aJ-Orion^{TM} User's Manual

January 19, 2012

Version 3.2
aJ-Orion Home Security System
aJile Systems, Inc.

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aJ-Orion User Manual

C H A P T E R 1 : O V E R V I E W

The aJile aJ-Orion Home Security System is a compact portable network security device that detects intrusion, captures intruder's image, and sends alerts to an application on a smart phone. The aJile security device is based on a unique patented intrusion technology that can detect intrusion into a premises with a floor space up to 2000 SF in an enclosed environment. It also combines an integrated image capture, JPEG image compression, and flexible network capability including LAN, WIFI and optional cellular Edge/GPRS into a single box. It's a portable security system that moves with you, and travel with you if you move to a new place. It just requires a simple installation, and will adapt to your new place quickly and easily. The aJ-Orion is intended for apartments, condos, small houses, offices, retail shops, mobile homes, containers, and boats/yachts

The aJ-Orion Home Security System consists of the following components as shown in Figure 1-1 below.

aJ-Orion Home Security Device	Ethernet Cable	Power Adapter

Figure 1-1: aJ-Orion Home Security System

The aJ-Orion Home Security System requires the user to provide a WIFI capable smart phone (Android or iPhone) with data service plan (3G recommended).

1.1. Warranty

aJile Products warrants to you, the original purchaser of this Product, that this product shall be free of defects in material or workmanship for the Warranty Period of one (1) year as follows:

1. LABOR: During the Warranty Period if this Product is determined to be defective, Insignia will repair or replace the Product, at its option at no charge, or pay the labor charges to any aJile authorized service facility. After the Warranty Period, you must pay for all labor charges.

2. PARTS: In addition, aJile will supply, at no charge, new or rebuilt replacement parts in exchange for defective parts for the Warranty Period. After the Warranty Period, you must pay all parts costs.

To obtain warranty service, you must take the Product with your original receipt or other proof of purchase, either in its original packaging or packaging affording an equal degree of protection, to your nearest retail store location of the store or online web site from which you purchased the Product.

This warranty does not cover cosmetic damage or damage due to acts of God, lightning strikes, accident, misuse, abuse, negligence, commercial use, or modification of, or to any part of the Product, including the antenna. This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than a facility authorized by aJile to service the Product. This warranty does not cover Products sold AS IS or WITH ALL FAULTS, or consumables (such as fuses or batteries). This warranty is valid only in the United States and Canada.

This warranty is invalid if the factory applied serial number has been altered or removed from the Product.

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For customer service please call 1-408-557-0829

www.security.aJile.com

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C H A P T E R   2 : S E T U P   A N D   C O N F I G U R A T I O N

2.1.   Getting Started

The following information is needed before setting up and configuring the aJ-Orion Home Security System.

- Google Gmail account ID and password - Sign up for a Gmail account.

- If using wireless networking (WLAN), obtain the WLAN network name (SSID) and Security Key if security is enabled.

IMPORTANT:

- **A wireless router with LAN network ports is needed.**
- **For initial configuration, the aJ-Orion needs to be connected to the router via the provided Ethernet cable.**
- **A smart phone (Android or iPhone) needs to be connected wirelessly to the same router.**

The aJ-Orion User Manual and additional information is available from the aJile website (www.security.ajile.com)

2.2.   aJ-Orion Client Application Installation

1 For Android devices, download the aJ-Orion client application via the Android Market application. Select the "Apps" box and search for "aj-orion". **2** Launch aJ-Orion client application "Orion Client" from the Android device app page. Upon launching the app, the main screen appears as shown at the right.	

2.3. aJ-Orion Client Application Setup Procedure

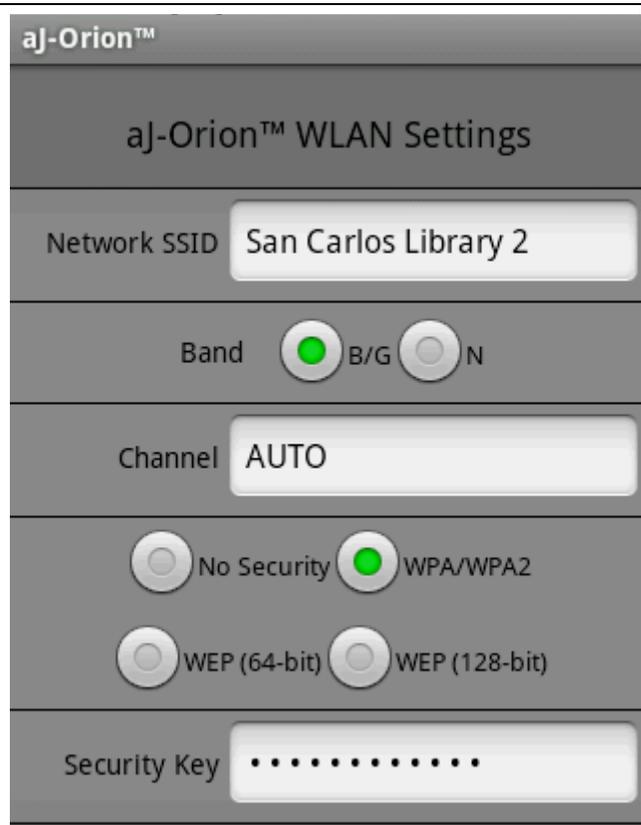|	
3 Open the application main menu and select the "Server Account" item. Enter the Google Gmail "User" name (for xxx@gmail.com enter only xxx) and "Password" in the associated fields as shown at the right. Check the "Show Password" box if you need to see the password to verify. Open the menu from the current screen and select "Save" when the settings have been entered. A confirmation popup message will be displayed if the account is recognized. Otherwise a message will indicate to check the settings.	**aJ-Orion™** aJ-Orion™ Server Account User: ajiledemo3 Password: ••••••••• ☑ Show Password
4 Open the application main menu and select the "aJ-Orion Setup" item. Select the network connection desired. The Cellular network is only available if the aJ-Orion device is equipped with a cellular modem. **5** By default, the software automatically checks for software update on power up. If you do not want to update software automatically, then select "Disable". *NOTE: When aJ-Orion device determines an new version is available, the software will be downloaded automatically. The download via WLAN typically takes 12 minutes.* **6** Open the menu from the current screen and select the network settings item corresponding to the network selected as shown at the right.	**aJ-Orion™** General aJ-Orion™ Settings aJ-Orion™ Network Selection ◉ WLAN ○ LAN ○ Cellular Check for software updates on power up ○ Enabled ○ Disabled General Settings LAN Settings WLAN Settings Cellular Settings Save to aJ-Orion™
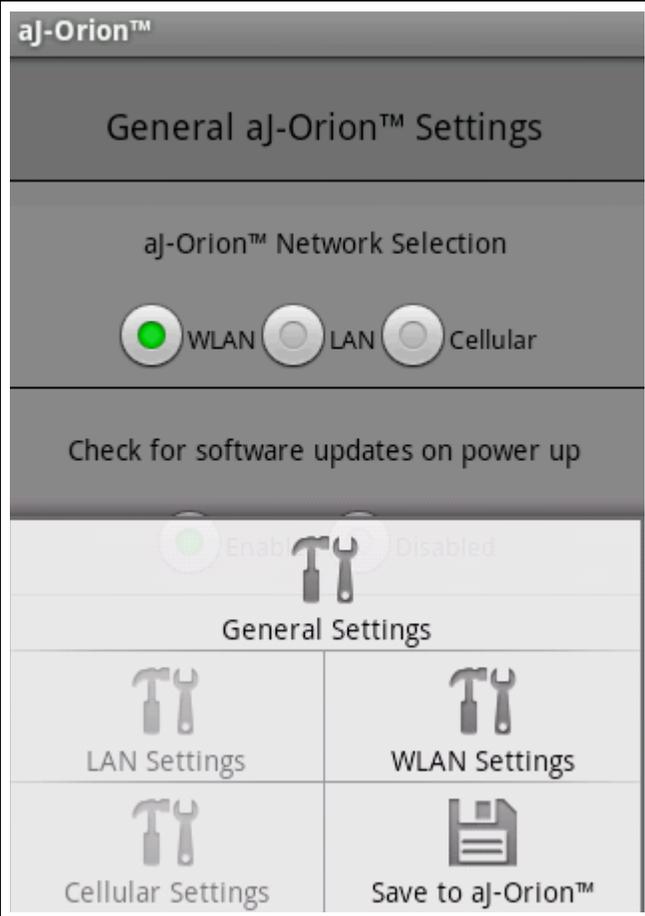
7 If "WLAN" network connection is selected then update the WLAN Configuration fields as shown at the right.

- Enter Network SSID
- Select WLAN band - B/G or N
- Select Security – none, WPA/WPA2, WEP (64-bit), WEP (128-bit)
- Enter Security key (if security is enabled)
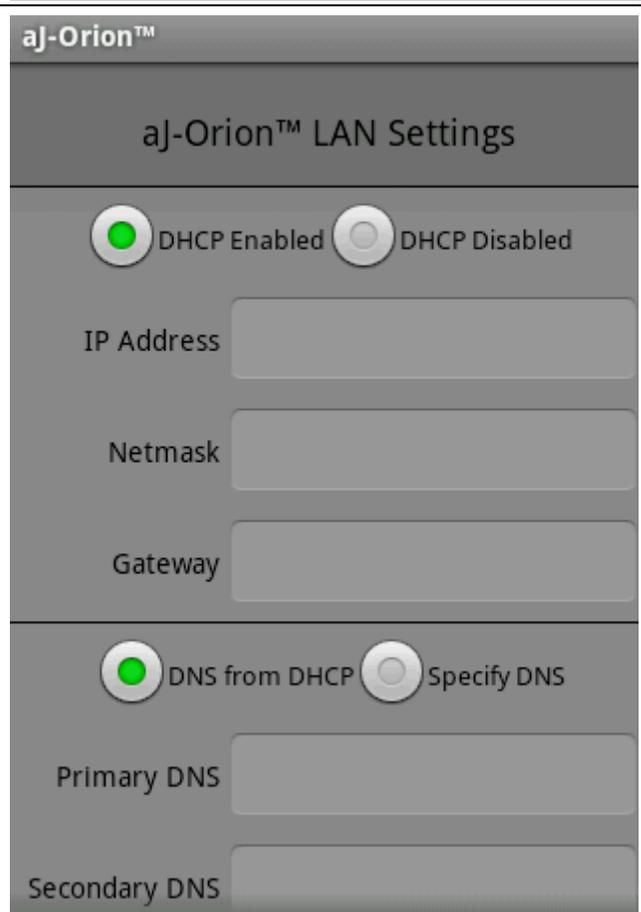
NOTE: Only AES encyrption is supported.

8 Proceed to step 11 to setup the aJ-Orion device.

aJ-Orion™

aJ-Orion™ WLAN Settings

Network SSID   San Carlos Library 2

Band   ● B/G   ○ N

Channel   AUTO

○ No Security   ● WPA/WPA2

○ WEP (64-bit)   ○ WEP (128-bit)

Security Key   • • • • • • • • • • • •

9 If "LAN" network connection is selected then update the LAN Settings fields as shown at the right.
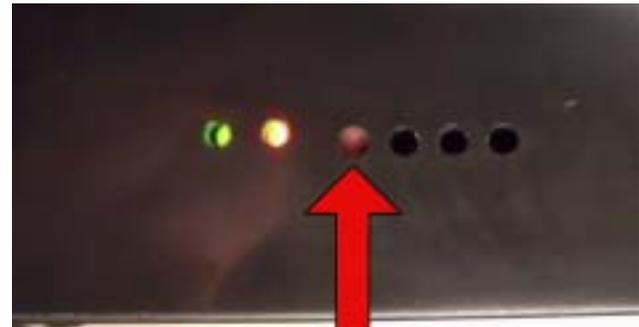
10 The recommended setting for most users is "DHCP Enabled" and "DNS from DHCP". Otherwise, fill in the addresses as needed for static IP address assignment and/or specific DNS servers.

aJ-Orion™

aJ-Orion™ LAN Settings

● DHCP Enabled   ○ DHCP Disabled

IP Address

Netmask

Gateway

● DNS from DHCP   ○ Specify DNS

Primary DNS

Secondary DNS

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2.4. aJ-Orion Device Setup

|	
11 Connect the provided Ethernet cable between the aJ-Orion device and the router. **12** Connect the provided power supply to the aJ-Orion and move the power switch to the on position. The aJ-Orion device requires about 40 seconds to initialize before sounding one short beep. **13** If the aJ-Orion has been previously configured, then press and release the reset button (next to the red light) **immediately after the short beep**. The reset button is recessed in the case such that a paper clip wire is needed to reach it.	 Reset Button

2.5. aJ-Orion Client Application Startup Procedure

|	
14 Open the menu from the current network settings screen and select the "Save to aJ-Orion" item. Two short beeps from the aJ-Orion device signal it has received the configuration information. *NOTE: If two short beeps are not heard then check the Ethernet cable connection between the aJ-Orion and the router (the LAN lights will indicate the connection is made.).* **15** The aJ-Orion client application is now ready to connect to the server. Open the application main menu and select the "More" item. The client service is started via selecting the "Start Service" item as shown at the right and selecting "Ok" on the prompt to start the aJ-Orion service. The main screen will update the system status indicators as follows: • The aJ-Orion application status will change to a green check box and indicate "Client is active". *If the red x box remains then wait for the smart phone to reestablish network connection*. • The server connection status will change to a green check box and indicate "Connected to server". *If the red x box remains then verify/ update the server account setting in step 3*. • The aJ-Orion device connection will change to a green check box and indicate "Connected to aJ-Orion" within a minute. The aJ-Orion device will sound 3 short beeps when ready. The Ethernet cable can be removed if using WLAN network. *If the red x box remains after 2 minutes then restart the network setup starting at step 4.*	
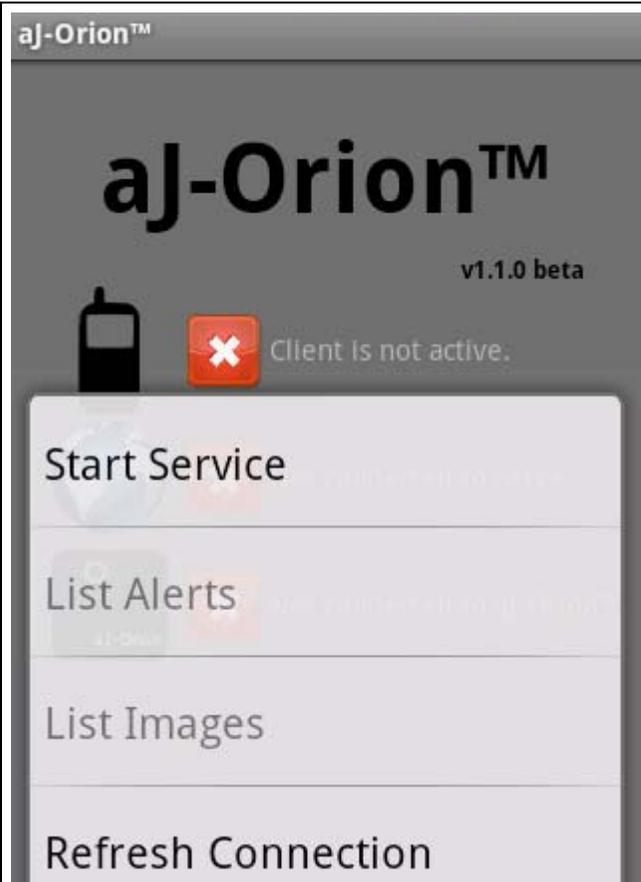
16 Optionally, the aJ-Orion device response and messages can be customized. Open the application main menu and select the "Message Settings" item. The setting page will be displayed when the connection with the aJ-Orion device is achieved as shown at the right. (Scroll the screen to view all of the message settings.) The settings are described below:

- **Number of snapshots to take**: For each alert, 1 to 10 images can be sent from the aJ-Orion device.

- **Seconds between snapshots**: When multiple snapshots are specified, the time between images can be specified between 1 and 10 seconds.

- **aJ-Orion sensor armed state**: The aJ-Orion device can be armed/disarmed to correspondingly enable/disable alerts.

- **Time delay after arming**: A delay can be set from 10 to 60 seconds when arming the aJ-Orion device (when previously disarmed) to allow time to exit the room without setting off the alarm.

- **aJ-Orion buzzer setting**: The aJ-Orion device buzzer can be enabled/disabled when an alarm is triggered.

- **Seconds for buzzer to sound**: When enabled, the length of time for the buzzer sound can be set from 1 to 5 seconds.

- **Image transfer timeout setting**: The time allowed for sending images from the aJ-Orion device can be set from 10 to 60 seconds to allow for network delays.

- **Monitor timeout setting**: The time allowed for monitoring sessions can be set from 1 to 20 minutes.

- **Sensitivity setting**: The sensitivity of the aJ-Orion device can be adjusted using the slider bar provided. Moving the slider toward the left decreases sensitivity. Moving the slider to the right increases sensitivity.
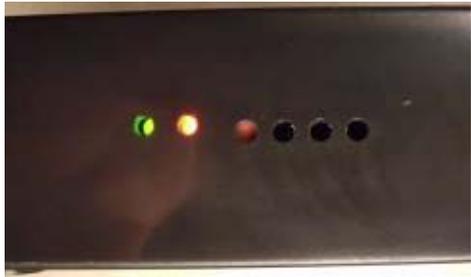
17 Upon completing the settings, open the menu from the current message settings screen and select the "Save to aJ-Orion" item. A popup message will confirm the setting are saved to the aJ-Orion device.
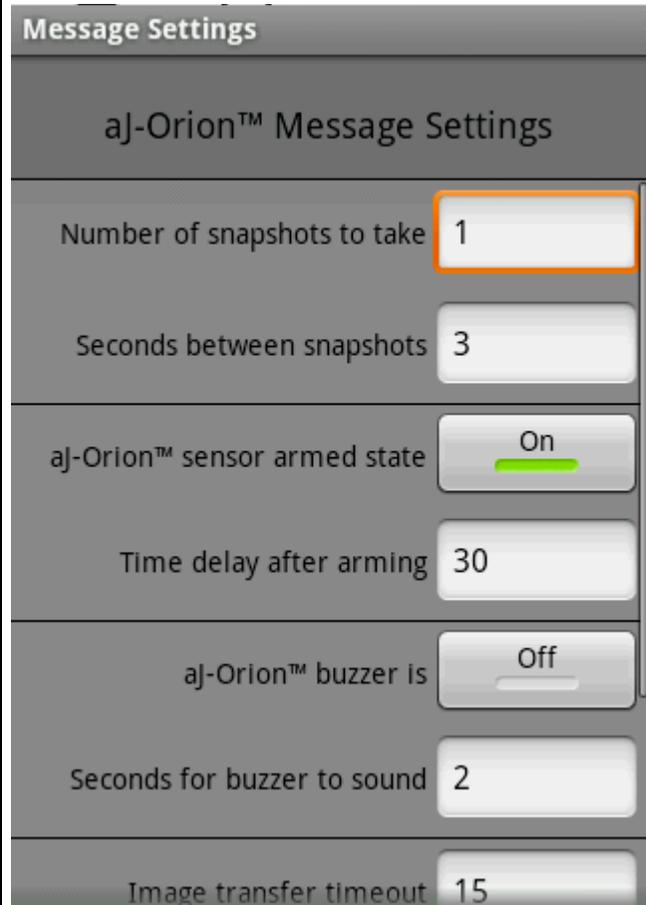
C H A P T E R 3 : O P E R A T I O N S

3.1. Status

The aJ-Orion system software consists of two components (aJ-Orion device software and aJ-Orion client application software) that communicate to each other via the Google Talk server. Therefore, both aJ-Orion software components must be connected to the Google Talk server before the system is operational. The aJ-Orion client application main screen shows the status of these connections.

1 The aJ-Orion client application main screen shows the system status as follows: • aJ-Orion client application status (active or inactive) • Server connection status (connected or not connected) • aJ-Orion device connection status (connected or not connected) **2** The system is operational when all status conditions are green as shown at the right. Be aware that upon activation of the phone from sleep mode, the smart phone may switch from the cellular network to a local WLAN network automatically. The switching between networks can take several seconds whereby the status of the server and aJ-Orion device will show no connection. Once the network switch is completed, the server and aJ-Orion device connections should be reestablished. *NOTE: If not all status conditions are green, please refer to Appendix A.2. Trouble Shooting for further information.*	
3 The aJ-Orion device has a green light to show power is on and a red light to indicate status as follows: • OFF - aJ-Orion device disarmed, • ON (steady) - aJ-Orion device armed, • 1Hz flash - Sensor warming up, • 2Hz flash - Configuration mode, • 5Hz flash - low battery condition (Cellular option only)	

3.2. Alerts

Alerts are notifications sent to the smart phone when the aJ-Orion device alarm is triggered. The phone will vibrate upon receiving the notification and an "aJ-Orion Alert" icon will appear on the phone's status bar.

1 Selecting the alert notification from the smart phone's status bar will bring up the alert screen as shown at the right. *NOTE: Image files are encoded with a sequence # and the time and date of the snap shot.*	
2 Selecting an image file (*touch until a short vibrate is felt*) will initiate the image file transfer from the aJ-Orion device and display on a new screen as shown at the right. *NOTE: Successful transmission removes the image file from the aJ-Orion device and saves it on the smart phone's SD card in the aJOrion directory.* *Ignored alerts will accumulate in the aJ-Orion device and eventually reach the storage capacity. When the storage is full, the oldest alerts will be automatically deleted to make room for the latest alerts*	

3.3. Monitoring

Monitoring mode is where the aJ-Orion device continuously sends images (series of snap shots) for a limited time. This is not streaming video. The typical time between snap shots is between 4 and 12 seconds.

Note that the received images are not stored in the phone's SD card.

1 The monitor screen is accessed via opening the application main menu and selecting the "Monitor" item. If monitor mode is inactive, the monitor screen will display the last image received as shown at the right. Select the "Start Monitor" button to begin a monitoring session.	
2 Once monitoring is activated, the screen will show the received images along with the date and time as shown in the far right. Select "Stop Monitor" to end the monitoring session. *NOTE: Monitoring will continue if the phone goes into sleep mode. However, it is recommended that monitoring be stopped when no longer desired to save data transmission costs and battery life.* **3** Monitoring sessions are also time limited. The default monitoring time is 10 minute. The time limit can be adjusted as described in section 2.3. aJ-Orion Client Application Setup Procedure, step 16.	

3.4. Viewing Missed Alerts

Often several alerts may be received before they are acknowledged. The alert notification only shows the most recent alert received. In addition, network communications are not always reliable such that some alerts may not be sent or are not received by the phone. The aJ-Orion device stores alert images in memory until they are requested or deleted by the aJ-Orion client application.
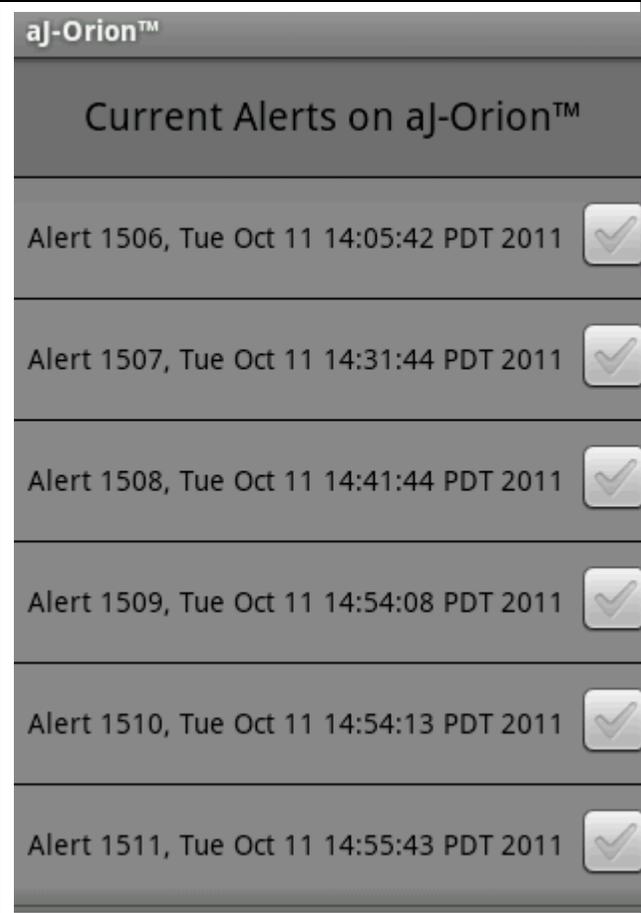
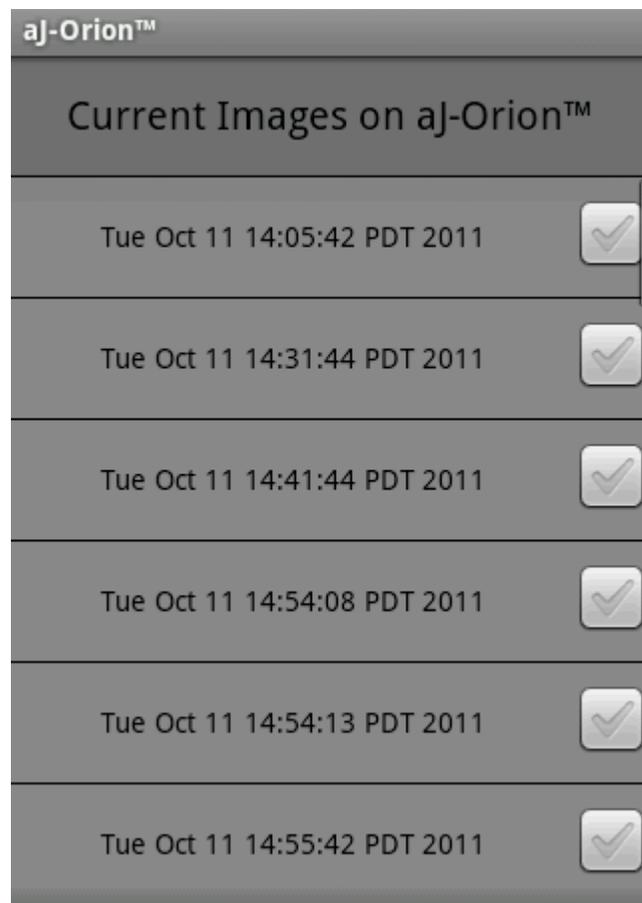|	
1 The list of missed alerts is accessed via opening the application main menu and selecting the "More" item. A sub menu is displayed as shown at the right. Select the "List Alerts" item to display any missed alerts.	
2 An example of a list of alerts still stored on the aJ-Orion device is shown at the right. Selecting any alert from this list will bring up the alert screen with the associated image files. (Refer to "Alerts"section above.) *NOTE: Ignored alerts will accumulate in the aJ-Orion device. When the storage has reached full capacity, the oldest alerts will be deleted automatically to make room for the latest alerts.* **3** The check box on the right of item is used to select alerts to be deleted from the aJ-Orion device without transferring and viewing the images. If there are numerous alerts to delete, select the menu item "Select All" and then uncheck the alerts to be saved. When ready, select the menu item "Delete Selected" to delete the alerts from the aJ-Orion device.	

3.5. Viewing Missed Images

An alternative way to view captured alert images not sent or requested by the phone is via the image list. The aJ-Orion device stores alert images in memory until they are requested or deleted by the aJ-Orion client application.

1 The list of missed alert images is accessed via opening the application main menu and selecting the "More" item. A sub menu is displayed as shown at the right. Select the "List Images" item to display any missed alert images.	
2 An example of a list of alert images still stored on the aJ-Orion device is shown at the right. Selecting any image file from this list will initiate the image file transfer from the aJ-Orion device and display on a new screen. *NOTE: Ignored alert images will accumulate in the aJ-Orion device. When the storage has reached full capacity, the oldest alert images will be deleted automatically to make room for the latest images.* **3** The check box on the right of item is used to select alert images to be deleted from the aJ-Orion device without transferring and viewing the images. If there are numerous images to delete, select the menu item "Select All" and then uncheck the images to be saved. When ready, select the menu item "Delete Selected" to delete the images from the aJ-Orion device.	

3.6. Console

The console screen provides a running history of events recorded by the aJ-Orion client application. Typical events include starting/stopping service, logging onto the server, and received alerts. The console screen is accessed via opening the application main menu and selecting the "Console" item.

The console screen has two menu items ("Test Server" and "Test aJ-Orion") to test the connection of the respective end points. Selecting either menu option will report the status of the connection.

3.6.1. WLAN Signal Strength

If the aJ-Orion device is configured for WLAN network connections then the response to testing the aJ-Orion connection (via the console screen "Test aJ-Orion" menu item) will also include the signal strength received by the device. This feature is useful for positioning the aJ-Orion device to receive the best signal strength. Signal strength readings are typically between -80dBm and -40dBm (smaller negative numbers are stronger signals). Signal strength readings lower than -80dBm may result in intermittent network connections.

3.7. Refresh Connection

When the aJ-Orion client application main screen indicates loss of connection with the server (see section 3.1. Status), it may help to re-establish connection. This is accomplished via opening the application main menu and selecting the "More" item and a sub menu is displayed. Select the "Refresh Connection" item to force the aJ-Orion client application to re-establish connection to the server. Note, however, there may be other causes preventing operation. Appendix A.2. Trouble Shooting, may help in resolving connection problems.

A.1. FAQs

A.1.1. How can previously received images be viewed?

Images are saved on the smart phone's SD card in the "aJOrion" directory. The photo application (such as the Android "Gallary" application) can be used to view all of the images

A.1.2. How many images can be stored on the aJ-Orion device?

The number of images stored on the aJ-Orion device is dependent on image size and available memory. The upper limit is 250 images but note that viewing an image on the phone will remove it from the aJ-Orion's memory.

Note that images can be deleted without transferring and viewing. See 3.5.: Viewing Missed Images, step 3.

A.2. Trouble Shooting

A.2.1. aJ-Orion client application status shows "Client is not active"

- *Condition #1*: aJ-Orion client application has not been activated.
  Resolution #1: From the main menu, select "More" and then select "Start Service" and select "OK" to the confirmation prompt.

A.2.2. aJ-Orion client application status shows "Not connected to Server"

- *Condition #1*: aJ-Orion client application shows no server connection for over 5 minutes.
  Resolution #1: The aJ-Orion client application may have lost network connection or is in the process of switching between cellular and WLAN network connection. Try the following steps:

  Step 1: From the aJ-Orion client application main menu, select "Refresh Connection". If the application status doesn't change to show connection within a minutes then proceed to the next step.

  Step 2: From the aJ-Orion client application main menu, select "More" and then select "Stop Service" and select "OK" to the confirmation prompt. This action will close the application.

  Step 3: Launch the aJ-Orion client application. From the main menu, select "More" and then select "Start Service" and select "OK" to the confirmation prompt.

A.2.3. aJ-Orion client application status shows "Not connected to aJ-Orion"

- *Condition #1*: aJ-Orion device status: Red light is **on**. No buzzer sounds for over 5 minutes.
  Resolution #1: The aJ-Orion client application may have lost network connection or is in the process of switching between cellular and WLAN network connection. Try the following steps:

  Step 1: From the aJ-Orion client application main menu, select "Refresh Connection". If the application status doesn't change to show connection within a minutes then proceed to the next step.

  Step 2: From the aJ-Orion client application main menu, select "More" and then select "Stop Service" and select "OK" to the confirmation prompt. This action will close the application.

  Step 3: Launch the aJ-Orion client application. From the main menu, select "More" and then select "Start Service" and select "OK" to the confirmation prompt.

- *Condition #2*: aJ-Orion device status: Red light is **on**. Buzzer sounds once every 5 minutes.
  Resolution #2: aJ-Orion device is not able to connect to the network. Check the following.

  Step 1: Verify network connections. If using WLAN connection, verify the following:

- Network SSID name must match and is case sensitive,
- Verify band selection,
- Set channel selection to Auto if unknown,
- Verify security selection and encryption is AES (TKIP is not supported),
- Reenter password.

If using LAN connection, check if LAN link light (next to LAN cable jack) is on or blinking).

Step 2: Verify network is up using the WLAN on the phone or a PC.

Step 3: If the above steps are verified then reconfiguration the aJ-Orion device via following the instructions in section 2.3.: aJ-Orion Client Application Setup Procedure.

- *Condition #3*: aJ-Orion device status: <u>Red light is **off**</u>. <u>Buzzer sounds once every 2 seconds</u>.
  Resolution #3: The aJ-Orion device is downloading a firmware update. This may take 12 minutes when using a WLAN network connection.

- *Condition #4*: aJ-Orion device status: <u>Red light is **off**</u>. <u>No buzzer sounds for over 5 minutes</u>.
  Resolution #4: Power cycle the aJ-Orion box.

A.2.4. aJ-Orion client application shuts down

If the Android operating system decides the aJ-Orion client application is not responsive, the following message will be displayed and request a force close of the application.

"Sorry! The application aJ-Orion (process org.apache.android.xmpp) has stopped unexpectedly, please try again."

Restart the aJ-Orion client application from the application list.

A.3. Revising system settings

It may be necessary to change the system settings (such as server account or network settings) once the aJ-Orion system has been initially configured. The following subsections describe the common revisions to system setting. Note that these descriptions are streamlined from the setup steps given above. (See sections 2.3. through 2.5. for complete details.)

A.3.1. Changing server accounts

The aJ-Orion device and the aJ-Orion client application must use the same server account to communicate with each other. If the server account is to be changed, then the aJ-Orion device must be updated accordingly. Saving the server account settings (as shown in step 3 in section 2.3.: aJ-Orion Client Application Setup Procedure) is only applied to the aJ-Orion application.

To save the server account setting to the aJ-Orion device, follow setps 11 through 13 in section 2.4.: aJ-Orion Device Setup to prepare the aJ-Orion device to receive the new configuration. Once the aJ-Orion device is ready, then open the aJ-Orion client application main menu and select the "aJ-Orion Setup" item. Open the menu from the current screen (General aJ-Orion Settings) and select the "Save to aJ-Orion" item. A popup message will confirm the setting are saved to the aJ-Orion device.

A.3.2. Changing network configuration

Network configuration settings can be changed via following steps 3 through 14 in sections 2.3. through 2.5.