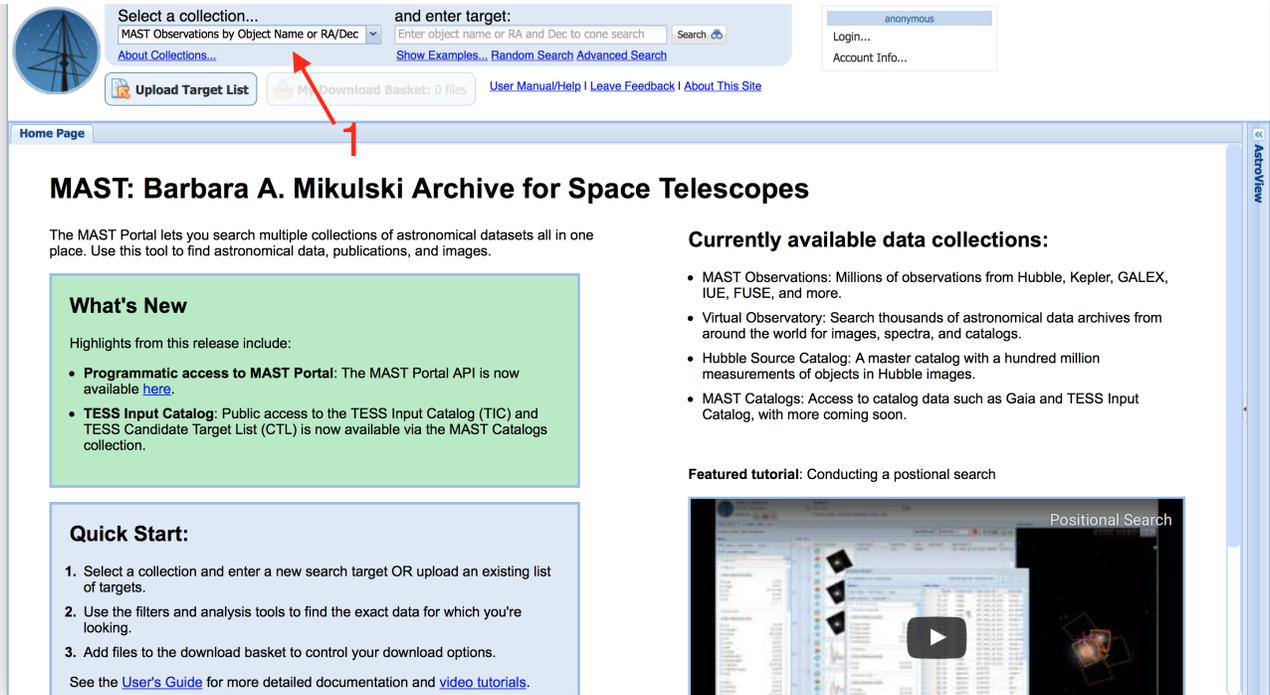


## 6.0.2 - Search the exoCTL centered on K2 Campaign 2.

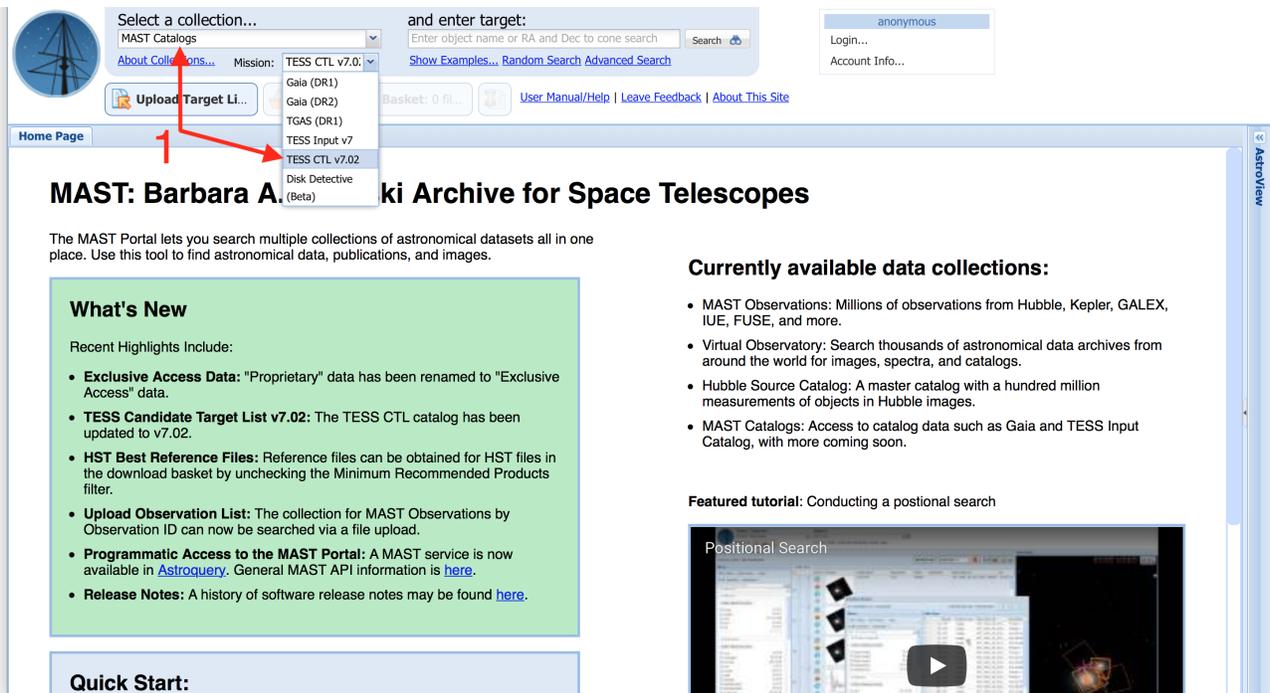
This tutorial will show you how to do a search on a single coordinate, within the TESS Exoplanet Candidate Target List (exoCTL) in the [MAST Portal](#). Specifically, we will do a search centered on the K2 Campaign 2 field.

**Step 1 - Select Collection:** Upon visiting the MAST Portal, the first step is to change the collection of data we are searching in from the Context menu (**Item #1**) at the top left.



The screenshot shows the MAST Portal homepage. At the top left, there is a search bar with a dropdown menu for "Select a collection...". The current selection is "MAST Observations by Object Name or RA/Dec". A red arrow points to this dropdown menu, labeled "1". Below the search bar, there are buttons for "Upload Target List" and "Download Basket: 0 files". The main content area features a "What's New" section with highlights from the release, a "Quick Start" section with three steps, and a "Currently available data collections:" section listing various datasets. A "Featured tutorial" section is also present, with a video player titled "Positional Search".

**Step 2 - Select TESS xCTL:** From the Context drop-down menu, select **MAST Catalogs**, then, in the Mission drop-down menu that appears (**Item #1**), select **TESS CTL v7.02** for the exoCTL list. Note that the version number will change as newer editions replace older ones in the Portal.



The screenshot shows the MAST Portal homepage with the "Select a collection..." dropdown menu open. The menu is expanded to show "MAST Catalogs" selected, and a sub-menu is visible with "TESS CTL v7.02" selected. A red arrow points to this sub-menu, labeled "1". The rest of the page content, including the "What's New" section, "Quick Start" section, and "Currently available data collections:" section, is visible in the background.

**Step 3 - Enter Coordinates For Query:** We are now ready to do a target search by entering text into the Search Box (Item #1). The Search Box can accept coordinates in either decimal degrees or in sexagesimal format. You can specify a search radius by adding  $r =$  and then your desired radius. For example,  $r = 0.3d$  is a 0.3 degree search radius,  $r = 5m$  is a 5 arcminute search radius, and  $r = 3s$  is a 3 arcsecond search radius. For our example, we'll search on the K2 Campaign 2 field center located at **16:24:30 -22:26:50** with a search radius of **1.7d**, which is roughly the size of a Kepler module. Note that this search may take a while, since searches with radii larger than a degree typically return a lot of rows.

The screenshot shows the MAST search interface. At the top, there is a search box with the text "16:24:30 -22:26:50 r=1.7d" and a search button. A red arrow labeled "1" points to the search box. Below the search box are several buttons: "Upload Target List", "My Download Basket: 0 files", "User Manual/Help", "Leave Feedback", and "About This Site". The main heading is "MAST: Barbara A. Mikulski Archive for Space Telescopes". Below this, there is a section titled "What's New" with a list of recent highlights. To the right, there is a section titled "Currently available data collections:" with a list of data sources. Below that, there is a "Featured tutorial: Conducting a positional search" with a video player showing a "Positional Search" interface.

**Step 4 - Understanding The Search Results:** We now see the results of our search. First, note that the search radius we specified is reported back to us in the query translation button (Item #1). The search results area has three main panels, on the left is the Filters panel (Item #2), where you can select subsets of your returned rows by filtering column values. In the middle is the Search Results Grid (Item #3), which contains the table of results itself (hint: columns can be sorted by clicking on the headers). On the right is the AstroViewer (Item #4), which is a 3D sky map that will overplot the footprints of observations or catalog objects from your search results, and offers a wide range of background images from surveys that span the electromagnetic spectrum from X-rays to the radio. We can see all the TIC sources in our 1.7 degree search radius quite clearly.

The screenshot shows the MAST search results interface. At the top, there is a search box with the text "16:24:30 -22:26:50 r=1.7d" and a search button. A red arrow labeled "1" points to the search box. Below the search box are several buttons: "Upload Target List", "My Download Basket: 0 files", "User Manual/Help", "Leave Feedback", and "About This Site". The main heading is "MAST: Barbara A. Mikulski Archive for Space Telescopes". Below this, there is a section titled "What's New" with a list of recent highlights. To the right, there is a section titled "Currently available data collections:" with a list of data sources. Below that, there is a "Featured tutorial: Conducting a positional search" with a video player showing a "Positional Search" interface. The search results area is divided into three main panels. On the left is the Filters panel (Item #2) with sections for "Keyword/Text Filter", "Source of Position", "PM Flag", "Source of Parallax", and "TWOMflag". In the middle is the Search Results Grid (Item #3) with columns for "Actions", "TIC ID", "RA", "Dec", and "pmRA". On the right is the AstroViewer (Item #4) showing a 3D sky map with a red circle indicating the search radius. A red arrow labeled "2" points to the "PM Flag" section, a red arrow labeled "3" points to the "Dec" column header, and a red arrow labeled "4" points to the AstroViewer.

Actions	TIC ID	RA	Dec	pmRA
1	203446239	16:24:28.572	-22:20:49.87	99.3
2	203446224	16:24:05.416	-22:24:04.15	-9.65
3	203441588	16:24:31.980	-22:33:44.92	-5.62
4	203446203	16:23:52.272	-22:22:07.98	-0.1
5	203629142	16:25:10.944	-22:23:09.96	-36.8
6	203441597	16:24:50.532	-22:36:12.20	-2.90
7	203625981	16:25:02.252	-22:19:25.06	6.595
8	203238933	16:23:44.192	-22:30:02.90	1.093
9	203446178	16:24:25.094	-22:39:17.51	30.13
10	203441530	16:23:56.687	-22:36:55.76	-15.8
11	203243469	16:23:33.854	-22:22:59.82	14.21
12	203621391	16:25:14.123	-22:17:51.52	-27.2
13	203446196	16:24:51.362	-22:39:32.56	-10.9

**Step 5 - Save Your Results:** You can save the search results at any time using the Export Button (Item #1). From the dialog menu that appears, you'll be able to select the format of your output file and whether you want to export all the available columns in the catalog, or only those that are currently displayed in the Search Results Grid.



Select a collection...

MAST Catalogs  
About Collections... Mission: TESS CTL v7.0

and enter target:

16:24:30 -22:26:50 r=1.7d Search

anonymous  
Login...  
Account Info...

Upload Target List

My Download Basket: 0 files

User Manual/Help | Leave Feedback | About This Site

Home Page CTLv7.02: 16:24:30 -22:26:50 r...

433 Total Rows Equatorial Coord 16:24:30 -22:26:50 J2000, radius: 1.70000°

Filters Clear Filters Edit Filters... Help...

Keyword/Text Filter

Filter All Columns

Source of Position

Name Quantity  
 tmgaia (401 of 401)  
 2mass (31 of 31)  
 tmmgaia (1 of 1)

PM Flag

Name Quantity  
 sbblink (164 of 164)  
 hsoy (160 of 160)  
 tgas (83 of 83)  
 tycho2 (26 of 26)

Source of Parallax

Name Quantity  
 tgas (82 of 82)  
 hip (6 of 6)

TWOMflag

Edit Columns... Table Display: All

	Actions	TIC ID	RA	Dec	pmRA
<input type="checkbox"/>		203446239	16:24:28.572	-22:20:49.87	99.3
<input type="checkbox"/>		203446224	16:24:05.416	-22:24:04.15	-9.65
<input type="checkbox"/>		203441588	16:24:31.980	-22:33:44.92	-5.62
<input type="checkbox"/>		203446203	16:23:52.272	-22:22:07.98	-0.1
<input type="checkbox"/>		203629142	16:25:10.944	-22:23:09.96	-36.8
<input type="checkbox"/>		203441597	16:24:50.532	-22:36:12.20	-2.90
<input type="checkbox"/>		203625981	16:25:02.252	-22:19:25.06	6.595
<input type="checkbox"/>		203238933	16:23:44.192	-22:30:02.90	1.093
<input type="checkbox"/>		203446178	16:24:25.094	-22:39:17.51	30.13
<input type="checkbox"/>		203441530	16:23:56.687	-22:36:55.76	-15.8
<input type="checkbox"/>		203243469	16:23:33.854	-22:22:59.82	14.21
<input type="checkbox"/>		203621391	16:25:14.123	-22:17:51.52	-27.2
<input type="checkbox"/>		203446196	16:24:51.362	-22:39:32.56	-10.9

AstroView

