Pocket Stars SP Version 5 Operating Manual
For Windows Mobile Smartphones

Introduction

Whether you're visualizing planetary orbits from your backyard, navigating across the Pacific, or looking for a handy reference guide to the heavens, **Pocket Stars** provides fast and flexible visualization of the solar system and beyond.
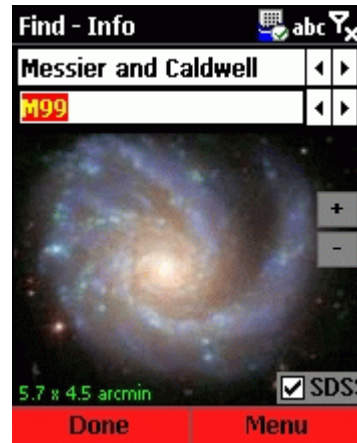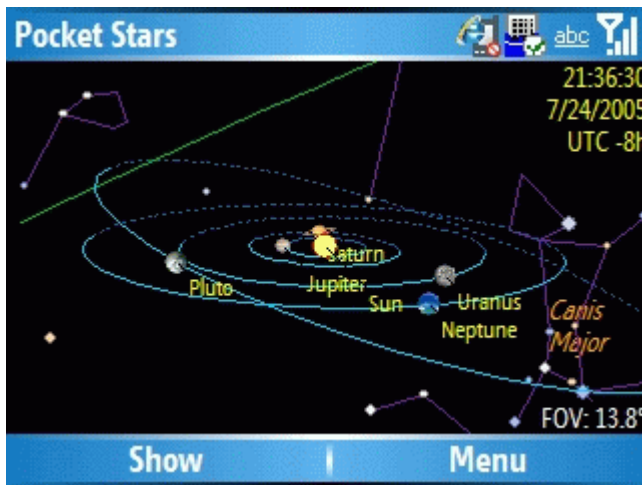
Based on data from the Jet Propulsion Laboratory and the US Naval Observatory, **Pocket Stars** offers extremely accurate positional information for solar system bodies, stars, constellations, and Messier and Caldwell objects.

Targeting astronomers, celestial navigators, and the casual observer, **Pocket Stars** offers numerous tools for visualization, identification, and animation for all Windows Mobile Smartphones.
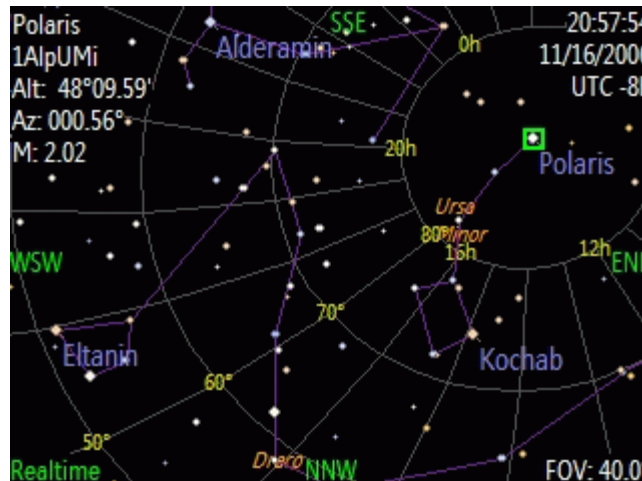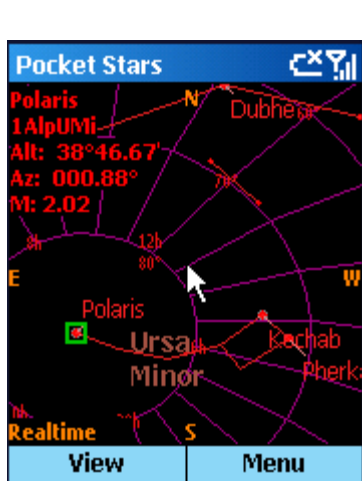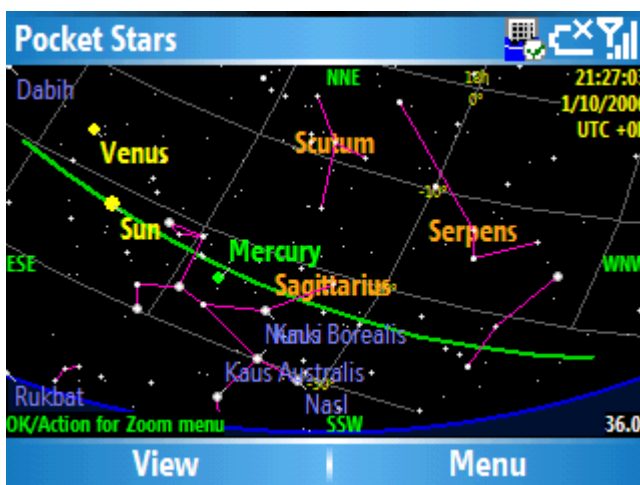
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Screen Shots

3D views and Sloan Digital Sky Survey images

Red, Black, and White color schemes and 2D views

View the heavens from any location and any time.

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Features

Star Chart Features

- Simple and fast star, planet, constellation and Messier object identification. *Single click* on any body to get the name, designation, calculated altitude, azimuth, and magnitude. *Drag* the cursor to scroll the chart. Zoom in and out with a single click.
- 3D Solar system flythrough.
- User location set by GPS, clicking on map, city selection, or by entering Latitude and Longitude.
- Complete user control of colors and skins.
- Orbital paths of inner planets and sun.
- Time Animation.
- Black, white, and red star chart colors for normal, bright, and night viewing conditions, respectively.
- Chart can be rotated to any of the 16 compass points and also flipped along the North - South axis.
- Chart can be "live, realtime", or static for any user selected time.
- Core positional calculation routines based on "Novas" (Naval Observatory Vector Astrometry Subroutines Version 2.0.1) from the US Naval Observatory.
- Star data is from the Bright Star Catalog (5th Revised Edition), comprising the 9110 brightest stars using J2000 equatorial positions and the International Celestial Reference Frame (ICRF). Corrections are performed for proper motions and parallax.
- Planet ephemeris data from Jet Propulsion Laboratory using the DE405 database. DE405 is JPL's latest planetary ephemeris with correction for both nutations and librations. DE405 uses the J2000 International Celestial Reference Frame (ICRF). The portion of this database provided with Pocket Stars covers the years CE 2005 to CE 2015. Other ephemeris date ranges are available for download.

Other Features

- Rise, set, and meridian times for all solar system bodies.
- Lunar Phase calendar and animation showing the relative positions of the earth, moon, and sun.
- Images and physical data for planets, moon and sun, Messier and Caldwell objects.

Install Pocket Stars SP

Pocket Stars SP is provided in two different formats:

- Installation on a PC using ActiveSync: The file downloaded is named **PocketStarsSP.exe**. Run this file on your PC with your Smartphone connected via ActiveSync.

- Installation without using a PC "Over the Air" (OTA). The file downloaded is named **PocketStarsSP.cab**. Download this file directly to your Smartphone and run it in place. This installation circumvents both ActiveSync and using a PC, and is the preferred choice for Linux and Mac users.

- Both installation routes start an installation program which will copy 6 files to your PocketPC. These files can reside anywhere, in any directory, including an external memory card (CF, SmartMedia, etc.), but must all reside in the same directory (except PocketStars.htp which resides in the "\Windows" directory):

        PocketStars.exe   - the executable
        PocketStars.405   - the ephemeris file
        PocketStars.40c   - cache of daily planet locations for Orbital Paths
        PocketStars.htp   - help file
        PocketStars.psj   - a configuration file.
        PocketStars.dist   - a configuration file.

- When installation has completed, click on **Start.Programs.Pocket Stars**

- If you purchased the registered version, enter your registration code on the "Menu.Help.Registration" page.


Uninstall Pocket Stars SP

- Exit Pocket Stars (select Menu.Exit).

- Start.Settings.System.RemovePrograms.

- Select "Nomad Electronics Pocket Stars", and then Remove. This will remove all trace of Pocket Stars from your device.

- Removal of Pocket Stars is quite clean. It installs neither DLLs nor registry entries, so there is no chance of entering DLL hell or creating side effects from either installation or deinstallation.

QWERTY Keyboards

QWERTY devices such as the Motorola Q shown below can use the following keyboard shortcuts.
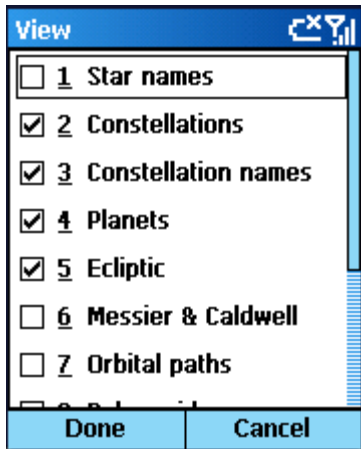
Left soft button

The Left soft button displays the "View" dialog which controls the objects currently displayed   Note that some of the objects displayed are computationally expensive to calculate and can decrease update speeds.

Either scroll or use the number keys to choose which objects and overlays to display.

- 1 Star Names

- 2 Constellations

- 3 Constellation Names

- 4 Planet Names

- 5 Ecliptic The ecliptic is the great circle on the celestial sphere that lies in the plane of the earth's orbit.

- 6 Messier Displays and hides the 110 Messier and 109 Caldwell deep space objects.

- 7 Orbital Paths Displays and hides the paths for the inner solar system bodies. The paths are draw for one year, centered on the current star chart date.

- 8 Polar Grid. Displays and hides a grid through the north and south celestial poles.

- 9 Zenith Grid. Displays and hides a grid centered on the zenith point of the observer.

- 0 None. Hides all of the above objects.

- * Show Info. Show and hide information on the selected object.

Show Time. Show and hide the date and time.
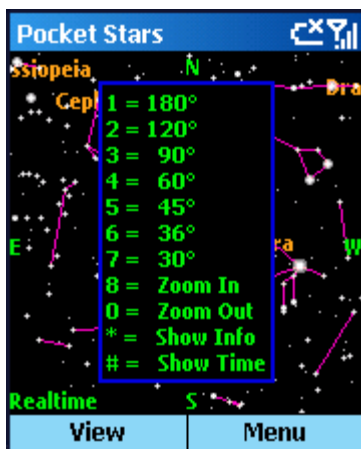
OK / Action

The **OK/Action** button shows the key menu and switches to full screen. Click it again to hide the menu. Further clicks toggle between object selection and scrolling modes.

Non-QWERTY devices can quickly change to various zoom factors by hitting a number key to zoom smoothly in and out. The most important keys are:

8 Zoom In
0 Zoom Out
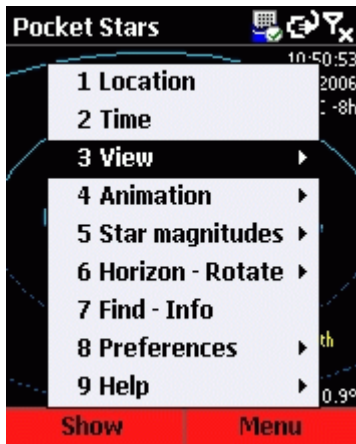
Main Menu

Activate the main menu by pressing the **right soft button**.

Location

Controls the zenith point used when drawing the star chart.

You can either select a city from the list or enter the latitude and longitude manually. The first entry in the Cities list is "Custom" and is automatically selected if the latitude or longitude fields are manually changed.

Areas of the earth currently experiencing night are shown in darker shades.
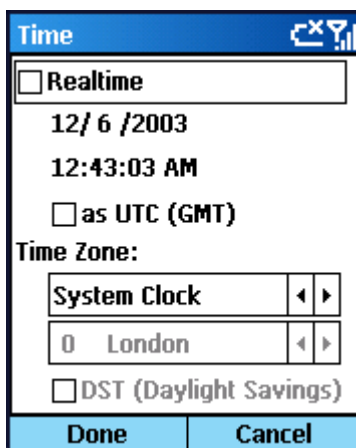
Time

Controls the time at which the star chart is valid above the selected Location.

Realtime. If checked, continuously update the star chart with the current Smartphone time. If unchecked, you may specify a particular time using the date and time fields.

UTC. If checked, the time selected is in Coordinated Universal Time (UTC). Otherwise, time is entered as local time using the offset from UTC established by the following fields.

Time Zone specifies the how local time differs from UTC, expressed in hours. Each time zone covers 15 degrees of longitude. Locations west of Greenwich have negative offsets, while locations east of Greenwich have positive offsets. The time zone may be set using three different methods:

- **System** - Uses the time zone established by the device clock.

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This is controlled by "Start.Settings.Date and Time".

- **Longitude** - Uses the current geographical location (specified in the Location page) to calculate Zone Time. While correct for many locations, this method does not take into account the effect of political boundaries.

- **Custom** - Enables a list box which you can use to set the Time Zone.

DST. If checked, indicates Daylight Savings Time is in effect.
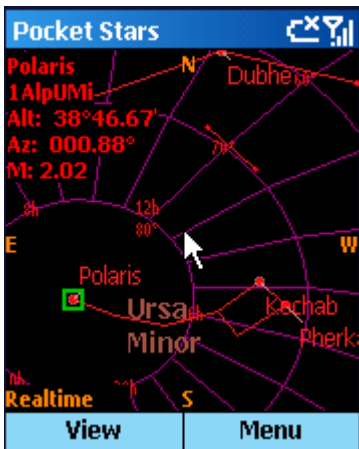
View, 2D - Star Chart

Displays a planisphere from any position on earth at any given time.

Press the **OK/Action** key to switch to full screen mode and display a list of keyboard shortcuts. Press OK/Action again to hide the shortcut menu. Subsequent OK/Action key presses toggle between "scrolling" mode and "selecting" mode.

The **"."** (period) key rapidly toggles between 2D and 3D modes.

View, 3D - Orrery

Displays a view of the solar system from locations other than earth. Zoom moves the viewing location toward and away from the sun. Scrolling rotates the viewing location.

Press the **OK/Action** key to switch to full screen mode and display a list of keyboard shortcuts. Press OK/Action again to hide the shortcut menu. "Selection" mode is disabled in 3D view..

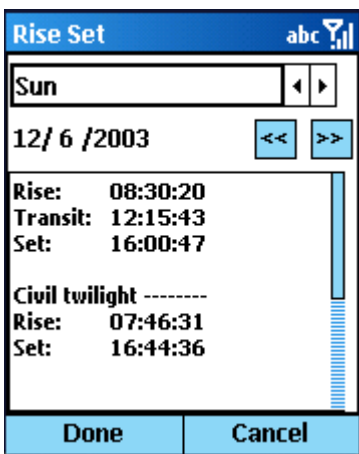The **"."** (period) key rapidly toggles between 2D and 3D modes.
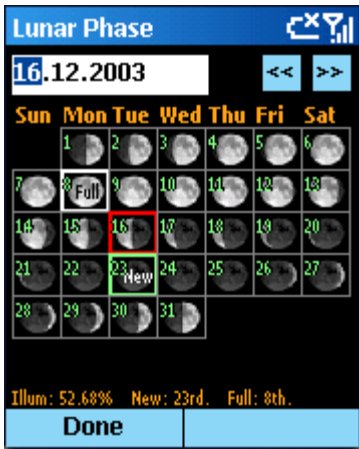
View, Lunar Phase

Displays the phases of the moon for a selected month. The full, new, (and blue if available) dates are shown.

Illumination percentage for the selected date is shown at the bottom of the dialog.

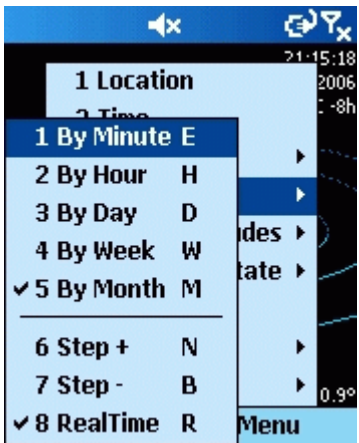Use the left and right arrows to increment and decrement by one day.

View, Rise and Set

Displays the rise, transit, and set times for all solar system bodies.

When the Sun is selected civil, nautical, and astronomical twilight is also shown.

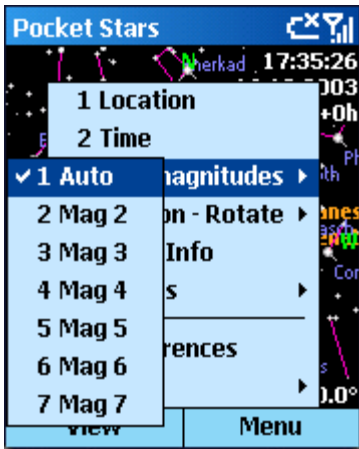Use the left and right arrows to increment and decrement by one day.

Animation

Let's you step forward and backward in time.

First select the unit of time by which you wish to increment and decrement. Then select "Step +" or "Step -" to move forward or backward by that unit.

This is especially effective in 3D Orrery mode to note the relative planetary positions over time.
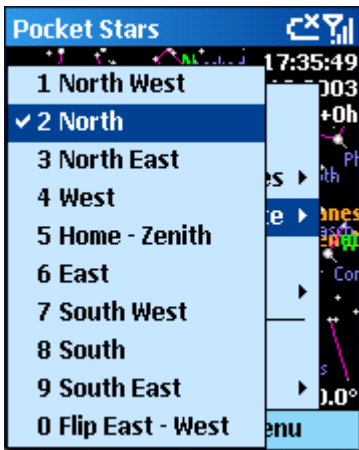
Star Magnitudes

Controls the minimum brightness of stars displayed on the chart.

Auto reduces screen clutter by automatically adjusting the number of stars displayed appropriate to the zoom setting. Otherwise, the number of stars displayed depends on the magnitude selected:

| Magnitude	Number of Stars
0	4
1	15
2	48
3	170
4	513
5	1604
6	5023
7	9046
8	9096

Horizon - Rotate

Positions any of the 8 compass points at the top of the chart. Also allows reversal of east and west.

Home - Zenith Remove all scrolling effects so that the stars directly overhead are positioned at the center of the display. Zoom factor is set to 1.5. Note that a green X marks the zenith point directly overhead.

Flip East and West. If checked, the star chart is flipped along the North - South axis. Leave this option unchecked if viewing the computer display in-line with the sky. For example, leave this option unchecked if lying on your back with the screen overhead. If checked, the display is mirrored along the North - South axis, switching the positions of East and West.
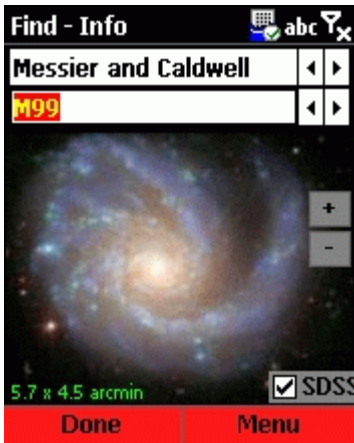
Find - Info

Used to select a star, planet, sun, moon, constellation, or Messier and Caldwell object. The selected object will be centered on the star chart if currently visible and Done is chosen. An image of the object is displayed if available. Choose "Info" to show a text description of the object.

Messier and Caldwell images can be downloaded automatically if you have an internet connection to your Smartphone (either phone network or ActiveSync). If not, you can download the images files manually from this page. Select the ARM processor.

Checking the "**SDSS**" displays images from the Sloan Digital Sky Survey if you have an internet connection. You can zoom in and out using the "+" and "-" buttons. Note that SDSS does not cover the entire sky: most objects in the range M80 to M100 are within the survey.
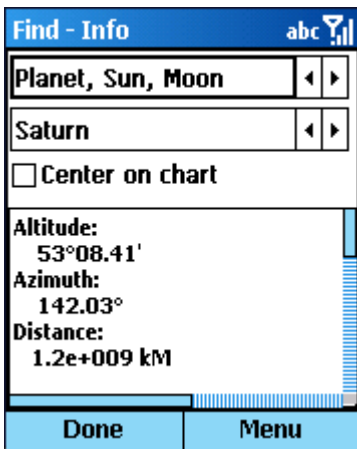
The "Info" menu choice switches to a detailed listing of measured and calculated values pertaining to the body.
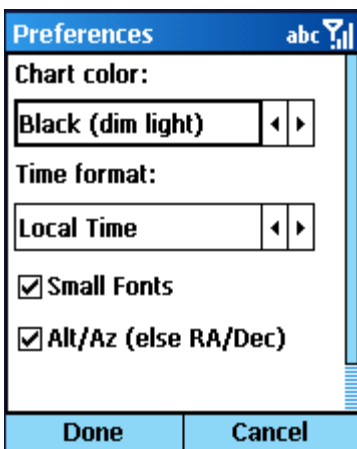
Preferences, Star Chart

Controls display options for the primary star chart.

Star chart color

- Black (best in dim ambient light). If checked, the star chart background is black.

- White (best in bright ambient light). If checked, the star chart background color is white.

- Red (preserve night vision). If checked, the display colors are changed to shades of red to cause minimal loss of night vision.

Star chart Time format Controls how time is displayed in the upper right corner of the star chart. Use the "#" key to toggle display of

time.

- Local Time. The full time and date will be displayed.

- Local Sidereal Time. The abbreviation "LST" will appear under the time.

- UTC. The abbreviation UTC will appear under the time.

- Greenwich Mean Sidereal Time. The abbreviation "GMST" will appear under the time.

Small Fonts. If checked, a smaller font is used for displaying information on the star chart.

Alt/Az (else RA/DEC). If checked, Altitude and Azimuth are displayed on the main star chart. Otherwise, right ascension (RA) and declination (Dec) are displayed.

Preferences, Language

Pocket Stars SP is being localized into a number of languages. If a given language has been downloaded or pre-installed, it is immediately available for selection. You can dynamically switch between installed languages without restarting the program.

To download additional languages, press the "**Download language**" button if connected to the internet.

A few features (such as display of the date and time in a format appropriate for a given location) will not be available until you also change the location at Start.Settings.RegionalSettings.

Help, Registration

Displays a dialog to enter the Registered Name and Registration Code. This permanently unlocks demo version and converts it to the full version.

If you have an internet connection, press the "Click to purchase online" to visit a website to purchase a registration code.

If you are having problems with the registration process, please visit the support page at www.nomadelectronics.com. You can retrieve lost codes and update your registration online in real time.

Help, About

Displays the version number of Pocket Stars.

Additional hints

A Green X is used to mark the zenith point directly overhead.

- Use the * or "T" to show and hide the name, identifier, coordinates, and magnitude of the selected object in the upper left corner.

- Use the # or "Y" to show and hide the star chart time in the upper right corner.

- You can edit the file \My Documents\Pocket Stars\PocketStars.txt to change a variety of default settings including colors for all of the star chart elements.