

# Setting Up Your Digital-to-Analog Converter Box (Basic)

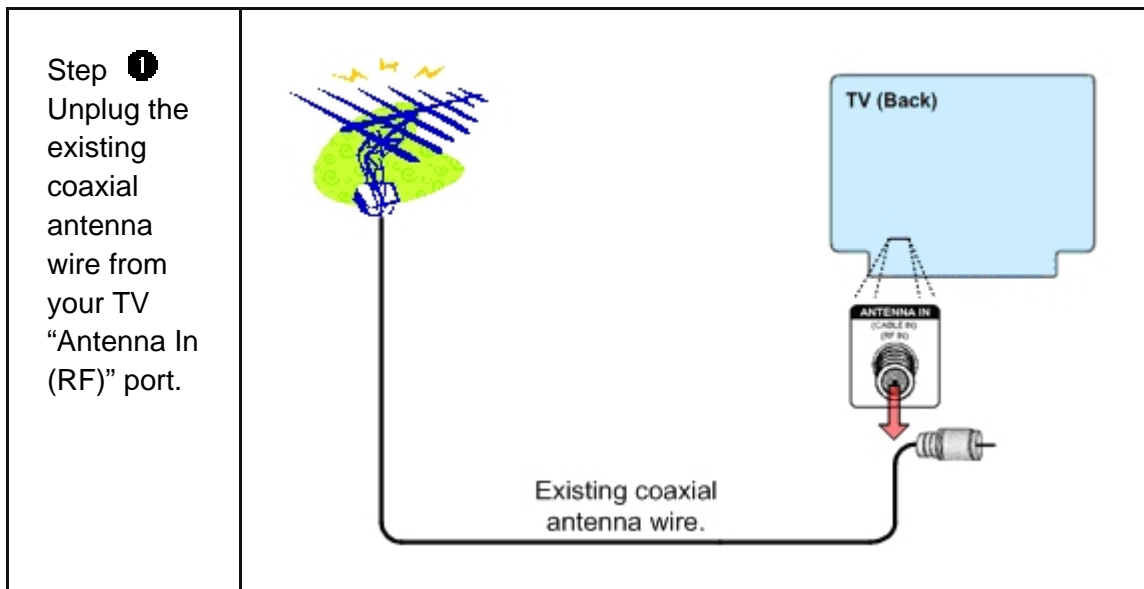
## FCC Consumer Facts

This Fact Sheet describes the installation of a digital-to-analog converter box with your current antenna and analog TV. This guide will help you prepare so that when you purchase a converter box you will know what to expect and whether you may need help setting it up.

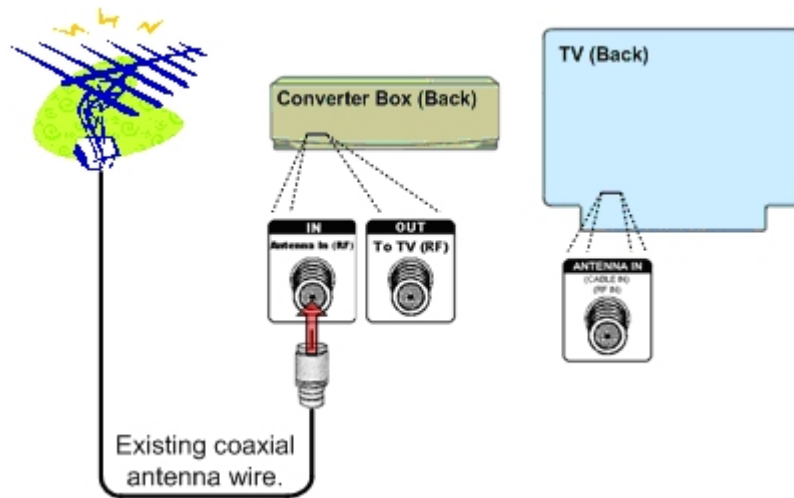
**Supplies:** You will need your analog TV, the antenna you have been using (indoor or outdoor), and the coaxial wire that currently connects your antenna to your TV (as pictured on the right). Your new converter box will come with a coaxial wire and a remote control. Before you begin the installation of the converter box, you should unplug your TV.



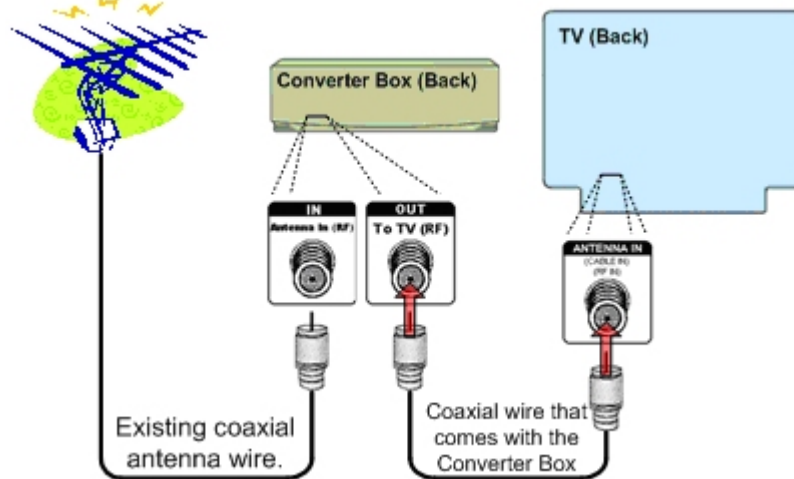
Coaxial Wire



Step 1  
Plug the existing coaxial wire into the “Antenna In (RF)” port on your Converter Box.



Step 2  
Using the coaxial wire that comes with your Converter Box, plug one end into the “Out To TV (RF)” port on the Converter Box. Plug the other end into the “Antenna In (RF)” port on your TV.



Step 3  
Plug the power cords on your Converter Box and TV into a power outlet, and turn on your TV and Converter Box. Using the instructions that come with your Converter Box, tune your TV to channel 3 or 4. Using the remote that comes with your Converter Box, follow the on-screen set-up guide to scan for available DTV channels, and begin enjoying the benefits of Digital Television!

- If your Converter Box includes an "analog pass-through" feature, this set up will also allow you to receive any stations that still broadcast in analog in your area. Follow the instructions that come with your Converter Box for how to tune analog channels.
- For instructions on how to connect your converter box if it does not include an analog pass-through feature or for instructions on connecting your converter box to other components such as a VCR, go to [www.dtv.gov](http://www.dtv.gov) or contact the FCC by e-mailing [dtvinfo@fcc.gov](mailto:dtvinfo@fcc.gov); or calling 1-888-CALL-FCC (1-888-225-5322) voice or 1-888-TELL-FCC (1-888-835-5322) TTY.

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## Setting Up Your Digital-to-Analog Converter Box (Basic with twin-lead antenna wire)

## FCC Consumer Facts

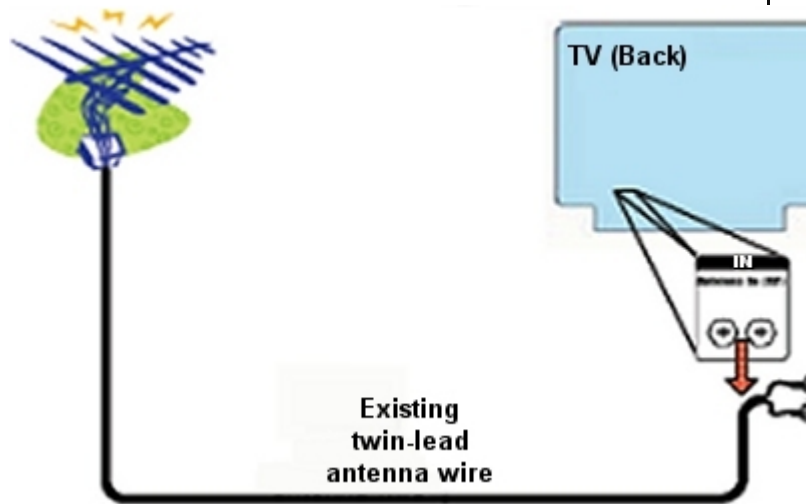


**Twin-lead antenna wire**

This Fact Sheet describes installation of a digital-to-analog-converter box if your TV set has twin-lead terminals for attaching the antenna, instead of a coaxial connector plug or port.

**Supplies:** You will need your analog TV, the antenna you have been using (indoor or outdoor), the twin-lead wire that currently connects your antenna to your TV, and two adaptors or "matching transformers" as shown below. Before you begin the installation of the converter box, you should unplug the power from your TV.

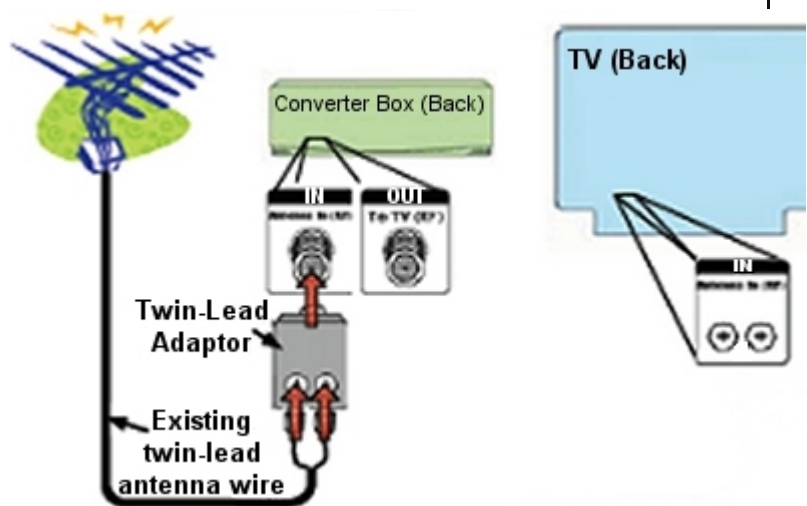
Step 1 Unscrew the existing twin-lead antenna wire from your TV "Antenna In" twin-lead terminals.



Step 2 Attach the existing twin-lead antenna wire to the twin-lead terminals on the twin-lead adaptor (like the image below). Then plug the adaptor's coaxial connector into the "Antenna In (RF)" port on the Converter Box.



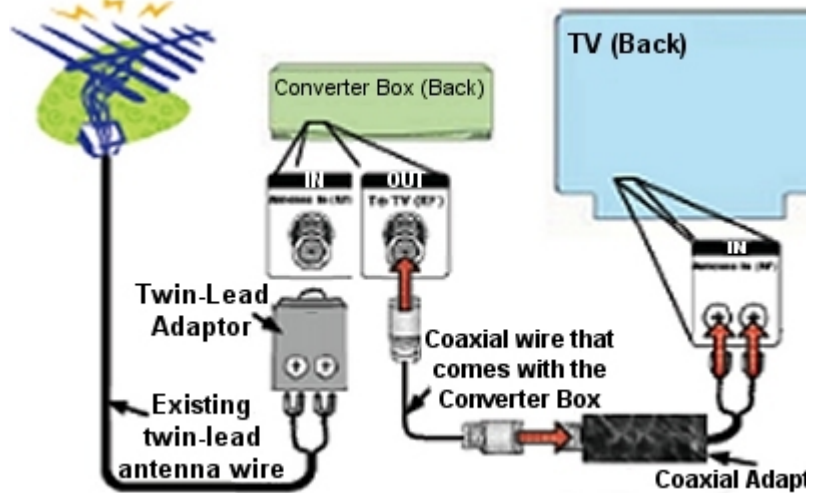
**Twin-Lead Adaptor**



Step 2 Using coaxial wire, plug one end into the "Out To TV (RF)" port on the Converter Box. Plug the other end into the coaxial port on the coaxial adaptor. Then attach the twin-lead output of the coaxial adaptor to your TV "Antenna In" twin-lead terminals.



Coaxial Adaptor



Step 3 Plug the power cords on your Converter Box and TV into a power outlet, and turn on your TV and Converter Box. Using the instructions that come with your Converter Box, tune your TV to channel 3 or 4. Using the remote that comes with your Converter Box, follow the on-screen set-up guide to scan for available DTV channels, and begin enjoying the benefits of Digital Television!

- If your Converter Box includes an "analog pass-through" feature, this set up will also allow you to receive any stations that still broadcast in analog in your area. Follow the instructions that come with your Converter Box for how to tune analog channels.
- For instructions on how to connect your converter box if it does not include an analog pass-through feature or for instructions on connecting your converter box to other components such as a VCR, go to [www.dtv.gov](http://www.dtv.gov) or contact the FCC by e-mailing [dtvinfo@fcc.gov](mailto:dtvinfo@fcc.gov); or calling 1-888-CALL-FCC (1-888-225-5322) voice or 1-888-TELL-FCC (1-888-835-5322) TTY.

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## Setting Up Your Digital-to-Analog Converter Box With a VCR

## FCC Consumer Facts

Analog TVs and VCRs can receive digital television (DTV) broadcast signals by using a “Digital-to-Analog Converter Box” that can be purchased at retail stores. If you use a single converter box and Set-Up #1, you can watch and record one channel at a time. If you use two converter boxes and Set-up #2, you can watch one channel while recording a different channel.

### Set-up #1: Watch and Record One Channel at a Time

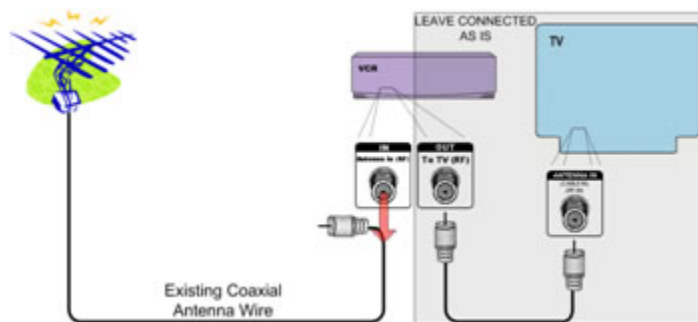
**Supplies:** You will need your analog TV, analog VCR, the antenna you have been using (indoor or outdoor), and the coaxial wire that currently connects your antenna to your VCR (as pictured on the right). Your new Converter box will come with a second coaxial wire and a remote control. Before you begin, you should unplug the power from your TV and VCR.



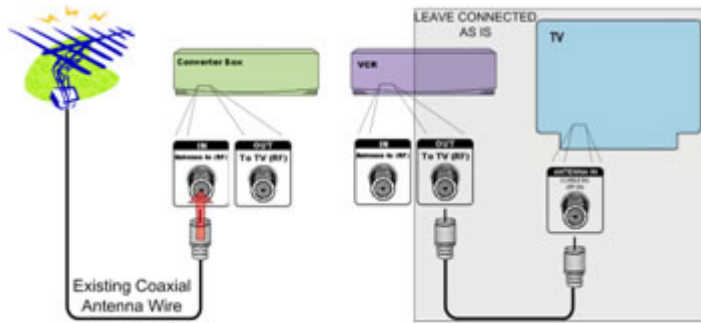
Coaxial Wire

Step 1. Unplug the existing coaxial antenna wire from your VCR “Antenna In (RF)” port.

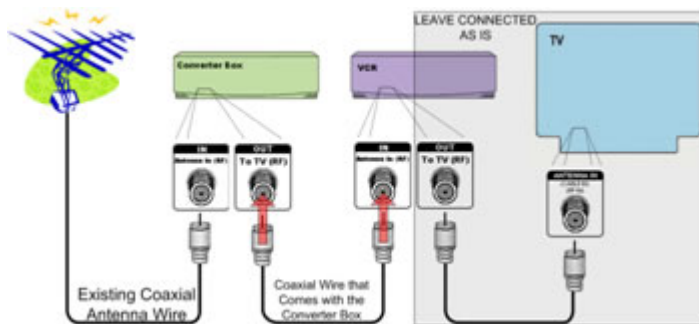
Leave your connection from the VCR to the TV as is (either an A/V cable or Coaxial Wire).



Step 2. Plug the existing coaxial wire into the “Antenna In (RF)” port on your Converter Box.



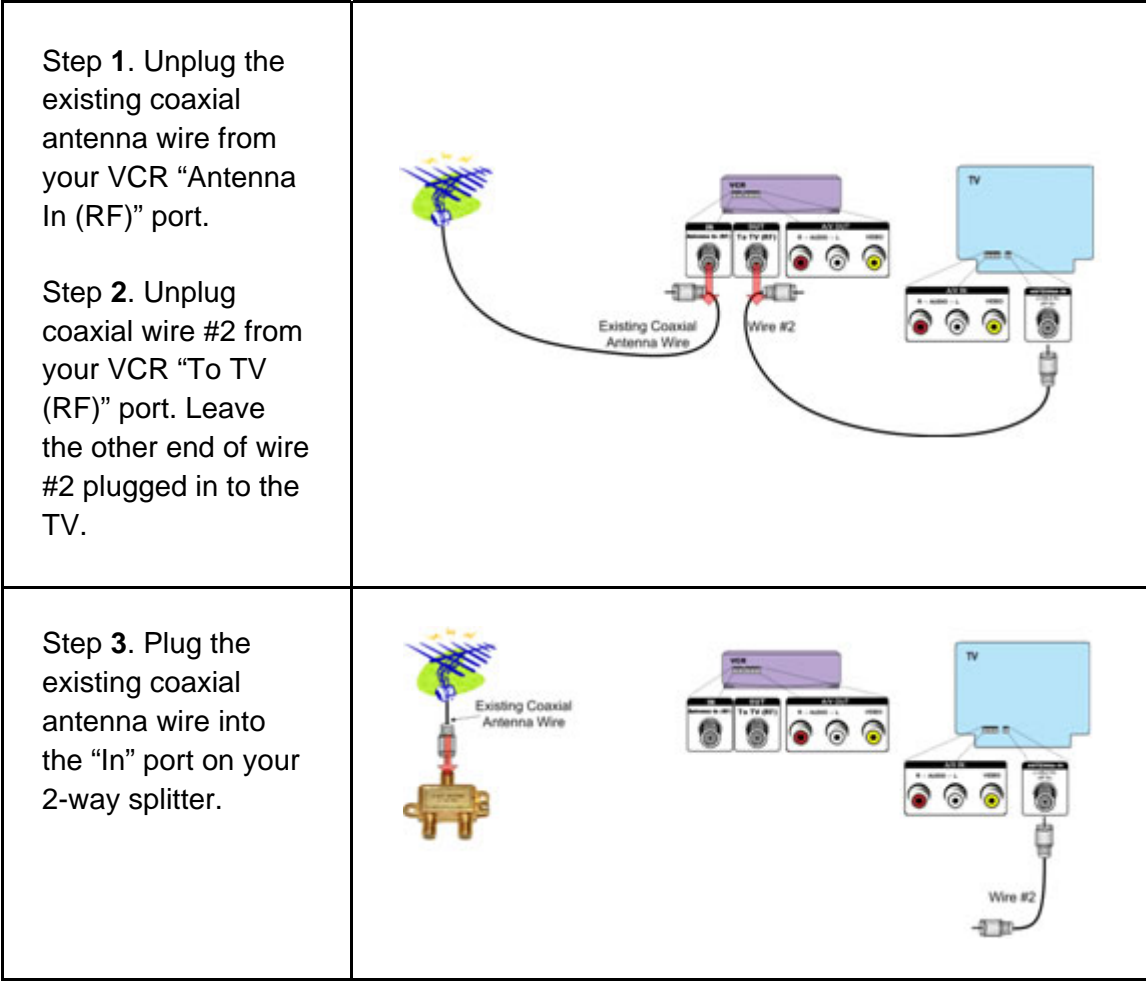
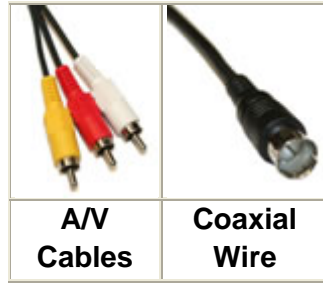
Step 3. Using the coaxial wire that comes with your Converter Box, plug one end into the “Out To TV (RF)” port on the Converter Box. Plug the other end into the “Antenna In (RF)” port on your VCR.



Step 4. Plug the power cords on your Converter Box, VCR and TV into a power outlet, and turn the devices on. Tune your VCR to channel 3 or 4 (follow the instructions in the converter box manual), and set your TV to display video from your VCR. Using the remote that comes with your Converter Box, follow the on-screen set-up guide to scan for available DTV channels, and begin enjoying the benefits of Digital Television! You will be able to record programming on the channel you are tuned to on your converter box.

## Set-up #2: Watch One Channel while Recording a Different Channel

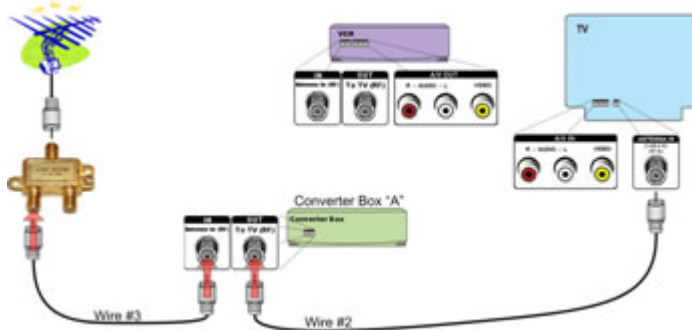
**Supplies:** You will need your analog TV, the antenna you have been using (indoor or outdoor), the coaxial wire that currently connects your antenna to your TV (as pictured on the far right), four additional lengths of coaxial wire, a set of A/V cables (as pictured on the right), a 2-way splitter, and **two converter boxes**. Your new Converter boxes will each come with a coaxial wire, a set of A/V cables (three wires with red, white and yellow plugs), and a remote control. Before you begin you should unplug the power from your TV and VCR.





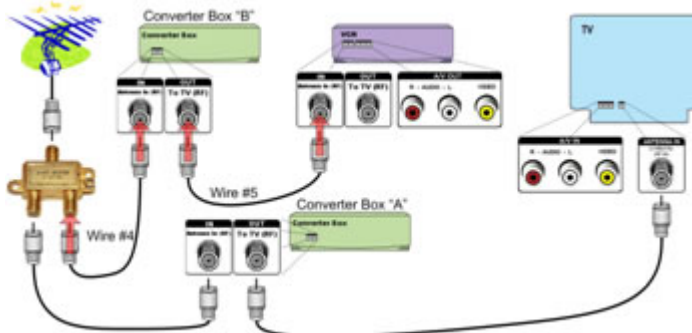
Step 4. Plug the loose end of wire #2 into the “Out to TV (RF)” port on Converter Box “A”.

Step 5. Plug one end of coaxial wire #3 into one of the “Out” ports on the 2-way splitter. Plug the other end into the “Antenna In (RF)” port on Converter Box “A”.

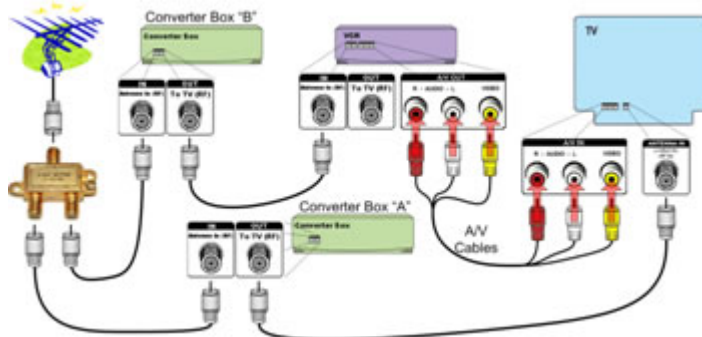


Step 6. Plug one end of coaxial wire #4 into the other “Out” port on the 2-way splitter. Plug the other end into the “Antenna In (RF)” port on Converter Box “B”.

Step 7. Plug one end of coaxial wire #5 into the “Out to TV (RF)” port on Converter Box “B”. Plug the other end into the “Antenna In (RF)” port on your VCR.



Step 8. Using your set of A/V cables, plug one end of the cables into the “A/V Out” ports on your VCR. Match the colors of the plugs to the colors of the ports, so that red plugs into red, white into white, and yellow into yellow. Plug the other end of the cables into the “A/V In” port on your TV set in the same way. If your TV does not have a red (Audio R) port, leave the red cable unplugged on both ends.



Step 9. Plug the power cords on your Converter Boxes, VCR and TV into power outlets, and turn them all on. Tune your TV to channel 3 or 4 (follow the instructions in the converter box manual) to set up Converter Box “A”. Using the remote control that came with Converter Box A, follow the on-screen set-up guide to scan for available DTV channels.

Step 10. Set your TV to “Audio/Video In” and tune your VCR to channel 3 or 4 (follow the instructions in the converter box manual) to set up Converter Box “B”. Using the remote that came with Converter Box “B”, follow the on-screen set-up guide to scan for available DTV channels.

- If you want to record a program with your VCR, set the channel on your VCR to channel 3 or 4, and tune the converter box to the desired channel.
- If your Converter Box includes a “universal remote control” or you already have your own universal remote control, follow the instructions that come with your Converter Box to program the remote to work for the TV, VCR and the Converter Box.

- **If you have a DVD Recorder or DVR, you should be able to connect it in a manner similar to the steps outlined above.**

For more information about the DTV transition, go to [www.dtv.gov](http://www.dtv.gov) or contact the FCC by e-mailing [dtvinfo@fcc.gov](mailto:dtvinfo@fcc.gov); calling 1-888-CALL-FCC (1-888-225-5322) voice or 1-888-TELL-FCC (1-888-835-5322) TTY; faxing 1-866-418-0232; or writing to:

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**Setting Up Your Digital-to-Analog Converter Box  
(For Viewing Analog and Digital Broadcasts)**

**FCC  
Consumer Facts**

Analog TVs can receive digital television (DTV) signals by using a “Digital-to-Analog Converter Box” that can be purchased at retail stores. If you wish to watch over-the-air programming with an antenna (such as “rabbit ears” on your TV or an antenna on your roof) from stations that broadcast in digital (such as full-power stations) **and** stations that broadcast in analog (such as low-power, Class A, or TV translator stations), you should choose one of the following options:

- Option Purchase a Converter Box that has “analog pass-through”
- 1) capability and install it using our “Basic Set-Up” Fact Sheet. A current list of coupon-eligible converter boxes is available at [https://www.ntiadtv.gov/cecb\\_list.cfm](https://www.ntiadtv.gov/cecb_list.cfm). Those with analog pass-through capability are marked with an asterisk. The FCC’s Basic Set-Up guide is available at [www.fcc.gov/cgb/consumerfacts/setup-converterbox.html](http://www.fcc.gov/cgb/consumerfacts/setup-converterbox.html).

or;

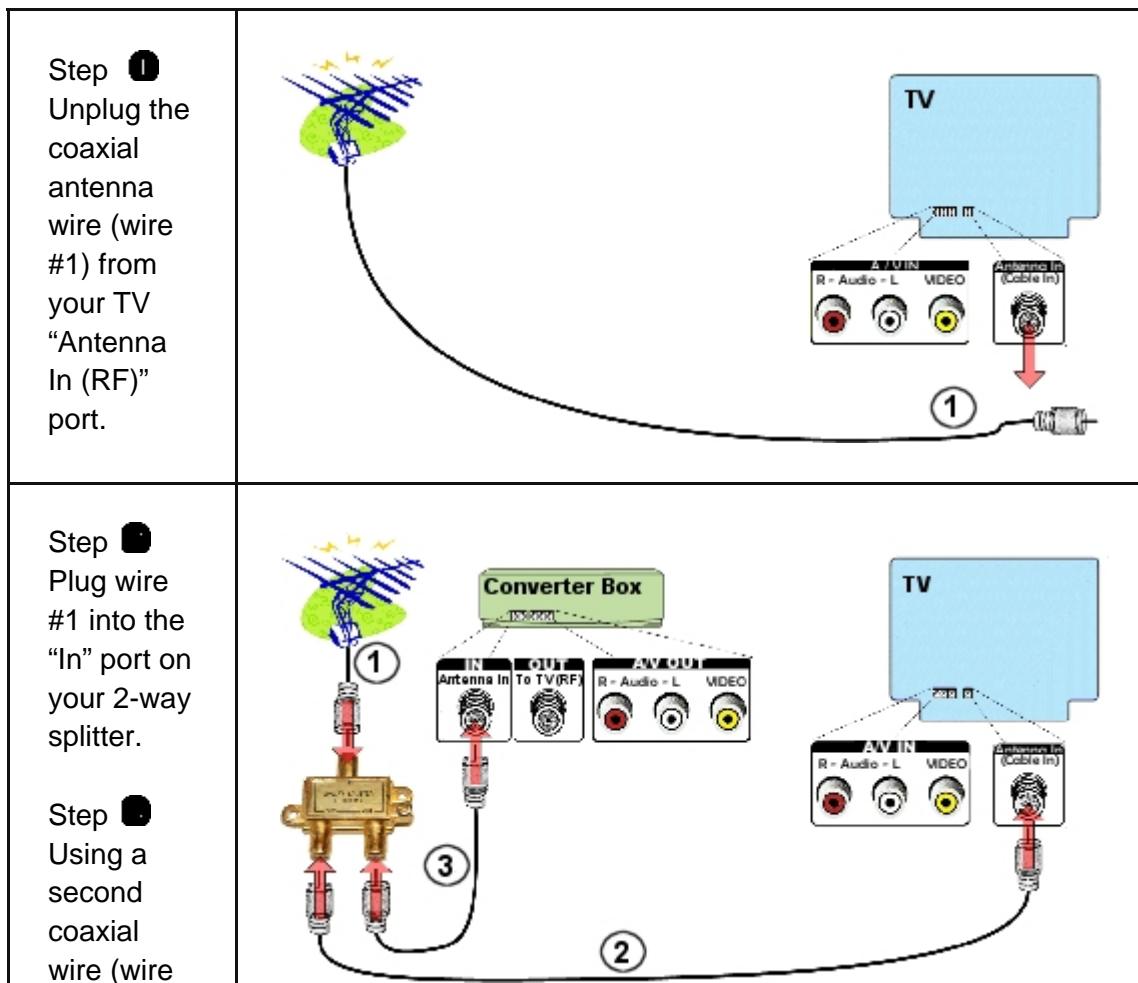
Option Purchase any Converter Box and use either of the  
2) following set-ups.

## Set-up #1: Your TV has “Audio/Video In” (A/V In) ports:

**Supplies:** You will need your analog TV, the antenna you have been using (indoor or outdoor), and the coaxial wire that currently connects your antenna to your TV (as pictured on the far right). Your new Converter box will come with a second coaxial wire, a set of A/V cables (three wires with red, white and yellow plugs), and a remote control. If you do not already have them, you will also need to purchase a third coaxial wire and a 2-way splitter. Before you begin you should unplug your TV.



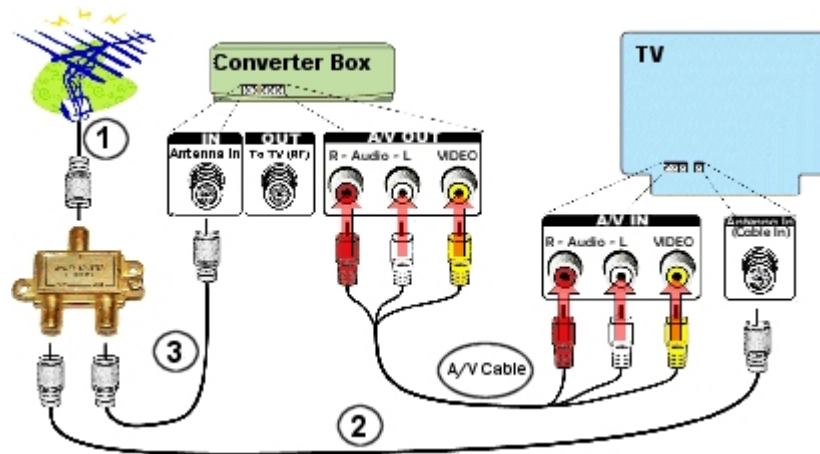
A/V Cables Coaxial Wire



#2), plug one end into one of the “Out” ports on the 2-way splitter. Plug the other end into the “Antenna In (RF)” port on your TV set.

Step **1**  
Using a third coaxial wire (wire #3), plug one end into the other “Out” port on the 2-way splitter. Plug the other end into the “Antenna In (RF)” port on your Converter Box.

Step 5  
Using a set of A/V cables, plug one end of the cables into the “A/V Out” ports on the Converter Box. Match the colors of the plugs to the colors of the ports, so that red plugs into red, white into white, and yellow into yellow. Plug the other end of the cables into the “A/V In” port on your TV set in the same way. If your TV does not have a red port, leave that cable unplugged on both ends.



Step ⑥ Plug the power cords on your Converter Box and TV into a power outlet, and turn on your TV and Converter Box. To watch digital broadcasts, set your TV to "Video In." Using the remote control that came with your Converter Box, follow the on-screen set-up guide to scan for available DTV channels, and begin enjoying the benefits of Digital Television! You will be able to access all available digital broadcasts through your converter box and its remote control. To watch analog broadcasts, set your TV to "TV In." You will be able to access all available analog broadcasts through your TV's remote control.

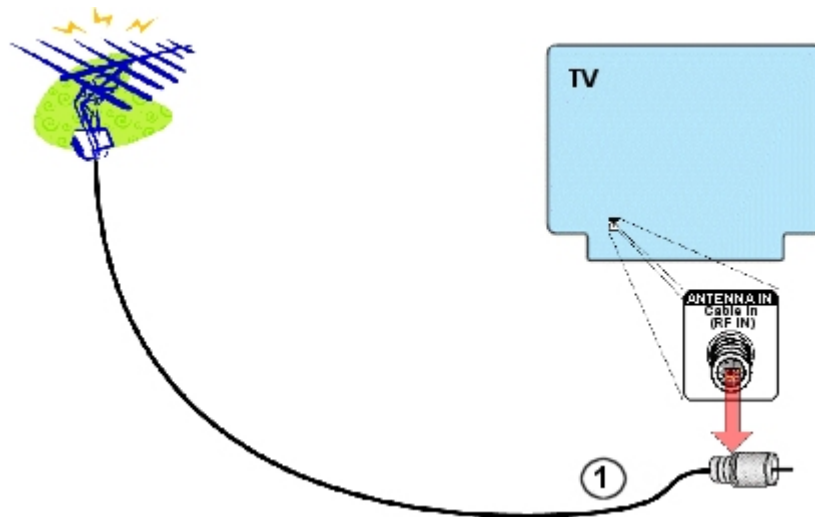
## Set-up #2: Your TV has only an "Antenna In" port:

**Supplies:** You will need your analog TV, the antenna you have been using (indoor or outdoor), and the coaxial wire that currently connects your antenna to your TV (as pictured on the right). Your new Converter box will come with a second coaxial wire and a remote control. If you do not already have them, you will also need to purchase three additional coaxial wires (for a total of five), a 2-way splitter, and an A/B switch. Before you begin you should unplug your TV.

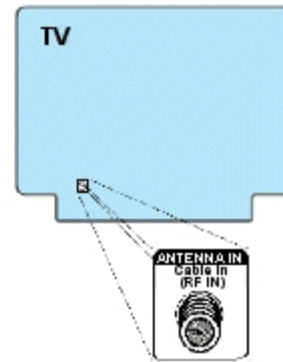
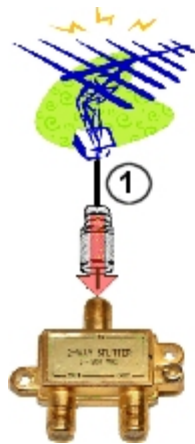


Coaxial Wire

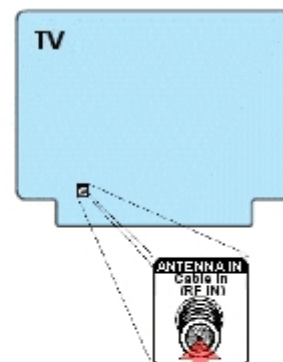
Step ①  
Unplug the coaxial antenna wire (wire #1) from your TV "Antenna In (RF)" port.



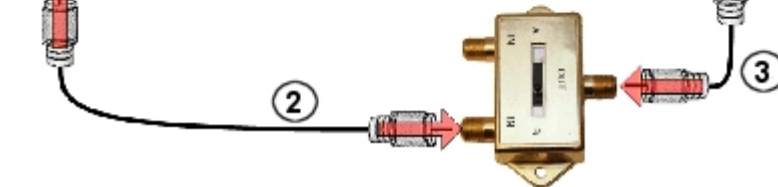
Step 2  
Plug wire #1 into the "In" port on your 2-way splitter.



Step 3  
Using a second coaxial wire (wire #2), plug one end into one of the "Out" ports on the 2-way splitter. Plug the other end into the "In B" port on the A/B switch.



Step 1  
Using a third coaxial wire (wire #3), plug one end into the "Out" port on the A/B switch.

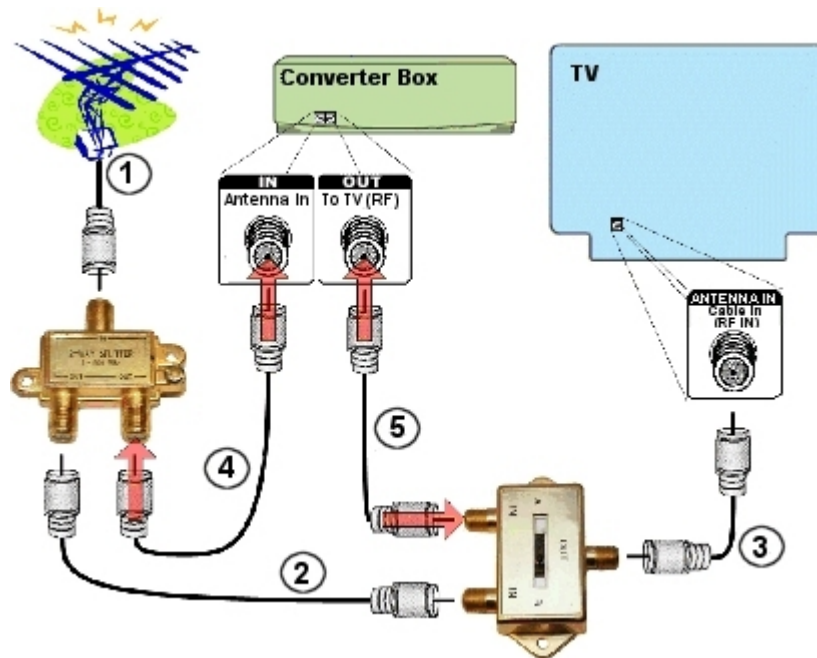




switch.  
Plug the other end into the “Antenna In (RF)” port on your TV set.

Step 5  
Using a fourth coaxial wire (wire #4), plug one end into the other “Out” port on the 2-way splitter. Plug the other end into the “Antenna In (RF)” port on your Converter Box.

Step 6  
Using a fifth coaxial wire (wire #5), plug one end into the “Out to TV (RF)” port



on your Converter Box. Plug the other end into the “In A” port on the A/B switch.

Step 7 Plug the power cords on your Converter Box and TV into a power outlet, and turn on your TV and Converter Box. Set the A/B switch to position “A” and tune your TV to channel 3 (or 4) to watch digital TV. Using the remote control that came with your Converter Box, follow the on-screen set-up guide to scan for available DTV channels, and begin enjoying the benefits of Digital Television! To watch analog TV, set the A/B switch to position “B” and change the channel on your TV set.

- If your Converter Box includes a “universal remote control” or you already have your own universal remote control, follow the instructions that come with your Converter Box to program the remote to work for both the TV and the Converter Box.
- For instructions on connecting your converter box to other components such as a VCR or a DVD player, go to [www.dtv.gov](http://www.dtv.gov) or contact the FCC by e-mailing [dtvinfo@fcc.gov](mailto:dtvinfo@fcc.gov), or calling 1-888-CALL-FCC (1-888-225-5322) voice or 1-888-TELL-FCC (1-888-835-5322) TTY.

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**Antennas and Digital  
Television**

**FCC  
Consumer  
Facts**

Federal law requires that all full-power television broadcast stations stop broadcasting in analog format and broadcast only in digital format after February 17, 2009. Broadcast stations in all U.S. markets are currently broadcasting in both analog and digital. If you have one or more analog televisions that receive free over-the-air television programming with an outdoor antenna or “rabbit ears” on the TV, you will either need a digital television (a TV with a built in digital tuner) or an analog television connected to a “digital-to-analog converter box” (which converts digital signals to analog signals for viewing on your analog set) in order to continue to watch programming from full-power broadcast stations. This Fact Sheet provides information on antennas and on what is needed for good quality reception of digital broadcasts.

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### **Try Using Your Existing Antenna First**

First, it is important to know that if your television currently receives good quality reception on analog channels 2-51 with a broadcast antenna, it should be able to receive digital television (DTV) signals, including high definition television (HDTV) signals, with the same broadcast antenna. You do not need to purchase a "DTV antenna" or an “HDTV antenna” to receive DTV or HDTV signals. However, consumers should be aware that if they use a digital-to-analog converter box, they will still need to use an antenna to receive DTV signals.

Prior to making any changes to your current antenna or antenna system, you should check to see if it will receive the digital signals being broadcast in your area. Connect your existing antenna to either a digital television or a digital-to-analog converter box connected to an analog TV. Make sure your TV is set up to receive over-the-air broadcasts (as opposed to being connected to a paid provider such as a cable or satellite TV company). It may also be helpful to perform a “channel scan,” in which your TV will automatically check to see which stations it can receive. In many cases, this is all you will need to do to watch digital television broadcasts.

### **For Help With Reception Problems**

If you experience reception problems, the following information and tips may help to improve your reception for digital broadcasts.

- During the transition to digital TV, many stations are temporarily operating at reduced power levels. If you are not receiving certain digital TV stations, this does not necessarily mean there is a problem with your antenna or receiver. Check with the TV station to find out whether they are planning changes that will improve reception.
- When an analog TV signal is weak or receives interference, static, snow, and

distortion will often appear on the screen, but you can watch the picture through the noise. Digital broadcasting will provide a clear picture even with a weak signal and in the presence of interference. However, if the digital signal falls below a certain minimum strength, the picture can suddenly disappear. This “cliff effect” means that if you typically watch analog TV stations that have a lot of static and distortion, you may have to adjust or upgrade your antenna system to get a reliably good signal for digital broadcasts.

- TV reception can be affected by factors such as terrain, trees, buildings, the weather (rain, wind, humidity), and damaged/deteriorated equipment. Often digital reception can be improved just by changing the location of your current antenna. Moving it away from other objects and structures, or placing it higher can often improve reception.
- Many antennas need to be oriented or aimed to get the best signal from the desired station. For indoor antennas, you may need to do this manually by trial and error. For outdoor antennas, a rotor that re-orientes the antenna can improve performance, particularly when trying to receive stations that transmit from different locations.
- Television stations broadcasting in digital use both the VHF band (channels 2-13) and UHF band (channels 14-51). Many indoor antennas use “rabbit ears” for the VHF band and a “loop” or “bow-tie” antenna for the UHF band. Make sure you are using an antenna that covers both the VHF and UHF bands and have connected it properly.
- Simple indoor antennas, such as rabbit ears, provide minimal performance that may or may not be suitable for your location. If you are unable to obtain satisfactory reception with your current indoor antenna, you may wish to obtain an indoor antenna that includes features for better reception of UHF signals and/or an amplifier to boost the received signal (often referred to as an active indoor antenna).
- Generally, an outdoor antenna will get better reception than an indoor antenna. If you already have an outdoor antenna and are getting good quality reception from VHF and UHF channels, your antenna should work fine for digital television.
- The performance of outdoor antennas can degrade over time due to exposure to the weather. If you are having problems, check for loose or corroded wiring, broken antenna elements and that the antenna is pointed in the right direction.
- Try to keep the length of wire between your antenna and digital receiver as short as possible for best reception.
- You can use a single antenna to provide digital broadcasts to multiple TVs in your home. Remember, however, that each analog TV connected to your antenna will need its own digital-to-analog converter box to view digital broadcast programming.
- “Splitters” that are used to connect a single antenna to multiple receivers reduce the amount of signal available to each receiver. If you are having problems, check to see whether reception is improved without the splitter. In some cases an “active” splitter that includes an amplifier can solve the problem.

- If you are near a station's broadcast tower, reception of that station, as well as other stations, can be impeded by signal "overload". Consider using an "attenuator" or removing amplifiers to improve your reception.
- If you decide to replace or upgrade your outdoor antenna, websites such as [www.antennaweb.org](http://www.antennaweb.org) provide information on the locations of broadcast towers and the types of outdoor antennas appropriate for the stations you wish to receive. If you need assistance with upgrading your antenna system, check with a local antenna retailer or antenna installer.

For more information about the DTV transition, go to [www.dtv.gov](http://www.dtv.gov) or contact the FCC by e-mailing [dtvinfo@fcc.gov](mailto:dtvinfo@fcc.gov); calling 1-888-CALL-FCC (1-888-225-5322) voice or 1-888-TELL-FCC (1-888-835-5322) TTY; faxing 1-866-418-0232; or writing to:

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