

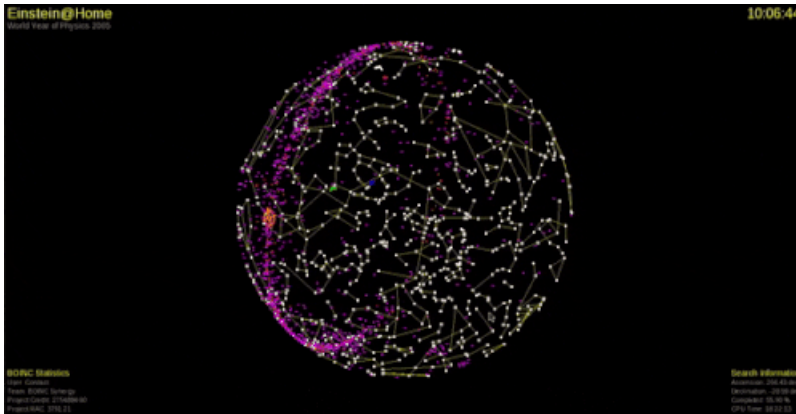
Screensaver

By Contributors to Wikimedia projects

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".scr" redirects here. For CAD scripts, see [CadSoft EAGLE](#).



[Einstein@Home](#) interactive screensaver

A **screensaver** (or **screen saver**) is [software](#) that controls a [monitor](#) of the host [computer](#) with the intent of preventing [screen burn-in](#) for a screen susceptible to it. Generally, a screensaver starts controlling a monitor when the computer has been idle for a designated period of time and fills the screen either with black (all pixels off) or with changing graphics that tend to prevent each pixel from being on for a long time. Although monitors were commonly constructed with screen technology that was susceptible to burn-in ([CRT](#) and [plasma](#)), most modern monitors are [LCD](#) which are not. Another modern technology, [OLED](#), is susceptible.^[1]

In addition to the feature described by its name (saving a screen from burn-in), a screensaver may provide other features. It may provide physical [security](#) by requiring a password to exit the screen control mode. Some use otherwise-idle computer resources to do useful work, such as processing for [volunteer computing](#) projects.^[2]

Many modern devices such as televisions and other digital entertainment devices include a screensaver.

A monitor controlled by a screensaver consumes the same amount of power as when the screensaver is not controlling it, which can be anywhere from a few [watts](#) for small LCD monitors to several hundred for large plasma displays. Most modern computers can be set to switch the monitor into a lower power mode, blanking the screen altogether. A power-saving mode for monitors is usually part of the power management options supported in modern [operating systems](#), though it must also be supported by the computer hardware and monitor itself.

Using a screensaver with a flat panel or [TFT LCD](#) screen not powering down the screen can actually decrease the lifetime of the display, since the fluorescent backlight remains lit and ages faster than it would if the screen is turned off and on frequently.^{[3][4]} As fluorescent tubes age they grow progressively dimmer, and they can be

expensive or difficult to replace. A typical LCD screen loses about 50% of its brightness during a normal [product lifetime](#). In most cases, the tube is an integral part of the LCD and the entire assembly needs to be replaced. This is not true of LED backlit displays.

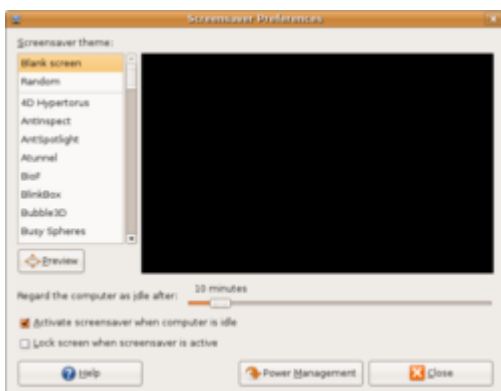
Thus the term "screen saver" is now something of a [misnomer](#) – the best way to save the screen and also save electricity consumed by screen would simply be to have the computer turn off the monitor. Screensavers displaying complex 3D graphics might even add to overall power draw.^[5]

Before the advent of [LCD](#) screens, most computer screens were based on [cathode-ray tube](#) (CRT) technology. When an image is displayed on a CRT screen for a long period, the properties of the exposed areas of the phosphor coating on the inside of the screen gradually and permanently change, eventually leading to a darkened shadow or "ghost" image on the screen, called [screen burn-in](#). [Televisions](#), [oscilloscopes](#) and other devices that use a CRT are susceptible to [phosphor burn-in](#), as are [plasma displays](#) to some extent.^[6] Screensavers were originally designed to help avoid these effects by automatically changing the images on the screen during periods of user inactivity.

For CRTs used in public, such as an [automated teller machine](#) (ATM) and railway ticketing machine, the risk of burn-in is especially high because a stand-by display is shown whenever the machine is not in use. Older machines designed without burn-in problems taken into consideration often display evidence of screen damage, with images or text such as "Please insert your card" (in the case of ATMs) visible even when the display changes while the machine is in use. Blanking the screen is not a valid option as the machine can be perceived as out of service. In these applications, burn-in can be prevented by shifting the position of the display contents every few seconds, or by having a number of different images that are changed regularly.

Later CRTs were much less susceptible to burn-in due to improvements in phosphor coatings, and because modern computer images are generally lower contrast than the stark green-on-black or white-on-black text and graphics of earlier systems. LCD computer monitors, including the display panels used in [laptop](#) computers, are not susceptible to burn-in because the image is not directly produced by phosphors although they can suffer from a less extreme and usually non-permanent form of [image persistence](#).

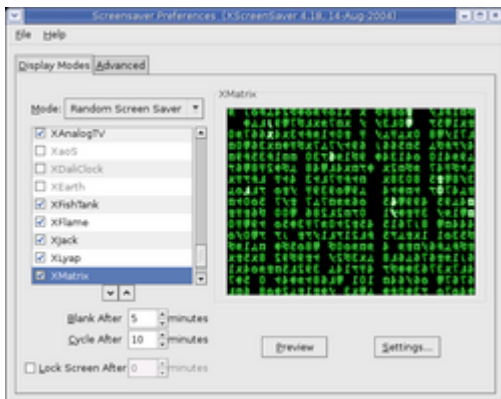
While modern screens are not susceptible to burn-in, screensavers are still used for other purposes. They usually feature moving graphics and sometimes sound.



[GNOME Screensaver](#) has an option for password protection.

As a screensaver usually activates when the user is away, some screensavers ask users for a [password](#) before relinquishing control of the screen for normal computer use. This is a basic security measure against another person accessing the machine while the user is away.

Some screensavers activate a background task, such as a [virus scan](#) or a [volunteer computing](#) application (such as the [SETI@home](#) project).^[2] This allows applications to use resources only when the computer would be otherwise idle. The [Ken Burns panning and zooming effect](#) is sometimes used to bring the image to life.



XScreenSaver displaying a [Matrix](#)-style screensaver

[After Dark](#) was an early screensaver for the [Macintosh](#) platform, and later PC/Windows, which prominently featured whimsical designs such as "flying toasters". Perhaps in response to the workplace environment in which they are often viewed, many screensavers continue this legacy of whimsy by populating the idle monitor with animals or fish, [video games](#), and visual expressions of [mathematics](#) equations (through the use of [fractals](#), [Fourier transforms](#) or other means) as in the [Electric Sheep](#) screensaver.

At least one screensaver, [Johnny Castaway](#), told a humorous animated story over many months.^[8] The ability of screensavers to divert and entertain is used for [promotion](#), especially to build [buzz](#) for "event-based" products such as [feature films](#).

The screensaver is also a creative outlet for computer programmers. The [Unix](#)-based screensaver [XScreenSaver](#) collects the display effects of other Unix screensavers, which are termed "display hacks" in the [Jargon File](#) tradition of US computer science academics. It also collects forms of computer graphics effects called [demo effects](#), such as were originally produced by the [demoscene](#).

The first screensaver was allegedly written for the original [IBM PC](#) by [John Socha](#), best known for creating [Norton Commander](#); he also coined the term *screen saver*. The screensaver, named *scrnsave*, was published in the December 1983 issue of the [Softalk](#) magazine. It simply blanked the screen after three minutes of inactivity.

By 1983 a [Zenith Data Systems](#) executive included "screen-saver" among the new Z-29 [computer terminal](#)'s features, telling [InfoWorld](#) that it "blanks out the display after 15 minutes of nonactivity, preventing burned-in character displays."^[9] The first screensaver that allowed users to change the activating time was released on [Apple's Lisa](#), in 1983.

The [Atari 400](#) and [800's](#) screens would also go through random screensaver-like color changes if they were left inactive for about 8 minutes. Normal users had no control over this, though programs did. These computers,

released in 1979, are technically earlier "screen savers". Prior to these computers, games for the 1977 [Atari VCS/2600](#) gaming console such as [Combat](#) and [Breakout](#), included color cycling in order to prevent burn-in of game images into 1970s-era televisions. In addition, the first model of the [TI-30](#) calculator from 1976 featured a screensaver, which consisted of a decimal point running across the display after 30 seconds of inactivity. This was chiefly used to save battery power, as the TI-30 [LED](#) display was more power intensive than later LCD models. These are examples of screensavers in [ROM](#) or the [firmware](#) of a computer.

[Android 4.2](#) introduced "daydreams", screensavers that activate while the device is [docked](#) or charging.^{[10][11]}

In 2015 the screensaver "Event Listeners"^[12] of van den Dorpel became the first [work of art](#) that was purchased by a [museum](#) ([Museum of Applied Arts, Vienna](#)) using the cryptocurrency [bitcoin](#).^[13]

Modern graphics technologies such as [3D computer graphics](#) have allowed a wide variety of screensavers to be made. Screensavers with realistic 3D environments can be programmed and run on modern computers.

- [Degaussing](#)
- [DVD screensaver](#)

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4. ^ "[When to Turn Off Your Lights](#)". *Energy.gov*. [United States Department of Energy](#). [Archived](#) from the original on 2019-03-22. Retrieved 2019-03-22.
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