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# Sample Program Guide

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## Introduction

This guide explains how to use this sample program.

## Usage

### **Supported camera**

D90, D5000

### **Environment**

The sample program is command prompt.

OS type	Version
Windows	Windows XP Home Edition (SP3) / Professional (SP3) Windows Vista SP1 32bit each edition (Home Basic / Home Premium / Business / Enterprise / Ultimate)
Macintosh	MacOS X 10.4.11 MacOS X 10.5.5

#### ■Restriction of Windows

The windows sample program project file supports “Microsoft Visual Studio .Net 2003”.

#### ■Restriction of Macintosh

- The macintosh sample program project file is created with Xcode 2.5.
- 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 XP, Vista (camera body is set to PTP mode.)

File Name	Folder
Type0003.md3	Same as this sample program
NkdPTP.dll	Same as Type0003.md3

- If you want to change the folder of Type0003.md3, you should modify Search\_Module() function of Function.c.

MacOS X (camera body is set to PTP mode)

File Name	Folder
Type0003 Module.dundle (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 Type0003 Module.dundle, 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 MAID3Type0003.PDF )

**8) Capture**

Take a picture. (refer to 4.17 kNkMAIDCapability\_Capture in MAID3Type0003.PDF )

**9) PreCapture**

Take a picture for presetting white balance.

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(refer to 3.154 kNkMAIDCapability\_PreCapture in MAID3Type0003.PDF)

### **Sub Menu 2**

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

#### **1) Select Data Object**

You can choose preview or data object. If preview is selected, preview data will be get. Display information will be saved as like "Preview001\_H.dat" and preview image will be saved as like "Preview001.jpg" in application folder in windows, or in home directory in macintosh.(refer to 3.162 kNkMAIDCapability\_GetPreviewImageLow, 3.163 kNkMAIDCapability\_GetPreviewImageNormal in MAID3Type0003.PDF)

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

#### **2) Delete**

Delete the DRAM image of Item object.

(refer to 3.159 kNkMAIDCapability\_DeleteDramImage in MAID3Type0003.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 MAID3Type0003.PDF)

**6) FlashMode**

Set the flash mode of this source. (refer to 9.52 kNkMAIDCapability\_FlashMode in MAID3.PDF, 4.51 kNkMAIDCapability\_FlashMode in MAID3Type0003.PDF)

**7) LockFocus**

Set the status of focus lock.

(refer to 3.137 kNkMAIDCapability\_LockFocus in MAID3Type0003.PDF)

**8) LockExposure**

Set the status of exposure lock.

(refer to 3.136 kNkMAIDCapability\_LockExposure in MAID3Type0003.PDF)

**9) ExposureStatus**

Show the exposure value measured by camera.

(refer to 3.139 kNkMAIDCapability\_ExposureStatus in MAID3Type0003.PDF)

**10) ExposureMode**

Set the exposure mode of camera.

(refer to 3.123 kNkMAIDCapability\_ExposureMode in MAID3Type0003.PDF)

**11) ShutterSpeed**

Set the exposure time of camera.

(refer to 3.118 kNkMAIDCapability\_ShutterSpeed in MAID3Type0003.PDF)

**12) Aperture**

Set the aperture of camera. (refer to 3.121 kNkMAIDCapability\_Aperture in MAID3Type0003.PDF)

**13) FlexibleProgram**

Set the flexible program of camera.

(refer to 3.119 kNkMAIDCapability\_FlexibleProgram in MAID3Type0003.PDF)

**14) ExposureComp**

Set the exposure compensation of camera.

(refer to 3.124 kNkMAIDCapability\_ExposureComp in MAID3Type0003.PDF)

**15) MeteringMode**

Set the metering mode of camera.

(refer to 3.122 kNkMAIDCapability\_MeteringMode in MAID3Type0003.PDF)

**16) FocusMode**

Show focus mode.

(refer to 3.142 kNkMAIDCapability\_FocusMode in MAID3Type0003.PDF)

**17) FocusAreaMode**

Set focus area mode.

(refer to 3.42 kNkMAIDCapability\_FocusAreaMode in MAID3Type0003.PDF)

**18) FocusPreferredArea**

Change focusing point.

(refer to 3.120 kNkMAIDCapability\_FocusPreferredArea in MAID3Type0003.PDF)

**19) FocalLength**

Show focal length(unit: mm).

(refer to 3.149 kNkMAIDCapability\_FocalLength in MAID3Type0003.PDF)

## **20) ClockDateTime**

Adjust internal clock.

(refer to 3.117 kNkMAIDCapability\_ClockDateTime in MAID3Type0003.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 3.165 kNkMAIDCapability\_LockCamera in MAID3Type0003.PDF)

#### **2) LensInfo**

Show lens information(focal length and aperture).

(refer to 3.151 kNkMAIDCapability\_LensInfo in MAID3Type0003.PDF)

#### **3) UserComment**

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

(refer to 3.114 kNkMAIDCapability\_UserComment in MAID3Type0003.PDF)

#### **4) EnableComment**

Enable to add UserComment to an image file.

(refer to 3.115 kNkMAIDCapability\_EnableComment in MAID3Type0003.PDF)

#### **5) IsoControl**

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

(refer to 3.26 kNkMAIDCapability\_IsoControl in MAIDType0003.PDF)

#### **6) NoiseReduction**

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

(refer to 3.27 kNkMAIDCapability\_NoiseReduction in MAIDType0003.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 MAID3Type0003.PDF)

#### **2) ImageSize**

Set the compression level of picture.

(refer to 3.1 kNkMAIDCapability\_ImageSize in MAID3Type0003.PDF)

#### **3) WBMode**

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

(refer to 3.3 kNkMAIDCapability\_WBMode in MAIDType0003.PDF)

#### **4) Sensitivity**

Set sensitivity of camera.

(refer to 3.4 kNkMAIDCapability\_Sensitivity in MAIDType0003.PDF)

#### **5) WB TuneAuto**

Adjust white balance in Auto mode.

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(refer to 3.5 kNkMAIDCapability\_WBTuneAuto in MAIDType0003.PDF)

**6) WBTuneIncandescent**

Adjust white balance in Incandescent mode.

(refer to 3.6 kNkMAIDCapability\_WBTuneIncandescent in MAIDType0003.PDF)

**7) WBFluorescentType**

Set the fluorescent type when the WBMode is “Fluorescent”.

(refer to 3.7 kNkMAIDCapability\_WBFluorescentType in MAIDType0003.PDF)

**8) WBTuneFluorescent**

Adjust white balance in Fluorescent mode.

(refer to 3.8 kNkMAIDCapability\_WBTuneFluorescent in MAIDType0003.PDF)

**9) WBTuneSunny**

Adjust white balance in Sunny mode.

(refer to 3.9 kNkMAIDCapability\_WBTuneSunny in MAIDType0003.PDF)

**10) WBTuneFlash**

Adjust white balance in Flash mode.

(refer to 3.10 kNkMAIDCapability\_WBTuneFlash in MAIDType0003.PDF)

**11) WBTuneShade**

Adjust white balance in Shade mode.

(refer to 3.11 kNkMAIDCapability\_WBTuneShade in MAIDType0003.PDF)

**12) WBTuneCloudy**

Adjust white balance in Cloudy mode.

(refer to 3.12 kNkMAIDCapability\_WBTuneCloudy in MAIDType0003.PDF)

**13) WBTuneColorTemp (D90 only)**

set the color temperature in Color Temperature mode.

(refer to 3.13 kNkMAIDCapability\_WBTuneColorTemp in MAIDType0003.PDF)

**14) WBTuneColorAdjust (D90 only)**

Adjust white balance in Color Temperature mode.

(refer to 3.14 kNkMAIDCapability\_WBTuneColorAdjust in MAIDType0003.PDF)

**15) WBTunePreset (D90 only)**

Adjust white balance in Preset mode.

(refer to 3. 15-19 kNkMAIDCapability\_WBTunePreset1-5in MAIDType0003.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 3.22 kNkMAIDCapability\_WBPresetData in MAIDType0003.PDF)

**17) PictureControl**

Set and get current Picture Control.

(refer to 3.29 kNkMAIDCapability\_PictureControl in MAIDType0003.PDF)

**18) PictureControlData**

Set and get Picture Contol data.

When you set Picture Contol data to camera, you have to name the file “PicCtrlData.dat” and put the

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file in this application folder in windows, or put the file in home directory in macintosh.

(refer to 3.31 kNkMAIDCapability\_PictureControlData in MAIDType0003.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 3.32 kNkMAIDCapability\_GetPicCtrlInfo in MAIDType0003.PDF)

#### **20) DeleteCustomPictureControl**

Delete Custom Picture Control.

(refer to 3.33 kNkMAIDCapability\_DeleteCustomPictureControl in MAIDType0003.PDF)

#### **21) LiveViewProhibit**

Get the Live view prohibition condition.

(refer to 3.132 kNkMAIDCapability\_LiveViewProhibit in MAIDType0003.PDF)

#### **22) LiveViewStatus**

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

(refer to 3.131 kNkMAIDCapability\_LiveViewStatus in MAIDType0003.PDF)

#### **23) LiveViewImageZoomRate**

Set the zoom rate of live view image.

(refer to 3.133 kNkMAIDCapability\_LiveViewImageZoomRate in MAIDType0003.PDF)

#### **24) 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 3.164 kNkMAIDCapability\_GetLiveViewImage in MAIDType0003.PDF)

#### **25) SceneMode (D5000 only)**

Set the shooting menu, [Scene mode].

(refer to 3.40 kNkMAIDCapability\_SceneMode in MAIDType0003.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 3.41 NkMAIDCapability\_ResetCustomSetting in MAIDType0003.PDF)

#### **2) ResetFileNumber**

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

(refer to 3.74 NkMAIDCapability\_ResetFileNumber in MAIDType0003.PDF)

#### **3) ShootNoCard**

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

(refer to 3.112 kMAIDCapability\_ShootNoCard in MAIDType0003.PDF)

#### **4) NumberingMode**

Select a file numbering method.

(refer to 3.73 NkMAIDCapability\_NumberingMode in MAIDType0003.PDF)



**5) LimitImageDisplay (D5000 only)**

Select limit time of picture display.

(refer to 3.63 kMAIDCapability\_LimitImageDisplay in MAIDType0003.PDF)

**6) AutoOffDelay**

Select a time delay for auto meter switch-off.

(refer to 3.58 kMAIDCapability\_AutoOffDelay in MAIDType0003.PDF)

**7) SelfTimerDuration**

Set a self timer duration.

(refer to 3.59 kMAIDCapability\_SelfTimerDuration in MAIDType0003.PDF)

**8) EVInterval**

Select an interval of exposure value.

(refer to 3.50 kMAIDCapability\_EVInterval in MAIDType0003.PDF)

**9) BracketingVary**

Select a Bracketing variation.

(refer to 3.102 kMAIDCapability\_BracketingVary in MAIDType0003.PDF)

**10) BracketingOrder (D90 only)**

Select an bracketing order.

(refer to 3.104 kMAIDCapability\_BracketingOrder in MAIDType0003.PDF)

**11) ExchangeDials (D90 only)**

Exchange the functions for front and rear command dials.

(refer to 3.110 kMAIDCapability\_ExchangeDials in MAIDType0003.PDF)

**12) AEAFLockButton**

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

(refer to 3.108 kMAIDCapability\_AEAFLockButton in MAIDType0003.PDF)

**13) AELockonRelease**

Activate AE lock or not when shutter button lightly pressed.

(refer to 3.56 kMAIDCapability\_AELockonRelease in MAIDType0003.PDF)

**14) LCDBackLight (D90 only)**

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

(refer to 3.76 kMAIDCapability\_LCDBackLight in MAIDType0003.PDF)

**15) AFAreaSelector (D90 only)**

Set AF area selector motion is circular or not.

(refer to 3.46 kMAIDCapability\_AFAreaSelector in MAIDType0003.PDF)

**16) DateCounterData (D5000 only)**

Set a date for date counter.

(refer to 3.80 kMAIDCapability\_DateCounterData in MAIDType0003.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 kMAIDCapability\_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 3.160 kNkMAIDCapability\_RawJpegImageStatus in MAIDType0003.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 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 Type0003 module support. About usage of the other capability, please refer the document "MAID3Type0003(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 Type0003 Module (Type0003.md3), please set USB transmission mode of the camera body as PTP.