



**PixController, Inc.**

**PC Raptor Config Software Setup Manual  
For non M2M Connect Cloud devices**



## Introduction

The PC Raptor Config software should only be used for systems which are not connected to the M2M Connect Cloud or changing/setting the WiFi SSID/Password on your Raptor Wireless WiFi system.

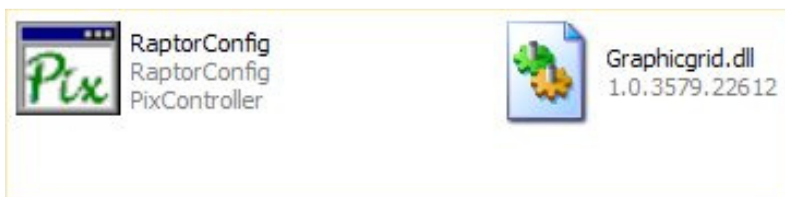
### 1. Installing the PC Software

On the Raptor System CD there is a folder labeled “**RaptorConfig**”. Simply drag this folder on to your PC or open the folder on the CD. Next, run the file **RaptorConfig.exe** by double clicking on the file name. Be sure you have removed the USB Flash Drive from your Raptor System and have it inserted into one of your USB drive ports on your PC. The settings changed in the RaptorConfig.exe program will be stored on the USB Flash Drive.

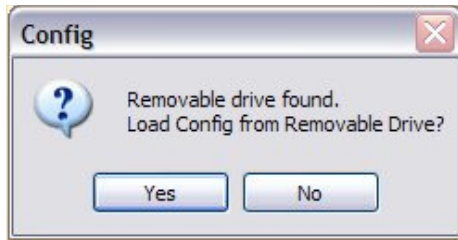


*Insert the USB Flash Drive into your PC during the Software Setup Phase*

### 1.1 Raptor PC Software Setup

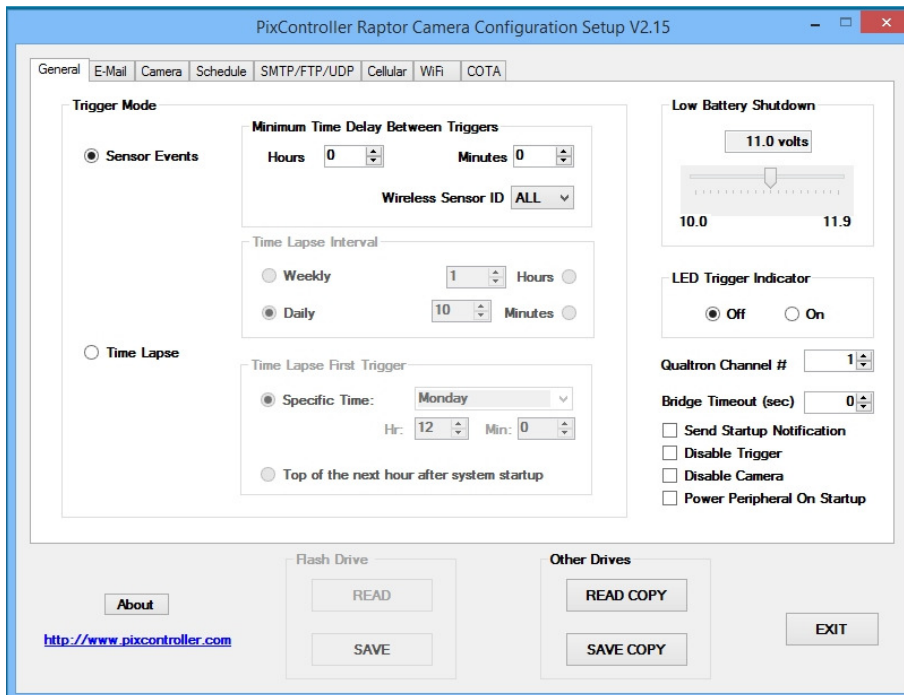


To run the Raptor PC Software you must install the RaptorConfig.exe and Graphicgrid.dll in the same folder or on your desktop. Place the USB Flash drive from the Raptor System into your PC and double click on the “RaptorConfig” icon.



## 2. Running the RaptorConfig.exe Program

When you run the RaptorConfig.exe program the following screen will appear



### 2.1 Raptor Configuration Setup – General Tab

#### Trigger Mode

The Raptor System can be configured to be triggered by the internal PIR motion sensor, or external wireless motion sensor depending on which system you have purchased, or the Raptor system can be setup in a Time Lapse Mode

When setting the Raptor System in PIR motion trigger mode select the “Sensor Events” option. Here you can setup the “**Minimum Time Delay Between Triggers**” in hours/minutes. This option is for limiting the number of photos that will be sent by the Raptor System. For setting in high traffic areas you may want to adjust the setting to 5 or 10 minutes. In low traffic areas you can keep the setting at the default setting of 1 minute.

Keep in mind that your battery life will be impacted greatly by the number of photos you send a day. If you are setting the Raptor System up in a high traffic area where you may be sending as many as 100 photos a day we highly recommend using a solar panel or external battery for keeping the system charged.

When setting the system up in “**Time Lapse**” mode you can specify the time between photos in the “**Time Lapse First Trigger**” box.

#### **Low Battery Shutdown Slider**

Slider control for setting the voltage below which normal camera operation will be suspended. Range is 10.0 – 11.9 volts in steps of 0.1 volt. On systems equipped with solar panels, the battery will be re-tested every 24 hours and the camera operation will be resumed when the voltage rises 0.25 volts above this setting.

#### **Low Battery Shutdown**

User-defined threshold voltage from the config program is used to shut down the Raptor to prevent battery damage. The battery voltage is compared to this threshold whenever a normal event occurs (sensor trigger, time-lapse trigger, or status e-mail). If the voltage is below this threshold, then the e-mail will be sent normally, but will include a “low-battery shutdown” message. The Raptor will then go into a low-power shut-down mode and stop responding to events. Every 24 hours, the battery will be re-tested, and if the voltage has recovered to at least 0.25 volts above the threshold, such as if a solar charger is installed, the Raptor will return to normal operation, and will send an e-mail notification of this fact.

#### **Low Battery Start-up Warning**

During self-test, if the battery voltage is below the user-defined threshold, startup will pause and a warning message will be displayed. Press the center button to continue start-up. Be advised, if the start-up is completed in this condition, the system will most likely go into shutdown mode after the first event (as described previously). In other words, only start up in this mode if you don't mind missing (at least) the first 24 hours and are confident the solar charger will bring the battery up to normal charge.

#### **Low Battery Start-up Error**

During self-test, if the battery voltage is below an absolute minimum value (set to 9 volts at this time), an error message will be displayed and the system will not start up. As with all failed self-tests, in Diagnostic Startup you can press the center button to continue into Diagnostic Mode.

#### **LED Trigger Indicator**

When this mode is set a LED will blink every time motion is detected from the PIR sensor. This will be lit up through the PIR lens on the Raptor System. The default mode is off.

#### **Bridge Timeout (General Tab):**

For systems that utilize a Wifi/Cellular bridge, this is the maximum amount of time to wait to establish communication with the cellular network on power-up. Leave this setting at zero (0) for normal Raptor camera systems. When this is non-zero, there will be a phase during start-up during which the Raptor will try to connect to the network, and the time remaining before timeout will be shown on the LCD display.

#### **Send Startup Notification (General Tab):**

If this is checked, the Raptor will send a status e-mail when the system switches to Auto Mode during a normal start-up.

#### **Disable Trigger And Camera (General Tab):**

This new control carries over from previous versions, but is related to the above two functions so it is repeated here. Checking this box will cause the Raptor firmware (V1.15a or later) to ignore the sensor/trigger module and camera module. This is intended for non-Raptor applications, where sensor and camera functionality is not needed. Note that, when checked, the label for this check-box turns red as a warning to the user to make sure this is what they really want.

## 2.2 Raptor Configuration Setup – E-Mail Tab

The screenshot shows the 'E-Mail' configuration window of the PixController Raptor Camera Configuration Setup V2.15. The window has a blue title bar and a tabbed interface with 'General', 'E-Mail', 'Camera', 'Schedule', 'SMTP/FTP/UDP', 'Cellular', 'WiFi', and 'COTA' tabs. The 'E-Mail' tab is active. It contains three main sections: 'Trigger E-mail' with radio buttons for 'Attach Image' (selected), 'Text Only', and 'None'; 'Status E-Mails' with radio buttons for 'None' (selected), 'Daily' (with a 'Hour' spinner set to 7), and 'Weekly' (with a 'Monday' dropdown); and 'E-mail Format' with radio buttons for 'Plain Text' and 'HTML' (selected). To the right is the 'E-mail Composition' section with a 'Recipient(s)' list containing 'myemail@address.com', 'Add', 'Delete', and 'Edit' buttons, a 'Subject Line' field with 'Camera Trigger Notification', and a 'Sender Address' field with 'Raptor@PixController.com'. At the bottom, there are buttons for 'About', 'Flash Drive' (with 'READ' and 'SAVE' buttons), 'Other Drives' (with 'READ COPY' and 'SAVE COPY' buttons), and 'EXIT'. A URL 'http://www.pixcontroller.com' is also present.

### Trigger E-Mail Format

The Trigger E-Mail Format box lets you adjust how you are notified by the Raptor System. Selecting the **“Attach Image”** option will send a photo and text message with every trigger. Selecting the **“Text Only”** option will only send a text message when a trigger event happens, but the photo will be saved on the USB Flash Drive. The Text Only option can be used in situations where you are limited by cellular bandwidth or do not wish to charge your cellular account with data fees. Lastly, there is a **“None”** option. In this mode the Raptor System will not attempt to send any data via the cellular radio. This setting is used in areas where there is no cellular coverage but you wish to still collect photos with your Raptor System. In this mode photos will be stored to the USB Flash Drive only.

### Status E-Mails

The Status E-Mails box lets you setup the Raptor System to send you a system status email based on the settings. If activated the Raptor System will email you once a day, or once a week, depending on how you set it up and give you a battery status, cellular signal status, and internal temperature status. This setting is very useful to make sure your Raptor System is working fine in the field.

### E-Mail Composition

The E-Mail Composition window will let you enter the email addresses the Raptor System will send the emails too. Up to 10 email addresses can be entered. Note: you must change the default email address on initial setup by changing or removing the null@null.com email address. This is just a place holder.

In this box you can also change the “Subject Line” and “Senders Address”

## 2.3 Raptor Configuration Setup – Camera Tab

The screenshot displays the 'PixController Raptor Camera Configuration Setup V2.15' window. The 'Camera' tab is selected, showing various configuration options. The 'General' tab is also visible. The 'Camera ID' is set to 0. The 'Camera Description' is 'Camera 1'. The 'Camera Trigger Speed' is set to 3.0 sec. The 'Image Resolution (Built-In Camera Only)' is set to 1600 x 1200 pixels. The 'Video Clip Acquisition (DVR Cameras Only)' is set to 'None'. The 'Video Frame Rate' is set to 15 frames per second. The 'Video Format' is set to 'D1 (720 x 480)'. The 'Flash Drive' section has 'READ' and 'SAVE' buttons. The 'Other Drives' section has 'READ COPY' and 'SAVE COPY' buttons. An 'EXIT' button is at the bottom right. A link to <http://www.pixcontroller.com> is at the bottom left.

### Camera ID

The Camera ID setting is used to set the filenames the Raptor Systems sends to you. In the case that you are using more than one Raptor System you can set the Unit ID to let you know which system the file is sent from.

### Camera Description

This is a text box that will send this message in the body of each email sent by the Raptor System. You can include information about location of the unit and such.

### Camera Trigger Speed

The Camera Trigger Speed setting lets you adjust how long the camera is powered on before the photo is taken. The longer the camera trigger speed the longer the camera sensor automatic gain can adjust to the lighting and produce a more color accurate photo. When adjusting the trigger time down to 1.0 second or under photos will have a pinkish tint to them.

### Image Resolution (Built-In Camera Only)

This setting allows you to adjust the camera resolution the photo is captured in. Lower resolution setting will transmit photos faster and save you on cellular data charges.

### Video Clip Duration (DVR Cameras Only)

This setting is only for our Law Enforcement Systems which include a built-in DVR.

### IP Camera

These settings are used for RemoteStream Devices Only

**Camera IP Address:** IP Address of the attached IP camera to the RemoteStream

**Gateway IP Address:** IP Address of the cellular gateway

**M2M Connect Cloud Address:** Address of the RemoteStream on M2M Connect Cloud

## 2.4 Raptor Configuration Setup – Schedule Tab

PixController Raptor Camera Configuration Setup V2.15

General E-Mail Camera **Schedule** SMTP/FTP/UDP Cellular WiFi COTA

**Active Schedule**

☒ 24-Hour ☐ Daylight Only ☐ Nighttime Only ☐ Use Schedule Grid

About

<http://www.pixcontroller.com>

Flash Drive

READ

SAVE

Other Drives

READ COPY

SAVE COPY

EXIT

### Active Schedule

The Active Schedule box lets you setup the Raptor System for 24-hour activity, Day only activity, or Night only Activity. There is also a “Use Schedule Grid” setting which is explained below.

PixController Raptor Camera Configuration Setup V2.15

General E-Mail Camera **Schedule** SMTP/FTP/UDP Cellular WiFi COTA

**Active Schedule**

☐ 24-Hour ☐ Daylight Only ☐ Nighttime Only ☒ Use Schedule Grid

**SCHEDULE GRID**

	Mid	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	Mid	Set all	Clear all
Sunday																											
Monday																											
Tuesday																											
Wednesday																											
Thursday																											
Friday																											
Saturday																											

About

<http://www.pixcontroller.com>

Flash Drive

READ

SAVE

Other Drives

READ COPY

SAVE COPY

EXIT

## Use Schedule Grid

When selecting the “Use Schedule Grid” setting this allows you to setup blocks of time where the Raptor System will not take trigger events. This is very useful when setting the Raptor System up in a work place setting where you want the Raptor System to be inactive during work hours. Simply drag you mouse across the blocks to fill them in. The green high lighted colors will let you set times the Raptor System will be active. You can also set the “Set” or “Clear” buttons off to the right to set a whole day or clear a whole day.

In the above example the Raptor system will be set up to only look at trigger events or time-lapse events from 8:00 AM to 5:00 PM Monday through Friday.

## 2.5 Raptor Configuration Setup – SMTP/FTP Tab

The screenshot shows the 'PixController Raptor Camera Configuration Setup V2.15' window with the 'SMTP/FTP/UDP' tab selected. The window is divided into three main sections: SMTP SETUP (E-mail Server), FTP SETUP, and UDP SETUP. The SMTP SETUP section includes fields for Address (cwmx.com), Port (25), and checkboxes for Use SSL and Use Authentication. The FTP SETUP section includes a checkbox for Send images via FTP, fields for Address (ftp.null.com), Username (username), Password, Directory, and a checkbox for Use Single Filename. The UDP SETUP section includes fields for Address, Port, and Key. At the bottom, there are buttons for About, Flash Drive (READ, SAVE), Other Drives (READ COPY, SAVE COPY), and EXIT. A URL <http://www.pixcontroller.com> is also displayed.

The SMTP/FTP tab is where you will be setting up the cellular provider information for sending data over the cellular provider’s network. You will need to contact your cellular provider to get the APN and SMTP settings for their network. The default settings are for the AT&T network.

### SMTP SETUP (E-Mail Servers)

New control group for E-mail server setup. The text-entry box for the SMTP Server Address has been moved here, along with new settings to permit full control of access to a variety of SMTP servers. The settings should be confirmed with your provider. The settings contained in this group are:

**Address (Camera Tab, SMTP Setup Group)** – This is the entry that was available in previous versions, which is the address of the SMTP server that is to be used by the Raptor for sending e-mails.

**Port (Camera Tab, SMTP Setup Group)** – This is the server port for SMTP (outgoing e-mail). This port is typically 25 or 587. With SSL it is sometimes 465.

**Use SSL (Camera Tab, SMTP Setup Group)** – Check this box if your SMTP provider requires the use of SSL (Secure Socket Layer).

**Use Authentication (Camera Tab, SMTP Setup Group)** – Check this box if your SMTP provider requires authentication. If you check this box, you must fill in the Username and Password text-entry fields with your correct log-in information

**Username (Camera Tab, SMTP Setup Group)** – This is the Username associated with the SMTP account. This is usually the username or e-mail address you use to log in to your e-mail.

**Password (Camera Tab, SMTP Setup Group)** – This is the Password associated with the SMTP account.

**Send Images Via FTP (Servers Tab, FTP Setup group)**

Check this checkbox to have images transmitted to an FTP server on triggers. This can be in addition to, or instead of, e-mail. When this checkbox is checked, the Address, Username and Password fields will be enabled. Note that, for “Trail Camera” mode, this box must be unchecked as well as selecting “None” in the Trigger E-Mail Format group on the E-Mail tab.

In normal operation, images captured during sensor triggers or time-lapse triggers can be transmitted to an FTP server in addition to, or instead of, transmission by e-mail, depending on the configuration setup done with the RaptorConfig program. It is also possible to send a text-only e-mail while also transmitting an image to an FTP server. Note that the FTP image will carry the same filename as the e-mail attachment, and the image will always be deposited in the initial directory on the FTP server.

**Address (Servers Tab, FTP Setup group)** – Address of the FTP server.

**Username (Servers Tab, FTP Setup group)** – Username for logging in to the FTP server.

**Password (Servers Tab, FTP Setup group)** – Password for logging in to the FTP server.

## 2.6 Raptor Configuration Setup – Cellular Tab

The screenshot shows the 'PixController Raptor Camera Configuration Setup V2.15' window with the 'Cellular' tab selected. The 'APN SETUP (Cellular Internet Access Point)' section contains three input fields: 'Address' (pre-filled with 'WAP.CINGULAR'), 'Username', and 'Password'. At the bottom, there are sections for 'Flash Drive' (with 'READ' and 'SAVE' buttons) and 'Other Drives' (with 'READ COPY' and 'SAVE COPY' buttons), along with an 'EXIT' button. An 'About' button and a URL '<http://www.pixcontroller.com>' are also present.

The Cellular tab will let you setup your APN or Internet Access Point for your GSM/GPRS Cellular provider.

### **APN SETUP (Internet Access Point)**

The various GSM providers all use APNs but implement them differently. For example, some by default will not allow mobile terminated connections while others use RADIUS servers and require user name/password authentication in addition to SIM authentication.

## 2.7 Raptor Configuration Setup – Wi-Fi Tab

PixController Raptor Camera Configuration Setup V2.15

General E-Mail Camera Schedule SMTP/FTP/UDP Cellular WiFi COTA

**WiFi Network Setup**

WiFi Network Name (SSID)

**Network Security**

☒ None ☐ WEP (64-bit) ☐ WEP (128-bit) ☐ WPA ☐ WPA2

Password (or Key)

**Time Synchronization**

Primary Time Server  Time Zone (-12 to +12)

Secondary Time Server  Use Daylight Savings Time ☒

About <http://www.pixcontroller.com>

Flash Drive: READ, SAVE

Other Drives: READ COPY, SAVE COPY

EXIT

**Wifi Network Setup (Wifi Tab)** – New control group for Wifi server setup. This is where the network settings are entered. Future versions will permit dynamic detection of and connection to unsecured Wifi networks, but as of this release the network you want to connect to must be specified explicitly here. You may need to check your wireless router settings or speak to your IT department to get the correct settings.

**NOTE:** Some ISP's require the sending email address be the same emails address of the ISP provider. You will need to change the default email address from [Raptor@pixcontroller.com](mailto:Raptor@pixcontroller.com) to your ISP email address when using the WiFi SMTP option.

**Wifi Network Name (Wifi Tab, Wifi Network Setup Group)** – Enter the name of the Wifi network that you will be connected to. This is also referred to as the SSID.

**Network Security (Wifi Tab, Wifi Network Setup Group)** – There are 5 different Wifi security protocols to choose from, some of which require a passphrase or security key to be entered:

- **None** – Select this for an unsecured Wifi network. For this selection, no password is required.
- **WEP64** – This is 64-bit WEP (Wired Equivalency Privacy) security. If this is selected, you must enter the correct key. A 64-bit WEP key is always exactly 10 characters long, and all characters must be hexadecimal character (0-9, a-f, or A-F). If the key entered is not 10 characters or contains non-hexadecimal characters, an error will be indicated and the key will not be accepted.
- **WEP128** – This is 128-bit WEP (Wired Equivalency Privacy) security. If this is selected, you must enter the correct key. A 128-bit WEP key is always exactly 26 characters long, and all characters must be hexadecimal character (0-9, a-f, or A-F). If the key entered is not 26

characters or contains non-hexadecimal characters, an error will be indicated and the key will not be accepted. NOTE: This release of Raptor does not support 128-bit WEP security.

- **WPA** – This is Wifi Protected Access security, which is much more secure than WEP. If WPA is selected, you must enter the correct passphrase. WPA requires a password of at least 8 characters, and an error will be raised if the passphrase entered is less than 8 characters. Note that, unlike WEP, WPA permits most characters in a passphrase.
- **WPA2** – This is an improved version of WPA, and all passphrase rules are the same for WPA and WPA2.

**Time Synchronization (Wifi Tab)** – New control group for Wifi time-synchronization setup. Unlike a cellular system, Wifi networks do not automatically provide local time updates. Therefore, you will need to specify the address of one or two special-purpose time servers that the Raptor can access to synchronize time. Since the time server may be in a different time zone, you will also need to enter your time-zone and daylight-savings information.

**Primary Time Server (Wifi Tab, Time Synchronization Group)** – Enter the name of the Internet time server you wish to use for time synchronization. The U.S. government agency National Institute of Standards and Technology (NIST) provides a number of such servers for public use. One recommended server to use is nist1-la.ustiming.org. A full listing can be found at <http://tf.nist.gov/tf-cgi/servers.cgi>

**Secondary Time Server (Wifi Tab, Time Synchronization Group)** – Enter the name of the Internet time server you wish to use as a backup for time synchronization. One recommended server to use is nist1-ny.ustiming.org.

**Time Zone (Wifi Tab, Time Synchronization Group)** – Set this to the standard-time time-zone specification of the Raptor's location, relative to GMT/UTC. For example, the U.S. Eastern Time zone is -5, Central Time is -6, Mountain Time is -7, and Pacific Time is -8.

**Use Daylight Savings Time (Wifi Tab, Time Synchronization Group)** – Check this box if the Raptor's location observes daylight savings time.

## 2.8 (COTA) Configuration update Over-The-Air

The screenshot shows the 'PixController Raptor Camera Configuration Setup V2.15' window with the 'COTA' tab selected. The interface includes several sections: 'COTA - Configuration update Over The Air' with a 'Select Device Type' dropdown set to 'Remote Cam' and a 'Device Serial Number' field with a 'LOAD DEVICE' button; 'COTA Update Cycle' with radio buttons for 'Disabled', 'Daily' (selected), and 'Hourly', and checkboxes for 'Use M2M Cloud', 'Ten Minutes', and 'Ten Minutes/SMS'; 'COTA SERVER SETUP' with fields for 'Address', 'Username', and 'Password', and a 'CONNECT' button; 'COTA Commands For Currently Selected Device' with checkboxes for 'Send Config Settings', 'Retrieve Error Log', 'Retrieve Latest GPS Fix', 'Trigger Photo', 'Retrieve Device Status', 'Peripheral Reboot', 'Peripheral On', 'Peripheral Off', and 'Trigger Device', and a 'TRANSMIT COMMANDS TO DEVICE' button; a 'VIEW:' section with buttons for 'COTA Status', 'GPS', 'Error Log', and 'Device Status'; and a bottom section with 'Flash Drive' (READ, SAVE) and 'Other Drives' (READ COPY, SAVE COPY) buttons, an 'EXIT' button, an 'About' button, and a URL <http://www.pixcontroller.com>.

### Overview

This option allows a user to remotely configure all Raptor settings by transmitting configuration files to Raptor camera units in the field from your PC. Other functions include photos and GPS location on demand, and retrieving error logs. This powerful function is known as Configuration update Other-The-Air (**COTA**).

This requires a camera equipped with firmware version 2.00a or later, as well as this version 2.00 or later of the PC PixController Raptor Config software on a PC with Internet access. The other requirement is an FTP server account. The FTP server acts as a communication medium between the configuration program and the remote camera units, as well as a repository in which a synchronized copy of each camera's configuration settings can be kept. In this way, remote configuration update can be done from any computer without having to worry about whether the settings are up-to-date.

Remote cameras do COTA updates on a user-selectable cycle of every 10 minutes, hourly, or daily. This is how often the Raptor will "wake up" and check the FTP server for update requests. Four actions can be requested remotely – Configuration Update, Error Log Retrieval, GPS Fix Retrieval, and Remotely Triggered Image Acquisition/Transmission.

The COTA server can be any FTP server to which the user has access. The IT department of most agencies should be able to provide an FTP account that can be used for this purpose. Also, many Internet providers include a certain amount of web space that is accessed by an FTP server. FTP accounts are also be available through Transferum.com – see section 6.9.2 for more information.

For a quick reference to the steps required to update a camera remotely, see the "**COTA Tab – General Sequence To Be Used by user**" section below.

## Initial Camera Sync-up, Directory Names

This section is for information only – no action is required of the user to create directories, synchronize config files, or link directory names with camera descriptions.

On the COTA server, the root directory associated with the FTP account will contain one subdirectory for each camera that is available for COTA communication. The subdirectory name is the unique IMEI number (cellular) or MAC address (WiFi) factory-programmed into the wireless module installed in the Raptor system.

On initial normal start-up, the Raptor camera will automatically register its availability for COTA operations by creating the directory on the remote COTA server. On this and subsequent start-ups, it will transfer its current configuration settings to the COTA server. This step is called “synchronization.” This ensures that any local changes made to the configuration file on the flash drive – for example, through the configuration menu, or by plugging the flash drive into a computer and running the Config program locally – will be synchronized on the COTA server so remote updates will be working on the current settings.

Note that the user need not remember the various IMEI and/or MAC IDs; besides the Raptor's ability to automatically create correctly-named directories, the COTA function of the Config program will display the Camera Description (as entered by the user on the Camera Tab of the Config program) along with the IMEI/MAC in order to facilitate selecting the correct camera.

## Camera Update Cycle

The Raptor “wakes up” periodically to check for and, if necessary, execute COTA requests. The user can select among 4 cycle settings: *Daily*, *Hourly*, *10 Minutes*, and *Disabled*.

The use of *Disabled* is not recommended, as this will prevent the camera from accepting any COTA requests at all. Once set to *Disabled* at the Raptor camera, it cannot be changed remotely; in order to re-enable COTA the user would have to visit the camera and make the change on-site.

The other three settings are self-explanatory. There are several considerations to keep in mind when making this selection:

The COTA cycle takes a finite amount of time, typically 30-60 seconds, during which the Raptor will be consuming full operating current. This has implications on battery life. The effect of a Daily COTA cycle on battery life will be negligible, but an Hourly COTA cycle will reduce the stand-by time of the Raptor to as little as 30 days on the standard SLA battery. A 10-Minute COTA cycle will reduce battery life to as little as five days. Therefore, the tradeoff between responsiveness and battery life must be made for each individual situation. A 10-Minute cycle is recommended only for those situations where:

- The application requires frequent response to remote photo-trigger requests, and/or
- On-site battery exchange is convenient, and/or
- A robust solar recharging capability is installed.

Note also that the COTA cycle function cannot occur at the same time as motion-trigger events. Therefore, a motion-trigger event can be missed during a COTA update; conversely, if a motion-trigger event is in progress at the same time as a COTA cycle, the COTA cycle will be missed for that period.

**Update Frequency versus Battery Usage:** Note that the frequency of the COTA update polling cycle can affect battery life. For example, a Raptor set up for a COTA cycle every ten minutes will be fairly responsive to remote requests for image capture and the like, but system stamina (without solar recharging) could drop to as little as 5-10 days with a 3400 maH battery. We recommend using a solar panel for 10 minute update cycle.

Using an hourly or daily update cycle will have a much smaller effect on battery life, but the camera will be less responsive to remote requests. This is a tradeoff that will have to be evaluated for each user and each application.

**Warning:** The COTA update cycle can be set to DISABLED. This is not recommended, as it will prevent the camera from responding to any remote requests until the user physically accesses the camera unit and changes the COTA cycle setting either through the config menu on the camera, or by storing a config file directly to the flash drive using the PC Config program.

**FTP Server:** An account on an FTP server is required for COTA operation. The IT department of most agencies should be able to provide an FTP account that can be used for this purpose. Also, many Internet providers include a certain amount of web space that is accessed by an FTP server.

FTP accounts may also be available through PixController for Raptor customers; the details and cost for this have not been established at the time of this writing.

**Initial Startup:** Once the FTP account has been established, a directory structure must be created for each remote camera, and a working copy of the configuration settings stored there. The Raptor units will do this automatically the first time they are powered up and switch to Auto Mode in normal operational, with correct COTA server information. Once this has occurred, the PC Config Program will be able to identify each camera and allow remote modification of parameters and other remote interactions.

The Raptor camera will repeat the process of storing its configuration on the COTA server each time it is powered up and switches to Auto Mode. This ensures that any local changes made to the configuration file on the flash drive – for example, through the configuration menu, or by plugging the flash drive into a computer and running the config program locally – will be synchronized on the COTA server so remote updates will be working on the current settings.

## **COTA Tab**

### ***Message Window***

The COTA tab includes a Message Window. Keep an eye on this window to see the status COTA communication and results of various COTA operations.

### ***General Sequence to be used by user***

When using the Config program to perform a COTA operation, the following sequence of steps should be followed (details of each in following sections):

- 1) Enter COTA Server information
- 2) Connect to COTA server
- 3) Select camera from drop-down menu
- 4) Change camera settings as desired, using all the tabs in the Config program
- 5) Select COTA commands to be transmitted to camera (check-boxes)
- 6) Transmit commands
- 7) View status and results

### ***COTA Server Setup***

The COTA server is simply an FTP server with a valid user account. Enter the FTP address, username, and password in the fields provided. Once this information is entered, click the CONNECT button. The progress of connection can be followed in the Message Window.

Once logged in to the FTP server, the program will search for valid subdirectories for remote Raptor cameras. The drop-down menu at the upper right of the tab (Remote Camera Units) will be populated with all available remote cameras. The user can then select the desired camera.

### ***Remote Camera Units***

Each camera unit that has been registered (i.e., that has a subdirectory on the COTA FTP server) will be listed in this drop-down menu after connecting to the server. Each item in the drop-down will contain the IMEI or MAC ID for the camera, as well as the Camera Description (as originally entered in the Camera tab) Select the desired camera from the drop-down.

When you select the camera, the program will read that camera's current configuration settings and populate the tabs of the Config program with these settings. Now you can modify the settings as desired before transmitting them back to the camera.

### ***Camera Update Cycle***

The four radio-buttons at the top-left of the COTA tab are used to select the "wake-up" interval that the camera will use for checking for COTA requests. See the notes (above) about the implications of various settings.

When Status E-mail or Time Lapse is selected, the COTA cycle will be set up to coincide with these events. In other words, if a daily COTA cycle is selected, and daily time-lapse at 10:30AM is selected, the COTA cycle will be performed at 10:30 also. Otherwise, a daily COTA cycle will occur at midnight, an hourly cycle at the top of each hour.

**Note:** We do not recommend using a COTA update cycle under 10 minutes due to the battery power needed. Please do not use the 1 Minute COTA update cycle with Raptor systems configured with the built-in PIR motion sensor. The 1 Minute COTA update cycle will cause the PIR motion sensor to false trigger.

### ***COTA Commands For Currently Selected Camera***

The right-center area of the COTA tab contains controls for performing COTA requests and seeing the results of those requests.

#### ***Commands***

The COTA commands you wish to perform are selected using the four check-boxes. You may select any combination of check-boxes. The commands will not be sent to the remote COTA server until you click the TRANSMIT COMMANDS TO CAMERA button. The available commands are:

#### ***Send Config Settings***

This will update the remote camera with the current settings on all of the tabs of the Config program. The new settings will also be saved on the remote camera's flash drive.

#### ***Retrieve Error Log***

This will cause the camera to transmit a copy of its error log back to the COTA server. Once the log has been sent to the COTA server, you may view it by hitting the VIEW ERROR LOG button. This is useful for troubleshooting apparent camera issues.

#### ***Retrieve Latest GPS Fix***

Request a GPS fix from suitably equipped cameras. Upon receipt of this request, the camera will attempt to get a current GPS fix; it will then transmit these coordinates back to the COTA server. If a current fix

cannot be acquired, then the most recent GPS fix (with time-stamp) will be sent back instead. Once the fix has been received by the COTA server, you can view this information by clicking the VIEW GPS button. Camera units that are not equipped with GPS hardware will simply ignore this request.

#### ***Trigger Photo***

Request a manually-triggered photo. When the camera receives this command, it will trigger a photo, save it to the flash drive, and transmit it via e-mail to the normal e-mail distribution list (and to an FTP server if so configured). In other words, it behaves exactly as if a motion-trigger had occurred, except that the subject line and text of the e-mail will note the fact that this was a remote manual trigger.

#### ***Retrieve Camera Status***

Request a the camera status of the Raptor system to report battery level and optional GPS receiver location.

#### ***Peripheral Re-Boot***

This command requires that your Raptor system has the Raptor "External Device Port" installed. This function will power off the 12V Peripheral Port for 3 seconds then power it back on in order to reboot the attached peripheral device.

#### ***Peripheral On***

This command requires that your Raptor system has the Raptor "External Device Port" installed. This function will power on the 12V Peripheral Port.

#### ***Peripheral Off***

This command requires that your Raptor system has the Raptor "External Device Port" installed. This function will power off the 12V Peripheral Port.

#### ***Trigger Device***

This command requires that your Raptor system has the Raptor "External Device Port" installed. Send a momentary 12V pulse to the Device Trigger Port. This is typically used to energize solenoid devices.

#### ***Transmit Commands To Camera***

Once the desired check-boxes have been selected, click this button to transmit the commands to the COTA FTP server. The commands will then be executed on the next camera COTA cycle.

If you transmitted some commands and wish to change them, simply check the commands you want and un-check those you don't want, and click this button again to update the list of commands requested.

If you transmitted some commands and wish to revoke those commands entirely, simply click this button with none of the command check-boxes checked.

One consideration to keep in mind is that, in Time Lapse mode with first trigger set to Top Of Next Hour, a COTA configuration update will reset this to the top of the next hour, potentially disturbing the time-lapse sequence.

#### ***View COTA Status***

This allows you to follow the progress of a COTA request. If commands have been transmitted to the COTA server, but not yet received by the camera, then this will be indicated in the message window, with the time the commands were sent and a list of the commands sent. For example:

```
> COTA Commands sent [24Apr2011 15:51:42], not yet received and
processed by camera
Config Update Requested
Error Log Requested
GPS Fix Requested
Remote Photo Trigger Requested
```

Once the camera has processed the request, clicking the View COTA Status button will indicate this fact in the Message Window, along with the status of each requested command. For example:

```
> Camera received and processed COTA Commands [24Apr2011
16:05:33]
Results:
Config Update ..... Completed
Error Log Retrieval ... Completed
GPS Fix Retrieval ..... Fail
Remote Trigger ..... Completed
```

#### ***View Error Log***

Once the error log has been uploaded from the camera to the COTA server, you may view the log by clicking this button. The log will be displayed in the program that your computer uses to display text files (typically NOTEPAD).

#### ***View GPS***

This will, in the Message Window, display the most recent GPS information uploaded from the camera. For example:

```
GPS fix info downloaded:
> Lat/Long: 31.72010, -110.07031
Timestamp: 14 Apr 2011 06:01:15 -0700
```

## **2.9 COTA Quick Start Setup**

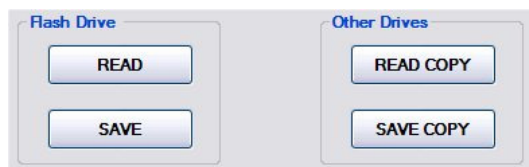
### ***Initial Setup of Raptor Camera for COTA***

First, configure your Raptor system with the FTP server information. You must have your Raptor USB Flash drive in the PC when you configure this. Setup the FTP Address, Username, and Password as well as the "Camera Update Cycle". If you do not have FTP space from your current Internet Service Provider please see section "6.9.2 Setting up FTP Space for COTA".



The image shows a web interface for 'COTA SERVER SETUP'. It contains three input fields: 'Address' with the value 'ftp.transferum.com', 'Username' with the value 'PixController', and 'Password' with masked characters '\*\*\*\*\*'. A 'CONNECT' button is located below the password field. To the right, there is a 'Camera Update Cycle' section with four radio button options: 'Disabled', 'Hourly', 'Daily', and '10 Minutes'. The '10 Minutes' option is selected, indicated by a green dot.

Next, save the configuration to your Flash drive under the “SAVE” button in the “Flash Drive” box at the bottom of the COTA tab. It’s also a good idea to save a copy of the configuration file to your local hard drive on your PC using the “SAVE COPY” button under the “Other Drives” box. This will be needed to configure your Raptor system remotely.



The image shows two side-by-side button groups. The left group, titled 'Flash Drive', contains 'READ' and 'SAVE' buttons. The right group, titled 'Other Drives', contains 'READ COPY' and 'SAVE COPY' buttons.

The Raptor system is now ready to be placed in the field for remote access. We suggest testing the remote access function before placing the Raptor camera in the field.

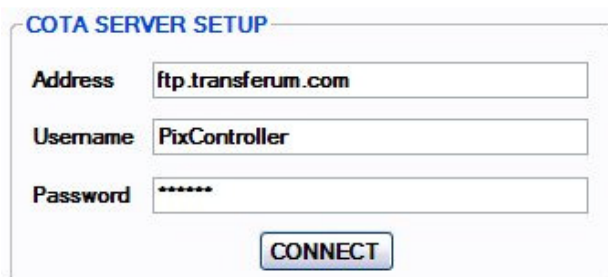
### ***How to Remotely Access Raptor Cameras via COTA***

Load the Configuration file you stored locally on your PC’s hard drive by pressing the “READ COPY” button under the “Other Drives” box at the bottom of the COTA tab.



The image shows a close-up of the 'Other Drives' section, which contains 'READ COPY' and 'SAVE COPY' buttons.

Under the “COTA SERVER SETUP” box press the “CONNECT” button to connect to the FTP server.



The image shows the 'COTA SERVER SETUP' form again, with the 'Address' field containing 'ftp.transferum.com', the 'Username' field containing 'PixController', and the 'Password' field containing '\*\*\*\*\*'. The 'CONNECT' button is visible at the bottom.

The text box below will display the FTP access to make sure you have a successful FTP login to your server.

```

> Scanning subdir /mail/ ...
> Scanning subdir /public_ftp/ ...
> Scanning subdir /public_html/ ...
> Scanning subdir /tmp/ ...
> SELECT REMOTE CAMERA UNIT FROM DROP-DOWN MENU ABOVE
> Loading config info for 359811000289402 (Arizona Development Unit)
> Remote config info loaded. File stamp [05May2011 08:30:05]

```

After the login is complete select the remote camera from the “Remote Camera Units” drop down menu at the top of the COTA tab. The name will be a combination of the IMEI number for Raptor Cellular units or MAC number for Raptor WiFi units, and the Raptor Camera Description tag. If you have multiple Raptor cameras in the field this will let you select the cameras configured for COTA.

Remote Camera Units

359811000289402 (Arizona Development Unit) ▼

Once you have successfully logged into your Raptor COTA account you can request photos, GPS location, error log files by using the commands in the “COTA Commands For Currently Selected Cameras” box.

COTA Commands For Currently Selected Camera

Send Config Settings ☐

Retrieve Error Log ☐

Retrieve Latest GPS Fix ☐

Trigger Photo ☐

TRANSMIT COMMANDS TO CAMERA

View COTA Status View Error Log View GPS

To send a command press the desired check box and press the “TRANSMIT COMMANDS TO CAMERA” button. Note, the response time will be related to the “Camera Update Cycle” setting. The three buttons at the bottom are used to view the COTA command status, retrieve the Raptor Error log file, and GPS location.

### 3 COTA Cellular Phone Text Commands

Using your cellular phone you can send COTA commands to your Raptor system by text messages. The Raptor will respond to text messages based on the COTA update cycle. **Your Raptor cellular data plan must include a text plan in order to receive COTA text commands.**

Text Command	COTA Function
00	Camera Status
10	Trigger Photo
20	GPS Status
30	Peripheral Re-Boot
31	Peripheral Power Up
32	Peripheral Power Down
33	External Trigger

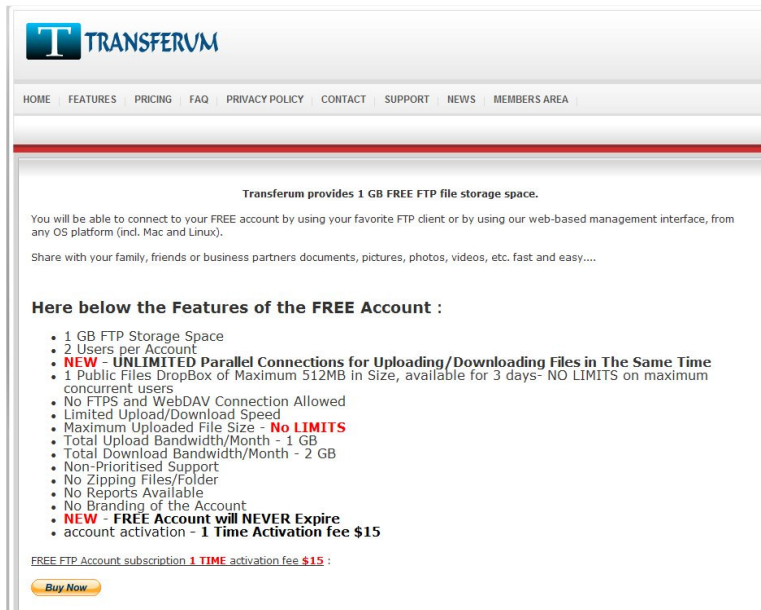
**Note:** COTA Commands Peripheral Re-Boot, Peripheral Power Up, Peripheral Power Down, and External Trigger require the PixController Raptor “External Device Port”.

### 3.1 Setting up FTP Space for COTA

Some Internet Service Providers (ISP) give your web hosting space or FTP space as part of your subscription. If you do not have any FTP hosting space we suggest using an on-line FTP hosting service called "Transferum". They will charge you a one time fee of \$15 which will let you run an unlimited number of Raptor cameras from one account.

**Note:** We have received some recent reports of issues with the Transferum FTP server not working properly. PixController, Inc. is not responsible for communication issues with the Transferum FTP servers. Please contact Transferum for any issues or chose a different FTP server for COTA use.

Please see: <http://www.transferum.com/Main/component/content/article/69>



The screenshot shows the Transferum website interface. At the top is the Transferum logo and a navigation menu with links: HOME, FEATURES, PRICING, FAQ, PRIVACY POLICY, CONTACT, SUPPORT, NEWS, and MEMBERS AREA. Below the menu, a red horizontal line separates the header from the main content. The main content area has a heading "Transferum provides 1 GB FREE FTP file storage space." followed by a paragraph explaining how to connect to the account. Below this is a section titled "Here below the Features of the FREE Account :" which lists various features and limitations. At the bottom of the list is a "Buy Now" button.

**Transferum provides 1 GB FREE FTP file storage space.**

You will be able to connect to your FREE account by using your favorite FTP client or by using our web-based management interface, from any OS platform (incl. Mac and Linux).

Share with your family, friends or business partners documents, pictures, photos, videos, etc. fast and easy....

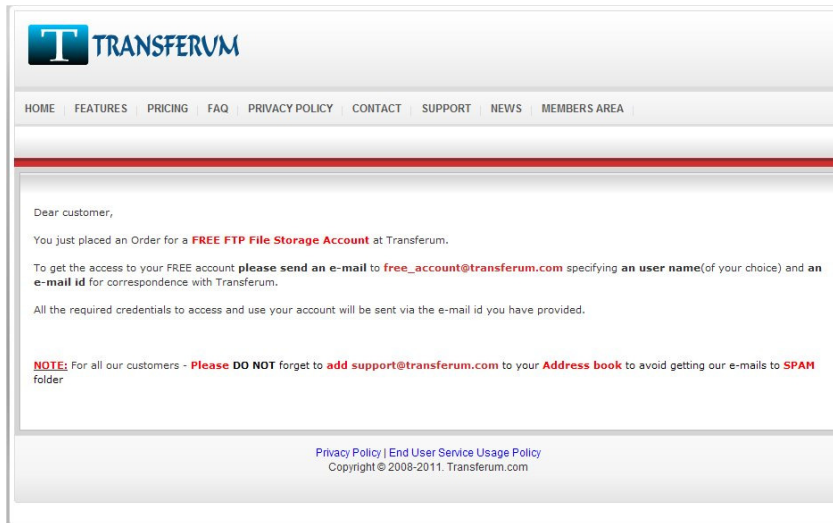
**Here below the Features of the FREE Account :**

- 1 GB FTP Storage Space
- 2 Users per Account
- **NEW - UNLIMITED Parallel Connections for Uploading/Downloading Files in The Same Time**
- 1 Public Files DropBox of Maximum 512MB in Size, available for 3 days- NO LIMITS on maximum concurrent users
- No FTPS and WebDAV Connection Allowed
- Limited Upload/Download Speed
- Maximum Uploaded File Size - **No LIMITS**
- Total Upload Bandwidth/Month - 1 GB
- Total Download Bandwidth/Month - 2 GB
- Non-Prioritised Support
- No Zipping Files/Folder
- No Reports Available
- No Branding of the Account
- **NEW - FREE Account will NEVER Expire**
- account activation - **1 Time Activation fee \$15**

FREE FTP Account subscription **1 TIME** activation fee **\$15** :

[Buy Now](#)

Select the "Buy Now" button to pay for the one-time \$15 fee. Once you purchase this item you will need to send an e-mail to [free\\_account@transferum.com](mailto:free_account@transferum.com) specifying an user name (of your choice) and an e-mail id for correspondence with Transferum. The e-mail address is mandatory information because otherwise we can not contact you back and no further communication will be possible. If you don't specify a desired user name, we will create your user name based on your email address.



After you send the email requesting your username and account information you must wait for Transferum to respond. This may take up to ½ day. Once you receive the email use the username and password they send you and enter them into the “COTA SERVER SETUP” box. The Address will be <ftp.transferum.com>.

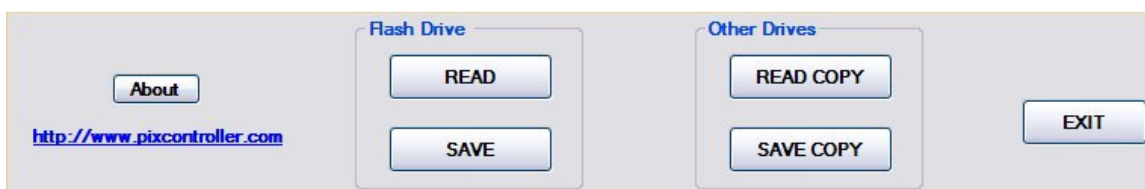
The screenshot shows a form titled "COTA SERVER SETUP". It has three input fields: "Address" with the value "ftp.transferum.com", "Username" with the value "PixController", and "Password" with the value "\*\*\*\*\*". Below the fields is a "CONNECT" button.

Press the “CONNECT” button and verify the login is correct in the text window.

The screenshot shows a terminal window with the following text: "> Connected to config-update server", "> Searching for remote camera directories ...", "> Scanning subdir /00207515CC0A/ ... Remote Camera Config found (Arizona Development Unit)", "> Scanning subdir /359811002234794/ ... Remote Camera Config found (Westmoreland Conservancy - McGinnis Nature Reserve - Gate Trigger Event)", and "> SELECT REMOTE CAMERA UNIT FROM DROP-DOWN MENU ABOVE".

**Note:** There are many “free” FTP hosting sites on the Internet that offer disk space for remote file storage and transfer but most of these FTP hosting sites do not offer “Client FTP” access in which they will supply you with a Host Address, Username, and Password. This is what’s needed for COTA setup. Most of these free FTP hosing sites supply users with an PC application for FTP file transfer which will not work for COTA access.

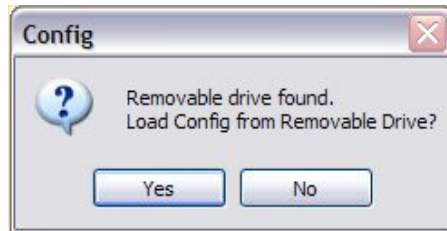
## 6.10 Read/Save Raptor Configuration Files



## Flash Drive group

**Read** – This will allow you to read a config file from a flash drive. You will be prompted, via a drop-down menu, to select which drive you would like to use. If there is no removable drive present on your system, this button will be disabled.

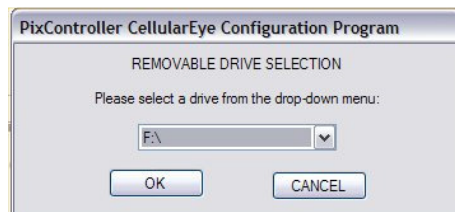
**Save** – This will save a config file from a flash drive. If a config file has previously been read from a flash drive, the file will be saved back to that location. Otherwise, you will be prompted, via a drop-down menu, to select which drive you would like to use.



## Other Drives group

**Read Copy** – This will allow you to read a config file from any location that is navigable via the standard Windows file-open dialog. While this can be used to read a file from a flash drive, this is generally intended to allow you to read an archived copy from your hard drive or a networked location.

**Save Copy** – This will save a config file to any location that is navigable via the Windows save-as dialog.



Note that, if one or more flash drives are present when the program is started, the program will initially behave as if you had clicked the Read button in the Flash Drive group.

## Error Log:

A file is stored (ERRORLOG.TXT) on the flash drive containing error information. Each error appends a new line onto the log file, consisting of a time stamp and text describing the error. Note that this file is only appended during normal operation. Errors encountered during diagnostic operation are displayed on the LCD and are not stored in the error log.

## Image Subdirectories

Images are now stored on the flash drive in subdirectories off PIX\IMAGES. The directories will be PIX\IMAGES\00000, PIX\IMAGES\00001, etc. The directories are created automatically and each will hold up to about 500 images. The file-naming convention remains the same.

## E-mail body

The flash drive filename shown in the body of the e-mail now shows the full path rather than just the file name. Example:

Filename on flash drive: \PIX\IMAGES\00003\02060132.jpg