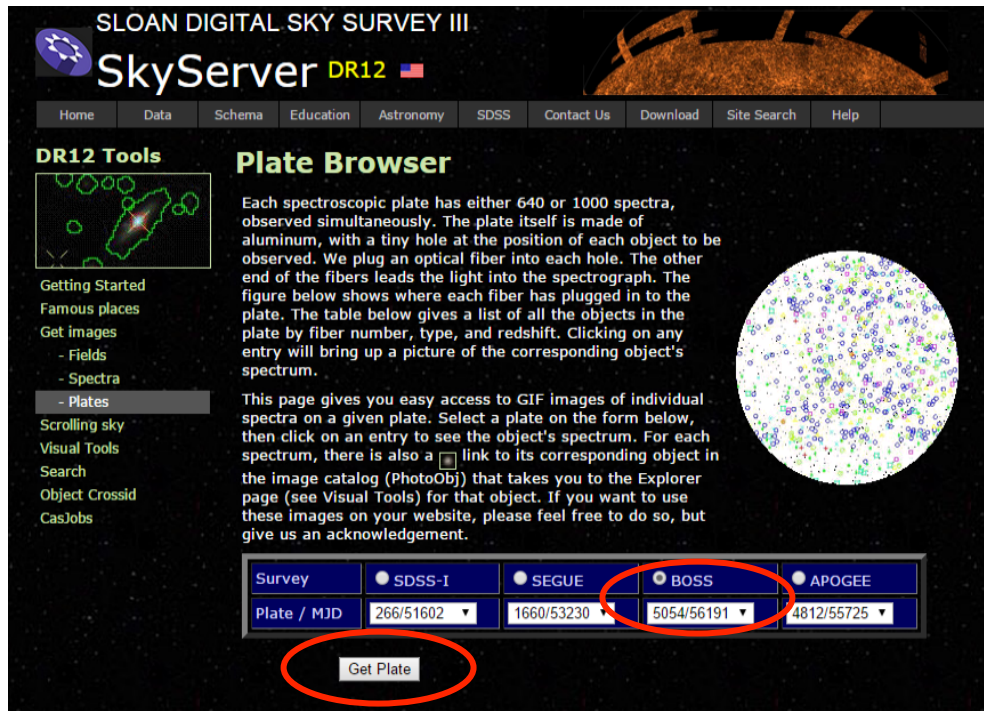




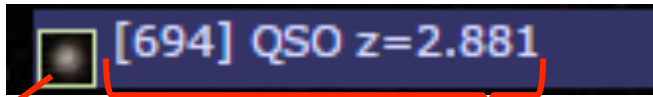
# Understanding Your Plate Using SkyServer Tools

Start at the SDSS Plate Browser website at <http://skyserver.sdss.org/dr12/en/tools/getimg/plate.aspx>. Locate your plate number under one of the four survey lists and select “Get Plate.” In this guide, we will use plate 5054 from the BOSS survey as an example.



After you click “Get Plate,” you see a long list of objects that were examined on that plate. The objects are all either stars, galaxies, or quasars (QSO). If you click on an object name, you will see the spectrum for that object. If you click on the square icon next to the object, you will be brought to the Object Explorer page, which displays key information about the object, as well as its spectrum. For the next step, we need to be on the Object Explorer page.





**DR12** SDSS J223941.16+095030.1

Look up common name

Type	SDSS Object ID
STAR	1237679010390671583

RA, Dec	Galactic Coordinates (l, b)
339.92154, 9.84172	l = 223.94116, b = -99.503017

**Imaging**

Flags: STATIONARY BINNED1

Magnitudes				
u	g	r	i	z
21.28	20.12	19.97	20.07	19.72

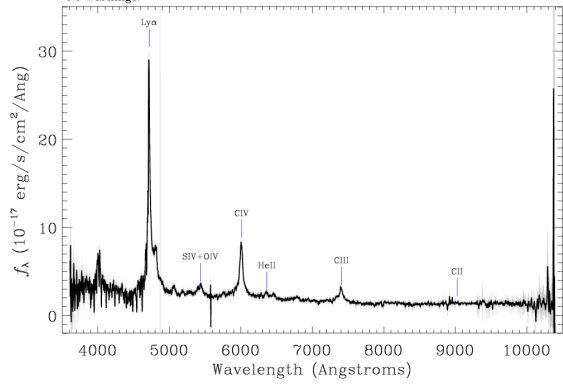
Magnitude uncertainties				
err_u	err_g	err_r	err_i	err_z
0.10	0.02	0.02	0.04	0.09

**Cross-identifications** [Show](#)

**Optical Spectra** SpecObjID = 5690488996318501888 [Interactive spectrum](#)

Parameter	Value
class	QSO
Redshift (z)	2.881
Redshift error	0.00013
Redshift flags	OK
survey	boss
programname	boss
primary	1
Other spec	0
source type	QSO
Velocity dispersion (km/s)	0.00
veldisp_error	0.000
targeting_flags	*****0, 0
plate	5054
mjd	56191
band	994

Survey: boss Program: boss Target: QSO\_NN QSO\_KDE QSO\_CORE\_MAIN QSO\_BONUS\_MAIN  
 RA=339.92154, Dec=9.84172, Plate=5054, Fiber=694, MJD=56191  
 z=2.88114±0.00013 Class=QSO BROADLINE  
 No warnings.



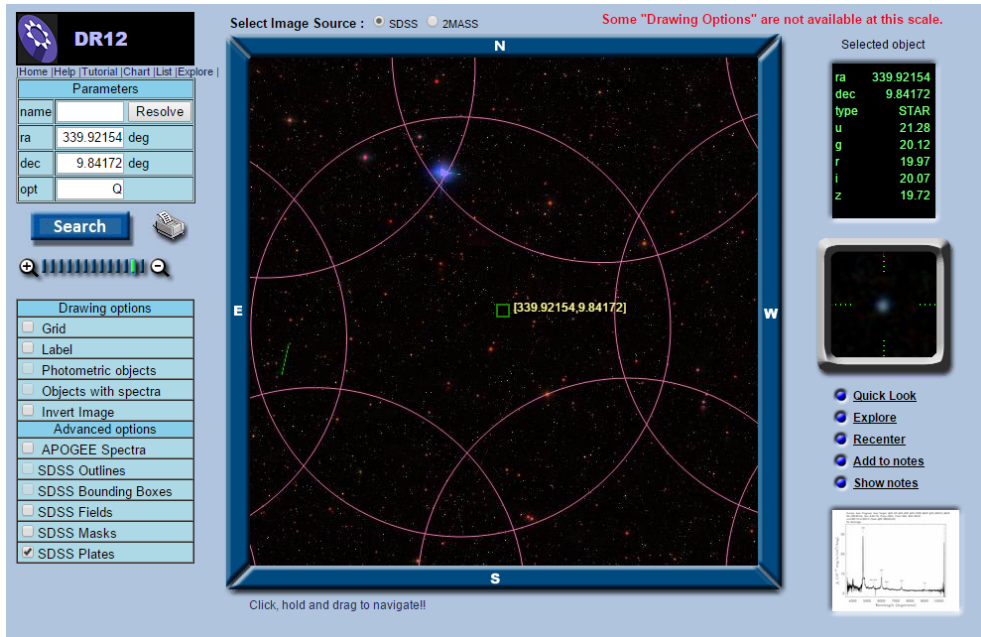
**Spectrum**

**Object Explorer**

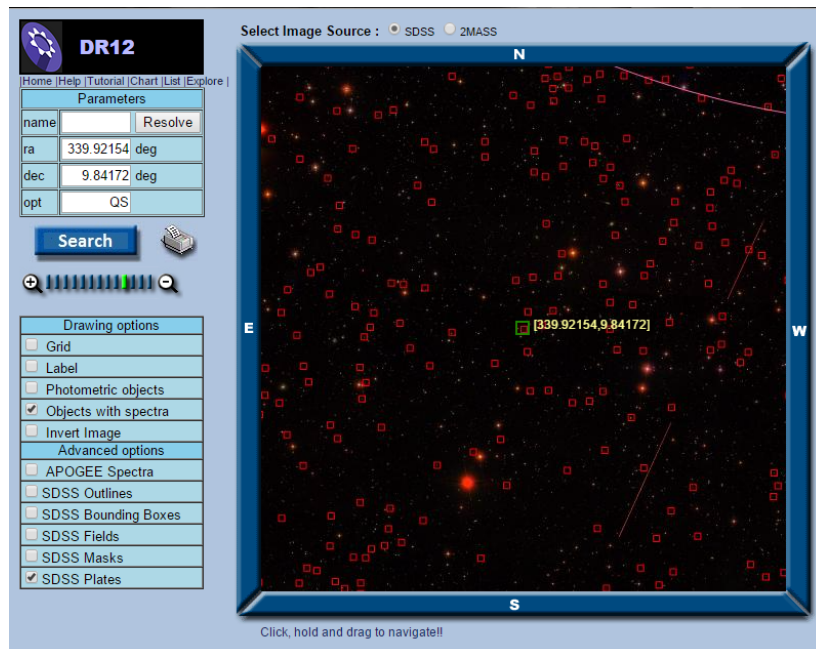
On the Object Explorer page, click the link called "Finding chart" under the Image Summary group in the sidebar. This opens the Finding Chart page; from here, click the "Navi" link in the topmost toolbar in order to reach the Navigation Tool page. The SDSS pages remember which object you originally chose, so you won't have to find it manually.

Original object is centered & selected in navigation tool

Once on the Navigation Tool page, we can figure out an approximate location of the object on the plate. To do this, first select “SDSS Plates” under Advanced Options. This will show pink circles in the viewing window that shows various regions covered by different plates. Note that you may not see full circles initially, as the viewing window is partially zoomed in. To get a better view of the plate boundaries, choose the 2<sup>nd</sup>- or 3<sup>rd</sup>-most zoomed out setting.



Here, we can see our object centered in the viewing window. Luckily, the example object we chose is only covered by a single plate. From this, we can determine that the object we chose is just off-center on the plate we are looking at. Now that we have a good idea of where the object is on the plate, we can use a couple features to figure out exactly which drill hole corresponds to that object. To do this, select the 4<sup>th</sup> level of zoom, and then select “Objects with spectra” under Drawing Options. This displays all of the objects that were examined with the SDSS spectrograph, which corresponds to the drill holes in the plate. From this, we can find the exact drill hole for our object by finding the pattern of holes in the plate that matches the pattern we see in the Navigation Tool.



In some cases, an object you pick may be covered by more than one plate. If this happens, you can follow the same steps as listed above, except that you must look for the correct pattern in more than one place (hopefully no more than three) on your plate. In the example below, we see that our new object is covered by three different plates. Therefore, we must look for the pattern of drill holes that matches the spectra location pattern in three different places on our plate: near the top, bottom right, and bottom left.

The image consists of two side-by-side astronomical image panels, each with a blue border and a title bar that reads "Select Image Source : SDSS 2MASS". The left panel shows a star field with a green line and a green square labeled "[41.45792,9.10378]". Three large red circles are drawn over the image, highlighting three regions: one near the top, one near the bottom-right, and one near the bottom-left. The right panel shows the same star field but with many small red squares scattered across it, indicating a different pattern. Three text boxes with arrows point to the highlighted regions in the left panel:

- First Plate: look near the bottom-right for the correct pattern.
- Second Plate: look near the bottom-left for the correct pattern.
- Third Plate: look near the top for the correct pattern.