

Saving DVD Videos to Harddrive

And other related stuff

Like

*Blu-Ray Disks
HEVC*

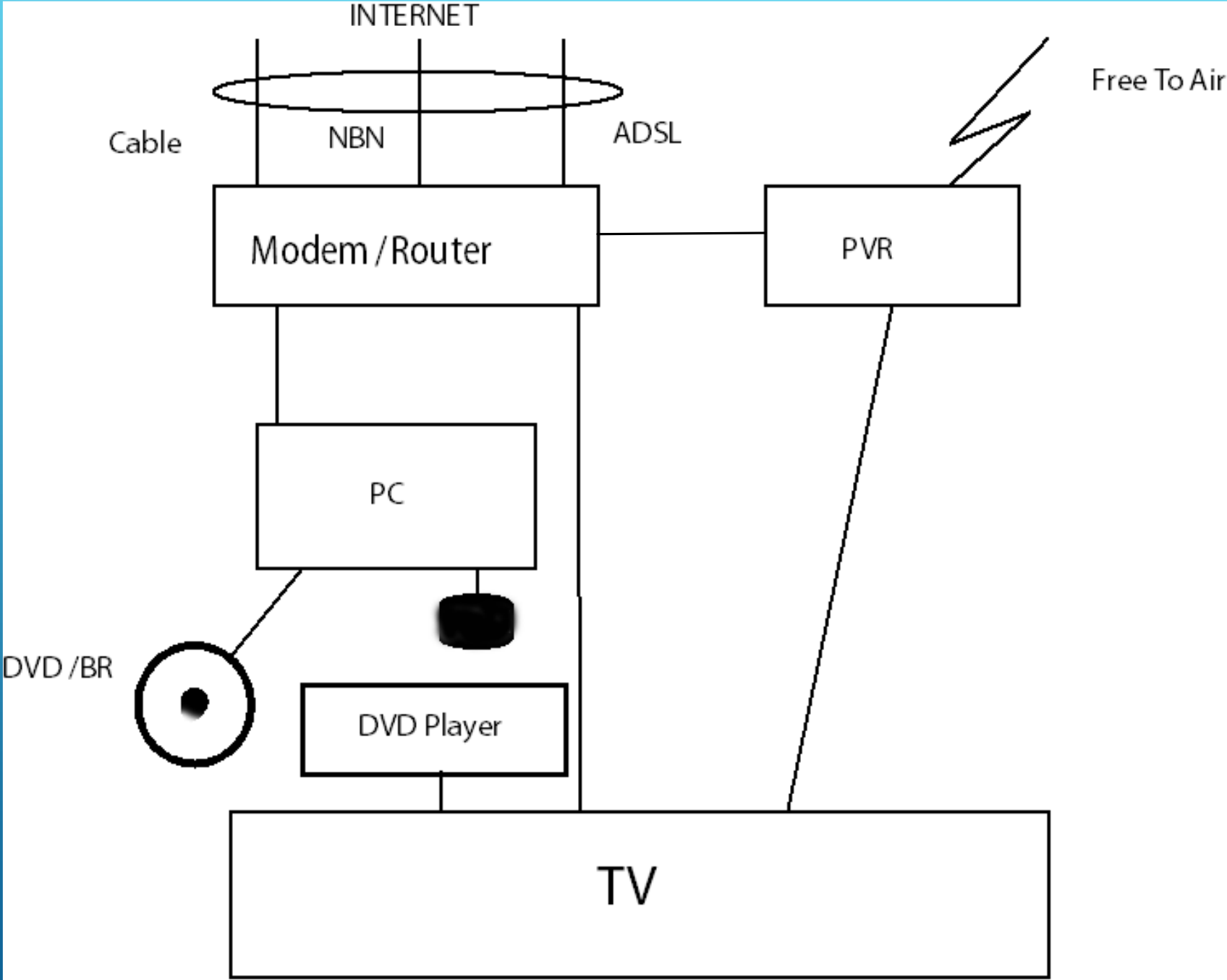
Kelvin Cording
May 2014

AIM

“to copy videos from DVD to Harddrive with high quality and minimum file size.”



Home Network



About a DVD

Capacity SS SL 4.7GBs SS DL 8.75 GBs

Formatted with ISO 9960 also Joliet- for longer file names and more character types

Superseded by UDF (2.6) Universal Disk Format - notably larger file sizes

About a DVD

File Encoding

Video

Mpeg-2 PAL - 720 x 576 , 704 x 576, 320 x 288

Bit Rate Max 9.8Mbps ← Very Important

Aspect ratio 4:3 , 16:9

Audio

Dolby Digital (AC3) stereo 5.1Ch Linear PCM Sampling 48Kbps
3Hz -20000 HZ 6 Channels Sub woofer 3 Hz -120HZ

Up to 8 simultaneous audio streams

File Structure on DVD

Name	Date modified	Type	Size
Files Currently on the Disc (2)			
AUDIO_TS	1/9/2008 11:18 PM	File folder	
VIDEO_TS	1/9/2008 11:18 PM	File folder	

Files Currently on the Disc (27)			
VIDEO_TS.BUP	1/9/2008 11:26 PM	BUP File	16 KB
VIDEO_TS.IFO	1/9/2008 11:26 PM	IFO File	16 KB
VIDEO_TS.VOB	1/9/2008 11:19 PM	VOB File	154 KB
VTS_01_0.BUP	1/9/2008 11:26 PM	BUP File	38 KB
VTS_01_0.IFO	1/9/2008 11:26 PM	IFO File	38 KB
VTS_01_0.VOB	1/9/2008 11:18 PM	VOB File	44,580 KB
VTS_01_1.VOB	1/9/2008 11:19 PM	VOB File	978 KB
VTS_02_0.BUP	1/9/2008 11:26 PM	BUP File	42 KB
VTS_02_0.IFO	1/9/2008 11:26 PM	IFO File	42 KB
VTS_02_0.VOB	1/9/2008 11:19 PM	VOB File	154 KB
VTS_02_1.VOB	1/9/2008 11:19 PM	VOB File	1,048,404 KB
VTS_02_2.VOB	1/9/2008 11:20 PM	VOB File	912,702 KB
VTS_03_0.BUP	1/9/2008 11:26 PM	BUP File	42 KB
VTS_03_0.IFO	1/9/2008 11:26 PM	IFO File	42 KB
VTS_03_0.VOB	1/9/2008 11:19 PM	VOB File	154 KB
VTS_03_1.VOB	1/9/2008 11:21 PM	VOB File	1,048,404 KB
VTS_03_2.VOB	1/9/2008 11:21 PM	VOB File	939,768 KB
VTS_04_0.BUP	1/9/2008 11:26 PM	BUP File	42 KB
VTS_04_0.IFO	1/9/2008 11:26 PM	IFO File	42 KB
VTS_04_0.VOB	1/9/2008 11:19 PM	VOB File	154 KB
VTS_04_1.VOB	1/9/2008 11:22 PM	VOB File	1,048,404 KB
VTS_04_2.VOB	1/9/2008 11:23 PM	VOB File	866,632 KB
VTS_05_0.BUP	1/9/2008 11:26 PM	BUP File	42 KB
VTS_05_0.IFO	1/9/2008 11:26 PM	IFO File	42 KB
VTS_05_0.VOB	1/9/2008 11:19 PM	VOB File	154 KB
VTS_05_1.VOB	1/9/2008 11:24 PM	VOB File	1,048,404 KB
VTS_05_2.VOB	1/9/2008 11:25 PM	VOB File	891,398 KB

About Blu Ray Discs

Storage Capacity BD SS SL 25 GBs SS DL 50 GBs




















UDF Universal Disk Format

Video MPEG-4
Audio DTS (others)

Item	Date/Time	Type	Size
AUXDATA	9/20/2012 6:12 AM	File folder	
BACKUP	9/20/2012 6:12 AM	File folder	
BDJO	9/20/2012 6:12 AM	File folder	
CLIPINF	9/20/2012 6:12 AM	File folder	
JAR	9/20/2012 6:12 AM	File folder	
META	9/20/2012 6:12 AM	File folder	
PLAYLIST	9/20/2012 6:12 AM	File folder	
STREAM	9/20/2012 6:12 AM	File folder	
index.bdmv	9/20/2012 6:10 AM	BDMV File	6 KB
MovieObject.bdmv	9/20/2012 6:10 AM	BDMV File	77 KB

Video files on BR Disc

Files Currently on the Disc (114)

 00001.m2ts	9/20/2012 5:21 AM	M2TS File	44,139,864 KB
 00002.m2ts	9/19/2012 3:38 AM	M2TS File	408 KB
 00080.m2ts	9/19/2012 3:38 AM	M2TS File	1,032 KB
 00081.m2ts	9/19/2012 3:38 AM	M2TS File	1,032 KB
 00097.m2ts	9/19/2012 3:37 AM	M2TS File	348 KB
 00098.m2ts	9/19/2012 3:38 AM	M2TS File	154,932 KB
 00099.m2ts	9/19/2012 3:36 AM	M2TS File	147,246 KB
 00100.m2ts	9/19/2012 3:36 AM	M2TS File	24,576 KB
 00102.m2ts	9/19/2012 3:37 AM	M2TS File	315,528 KB
 00103.m2ts	9/19/2012 3:37 AM	M2TS File	474 KB
 00104.m2ts	9/19/2012 3:37 AM	M2TS File	468 KB
 00106.m2ts	9/19/2012 3:36 AM	M2TS File	414 KB
 00107.m2ts	9/19/2012 3:38 AM	M2TS File	1,392 KB
 00108.m2ts	9/19/2012 3:36 AM	M2TS File	480 KB
 00109.m2ts	9/19/2012 3:36 AM	M2TS File	468 KB
 00110.m2ts	9/19/2012 3:37 AM	M2TS File	414 KB
 00111.m2ts	9/19/2012 3:36 AM	M2TS File	582 KB
 00112.m2ts	9/19/2012 3:36 AM	M2TS File	480 KB
 00113.m2ts	9/19/2012 3:36 AM	M2TS File	582 KB

Review

What is a Codec



A compression system consists of a compressor or coder, a transmission channel and a matching expander or decoder.

The combination of coder and decoder is known as a **CODEC**

Bit Rate

Rate at which digital information can be conveyed.

e.g. for video - typically

bits per pixel x pixels per line x no of lines per frame x frames per second

12 x 720 x 576 x 25

= 124.4Mb/s

Audio

16bit , 48-kHz , 2ch

1536Kbp/s

Before compression

Factors effecting Conversion of Video Files - *Quality and File Size*

- *Resolution* e.g 720 x 576
- *Frame rate* e.g 25 FPS
- *Bit rate* e.g 2000 Kbs
- *Encoder* Mpeg-4

Hardware and Software Requirements

Hardware

Many modern encoders e.g. Mpeg-4 /H264 require significant processing power

Fast CPU - more RAM - Good graphic card - CUDA etc

Software

Many packages available to assist with these activities.

See

<http://www.videohelp.com/tools>

Some software packages personally used

- **Xilisoft** *Video Converter Ultimate*
- **Wondershare** *Video Converter Ultimate*
- **Adobe** *Media Encoder*
- **TMPGEnc** *Video Mastering Works*
- **TMPGEnc** *Authoring Works*
- **Sorenson** *Squeeze*

 **Demonstration**



NEW Codec

HEVC (High Efficiency Video Codec) / H265

“ HEVC is targeted at next-generation HDTV displays and content capture systems which feature progressive scanned frame rates and display resolutions from QVGA (320x240) to 4320p (8192x4320), as well as improved picture quality in terms of noise level, color spaces, and dynamic range”

Comparison of video coding standards based on equal PSNR for entertainment applications

Video coding standard	Average bit rate reduction compared to			
	H.264/MPEG-4 AVC HP	MPEG-4 ASP	H.263 HLP	H.262/MPEG-2 MP
HEVC MP	35.4%	63.7%	65.1%	70.8%
H.264/MPEG-4 AVC HP	–	44.5%	46.6%	55.4%
MPEG-4 ASP	–	–	3.9%	19.7%
H.263 HLP	–	–	–	16.2%

Understanding the significance of HEVC

(YouTube Link)



**HDTV 1080p
(1920 x 1080)**

**Digital Cinema - 4K
Ultra High Definition
(4096 x 2160)**

**Super Hi-Vision / Ultra High Definition
8 K
(7680 x 4320)**

Relative sizes of HDTV and Ultra High Definition 4K & 8K

HEVC decoder Silicon support Jan 2014

Vendor*	Main-10	4K 2160p	Market
Broadcom	2014	Yes	STB
Entropic	No	No	STB
MediaTek	No	Yes	DTV
MStar	No	Yes	STB + DTV
Qualcomm	2014	Yes	Mobile (STB)
Sigma	No	Yes	STB + Consumer + DTV
ST	2014	Yes	STB
ViXS	Yes	Yes	STB + Consumer + DTV

A good place to start -

DIVX

<http://www.divx.com/en/company/about-us>

For stuff on Matroska (MKV) , HEVC

Wondershare Video Converter Ultimate

<http://www.wondershare.net/pro/video-converter-ultimate.html>

Questions ?

