Sample Program Guide

Revision. 1.0

December 1, 2010

Introduction

This guide explains how to use this sample program.

Usage

Supported camera

D7000

Environment

The sample program is command prompt, runs on thease environment.

Supported Environment

OS type	Version
Windows	Windows XP Home Edition (SP3) / Professional (SP3) Windows Vista SP2 32bit/64bit edition 　(* Works 32 bit application on 64 bit OS.) 　(Home Basic / Home Premium / Business / Enterprise / Ultimate) Windows 7 32bit/64bit edition 　(* Works 32 bit application on 64 bit OS.) 　(Home Basic/Home Premium/Professional/Enterprise / Ultimate)
Macintosh	Mac OS X 10.4.11 Mac OS X 10.5.8 Mac OS X 10.6.4

■Restriction of Windows

The windows sample program project file supports "Microsoft Visual Studio 2008".

■Restriction of Macintosh

- The macintosh sample program project file is created with Xcode 3.1.4.
- GCC Version is 4.0.
- The macintosh sample program is universal application.

Files

The sample program needs following files. Copy these files on the appropriate folder and use it.

Windows (camera body is set to PTP mode.)

File Name	Folder
Type0004.md3	Same as this sample program
NkdPTP.dll	Same as Type0004.md3

- If you want to change the folder of Type0004.md3, you should modify Search_Module() function of Function.c.

Macintosh (camera body is set to PTP mode)

File Name	Folder
Type0004 Module.bundle (Universal Binary)	Same as this sample program
libNkPTPDriver.dylib (Universal Binary)	SYSTEM\Library\Application Support\Nikon\Camera Control\Modules

- If you want to change the folder of Type0004 Module.bundle, you should modify Search_Module() function of Function.c.
- The meaning of SYSTEM is the directory where OS is installed.

Main Menu

When you start the sample program, it loads module and opens module object. Then main menu is shown.

1) Select Device

If some devices are connected to PC, you can choose which device will be used. Then sub menu 1 is shown.

2) AsyncRate

Show a recommended interval of Command_Async.(refer to 9.1 kNkMAIDCapability_AsyncRate in MAID3.PDF)

3) IsAlive

Show the status of Module object.(refer to 9.6 kNkMAIDCapability_IsAlive in MAID3.PDF)

4) Name

Show the name of Module object.(refer to 9.9 kNkMAIDCapability_Name in MAID3.PDF)

5) ModuleType

Show the type of Module object.(refer to 9.53 kNkMAIDCapability_ModuleType in MAID3.PDF)

6) Version

Show version of MAID supported by the module.

(refer to 9.57 kNkMAIDCapability_Version in MAID3.PDF)

Sub Menu 1

You can read or write the settings of the source object.

1) Select Item Object

If some pictures are stored in camera, you can choose which item object will be used. Then sub menu 2 is shown. (When this menu returns the message "There is no item" though Capture command is succeeded, please retry this menu until new item object is detected.)

2) Camera settings(1)

You can change some camera settings. Sub menu 3 will be shown.

3) Camera settings(2)

You can change other camera settings. Sub menu 4 will be shown.

4) Shooting Menu

You can change photography settings. Sub menu 5 will be shown.

5) Custom Menu

You can change custom settings. Sub menu 6 will be shown.

6) Async

Send kNkMAIDCommand_Async to detect in camera condition.

(refer to 8.1 kNkMAIDCommand_Async in MAID3.PDF)

7) Autofocus

Perform auto focus. (refer to 4.27 kNkMAIDCapability_AutoFocus in MAID3Type0004.PDF)

8) Capture

Take a picture. (refer to 4.17 kNkMAIDCapability_Capture in MAID3Type0004.PDF)

9) PreCapture

Take a picture for presetting white balance.

(refer to 3.178 kNkMAIDCapability_PreCapture in MAID3Type0004.PDF)

Sub Menu 2

You can read or write the settings of the item object.

1) Select Data Object

You can choose data object.

 If image object is selected, sub menu 7 will be shown. If movie object is selected, sub menu 8 will be shown. If thumbnail object is selected, sub menu 9 will be shown.

2) Delete

Delete the DRAM image of Item object.

The deletion by this menu uses deletion timing 2. (The processing when the kNkMAIDEvent_AddPreviewImage event is received supports the procedure of deletion timing 1.)

(refer to 3.183 kNkMAIDCapability_DeleteDramImage in MAID3Type0004.PDF)

3) IsAlive

Show the status of this Item object.(refer to 9.6 kNkMAIDCapability_IsAlive in MAID3.PDF)

4) Name

Show the name of this Item object.(refer to 9.9 kNkMAIDCapability_Name in MAID3.PDF)

5) DataTypes

Show the data types supported by this Item object.

(refer to 9.12 kNkMAIDCapability_DataTypes in MAID3.PDF)

6) DateTime

Show the date and time when this Item was created.

(refer to 9.13 kNkMAIDCapability_DateTime in MAID3.PDF)

7) StoredBytes

Show the file size of this Item in bytes.

(refer to 9.14 kNkMAIDCapability_StoredBytes in MAID3.PDF)

Sub Menu 3

You can read and write the detailed settings (1) of the source object.

1) IsAlive

Show the status of this Source object.(refer to 9.6 kNkMAIDCapability_IsAlive in MAID3.PDF)

2) Name

Show the name of this Source object.(refer to 9.9 kNkMAIDCapability_Name in MAID3.PDF)

3) Interface

Show the physical interface of this Source object.

(refer to 9.11 kNkMAIDCapability_Interface in MAID3.PDF)

4) DataTypes

Show the data types supported by this Item object.

(refer to 9.12 kNkMAIDCapability_DataTypes in MAID3.PDF)

5) BatteryLevel

Show battery level. (refer to 4.47 kNkMAIDCapability_BatteryLevel in MAID3Type0004.PDF)

6) **FlashMode**

Set the flash mode of this source. (refer to 9.52 kNkMAIDCapability_FlashMode in MAID3.PDF)

7) **LockFocus**

Show the status of focus lock.

(refer to 3.161 kNkMAIDCapability_LockFocus in MAID3Type0004.PDF)

8) **LockExposure**

Show the status of exposure lock.

(refer to 3.160 kNkMAIDCapability_LockExposure in MAID3Type0004.PDF)

9) **ExposureStatus**

Show the exposure value measured by camera.

(refer to 3.163 kNkMAIDCapability_ExposureStatus in MAID3Type0004.PDF)

10) **ExposureMode**

Set the exposure mode of camera.

(refer to 3.144 kNkMAIDCapability_ExposureMode in MAID3Type0004.PDF)

11) **ShutterSpeed**

Set the exposure time of camera.

(refer to 3.139 kNkMAIDCapability_ShutterSpeed in MAID3Type0004.PDF)

12) **Aperture**

Set the aperture of camera. (refer to 3.142 kNkMAIDCapability_Aperture in MAID3Type0004.PDF)

13) **FlexibleProgram**

Set the flexible program of camera.

(refer to 3.140 kNkMAIDCapability_FlexibleProgram in MAID3Type0004.PDF)

14) **ExposureComp**

Set the exposure compensation of camera.

(refer to 3.145 kNkMAIDCapability_ExposureComp in MAID3Type0004.PDF)

15) **MeteringMode**

Set the metering mode of camera.

(refer to 3.143 kNkMAIDCapability_MeteringMode in MAID3Type0004.PDF)

16) **FocusMode**

Show focus mode(MF/AF-S/AF-C/AF-A/AF-F).

(refer to 3.166 kNkMAIDCapability_FocusMode in MAID3Type0004.PDF)

17) **FocusAreaMode**

Set focus area mode(Dynamic/Single/Auto/3D-tracking).

(refer to 3.148 kNkMAIDCapability_FocusAreaMode in MAID3Type0004.PDF)

18) **FocusPreferredArea**

Change focusing point.

(refer to 3.141 kNkMAIDCapability_FocusPreferredArea in MAID3Type0004.PDF)

19) **FocalLength**

Show focal length(unit: mm).

(refer to 3.165 kNkMAIDCapability_FocalLength in MAID3Type0004.PDF)

20) **ClockDateTime**

Adjust internal clock.

(refer to 3.132 kNkMAIDCapability_ClockDateTime in MAID3Type0004.PDF)

Sub Menu 4

You can read and write the detailed settings (2) of the source object.

1)   LockCamera

Keep the camera from direct operation(not through host computer).

(refer to 3.190 kNkMAIDCapability_LockCamera in MAID3Type0004.PDF)

2)   LensInfo

Show lens information(focal length and aperture).

(refer to 3.175 kNkMAIDCapability_LensInfo in MAID3Type0004.PDF)

3)   UserComment

Set characters which will be written in a new picture file.

(refer to 3.129 kNkMAIDCapability_UserComment in MAID3Type0004.PDF)

4)   EnableComment

Enable to add UserComment to an image file.

 (refer to 3.130 kNkMAIDCapability_EnableComment in MAID3Type0004.PDF)

5)   IsoControl

Set whether auto sensitivity control is used when you take a picture.

(refer to 3.30 kNkMAIDCapability_IsoControl in MAIDType0004.PDF)

6)   NoiseReduction

Set whether noise reduction is used when you take a picture.

(refer to 3.31 kNkMAIDCapability_NoiseReduction in MAIDType0004.PDF)

Sub Menu 5

You can read and write settings concerned with photography.

1)   CompressionLevel

Set compression level of the image file created by camera.

(refer to 3.2 kNkMAIDCapability_CompressionLevel in MAID3Type0004.PDF)

2)   ImageSize

Set the compression level of picture.

(refer to 3.1 kNkMAIDCapability_ImageSize in MAID3Type0004.PDF)

3)   WBMode

Set white balance mode(auto/Incandescant/…).

(refer to 3.3 kNkMAIDCapability_WBMode in MAIDType0004.PDF)

4)   Sensitivity

Set sensitivity of camera.

(refer to 3.4 kNkMAIDCapability_Sensitivity in MAIDType0004.PDF)

5)   WBTuneAuto

Adjust white balance in Auto mode.

(refer to 3.7 kNkMAIDCapability_WBTuneAuto in MAIDType0004.PDF)

6)   WBTuneIncandescent

Adjust white balance in Incandescent mode.

(refer to 3.9 kNkMAIDCapability_WBTuneIncandescent in MAIDType0004.PDF)

7)　WBFluorescentType

Set the fluorescent type when the WBMode is "Fluorescent".

(refer to 3.10 kNkMAIDCapability_WBFluorescentType in MAIDType0004.PDF)

8)　WBTuneFluorescent

Adjust white balance in Fluorescent mode.

(refer to 3.11 kNkMAIDCapability_WBTuneFluorescent in MAIDType0004.PDF)

9)　WBTuneSunny

Adjust white balance in Sunny mode.

(refer to 3.12 kNkMAIDCapability_WBTuneSunny in MAIDType0004.PDF)

10)　WBTuneFlash

Adjust white balance in Flash mode.

(refer to 3.13 kNkMAIDCapability_WBTuneFlash in MAIDType0004.PDF)

11)　WBTuneShade

Adjust white balance in Shade mode.

(refer to 3.14 kNkMAIDCapability_WBTuneShade in MAIDType0004.PDF)

12)　WBTuneCloudy

Adjust white balance in Cloudy mode.

(refer to 3.15 kNkMAIDCapability_WBTuneCloudy in MAIDType0004.PDF)

13)　WBTuneColorTemp

set the color temperature in Color Temperature mode.

(refer to 3.16 kNkMAIDCapability_WBTuneColorTemp in MAIDType0004.PDF)

14)　WBTuneColorAdjust

Adjust white balance in Color Temperature mode.

(refer to 3.17 kNkMAIDCapability_WBTuneColorAdjust in MAIDType0004.PDF)

15)　WBTunePreset

Adjust white balance in Preset mode.

(refer to 3.18-22 kNkMAIDCapability_WBTunePreset1-5in MAIDType0004.PDF)

16)　WBPresetData

Set white balance preset data to camera.

When you set preset data to camera, you have to name the file "PresetData.jpg" and put the file in this application folder in windows, or put the file in home directory in macintosh.

(refer to 3.25 kNkMAIDCapability_WBPresetData in MAIDType0004.PDF)

17)　PictureControl

Set and get current Picture Control.

(refer to 3.35 kNkMAIDCapability_PictureControl in MAIDType0004.PDF)

18)　PictureControlData

Set and get Picture Control data.

When you set Picture Control data to camera, you have to name the file "PicCtrlData.dat" and put the file in this application folder in windows, or put the file in home directory in macintosh.

(refer to 3.37 kNkMAIDCapability_PictureControlData in MAIDType0004.PDF)

19) GetPicCtrlInfo

Get Picture Control information. The Picture Control information is saved as like "PicCtrlInfo.dat" in application folder in windows, or saved in home directory in macintosh.

(refer to 3.38 kNkMAIDCapability_GetPicCtrlInfo in MAIDType0004.PDF)

20) DeleteCustomPictureControl

Delete Custom Picture Control.

(refer to 3.39 kNkMAIDCapability_DeleteCustomPictureControl in MAIDType0004.PDF)

21) LiveViewProhibit

Get the Live view prohibition condition.

(refer to 3.155 kNkMAIDCapability_LiveViewProhibit in MAIDType0004.PDF)

22) LiveViewStatus

Start or stop Live view, and get current status of Live view.

(refer to 3.154 kNkMAIDCapability_LiveViewStatus in MAIDType0004.PDF)

23) LiveViewImageZoomRate

Set the zoom rate of Live view image.

(refer to 3.156 kNkMAIDCapability_LiveViewImageZoomRate in MAIDType0004.PDF)

24) GetLiveViewImage

Live view data will be got. Display imformation will be saved as like "LiveView001_H.dat" and Live view image will be saved as like "LiveView001.jpg" in application folder in windows, or in home directory in macintosh.

(refer to 3.188 kNkMAIDCapability_GetLiveViewImage in MAIDType0004.PDF)

25) MovRecInCardProhibit

Get the Movie record prohibition condition.

(refer to 3.196 kNkMAIDCapability_MovRecInCardProhibit in MAIDType0004.PDF)

26) MovRecInCardStatus

Start or stop Movie record, and get current status of Movie record.

(refer to 3.195 kNkMAIDCapability_MovRecInCardStatus in MAIDType0004.PDF)

Sub Menu 6

You can read and write a custom setting of source object.

1) ResetCustomSetting

Reset the custom settings which is selected by kNkMAIDCapability_CustomSettings.

(refer to 3.51 NkMAIDCapability_ResetCustomSetting in MAIDType0004.PDF)

2) ResetFileNumber

Resets the number of the file which will be stored in CF card.

(refer to 3.88 NkMAIDCapability_ResetFileNumber in MAIDType0004.PDF)

3) ShootNoCard

Set enable to shoot when a CF card is not install.

(refer to 3.125 kMAIDCapability_ShootNoCard in MAIDType0004.PDF)

4) NumberingMode

Select a file numbering method.

(refer to 3.87 NkMAIDCapability_NumberingMode in MAIDType0004.PDF)

5) **AutoOffDelay**

Select a time delay for auto meter switch-off.

(refer to 3.69 kNkMAIDCapability_AutoOffDelay in MAIDType0004.PDF)

6) **SelfTimerDuration**

Set a self timer duration.

(refer to 3.70 NkMAIDCapability_SelfTimerDuration in MAIDType0004.PDF)

7) **EVInterval**

Select an interval of exposure value.

(refer to 3.67 kMAIDCapability_EVInterval in MAIDType0004.PDF)

8) **BracketingVary**

Select a Bracketing variation.

(refer to 3.113 kMAIDCapability_BracketingVary in MAIDType0004.PDF)

9) **BracketingOrder**

Select an bracketing order.

(refer to 3.114 kMAIDCapability_BracketingOrder in MAIDType0004.PDF)

10) **ExchangeDials**

Exchange the functions for front and rear command dials.

(refer to 3.121 kNkMAIDCapability_ExchangeDialsEx in MAIDType0004.PDF)

11) **AEAFLockButton**

Activate AF lock and AE lock when AE/AF lock button is pressed.

(refer to 3.119 kNkMAIDCapability_AEAFLockButton in MAIDType0004.PDF)

12) **AELockonRelease**

Activate AE lock or not when shutter button lightly pressed.

(refer to 3.68 kNkMAIDCapability_AELockonRelease in MAIDType0004.PDF)

13) **LCDBackLight**

Turn on LCD backlight when the release button is slightly pressed.

(refer to 3.90 kNkMAIDCapability_LCDBackLight in MAIDType0004.PDF)

14) **AFAreaSelector**

Set AF area selector motion is circular or not.

(refer to 3.56 kNkMAIDCapability_AFAreaSelector in MAIDType0004.PDF)

15) **AFsPriority**

Select a prior focusing area in single AF mode.

(refer to 3.53 kNkMAIDCapability_AFsPriority in MAIDType0004.PDF)

16) **AFcPriority**

Select a prior focusing area in continuous AF mode.

 (refer to 3.52 kNkMAIDCapability_AFcPriority in MAIDType0004.PDF)

Sub Menu 7

You can read and write a setting of image object.

1) **IsAlive**

Show the status of this image object.(refer to 9.6 kNkMAIDCapability_IsAlive in MAID3.PDF)

2) **Name**

Show the name of this image object. (refer to 9.9 kNkMAIDCapability_Name in MAID3.PDF)

3) **StoredBytes**

Show the file size of this image file in bytes.

(refer to 9.14 kNkMAIDCapability_StoredBytes in MAID3.PDF)

4) **Pixels**

Show the image size of this image in pixels.

(refer to 9.40 kNkMAIDCapability_Pixels in MAID3.PDF)

5) **RawJpegImageStatus**

Show whether this image has raw and jpeg or not.

 (refer to 3.184 kNkMAIDCapability_RawJpegImageStatus in MAIDType0004.PDF)

6) **Acquire**

Get an image file. The image is saved as like "Image001.jpg" in application folder in windows, or saved in home directory in macintosh. (refer to 9.19 kNkMAIDCapability_Acquire in MAID3.PDF)

Sub Menu 8

You can read and write a setting of movie object.

1) **IsAlive**

Show the status of this image object.(refer to 9.6 kNkMAIDCapability_IsAlive in MAID3.PDF)

2) **Name**

Show the name of this image object. (refer to 9.9 kNkMAIDCapability_Name in MAID3.PDF)

3) **StoredBytes**

Show the file size of this image file in bytes.

(refer to 9.14 kNkMAIDCapability_StoredBytes in MAID3.PDF)

4) **Pixels**

Show the image size of this image in pixels.

(refer to 9.40 kNkMAIDCapability_Pixels in MAID3.PDF)

5) **GetVideoImage**

Get a movie file. The movie is saved as like "Movie001.jpg" in application folder in windows, or saved in home directory in macintosh. (refer to 3.189 kNkMAIDCapability_GetVideoImage in MAIDType0004.PDF)

Sub Menu 9

You can read and write a setting of thumbnail object.

1) **IsAlive**

Show the status of this thumbnail object.(refer to 9.6 kNkMAIDCapability_IsAlive in MAID3.PDF)

2) **Name**

Show the name of this thumbnail object. (refer to 9.9 kNkMAIDCapability_Name in MAID3.PDF)

3) **StoredBytes**

Show the size of this thumbnail data in bytes.

(refer to 9.14 kNkMAIDCapability_StoredBytes in MAID3.PDF)

4) Pixels

Show the image size of this thumbnail image in pixels.

(refer to 9.40 kNkMAIDCapability_Pixels in MAID3.PDF)

5) Acquire

Get an thumbnail image data. The thumbnail is saved as like "Thumb001.raw" in application folder in windows, or saved in home directory in macintosh.

(refer to 9.19 kNkMAIDCapability_Acquire in MAID3.PDF)

Appendix

Restriction

- This sample program doesn't provide all of the capability Type0004 module support. About usage of the other capability, please refer the documet "MAID3Type0004(E).pdf".

- This sample program doesn't care of changes in camera condition. If you want to check the camera status, you should send kNkMAIDCommand_Async to module object periodically. If this command is carried out, change of the state of a camera will be notified by MAIDEventProc.

- This sample program supports the case 2, "After issuing kNkMAIDCapability_Acquire for ImageObject, and before issuing kNkMAIDCommand_Close" as the way to delete DRAM image. This sample program does not use the case 1, "Before receiving kNkMAIDEvent_AddChild"

- When you use Type0004 Module (Type0004.md3), please set USB transmission mode of the camera body as PTP.

History

- Rev.1.0   December 1, 2010   First version