



InformaCam App & System Architecture

Public Beta - Fall 2013

Witness & The Guardian Project

Making Cameras Count

Journalists, human rights defenders and the legal community need away to secure and verify the vast amounts of video and still images coming from areas of conflict and political unrest.

InformaCam addresses this need by using the built in sensors found in modern smartphones. It creates a “snapshot” of the digital and physical environment in which media was captured, and provides a secure system for sharing it.

The data collected in these “snapshots” is helps ensure that the media files haven’t been tampered with. It also verifies that they were captured by a specific device at a specific time and place.



The Guardian Project creates easy-to-use open source apps, mobile OS security enhancements, and customized mobile devices for people around the world to help them communicate more freely, and protect themselves from intrusion and monitoring.

in collaboration with, and with funding from....



Who Needs InformaCam?

- Investigators gathering visual evidence of an incident or crime
- Journalist sources with visual documentation of an important aspect of a story
- Journalists working in teams documenting a large event
- Whistleblowers who need to remain anonymous
- Anyone with who needs to capture photos and video in a secure manner
- News and Human Rights organizations who need a way to securely receive media

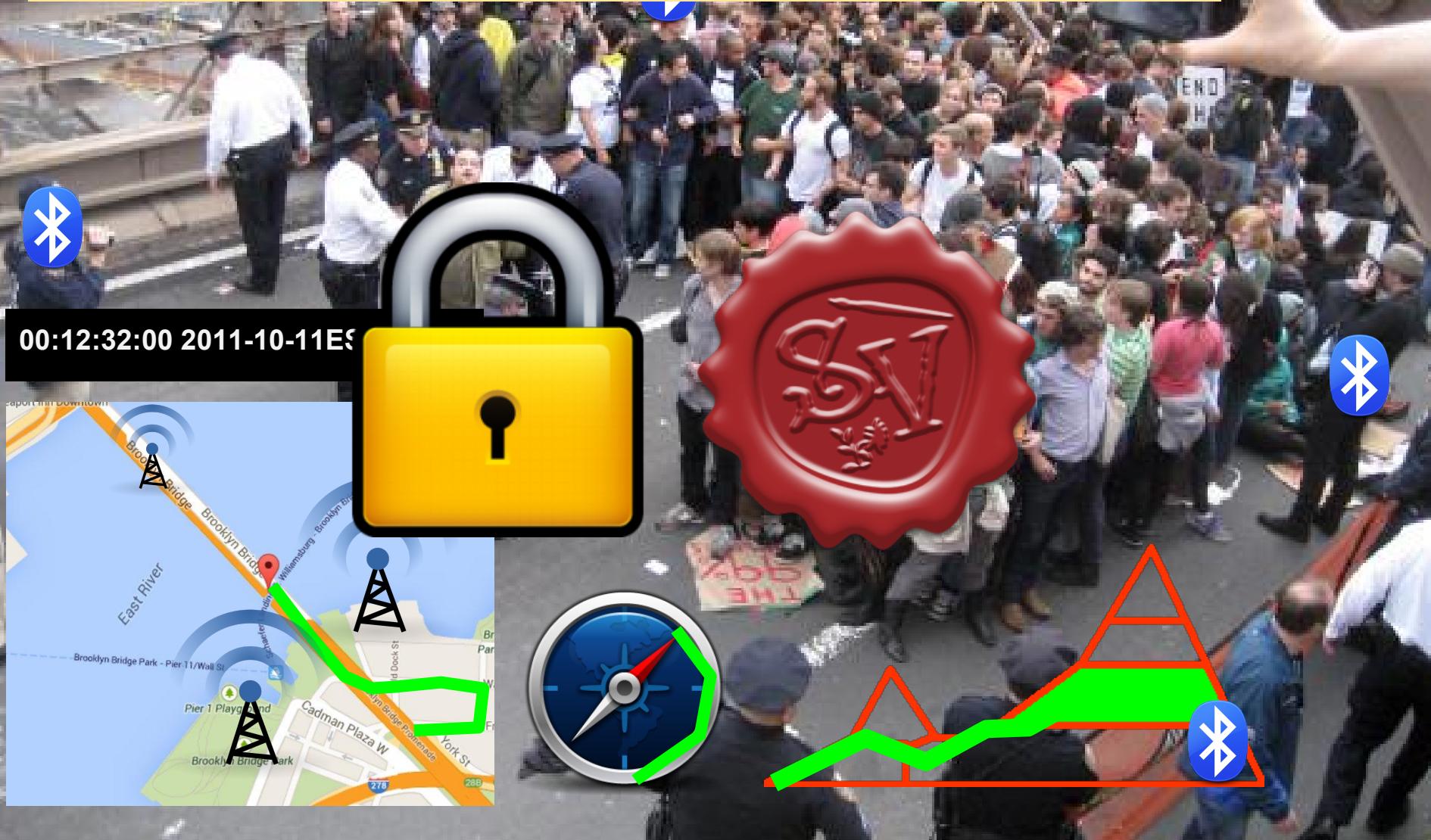
Photo or Video of Unknown Origin



Enhanced with J3M Metadata from sensors



J3M Enhanced + Signed and Encrypted



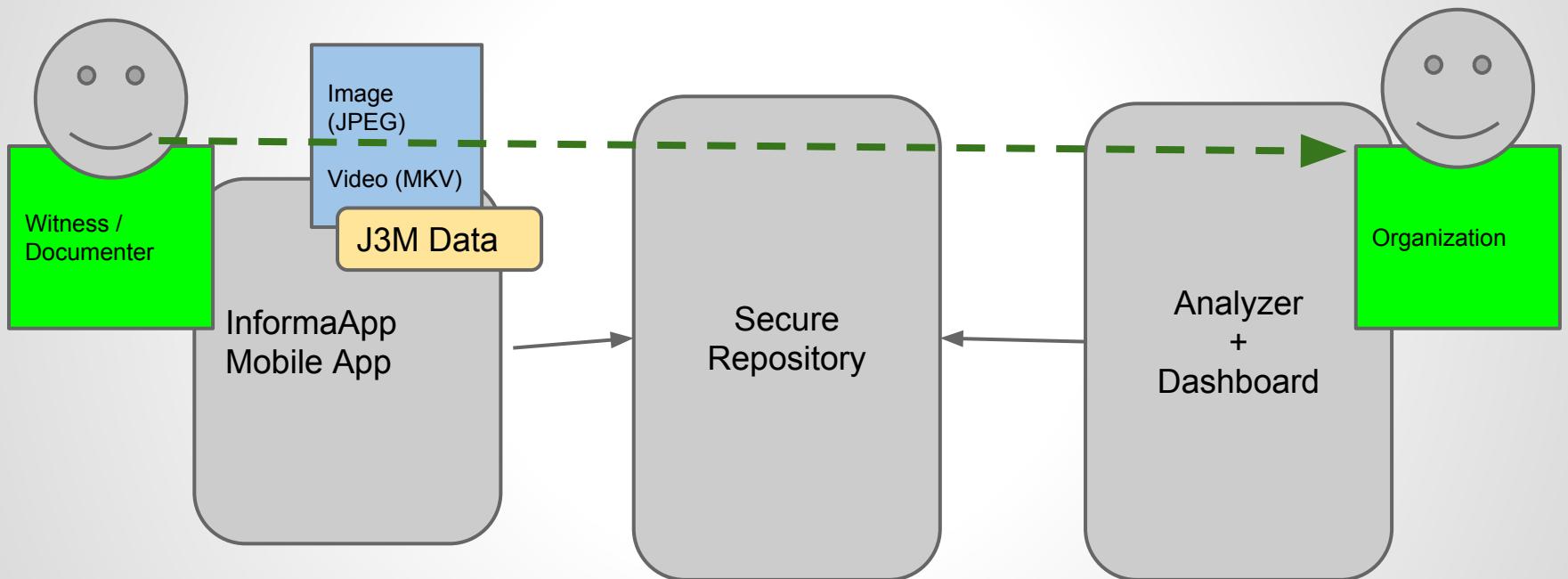
Fall 2013 Status

- **InformaCore** mobile software library under active development; stable and all core features functioning
- **InformaCam (android, built on InformaCore)** mobile app ready for public beta with public testbed
- **Unveil Analyzer (server)** core functions are stable (import, parsing, display) with automated import, aggregation, search, analysis functions
- **Unveil Viewer (desktop)** dashboard system for visual review, analysis, search and sharing

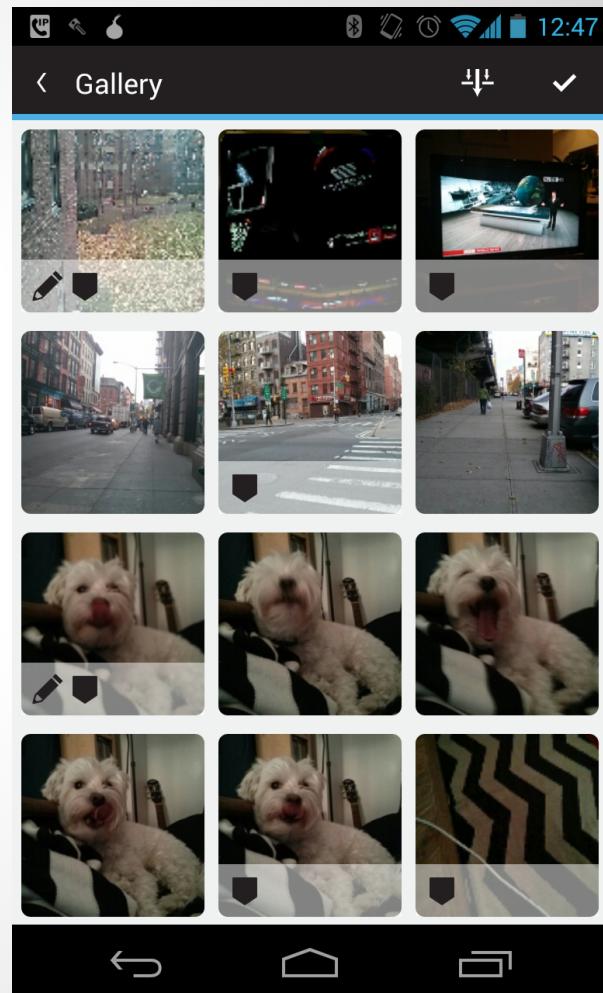
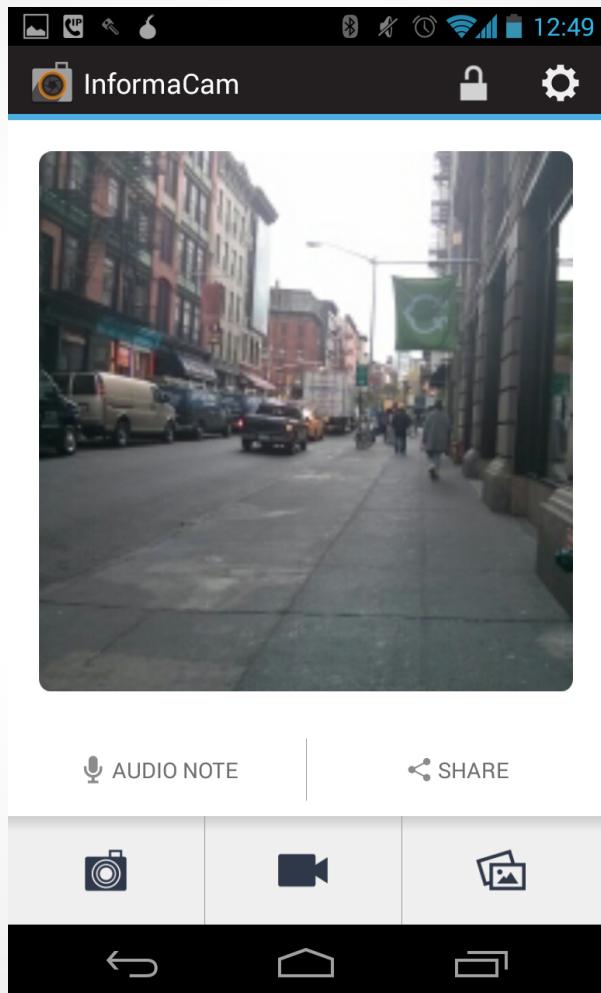
Step-by-step Process

1. User installs InformaApp app & Orbot (proxy) app
2. Take photo with app – meta data is captured and attached
3. App sends photo to hidden, secured repository using Tor proxy network
4. Email notification to repository admin when new file is submitted to the Repository
5. File is copied from the Repository and expanded on the Analyzer and Dashboard for verification & analysis

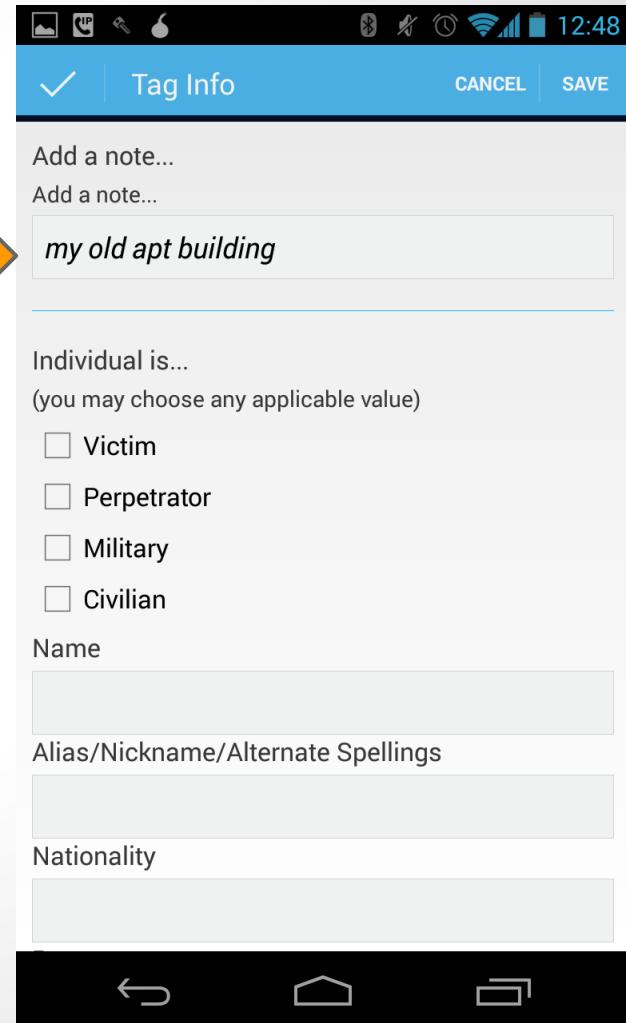
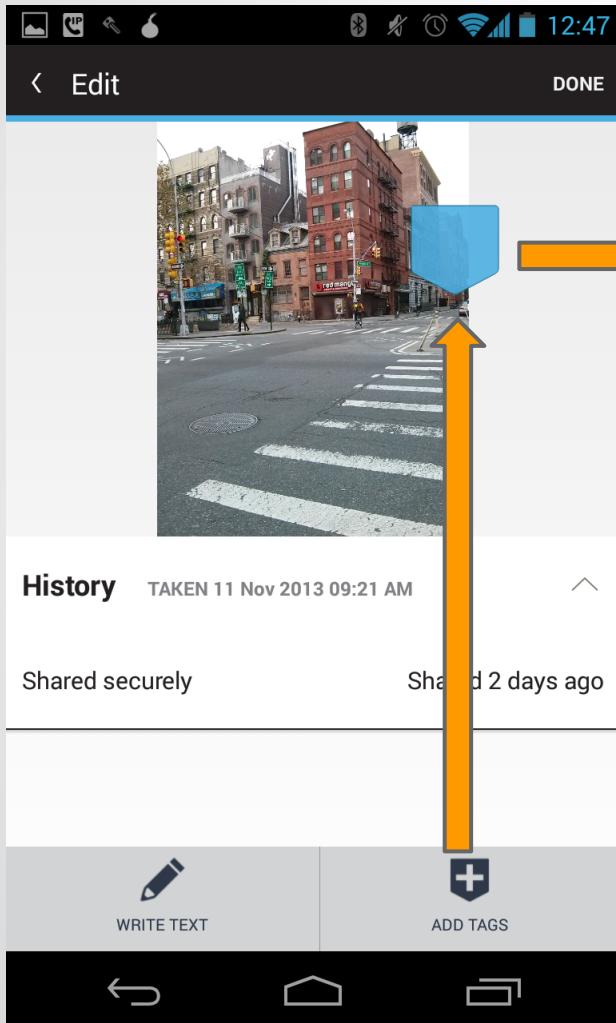
InformaCam: Simple Flow



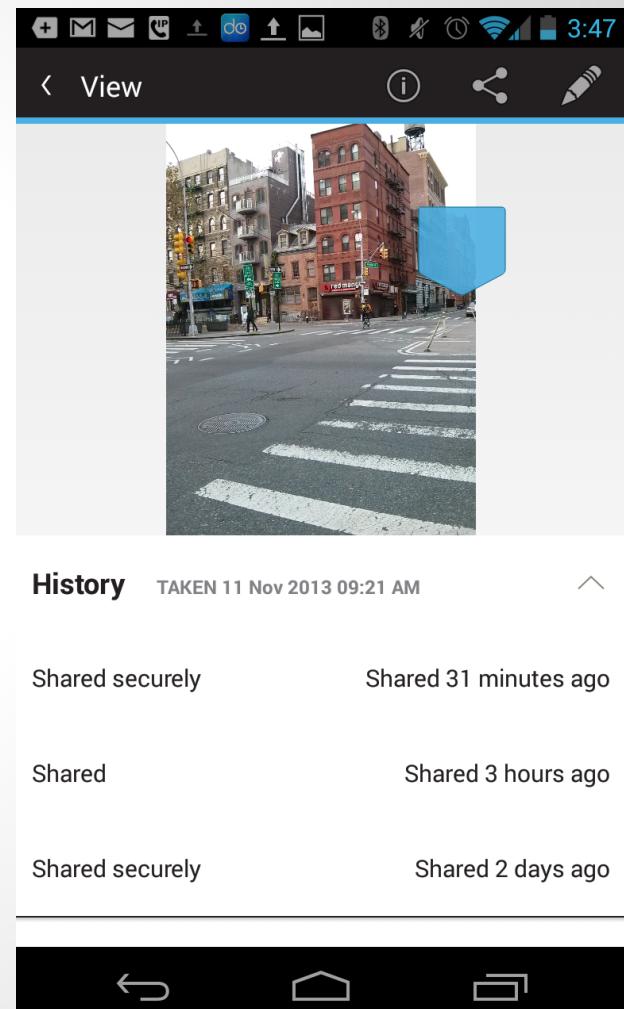
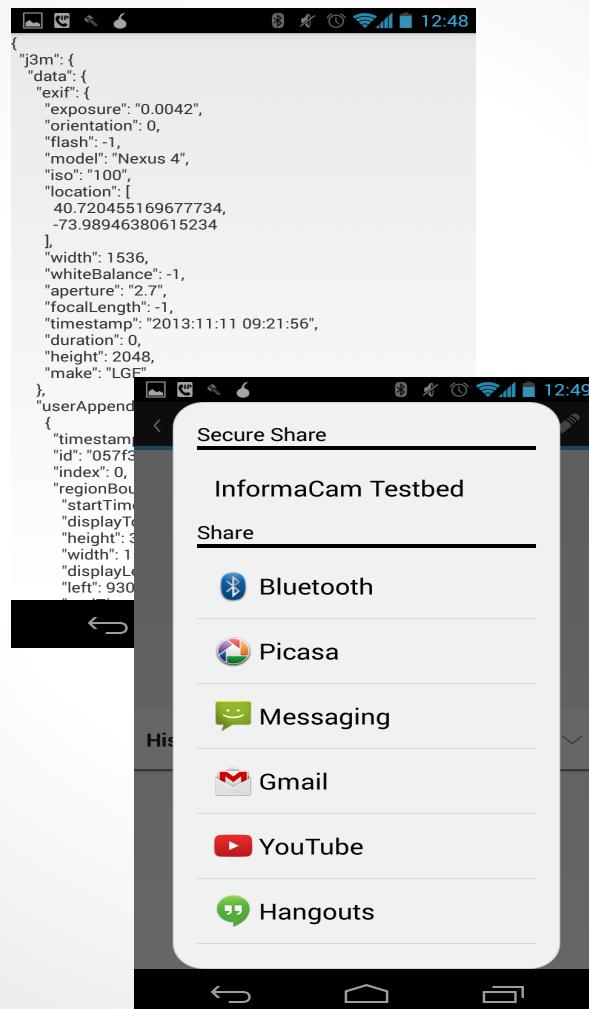
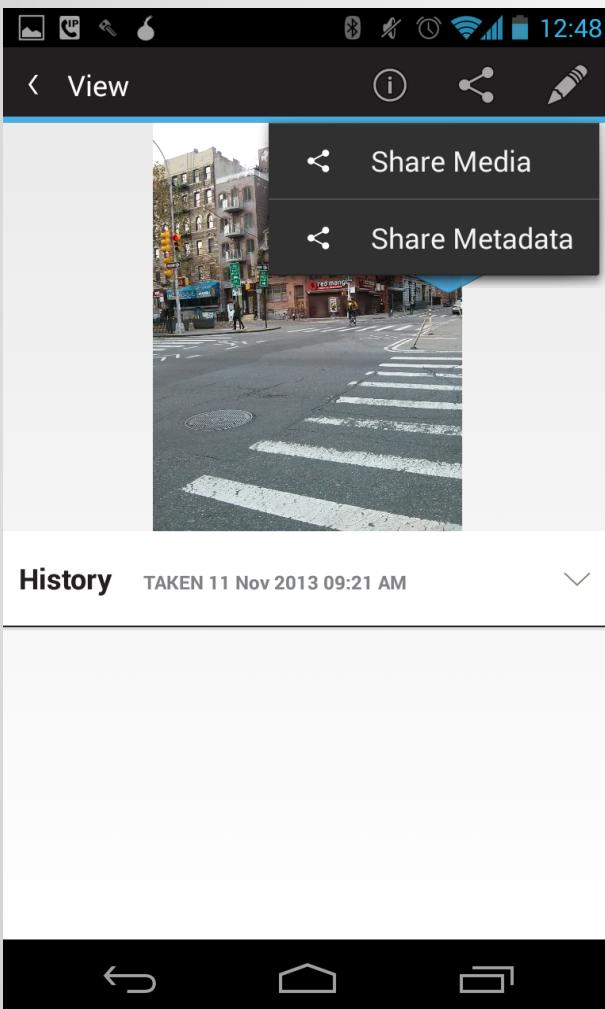
Take photo



Annotate Photo (optional)



Send Photo with Meta Data = 'file'



Secure Repository

InformaCam supports a variety of systems as a backend secure repository, including:

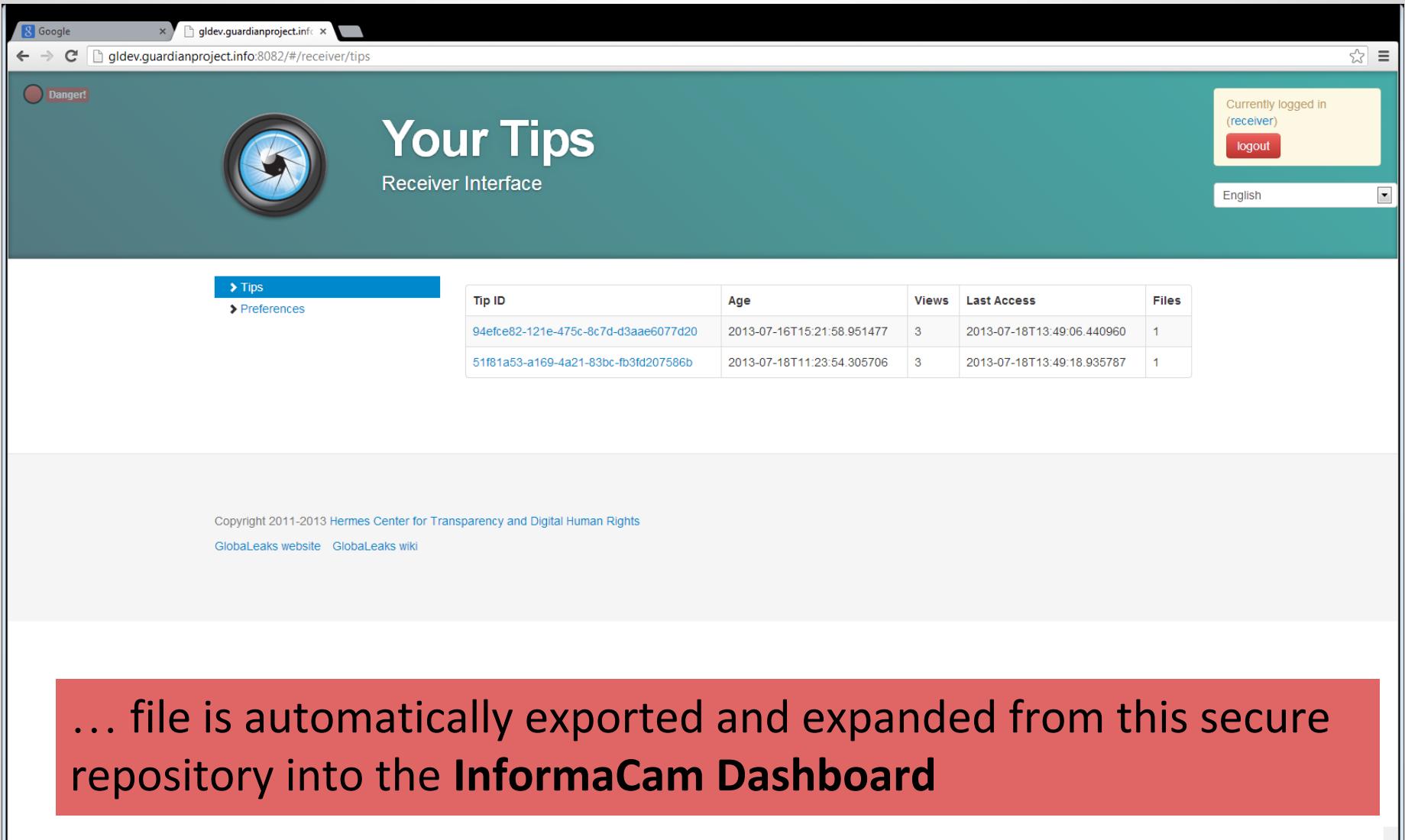
Globaleaks

GlobaLeaks is an open source project aimed at creating a worldwide, anonymous, censorship-resistant, distributed whistleblowing platform.

<https://globaleaks.org/>



Secure Repository: “Tips” Intake



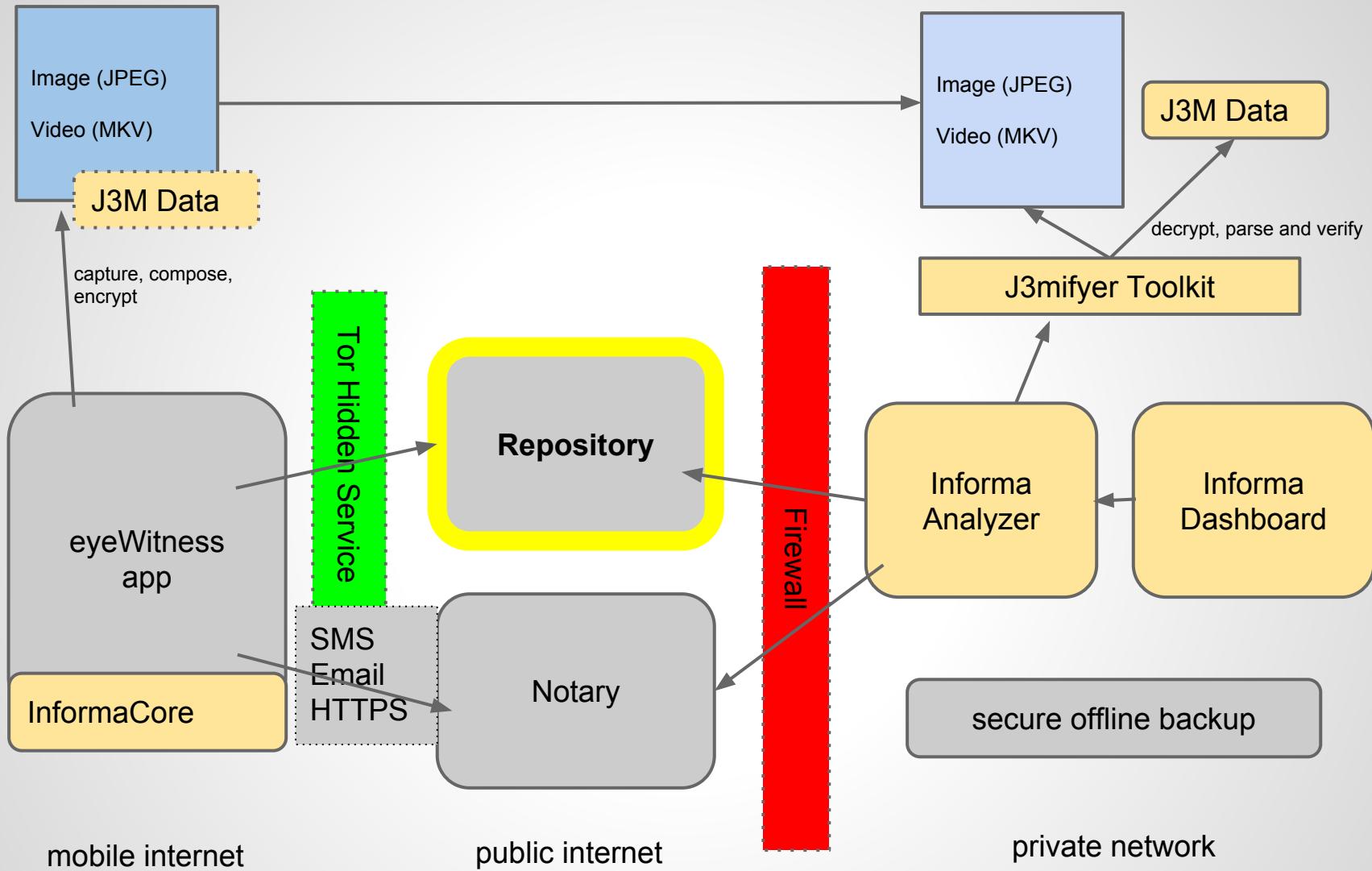
The screenshot shows a web browser window with the URL gldev.guardianproject.info:8082/#/receiver/tips. The page title is "Your Tips" and the sub-section is "Receiver Interface". On the left, there is a circular icon resembling a camera lens. A red "Danger!" button is visible. On the right, there is a yellow box indicating "Currently logged in (receiver)" with a "logout" button, and a language selection dropdown set to "English". The main content area displays a table of received tips:

Tip ID	Age	Views	Last Access	Files
94efce82-121e-475c-8c7d-d3aae6077d20	2013-07-16T15:21:58 951477	3	2013-07-18T13:49:06.440960	1
51f81a53-a169-4a21-83bc-fb3fd207586b	2013-07-18T11:23:54.305706	3	2013-07-18T13:49:18.935787	1

At the bottom of the page, there is a copyright notice: "Copyright 2011-2013 Hermes Center for Transparency and Digital Human Rights" and links to "GlobaLeaks website" and "GlobaLeaks wiki".

... file is automatically exported and expanded from this secure repository into the **InformaCam Dashboard**

The Complete View



Informa

= unique components of InformaCam system

Dashboard = Media + Meta Data

All Submissions

Register Sources Submissions Documentation

API Output [expand]

ID	File Name	Date Admitted	View...
 019ecf169a6ca64860ccdc244bb792f9	IVZnuxyqZShpYJbzKZeEgQhVpG.jpg	1374348634366.9	View...
 18bf85974d5cbcca1a112c9b2b01ba75	uERVdAmWcAyLLUV CvApQZYvNMf.jpg	1374609094130.865	View...
 2b0952f8064565f6a942a6138269a099	OdSBpLpjRAqOFtuJFenXgWEWZD.jpg	1374642407837.95	View...
 2feb93fec3e0286e3b09077425b8c23e	WwIUroutUvHeVqlpdFTgMnsACr.jpg	1374641795512.78	View...

View details

Register Sources Submissions Documentation

API Output: [expand]



ID: 18bf85974d5cbccala112c9b2b01ba75

Asset Path:

/home/ubuntu/assets/submissions/18bf85974d5cbccala112c9b2b01ba75

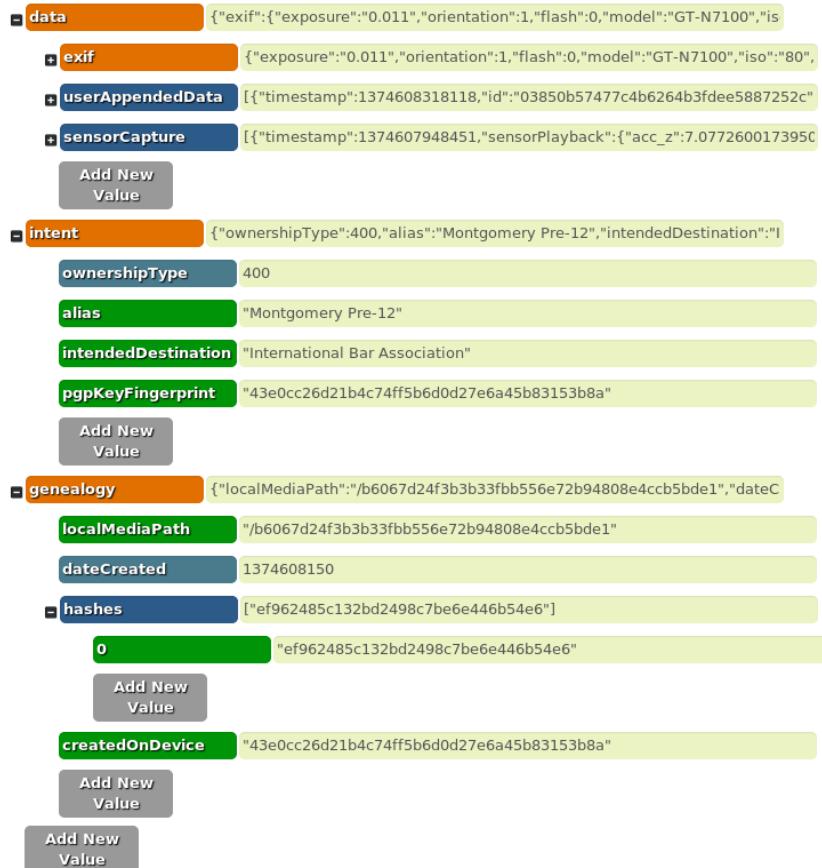
J3M: uERVdAmWcAyLLUVCvApQZYvNMf.json

```
{"data":{"exif": {"exposure": "0.011", "orientation": 1, "flash": 0, "model": "G-T-N7100", "iso": "80", "location": [40.711570739746094, -73.96470642089844], "width": 3264, "whiteBalance": 0, "aperture": "2.6", "focalLength": 1, "timestamp": "2013-07-23 15:32:51", "duration": 0, "height": 2448, "make": "SAMSUNG"}, "userAppendedData": [{"timestamp": 1374668318118, "id": "03850b57477c4b6264b3fde5887252c", "associatedForms": [{"path": "/forms/493dde68c49e6b99556186a3e776d705.xml", "id": "a910641fae36516a8a4f0901abdf34ba9", "answerData": {"iW_freeText": "the absolute best pup in the universe."}, "namespace": "1Witness Free Text Annotations"}]}, {"timestamp": 1374608343113, "id": "7b44a8f9c39177f802b2e0cbbdd2e066", "index": 0, "regionBounds": {"startTIme": -1, "displayTop": 157, "height": 648, "width": 512, "displayLeft": 447, "left": 512, "endTime": -1, "displayWidth": 256, "top": 648, "displayHeight": 216}, "associatedForms": [{"path": "/forms/46b9f8e70113ae0f39ae26338c0dc433.xml", "id": "2ce7673ab1936d3e3dfe14b9cef4197", "answerData": {"iW_alias": "lil guy, mummers, boogie", "iW_race": "minpin, boxer", "iW_individualIdentifiers": "4", "iW_name": "Frank"}]}]}
```

Date Admitted: 1374609094130.865

View J3M Data

```
{"data": {"exif": {"exposure": "0.011", "orientation": 1, "flash": 0, "model": "GT-N7100", "iso": "80", "location": [40.711570739746094, -73.96470642089844], "width": 3264, "whiteBalance": 0, "aperture": "2.6", "focalLength": -1, "timestamp": "2013:07:23 15:32:51", "duration": 0, "height": 2448, "make": "SAMSUNG"}, "userAppendedData": [{"timestamp": 1374608318118, "id": "03850b57477c4b6264b3fdee5887252c", "associatedForms": [{"path": "/forms/493dde68c49e6b99556186a3e776d705.xml", "id": "a910641fae36516a8a4f0901a8df34b8"}, {"answerData": {"iW_free_text": "the absolute best pup in the universe."}, {"namespace": "iWitness Free Text Annotations"}]}, {"timestamp": 1374608343113, "id": "7b44a8f9c39177f802b2e0cbbbd2e066", "index": 0, "regionBounds": }}
```



<http://www.jsonmate.com/permalink/e26f71e6fb7fac9774f44dd8b0054298>

Turning Data into Visualizations

(under development for v1 full release)

data `{"exif":{"exposure":0.011,"orientation":1,"flash":0,"model":"GT-N7100","s`

exif `["exposure":0.011,"orientation":1,"flash":0,"model":"GT-N7100","iso":00`

UserAppendedData `[{"timestamp":1374608318118,"id":"03850b57477c4b6264b3fdee5887252c`

SensorCapture `[{"timestamp":1374607948451,"sensorPlayback":{"acc_z":7.0772600173950`

Add New Value

intent `{"ownershipType":400,"alias":"Montgomery Pre-12","intendedDestination":"`

ownershipType 400

alias "Montgomery Pre-12"

intendedDestination "International Bar Association"

pgpKeyFingerprint "43e0cc26d21b4c74ff5b6d0d27e6a45b83153b8a"

Add New Value

genealogy `{"localMediaPath":"/b6067d24f3b3b33fb556e72b94808e4ccb5bde1","dateC`

localMediaPath "/b6067d24f3b3b33fb556e72b94808e4ccb5bde1"

dateCreated 1374608150

hashes `["ef962485c132bd2498c7be6e446b54e6"]`

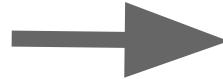
0 "ef962485c132bd2498c7be6e446b54e6"

Add New Value

createdOnDevice "43e0cc26d21b4c74ff5b6d0d27e6a45b83153b8a"

Add New Value

Add New Value



31
August 2013
1:20 pm

This is a note about the text. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Curabitur placerat sollicitudin consectetur. Proin viverra ligula dolor, et luctus purus rutrum tincidunt. Quisque et pellentesque.

Hide 3 tags



900 M

700M | FULLSCREEN

See Street View

3 Cell Towers ▲
36791059

19 Wifi Networks ▲
BambiButt
Rihanna's Hovercraft
NFTGFAIR_Guest1

1 Bluetooth Device ▲
Jetta

Original Size 2043 x 1015	Taken with Samsung Galaxy III	Captured by harry17
Compass NE	Light Meter 60 LUX	Accelerometer 6.8, 7.2, 0

Turning Data into Visualizations: MULTIPLE VIDEO CLIPS (under development for v1.1 full release)

Prototype: (Under Construction)
The Rashomon Project:
An Online Toolkit for Assembling Multi-Perspective Chronologies

A CITRIS Data & Democracy Project
[Source Code](#) [About Rashomon](#)

TIMELINE UC Davis - Nov 18 2011

The screenshot shows a timeline interface for video clips. On the left, a vertical list of numbers from 1 to 9 is displayed. To the right of each number is a horizontal bar composed of small colored dots, representing a multi-perspective timeline. A red vertical line marks a specific point in time at 00:00:47. Below the timeline, a grid of video frames is shown. The first five frames are highlighted with colored borders: frame 1 (red), frame 2 (orange), frame 3 (green), frame 4 (black), and frame 5 (blue). Frame 5 has a caption: "Police pepper spray California student protesters". The bottom row contains frames 6, 7, 8, and 9, which are partially visible.

UC Berkeley Rashomon Project
<http://automation.berkeley.edu/rashomon/>

Learn More:

<https://guardianproject.info/apps/informacam/>