

How to Connect a Computer to Your TV Set

Overview

Many people already know that you can connect a computer to a plasma TV, but it is not as well known that you can also hook up a computer to almost any TV. The process may not be as easy and the picture not as sharp as a plasma TV or other newer kind of TV, but you may be surprised at the results that can be achieved with your existing television.

There are numerous benefits and reasons why you would want to connect your computer to your TV. You can check a players' statistics online while watching a sporting event, use your favorite music program to play your favorite tunes, show all of your digital photos or videos to your family, and even show a PowerPoint presentation to coworkers. Combining the computer with your home theater allows possibilities for the easy chair, that were once limited to the office chair.

Making the Connection

Setting up a computer in your home theater is not generally as hard as some think. To get started, you need to be able to make a compatible connection from your computer to your TV. In the simplest case, your connection from the computer should match the connection on your TV. For example, if your TV has a VGA input and your computer has a VGA output, you need just a cable to connect both together. If there isn't a match of video inputs to outputs, it might still be possible to make a connection, but more about that later.

Let's start with the computer connection first. Examine the back of your computer for available monitor connections. Depending on your computer's graphic capabilities, you should be able to identify one or more of the following: a 15-pin VGA output, a DVI connection, RCA composite, or an S-Video output.

Your computer could support one, two, or all of the connections listed. If you are unsure, refer to the video section of your computer's user manual.

Next, you will need to identify the type of television you have. It will be either an analog or digital TV. If you own an analog television, look for an S-Video input. If you own a digital television, look for an S-Video, 15-pin VGA, component video, or DVI input. Many of the newer televisions, such as Plasma, DLP, or LCD, should have a PC compatible 15-pin VGA input. Finally, we need to find a matching connection between the two. If you have a VGA or DVI match, use that as it is the best connection. If you have a component connection on your TV and a VGA output on your computer, choose those connections. Use S-Video as a last resort if you have no other choice, or are not as concerned about the video quality of your connection. Before you begin, download and install the latest drivers for your computers video card. The newest software has options for making this project easier than it used to be. The most common graphics cards are the following:

- Cards based on the NVIDIA platform. Drivers available at <http://www.nvidia.com>
- Cards based on the ATI platform. Drivers available at <http://www.ati.com>
- Cards based on the Intel Extreme Graphics platform. Drivers available at <http://www.intel.com>

Always refer to your computer manufacturer's website before installing any software. Sometimes, drivers are available there. Do not download drivers for a graphics chip different from what your computer uses.

Connecting with S-video

To make this connection, you will need the following:

- A computer with a S-Video output
- A TV with a S-Video input
- A S-video cable
- A 1/8" to Left/Right RCA cable (for sound)
- A computer monitor (for setup purposes)

If you do not have what's listed above, this kind of connection will not work. Some computers require a separate adapter to use the S-Video capability of your graphics card. In many cases, the adapter will need to be plugged in prior to making adjustments to the output settings of your graphics card.

Connecting with S-Video is the easiest connection to make from your computer. However, it will also yield the least desirable image quality. This connection will not yield computer quality image results. If you own an analog TV, this is the only connection you can make.

If you cannot bring a computer monitor near your TV, you will need to perform step 4 & 5 from a remote location before you attempt to hook up the computer to your TV.

1. Connect the S-Video cable from the back of the computer to an S-Video input on the back of your television. Hookup the computer to the computer monitor at the same time. Connect the 1/8" to L/R RCA cable from the audio output on your computer to the corresponding audio jacks on your TV.
2. Change the input on your television to the S-Video input you plugged the computer in to.
3. Turn on the computer. You should get an image on your computer monitor. If you get an image on your TV, skip to step 6. If you do not get an image on your TV, don't panic. Go to step 4.
4. Using your computer monitor. Access the graphics card setup menu. You can usually access these menus by right clicking on the desktop, click on properties, select the settings tab, and then click on advanced. The software for every graphics card will be different.
5. Locate the menu tab for engaging or disengaging the S-Video output. Once you turn it on, an image will appear on the TV screen. If there is a selection to make it your primary monitor, do so.
6. The image on the screen has a relationship with your resolution settings. Although all S-Video outputs use a fixed low resolution to maintain compatibility with your TV, it scales according to what the resolution of your computer is set to. Adjust your resolution in the settings tab of your display properties. Use a selection no higher than 800 x 600 with 16-bit color. A setting of 640 x 480 will be much easier to see, but icons and windows will appear very large.

Once complete, you can disconnect your computer monitor. When you boot-up your computer, the S-video connection should be enabled. In some cases, the S-video output needs to be enabled on a per session basis. If your

software reflects this, leave the computer in a stand-by or hibernation mode when not in use. Your current settings will remain intact until the next time your computer is shut down.

Connecting with VGA/DVI

You can make a connection with DVI by following the same basic steps below. Substitute a DVI cable in place of the 15-pin VGA cable.

To make a connection with a 15-pin VGA cable, you will need the following:

- A 15-pin VGA output on your computer (All PC's should have this)
- A 15-pin VGA input on your television
- A 15-pin VGA cable
- A 1/8" to Left/Right RCA cable
- A computer monitor (for setup, if needed)

Some televisions may include a 5 wire RGB input (R, G, B, H, V). You can use this input to make a connection. However, you will need to obtain a 15-pin VGA to 5-wire RGB cable.

If you've identified a 15-pin VGA input on your television, you will need to do a little hunting in your manual for compatible display formats.

Compatible formats might be listed on the back of the TV, or in the owner's manual for the television. If it's listed in letters, a chart is below to explain them. If your input is PC compatible, it will say one or more of the following:

- VGA = 640x480
- SVGA = 800x600
- XGA = 1024x768
- SXGA = 1280x1024

Your 15-pin input might not be directly PC compatible. If this is the case it will say one or a few of the following television formats. The compatible PC resolution is listed next to it.

- 480i - not compatible with PC's
- 480p - 720x480
- 720p - 1280x720
- 1080i - 1920x1080 (interlaced)
- 1080p - 1920x1080

If your input does not list any computer formats, only television formats, it's okay! We can still get this to work.

If you're hooking up a Plasma, DLP, or LCD television, you should be able to plug it in and turn it on. However, if you do this and get no picture, use the computer monitor to adjust settings before plugging the cable into the TV.

1. Change the TV input to the appropriate selection to engage the 15-pin VGA input.
2. Connect the VGA cable from the back of the computer to the computer monitor.
3. Turn on the computer. An image should appear on your PC screen.
4. Right click on the desktop and select properties. Click on the tab that says settings. If your television is PC compatible, go to step 6.
5. If your TV is not compatible go to step 6.
6. If your TV is PC compatible, move the resolution slider to a compatible selection. 1024x768 is the most common choice. Hit apply. Go to step 7. Some TV's are only compatible to 640x480. If so, it may not be listed on the slider. Hit advanced, and select the adapter tab. Press "list all modes" and select 640x480, High Color (16 bit), 60 Hertz

from the list of valid modes. Click "yes" when it asks you to keep this setting.

7. If your TV is not PC compatible, you will need to select a format that is compatible with your TV. Within the settings tab, click on advanced. Go to the adapter tab and select "list all modes." Select 720x480, High Color (16 bit), 60 Hertz from the list. Click "yes" if it asks you to keep this setting. Go to step

8. Unplug the cable from the back of the monitor and plug it in to the TV. If you made the proper selections, you should have an image on your TV screen. If your TV was PC compatible, you do not need to take any additional steps. Connect the 1/8" to L/R RCA cable from the audio output on your computer to the corresponding audio jacks on your TV.

9. If your TV was not PC compatible, you should have an image on the screen. It's likely that the icons are very big. Using the chart above and the "list all modes" selection, you can try to find different resolutions that are compatible with your TV. When selecting resolution, the screen will blank out. If the image does not return, you found an incompatible display format. Do nothing and it should switch back to the last setting after 15 seconds. TIP: you can make more choices appear under "list all modes" by going to the monitor tab and deselecting the box that says "Hide modes that this monitor can't display."

Once complete, you can remove the computer monitor. You will be able to shut down the computer when not in use, or use the stand by and hibernation modes. The computer will keep your current settings unless you physically change them, or install new drivers for your graphics card.

Connecting with Component Video

To make this connection possible, you must have the following:

- A digital TV with a component video input
- A 15-pin VGA output on your computer
- A high resolution capable VGA to component video transcoder (A transcoder is a device that transforms RGB signals into component video signals)
- A 15-pin VGA cable
- A component video cable
- A 1/8" to L/R RCA cable
- A computer monitor (for setup)

NOTE: If you have a computer with an ATI Radeon graphics card, ATI sells a kit to hook up your computer to an HDTV set. If you do not have an ATI graphics card, you will need to purchase a high resolution capable VGA to component video transcoder.

1. Change the TV input to the appropriate selection to engage the component video input.
2. Hookup the VGA cable from the back of the computer to the computer monitor.
3. Turn on the computer. An image should appear on your PC screen.
4. Right click on the desktop and select properties. Click on the 'Settings' tab.
5. Identify the compatible scan formats for your component video input. The possible formats are usually 480p, 720p, and 1080i. It is common to find that many TV's don't support 720p.

6. Since the component video input on your TV is not PC compatible, you will need to select a format that is compatible with your TV. Within the settings tab, click on advanced. Go to the adapter tab and select "list all modes." Select 720x480, 1280x720, or 1920 x 1080 (interlaced), High Color (16 bit), 60 Hertz from the list. Click "yes" if it asks you to keep this setting. NOTE: 1920x1080 (interlaced) is a very high resolution, which will make desktop items and text difficult to see.

7. Unplug the computer from the back of the monitor and plug it in to the transcoder. Hook up the component video cables from the transcoder to the component video input on the

back of your TV. If you chose a compatible selection, you should have an image on your TV screen. Connect the 1/8" to L/R RCA cable from the audio output on your computer to the corresponding audio jacks on your TV.

8. Depending on the display format chosen, you might want to try different choices to maximize image quality. In the "list all modes" selection, you can try to find different resolutions that are compatible with your TV. When selecting resolution, the screen will blank out. If the image does not return, you found an incompatible display format. Do nothing and it should switch back to the last setting after 15 seconds. TIP: you can make more choices appear under "list all modes" by going to the monitor tab and deselecting the box that says "Hide modes that this monitor can't display."

Once complete, you can remove the computer monitor. You will be able to shut down the computer when not in use, or use the stand by and hibernation modes. The computer will keep your current settings unless you physically change them or install new drivers for your graphics card.