Tutorial: Starry Night Basics Overview

Load the file "Tutorial.snf"

Introduction

This exercise is designed to familiarize you with the basic controls of Starry Night. We suggest you review chapters two and three of the User's Guide if you have trouble with this exercise. The guide can be found under the **Help-User's Guide** menu.

In the SkyGuide welcome page, you can also click on the "**Starry Night Basics**" link to go over some of the most commonly used features.

1: The Toolbar

The basic controls you'll be using in this exercise can be found in the Toolbar. The Toolbar is the strip of buttons above the main window. The Toolbar has the following set of basic controls:

- Cursor Tool
- Time and Date
- Time Flow Rate
- Viewing Location
- Elevation
- Gaze
- Zoom

2: The Toolbar - Cursor Tools

The cursor selection tool, located at the extreme left of the toolbar, allows you to select several cursor tools each with its own specific use.

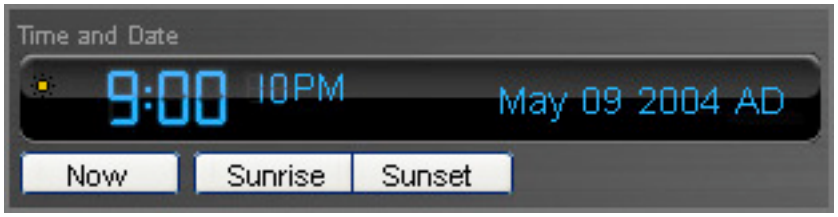
By default, the adaptive cursor is selected. Whenever you point to an object, it changes to an arrow . Information about that object now appears in the main window.

1) Place the adaptive hand cursor over the star Antares. How far away from you (the observer) is Antares?

a) 2 light years
b) 604 light years
c) 200 light years
d) 302 light years

3: The Toolbar - *Time and Date Controls*

The date and time are in the upper left corner of the toolbar.



To change the date or time, click it. The date or time lights up and you can type in a new value. To change the month, use the up and down arrow keys on your keyboard. If your mouse has a wheel, you can use it as well.

2) Change the date to July 4, 2009. What is the approximate angular separation between the star Antares and the Moon?

a) 3 degrees
b) 20 degrees
c) 32 degrees
d) 8 degrees

4: The Toolbar - Time Controls

By default, time in Starry Night advances at the same rate as real time. If you run Starry Night for one hour, Starry Night's time advances one hour. As the time in Starry Night changes, the screen changes to reflect the changing sky

i) The Step Time Buttons
Clicking these buttons allow you to change the time by the amount shown in the Time Flow Rate window. In the example shown, each click would step the time forward or backward by 1 minute. Try it out.

Step time backward

Step time forward

ii) The Run Time Buttons
Clicking these buttons will animate the main window. Each time the computer updates the screen the time will increase or decrease by the interval shown in the time flow rate window. Try it out.

Run time backward

Run time forward

iii) The Stop Button
Clicking this button will stop the animation and freeze the time. Try it out.

Stop

iv) **Time Flow Rate**

Just as nature programs use time-lapse photography to show processes too slow to see in real time, you can speed up or slow down time to get the best possible view of an astronomical event.

The rate of time's flow is shown in the Time Flow Rate section of the toolbar. Clicking the black area to the left of the rate opens a menu that displays a list of possible time steps.

3) Change the time flow rate to 1 day (solar day) and press the Step Time Forward button. Note the position of the Moon and the background stars. Then change the time flow rate to sidereal day and press the Step Time Forward button. Again, note the position of the Moon and background stars. Which of the following is correct:

a) In a sidereal day the background stars don't appear to move but the Moon does.
b) In the day time step, the background stars and the Moon move.
c) Looking at the time display, the difference between a sidereal day and a normal 'solar' day is about 4 minutes.
d) All of the above

5: The Toolbar - Viewing Location

The viewing location display tells you from where in space you are viewing. If you are viewing from the Earth, your city name will show up in the display. If you are observing from another planet, the display shows this information.

6: The Toolbar - Elevation Controls

Below the Viewing Location window are the elevation controls.

The “Increase Current Elevation” button (∧) lifts you from the surface of a planet or increases the distance from whatever object you’re near without changing the field of view. Just the opposite occurs when you use the “Decrease Current Elevation” button (v). The Viewing Location window will update to show your new position.

7: The Toolbar - Gaze

You can adjust your view to look in any direction. The default cursor icon in Starry Night is the adaptive hand cursor. When you hold the mouse button down, the hand closes, as if it’s grabbing part of the sky. If you hold the mouse button down and drag the mouse, your view shifts in the direction that you moved the mouse.

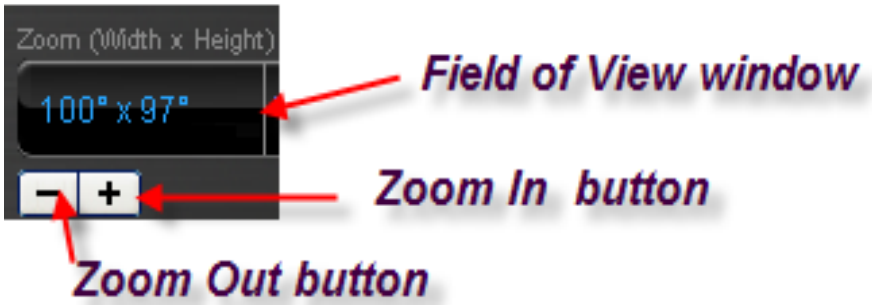
The gaze display in the Toolbar shows the direction you are looking. Altitude measures the angle above the horizon and azimuth indicates the direction you are facing.

4) The compass direction points (N, NW, W, SW, S, SE, E, NE) are marked along the horizon in Starry Night. Change the direction you are facing until the gaze display shows an Azimuth (Az) of 315 degrees. What compass direction are you facing?

a) S
b) SE
c) N
d) NW

8: The Toolbar - The Zoom Controls

These controls will allow you to increase (Zoom Out) or decrease (Zoom In) the field of view. The result will be displayed in the Field of View window.



5) Right-click on the Moon and select “Centre” from the contextual menu that appears. Use the Zoom buttons to magnify the Moon until it fills the entire main window. Read the zoom display. Roughly, what is the angular diameter of the Moon?

a) 59 arc minutes (59’)
b) 30 arc minutes (30’)
c) 30 arc seconds (30”)
d) 15 arc minutes (15’)

9: Find and View Options

Press the **Home** button and set the time to 10:00 PM. Then use the Find pane to find Pluto. Double click on Pluto’s name to center it on the screen. In the view **Options** pane, check the “Boundaries” and “Labels” boxes under the Constellations layer.

6) What constellation is Pluto in?

a) Scutum
b) Scorpius
c) Sagittarius
d) Serpens Cauda

10: Saving a Favourite

Save your work from **9:** as a Favourite File.