

Sample Program Guide

Revision.2.2

February 29, 2016

Introduction

This guide explains how to use this sample program.

Usage

Supported camera

D810, D810A

Environment

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

Supported Environment

OS type	Version
Windows	Windows 7 (SP1) ---- 32bit / 64bit edition((* Ultimate, Enterprise, Professional, Home Premium, Home Basic) Windows 8.1 ---- 32bit / 64bit edition (* Windows 8.1, Pro, Enterprise) Windows 10 ---- 32bit / 64bit edition
Macintosh	Mac OS X 10.9.5 (Mavericks) Mac OS X 10.10.5 (Yosemite) Mac OS X 10.11.2 (El Capitan) * 64bit mode only (32bit mode is not supported)

■Restriction of Windows

The windows sample program project file supports “Microsoft Visual Studio 2013”.

■Restriction of Macintosh

- The Macintosh sample program project file is created with Xcode 6.2.
- LLVM version is 6.0, SDK is 10.10.

Files

The sample program needs following files. Copy these files on the appropriate

folder and use it.

Windows

File Name	Folder
Type0014.md3	Same as this sample program
NkdPTP.dll	Same as Type0014.md3

- If you want to change the folder of Type0014.md3, you should modify Search_Module() function of Function.cpp.

Macintosh

File Name	Folder
Type0014 Module.bundle	Same as this sample program
libNkPTPDraiver2.dylib	SYSTEM/Library/Application Support/Nikon/Camera Control Modules/

- If you want to change the folder of Type0014 Module.bundle, you should modify Search_Module() function of Function.cpp.
- 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) Live View

You can change Live View settings. Sub menu 6 will be shown.

6) Custom Menu

You can change custom settings. Sub menu 7 will be shown.

7) Async

Send kNkMAIDCommand_Async to detect in camera condition.

(refer to 9.1 kNkMAIDCommand_Async in MAID3.PDF)

8) Autofocus

Perform auto focus.

(refer to 4.27 kNkMAIDCapability_AutoFocus in MAID3Type0014.PDF)

9) Capture

Take a picture. If you try to transfer images to PC, you must change 21)SaveMedia of Sub Menu 3 to SDRAM. When you set it to Card, the module does not notify of the addition of the item object.

(refer to 4.17 kNkMAIDCapability_Capture in MAID3Type0014.PDF)

10) TerminateCapture

Terminate bulb exposure shooting and record to SDRAM the image until stopped bulb.

(refer to 3.170 kNkMAIDCapability_TerminateCapture in MAID3Type0014.PDF)

11) PreCapture

Take a picture for presetting white balance.

(refer to 3.148 kNkMAIDCapability_PreCapture in MAID3Type0014.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 8 will be shown. If movie object is selected, sub menu 9 will be shown. If thumbnail object is selected, sub menu 10 will be shown.

2) Delete

Delete the DRAM image of Item object.

(refer to 3.153 kNkMAIDCapability_DeleteDramImage in MAID3Type0014.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 MAID3Type0014.PDF)

6) FlashMode

Set the flash mode of this source.

(refer to 9.51 kNkMAIDCapability_FlashMode in MAID3.PDF)

7) LockFocus

Show the status of focus lock.

(refer to 3.137 kNkMAIDCapability_LockFocus in MAID3Type0014.PDF)

8) LockExposure

Show the status of exposure lock.

(refer to 3.136 kNkMAIDCapability_LockExposure in MAID3Type0014.PDF)

9) ExposureStatus

Show the exposure value measured by camera.

(refer to 3.139 kNkMAIDCapability_ExposureStatus in MAID3Type0014.PDF)

10) ExposureMode

Set the exposure mode of camera.

(refer to 3.119 kNkMAIDCapability_ExposureMode in MAID3Type0014.PDF)

11) ShutterSpeed

Set the exposure time of camera.

(refer to 3.114 kNkMAIDCapability_ShutterSpeed in MAID3Type0014.PDF)

12) Aperture

Set the aperture of camera.

(refer to 3.117 kNkMAIDCapability_Aperture in MAID3Type0014.PDF)

13) FlexibleProgram

Set the flexible program of camera.

(refer to 3.115 kNkMAIDCapability_FlexibleProgram in MAID3Type0014.PDF)

14) ExposureComp

Set the exposure compensation of camera.

(refer to 3.120 kNkMAIDCapability_ExposureComp in MAID3Type0014.PDF)

15) MeteringMode

Set the metering mode of camera.

(refer to 3.118 kNkMAIDCapability_MeteringMode in MAID3Type0014.PDF)

16) FocusMode

Show focus mode.

(refer to 3.142 kNkMAIDCapability_FocusMode in MAID3Type0014.PDF)

17) FocusAreaMode

Set focus area mode.

(refer to 3.123 kNkMAIDCapability_FocusAreaMode in MAID3Type0014.PDF)

18) FocusPreferredArea

Change focusing point.

(refer to 3.116 kNkMAIDCapability_FocusPreferredArea in MAID3Type0014.PDF)

19) FocalLength

Show focal length(unit: mm).

(refer to 3.141 kNkMAIDCapability_FocalLength in MAID3Type0014.PDF)

20) ClockDateTime

Adjust internal clock.

(refer to 3.107 kNkMAIDCapability_ClockDateTime in MAID3Type0014.PDF)

21) SaveMedia

This will set the recording media.

(refer to 3.175 kNkMAIDCapability_SaveMedia in MAID3Type0014.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 3.163 kNkMAIDCapability_LockCamera in MAID3Type0014.PDF)

2) LensInfo

Show lens information(focal length and aperture).

(refer to 3.150 kNkMAIDCapability_LensInfo in MAID3Type0014.PDF)

3) UserComment

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

(refer to 3.104 kNkMAIDCapability_UserComment in MAID3Type0014.PDF)

4) EnableComment

Enable to add UserComment to an image file.

(refer to 3.105 kNkMAIDCapability_EnableComment in MAID3Type0014.PDF)

5) IsoControl

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

(refer to 3.42 kNkMAIDCapability_IsoControl in MAIDType0014.PDF)

6) NoiseReduction

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

(refer to 3.43 kNkMAIDCapability_NoiseReduction in MAIDType0014.PDF)

7) MirrorUpCancel (D810A only)

Cancel the mirror up.

(refer to 3.199 kNkMAIDCapability_MirrorUpCancel in MAIDType0014.PDF)

8) MirrorUpStatus (D810A only)

Represent the status of the mirror.

(refer to 3.200 kNkMAIDCapability_MirrorUpStatus in MAIDType0014.PDF)

9) MirrorUpSReleaseShootingCount (D810A only)

Represent the number of required release for mirror up shooting.

(refer to 3.201 kNkMAIDCapability_MirrorUpSReleaseShootingCount in MAIDType0014.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 3.3 kNkMAIDCapability_CompressionLevel in MAID3Type0014.PDF)

2) ImageSize

Set the compression level of picture.

(refer to 3.1 kNkMAIDCapability_ImageSize in MAID3Type0014.PDF)

3) RawImageSize

Set the compression level of raw picture.

(refer to 3.2 kNkMAIDCapability_RawImageSize in MAID3Type0014.PDF)

4) WBMode

Set white balance mode(auto/Incandescent/...).

(refer to 3.4 kNkMAIDCapability_WBMode in MAIDType0014.PDF)

5) Sensitivity

Set sensitivity of camera.

(refer to 3.5 kNkMAIDCapability_Sensitivity in MAIDType0014.PDF)

6) WBTuneAuto

Adjust white balance in Auto mode.

(refer to 3.10 kNkMAIDCapability_WBTuneAuto in MAIDType0014.PDF)

7) WBAutoType

Set the option when the white balance auto.

(refer to 3.11 kNkMAIDCapability_WBAutoType in MAID3Type0014.PDF)

8) WBTuneIncandescent

Adjust white balance in Incandescent mode.

(refer to 3.12 kNkMAIDCapability_WBTuneIncandescent in MAIDType0014.PDF)

9) WBFluorescentType

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

(refer to 3.13 kNkMAIDCapability_WBFluorescentType in MAIDType0014.PDF)

10) WBTuneFluorescent

Adjust white balance in Fluorescent mode.

(refer to 3.14 kNkMAIDCapability_WBTuneFluorescent in MAIDType0014.PDF)

11) WBTuneSunny

Adjust white balance in Sunny mode.

(refer to 3.15 kNkMAIDCapability_WBTuneSunny in MAIDType0014.PDF)

12) WBTuneFlash

Adjust white balance in Flash mode.

(refer to 3.16 kNkMAIDCapability_WBTuneFlash in MAIDType0014.PDF)

13) WBTuneShade

Adjust white balance in Shade mode.

(refer to 3.17 kNkMAIDCapability_WBTuneShade in MAIDType0014.PDF)

14) WBTuneCloudy

Adjust white balance in Cloudy mode.

(refer to 3.18 kNkMAIDCapability_WBTuneCloudy in MAIDType0014.PDF)

15) 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 3.35 kNkMAIDCapability_WBPresetData in MAIDType0014.PDF)

16) PictureControl

Set and get current Picture Control.

(refer to 3.47 kNkMAIDCapability_PictureControl in MAIDType0014.PDF)

17) 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 3.49 kNkMAIDCapability_PictureControlData in MAIDType0014.PDF)

18) 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 3.51 kNkMAIDCapability_GetPicCtrlInfo in MAIDType0014.PDF)

19) DeleteCustomPictureControl

Delete Custom Picture Control.

(refer to 3.52 kNkMAIDCapability_DeleteCustomPictureControl in MAIDType0014.PDF)

20) PictureControlDataEx

This will get or set the assigned Picture Control data of the second generation.

(refer to 3.50 kNkMAIDCapability_PictureControlDataEx in MAIDType0014.PDF)

21) MovieMeteringMode

Set the metering mode to be used in live view video.

(refer to 3.198 kNkMAIDCapability_MovieMeteringMode in MAIDType0014.PDF)

Sub Menu 6

You can read and write settings concerned with Live View.

1) LiveViewProhibit

Get the Live view prohibition condition.

(refer to 3.131 kNkMAIDCapability_LiveViewProhibit in MAIDType0014.PDF)

2) LiveViewStatus

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

(refer to 3.130 kNkMAIDCapability_LiveViewStatus in MAIDType0014.PDF)

3) LiveViewImageZoomRate

Set the zoom rate of Live view image.

(refer to 3.132 kNkMAIDCapability_LiveViewImageZoomRate in MAIDType0014.PDF)

4) LiveViewImageSize

This will set the size of “Live View image”.

(refer to 3.192 kNkMAIDCapability_LiveViewImageSize in MAIDType0014.PDF)

5) GetLiveViewImage

Live view data will be got. Display information 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 3.161 kNkMAIDCapability_GetLiveViewImage in MAIDType0014.PDF)

6) MovRecInCardProhibit

Get the Movie record prohibition condition.

(refer to 3.170 kNkMAIDCapability_MovRecInCardProhibit in MAIDType0014.PDF)

7) MovRecInCardStatus

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

(refer to 3.169 kNkMAIDCapability_MovRecInCardStatus in MAIDType0014.PDF)

8) SpotWBMode

Set the ON / OFF state of waiting to acquire SpotWB.

(refer to 3.193 kNkMAIDCapability_SpotWBMode in MAIDType0014.PDF)

9) SpotWBMeasure

This capability to obtain information SpotWB.

(refer to 3.194 kNkMAIDCapability_SpotWBMeasure in MAIDType0014.PDF)

10) SpotWBChangeArea

This Capability is used to change the SpotWB area while waiting for SpotWB acquisition.

(refer to 3.195 kNkMAIDCapability_SpotWBChangeArea in MAIDType0014.PDF)

11) SpotWBResultDispEnd

This capability to release the results of retrieving display the SpotWB.

(refer to 3.196 kNkMAIDCapability_SpotWBResultDispEnd in MAIDType0014.PDF)

Sub Menu 7

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

1) EVInterval

Select an interval of exposure value.

(refer to 3.80 kMAIDCapability_EVInterval in MAIDType0014.PDF)

2) BracketingVary

Select a Bracketing variation.

(refer to 3.96 kMAIDCapability_BracketingVary in MAIDType0014.PDF)

3) ExpBaseHighlight

Photometry mode represents the reference exposure level at the time of the highlight-weighted metering .

(refer to 3.86 kNkMAIDCapability_ExpBaseHighlight in MAIDType0014.PDF)

4) ElectronicFrontCurtainShutter

Set the electronic first curtain shutter.

(refer to MAID3Type0014.PDF 3.90

kNkMAIDCapability_ElectronicFrontCurtainShutter in MAIDType0014.PDF)

Sub Menu 8

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 3.159 kNkMAIDCapability_RawJpegImageStatus in MAIDType0014.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 9

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 3.162 kNkMAIDCapability_GetVideoImage in MAIDType0014.PDF)

Sub Menu 10

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 a 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

About sample program(Macintosh)

- When you switch between release and debug binaries, you change "Build Configuration" of "Edit Scheme" menu from Type0014CtrlSample.xcodeproj.

Restriction

- This sample program doesn't provide all of the capability Type0014 module support. About usage of the other capability, please refer the document "MAID3Type0014(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.

History

- Rev.2.2 February 29, 2016
 - Environment...Update the environment and restriction of Windows.
 - Sub Menu 1 9)Capture...Update notice.

- Rev.2.1 November 13, 2015
 - Environment...Update the environment and restriction
 - Files...Update the PTP driver of Macintosh.
 - Sub Menu 1 9)Capture...Change description.

- Rev.2.0 March 20, 2015
 - Environment...Update the environment and restriction
 - Sub Menu 5 21)...Add new capabilities.
 - Sub Menu 4 7), 8), 9)...Add new capabilities.

- Rev.1.1 February 16, 2015
 - Environment...Update the environment and restriction of Macintosh.

- Rev.1.0 June 23. 2014 First version