Kodak Digital Camera HOWTO

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The purpose of this document is to help one get their Kodak digital camera working under GNU/Linux. The scope of the document may change at any time to include more camera models. As of the current version this document does support some other models than ones sold under the Kodak name. However those are only mentioned as they work with the same steps that similar Kodak cameras use. This document is not likely to grow to support all digital cameras as there are simply too many to document in one HOWTO.

Table of Contents

Table of Contents

Table of Contents

1. Introduction

1.1. History

This HOWTO was created in an attempt to document installation of a Kodak DC−265 Camera.

Revision History:

January 6, 2001−−

- Documented at least one supported transfer method (most have two or more documented) for all Kodak DC−Series digital cameras.
- Added specifications for most of the Kodak DC−Series digital cameras.
- Updates for Linux 2.4.x kernel series release.
- Additional software support listings added.
- URL updates to fix old/broken URLs.
- Document reformatting to make it an easier read.
- License change, document is now licensed under the GNU Free Documentation License

October 9, 2000−−

- Fixes for the LinuxDoc−>DocBook DTD change that went unnoticed
- Additional information regarding drivers for other Operating Systems (Kodak didn't used to have them up on the web)
- Various other changes

October 8, 2000−−

- IrDA support (This is not for the faint of heart and is only tested with a DC−265 but should also work with a DC−290 and maybe others with IrDA support)

October 4, 2000−−

- Many updates, contacted Kodak for permission to include some copywritten information, etc. etc.

August 22, 2000−−

- Conversion to DocBook DTD from LinuxDoc DTD as a lot of the HOWTOs are already converted

April 23, 2000−−

- Updated OpenDIS for IrDA support (CVS Version)
- Fixed spelling goof s/shudder/shutter/ (Thanks Patrick!)

February 20, 2000−−

- Major clean up of general issues
- Addition and rearrangement of sections
- Additional mailing list and web resources added

February 17, 2000−−

- Major revision with lots of changes...
- Updated for new backport and devel kernels
- Rearranged for easier reading and flow
- Updated for new OpenDiS release and the Python script.

January 18, 2000−−

- TODO added
- Removal of kernel 2.2.13 section due to new USB backport release for 2.2.14. Replaced with a section for kernel 2.2.14. Please view previous HOWTO versions for information regarding older kernels
- Removal of kernel 2.3.36 section due to newer developmental kernels, replaced with kernel 2.3.39. Please view previous HOWTO versions for information regarding older kernels.
- Added a section detailing use of a Compact Flash PC Card Adapter

January 9, 2000−−

- Document modified for release of OpenDiS 0.0.3−pre6

January 4, 2000−−

- Support for DC−265 under kernels 2.2.13, 2.2.14, and 2.3.35 via USB draft completed.
- History written
- FAQ started
- Background written
- Lots of other fun stuff

January 3, 2000−−

- Initial research and work done to start writing HOWTO and thus it was born.

1.2. New Versions

New versions of this HOWTO will be available on http://www.marblehorse.org/projects/documentation/kodak/. Copies of this HOWTO will be provided in a number of formats, including SGML, HTML and ASCII text. The authoritative master of this document will be the LyX−formatted copy.

January 6, 2001−−

v0.5.0 released (non−public)

October 8, 2000−−

v0.0.10a released (public)

v0.0.10 released (public)

February 20, 2000−−

v0.0.7 released (public)

v0.0.6 released (non−public)

February 17, 2000−−

v0.0.4 released and v0.0.5 released (non−public)

January 18, 2000−−

v0.0.3 released (non−public)

January 9, 2000−−

v0.0.2 released (non−public)

January 4, 2000−−

v0.0.1 released (non−public)

1.3. Copyright and Trademarks

1.3.1. Copyright

1.3.2. Trademarks

Linux is a registered trademark of Linus Torvalds.

Kodak is a registered trademark of the Eastman Kodak Company.

1.4. Acknowledgments and Thanks

I would like to thank the Marble Horse Free Software Group for their support of my efforts, specifically Jacob Moorman for his direction and help with this and many of my other endeavors. I would also like to thank the rest of the Linux community, especially those working on USB and digital camera support. Know that there are people out there who are using your code and would like you to continue.

1.5. Author Contact Information

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1.6. Endorsements

This is a project of David Burley, a member of the Marble Horse Free Software Group. This project has been adopted by the group as an appropriate free software project that is of benefit to the community.

1.7. Sponsors

Currently no individuals and/or companies have supplied any form of support for this document. However such donations would help for the addition of new or more information to this document or perhaps the creation of a document relating to another series of digital cameras. The testing equipment used was all purchased with the personal funds of the author which are of very limited quantity. Please send an e–mail to the author, David Burley, about sponsorship. All sponsors will be listed in this section.

2. Background

2.1. Digital Camera Technology−−How Things Work

Digital cameras work with the same basic concept as a traditional camera. They have a viewfinder or LCD screen to show the image prior to taking a photograph, a lens with a shutter behind it to allow the light from the subject to hit a light sensitive material. However, this is where most of the similarities end.

Digital cameras use a CCD (Charged Coupled Device) to sense the colors of the light and their intensity. The CCD can be likened to a very find piece of graphing paper, with thousands of little squares (transistors) to which sense the differences between the colors. There are three types of transistors used in commonplace CCDs, red, green and blue. Each transistor then passes the color and intensity it sensed to and Analog−to−digital converter (ADC). The ADC then converts the information passed to it by the transistors into a digital format, or binary 1's and 0's. The digital output of the ADC is then passed to a Digital Signal Processor (DSP). The DSP adjusts the contrast and other image details to get the perfect look and then compresses the data into a file format like JPEG (Joint Photographics Expert Group).

Digital cameras may also have the ability to do an optical or a digital zoom on an image. An optical zoom is when a lens is used to get a closer look at the subject. A digital zoom is used to enhance the optical zoom for a larger image even though the maximum size has been attained via optical zoom. Even though an image can be resized later, it is suggested to use the built in digital zoom of the camera at this point before any compression has been done to the image. File formats like JPEG tend to degrade in quality when resized more so then when the image is resized by the camera's software. This is due to artifacts left behind from the compression.

A good resource for definitions of the terms used above is http://photo.askey.net/articles/glossary/ Please refer there for more information. Kodak also has a good site with much information on how things work, http://www.kodak.com/US/en/digital/dlc/.

2.2. Kodak Digital Camera Product Line

The technical specifications for the cameras in the Kodak Digital Camera product line have been attained from owners of the cameras and from third party web sites. None of the information in this section has been taken or compared to any Kodak documentation or their web site. Please submit missing and or incorrect information not obtained from copyrighted Kodak materials to khemicals@marblehorse.org. This information is useful to not only track the progression of digital cameras and as a comparison tool but also for many other technical uses.

2.2.1. DC5000

CDD Resolution	2.1 Megapixel
Image Resolution	1760 x 1168; 896 x 592 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card

Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	2x zoom, autofocusing
Digital Zoom	3x
Focus Range	0.25m to infinity
Exposure	Auto with manual override
Shutter Speed	1/2 – 1/755 second
Aperature Range	f/6.5 – f/13.0
ISO Equivalent	100
Scripting	DigitaOS
Burst Capture	Yes
Time Lapse	Yes
Orientation Sensor	Yes
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range) and optional external flash sync
File Formats	JPEG (.JPG)
User Interface	?
Power	4 AA batteries or AC Power Adapter
Dimensions	140mm wide x 89mm deep x 83mm high
Weight	1.0 lb without batteries
Video Out	NTSC or PAL

2.2.2. DC4800

CDD Resolution	3.3 Megapixels
Image Resolution	2160 x 1440; 1800 x 1200; 1536 x 1024; 1080 x 720 pixels
Image Quality Options	Uncompressed TIFF, Normal and Basic
Image Storage	Compact Flash Card
Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	3x zoom, autofocusing
Digital Zoom	2x
Focus Range	7.8 to infinity
Exposure	Auto with manual override

Shutter Speed	1/1000 – 16 seconds
Aperature Range	f/2.8 – f/8.0
ISO Equivalent	100, 200 and 400
Scripting	?
Burst Capture	Yes
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range)
File Formats	JPEG (.JPG), TIFF (.TIFF)
User Interface	?
Power	LiIon rechargeable batter pack or optional AC adapter
Dimensions	4.72 wide x 2.56 deep x 2.72 high
Weight	0.72 lb without batteries
Video Out	NTSC or PAL

2.2.3. DC3800

CDD Resolution	2.3 Megapixel
Image Resolution	1792 x 1184; 896 x 592 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	1.5 TFT color LCD and optical viewfinder
Lens	autofocusing
Digital Zoom	2x
Focus Range	8 to infinity
Exposure	Auto
Shutter Speed	1/2 – 1/1000 of a second
Aperature Range	f/2.8 – f/8.0
ISO Equivalent	100
Scripting	?
Burst Capture	Yes

Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (8.2' range)
File Formats	JPEG (.JPG)
User Interface	?
Power	2 AA batteries or AC Power Adapter
Dimensions	3.7 wide x 2.4 deep x 1.3 high
Weight	0.36 lb without batteries
Video Out	NTSC

2.2.4. DC3400

CDD Resolution	1901 x 1212 pixels
Image Resolution	1760 x 1168; 896 x 592 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	1.8 TFT Color LCD and optical viewfinder
Lens	2x zoom, autofocusing
Digital Zoom	3x
Focus Range	9.8 to infinity
Exposure	Auto
Shutter Speed	1/2 – 1/755 second
Aperature Range	Wide: f/3.1 – f/8.1; Telephoto: f/3.9 – 10.3
ISO Equivalent	100
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range) and optional external flash sync

File Formats	JPEG (.JPG)
User Interface	?
Power	4 AA batteries or AC Power Adapter
Dimensions	5.2 wide x 2.1 deep x 3.0 high
Weight	0.75 lb without batteries
Video Out	NTSC or PAL

2.2.5. DC3200

CDD Resolution	1280 x 960
Image Resolution	1152 x 864; 576 x 432 pixels
Image Quality Options	Best, Better, Good
Image Storage	2 MB Internal and Compact Flash Card slot
Viewfinder	1.6 TFT color LCD and optical viewfinder
Lens	autofocusing
Digital Zoom	2x
Focus Range	24 to infinity
Exposure	Auto
Shutter Speed	1/4 – 1/500 of a second
Aperature Range	f/3.6 – f/8.0
ISO Equivalent	100
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	?
Tripod Mount	?
Flash	Strobe flash (8' range)
File Formats	JPEG (.JPG)
User Interface	?
Power	4 AA batteries
Dimensions	4.45 wide x 3.19 deep x 2.1 high
Weight	0.475 lb without batteries
Video Out	NTSC only (US Version) or NTSC/PAL (Canadian Version)

2.2.6. DC290

CDD Resolution	1901 x 1212 pixels
Image Resolution	2240 x 1500; 1792 x 1200; 1440 x 960; 720 x 480 pixels
Image Quality Options	?
Image Storage	Compact Flash Card
Viewfinder	2.0 TFT color LCD and optical viewfinder
Lens	3x zoom, autofocusing
Digital Zoom	2x
Focus Range	12 to infinity
Exposure	Auto with manual override
Shutter Speed	1/400 – 16 second
Aperature Range	Wide: f/3.0 – f/15.3; Telephoto: f/4.7 – f/16.0
ISO Equivalent	100
Scripting	DigitaOS
Burst Capture	Yes
Time Lapse	Yes
Orientation Sensor	Yes
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range) and optional external flash sync
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	GUI
Power	4 AA batteries or AC Power Adapter
Dimensions	4.6 wide x 2.2 deep x 4.2 high
Weight	1.2 lb without batteries
Video Out	NTSC or PAL

2.2.7. DC280

CDD Resolution	1901 x 1212 pixels

Image Resolution	1760 x 1168; 896 x 592 pixels
Image Quality Options	Best, Better and Good
Image Storage	Compact Flash Card
Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	3x zoom, autofocusing
Digital Zoom	2x
Focus Range	0.5m – Infinity; 0.25m – 0.5m
Exposure	Auto with manual override
Shutter Speed	1/2 – 1/755 second
Aperature Range	Wide: f/3.0 – f/7.6; Telephoto: f/3.8 – f/9.6
ISO Equivalent	70
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	?
Flash	Strobe flash (9.6' range)
File Formats	JPEG (.JPG)
User Interface	GUI
Power	4 AA batteries or AC Power Adapter
Dimensions	5.2 wide x 2.0 deep x 3.0 high
Weight	0.75 lb without batteries
Video Out	NTSC or PAL

2.2.8. DC265

CDD Resolution	1548 x 1032 pixels
Image Resolution	1536 x 1024; 1152 x 768; 768 x 512 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	2.0 TFT color LCD and optical viewfinder
Lens	3x zoom, autofocusing
Digital Zoom	2x

Focus Range	12 to infinity
Exposure	Auto with manual override
Shutter Speed	1/4 – 1/400 of a second
Aperature Range	Wide: f/3.0 – f/14.0; Telephoto: f/4.7 – f/22.0
ISO Equivalent	100
Scripting	DigitaOS
Burst Capture	Yes
Time Lapse	Yes
Orientation Sensor	Yes
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range) and optional external flash sync
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	GUI
Power	4 AA batteries or AC Power Adapter
Dimensions	4.6 wide x 2.2 deep x 4.2 high
Weight	1.2 lb without batteries
Video Out	NTSC or PAL

2.2.9. DC260 (discontinued)

CDD Resolution	1548 x 1032 pixels
Image Resolution	1536 x 1024; 1152 x 768; 768 x 512 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	2.0 TFT color LCD and optical viewfinder
Lens	3x zoom, autofocusing
Digital Zoom	2x
Focus Range	12 to infinity
Exposure	Auto with manual override
Shutter Speed	1/4 – 1/400 of a second
Aperature Range	Wide: f/3.0 – f/14.0; Telephoto: f/4.7 – f/22.0
ISO Equivalent	100

Scripting	DigitaOS
Burst Capture	Yes
Time Lapse	Yes
Orientation Sensor	Yes
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range) and optional external flash sync
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	GUI
Power	4 AA batteries or AC Power Adapter
Dimensions	4.6 wide x 2.2 deep x 4.2 high
Weight	1.2 lb without batteries
Video Out	NTSC or PAL

2.2.10. DC240 / DC240i

CDD Resolution	1344 x 971 pixels
Image Resolution	1280 x 960; 640 x 480 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	3x zoom, autofocusing
Digital Zoom	2x
Focus Range	19.6 to infinity; 9.8 to 19.6
Exposure	Auto with manual override
Shutter Speed	1/2 – 1/755 of a second
Aperature Range	Wide: f/2.8 – f/16.0; Telephoto: f/4.5 – f/25.7
ISO Equivalent	140
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds

Tripod Mount	Yes
Flash	Strobe flash (9.8' range)
File Formats	JPEG (.JPG)
User Interface	GUI
Power	4 AA batteries or AC Power Adapter
Dimensions	5.2 wide x 2.0 deep x 3.0 high
Weight	0.7 lb without batteries
Video Out	NTSC or PAL

2.2.11. DC220 (discontinued)

CDD Resolution	1174 x 884 pixels
Image Resolution	1152 x 864; 640 x 480 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	2.0 TFT color LCD and optical viewfinder
Lens	2x focus free zoom
Digital Zoom	2x
Focus Range	8 to infinity
Exposure	Auto with manual override
Shutter Speed	1/2 – 1/360 of a second
Aperature Range	Wide: f/4.0 – f/13.5; Telephoto: f/4.7 – f/16.0
ISO Equivalent	140
Scripting	DigitaOS
Burst Capture	Yes
Time Lapse	Yes
Orientation Sensor	Yes
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range) and optional external flash sync
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	GUI
Power	4 AA batteries or AC Power Adapter

Dimensions	4.6 wide x 2.2 deep x 4.2 high
Weight	1.2 lb without batteries
Video Out	NTSC or PAL

2.2.12. DC215 / DC215 Metallics

CDD Resolution	1174 x 884 pixels
Image Resolution	1152 x 768; 640 x 480 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	2x focus free zoom
Digital Zoom	?
Focus Range	8 to infinity
Exposure	Auto with manual override
Shutter Speed	1/2 – 1/362 of a second
Aperature Range	Wide: f/3.0 – f/13.5; Telephoto: f/4.79 – f/16.0
ISO Equivalent	140
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range)
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	?
Power	4 AA batteries or AC Power Adapter
Dimensions	4.5 wide x 1.7 deep x 2.7 high
Weight	0.66 lb without batteries
Video Out	NTSC or PAL

2.2.13. DC210 (discontinued)

CDD Resolution	?
Image Resolution	1152 x 864; 640 x 480 pixels
Image Quality Options	?
Image Storage	Compact Flash Card
Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	?
Digital Zoom	?
Focus Range	?
Exposure	?
Shutter Speed	?
Aperature Range	?
ISO Equivalent	140
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	?
Tripod Mount	?
Flash	?
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	?
Power	4 AA batteries or AC Power Adapter
Dimensions	?
Weight	?
Video Out	NTSC or PAL

2.2.14. DC210 Plus

CDD Resolution	1174 x 884 pixels
Image Resolution	1152 x 864; 640 x 480 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card

Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	2x focus free zoom
Digital Zoom	?
Focus Range	8 to infinity
Exposure	Auto with manual override
Shutter Speed	1/2 – 1/362 of a second
Aperature Range	Wide: f/4.0 – f/13.5; Telephoto: f/4.7 – f/16.0
ISO Equivalent	140
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range)
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	?
Power	4 AA batteries or AC Power Adapter
Dimensions	5.2 wide x 1.9 deep x 3.2 high
Weight	0.75 lb without batteries
Video Out	NTSC or PAL

2.2.15. DC200 (discontinued)

CDD Resolution	1160 x 872 pixels
Image Resolution	1152 x 864; 640 x 480 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	focus free
Digital Zoom	?
Focus Range	27 to infinity
Exposure	Auto
Shutter Speed	1/2 – 1/362 of a second

Aperature Range	f/4.0 – f/13.5
ISO Equivalent	140
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range) and optional external flash sync
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	?
Power	4 AA batteries or AC Power Adapter
Dimensions	5.2 wide x 1.9 deep x 3.2 high
Weight	0.75 lb without batteries
Video Out	NTSC or PAL

2.2.16. DC200 Plus

CDD Resolution	1160 x 872 pixels
Image Resolution	1152 x 864; 640 x 480 pixels
Image Quality Options	Best, Better, Good
Image Storage	Compact Flash Card
Viewfinder	1.8 TFT color LCD and optical viewfinder
Lens	focus free
Digital Zoom	?
Focus Range	27 to infinity
Exposure	Auto with manual override
Shutter Speed	1/2 – 1/362 of a second
Aperature Range	f/4.0 – f/13.5
ISO Equivalent	140
Scripting	?
Burst Capture	?
Time Lapse	?

Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash (9.8' range) and optional external flash sync
File Formats	JPEG (.JPG) and Flashpix (.FPX)
User Interface	?
Power	4 AA batteries or AC Power Adapter
Dimensions	5.2 wide x 1.9 deep x 3.2 high
Weight	0.75 lb without batteries
Video Out	NTSC or PAL

2.2.17. DC120 (discontinued)

CDD Resolution	850 x 984 pixels
Image Resolution	1280 x 960 pixels
Image Quality Options	Uncompressed, Best, Better, Good
Image Storage	2MB Internal Storage and Compact Flash Card
Viewfinder	1.6 color LCD
Lens	3x zoom, autofocusing
Digital Zoom	?
Focus Range	7.9 to infinity
Exposure	Auto with manual override
Shutter Speed	1/500 – 16 seconds
Aperature Range	Wide: f/2.5 – f/16.0; Telephoto: f/3.8 – f/24.0
ISO Equivalent	160
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	Yes
Flash	Strobe flash and optional external flash sync
File Formats	?

User Interface	?
Power	4 AA batteries
Dimensions	4.3 wide x 5.7 deep x 2.2 high
Weight	1.15 lb without batteries
Video Out	?

2.2.18. DC50 (discontinued)

No specifications have been submitted for this camera yet.

2.2.19. DC40 (discontinued)

No specifications have been submitted for this camera yet.

2.2.20. DC25 (discontinued)

CDD Resolution	?
Image Resolution	493 x 373; 320 x 240 pixels
Image Quality Options	?
Image Storage	Compact Flash Card
Viewfinder	1.6 color LCD
Lens	focus free
Digital Zoom	?
Focus Range	0.5m to infinity
Exposure	Auto
Shutter Speed	1/30 – 1/4000 of a second
Aperature Range	f/4.0 – f/11.0
ISO Equivalent	800/1600
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	10 seconds
Tripod Mount	?
Flash	Strobe flash

File Formats	?
User Interface	?
Power	2 3V Lithium
Dimensions	5.1 wide x 1.6 deep x 2.8 high
Weight	0.59 lb with batteries
Video Out	?

2.2.21. DC20 (discontinued)

CDD Resolution	?
Image Resolution	493 x 373; 320 x 240 pixels
Image Quality Options	?
Image Storage	1 MB Internal
Viewfinder	?
Lens	focus free
Digital Zoom	?
Focus Range	0.5m to infinity
Exposure	Auto
Shutter Speed	1/30 – 1/4000 of a second
Aperature Range	f/4.0 – f/11.0
ISO Equivalent	800/1600
Scripting	?
Burst Capture	?
Time Lapse	?
Orientation Sensor	?
Self Timer	?
Tripod Mount	?
Flash	?
File Formats	?
User Interface	?
Power	3V Lithium
Dimensions	102mm wide x 31mm deep x 61mm high
Weight	0.26 lb without batteries
Video Out	?

2.2.22. EZ200

CDD Resolution	640 x 480
Image Resolution	640 x 480, 320 x 240; 160 x 120 pixels
Image Quality Options	?
Image Storage	4 MB Internal
Viewfinder	?
Lens	manual focus
Digital Zoom	none
Focus Range	2 to infinity
Exposure	Auto
Shutter Speed	1/4 – 1/500 of a second
Aperature Range	f/2.3 fixed
ISO Equivalent	?
Scripting	?
Burst Capture	Yes (and streaming)
Time Lapse	?
Orientation Sensor	?
Self Timer	?
Tripod Mount	Yes
Flash	?
File Formats	JPEG (.jpg) and AVI (.avi)
User Interface	?
Power	2 AAA Batteries and USB
Dimensions	2.6 wide x 1.4 deep x 2.7 high
Weight	0.2 lb without batteries
Video Out	Computer Teleconferencing

2.3. Communicating With Digital Cameras

2.3.1. RS232 Communications In a Nutshell

2.3.2. USB Communications In a Nutshell

2.3.3. IrDA Communications In a Nutshell

3. Communicating With the DC−Series Cameras

The below sections are specific to camera models and/or groups of camera models. A particular camera model may be listed in more than one section as it may be supported by more than one method. One method may be easier than another and a specific method may meet your needs better. Select the method used carefully and read all the options before choosing one, it could save a lot of time later on.

If a PC−Card reader is available, or a laptop computer with one built in, following the Compact Flash PC Card Adapter/PCMCIA−ATA Storage Card should be generic enough to work on almost all Kodak DC−Series Cameras and many non−Kodak digital cameras. Be aware that there are adapters for almost all memory devices used in digital cameras to another more common technology. Floppy Disk adapters for smart memory cards may work for cameras that use smart memory cards. These methods also tend to offer fast data transfer rates and are the preferred method of many.

Although something may not be mentioned as to working with a particular piece of software don't assume that means the camera does not work with the software package. Often a camera works with the protocols other digital cameras use and past methods will work. If one finds a method works that is not mentioned in the HOWTO don't neglect to send in the information to this documents author, David Burley.

3.1. DC40, DC50, DC120, DC200, DC210

All of these cameras provide mechanisms for data transfer via standard RS232 serial port. This section is tailored to those who wish to use their digital camera with the kdpci application. The following steps are untested, however there is no reason for them to not work. If one finds that the steps do or do not work please send a report to David Burley so that the status may be noted here.

3.1.1. Serial Camera Control

Additional notes regarding transfer of data from these cameras using RS232 serial support will be added in a future version of this HOWTO. All GNU/Linux distributions should be configured in such a way with a default install that serial communications with the camera should not require any kernel configuration at all. See the kdcpi portion of the Software section for more information regarding use and configuration of kdcpi.

3.2. DC20, DC25, DC200+, DC210, DC210+ Zoom, DC215, DC220, DC220+, DC240, DC260, DC265, DC280, DC290

All of the cameras provide mechanisms for data transfer via standard RS232 serial port. Some of the cameras provide mechanisms for data transfer via USB (universal serial bus). This section is tailored to those who wish to use their digital camera with gPhoto. Please refer to the gPhoto portion of the Software section of this document for more information pertaining to application usage.

The following steps are untested, however there is no reason for them to not work. If one finds that the steps do or do not work please send a report to David Burley so that the status may be noted here.

3.2.1. Serial Camera Control

Additional notes regarding transfer of data from these cameras using RS232 serial support will be added in a future version of this HOWTO. All GNU/Linux distributions should be configured in a such a way with a default install that serial communications with the camera should not require any kernel configuration at all. See the gPhoto portion of the Software section for more information regarding use and installation of gPhoto.

3.2.2. USB Camera Control

There are no special drivers or kernel changes needed to support the DC220, DC260, DC265 and DC290 cameras under this configuration. gPhoto contains the necesary drivers to support USB transfer from these cameras. However if the dc2xx kernel module is loaded it may be necesary to remove it else a resource busy error may occur. To remove the module run the following command:

```
bash# /sbin/rmmod dc2xx
```

Attempting to remove the module even if it is not loaded will not cause any harm, so it is suggested that one remove it before starting gPhoto and connecting to the camera via USB. See the gPhoto portion of the Software section for more information regarding use and installation of gPhoto.

3.3. DC220, DC260, DC265, DC290 (HP Photosmart C500?)

The cameras provide mechanisms for data transfer via standard RS232 serial port, USB (Universal Serial Bus) and IrDA (infrared) interface. Additionally, images may be offloaded from the camera through the removal of the camera's Compact Flash Card and use of a Compact Flash PC Card Adapter in a PC Card reader or notebook PC Card slot. Currently these cameras are supported by OpenDiS for USB, IrDA and Serial data transfer. For usage examples and information on how to install and configure the application to work with the cameras, refer to the Open Digita Services portion of the Software section.

Please note that the steps below have only been verified to work with the Kodak DC−265; reports of other models that work with the same steps should be sent to David Burley. There is no reason the steps should not work for all digital cameras that run DigitaOS.

3.3.1. Serial Camera Control

Additional notes regarding transfer of data from DigitaOS enabled cameras using RS232 serial support will be added in a future version of this HOWTO. All distributions should be configured in such a way with a default install that serial communications with the camera should not require any kernel configuration at all. See the OpenDiS and/or Digita Operating Environment −− Command Device Protocol Python Script portion of the Software section for information regarding serial camera control.

3.3.2. 2.2.x Kernel USB Support

This section only applies to those running a 2.2.x series kernel. For those running a 2.4.x series kernel skip this section. At the moment the USB implementation in the 2.2.x series is insufficient and substantially out of date. As such, most USB devices are unsupported natively with the included drivers. However there is a patch available for the 2.2.15 − 2.2.17 kernels.

What software is needed (if not already present):

1. usb−2.4.0−test2−pre2−for−2.2.16−v3.diff.gz
2. Linux Kernel 2.2.17

This document assumes a working knowledge of kernel and program compiling. If unfamiliar with the process please go and read the Kernel−HOWTO.

Applying the patch:

```
bash# cp usb-2.4.0-test2-pre2-for-2.2.16-v3.diff.gz /usr/src
bash# gunzip /usr/src/usb-2.4.0-test2-pre2-for-2.2.16-v3.diff.gz
bash# cd /usr/src/linux
bash# patch -p1 < ../usb-2.4.0-test2-pre2-for-2.2.16-v3.diff
```

Select the following to be built as either modules or part of your kernel:

1. Support for your USB controller (It is suggested that all of these be compiled as modules unless the controller type is known.).
2. USB Kodak DC−2xx Camera Support.
3. Preliminary USB Device Filesystem.

Reboot the system and then load the created modules if the support is not compiled into the kernel. To load the modules do the following:

```
bash# /sbin/insmod /lib/modules/$(uname -r)/usb/usbcore.o
```

Use the following if the USB controller uses either an Intel or a VIA chipset. Some others may also be supported:

```
bash# /sbin/insmod /lib/modules/$(uname -r)/usb/usb-uhci.o
```

Use the following if the above did not work and this is the controller type:

```
bash# /sbin/insmod /lib/modules/$(uname -r)/usb/uhci.o
```

Use this if the USB controller uses an SiS chipset, is a Compaq, or because the above two didn't seem to work and this is the only option left to try.

```
bash# /sbin/insmod /lib/modules/$(uname -r)/usb/usb-ohci-hcd.o
```

Load the module for Kodak Digital Camera support:

```
bash# /sbin/insmod /lib/modules/$(uname −r)/usb/dc2xx.o
```

Mount the USB Device Filesystem:

```
bash# mount −t usbdevfs ignored /proc/bus/usb
```

3.3.3. 2.4.x Kernel USB Support

This section only applies to those running a 2.4.x series kernel. For those running a 2.2.x series kernel skip this section and follow the 2.2.x Kernel USB Support section. The 2.4.x series kernels have USB supported natively which makes it a bit easier to configure than for the 2.2.x kernel series.

What software is needed (if not already present):

1. Linux Kernel 2.4.0

This document assumes a working knowledge of kernel and program compiling. If unfamiliar with the process please go and read the Kernel−HOWTO.

Select the following to be built as either modules or part of your kernel:

1. Support for your USB controller (It is suggested that all of these be compiled as modules unless the controller type is known.).
2. USB Kodak DC−2xx Camera Support.
3. Preliminary USB Device Filesystem.

Reboot the system and then load the created modules if the support is not compiled into the kernel. To load the modules do the following:

```
bash# /sbin/insmod /lib/modules/$(uname −r)/usb/usbcore.o
```

Use the following if the USB controller uses either an Intel or a VIA chipset. Some others may also be supported:

```
bash# /sbin/insmod /lib/modules/$(uname −r)/usb/usb−uhci.o
```

Use the following if the above did not work and this is the controller type:

```
bash# /sbin/insmod /lib/modules/$(uname −r)/usb/uhci.o
```

Use this if the USB controller uses an SiS chipset, is a Compaq, or because the above two didn't seem to work and this is the only option left to try.

```
bash# /sbin/insmod /lib/modules/$(uname -r)/usb/usb-ohci-hcd.o
```

Load the module for Kodak Digital Camera support:

```
bash# /sbin/insmod /lib/modules/$(uname -r)/usb/dc2xx.o
```

Mount the USB Device Filesystem:

```
bash# mount -t usbdevfs ignored /proc/bus/usb
```

3.3.4. Kernel USB Devices

The following is a bash shell script designed to create all 16 Kodak devices for use with both the current 2.4.x kernel series and the obsoleted 2.2.X kernel series with the current USB backport. Copy the text below into a file named MakeKodakDev, then make that file executable by typing 'chmod +x MakeKodakDev' and then run the script ./MakeKodakDev as root (or su'd to root) it will create the devices so they don't have to be made individually by hand.

It creates as per the dc2xx.txt file in the kernel documentation the following 16 devices:

/dev/dc2xx0 type=character major=180 minor=80

...

/dev/dc2xx16 type=character major=180 minor=95

```
# Filename: MakeKodakDev
# Creates the device files for USB access of Kodak digital cameras.
# Last Modified January 6, 2001
# Please see the Kodak Digital Camera HOWTO for more information
# http://www.marblehorse.org/projects/documentation/kodak/
#!/bin/sh

export scrapvar=0

   while [ $scrapvar -lt 17 ];
      do mknod -m 0666 /dev/dc2xx$scrapvar c 180 $(( $scrapvar + 80 ));
      scrapvar=$(( $scrapvar + 1 ));
   done

# EOF
```

3.3.5. Kernel IrDA Support

Most newer distributions come with IrDA support and the proper utilities to handle IrDA. Redhat 7.0 is one of them. However for the rest of us some configuration will be necessary. Get a copy of the latest kernel (2.2.x series or above) and compile all the IrDA features in as modules. IrDA works a lot like PCMCIA support in GNU/Linux so it is important to have all the modules for any other IrDA devices one may have.

There is a good HOWTO on compiling a new kernel, the Kernel−HOWTO. Please refer to it for questions regarding configuring and compiling a new Linux kernel.

3.3.6. IrDA Utils Software

The next step in configuring IrDA support is installing the irda−utils package. Unfortunately, at the time of the current version of this HOWTO, the author had problems locating the source archive for the utilities so he took the one Redhat uses to build their RPM for Redhat 7.0. Please note that root permissions will be necesary to run the commands needed to install the software but should not be necesary to access the camera.

What software is needed (if not present already):

1. irda−utils 0.9.10 and patches
2. gpg signature for the irda−utils archive

Extracting the archive, patching, compiling and installing it:

```
bash# cp irda-utils-0.9.10+patches.tar.gz /usr/src
bash# cd /usr/src
bash# tar zxvf irda-utils-0.9.10+patches.tar.gz
bash# tar zxvf irda-utils-0.9.10.tar.gz
bash# cd irda-utils-0.9.10
bash# patch -p1 < ../irda-utils-0.9.4-chkconfig.patch
bash# patch -p1 < ../irda-utils-typo.patch
bash# patch -p1 < ../irda-utils-redhat.patch
bash# make
bash# make install
```

3.3.7. Creating the IrDA Device Nodes

The device nodes are necesary so that the application can talk to the driver for the device. Although the irlpt devices are not necesary to get the camera working, creating them now will save the time of having to look them up how to do it later if you do ever need them.

```
bash# mknod -m 0666 /dev/ircomm0 c 161 0
bash# mknod -m 0666 /dev/ircomm1 c 161 1
bash# mknod -m 0666 /dev/irlpt0 c 161 16
bash# mknod -m 0666 /dev/irlpt1 c 161 17
```

3.3.8. Modifying /etc/conf.modules or /etc/modules.conf

Use a text editor and open up /etc/conf.modules or /etc/modules.conf depending on your distribution. Add the following three lines to the file while being careful not to change any others.

```
#IrDA
alias tty-ldisc-11 irtty
alias char-major-161 ircomm-tty
```

3.3.9. Enabling IrDA and Testing for Connectivity

Irmanager is what starts and stops the proper IrDA modules. The d1 flag tells irmanager to enter discovery mode.

As user root run the following command:

```
bash# /usr/sbin/irmanager −d1
```

Put the camera into connect mode and turn it on. Make sure that the camera is close to and facing the IrDA port on the computer. Run the following to see if there are any communications via IrDA:

```
bash$ /usr/bin/irdadump
```

After running the command one should see output similar to the following:

```
00:04:10.608823 xid:cmd bedcb551 > ffffffff S=6 s=2 (14)
00:04:10.698818 xid:cmd bedcb551 > ffffffff S=6 s=3 (14)
00:04:10.788815 xid:rsp bedcb551 < 5f36a4a1 S=6 s=3 Kodak DC265 Zoom hint=8404 [ Computer IrCOMM ]
(33) 00:04:10.798819 xid:cmd bedcb551 > ffffffff S=6 s=4 (14)
00:04:10.888815 xid:cmd bedcb551 > ffffffff S=6 s=5 (14)
00:04:10.978818 xid:cmd bedcb551 > ffffffff S=6 s=* armstrong hint=0400 [ Computer ] (25)

6 packets received by filter
```

If the previous message was not displayed, try relocating the camera closer or further away from the IrDA port and ensure that there is not too much external interference in the environment in the form of light. Also if the machine is a laptop with a PC−Card (or PCMCIA) modem removing it may help resolve the issue.

3.4. Compact Flash PC Card Adapter/PCMCIA−ATA Storage Card

This section is for those who wish to utilize maximum data transfer rate and save the battery power in the camera's batteries. The method of connectivity suggested in this section applies to all Kodak DC−Series cameras that use either PCMCIA−ATA storage cards or Compact Flash Cards. This method of picture access only allows for storage, retrieval, and deletion of images on a Compact Flash Card. These instructions are tested with a Kodak 16 MB Picture Card and a SanDisk CompactFlash PC Card Adapter on a Dell Inspiron 7000 notebook computer.

What software is needed (if not already present):

1. PCMCIA−CS−3.1.21

This document assumes a working knowledge of kernel and program compiling. If unfamiliar with the process it is strongly suggested to go and read the Kernel−HOWTO.

Select the following to be built as either modules or part of your kernel:

1. DOS FAT fs support
2. VFAT (Windows−95) fs support

Reboot the system and then load the created modules each time access to the compact flash card is desired if the support is not compiled into the kernel. To load the modules do the following:

```
bash# /sbin/insmod /lib/modules/$(uname −r)/fat.o
bash# /sbin/insmod /lib/modules/$(uname −r)/vfat.o
```

Compile and configure PCMCIA−CS. This part of the process is beyond the scope of this document, however there is a document with such information that can be found in the PCMCIA−HOWTO. There is also most likely a pre−packaged version for the distribution of GNU/Linux the computer running. This step can be greatly simplified if a pre−packaged version is used.

Using the Compact Flash PC Card Adapter:

Create a directory to mount the Compact Flash Card to.

```
bash# mkdir /flashcard
```

Insert the Compact Flash Card into the Compact Flash PC Card Adapter (both should face the same direction. Note that this step is unnecessary for the cameras that use a PCMCIA−ATA storage card.).

Insert the Compact Flash PC Card Adapter or PCMCIA−ATA storage card into the PC−Card slot of the notebook computer.

Mount the card to /flashcard (The Compact Flash Card PC Card Adapter/PCMCIA−ATA storage card is assigned its device by figuring out how many IDE controllers are on the system, and then assigning it the next device. For example, if a system were to have 2 IDE controllers, and would thus have /dev/hda /dev/hdb /dev/hdc and /dev/hdd assigned to the current controllers, the Compact Flash Card PC Card Adapter would be assigned /dev/hde1.).

```
bash# mount −t vfat /dev/hde1 /flashcard
```

From this point the files can be copied, moved, deleted, and renamed as done on a normal filesystem. Information regarding file management commands may be found in the documentation included with the OS distribution used, such as man pages. The manual pages which list the commands to use to do the above procedures can be accesses by typing the following to get the command's respective manual page entry: 'man cp', 'man mv', 'man rm'. Before removing the Compact Flash Card PC Card Adapter remember to unmount it with the following command.

```
bash# umount /flashcard
```

The Compact Flash Card PC Card Adapter/PCMCIA−ATA storage card can be removed from the PC Card Reader and the Compact Flash Card and be removed from the Compact Flash Card PC Card Adapter (If the adapter was used).

4. Software Support

4.1. OpenDiS (Open Digita Services)

OpenDiS Web Site

OpenDiS contains a user−level program and an access library for using DigitaOS enabled cameras. Currently those cameras would be the Kodak DC220, DC260, DC265, DC290 and HP Photosmart C500 and the Minolta EX1500. Although the Kodak digital camera series works best with this application the others have been found to work with the application also. This program has a CLI (command line interface) which is very useful for scripting tasks.

What is needed: OpenDiS 0.0.3

4.1.1. Compiling, extracting and installing OpenDiS

Run the following commands to compile, extract and install OpenDiS

```
bash$ tar −zxvf opendis−0.0.3.tar.gz
bash$ cd opendis−0.0.3
bash$ ./configure
bash$ make
bash# make install
```

4.1.2. Usage

The following usage section is taken directly from the output of the ks command.

Usage: ks [OPTION]... [COMMAND]...

```
Connect to camera and perform COMMANDs.
Updated: 0.0.3
Development note: currently some COMMANDs are supported; default
action is to display this help.  However, all listed
OPTIONS are now supported.

-d DEV, --device=DEV       Look for camera at device DEV.  Defaults
                            to /dev/ttyS0.
 -r RATE, --rate=RATE       Use bit-rate RATE for serial device.  Defaults
                            to 9600.  Not applicable to USB or IrDA.
 -t TYPE, --type=TYPE       Specifies device type, one of: "serial"
                            "usb", or "irda".  Normally, device type
                            can be deduced from DEV and need not be
                            specified
 -i, --irda                 Same as --type=irda
 -s, --serial               Same as --type=serial
 -u, --usb                  Same as --type=usb

 -v  --verbose              More output.
```

```
 -q  --quiet                Less output.

 -l, --list                 List supported commands
 -h, --help                 Display this help and exit.

Currently following commands are supported:

  delall        Delete all files in the camera
  download      Download pictures
  thumbs        Download thumbnails
  gettime       Get camera's date/time
  settime       Set camera clock according to computer's clock
  shoot         Take a picture
  status        Show pictures taken, available and raw count
  getpowermode  Checks if camera is on
  poweroff      Turn the camera off
```

4.1.3. Usage Examples

USB:

Special USB notes. The USB stack has been ever changing in the developmental kernels and as such works differently from time to time. In playing with the latest developmental kernel released the camera tends to show up on /dev/dc2xx0 or /dev/dc2xx1, independent of the fact that only one camera is connected. The support for these devices is all fairly new, so expect to have to play with it to get it working. The following should allow one to download all images from the camera to the working directory with a USB connection. Make sure that the camera is in connect mode.

```
bash$ ks -d /dev/dc2xx0 download
```

Serial:

Serial support does work and as such the following command should allow one to download all images from the camera into their current working directory. Modify the serial port device name as necessary. Ensure that the camera is on and in connect mode and that the serial cable is connected between the computer's serial port and the camera.

```
bash$ ks -d /dev/ttyS0 download
```

IrDA:

IrDA is not supported in the release version of OpenDiS, however support has been added to the CVS version. To obtain the latest version of OpenDiS via CVS run the following (hit the enter key at the password prompt, there is no password):

```
bash$ cvs -d:pserver:anonymous@cvs.ods.sourceforge.net:/cvsroot/ods login
bash$ cvs -d:pserver:anonymous@cvs.ods.sourceforge.net:/cvsroot/ods checkout bash# bash$ ods/opendis-current
```

To compile and configure this version do the following:

```
bash$ cd ods
bash$ cd opendis-current
bash$ ./configure
bash$ make
bash# make install
```

An example command which will download all the images from the camera via IrDA would look as follows. Remember to have the camera on and in connect mode. It may also be advisable to increase the auto−shutoff feature to a larger value (5 minutes if possible).

```
bash$ ks -d /dev/ircomm0 download
```

4.2. Digita Operating Environment− Command Device Protocol Python Script

This Python script written by Sai Lai Lo of AT&T Cambridge Laboratories allows for download

of images from Kodak Digital Cameras running DigitaOS (DC220, DC260, DC265 and DC290) and using USB for transfer. Some have problems with this script and some don't. However it is nice to cover all bases.

Here a working copy of the Command Device Protocol Python Script can be attained. The original Command Device Protocol Python Script for which the one above is derived has to be edited to remove leading text to work.

The script depends on /dev/kodak existing due to the way older kernels accessed the Kodak Digital Camera USB Device. A symbolic link must be created between the actual device the camera is on and /dev/kodak. If the camera is on /dev/dc2xx0 the symbolic link needed can be created with the following command:

```
bash# ln -s /dev/dc2xx0 /dev/kodak
```

Be sure to substitute in the proper device name instead of dc2xx0 if the camera was not assigned dc2xx0. To list all files on the camera run the following command:

```
bash$ python cdp.py
```

To download a single image from the camera run the following command, remember to modify the command accordingly for your specific camera:

```
bash$ python cdp.py 2:DC265_01/P0000748.JPG
```

That command will download the image P0000748.JPG to the directory DC265_01 in the current directory. A quick and easy command to download all the images from the camera would be:

```
bash$ for file in $(python cdp.py); do python cdp.py $file; done
```

This is just a few of the many ways such a script can work. It is possible to use the above command in a larger shell script to automate downloading the images from the camera, converting the images to another format, resizing the images, creating a web page automatically, and many many others. The options are endless when it comes to scripts like this.

4.3. gPhoto

gPhoto Web Site

Still deciding the best way to implement this section. Possibly a DocBook manual for gPhoto needs to be written but according to the gPhoto project web site a manual is being developed at the moment. Contact with the developers of gPhoto has been made and a decision to work on the document at some point, presuming someone else doesn't do it earlier, has been made. However the document processing program used to create this HOWTO, LyX, does not support all the necessary SGML tags and thus that will become an intermediate project before a manual for gPhoto.

A manual is available for gPhoto with its source code and may also be distributed with the various package offerings available with gPhoto binary distributions. The filename is MANUAL and it is located in the root of the extracted tar archive. The file INSTALL details the process of compiling and installing gPhoto if a binary package is not available for a particular distribution.

gPhoto supports serial image transfer from the Kodak DC20, DC25, DC200+, DC210, DC210+ Zoom, DC215 Zoom, DC220, DC220+, DC240, DC260, DC265, DC280 and DC290 with it's 0.4.3 release. With the CVS version of the software USB support is added for the DC220, DC260, DC265 and the DC280. gPhoto tends to be the preferred application of most digital camera users under GNU/Linux and is distributed with Helix GNOME.

4.4. kdcpi

kdcpi Web Site

4.5. jPhoto

jPhoto Web Site

---

5. Additional Online Resources

5.1. Kodak Digital Camera Mailing Lists

5.1.1. Kodak Digita Camera

Kodak Digita Camera Mailing List

This list contains information about DigitaOS enabled Kodak Digital Cameras. This includes the Kodak DC220, DC260, DC265 and DC290. This is the place to go for all of your questions regarding how to use your camera, Digita scripting questions and anything else that pertains to the DigitaOS enabled cameras. To subscribe to the mailing list send a blank email to kodak−digita−camera−subscribe@egroups.com. To unsubscribe from the list send a blank email to kodak−digita−camera−unsubscribe@egroups.com. Alternately, go to the registration form and sign up for an account there. Once the account is created one will have the ability to search through the archive and post messages.

5.1.2. Kodak DC240/DC280

Kodak DC240/DC280 Mailing list

Owners of the Kodak DC240 and DC280 camera models can use this as their forum to discuss issues with other users of the same cameras. This is an open list and its contents can be searched through and viewed at the above URL. To join the list send a blank email to kodak240−280−subscribe@egroups.com. To unsubscribe send a blank email to kodak240−280−unsubscribe@egroups.com.

5.1.3. Kodak DC215

Kodak DC215 Mailing List

Owners and people interesting in contacting other users of the Kodak DC215 digital camera can use this forum to ask and answer questions. This list is specifically oriented towards the Kodak DC215 camera.

5.2. Other Useful Mailing Lists

5.2.1. Linux−USB

Linux−USB

The Linux−USB mailing list is a very active mailing list pertaining to all aspects of USB and Linux. Here one will find the most recent patches for the USB code in the Linux kernel. There is also good discussion on support of digital cameras from time to time. Overall a great list to peek at every week or so.

To subscribe to this list send a blank email to linux−usb−subscribe@suse.com. A confirmation email that must be replied to will then be sent back. Either send a reply to the email address in the reply−to: section of the email, or the address listed in the confirmation message itself. To unsubscribe from the list send a blank email to linux−usb−unsubscribe@suse.com. This action will then have to be confirmed with the same method used for confirming subscription to the mailing list. For a list of other useful commands send an email to linux−usb−info@suse.com.

5.2.2. Linux−kernel

Linux−kernel

The linux−kernel mailing list is a very high traffic mailing list detailing all aspects of the Linux kernel. This list is only for those who wish to have more information than the Linux−USB list and the gPhoto−Kodak lists contain. However, it covers much more of a broad spectrum of topics than Kodak digital camera support under Linux.

Before posting or subscribing to the Linux−kernel mailing list is is highly suggested reading the Linux−kernel mailing list FAQ. It could save much time and embarrassment. It also contains useful information on who certain individuals are in the Linux community in relation to their standing on the list.

To subscribe to the list (remember, it is about 200 emails a day) send an email to majordomo@vger.rutgers.edu with "subscribe linux−kernel username@mailserver" in the body of the message where username is the email account to be used and mailserver is the name of the mail server. Remember to omit the quotation marks.

An alternative to joining the list would be to get the list in digest format. This is a better format to many as it is a few emails a day rather than several hundred. One drawback of this is that it is not as easy to discuss the issues with the mailing list as most mail clients don't know how to deal with the digest in its format besides dealing with it like plain text. To subscribe to the digest send an email to majordomo@vger.rutgers.edu with the line "subscribe linux−kernel−digest username@mailserver" in the body of the message. Where username is the email account username to be used and mailserver is the name of the mail server. Remember to omit the quotation marks.

Unsubscribing from the mail list is as easy as subscribing. Just send an email to majordomo@vger.rutgers.edu with the line "unsubscribe linux−kernel" in the body of the message, or alternately "unsubscribe linux−kernel−digest" if subscribed to the digest. And again, remember to omit the quotation marks.

Rather than subscribing to this list it would be highly suggested to search through the archive which is accessible via the URL listed above. Another alternative is the Kernel Trafficsite. It contains a good overview of the weeks kernel developmental works and discussions in a summary format.

5.2.3. gPhoto−Kodak

gPhoto−Kodak

This list contains much information regarding gPhoto and Kodak cameras. It also contains much discussion on the OpenDiS project and their releases. The latest version of OpenDiS is usually announced on this mailing list and allows one to try out the new functions. Instructions and the form to join the mailing list are at the following URL: http://lists.styx.net/mailman/listinfo/gphoto−kodak/.

5.3. Useful Web Sites / Other Resources

5.3.1. Linux−USB Project

Linux USB Project

The Linux−USB Project's web page contains much information pertaining to Linux and USB in general. Although not all information is pertinent to this HOWTO, a large portion of it is. It contains links to the latest USB support, driver maintainers and device working status. Take a look here and in the Linux−USB mail archive if having a problem getting USB working. Chances are one of the later developmental kernels or the source on the CVS will solve the issue.

5.3.2. Linux USB for DC−2xx Cameras

Linux USB for DC−2xx Cameras

This website is maintained by David Brownell, author of the Kodak DC−2xx kernel support. It contains some information not included in this HOWTO as of yet and holds the latest information regarding configuring USB support. Look here for new developments in supporting the Kodak DC−2xx camera series.

5.3.3. OpenDiS (Open Digita Services)

OpenDiS (Open Digita Services)

The Open Digita Services web site is the main source of information on the support of cameras running Digita which include the Kodak DC−220, DC−260, DC−265, DC−290, the Minolta EX−1500 and the HP PhotoSmart C500.

5.3.4. gPhoto

gPhoto

gPhoto is free software for digital cameras licensed under the GNU GPL. It currently supports more than 90 camera models from various vendors. gPhoto has a command line and a GTK+ graphical interface. Many people swear by this program. Installation, configuration and usage information will be added.

5.3.5. kdcpi

kdpci

kdcpi is a program that the latest developer release supports the Kodak DC200, DC210, DC40, DC50 and DC120. This program has both a CLI (command line interface) and a GUI (graphical user interface).

Information regarding installation, configuration and usage information will be added.

5.3.6. Digital Photography Review

Digital Photography Review

Trying to decide which digital camera is best? Digital Photography Review is the most comprehensive website available for all anyone wants to know about digital cameras. This site is not limited to just the Kodak product line and offers great reviews of the newest and older digital cameras. Take a look through the online photo gallery with detailed information pertaining to the camera used and its setting for each and every photograph.

6. FAQ

Q: Why aren't there any entries but this one in the FAQ?

A: Because the HOWTO is currently is a non−public release state and thus there was no time for anyone to ask any questions! So email your questions off to David Burley marblehorse.org> and lets add to it.

7. TODO

The following TODO list is nowhere near complete. It is simply a list of things meant to added in the future that others have suggested. If anyone has any suggestions for new entries into the HOWTO please email them to David Burley.

1. Interesting digital camera uses (aerial/under water photography among others).
2. Additional support of more Kodak digital cameras (gPhoto support with those).
3. Support for non−Kodak digital cameras (most likely not anytime in the near future. this is out of the scope of the current document.).
4. Additional camera interfacing methods.
5. Updating Firmware (current format for firmware is an Install Shield file.... useless under GNU/Linux).

8. Appendix

This section is to provide valuable information which may not directly apply to the use of Kodak digital cameras under the GNU/Linux operating system. It is meant to help those who need information in a binge on their digital camera and find this document. The scope of this section may change as the HOWTO matures.

8.1. Drivers for Alternate Operating Systems

8.1.1. DC265

Windows software, Macintosh software and firmware for the camera can be attained from the Kodak web site.

8.1.2. DC290

Windows software, Macintosh software and firmware for the camera can be attained from the Kodak web site.

8.1.3. DC280

Windows software, Macintosh software and firmware for the camera can be attained from the Kodak web site.

8.1.4. DC260 (discontinued)

Windows software, Macintosh software and firmware for the camera can be attained from the Kodak web site.

8.1.5. DC240 / DC240i

Windows software, Macintosh software and firmware for the camera can be attained from the Kodak web site.

8.1.6. DC220 (discontinued)

Windows software, Macintosh software and firmware for the camera can be attained from the Kodak web site.

8.1.7. DC215 / DC215 Metallics

Windows software and Macintosh software for the camera can be attained from the Kodak web site.

8.1.8. DC210 (discontinued)

Windows software and firmware for the camera can be attained from the Kodak web site.

8.1.9. DC210 Plus

Windows software and firmware for the camera can be attained from the Kodak web site.

8.1.10. DC200 (discontinued)

Windows software and firmware for the camera can be attained from the Kodak web site.

8.1.11. DC200 Plus

Windows software and firmware for the camera can be attained from the Kodak web site.

8.1.12. DC120 (discontinued)

Firmware updates and the TWAIN acquire module for this camera can be attained from the Kodak web site.

8.1.13. DC50 (discontinued)

TWAIN acquire modules and a Plug−In for Macintosh's can be found at the Kodak web site.

8.1.14. DC40 (discontinued)

TWAIN software and firmware updates for the camera can be attained from the Kodak web site.

8.1.15. DC25 (discontinued)

The Macintosh Photoshop acquire module for this camera can be found at the Kodak web site.

8.1.16. DC20 (discontinued)

The TWAIN acquire module and the Photoshop Plug−In can be found at the Kodak web site.

8.2. Programs for Alternate Operating Systems

8.2.1. Picture Transfer Software

This application was made for the DC40, DC50 Zoom, and DC120 Zoom camera models. Its main use is quick and easy conversion from Kodak's proprietary .KDC format to a more standard format (BMP, PICT, TIFF, FPX, JPG). This software is available for Windows 95, NT and 3.11, along with the Macintosh.

8.2.2. Picture Easy Software

This application was made for the DC20 and DC25 cameras. It will transfer pictures from the camera to the computer. It is available for both the Windows and Macintosh platforms.