KStars

The Sun, the Moon and the Stars

No need for a trip into hyperspace, when the KDE planetarium brings the stars to your living room. Take your computer on a trip through the night skies of the indian summer with KStars! **BY STEFANIE TEUFEL**

Twinkle, twinkle little star… Of course everyone knows this lullaby, but do you know the exact positions of Mars, Saturn, or Jupiter? No? In that case, you are either a candidate for your neighborhood observatory, or you might like to try *KStars*, KDE's desktop planetarium.

KStars is included in the *kdeedu* package. To launch the program, just click on *Educational / KStars (the Desktop Planetarium)* in the *K* menu of KDE 3. You will be rewarded with a top notch astronomy program that identifies over 40,000 stars and 13,000 other objects, and is capable of displaying the night sky as visible at any point on the globe. This may take a while to load, but KStars does at least let you know what progress it is making.

The program design and content are quite intuitive. Figure 1 shows the night sky in the Cassiopeia constellation. KStars displays the stars in realistic colors and with their true relative luminosity. The developers have also labeled the brightest stars. Deep sky objects (that is, objects more distant than the nearest stars, such as galaxies, nebulae and star clusters) are indicated by colored symbols.

The info-bar at the top of the screen

shows the current time and date on the left, the coordinates in the middle and the current geographic location on the right. KStars uses the status bar at the bottom of the screen to display additionally the name of the object you have just selected, and the coordinates of the current mouse cursor position.

Where am I?

The standard home position is Greenwich in England, the site of the Royal Observatory, which is well-known as the prime meridian. If you want to look at the night sky above your home town, select *Location / Geographic…* in the menu to open a configuration window just like the one in Figure 2.

The developers provide a list with the longitude and latitude of over 2000 towns in the top right corner. If your home town happens not be on the list, you can always try a city close by. Every city is represented by a dot on the world map, and immediately marked by a red crosshair when you select a list entry.

Instead of spending time scrolling through the list, you can type the first letter of your home town in the filter box, reducing the search scope.

If your home site is missing

from the list, you can always add the coordinates in the lower area of the coordinate window. All the fields in this window, except *State/Province*, are mandatory, and must be filled in before you can click on *Add to List*.

Late for an important date?

When you launch the program, it synchronizes its internal clock with your system clock in order to display your chosen constellation in realtime. However, you can select *Stop Clock* under the *Time* item to stop the program clock or make it run more quickly or slowly. You can use *Time / Set Time…* or click on the timer in the toolbar to change the date and time.

Wandering Stars

So, who needs Star Trek to explore the final frontiers, when you can boldly click, or press the arrow keys? If you also
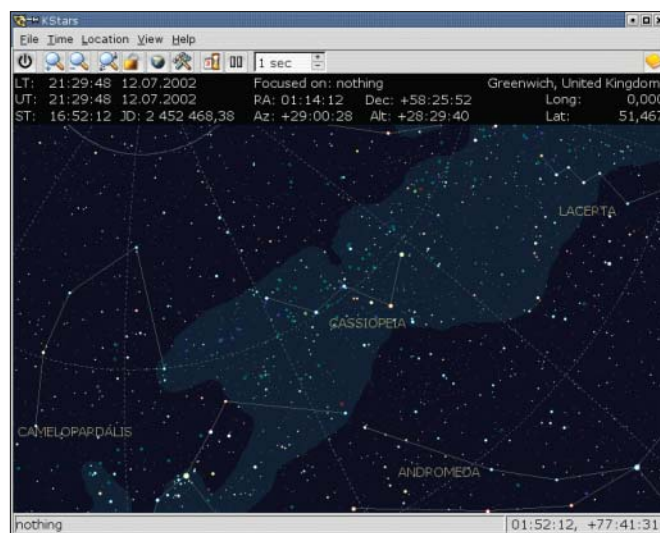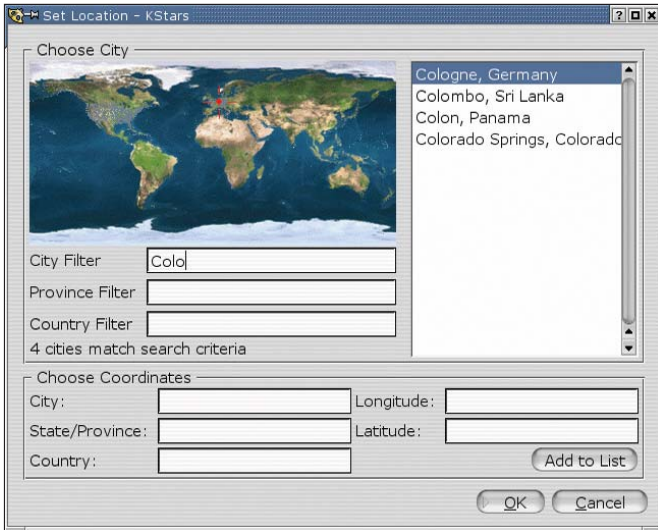

Figure 1: Visiting Cassiopeia
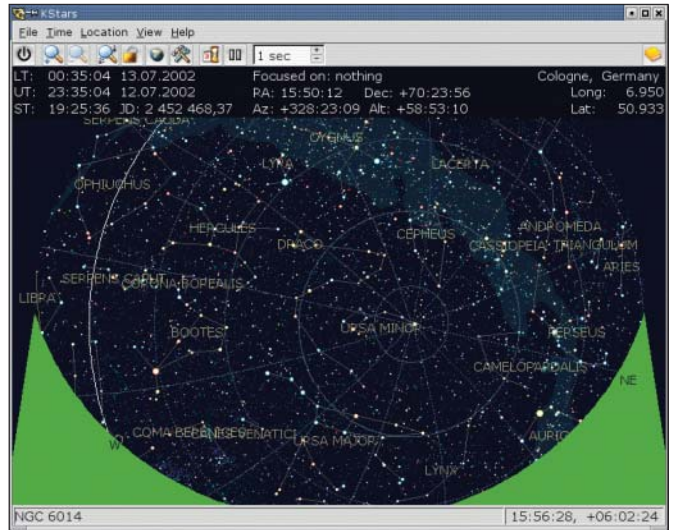
Figure 2: The Night Sky above Cologne

Figure 3: Somewhere Beyond the Horizon

hold down the [Shift] key, you can double your warp…, oops, your scrolling speed. Should you happen to stumble across an interesting bit of the heavens, you can use the plus and minus keys to zoom in or out. As an alternative, you can also click on the *"Zoom In"* and *"Zoom Out"* buttons in the *View* menu.

You can use [-] to zoom out until you see a green arc like the one shown in Figure 3. This represents your local earth horizon.

The curved white line in Figure 3 represents the celestial equator, an imaginary line that divides the skies into the northern and southern hemispheres. The brown line, which is almost invisible in Figure 4, represents the ecliptic, that is, the path the sun appears to follow in the course of the year.

KStars shows you the whole spectrum of celestial objects – stars, planets, planetary nebulae, and galaxies. You can click on a specific object to identify it – the name immediately appears in the status bar. If you then right click with your mouse, you can use the menu that

then appears (Figure 4) to query the object type, and download a razor sharp image of the object from the celestial atlas, *The Digitized Sky Survey*, by clicking on *Show 1st/2nd Gen DSS Image*. You can see an image of the star, Ras Alhague of the constellation Alpha Ophiuchus, in the opener.

You can use the *Add Link…* option to add websites with more information or insert additional images. KStars even allows you to verify links by clicking on the *Check URL* button. The program automatically loads your additions when launched, saving in the *myimage_url.dat*

Figure 4: Identifying Celestial Objects

Figure 5: Seek and You Will Find

and *myinfo_url.dat* files in the *~/.kde/share/apps/kstars* directory.

If you become tired of just aimlessly roaming around the virtual heavens, you can use the *Location / Find Object…* menu item to search for a specific object. The *"Find Object"* window (Figure 5) includes a list of all the named objects in the KStars database. Many of them are listed by their catalog entry only, such as NGC 3077, but you will also find some well-known names, such as Cassiopeia.

On Board Information Sources

Of course, not everybody is a natural born astronomer. So do not panic, if the terms used in this article are a mystery to you. The makers of KStars have also given this issue some thought. "The AstroInfo Project", a useful feature of the KStars manual, provides you with a series of short articles that explain the most important concepts and terms in the field of astronomy. Some articles even include exercises that can be completed using KStars. The developers are keen on expanding this section and actively encourage interested users to contribute to the scientific database. ∎
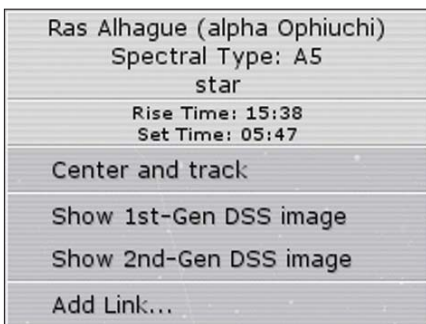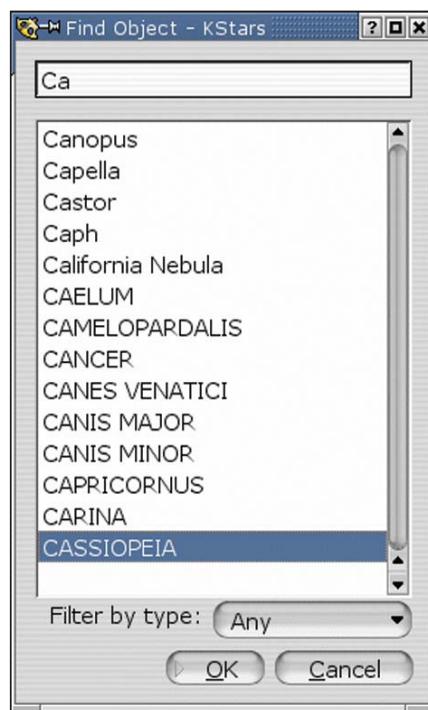
INFO

[1] KStars:
http://kstars.sourceforge.net

[2] Fixed Stars:
http://www.winshop.com.au/annew

[3] AstroInfo Project:
http://astroinfo.sourceforge.net