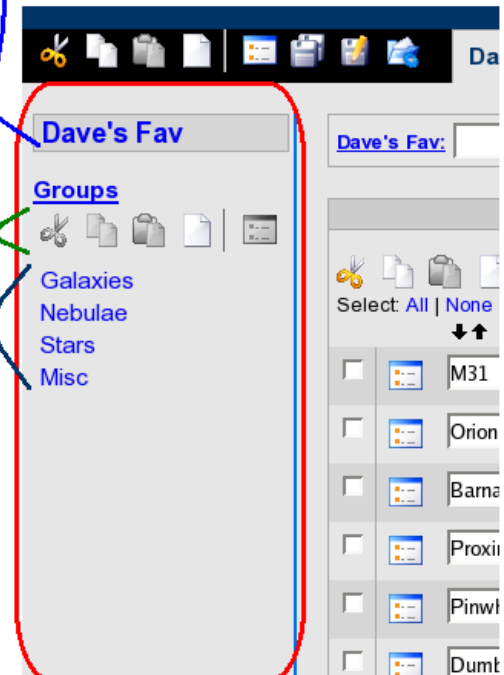
The vertical column on the left of the web page is used for creating and selecting source “groups”. A group is nothing more than a logical (to the owner of the catalog, at least) collection of sources. A given source in a catalog can belong to no groups, one group, or many groups. This particular catalog shows sources grouped by type-of-source.

In this example the whole catalog is selected, not a particular group. See the next slide for a counter example.

The fact that the catalog name is highlighted means that the sources in the Source Pane are from the **WHOLE** catalog, not from a single group.

These buttons operate on groups. In order: cut, copy, paste, new, details.

Each of these is a “group” in the catalog “Dave's Fav”.

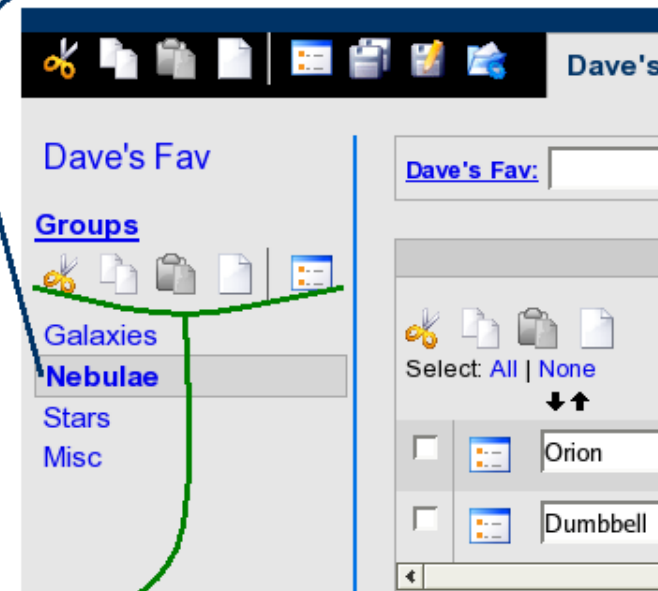


The Groups Pane

Groups Pane (2 of 2)

In this example one of the groups ("Nebulae") has been selected, as evidenced by the fact that it is highlighted. This means that the sources displayed in the Source Pane (next slide) will be only those sources that belong to the Nebulae group.

This time the group "Nebulae" is highlighted, meaning that only sources in that group are displayed



Because a group has been selected, the buttons that operate on a group are now active (compare previous slide).

Sources Pane (1 of 4)


Dave's Fav GBT CARMA VLA PdBI VLBA VLBA-ex


Dave's Fav: Search (Advanced Search)
 Ned/Simbad: Search

Sources in 'Dave's Fav'


 Select: [All](#) | [None](#)


		RA:	Dec:
<input type="checkbox"/>	M31	00h 00m 00.000000s	+00d 00' 00.000000"
<input type="checkbox"/>	Orion	00h 00m 00.000000s	+00d 00' 00.000000"
<input type="checkbox"/>	Barnard's	00h 00m 00.000000s	+00d 00' 00.000000"
<input type="checkbox"/>	Proxima Centauri	00h 00m 00.000000s	+00d 00' 00.000000"
<input type="checkbox"/>	Pinwheel	00h 00m 00.000000s	+00d 00' 00.000000"
<input type="checkbox"/>	Dumbbell	00h 00m 00.000000s	+00d 00' 00.000000"
<input type="checkbox"/>	Eta Carina	00h 00m 00.000000s	+00d 00' 00.000000"
<input type="checkbox"/>	Pistol	00h 00m 00.000000s	+00d 00' 00.000000"
<input type="checkbox"/>	J0642+8811	06h 42m 06.134200s	+88d 11' 55.010000"
<input type="checkbox"/>	J0117+8928	01h 17m 16.500766s	+89d 28' 47.963410"
<input type="checkbox"/>	0110+8738	01h 10m 45.410000s	+87d 38' 22.300000"

Page 1


Dave's Fav GBT CARMA VLA PdBI VLBA VLBA-ex

VLA: Search (Advanced Search)
 Ned/Simbad: Search

Sources in 'VLA'

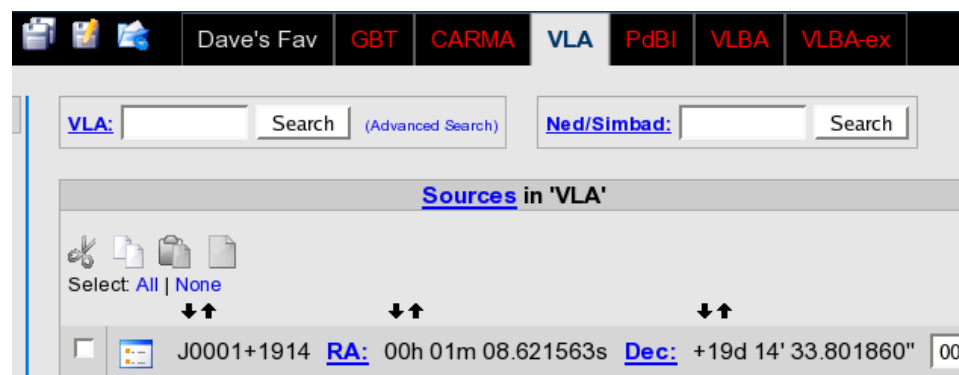
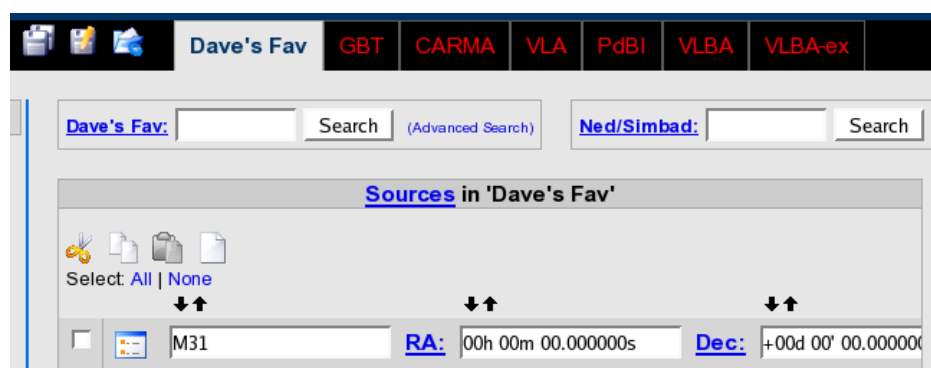

 Select: [All](#) | [None](#)

<input type="checkbox"/>	J0001+1914	RA: 00h 01m 08.621563s	Dec: +19d 14' 33.801860"	000
<input type="checkbox"/>	J0003-1727	RA: 00h 03m 21.996900s	Dec: -17d 27' 11.781000"	000
<input type="checkbox"/>	J0004+4615	RA: 00h 04m 16.127651s	Dec: +46d 15' 17.970010"	000
<input type="checkbox"/>	J0004+2019	RA: 00h 04m 35.757600s	Dec: +20d 19' 42.249000"	000
<input type="checkbox"/>	J0005+5428	RA: 00h 05m 04.363531s	Dec: +54d 28' 24.926230"	000
<input type="checkbox"/>	J0005+3820	RA: 00h 05m 57.175409s	Dec: +38d 20' 15.148570"	000
<input type="checkbox"/>	J0006-0623	RA: 00h 06m 13.892894s	Dec: -06d 23' 35.335300"	000
<input type="checkbox"/>	J0006-0004	RA: 00h 06m 22.633800s	Dec: -00d 04' 24.086000"	3C
<input type="checkbox"/>	J0006+2422	RA: 00h 06m 48.789395s	Dec: +24d 22' 36.392490"	000
<input type="checkbox"/>	J0008+1144	RA: 00h 08m 00.839400s	Dec: +11d 44' 00.784000"	000
<input type="checkbox"/>	J0008+6837	RA: 00h 08m 33.471549s	Dec: +68d 37' 22.045040"	000
<input type="checkbox"/>	J0009+0628	RA: 00h 09m 03.932700s	Dec: +06d 28' 21.238000"	000
<input type="checkbox"/>	J0009+4001	RA: 00h 09m 04.173595s	Dec: +40d 01' 46.704740"	000
<input type="checkbox"/>	J0010+2047	RA: 00h 10m 28.742500s	Dec: +20d 47' 49.713000"	001
<input type="checkbox"/>	J0010+1058	RA: 00h 10m 31.005888s	Dec: +10d 58' 29.504120"	001

Page 1

Sources Pane (2 of 4)

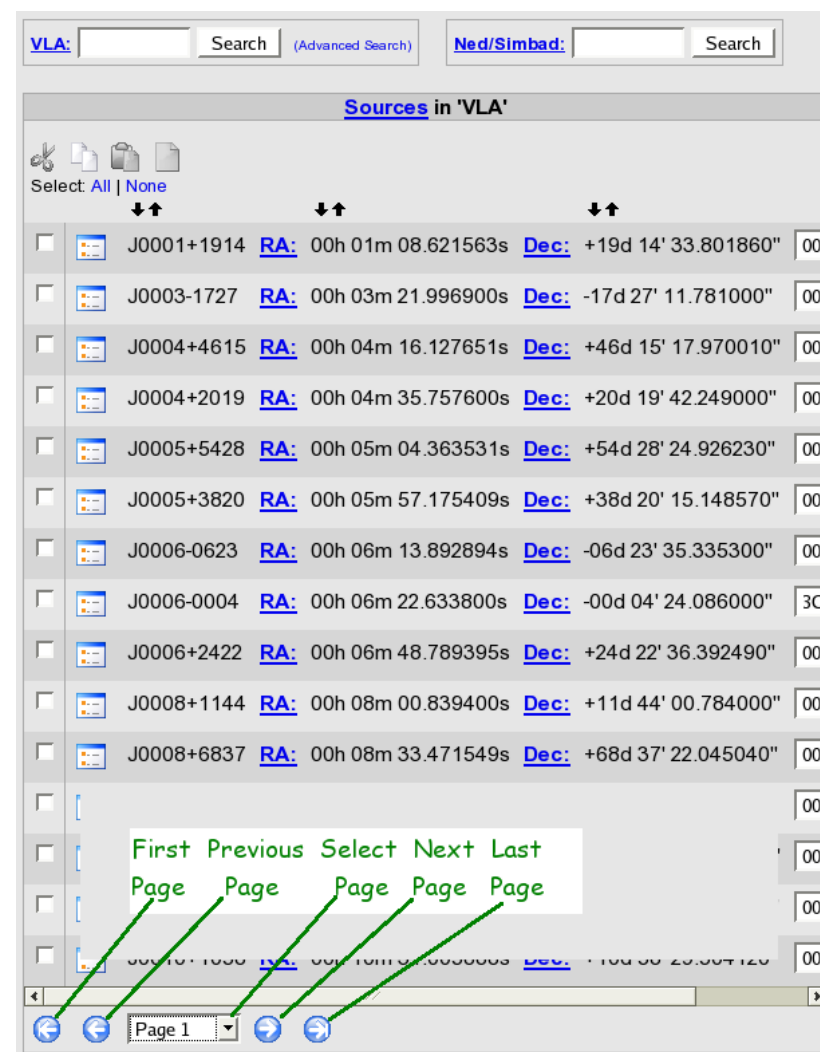
From the previous slide, and from the screenshots below, notice that for one's own catalogs (left panel, below), the name and position of a source can be edited in this pane. For read-only catalogs (right panel, below) the name and position of a source may not be altered.



Sources Pane (3 of 4)

There are controls at the bottom of the source pane for navigating through the list of sources.

The sources displayed depend on what was selected on the left side of the page – namely, the whole catalog or a particular group. The concepts of “first page”, “previous page”, etc., likewise pertain to this collection of sources.

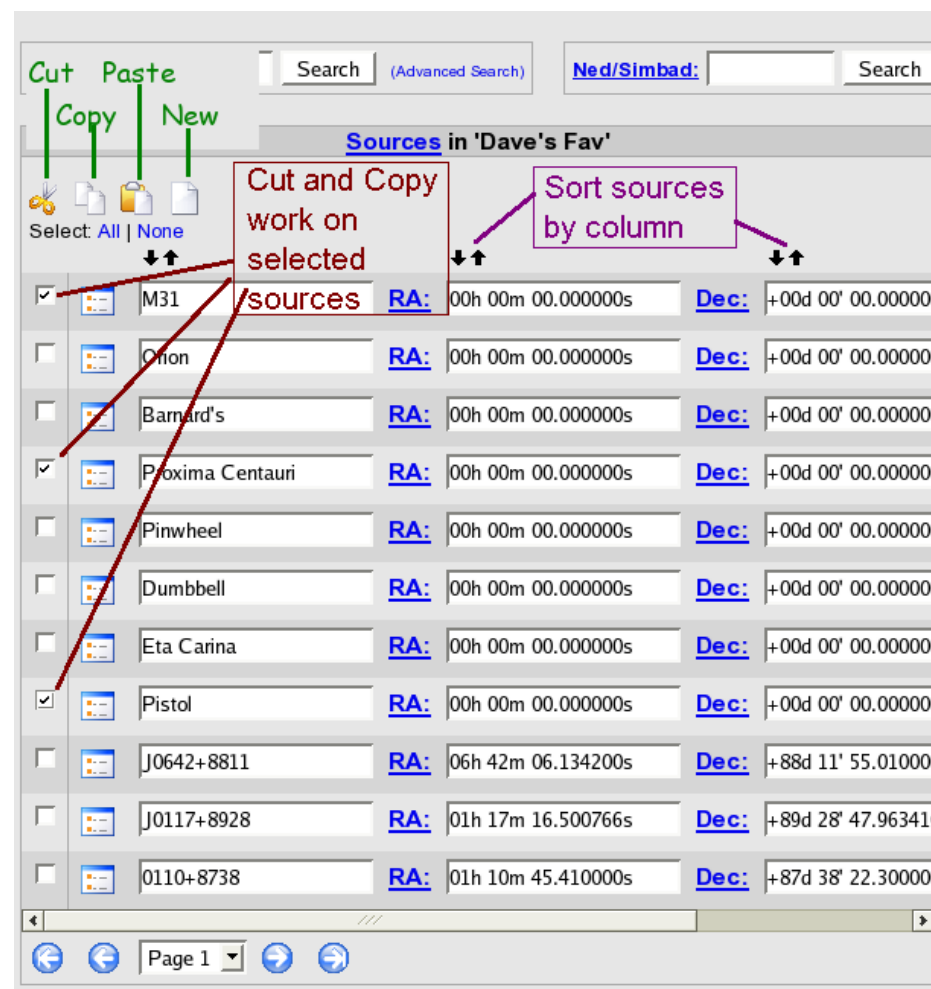


Sources Pane (4 of 4)

As was the case with catalogs and groups, there are buttons to create, cut, copy, and paste sources.

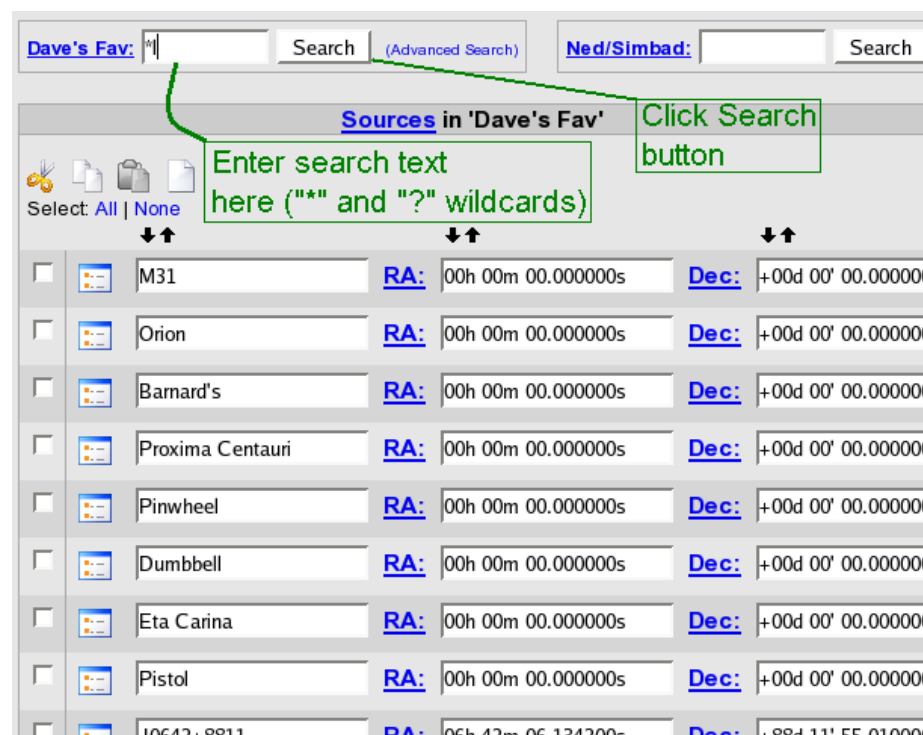
Each source has a selection checkbox; these are used for cut and copy operations. There are also controls to select all (currently displayed) sources and to deselect all sources (in the selected group or catalog).

Sources may be sorted by name, longitude, and latitude.



Source Searches (1 of 5)

This is the source pane for a catalog before the search button is pressed. The user is looking for all sources whose names end with the letter “l” (as in “ball”).

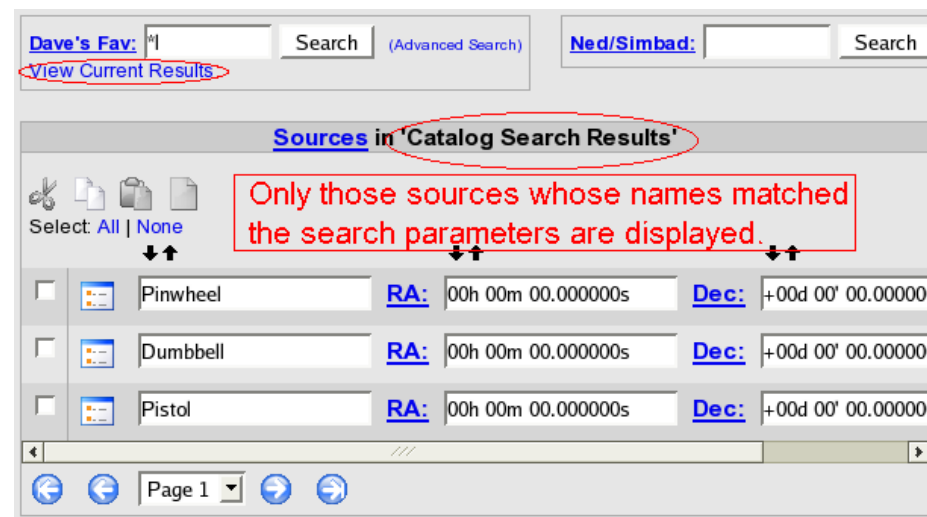


Source Searches (2 of 5)

This is the result of performing the search shown on the previous slide.

In the center of the screen, the display lets us know we're looking at the results of a search.

In the top left corner we have a way to quickly return to these results, should we happen to go back to a catalog or one of their groups.



Source Searches (3 of 5)

When the “Advanced Search” control is clicked, this window pops up, and the user enters search parameters.

This example shows a cone search centered on RA=15h 30m, Dec = +45d, and a radius of 5.0d.

The screenshot shows a dialog box titled "VLBA:". It contains several search options and input fields. At the top, there are two checkboxes: "Search by Right Ascension" and "Search by Declination", both of which are unchecked. Below these are three rows of input fields for Right Ascension and Declination, each preceded by a comparison operator: ">=", "<=", and "=". The "Cone Search" section is active, indicated by a checked checkbox. It contains three input fields: "Center RA" with the value "15:30:00.0", "Center Dec" with the value "45", and "Radius (deg.)" with the value "5". Below the "Cone Search" section, there is a checkbox for "Search by Name" which is unchecked, followed by a text input field with an asterisk. Below that is a checked checkbox for "Search Aliases as well?". At the bottom of the dialog are two buttons: "Search" and "Cancel".

Source Searches (4 of 5)

The results of the search from the prior slide are displayed here.

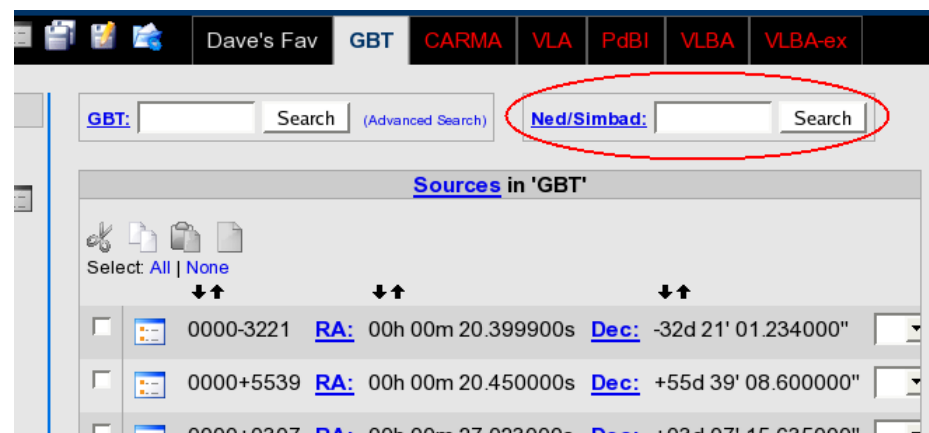
The screenshot displays the Source Catalog Tool interface. At the top, there is a navigation bar with tabs for 'Dave's Fav', 'GBT', 'CARMA', 'VLA', 'PdBI', 'VLBA', and 'VLBA-ex'. Below this, there are search input fields for 'VLBA:' and 'Ned/Simbad:', each with a 'Search' button and a link to '(Advanced Search)'. A link for 'View Current Results' is also present. The main content area is titled 'Sources in 'Catalog Search Results''. It features a table of search results with columns for source name, RA, Dec, and a numerical value. The table includes five entries, each with a checkbox, a small icon, and a link to a detailed view. The bottom of the interface shows a pagination bar with 'Page 1' and navigation buttons.

		RA:	Dec:	
<input type="checkbox"/>	J1506+4239	15h 06m 53.041854s	+42d 39' 23.035220"	150
<input type="checkbox"/>	J1521+4336	15h 21m 49.613870s	+43d 36' 39.267950"	152
<input type="checkbox"/>	J1535+4836	15h 35m 14.653344s	+48d 36' 59.695010"	153
<input type="checkbox"/>	J1545+4751	15h 45m 08.529822s	+47d 51' 54.664020"	154
<input type="checkbox"/>	J1557+4522	15h 57m 18.999696s	+45d 22' 21.536950"	155

Source Searches (5 of 5)

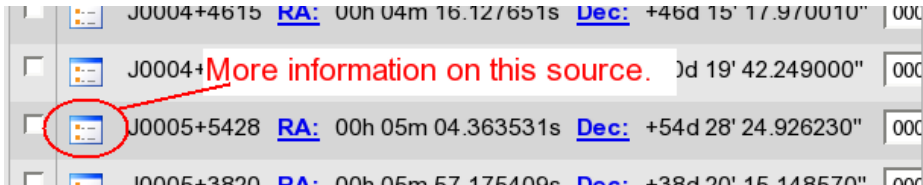
Besides searching the standard NRAO catalogs and a user's own catalogs, observers may search the NED and SIMBAD databases.





As of July 23, 2007, the XML we're receiving as a result of the search is not conforming to the schema we're using. This means that many searches are not successful right now.



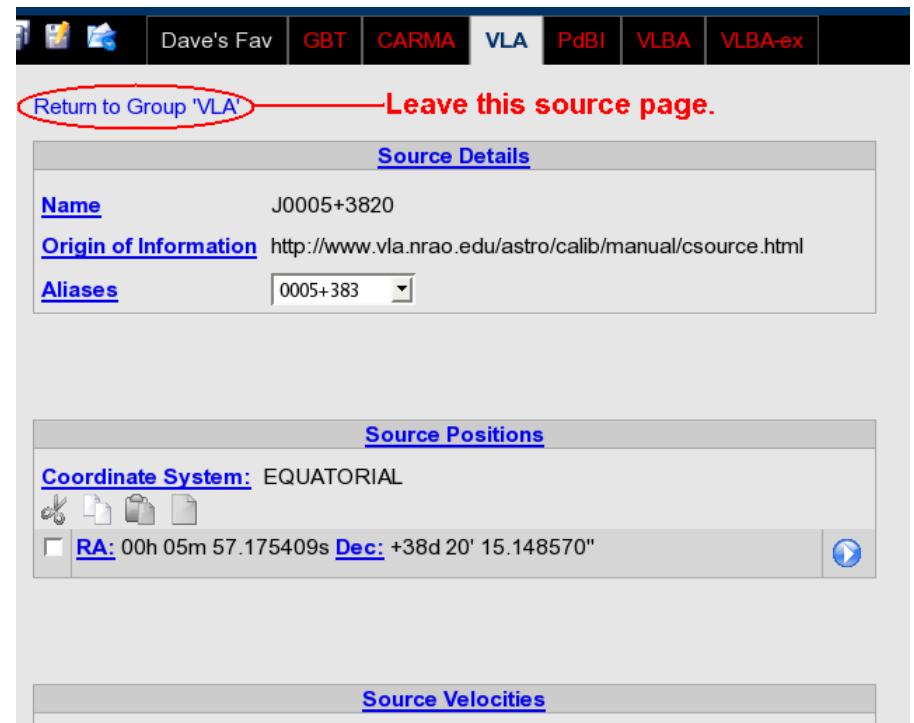
Source Page (1 of 2)

To see more details about a specific source, click the Details control.



<input type="checkbox"/>		J0004+4615	RA: 00h 04m 16.127651s	Dec: +46d 15' 17.970010"	000
<input type="checkbox"/>		J0004+1919	RA: 00h 04m 19.191919s	Dec: +19d 19' 42.249000"	000
<input type="checkbox"/>		J0005+5428	RA: 00h 05m 04.363531s	Dec: +54d 28' 24.926230"	000
<input type="checkbox"/>		J0005+3820	RA: 00h 05m 57.175409s	Dec: +38d 20' 15.148570"	000

Return to catalog or group.



Dave's Fav GBT CARMA VLA PdBI VLBA VLBA-ex

[Return to Group 'VLA'](#) [Leave this source page.](#)

Source Details





[Name](#) J0005+3820


[Origin of Information](#) <http://www.vla.nrao.edu/astro/calib/manual/csource.html>

[Aliases](#) 0005+383

Source Positions

[Coordinate System](#) EQUATORIAL

☐ [RA:](#) 00h 05m 57.175409s [Dec:](#) +38d 20' 15.148570" 

Source Velocities

Source Page (2 of 2)

The source page contains several sections, each of which will be shown in subsequent slides. On those slides will be two examples: one from a user's catalog and one from an observatory (read-only) catalog.

In general, data fields may be altered in catalogs owned by the user, but not in catalogs maintained by the observatory.

Source Details

Notes on Data Fields

- Catalogs should not use the same name for multiple sources.

<u>Source Details</u>	
<u>Name</u>	J0642+8811
<u>Origin of Information</u>	VLA Catalog
<u>Aliases</u>	0642+881 <input type="button" value="v"/>

<u>Source Details</u>	
<u>Name</u>	J0642+8811
<u>Origin of Information</u>	http://www.vla.nrao.edu/astro/calib/manual/csource.html
<u>Aliases</u>	0642+881 <input type="button" value="v"/>

Source Positions





Supported Position Types

- Single longitude / latitude (in equatorial, galactic, ecliptic, and horizontal coordinate systems) pair.
- Table of positions, where each entry has lon/lat and motion terms.
- Ephemeris table.
- Name of a solar system body.

Discuss entry of quantities (RA, Dec, etc.)


Source Positions

Coordinate System: Equatorial





<input type="checkbox"/> Right Ascension	06h 42m 06.134200s
Declination	+88d 11' 55.010000"
Distance	0.0km
Equinox	J2000

Expands and collapses details.




Source Positions

Coordinate System: EQUATORIAL

<input type="checkbox"/> Right Ascension	06h 42m 06.134200s
Declination	+88d 11' 55.010000"
Distance	0.0km
Equinox	J2000



Source Velocities

It may be that none of our standard catalogs have velocity information.

Velocity here is the component of the velocity directly away from, or toward, the observer.

Source Velocities

☐ **Value** 0.0 km/s

Valid from 0.0 to Infinity in GHz

Rest Frame Topocentric

Convention Radio

Expands and collapses details.

No Example

Available

Image Links

Users may add links to images for their sources.

Clicking “View” will trigger the browser to either display the image or handle the file type some other way (save to disk, open with xyz application).

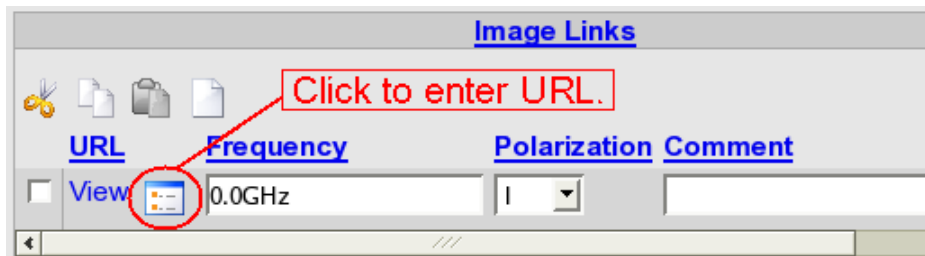


Image Links				
	URL	Frequency	Polarization	Comment
<input type="checkbox"/>	View	0.0GHz	I	Flux vs. Frequency
<input type="checkbox"/>	View	2.2GHz	I	Naturally weighted CLEAN image
<input type="checkbox"/>	View	2.2GHz	I	Correlated flux density vs. projected baseline length

Source Brightness

This area is unsettled. *(I could have said it's in “flux”).*

We may create an interaction with the VLA's Flux Density History Database. There is also a “Cal DM” being examined right now, and it might lead to a new location for storing flux densities.

The screenshot shows a web form titled "Source Brightness". It has three tabs: "Polarization", "Flux Density", and "Valid Time Range". The "Flux Density" tab is selected. The form contains a checkbox, a dropdown menu with "I" selected, a text input field with "0.22Jy", and a time range selector with "from 2002 - 11 - 01 20 : 05 to 9999 - 12 - 31 23 : 59". At the bottom, there are navigation buttons and a "Page 1" indicator.

This screenshot is identical to the one on the left, but with a red arrow pointing to the "Valid Time Range" tab. The text "Valid Frequency Range" is written in red above the arrow. The form fields and navigation elements are the same as in the previous screenshot.

Catalog Import / Export (1 of 2)

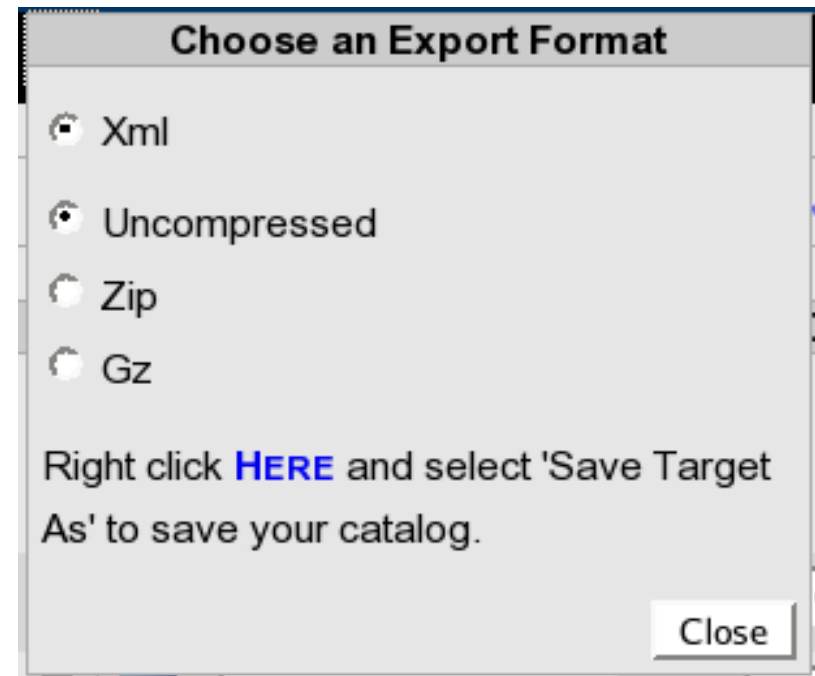
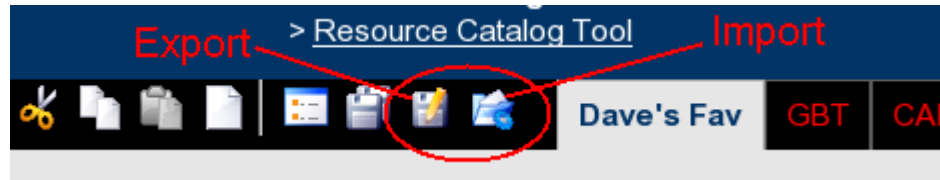
The SCT supports the ability to import and export catalogs. We either currently, or plan to, support the import of text files in the following formats:

- XML (compressed or uncompressed)
- GBT (see [Users Guide for Astrid Source Catalogs](#))
- VLA (format of calibrator catalog; not expected to be used)
- VLBA (similar to [vlbaCalib.txt](#), but modified recently by Ed Fomalant)

The only format currently supported for exports is XML.

To share a catalog with another observer, export your catalog to XML, send it to the observer, and ask the observer to import it.

Catalog Import / Export (2 of 2)



Charge to Group

- Everything is open for discussion.
 - Changes to Source Model?
 - Page Organization.
 - Navigation.
 - Color Scheme.
 - More Features? (*Call things like import/export a “feature”*)
 - Interaction with other data sources?
- It is better to offer blunt, constructive, criticism now than to be polite and let us produce a tool that no one likes or uses.
- Communicate lots of ideas early in process.
 - Group can weed and refine.
 - Programmers will contribute ease-of-implementation analysis for each suggestion.
 - Group looks at cost / benefit.

What's Next?

- Review Purpose of SCT (slide 2).
- Become familiar with current SCT by playing with it.
- Decide how ideas and progress are tracked.
 - See next slide.
- Start making suggestions right away.
- Need meetings? Periodic? Ad hoc?
 - Email and written issue-tracking (next slide) enough?

Tracking Changes

- SSS would like to use [JIRA](#).
 - A web-based issue-tracking tool.
 - David can get everyone an account and act as tutor as needed.
- Quick turn-around desired.
 - Tackle small chunks and get user feedback quickly, as opposed to working for weeks only to learn we missed the mark.
 - Requires group to be committed to give frequent attention to SCT.
- Life cycle of an issue:
 - Member of user group creates an issue
 - Members and programmers add comments (optional step)
 - Programmer starts progress
 - Programmer logs work
 - Programmer “resolves” (says they're done)
 - Member of group tests work (can also log this work)
 - Member of user group closes (approves the work done by programmer)

Last Words

- Where may I find this presentation?
 - PDF here: <http://www.aoc.nrao.edu/asg-internal/software/sss/sct/sctIntro.pdf>
 - User Manual section of <http://www.aoc.nrao.edu/asg-internal/software/sss/sct/sssSct.shtml>
- Thanks a bunch for volunteering (or, if you were drafted, for being a good sport)!