Moxi Tip #9: Some DVR Basics

Many prople on this and other forums are long-time Digital Video Recorder (DVR) users, but what about those of you who are new to the DVR world? Read on for some â??DVR Basicsâ?• that will help you get the most out of your DVR experienceâ?¦

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Whatâ??s a DVR and how does it differ from a VCR?
A DVR, or Digital Video Recorder, is a consumer device that lets you record and play back TV show recordings. But wait, isnâ??t that a VCR? Like a VCR, a DVD lets you record, play back, and Rewind, Fast Forward, and Pause while you are playing back the recordings. But there are some significant differences between the two that make then very unique.

Analog vs Digital
The first concept you need to understand is the distinction between analog signals and digital data. The input to a VCR is an analog audio/video signal. This signal typically originates from an Over The Air (OTA) antenna, a cable, or the output of a Cable box or Satellite box. The VCR records this anlalog signal to tape, and when you play it back, it is the recorded analog signal that plays back through your analog TV input.

DVRâ??s are very similar in concept except that DVRâ??s record the show digitally to a large-capacity hard disk. A DVRâ??s hard disk can only store digital information, so how does it record the TV signal? â??Standaloneâ?• DVRâ??s like most TiVo and ReplayTV models, have analog inputs like VCRâ??s whose signals originate from an Over The Air (OTA) antenna, a cable, or the output of a Cable box or Satellite box. This analog signal is converted internally to a digital data stream which is then recorded to the hard disk. When you want to play back the recording, the digital data is read back from the hard disk, converted back to an analog signal, and output to the TV. From the viewerâ??s perspective, the DVR viewing experience is almost identical in concept to the VCR.

Some DVRâ??s, however, are â??integratedâ?• into Digital Cable or Satellite boxes, so the signal they receive as input is already digital eliminating the need to convert from analog to digital. This digital data is written directly to the hard disk. Upon playback, the digital data is read from the hard disk, converted to an analog signal, and output to the TV. Because the analog to digital conversion is done at the Cable or

Satellite company with high-quality equipment, the resulting picture is typically better than the analog to digital conversion done on a â??standaloneâ?• box. Moxi in particular does offer HD recording and digital output, but thatâ??s beyond the scope of this article.

Linear Vs Direct Access

Now that you know what is being recorded, you next need to understand how it is recorded. VCRâ??s record to tape â??linearlyâ?• (sequencially, serially, etc.) This means that the beginning of the recording starts at the beginning of the tape and as you watch the recording, the VCR is reading the tape sequentially toward the end of the tape. When you â??go backâ?•, you Rewind the tape, and when you want to â??go aheadâ?• you Fast Forward. One affect of this is if you want to begin viewing 15 minutes into a show, you have to Fast Forward 15 minutes.

With a DVR, the hard disk that it uses is â??random accessâ?• meaning that the data can be written to and read from any part of the disk as needed (the hard disk hardware controls where to find the data) Using our example above, this means that if you want to begin viewing 15 minutes into a show, you simply â??jumpâ?• to the point 15 minutes into the show.

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It is important to note that how this â??navigationâ?• is implemented varies greatly from DVR to DVR. ReplayTV boxes have the most sophistocated navigation controls, letting you jump to specific places within the show, jump forward or backward any number of minutes, skip ahead 30 seconds, or jump back (replay) abotu 7 seconds. Moxi currently only provides about an 8 second Replay jump and either a 30 second or 15 minute forward jump. Sources say that better navigation features are comingâ?¦.

Another difference between linear and random access is when you want to erase a show. With a VCR, say you record three shows, one after another. Again, they are stored sequentially, so in order to â??eraseâ?• the second show, you would have rewind or fast forward to the beginning of the second show and â??overwriteâ?• it with a new show. But if the new show is longer than the second show, it will record over the third show. Things can get messy, gaps can form in the tape, and finding and keeping track of shows becomes a major headache. You end up just shuffling tapes. With a DVR, because the shows are stored â??randomlyâ?•, accessing one show is as simple as selecting it. Erasing or deleting a show is as simple as telling the DVR to delete it. The â??gapsâ?• created by deleting are simply used to record other shows, and if the show requires more space, as long as there is available free space on the hard disk, you will get your recording without overwriting other shows. The details is well hidden from the user, but the underlying technology provides a seamless viewing experience.

Transportability

One other point of difference is that a VCRâ??s tape is removable and very transportable. If you want to record something and take it to your friendâ??s house for them to see, itâ??s a simple task. Not so with a DVR. The DVRâ??s hard disk is integrated into the box and is not meant to be removable. While there are some network solutions, and some attempts at portable solutions, by and large, DVR recordings are â??fixedâ?• to the location at which they were recorded. For this reason, VCRâ??s are still excellent solutions to â??backing upâ?• or transporting DVR recordings.

But what can you do with a DVR?
Typically, DVR functions fall within two main categories: â??Live TV controlâ?• and â??Recording and Playback.â?•

â??Live TV controlâ?• refers to what you can do while watching a live TV show. When you watch a live TV show through a DVR, you technically arenâ??t watching it â??liveâ?•. The show signal comes into the DVR, if necessary is converted to digital, and written to the hard drive to a â??bufferâ?• space. It then reads back from this buffer and outputs it to your TV for you to watch. Depending on the kind of DVR you are using, you may actually watching TV at a slight 1/2 to 3 second or so delay from â??liveâ?•. The fact that you are actually watching a slightly delayed recorded â??playbackâ?• of live is where the true power of the DVD is revealed.

You can â??pauseâ?• the show and the DVR will continue to record the show into its buffer. You can â??rewindâ?• back into the buffer and watch what was recorded, and you can â??fast forwardâ?• through the buffer back to the point of live TV. Obviously, you canâ??t fast forward ahead of live because it hasnâ??t recorded yet.

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There are many practical uses for controlling live TV. For example, say you missed a play in a sports show or you missed some dialog in a movie. Just rewind and watch it again..and againâ?¦and again. Or say you want to get a snack or answer the phone. Normally, you would miss whatâ??s on or you would have to wait for a commercial break. With a DVR, just press Pause and go do your stuff. The DVR will continue to record live TV into the buffer while it is paused. When you return, press Play and you resume from where you paused. You didnâ??t miss a thing. Then, when you reach a commercial break or a part in the show that you donâ??t want to watch, just press Fast Forward, and you sill move past the content to live.

â??Recording and Playbackâ?• refers to how shows are recorded and what you can do with those recorded shows. The first thing to understand is the differences between how shows are scheduled to record.

A VCR typically has some â??interfaceâ?• for you to enter a â??recording eventâ?•. You select a channel, a recording start date, a recording start time, and an end time. You can also tell it to â??repeatâ?• these settings on a daily or weekly basis for series shows.

DVRâ??s on the other hand, remove the idea â??eventsâ?• and get you to focus more on the shows themselves. A DVR includes a â??channel guideâ?• that presents in one form or another what shows are currently airing and what shows are scheduled to air in the future, usually up to one or two weeks out. (How this information is presented differs from one DVR to another, but the general concept is similar.) You â??browseâ?• this channel guide, and it provides detailed information about the shows. When you see a show that you want to record, you select it from the channel guide and tell the DVR to record it. No messing with start times, dates, etc. Just select and itâ??s scheduled to record. And most DVRâ??s have some sort of â??intelligenceâ?• to update the schedule should a network move a show from one time slot to another. Like a VCR, you can also set up a â??seriesâ?• or â??repeatingâ?• recording.

Once a show is recorded to a VCR, you have to either remember what you recorded or you have to label the tape. When you want to watch a recording, you have to select the proper tape, rewind or fast forward to the proper place on the tape, and watch the show.

With a DVR, you call up a â??Recorded showsâ?• screen that displays a list of all the shows you have recorded. Just select the show you want to watch, press play, and you are immediatly watching the show. No shuffling tapes, rewinding, or fast forwarding.

As mentioned above, playback control is similar on VCRâ??s and DVRâ??s with the DVR typically having more navigation controls. One â??big featureâ?• that really sets a DVR apart from a VCR is the capability of watching a show at any point *while it is recording* or *while it is recording another show*. With a VCR, if you are recording a show, you either have to watch it live as it records or you have to wait for it to finish recording, rewind, and watch the recording. If you want to record second show, you have to wait for that recording to finish before you can rewind the tape and watch the shows. With a DVR, you can watch a recording at any time, even while that show is recording or while another show is recording.

How can I find shows to record?
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As mentioned above, unlike VCRâ??s, DVRâ??s provide some sort of channel guide from which you can select shows to record. Itâ??s basically an electronic version of your local TV listings. With your VCR, you just flip through the local TV listings and set up the recording events. DVRâ??s on the other hand offer a power unavailable to VCRâ??s. The channel guide data is stored on the hard disk in the DVR, so all the data is available to search. DVRâ??s offer functions to do keyword searches, topic searches, title searches, etc. Implementations vary from model to model, but generally speaking, if you want to find a show, a DVR gives you unrivaled capabilities to find it.

Say you know that Tom Hanks is starring in an upcoming show but you canâ??t remember the showâ??s title. Just do a keyword search on â??Tom Hanksâ?• and the DVR will give you a list of all shows starring Tom Hanks. From the resulting list, just hit record, and the show is scheduled. Depending on the DVR, you can search on keywords in the show descriptions, title, stars, directors, and producers.

Some DVRâ??s even offer â??topicalâ?• searches so you can find shows that fall within specific topics like â??Kidsâ?• shows or â??4-star moviesâ?•. Some of these DVRâ??s will let you schedule recordings based on these topics (ie: record all â??Archery Sporting eventsâ?• whenever they air) while other DVRâ??s show the results of the topic search letting you pick and choose the shows you want.

What else can a DVR do?
In addition to the above functions and features, different DVDâ??s offer different capabilities. For example, some offer networking capabilities letting you â??offloadâ?• the recordings to a PC for editing and archival. Some will stream MP3 audio letting you listen to your music collection through your home theater. Some DVRâ??s will find digital pictures on shared computers on your network and display a â??slideshowâ?• on your TV. Some will let you connect remotely from the Web to manage scheduled. Some DVRâ??s even let you play games.

Not all DVRâ??s have the same functions. Standalone DVRâ??s that you buy at retail are all consistent within their models. Those â??integratedâ?• boxes deployed through Cable companies can have varying feature sets depending on the Cable company and market. Be sure to check with your local Cable company for specific details.

The key point to understand is at its core, a DVR is really just a computer designed to work with your TV to provide an enhanced viewing experience. DVR developers are continually coming up with new DVR features to enhance that experiance, so keep your eyes open for new features and models.

If you are currently using a DVR, be sure to take the time to learn its features and functions. There may be some features you may not know about that might be useful to you.

If you arenâ??t vurrently using a DVR, what are you waiting for?!? By all means, take advantage of the trial periods many Cable-provided DVRâ??s offer as well as the 30-day money back guarantees found on most standalone DVRâ??s. Once you use a DVR, youâ??ll wonder how you ever got along without it. Whether you watch a lot of TV or just a little, a DVR can let you watch what you want to watch, when you want to watch it. Itâ??s all about putting some control in the hands of the viewer.

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I tried to keep this basic for those who may be new the DVR concept. If you have any questions, comments, or suggestions, please let me know. Iâ??ll be adding more Moxi Tips & Tricks here soon!

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