

Introductory Guide to Open Source Intelligence and Digital Verification

University of Essex
Human Rights Centre Clinic



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1 Relevance and Purpose of Digital Verification

1.1 Introduction

As technology advances, so too does our access to information on events taking place around the world. The ready availability of mobile recording devices such as smartphones, and the now global reach of communication and information, means that evidence of suspected human rights violations can be gathered remotely, without having to go into the field. A large amount of videos, images and other pieces of content are either shared directly or uploaded to social media websites such as Twitter, YouTube and Facebook. These platforms provide a rich source of content that may be useful when seeking information on possible human rights violations. However, this digital content is not always reliable. For example, it may have been manipulated, or may not actually depict the event it claims. The purpose of this guide is to help you, as a human rights defender, to verify digital video or photographic content of alleged human rights violations. In this context, verifying means determining not only whether a video or photo has been manipulated or is authentic, but also evaluating its reliability. It is important to be aware that content may have been uploaded for a specific purpose, resulting in bias. For example, although accurate, a video may only depict a part of the overall events, excluding relevant information. Effective verification therefore attempts to gain an understanding of all aspects of an event, instead of only focusing on the validity of one piece of content. Verification is essential: only authenticated videos or photos should be used for human rights documentation.

Verifying digital content and successfully documenting human rights violations can be extremely difficult. This is partially due to the fact that this is still an evolving discipline. On top of that, content available on the Internet is shared widely and rapidly and is therefore often difficult to verify, as the original source of the content can be hard to find.

This Guide will talk you through the verification process, and provide detailed examples of issues faced and how to resolve them.

1.1.1 A (quick) introduction to the verification process

Verification typically involves a number of identifiable steps, such as analysing the uploader's social media account, geolocating the event, confirming date and time, verifying the content depicted. These are discussed in Section II to V below. However, verification is not a straightforward 'tick box' type exercise. Every piece of content is different, and this requires you to approach verification in a creative manner, looking for any possible clues. Accordingly, before beginning any verification, it is important to first set out the objective. There are a few questions to keep in mind as you are working. Who are you trying to identify, is it a specific individual, a military unit, or an armed group? Are you trying to pinpoint or confirm a location, identify a specific event, or confirm a time?

The specific objective underpinning a particular verification task may affect which steps you take, how you approach each step, as well as the order in which these steps are taken. It is important to note that these steps are presented as guidelines, they are not hard and fast rules, and if the objective requires you to take a slightly different approach, you should do so. For example, if your objective is to identify which country's military is depicted in a photo or video you may not need to worry about the location. Instead you will need to pay attention to their uniforms, the vehicles they are in, the equipment they have, or the language they are speaking. If your objective is to confirm the specific date of an event, you would, for example, focus on the date the video was uploaded, what the weather was like in that location on that day and if it matches the weather depicted in the video. Most importantly, check if there are any reports from news sources that can be used to corroborate the time of the event.

Anything that gives you a hint or a clue is called an indicator. For example, if an individual is carrying a weapon, this may indicate that they are in the military or in an armed group. Other indicators may be a language or dialect someone speaks, a famous landmark, or a distinctive building.

If the objective requires you are to confirm a location, all steps should be taken. Geolocation is one the most difficult parts of the verification process, and all indicators present in the content may be relevant..

To summarize:

- Once you have set your objectives, the first step discussed in this guide is analyzing the account of the uploader;
- the second step is analyzing the events depicted in the content, how to look for indicators, and identifying individuals;
- the third step is finding out at what time the content was created and finding out whether this time matches the time of the event you are researching;
- the fourth step is finding out where the content was created and whether this place matches with the incident you are trying to verify.

If you follow these steps, at the end of the verification process, you will have a small list stating whether the account, event depicted, time, and location of the content are verified based on your findings. This will help you to make an overall decision on the piece of content.

Section VI will address how to structure a report of your findings. Section VII will discuss the various challenges and pitfalls of the verification process and how to deal with them. Section VIII will provide step-by-step guidance on the use of various available tools and resources.

1.1.1.1 Bringing the indicators together

Once you have completed all the verification steps necessary for the purpose and objective(s) of your assignment, you will have to determine whether the content that has been analyzed can be considered 'verified'. In other words, are you now able to prove that the content you have been analyzing not only occurred, but that it did so at the time and date outlined, and in the location mentioned. In order to determine this, you need to look at whether the steps you conducted in the verification process have led you to this conclusion. If you are able to prove that the time, location, and event depicted match up, then the video is likely verified. If there is still significant doubt that the video or image is verified, you may need to classify it as 'inconclusive'.

Some content will naturally be easier to verify and it is not always necessary that each step comes to a solid confirmation for the overall content to be confirmed. Also, keep in mind that some content may be impossible to verify, so it is important to learn when to walk away from a piece of content. If any doubt arises, it may be useful to seek advice or review from a peer or colleague.

Ultimately, always remember that this is a learning process - it takes time.

Finally, it is important that you are aware of the sensitivity of the content you are verifying. It is essential that this content is handled with care. Publishing any findings may expose the people linked to the content, such as the uploader, the victims, or the perpetrators, but also other parties involved. This exposure could have detrimental consequences on these individuals. Therefore, caution is strongly advised and you must seek prior approval from your supervisors before publishing anything.

2 Account Verification

2.1 Analyze user account/profile

Determining ‘who’ the uploader is, is the first important step in verifying social media content. If the account user is not a trusted source it puts the legitimacy of the content into question. During the account verification stage it is important to consider what connection the user has to the incident at hand. For example, does the user work for an NGO? Is he or she a political activist, a member of the Government, or associated with an armed group? Was he or she a witness to the particular event or does the account belong to an organisation with a particular agenda? These are all important aspects to keep in mind.

When analyzing an uploader’s account – i.e. on a platform such as Twitter, Facebook, or YouTube – there are various factors to take into consideration. A number of steps are listed below, and they are intended to facilitate an initial impression of the account and the intentions of the uploader.

A useful tool for analyzing a Twitter account is [foller.me](#) which gives you an overview of an account’s activity and followers (See subsection 8.6.1 in section 8).

When analysing an uploader’s account, it is important to keep in mind that this process is imprecise: it is centred around obtaining an impression of the uploader. As such, there are no set criteria capable of definitively indicating that an account is illegitimate/fake/untrustworthy/inauthentic. That said, bot accounts are inherently suspicious. Bot accounts are accounts that perform automated tasks and do not have someone operating them in real time. Other illegitimate/fake/untrustworthy/inauthentic accounts to look out for are those associated with ‘fake news’ and disinformation. Equally, just because one of the following sub-steps is not met, does not disqualify that account overall.

When analyzing a user account or profile the following questions are relevant:

1. When was the account or profile created and how frequently do they post content?
 - a. Ask yourself if the account or profile has been active for a while and since when has the uploader has been uploading content. If the user has been uploading content on the same issues or geographical areas for a period of time there is a higher probability that this particular profile or account has experience in this particular region, country or topic, indicating that the account or profile may be legitimate. On the other hand, a user may have

suddenly created an account in order to share content, putting into question their motives to do so. However, there are various reasons for someone to create an account at a certain time, including a response to human rights violations.

- b. Looking at the time of creation of an account/profile in relation to the upload time of the content is also important. For instance, when developing an impression of an uploader it is relevant to bear in mind whether the video you are verifying is the first thing they ever uploaded or if they have posted a considerable amount of videos before it.
- c. A new account should be treated with caution, but its authenticity should not be immediately dismissed.

2. Is it a 'verified' account?

- a. A 'verified' account is an account acknowledged by the creator of the social media network. It indicates that the owner of the account is the person the account claims to be. On Twitter and Facebook, there will be a little blue circle with a tiny checkmark (🔵) next to the person or organization's name. On YouTube there will be a gray box and white checkmark(☑). Usually, this will occur when the account reaches a certain number of followers, or if the person behind the account is a public figure or organization. Checking whether an account is verified can give you a better impression of the uploader's identity and their expertise on the topic. An account having a 'Verified' status supports an impression that the account may be legitimate. According to [Twitter](#), "The blue verified badge on Twitter lets people know that an account of public interest is authentic. We approve account types maintained by users in music, acting, fashion, government, politics, religion, journalism, media, sports, business, and other key interest areas." Fakers also often add a Twitter blue verification check mark to the cover photo on a faked account to make it appear legitimate. To check whether an account is actually verified, hover over the blue tick, and you will see the text "verified account" pop up. If it's not there, it is not a verified account.

3. How often is the uploader's content viewed?

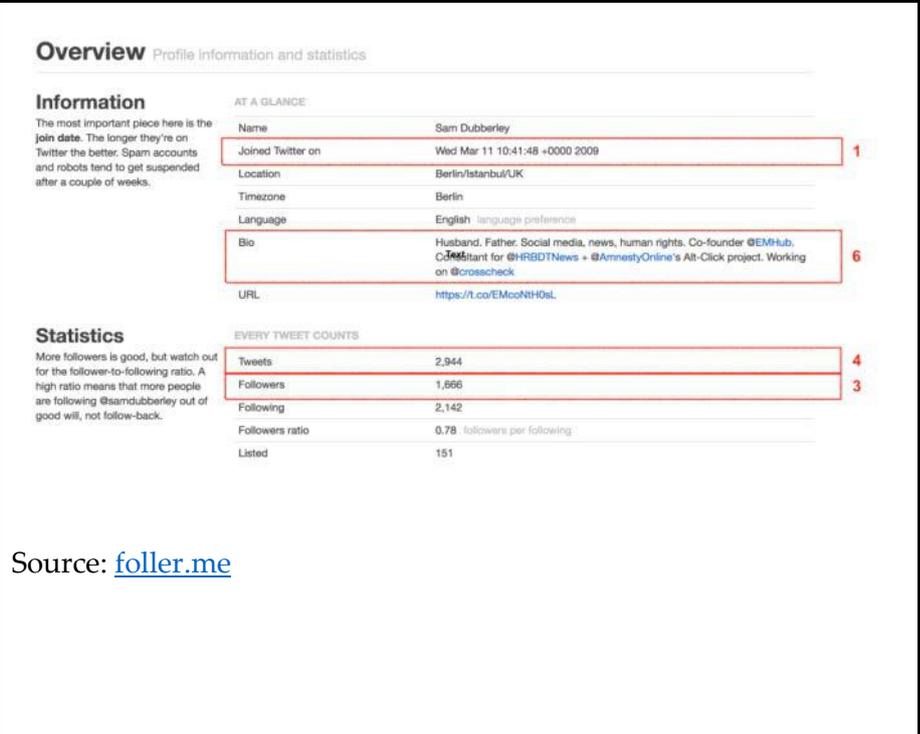
- a. Here you would ask, how many views do the uploader's posts have and how many subscribers/followers has the account?

7. Reverse Image Search and Google Image Search their profile picture.

- a. An additional step in this process is to reverse image search or reverse google image search the account's profile picture. This is further explained in of this guide. A reverse image search may yield additional results relating to the account, such as other social media accounts or whether the picture has previously appeared in the media. If you are searching for a specific individual this may increase your knowledge of their employment, their location, or perhaps their expertise. If they are a journalist for example, this could lead you to other articles they have written, indicating their experience in the field.

NB. Sometimes the profile picture are taken from other accounts, this may put into question the identity of the user.

2.1.1 Example Account Verification

 <p>Overview Profile information and statistics</p> <p>Information</p> <p>The most important piece here is the join date. The longer they're on Twitter the better. Spam accounts and robots tend to get suspended after a couple of weeks.</p> <p>AT A GLANCE</p> <table border="1"><tr><td>Name</td><td>Sam Dubberley</td></tr><tr><td>Joined Twitter on</td><td>Wed Mar 11 10:41:48 +0000 2009</td></tr><tr><td>Location</td><td>Berlin/Istanbul/UK</td></tr><tr><td>Timezone</td><td>Berlin</td></tr><tr><td>Language</td><td>English language preference</td></tr><tr><td>Bio</td><td>Husband. Father. Social media, news, human rights. Co-founder @EMHub. Consultant for @HRBDTNews + @AmnestyOnline's Alt-Click project. Working on @crosscheck</td></tr><tr><td>URL</td><td>https://t.co/EMcoNH0sL</td></tr></table> <p>Statistics</p> <p>More followers is good, but watch out for the follower-to-following ratio. A high ratio means that more people are following @samdubberley out of good will, not follow-back.</p> <p>EVERY TWEET COUNTS</p> <table border="1"><tr><td>Tweets</td><td>2,944</td></tr><tr><td>Followers</td><td>1,666</td></tr><tr><td>Following</td><td>2,142</td></tr><tr><td>Followers ratio</td><td>0.78 followers per following</td></tr><tr><td>Listed</td><td>151</td></tr></table>	Name	Sam Dubberley	Joined Twitter on	Wed Mar 11 10:41:48 +0000 2009	Location	Berlin/Istanbul/UK	Timezone	Berlin	Language	English language preference	Bio	Husband. Father. Social media, news, human rights. Co-founder @EMHub. Consultant for @HRBDTNews + @AmnestyOnline's Alt-Click project. Working on @crosscheck	URL	https://t.co/EMcoNH0sL	Tweets	2,944	Followers	1,666	Following	2,142	Followers ratio	0.78 followers per following	Listed	151	<p>The screenshot to the left shows the results of an analysis conducted by the foller.me tool. The Foller.me tool is very helpful, as it answers several of the questions you may have regarding a Twitter account's validity. The red numbers in this screenshot indicate the fields relevant to the questions identified in Section 2.1 above.</p>
Name	Sam Dubberley																								
Joined Twitter on	Wed Mar 11 10:41:48 +0000 2009																								
Location	Berlin/Istanbul/UK																								
Timezone	Berlin																								
Language	English language preference																								
Bio	Husband. Father. Social media, news, human rights. Co-founder @EMHub. Consultant for @HRBDTNews + @AmnestyOnline's Alt-Click project. Working on @crosscheck																								
URL	https://t.co/EMcoNH0sL																								
Tweets	2,944																								
Followers	1,666																								
Following	2,142																								
Followers ratio	0.78 followers per following																								
Listed	151																								

Source: foller.me

Topics, Hashtags & Mentions Things that really matter

Topics

The topics section shows the overall words usage on Twitter in form of a tag cloud. The more a certain word is used, the larger it is in the cloud.

WHAT THIS IS ALL ABOUT

finding german **turkish rights** support wrote freedom cancelled anymore ban media digital vouchers incredible powerful stopped check expression food detention turkey investigation days says **international state** phone manel truth eyeseroid particip fake response french apologise memorandum sir work academics people dont workshop rodley use search **human verification faux news** social hope graham think flight aleppo heres berlin francois newspaper law via

Hover a topic to see how many times it has recently been used.

Hashtags

Tagging is not essential to Twitter, but can definitely grow your reach.

POPULAR HASHTAGS

#breakingaleppo #humanrights #cftp #resilience #jou #turkish #bursa #fakene #zgrndemdavas #asterdoan #palestine #gilmos #angelamerkel #fakeneews #tech #comms #mi #drc #nigelrodley #trumps

@ Mentions

This section shows the user profiles that @samdubberley has interacted with.

MENTIONS AND @REPLIES MEANS INTERACTIONS



Clicking on a user, will take you to their Foller.me profile. Use Ctrl+Click (or Cmd+Click for Mac users) to open in a new tab.

The next section of Foller.me's Twitter account analysis explains more on the topics of the content on which the account user uploads. This relates to question 5 in Section 2.1 above. The "Topics" word cloud is particularly useful. The bigger the font of the topic, the more this topic has been tweeted about by the user.

Google Images search results for a Twitter profile picture. The search shows about 5 results. The best guess for the image is Twitter. Visually similar images are shown, including tweets from Sam Dubberley on Twitter. The tweets include text such as "Some thoughts the challenges of Digital ...", "Un faux compte Twitter annonce le retrait ...", and "At @emhub we're conducting research ...".

After you have gone through the results of the Foller.me analysis, you could move on to a reverse image search of the user's profile picture (see screenshot to the left). The results will show whether the picture has been used previously, if it is an image found elsewhere, or if it is an original image. In this case, it is clear from the results that this image has not been used elsewhere and has only been used by the owner of the Twitter account.

For instructions on how to do a Reverse Image Search, see subsection 8.2.2-4 in the **Resources and**

From the example information above, the following conclusions can be made:

1. The account was created in March 2009. From this, we can conclude that the account has been around for a significant amount of time. This indicates that the account was not created in response to a specific recent event. This could add to the credibility of the account.
2. Since a 'verified' icon cannot be found, the account is not officially verified by Twitter. This does not, in and of itself, diminish the credibility of the account.
3. The account has a total of 1,666 Followers. This would suggest that the content of this account is viewed quite often, which can also contribute to the legitimacy of the account.
4. The account has tweeted a total of 2,944 times. This would suggest that the user has uploaded a lot of content. Additionally, foller.me includes a 'wordcloud' element. This highlights the topics the user tweets about. In this case, it can be seen that the most common topics are: 'human rights', 'international law' and 'Turkish'. If these topics are related to the content you are verifying, this may increase the credibility of the content as it may indicate that the user is well informed on the topic. However, this could also mean the uploader is biased towards a particular issue.
5. The most important information that can be drawn from the bio of this account is that the user works in both human rights and the media. This may contribute to the credibility of the user and their knowledge on these topics. Additionally, as the user has been working with various news companies, it is also likely that the user has an advanced knowledge of current affairs.
6. It is likely that this user also has some accounts on other social media platforms. These should also be examined as there might be useful information on those pages that might not have been mentioned on Twitter. For example, as the user has mentioned his work experience, he could have a LinkedIn account which may help to corroborate information and gain further insight into the user. A quick Google search on the name of this specific account, indicates that the same individual can be found on Facebook, LinkedIn and Medium (a blog-post website).

Overall Conclusion: From the information available, it can be concluded that the account is most likely credible. The account has been created a long time ago and has a lot of activity. Additionally, it is followed by many people. The type of content uploaded and the professional background of the user indicates that the user has a good understanding of and knowledge on the topics they tweet about. Taking these factors into consideration cumulatively, the account can be regarded as credible.

3 Examining the Event Depicted

3.1 Verifying the Event Depicted in a Photo or Video

As mentioned in the introduction, before beginning to analyze the content itself you should ask yourself what the purpose of the verification is. This may change according to the task you have been given, and will effect the focal points of analysis. For example, if you have been given the task of focusing on gender-based violence, the focus of analysis should probably be on the acts conducted, rather than on the weapons used. Below are steps to follow when analysing the event depicted.

- Look at the content once or twice and make sure that you have a good impression of what is going on. For example:
 - a. What is the video depicting?
 - b. Are there people in the video? Are they talking?
 - c. Are there indicators that could be used for geolocation?
- If the content you are examining contains what you believe are human rights violations, specify what kind, how they are violated, and record any information related to the suspected perpetrator.

3.1.1 Things you may need to verify:

3.1.1.1 People depicted

The purpose of your verification may be to determine who is in the video or photo. This could include the perpetrator, victim, witnesses, military, or other individuals. In order to determine identity, begin by looking for indicators, such as a specific type of uniform, language, dialect, or anything which may give an indication of who they are and where they are from. If the people depicted are talking, the audio may also help you to understand what is going on and what to look out for. The language will give you an indication of the location while what is being said is particularly important as this could be a description of the incident, or a discussion of other relevant information. Depending on the purpose, videos containing audio may need to be properly translated.

Clothing may also help to identify the location or the people depicted. For example, traditional clothing or uniforms are often easy to compare to pictures found online. It is important to look at these uniforms very carefully while looking for similarities such as the colour, pattern, badges, hats, helmets, armbands symbols or emblems on clothing, and

perhaps even smaller details such as the cut or a line on the trousers. For vehicles, pay attention to color, flags, stickers, or logos, as these will help you identify the unit and perhaps bring you closer to verifying the content (See Resources and Tools, Section 8.8).

If you are trying to identify a specific person it is important to distinguish unique facial features, such as tattoos, scars, or other characteristics. An additional method for identifying people is to use a reverse image search where possible (see Resources and Tools, section 8.2). This will enable you to find matching images of the person on the Internet. Identifying people is a difficult task and may not always be possible.

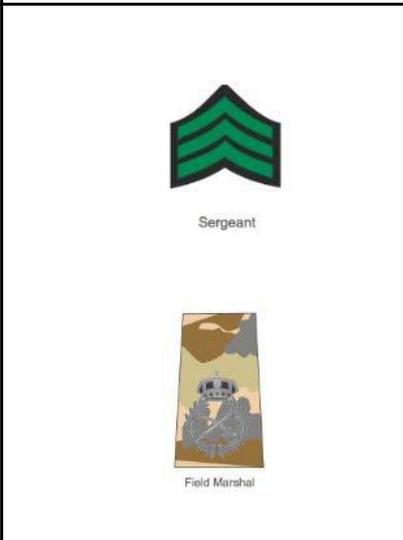
		<p>The DVC was asked to identify the battalion to which the soldiers in these two images belong to. By analyzing their uniforms with the help of a website called uniforminsigna.org (see subsection 8.8.3 in section 8. Resources and Tools) the DVC was able to find a match. The DVC was able to establish that the soldiers in the first picture on the left are from the Saudi Arabian National Guard. The soldiers wearing a red beret, in the picture to the right, are part of the Saudi Arabian Military Police.</p>
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The soldiers depicted and their uniforms resemble the Saudi Arabian National Guard and Saudi Arabian Military Police.



The soldier depicted in this image is clearly part of the Saudi Arabian National Guard as indicated by the insignia on his uniform. The rank of the soldier is 'Corporal.'



In another image, the DVC was able to establish that the uniformed man's rank was that of 'Sergeant'.

The man in uniform in the background, on the other hand, is a Field Marshal.

3.1.1.2 Structures depicted

You may identify a variety of structures which may help you determine the location of the event. These 'indicators' may include churches, mosques, town halls, walls, barricades, bridges, light poles, electrical installations, water towers, sculptures, street art, minarets, shops, and so on. It is important to also take note of the general architectural style of the area, as this could give you an indication of the location. Keep an eye out for specific features within the landscape, such as mountain ranges, distinct-looking trees, lakes, hills, or even animals.

3.1.1.2.1 Case Study

The DVC was asked to monitor and gather information through social media feeds relating to the arrest of political activists in the Democratic Republic of Congo.

Some of the tweets below are examples of instances in which activists were arrested in the city of Goma.



The four posts above include a number of indicators which may help us geolocate these incidents. The first indicator highlighted across three of the images is a man in a light blue shirt. We can also see the same military truck and personnel in three of the images. The paving depicted across the images could be also considered an indicator, as it is very distinctive and matches throughout. This demonstrates that these images depict the same incident and are taken in the same location.

It is important to analyze the images fully and identify all unique indicators which may help in geolocation. In this instance, the red roof with white writing and the Airtel sign on the building may also be of help.

3.1.1.3 Corroboration

It is always important to look for other sources which may help you corroborate your findings. You should look on both the English and local-language media to help you verify the events that the content under consideration is said to depict. Often news stories will give you additional information and details which could further help you to verify your video, and identify the location and time of the event. Below, you will find a case study that may help you when assessing and collecting indicators and indicators of the event depicted.

3.1.1.3.1 Case Study

This [video](#) shows two men describing an attack by presumed Russian warplanes on a village in Anjara (Arabic: عنجارة), in the countryside west of Aleppo, Syria. The video begins with the first man describing the attack. It then depicts cluster munitions and shows the various holes in the ground created by the dropping of cluster bombs on the field. The same man also indicates the area which has been affected. Following this, the second man also describes the attack while holding, what seems to be at first glance, a cluster munition split in half. The video ends with the depiction of a funeral during which the victims of the alleged attack are buried.

When analyzing this video it is important to take notice of the indicators, which may lead to determining the geolocation. These include **(1) the minaret (0:19)**, **(2) the shape of the asphalt road (0:30-0:34)**, **(3) the location of the buildings along the road**, **(4) a large metal electricity pole (0:31)**, and **(5) a large cemetery (0:43)**.

Furthermore, after having looked for corroborating evidence, a [second video](#) was found. This video showed the immediate aftermath of the same incident. It is filmed while driving in a car, and the car drives away from the mosque (see Overview map) in the direction of '2', which it passes, and then arrives just before point '1'. As the smoke is rising from that point, it is likely that the immediate area around '1' on the map is the impact area of the alleged cluster bombing.

The incident was further corroborated by an [article](#) on Al Jazeera Arabic. The article, published on February 22, 2016, states the incident occurred "yesterday afternoon", meaning February 21, 2016.

Camera position 1, coordinates: 36.220527, 36.952976



Camera position 2, coordinates: 36.219146, 36.949764



Overview map



3.1.1.4 Weapons

Internet resources can assist in the identification of specific weapons. Section 8.8 in Resources and Tools lists websites useful to the identification of weaponry. Reverse image searching could also be helpful in identifying weaponry (see Resources and Tools, Section 8.2).

3.1.1.4.1 Case Study 1

The title of this video says, “Injured civilians due to alleged Russian airstrikes around Saraqib using cluster bombs”. The majority of the video is a cargo truck and its surroundings being hosed off by a water truck. No victims or injuries are shown. In a separate shot, there is a person’s hand clearly holding a cluster munition against a background that looks like a vineyard or orchard. There is no road, truck or buildings in the rest of this shot.

Image



Image 2



Image 1 possibly depicts an **AO2.5RTM Cluster Munition Bomb**, shown in image 2.

3.1.1.4.2 Case Study 2

The images below were taken from a protest in Ivory Coast. The DVC's task was to identify whether there had been any excessive use of force by the police. A major factor in this analysis were the weapons used. By gathering images of various guns as well as using reverse image search, the DVC was able to analyze the weapons depicted in the content.

Image 1



1

Image 2



The butt of the weapon depicted in image 1 seems to match with the 40mm less lethal launcher launcher in image 2.

Image 3



Image 4



Images 3 and 4 depict what seem to be gas canisters and some type of grenade. Similar tear gas canisters could be found in a Google image search but there were no direct matches. Only the cylindrical shape could be matched.

4 Time of Event

4.1 Verifying and Corroborating the Time of the Event Depicted

The next step of the verification process is finding out when the content was created or uploaded. Sometimes a photo or video may be taken or recorded long before it was uploaded. You should also know whether the time of creation of the content matches with the time of the occurrence of the alleged event or not. If the content originates from *before* the alleged time of the event, it is safe to say that it is not a piece of evidence of that specific event. If the content was uploaded a long time after the event, it might relate to a different, subsequent, event. Corroborating information with the help of news-sources or weather data help solidify a claim that the event took place at a certain time. If you are trying to determine whether or not the photo or video is from the original source - essentially the first person to capture and/or upload it - reverse image searching might give you the answer. If you think you are looking at the original source but your reverse image search shows that it was uploaded at a previous time, it might not be the original source.

- A helpful method is to see whether there are any news outlets reporting on the event depicted. News articles might be able to clarify what is happening in the content under consideration, and may also help you figure out when something occurred (which is relevant to point 3 below). You can use this as corroborating evidence, showing that the event did in fact take place at that specific time.

NB: Always be sceptical of news sources. As will be shown in the example below, even trustworthy news sources can sometimes use content from a different time and place.

- If you are trying to verify or dismiss a YouTube video, run a metadata analysis (See **Resources and Tools**, Section 8.5.1) on the content. A metadata analysis does not give you information about what is shown in a video, the video's description, or a description of the account. Rather, it shows you information about the upload itself, for example the time and date a video was uploaded to YouTube. As long as it was uploaded *after* said event took place, even by only, say, thirty minutes, it adds to the probability that the video shows the event it claims to.
- Run a reverse image search on the thumbnails of the video, created by the metadata analysis (see **Resources and Tools**, Section 8.2).

- If you are trying to verify images found online, do a reverse image search. There are plug-ins or extensions available for most web browsers, but according to the DVC's experience, RevEye Reverse Image Search for Google Chrome is the easiest one to use. If any of the images found are from *before* the alleged event, the content is most likely not showing the event it claims to be. It is vital to use this step, as it is a quick and easy method to show whether the image actually depicts what the uploader alleges.

- Look at the WolframAlpha website (see **Resources and Tools**, Section 8.4.1) to find out the specific weather on the day of the event. WolframAlpha is a database that documents and stores data, such as weather, and makes it searchable. If this weather matches with what you see in the content, it adds to the credibility of the time and location of the content. This would further the claim that a piece of content either did or did not occur at the alleged time or location. However, if the event is in a rural area or a country that is not well documented by Google or other companies, this can be difficult, as WolframAlpha might not have records of that location. It is suggested that you search the weather of the nearest midsize or big city and compare the two. One thing to keep in mind is that if the location and nearby city are separated by hills, mountains, large bodies of water, or other landscape features, the weather can be different even though they are close by.

4.1.1 Case study

Verifying and corroborating the time of the event under consideration could be of utmost importance. Below you will find images used by media outlets and Twitter users when reporting about an event the DVC was asked to verify. However, the event proved difficult to verify, given the use of images of earlier attacks, rather than actual images of the attack under investigation. A useful tip to always keep in mind is that even trusted news-sources can use images from two years ago when reporting about something that happened yesterday.

The DVC was asked by Amnesty's Crisis Response Team to research various videos, pictures, and news articles about a US led NATO airstrike on Sangin, in the district of Helmand in Afghanistan, on 11 February 2017. The airstrikes allegedly killed up to 20 civilians (new reports varied). The DVC carried out digital verification on the content that could be found online, and was able to establish that many of the pictures could be traced back as far as 2010, and had nothing to do with the 11 February Sangin airstrikes. Although many news articles and tweets highlighted this incident, it was clear most of the pictures used did not depict the actual attack, as the time of the event did not match the time the images were actually uploaded.

	<p>Tweet by user @khilafarashida.</p> <p>A reverse image search led the DVC to the conclusion that the images attached to the tweet were from between 2013 and 2016. <u>None were from February 2017.</u></p> <p>NB. Faces were blurred in the original post.</p>
---	---

WeapoNews
@weapon_news

As a result of NATO airstrike in Afghanistan's Helmand province killed 21 civilians
weaponews.com/news/1788-as-a ... #news #weapons



7:25 AM - 11 Feb 2017

[Tweet](#) by user @weapon_news.

A reverse image search of this image showed that it first appeared online in 2013, hence, no connection to the events on February 11, 2017.



This [photo](#), used by the New York Times to report on the Sangin claims, proved to be from January 2017. It depicts Afghan police in Helmand province.

RT **RT**
@RT_com

Civilians reportedly killed in Afghanistan airstrike, NATO-led mission says 'no evidence' on.rt.com/82xs
 8:50 PM - 11 Feb 2017



20 civilians reportedly killed in Afghanistan airstrike, NATO-led...
 At least 20 civilians have been killed in a "foreign airstrike" in Afghan Helmand province, local media reported. The NATO-led mission in rt.com

75 38

[Tweet](#) by Russia Today (RT).

Reverse image search showed that this photo was originally taken by Reuters. It shows a bomb blast that took place in Kabul on 7 August 2015. **Therefore, this image is not of an airstrike in Helmand.**

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The example above underlines how important it is to corroborate and verify the date and time of the material you find relating to a specific event. For useful tools and how to use them, including reverse image searching, see **Resources and Tools**, Section 8.

5 Examining the Location of Event

5.1 Geolocating the Event Depicted

Depending on what your verification purpose is, it is typically important to determine where a specific event has taken place. This will help you corroborate the event itself and will contribute to the overall verification process. Geolocating involves the use of tools to pinpoint the location of an event, using GPS coordinates. It is important to be as precise as possible since the data might be used in reports, other publications, or media. With the help of indicators, you will hopefully be able to find the location of the event depicted in the content you are trying to verify.

- Go through the video in slowmotion and look for certain indicators of the location. While looking through the video, look for indicators such as bends in the road, street names, street lights, electrical poles, mountains, hills, bodies of water, car plates, language spoken and dialects, buildings (such as churches, mosques, water towers), etc. What you are looking for is something that stands out; something that is unique to that specific place, which could help you locate exactly where the event was captured.
- Always remember to take note of the indicators you find, as this process is something your supervisor might be interested in and could help in improving your geolocating skills. Keep in mind that it should be easy to follow the exact steps you have taken to reach your conclusion; this applies to every step in this guide.
- From the indicators collected, you could potentially deduce exactly where the content was captured, or at least in which general area it was captured. Use tools such as Google Earth or Google Maps (see **Resources and Tools**, Section 8.1) to see if you can find the location using satellite imagery.
- If you have found the location, take note of it in decimal degrees (coordinates) and use that in the report; using coordinates is a lot more precise than providing the name of a street. Decimal degrees express latitude and longitude geographic coordinates as decimal fractions (i.e. 40.446° N 79.982° W), rather than *degrees, minutes, seconds* (i.e. 40° 26' 46" N 79° 58' 56" W). For conversion from degrees to decimal degrees, use an online conversion tool and include it in the report (see **Resources and Tools**, Section 8.1.5). If you are able to do a geolocation with the data you have collected thus far, geotag the position in Google Earth by dropping a yellow pin and naming it. Also make sure to save it or take a screenshot of it so you don't lose the information.

Below you will find an example of an event the DVC was asked to verify. During the geolocation process, the DVC managed to geolocate the site of the event, but the process was not straightforward as pitfalls were encountered. See, for example, **image 7** below.

5.1.1 Case Study

In this example, the DVC managed to geolocate the site of the event. The content below depicted a protest in Guinea, which was dispersed by police. 30 people were allegedly injured and eight killed during the protest. However, this was not possible to verify and only one video showed policemen with guns. The excerpts from the report below shows how the DVC was able to identify the location of the protest by analyzing geolocators and maps.



Image 1.

This screenshot depicts the police in the Guinean Capital, Conakry, using tear gas to disperse the protest. Potential indicators in this image are the “Total Gas” Station in the background, as well as the structure in front of it. Other indicators include the signs, and what looks like train tracks in the background.



Image 2.

This screenshot clearly shows a sign saying “Attention Au Train,” it is clear the location is slightly different from the image above but it is clear the police run towards the train tracks followed by protesters (see image below). In this case the train tracks and these signs are important indicators.



Image 3.

This screenshot depicts the police running on train tracks: a good indicator. The ‘Tele Centre’ sign at the forefront of the image can also be helpful.



Image 4.

This screenshot shows the protest underway in the Capital. There is black smoke and fire in the background but it is unclear whether this is from the protesters or the gendarmerie. This image also leads us to believe the protest was partly conducted on a main road. This is also an important indicator as it helped the DVC piece all the information together.



Image 5.

This screenshot shows the protesters in the background, as well as police dispersing the protest.

At the right of the image, the DVC observed a Shell Petrol Station, as well as a green sign saying "Pharmacie Sira." When searching for this Pharmacy, a [website](#) outlines its location, which is Rond Point in Ratoma. This was our initial starting point to identify the location of the protest.

Geolocation and corroborating evidence

Description

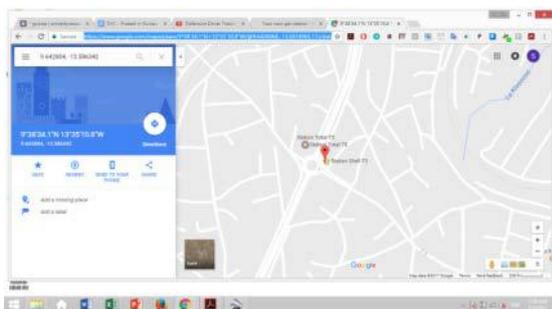


Image 6.

Potential location of a roundabout with Shell and Total gas stations.

Shell Station: 9.642806 N, 13.586333 W
 Total Station: 9.6432466 N, 13.587405 W

After analysis this location was **dismissed**. This was the initial location the DVC found, but it later became clear this was incorrect as it did not match up with the location of the pharmacies identified. This shows the importance of taking your time and checking your geolocation with your colleagues. Although this seemed like an easy geolocation, it was not.

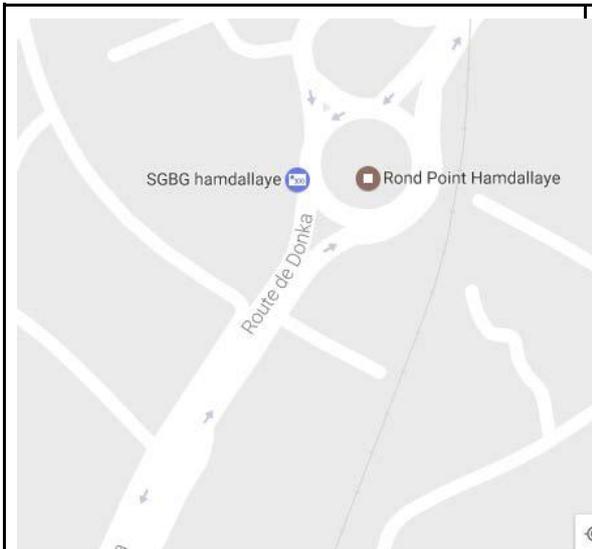


Image 7.

Having found the rough location of the pharmacy above, the DVC searched the surrounding area of Rond Point Hamdallaye (See image on the left). The DVC identified a [video](#) on YouTube of a car driving through 'Route de Donka', a road just off the roundabout.

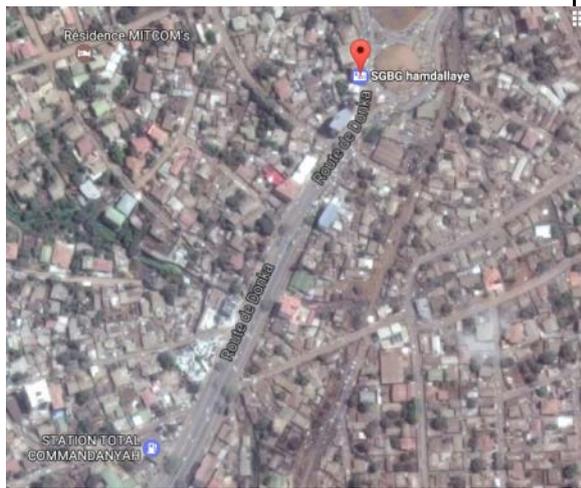


Image 8.

Potential road on which the protest took place. Refer to screenshots below.

Corroborating evidence for geolocation purposes

Description



Image 9.

The DVC found another [video](#) depicting a car driving past some train tracks, as well as a green sign indicating what seems to be 'pharmacy Sira' and a Shell petrol station, matching screenshots above to the original videos above. See additional images below.



Image 10.

This is a close up of the station as well as the green sign, matching screenshots above.



Image 11.

This screenshot also depicts the train tracks and also the sign saying 'attention au train', which matches screenshots above.



Image 12.

This screenshot depicts what seems like the Total Station in the first screenshot. This is clear from the colour of this station but also from the cylindrical structure with a red roof in front of it.

Result

Description

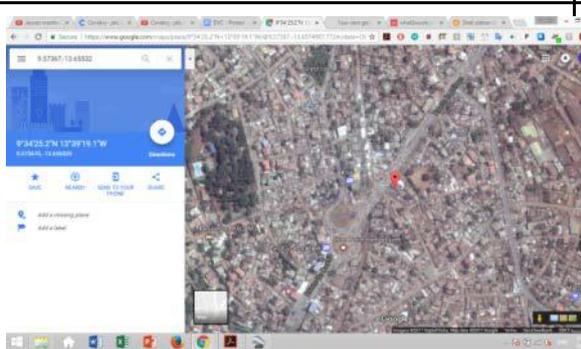


Image 13.

This screenshot indicates the location of Shell oil in relation to the [roundabout](#).

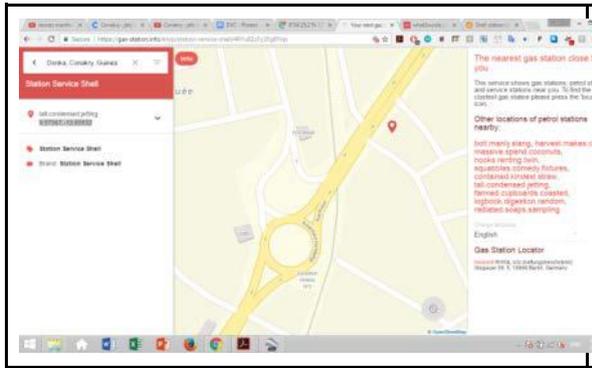


Image 14.

The location of Shell Oil, which is seen in Image 5 above, is confirmed through [this website](#).

Coordinates: 9.57367,-13.65532

6 Reporting on findings

Once the verification process is finished and you have derived your conclusions, your findings should be put in a report for others to read and possibly use later. It is very important that this report is comprehensive and easy to understand for someone who has not seen the content. There is no specific format in which a report should be written, as the purpose of the report can vary due to the content and your objectives. However, there are some things to be considered when generating a report:

- **Documenting your methods and findings.** It is crucial in verification that you document your methods and findings. It is necessary to show how you arrived at those conclusions so your results can be replicated. It also helps create a timeline of the event in question which is important for the corroboration of the event as it gives you the ability to look for evidence to back up or dismiss the claims made. Additionally, it can help find room for improvement and, if there are any mistakes in the report, can help to detect where mistakes were made.
- **Structure.** Even though there is no specific format for the reports you will be making, they should still be written in a clear and comprehensive structure. A good way to create a structure for your report is by looking at which questions you are tasked to answer and create a structure around those. It is important to ensure that your structure allows someone who only reads the report to quickly find the answers to specific questions. For instance, if you are explaining what happens in the content and how you verified the account, time and location, it might be a good idea to have separate sections for each of these four tasks.
- **Presenting images and content.** When you are referring to specific aspects of your content, it is important to refer to them in a clear and understandable way. A good way to do this is by using tables where, on the left side you show images, and on the right side, an explanation associated with that image. When you are referring to a specific point in a video, you should also document the exact time the video screenshot image was retrieved. When referring to other types of information, such as articles, it is crucial that someone who reads the report can easily access the content you are referring to. Therefore, providing the reader with the correct hyperlinks (if in an electronic format) or other citation format is important.
- **Background Information.** Providing background information on the issue addressed can be very useful as it gives the reader a better understanding of the context relevant to the content. Depending on the content, a 'background information' section at the beginning or end of the report can be very useful.

- **Executive Summary.** An ‘Executive Summary’ should clearly outline your report’s key findings. The reader might not have the time to fully read your report and may only look at the executive summary, containing the final conclusions. It is important that the executive summary clearly detail your conclusions and where to find supporting information. When you are writing the executive summary, it is important to remember that reading this section should be enough to fully understand the conclusions of the verification.

7 Challenges and Pitfalls

7.1 Things to Keep in Mind

The verification process has various challenges and pitfalls, which could delay or hinder the verification process. These should be kept in mind when you are trying to verify content.

- **Sometimes there is no content online or in the media.** An example of this is a recent project which dealt with the Al-Razeen Prison in the United Arab Emirates. The DVC was given the task of identifying content online that may show evidence of torture. Although the DVC searched widely online, it was unable to identify any content on the matter. As no content could be found, the DVC moved away from the project. In some cases, it may be beneficial to give eyewitnesses time to upload their content after an event. This may require you to wait a few days. Where feasible, developing local contents may be hugely beneficial. Of course, this should be done responsibly, and ideally in partnership with respected human rights organisations.
- **Geolocation is time-consuming.** The geolocation of content is generally one of the most time-consuming and complex steps in the verification process. Finding indicators can be difficult and geolocating is sometimes not possible. If you have been searching for a location and indicators for a considerable amount of time and have not made any progress, you should consider moving on to the next step of verification and classifying the location as “undetermined”. Another solution could be to seek out a second pair of eyes to assist you or to come back to it later.
- **Content in other languages.** You may come across content or uploader accounts in a different language to the one(s) you speak. This can hinder your research into certain user accounts or content. If you verify content in a team, and one of the members is familiar with that language, an easy solution is to task that member with verifying that specific piece of content. If no team member has experience with the specific

language, or you are working alone, another solution can be to find a translator. However, caution with translators is advised in order to ensure confidentiality where necessary and to avoid, or be aware of, potential bias.

- **Videos and photos of poor quality.** Sometimes the content that you are being asked to verify is of poor quality, making it difficult to draw conclusions. This can hinder the verification process and be frustrating for whoever is working on it. Therefore, it is worth looking for other versions of the content (including the original) which may be better quality.
 - If you are watching the content on YouTube you can slow down or speed up the video. Click the wheel in the bottom right corner, then click 'Speed', then choose the speed you want. This will help when looking for indicators and other small details within the content.



- **Mental Well-Being and Resilience.** Watching sensitive content can lead to significant mental health issues such as distress, secondary trauma, or compassion fatigue. Distress is when you experience severe anxiety, sorrow, or over active or negative thoughts. Secondary trauma is the emotional duress that results when an individual is exposed to the first hand trauma experiences of another individual. This can occur through watching videos of human rights violations. Compassion fatigue manifests itself as an indifference towards others' experiences as a result of being frequently exposed to traumatic events.

Feeling some forms of distress when watching sensitive content is normal. However, secondary trauma and compassion fatigue can affect your well-being and should be addressed quickly and effectively. Mental health issues can affect anyone. Where possible all those engaged in content verification should undergo resilience training. This will teach you about possible 'problem' signs, introduce coping mechanisms, and highlight the consequences of neglecting mental well-being. If you think that you or a colleague may be experiencing mental health issues, always inform your supervisor, so that it can be dealt with promptly and effectively. Ensuring that you take regular breaks when doing verification work as well as not working too late at night may help prevent

problems from developing. After you are done verifying, take some time to do something that is conducive to a healthy mental and physical state of being.

- **Geolocation coordinate conversion issue.** One issue that occurs frequently is mistakenly converting the coordinates of your geolocations. For example, if you get a location in the degrees, minutes, seconds format, you may have to convert it into decimal degree. The decimal locations that you put in the report might not always be precise, which is why you need to always double check the converted decimal degrees. You can do this by inputting the decimal location in Google Maps in the Search Bar (example: 42.35435, -2.35345). If it turns out the location you identified does not match with the resulting geolocation, you may need to repeat the process or use a different converting programme.

When pinpointing a location, coordinates need to be precise. At times, the coordinate conversion is missing a hyphen (-) before either set of decimals. It is important to check the coordinates before adding them to your report. Sometimes, you only need to add the hyphen before one of the coordinates. Depending on where the hyphen is, it could change the location quite drastically. See screenshots for example below:

		
55.424109,13.8212223	55.424109,-13.8212223	-55.424109,13.8212223

- **Steep learning curve.** It should be noted that digital verification is a skill with a very steep learning curve, meaning it takes a long time to learn and master the process. It takes time to develop an eye for digital verification and learning from people with more experience will help. Do not get discouraged when you are still facing difficulties after a lot of practice. It may be helpful to look at the Bellingcat website (See **Resources and Tools**, Section 8.9.1). This organization does a lot of open source and social media research and produces multiple guides, relevant to digital verification.

8 Resources and Tools

Below you will find helpful websites and tools to help with the verification steps described above. This is a non-exhaustive list, and is intended as a starting-point.

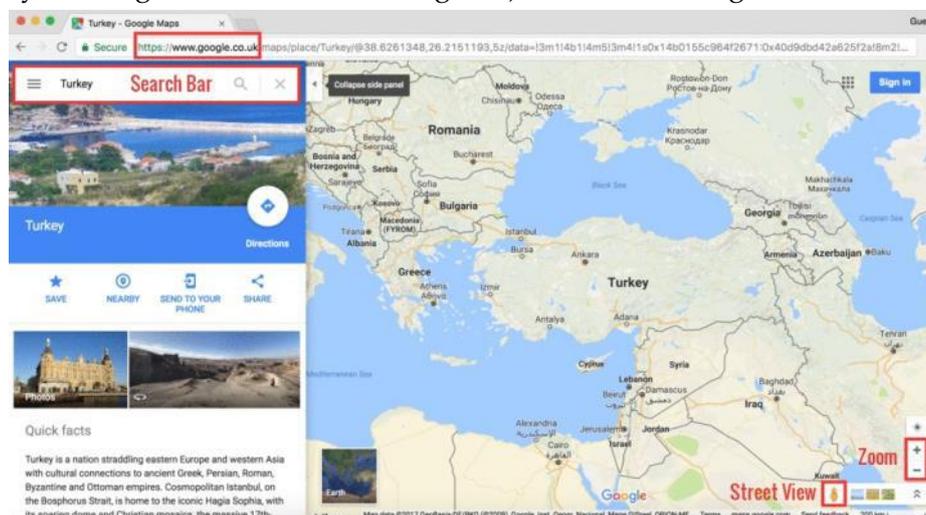
8.1 Maps

Depending on the location you are trying to find, some maps may provide better results than others.

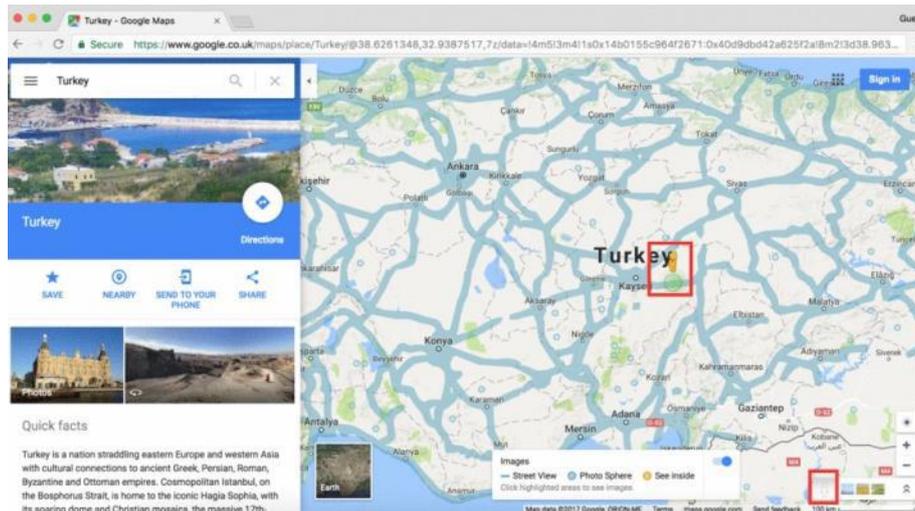
8.1.1 Google Maps

Google Maps is possibly the most detailed map out there, the easiest to use, and does not require you to download a program like Google Earth.

- Type a city or country name in the left search bar. You will find zoom controls and Street View (a yellow figure, also known as Pegman) in the bottom right corner.



- If you want to use Street View, click and drag Pegman to the place you want to explore. You will see thick blue lines appear on the map; these are places where you are able to use Street View.



- Once in Street View, you can drag the image to look around. In the bottom left corner, there is a map showing you where you are. Light gray arrows will appear on the road. You can click in the direction of that arrow and the image will move forward, left, right, or backward, depending on what is available. There is also an option to view Google Earth satellite imagery in your browser, without having to download the software. User-generated images of the surrounding area are included at the bottom of the screen. These can be helpful, as they may show indicators from different angles.

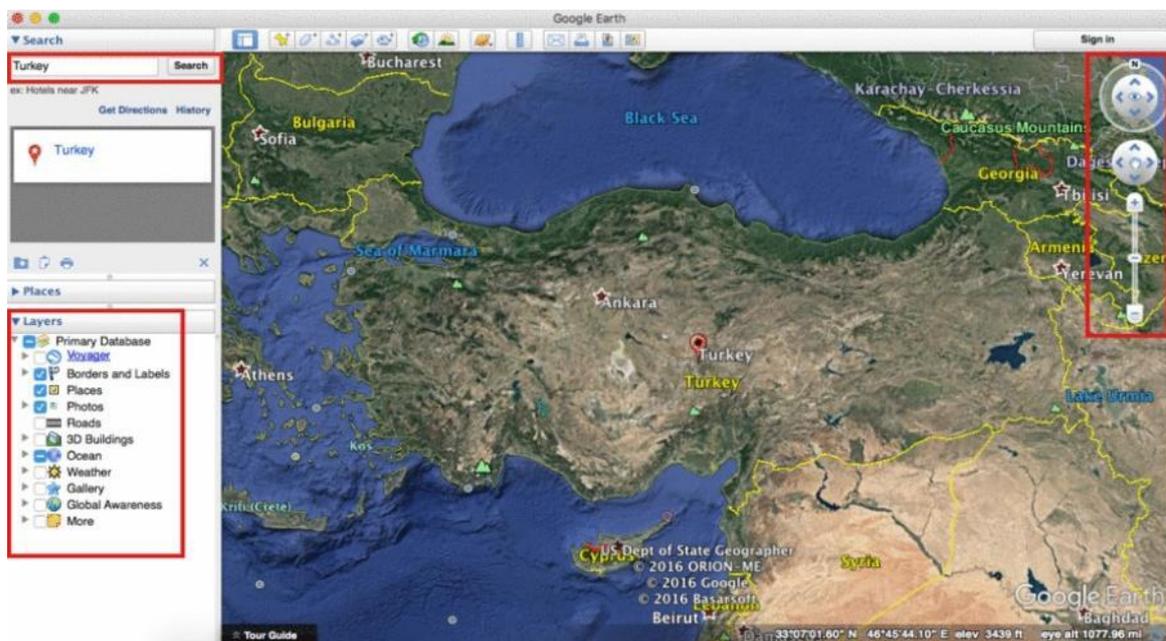


- Keep in mind that a location you are looking for may have more than one name or spelling. Additionally, Google Maps has location names in English or in the local language, such as Arabic. If you need help finding a place's name, refer to the resource GeoNames (see Section 8.1.4), described below. Not all countries have street view, and so using other maps may be necessary.

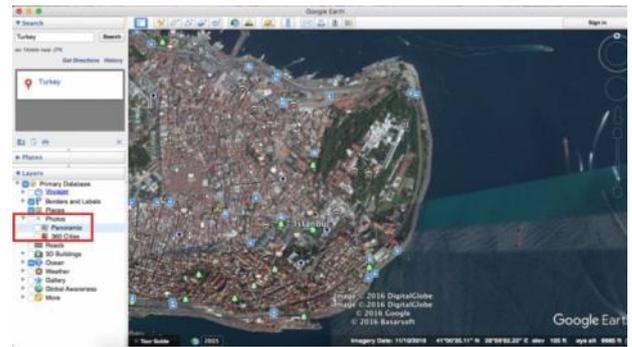
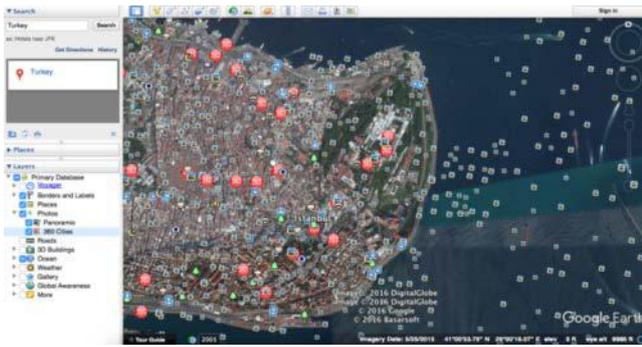
8.1.2 [Google Earth](#)

Google Earth uses mostly Google satellite imagery and not all of it is recent. However, it is free and still incredibly detailed depending on the area being examined. Rural areas are not updated as often and may not have street view or 3D buildings like major cities.

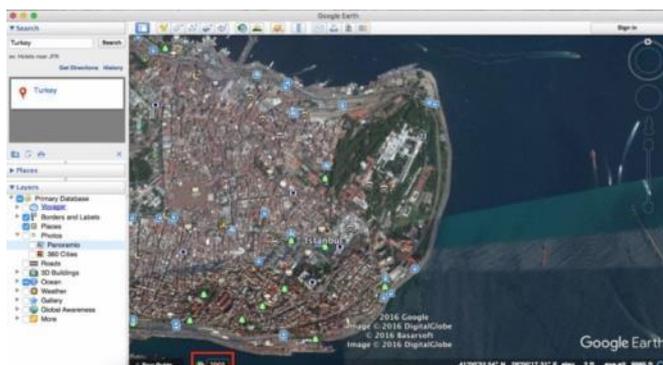
- On the top left corner is a search bar where you can type in a country, city, province, village, landmark, or other type of location name. Below the search bar is an option for 'Layers'. By checking the boxes you can add layers which can show 3D buildings (not available in every city), roads, weather, and more. On the far right, there is a compass with arrows, below that is another set of arrows, and your zoom tool. By clicking and dragging the compass (or using the arrows within the circle), the globe will be oriented in the direction you choose. The second set of arrows serves the same function as a mouse, it will move the map up, down, left or right. The third slide below is the zoom tool.
- Type in a location name and click 'Search' or hit enter/return. The globe will turn and take you to your desired location, if it can be found. Sometimes, the spelling may be incorrect or the location may not be recorded in the database (See Chapter 8.4).



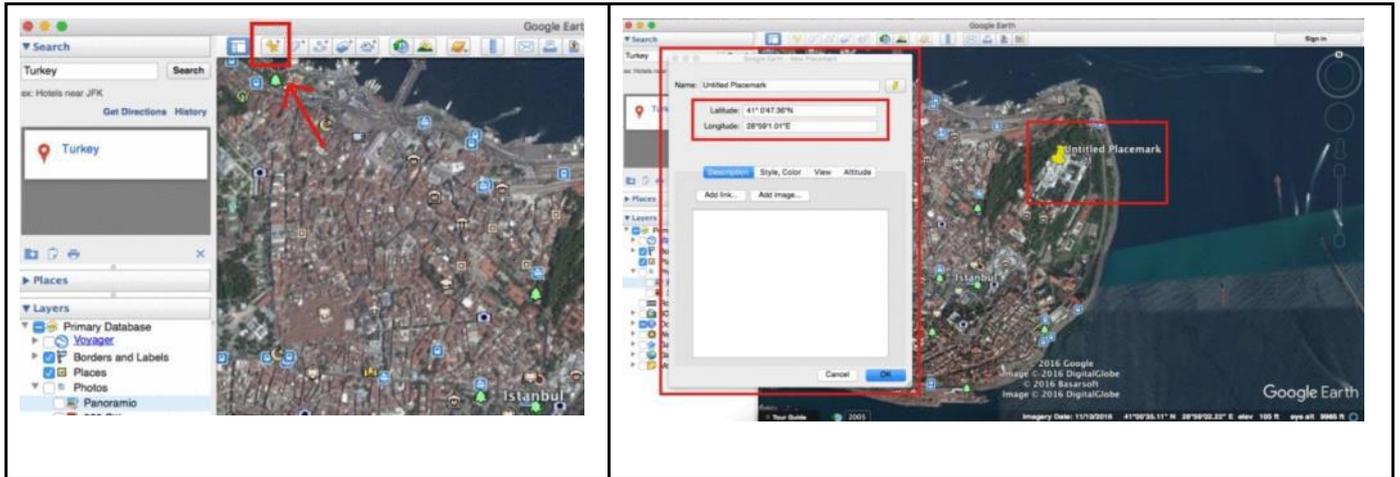
- If you are focusing on a major city or a popular destination, you will see an image with a large number of icons making it hard to see things. On the left, under the Layers panel, uncheck the box that says 'Photos' and the image will become much clearer. However, when geolocating, looking at the images can be very helpful as it may show locations from different angles or show slight changes in the area, as the images have been taken at different times than the time of the event you are verifying.



- Another handy tool when geolocating, is the historical imagery button. This is not available everywhere. If it is available you will see a button at the bottom left of the window with a year. In this case (see screenshots below) it says '2005' indicating that the oldest imagery available is from 2005. Click the button and a slide will appear in the top left corner. Drag the pointer along the line to see different satellite images taken at different times. Again, this helps show changes in the area which could show a new road, new farm land, unused or no longer used farmland, new structures, environmental or other destruction, and so on.



- When gathering coordinates for geolocation, you can either record the coordinates at the bottom of the screen, or drop a pin. The pin is the yellow pushpin at the top left of the window. Click the pin, and a yellow pin and separate window will pop up. The pin will drop randomly. To pinpoint your desired location, drag the pin over the point you need the coordinates of; the coordinates will automatically update as you drag and drop the pin. The window allows you to give the pin a name, see the coordinates of where the pin was dropped, write any notes, and save it for later, if necessary. For gathering coordinates, you need only copy the latitude and longitude coordinates given in the window, and paste them into the decimal degrees converter website (see resource 5).

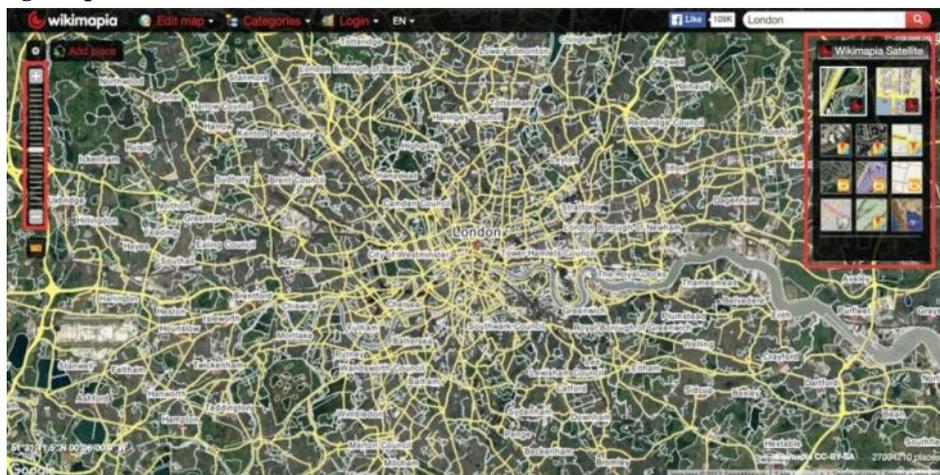


- For more tools and how to use them, please see Google Earth's [tutorials section](#).

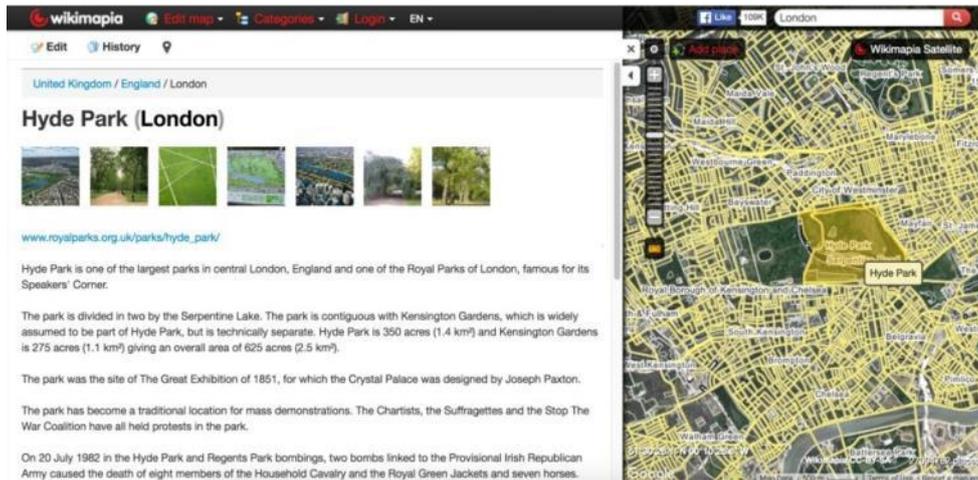
8.1.3 WikiMapia

Wikimapia uses mapping and satellite imagery, some of which may differ to what Google Earth offers. It may include more recent or better imagery of rural areas and cities. This satellite imagery is also free.

- You will see the mapped streets in yellow. The zoom tool is on the left. In the upper right hand corner you can switch between map view, satellite view, and even access Google and Bing maps.



- You can click on a street or area (which will be highlighted in yellow) and there may be information and additional images.



8.1.4 GeoNames

This tool is useful when a place may have more than one spelling or different names.

- Type a name into the search bar, or use the tools in the bottom left column.

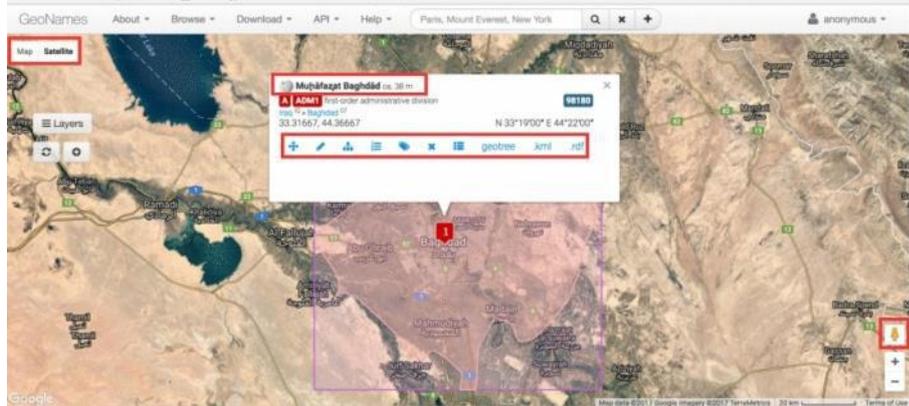


- You will see a list of other names, town classifications, and coordinates.

Name	Country	Feature class	Latitude	Longitude
1 Baghdad	Iraq, Baghdad	capital of a political entity	N 33° 20' 26"	E 44° 24' 3"
2 Abu Ghraib	Iraq, Baghdad	seat of a second-order administrative division	N 33° 18' 20"	E 44° 11' 5"
3 Baghdad	Iraq, Baghdad	first-order administrative division	N 33° 19' 0"	E 44° 22' 0"
4 Baghdad International Airport	Iraq, Baghdad	airport	N 33° 15' 30"	E 44° 13' 58"
5 Baghdad	Iraq, Baghdad	second-order administrative division	N 33° 19' 29"	E 44° 25' 16"
6 Karsh	Iraq, Baghdad	second-order administrative division	N 33° 15' 13"	E 44° 16' 38"
7 Sadr	Iraq, Baghdad	second-order administrative division	N 33° 22' 58"	E 44° 27' 45"
8 Taji District	Iraq, Baghdad	second-order administrative division	N 33° 30' 36"	E 44° 14' 6"
9 Thawra	Iraq, Baghdad	second-order administrative division	N 33° 23' 25"	E 44° 27' 31"
10 Qadisiyah	Iraq, Baghdad	second-order administrative division	N 33° 19' 17"	E 44° 28' 45"
11 Qadisiyah	Iraq, Baghdad	second-order administrative division	N 33° 28' 51"	E 44° 21' 59"
12 Qadisiyah	Iraq, Baghdad	second-order administrative division	N 33° 16' 53"	E 44° 4' 27"

- If you click on one of the other names in the left column, it brings you to a map showing you the location of that city, landmark, or area. In the top left corner, you can switch

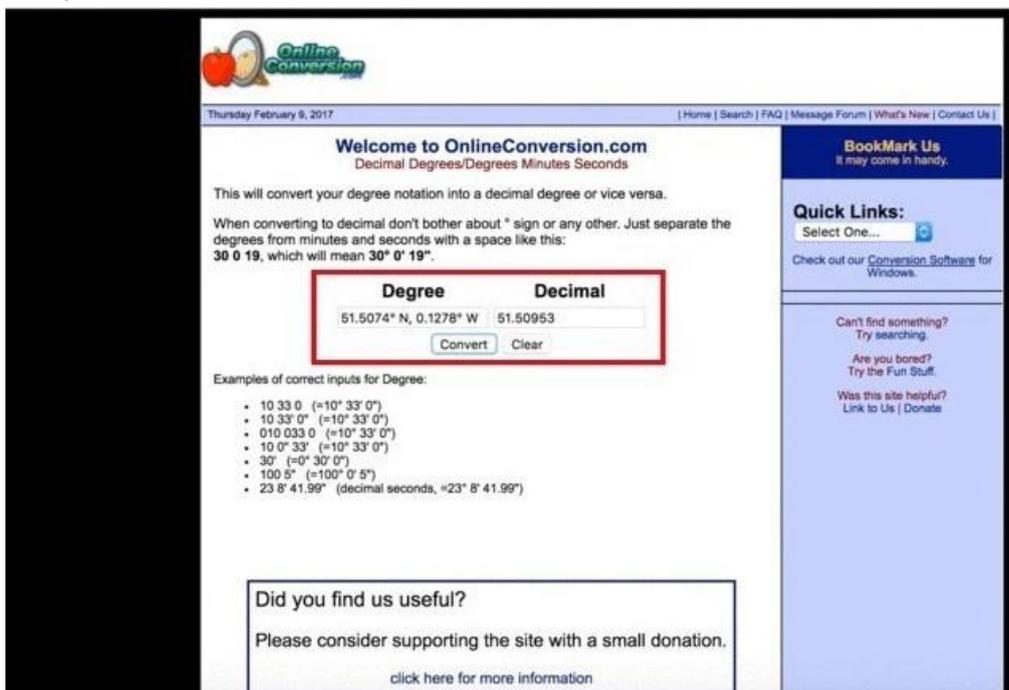
between map view and satellite imagery. There will be a white pop up showing information on the selected location. The blue symbols in the white pop up are tools for editing the map or information in that specific entry. There is also the option of using Street View, if it is available in that country. Finally, on this example specifically, you will see the Arabic spellings of locations.



8.1.5 Degree to Decimal Converter

When specifying coordinates, use the Degree to Decimal Converter to convert from degree coordinates to decimal coordinates.

- First, enter or copy-and-paste coordinates that look like this: 51.5074°N, 0.1278°W (degrees, minutes, seconds) and click 'Convert'. Or, enter or copy-and-paste the coordinates that look like this: 51.50953 (decimal) and click 'Convert'. You can convert both ways.



8.2 Reverse Image Search

Conducting a reverse image search is important as it will indicate whether or not the image or video has been posted previously. There are several reverse image search tools, but TinEye and Google Image Search are sufficient. TinEye will show you where and how frequently an image was used. Google Image Search will show similar images and, possibly, different sources that can be used for corroboration. It will also show whether that image has been used before and when this occurred. It is important to note that TinEye frequently turns up no results on content that was posted within a few days of an event or far fewer results overall than Google Image Search. Therefore, it is recommended that you run images through both tools.

Sometimes, screenshots and other images need to be cropped before putting them through a reverse image search; images can be cropped in both Google Docs and Microsoft Word. This is because certain things in an image can cause the tools to focus on the wrong elements and turn up results that are not relevant or useful. Therefore, before explaining how to use each reverse image search tool, it is important to know how to effectively crop an image to yield the best results. If you are watching a video and want to run a screenshot, you should crop out the rest of the webpage around the image itself. Additionally, if your task is to identify weapons, then you may need to crop an image in order to focus on a weapon and not its surroundings. Also important is that if you are conducting reverse image searches to try and identify something, like a weapon, the results will not indicate the specific make or model. However, a reverse image search can give you an idea or clues as to what it may be. It can also produce results with similar weapons that may help you identify the model or type. See the below examples.

8.2.1.1 Example 1 - Screenshots



Image 1.

Here is a screenshot without any cropping. If this is put into a reverse image search, it is likely there will be no results or the results will be unusable.

	<p>Image 2.</p> <p>This is what a cropped screenshot will look like. Removing what is surrounding the video itself will yield more relevant and useable results. Sometimes it is necessary to take the cropping a step further and remove any popups, banners, logos, or blurred edges on the video (see image 3). The only reason you would keep the banner or logo is if you are trying to find any news sources that have used the exact same footage, including the banner.</p>
	<p>Image 3.</p> <p>This cropped image will likely yield the best results when put through a reverse image search.</p>

8.2.1.2 Example 2 - Focal Points

	<p>Image 1.</p> <p>Original screenshot.</p>
	<p>Image 2.</p> <p>Tightly cropped image focusing on the tank (object to be identified).</p>

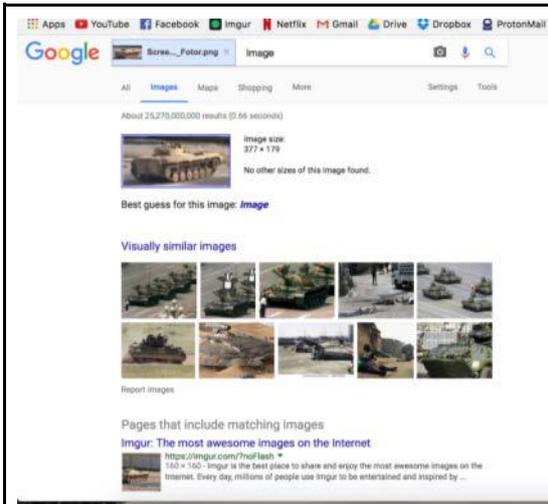


Image 3.

You can see that these results are very generic and do not point to anything specific. Therefore, you would possibly look at the similar images Google provides and compare these. This may enable you to find a match for your image. Alternatively, consulting a military databases may help match your image to a specific weapon or military object (see Section 8.8 below).



Image 4.

Tightly cropped image.

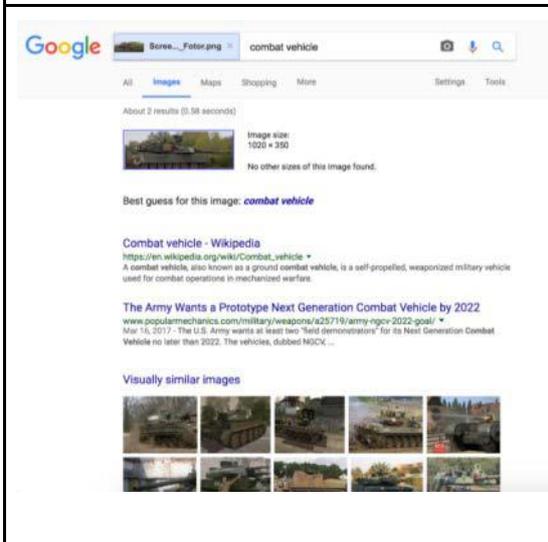


Image 5.

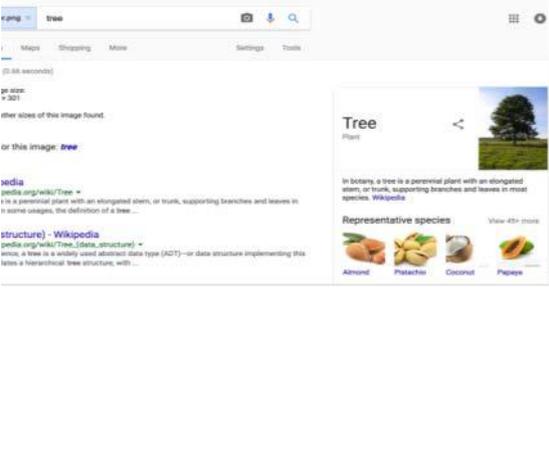
In these results, the tool identified the image as a combat vehicle. It also included in its results a source discussing the release of a new combat vehicle. The original image is in actual fact a prototype of the new combat vehicle discussed in the second source. Therefore, Google correctly identified the weapon and included a source. As mentioned previously, this will not always be the case.

8.2.1.3 Example 3 - Bad Focal Point Results



Image 1.

The aim of this example is to identify the weapon portrayed. Begin by taking a screenshot as shown.

	<p>Image 2.</p> <p>Once the screenshot has been cropped tightly around the weapon, conduct a reverse image search.</p>
	<p>Image 3.</p> <p>Some images cannot be properly analyzed and will yield no results. In this case, the cropped image is at an odd angle and has too many additional elements in the image. The tool is unable to identify the image. For this reason, it is best to do a simple image search for 'assault rifle', or look at weapons databases, in order to identify the weapon (see Section 8.8 below).</p>

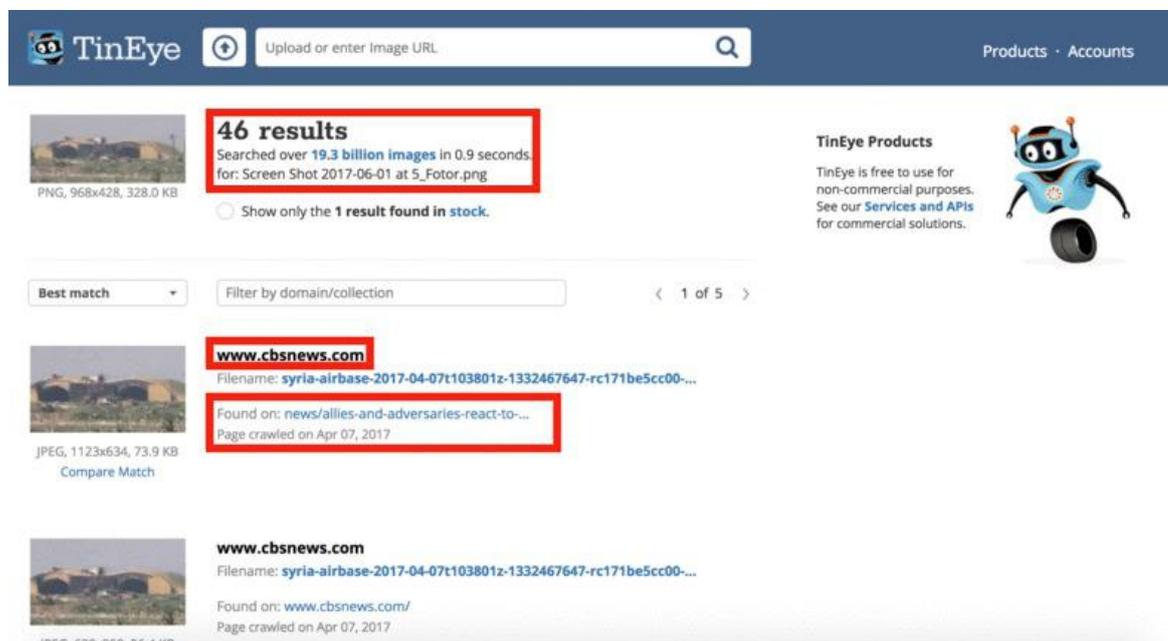
8.2.2 TinEye

TinEye allows you to upload a file or paste a URL to reverse image search. It is an alternative or supplement to Google Reverse Image Search.

- You can upload a saved image file by clicking the arrow on the left or you can paste a URL. For this example, cropped image 3 of Example 1 above (section 8.2.1.1) will be used.



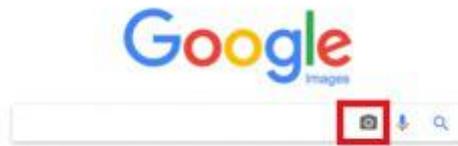
- Once searched, you will be shown every other instance in which that specific image has been used and where it is located. One result may have multiple entries, showing that that specific file was used in multiple places. TinEye will also tell you who used the image and when the image was used last. These are the results from using image 3 of Example 1 above (section 8.2.1.1.).



8.2.3 [Google Image Search](#)

One advantage that Google Image Search has over TinEye is that if you crop a photo to focus on something specific, Google will bring up similar photos, other sources, and results for where that image has been used. Accordingly, it may be worth your time cropping an image to focus on something like a weapon as Google may be able to bring up results identifying that weapon, whereas TinEye will not.

- Click the camera icon to upload an image or paste a URL file.



- You will see in the results that the image search has identified the image as Shayrat airbase. Google correctly identified this image, down to the exact airbase. However, Google may not always correctly identify an image, so it may be necessary to double check the result. Further down, it shows similar photos and instances where the photo was used.

About 25,270,000,000 results (1.17 seconds)



Image size: 968 x 428
No other sizes of this image found.

Best guess for this image: ***syria air base strike***

2017 Shayrat missile strike - Wikipedia
https://en.wikipedia.org/wiki/2017_Shayrat_missile_strike
Jump to **Syria** - Syrian state media condemned the strike, calling it an 'act of ... give the United States an excuse to bomb the Shayrat airbase in retaliation.

Visually similar images



Report images

Pages that include matching images

The Aftermath Of Trump's Strike On A Syrian Airbase [VIDEO] | The ...
[dailycaller.com/.../heres-the-aftermath-of-trumps-strike-on-the-syrian-airb...](https://www.dailycaller.com/.../heres-the-aftermath-of-trumps-strike-on-the-syrian-airb...)
1200 x 516 - Apr 7, 2017 - Footage from Syrian television reportedly shows the aftermath of the strike President Donald Trump ordered against Bashar al-Assad Thursday ...

8.2.4 [RevEye Reverse Image Search Chrome Extension](#)

RevEye (for Google Chrome) is a handy tool to make reverse image searching quicker. It also lets you reverse search on multiple search engines such, Google, TinEye, Yahoo, Cydral, Yandex, and Baidu. Once the extension is installed, right click on an image, choose 'RevEye', and then choose a search engine.

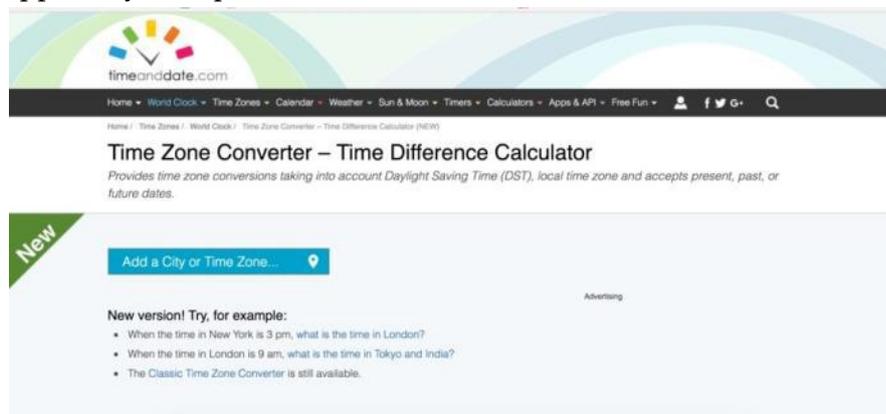
8.3 Time Zone Converters

A time zone converter converts one time zone to another. The metadata extracted from a YouTube video (see section 8.5.1.) shows the time of uploading in universal time (UTC), meaning you need to convert it to local time to get the correct time of uploading.

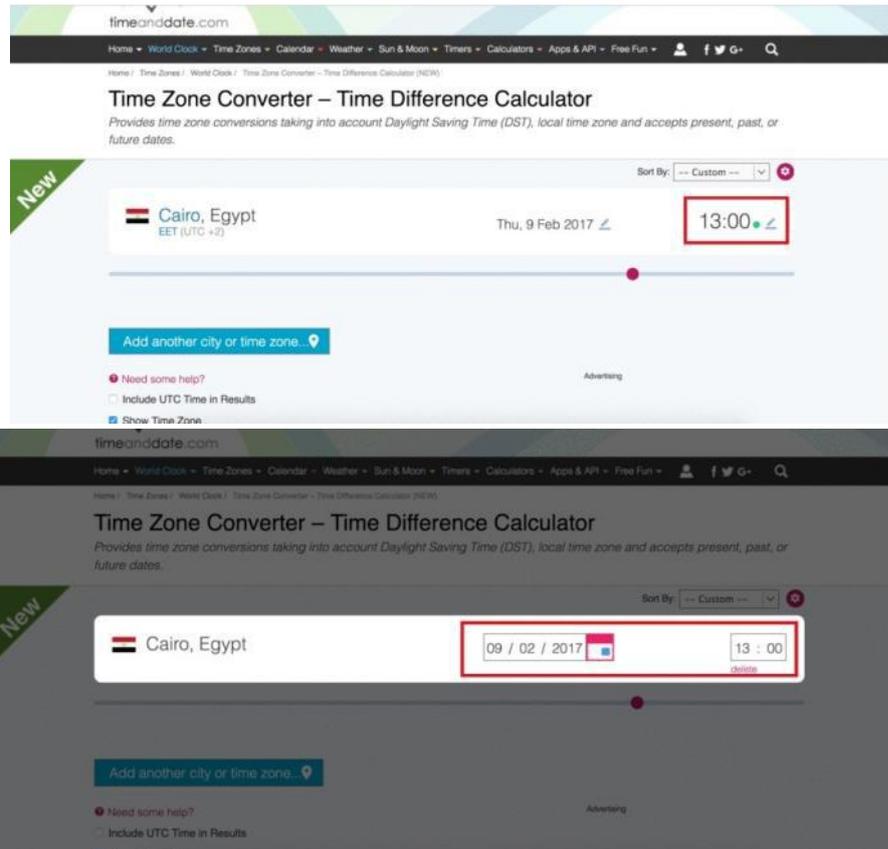
8.3.1 [Time Zone Converter](#)

This is one of the easiest time zone converting tools out there and is also free.

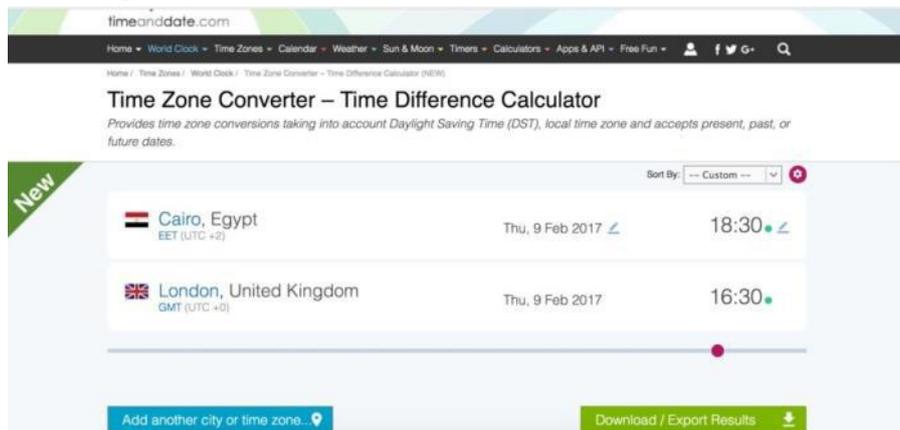
- Click on 'Add City or Time Zone' and enter the city or time zone where the content was uploaded or posted from. Alternatively, you can insert the time or place the event supposedly took place.



- You will then see an entry for that location or time zone, it will automatically fill in the time to 13:00. You can change this by clicking on '13:00' and changing to the time and date needed. Scroll down for more options.



- Then, click 'Add City or Time Zone' below and change to the time zone or location to which you want the time to be converted to. Scroll down for more options, such as adding multiple time zones.



8.4 Weather

Corroborating weather is important, as it provides an initial way to examine whether the event took place on the same location, day, or time the uploader claims; i.e. if the weather

does not match the day in question, it is unlikely that the content is authentic. However, rural areas are usually not covered, so it may be necessary to look at the weather of the nearest major town. Something to keep in mind is whether the locations are divided by contrasting land masses as this can cause changes in weather patterns. Even if you can't find the exact weather in that location, you may be able to gain a rough idea of the weather in the area that day. If there is an obvious difference, this shows the event may not have happened in that location on that day, or that the content is showing an entirely different event. Relying only on corroborated weather data is insufficient. It is, however, an indicator that combined with others could either confirm or deny that an event took place.

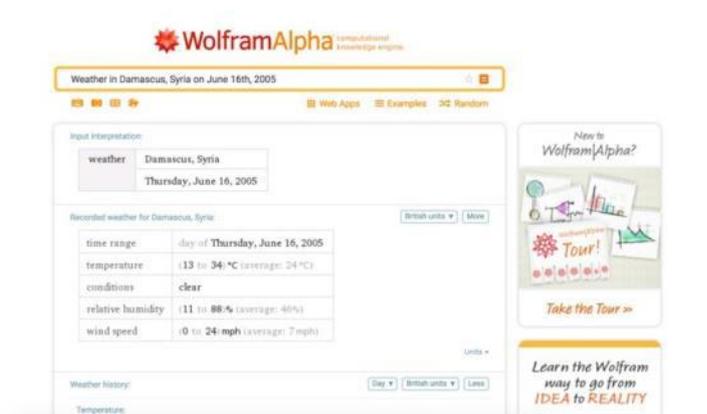
8.4.1 Wolfram Alpha

This tool allows you to look up past weather data in a certain area. Not all areas are recorded, however, capitals and major cities usually are.

- Type in “Weather in [city], [country] on [day], [month], [year]”.



- Once you see the results, you can change the unit of measurement that the results are shown in. Clicking on the right where it says 'British Units', will cause a drop-down list to appear.



- If you scroll down, you will see hour-by-hour data and more. This cannot tell you if a video or image was captured on the specific day or time, but it will indicate if the weather data matches up with the kind of weather in the content. The image below shows no clouds in Damascus on the specific day. So, if it is raining in an image or video claiming to be from Damascus, this could indicate that the content does not correspond to what is claimed.



8.5 Metadata

Metadata is information regarding a file. It is not what is in the file, but who created it and when and where it was created. In addition to the tools below, another way to extract photo metadata is, if you have the file saved on your computer, you can right click and choose 'properties'. This will give you much of the same information if it is available. Sometimes, if location services are turned on, metadata will include GPS coordinates of where the photo was taken.

8.5.1 YouTube DataViewer

This tool gives you access to Meta keys such as video ID, upload date, upload time and reverse image search. It allows you to see the exact date and time (in UTC – see section 8.3. on time zone conversion above) at which the user uploaded their video content. It also provides thumbnails/screenshots to be used in a reverse image search; it even includes links to automatically reverse image search them. This tool only works with YouTube videos.

- Copy and paste the YouTube hyperlink into the search bar.



- You will see the date and time the user uploaded the video and the extracted screenshots/thumbnails for reverse image search. It is important to note that it doesn't show when the video was filmed/incident happened. In this example, the video title says it shows an event on January 22 and the data shows the video was posted on January 23.



8.5.2 [Verexif](#)

This tool allows you to extract metadata, also called 'exif', from photos such as time, date, photographic details like resolution and exposure, and GPS coordinates if location services were enabled.

- You can either upload a photo or paste the URL of a photo from online. Another way to get the URL of a photo is to right click and choose 'copy image address'. Once you've entered your file or URL, click 'View Exif' if you wish to view the metadata info online, or, choose 'Remove Exif' if you would like to download a file with the metadata info.

VIEW AND REMOVE EXIF ONLINE

Check and remove Exif data online

Pictures taken by digital cameras can contain a lot of information, like data, time and camera used. But last generation cameras and phones can add the **GPS coordinates** of the place where it was taken, making it a privacy hazard. You can be showing your home's location to the world. Using this tool you can **view and remove exif data online** of your pictures without downloading any program.

CHOOSE YOUR IMAGE

Please select the picture you want to view or remove Exif data

Upload a picture:

No file chosen

Or paste a picture URL:

- The picture must be public. If the image is in a website that requires validation, like some social networks, you should download it and then upload it here.
- Image size limit is 20MB
- We don't store any copy of the image .

- If you click 'View Exif', you will see the metadata info on another page, scroll down to see all of the metadata info.

VIEW AND REMOVE EXIF ONLINE

Check and remove Exif data online

EXIF DATA

Camera make :	Apple
Camera model :	iPhone 6
Date/Time :	2017/03/25 12:46:40
Resolution :	640 x 480
Orientation :	rotate 90
Flash used :	No
Focal length :	4.2mm (35mm equivalent 29mm)
Exposure time :	0.0004 s (1/2475)
Aperture :	f/2.2
ISO equiv. :	6400

There is no thumbnail

8.6 User Verification

The following tools will produce information about a user's social media account, such as, how often they post, when they post, what they post about, how many followers they have, possibly even geographic locations, and more.

8.6.1 Foller.me

This website is a useful tool when analyzing a Twitter account. It shows you when the account was created, the location of the user, the Time zone, language, bio and URL of the account. It also shows you how many tweets they have made, how many followers they have and how many people they are following.

- The first step is to copy-paste the Twitter name into the box and click 'Analyze'.



- Foller.me will then give you an in-depth analysis of a specific Twitter account. From the below images, you can see when the user created the account, what timezone they are in, what language they use, how many tweets they have, how many followers they have. What words are most commonly used in their tweets, and what hashtags they commonly use. This gives you an idea of the topics of their tweets, how frequently they tweet, and so on.



Sam Dubberley @samdubberley

Husband. Father. Social media, news, human rights. Co-founder @EMHub. Consultant for @HRBDTNews + @AmnestyOnline's Alt-Click project. Working on @crosscheck

Overview Profile information and statistics

Information

The most important piece here is the **join date**. The longer they're on Twitter the better. Spam accounts and robots tend to get suspended after a couple of weeks.

AT A GLANCE

Name	Sam Dubberley
Joined Twitter on	Wed Mar 11 10:41:48 +0000 2009
Location	Berlin/Istanbul/UK
Timezone	Berlin
Language	English <small>language preference</small>
Bio	Husband. Father. Social media, news, human rights. Co-founder @EMHub. Consultant for @HRBDTNews + @AmnestyOnline's Alt-Click project. Working on @crosscheck
URL	https://t.co/EMcoNH0sL

Overview Profile information and statistics

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URL	https://t.co/EMcoNH0sL

Statistics

More followers is good, but watch out for the follower-to-following ratio. A high ratio means that more people are following @samdubberley out of good will, not follow-back.

EVERY TWEET COUNTS

Tweets	2,950
Followers	1,667
Following	2,150
Followers ratio	0.78 <small>followers per following</small>
Listed	152

foller.me [DATA](#) [Overview](#) [Topics](#) [Tweets](#) [Geography](#)

Topics, Hashtags & Mentions

Things that really matter

Topics

The topics section shows the overall words usage on Twitter in form of a tag cloud. The more a certain word is used, the larger it is in the cloud.

WHAT THIS IS ALL ABOUT

founding investigation state truth propaganda search newspaper niget german anymore @yearold ban impact
rights flight international faux media police people powerful manifestation turkey sir rodley fake
workshop deniz digital social cancelled particip faveur berlin support cavity turkish check work francois french
says incredible via response law heres amricain said russie lambassadeur tk1727 news human academics
correspondent prison apologise memoriam dont verification

Hover a topic to see how many times it has recently been used.

Hashtags

Tagging is not essential to Twitter, but can definitely grow your reach.

POPULAR HASHTAGS

#cfp #ijf17 #breakingaleppo #humanrights #gitmos #drc #comms #tech #fakenews #angelamerkel #datajournalism
#palestine #nigetrodley #aslerdoan #zgrndemdavas #fakene #bursa #mi #executiveorder #trumps

@ Mentions

This section shows the user profiles that @samdubberley has interacted with.

MENTIONS AND @REPLIES MEANS INTERACTIONS

8.6.2 [Graph.tips](#)

This tool allows you to search someone's Facebook username and it will find the things they have liked, posted, where they have been via Facebook check-ins, etc.

PERSONAL SEARCH

<input type="text" value="Type Facebook ID"/>	<input type="button" value="GO"/>	Posts that the person commented on?
<input type="text" value="Type Facebook ID"/>	<input type="button" value="GO"/>	Which photos does this person like?
<input type="text" value="Type Facebook ID"/>	<input type="button" value="GO"/>	Photos made of this person
<input type="text" value="Type Facebook ID"/>	<input type="button" value="GO"/>	In which photos is this person tagged?
<input type="text" value="Type Facebook ID"/>	<input type="button" value="GO"/>	What photos did the person comment on? With what comment?
<input type="text" value="Type Facebook ID"/>	<input type="button" value="GO"/>	What photos did the friends upload?

NEW: SEARCH POSTINGS

Search:

- [Search for xxx in THE LATEST postings](#)
- [Search for xxx in ALL postings](#)

LOCATION SEARCH

Countries: who went where?

Example: which people who live in Berlin [visited North-Korea?](#)

Location (country, city)

Buildings: who went where?

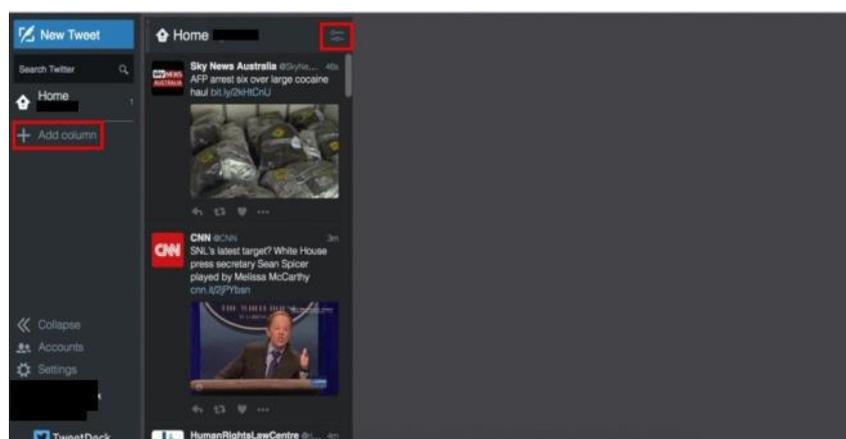
8.7 Content

The following tools are useful for discovering, saving, and archiving content. These tools conduct what is called 'data scraping', meaning, it 'scrapes' data from user accounts or other websites and brings the data to one place.

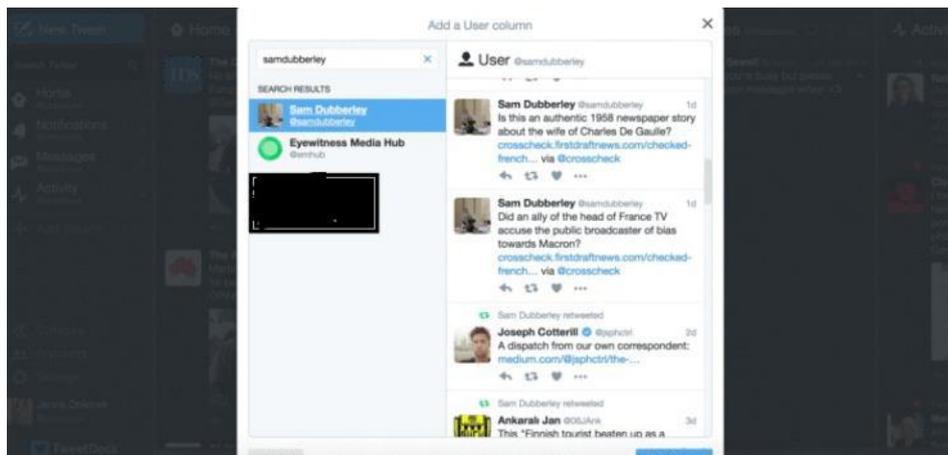
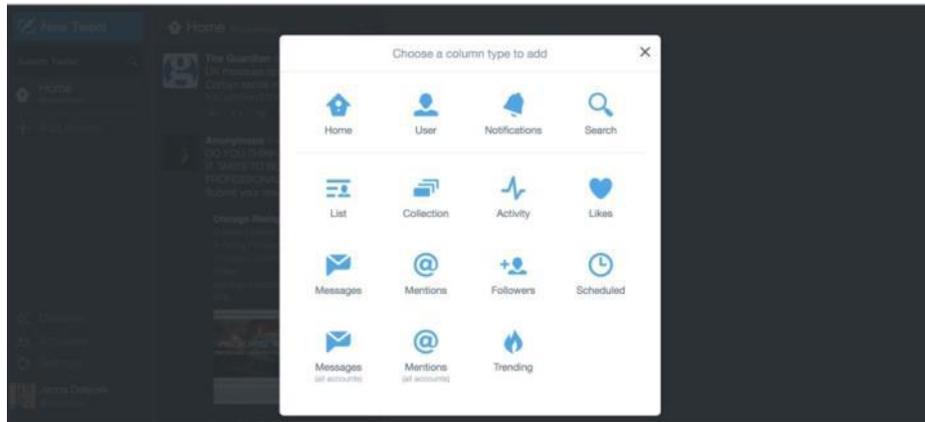
8.7.1 [TweetDeck](#)

With this tool, you can monitor keywords, phrases, or specific accounts on Twitter. It will monitor your inputs and aggregate content according to your parameters, all in one place. Keep in mind that you may get overwhelmed with content and information, so try to keep it specific.

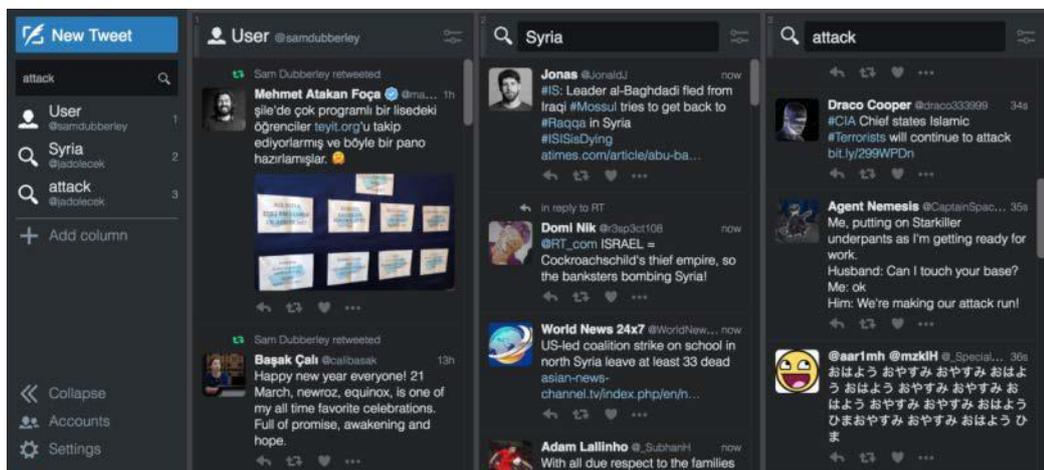
- When you sign in to your Twitter account, you will see more columns than those below. You can send a Tweet directly from TweetDeck, in the top left corner. You can delete a column by clicking the adjustments icon in the red box in the top right corner. To add a new column, click 'Add Column', on the left. To delete a column, click the adjustments icon and delete the column.



- Once you click 'Add Column', a pop up will appear asking what type of column you want to add. If you want to follow a user, click 'User', search the twitter handle, click the correct option on the left, then click 'Add Column' at the bottom right.



- In order to follow tweets by all users, follow the same steps as above except instead of clicking 'User' you will click 'Search'. Then type in what you want to monitor. For example, 'Syria', 'bombing', 'attack', 'hate', 'weapons', you can even search for phrases and swear words. Since content is aggregated in real time and changes quickly, it is suggested to save what you need in [Check](#) or a similar platform where you can save or bookmark content.



8.7.2 Samdesk.io

Samdesk is a subscription service but does offer a free trial. With Samdesk you can scrape data from multiple social media platforms such as Instagram, Twitter, Reddit, and Facebook. You can also restrict your monitoring to a geographic area. It also offers an analysis of a user's account and archival of content.

8.7.3 Ban.jo

This subscription service scrapes data from online news outlets and not social media. This tool would possibly be best used when looking for corroborating news reports.

8.8 Military Information

If you are trying to identify military personnel, their uniforms, or their weapons, the following tools may be helpful. Additionally, an image search and using news sources can corroborate uniforms or units. Perform a general image search for State X's military uniforms and then try to corroborate with one of the below sources. Not all countries and their entire military force will be indexed, some may be very difficult to find. For further information see the Bellingcat entry in 'Additional Verification Resources' (Section 8.9.1).

8.8.1 Strike - Hold!

Shows select uniforms from select countries.

8.8.2 ArmyRecognition

Shows you what equipment different militaries have, what uniforms they use, their ranking system, and insignia.

8.8.3 UniformInsignia

UniformInsignia is a database of rank and insignia including military police, prison officials, medical personnel, and more.

8.8.4 Military

This is a database for American military branches and their equipment.

8.8.5 [IHS Jane's 360](#)

IHS Jane's 360 has information and resources on weapons and the defense and security industries.

8.9 Additional Verification Resources

8.9.1 [Bellingcat](#)

The Bellingcat website is full of resources for investigators, citizen journalists, and others conducting digital verification. You will have to scroll through their posts to see which guide is most relevant to you. Here are a select few:

8.9.1.1 [A Beginner's Guide to Geolocating Videos](#)

8.9.1.2 [Searching the Earth: Essential Geolocation Tools for Verification.](#)

8.9.1.3 [Verification and Geolocation Tricks and Tips with Google Earth](#)

8.9.1.4 ["That's Not a Cluster Bomb" – The Differences Between OFAB 250-270s and RBK-500s](#)

8.9.1.5 [Who to Trust, Google or the Russian MoD? A Guide to Verifying Google Earth Satellite Image Dates](#)

8.9.1.6 [Manual Reverse Image Search With Google and TinEye](#)

8.9.1.7 [Geolocation Techniques – Mapping Landmarks](#)

Annex

In order to provide a better understanding of the process of digital verification, an example verification is conducted in this Annex. The content which was used for this example can be found [here](#).

1 Introduction

This report outlines a step by step analysis of a video depicting a protest. The military used force to dispel protestors. The analysis below consists of the following four parts: verifying the account, analyzing the content of the video, locating where the video was recorded, and determining the time of capture of the video.

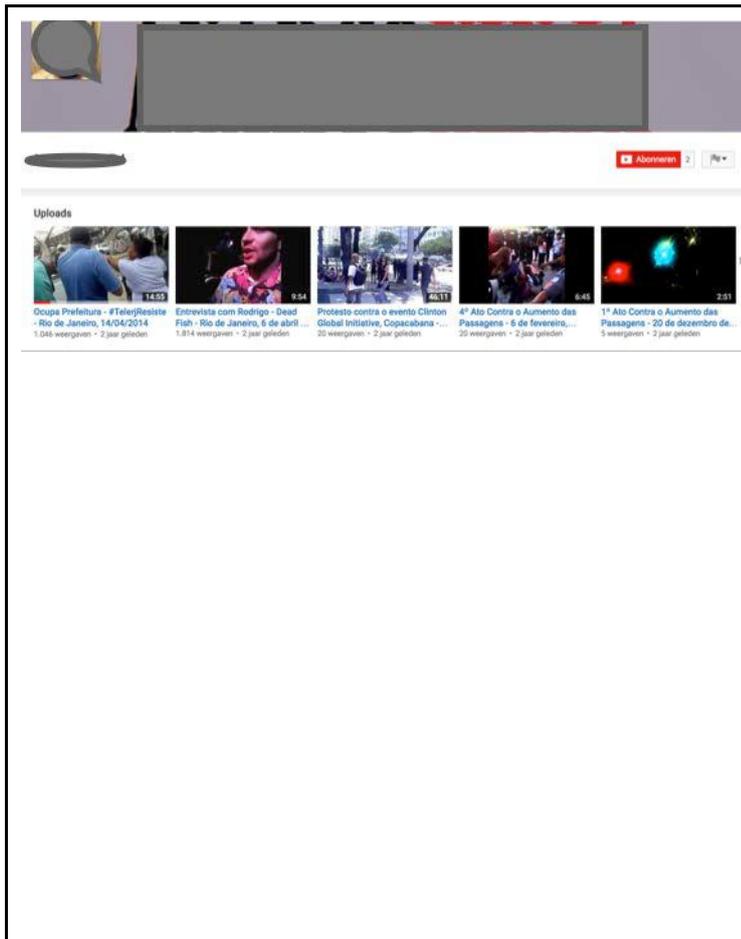
2 Assessing the source and verifying the account

This step is discussed in greater detail in Section 2 above. The questions to be answered are:

- When was the account or profile created and how frequently do they post content?
- Is it a 'verified' account?
- How often is their content viewed?
- How much content has been posted on the specific topic you are researching?
- What type of content is typically posted by this user?
- Does their bio or 'About' section contain any useful information, relevant to the research?
- Can you find/identify the person on other platforms, i.e. Facebook, LinkedIn, Twitter, YouTube, etc.?

Keep in mind that the person uploading the video may not have been the person that actually captured the video. The original source could be someone else. In order to answer every question on this piece of content and its account, the following steps should be taken:

2.1 Step 1: Verifying the Account and its Uploader



Question 1: In order to find out when the account was created, you should look at the “About” section of the YouTube account. Unfortunately, on this specific account this section has been disabled and, therefore, cannot be accessed. For this reason, we cannot find the specific date on which the account was created. However, the first video uploaded from this account was on the 24th of March, 2014, meaning the account was created before this date.

Question 2: There is no “verified” symbol next to the name of the account, suggesting that the account is not verified. This does not specifically diminish the credibility of this account, but it is worth noting.



1.046 weergaven

[+ Toevoegen aan](#)
[Delen](#)
[*** Meer](#)

[👍 7](#)
[👎 1](#)

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Mesmo debaixo de forte chuva na manhã desta segunda-feira, os despejados (e esquecidos) da Favela Telerj, que montaram uma ocupação de resistência em frente a Prefeitura do Rio desde a última sexta-feira, cantaram, protestaram e entoaram gritos na base do improvisado, da criatividade e da revolta. "Ei, Obama, eu quero apenas uma cama!", "Pode chover, pode molhar. Daqui não saio se não tiver onde morar!", "Eduardo Paes, o meu voto você não terá nunca mais!", entre tantos outros berros clamando por um direito constitucional de todo cidadão: moradia. Os participantes da ocupação decidiram então estender uma grande bandeira nacional no chão da Av. Presidente Vargas. Alguns instantes depois, a Guarda Municipal avançou com covardia sobre a população, disparando tiros de bala de borracha, porradas de cassetete e usando gás lacrimogênio, ferindo uma criança. Não somente esquecidos pelo Estado, mas feridos por ele!

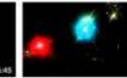
Ivo Freitas

Categorie [Mensen & blogs](#)

Licentie [Standaard YouTube-licentie](#)

MINDER WEERGEVEN

Uploads Detalen van toevoegen (nieuwst) Raster

 <p>Ocupa Prefeitura - #TelerjResiste - Rio de Janeiro, 14/04/2014 1.046 weergaven · 2 jaar geleden</p>	 <p>Entrevista com Rodrigo - Dead Fish - Rio de Janeiro, 6 de abril... 1.014 weergaven · 2 jaar geleden</p>	 <p>Protesto contra o evento Clinton Global Initiative, Copacabana... 20 weergaven · 2 jaar geleden</p>	 <p>4º Ato Contra o Aumento das Passagens - 6 de fevereiro... 20 weergaven · 2 jaar geleden</p>	 <p>1º Ato Contra o Aumento das Passagens - 20 de dezembro de... 6 weergaven · 2 jaar geleden</p>
 <p>3º Ato Contra o Aumento das Passagens - 20 de janeiro... 57 weergaven · 2 jaar geleden</p>	 <p>Ato Contra o Aumento das Passagens de Ônibus e de Trem... 30 weergaven · 2 jaar geleden</p>			

Question 3a: Looking at the information available on the page of the video, this video has 1,079 views as of 11 June, 2017. To get a better idea of the credibility of the source, it is good to look at the views the other videos of this account have, which is done below.

Question 3b: Looking at the "Uploads" section of the account, a total of 7 videos have been uploaded. In general these videos have not been viewed a significant amount. This could put into question the uploader's legitimacy and their motives. It does not rule out the account completely, but the user could be biased. One certainty is that this account is not well known.

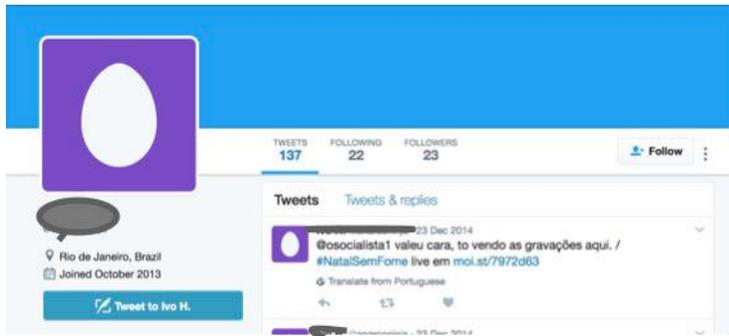
Question 4: As mentioned before, only seven videos have been posted on this account in total. This does not add to the credibility of the account or of the knowledge of the user.

Question 5: Looking at the user's other videos, it can be seen that

the content uploaded is mainly about protests and social unrest in Rio de Janeiro. The videos depict the protests themselves. The fact that these videos are mainly about the same topic enhances the probability that the user may have some previous knowledge on these topics.

Question 6: As mentioned before, it was impossible to retrieve information from the account’s “About” section. However, more information on the user could be found by looking up other social media accounts of the same user (see below).

Twitter account:

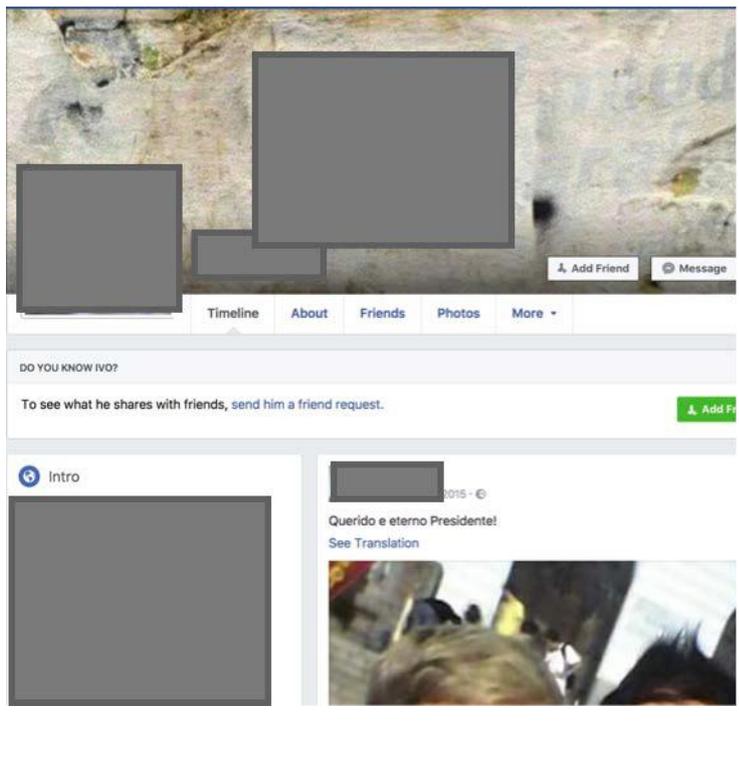


Facebook account:

Question 7: The description of the video is signed with the name of the uploader (which you can find below the video in the grey box: image question 3a). Additionally, the cover image of the account may include some information (image question 1 and 2). Looking up the uploader’s name you can find other social media accounts such as Twitter, Facebook and blogs.

Twitter account: The Twitter account seems to tweet about similar topics as the YouTube account, but does not seem to have a lot of followers. However, we can see here that the account was created in October 2013. There is no description of the user on this account either.

Facebook account: This account also mainly uploads about the same issues as the other accounts. The “Intro” section of this page



gives more insight on the user. From this, it can be concluded that the user was a media activist with a group called X for a year. This adds to his credibility as he most likely has knowledge of the issues he is posting about. However, this can also make him come across as biased, as activists usually work towards achieving a certain goal.

Blog: The blog of the uploader also writes about similar issues as the other accounts. Therefore, it adds to the credibility of knowledge of the user and his possible bias.

Conclusion: From the information collected, it can be interpreted that the account has a certain degree of credibility. The videos of the account do not have many views, and there are only seven of them. However, the topics of the content posted are all similar. Additionally, other accounts the user has created shed more light on who they are. It was found that the individual was a media activist, which adds to his credibility. It should be noted, however, that because of this, the user might be slightly biased. Additionally, care should be taken to ensure that conclusions are not drawn too quickly; for instance, the full event may not be depicted in order to present a certain narrative. Ultimately, this means that analysis of the content itself should determine whether the content is verified or not.

2.2 Step 2: Events and People Depicted



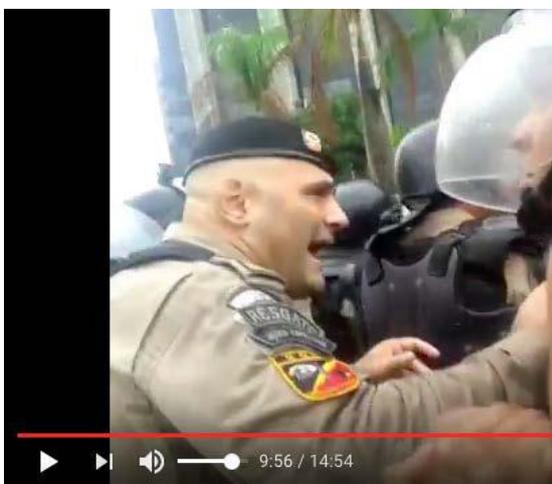
The video depicts a protest by civilians and a response to it by municipal police forces who are using riot shields and police batons. On the riot shields, a logo and the text “Guarda Municipal” and “Rio” can be found. The logo and the text suggest that the authority acting here is the Guarda Municipal of Rio de Janeiro, which was confirmed by a Google search of the equipment and logo of the Guarda Municipal of Rio de Janeiro.



In this part of the video, the guards are moving forward under the command of an officer without shield. The rank of the officer is unknown.



In this part of the video, the guard is removing a civilian, who was part of the protest, away from the other civilians. The civilian seems to struggle against the officers, with multiple officers keeping him down.



It seems that there is a supporting officer standing behind the defensive formation of the guard communicating with them. It is difficult to see who he is from his logo, but the word "Resgate" can be seen on the insignia on his arm. This translates to "Rescue".



The person depicted in this part of the video has the logo of SMDS on his chest. Googling “SMDS Rio de Janeiro”, a [Twitter account](#) of the organization can be found. A translation of the bio of this account states that this organization fights poverty and social exclusion in Rio de Janeiro through projects and actions. Multiple people wearing this logo are seen in the video and they all seem to be communicating with the protestors.

Conclusion: The video depicts a civilian protest in Rio de Janeiro, Brazil, with the municipal guard of the Rio de Janeiro responding to the protest with a response team. The municipal guards are mainly using riot shields and rubber batons. Their response, shown in the video, includes the forceful removal of certain civilians participating in the protest. Additionally, an organization fighting poverty and social exclusion in Rio de Janeiro, called SMDS, is also present amongst the civilians.

2.3 Step 3: Location of Events



This image depicts a woman taking part in the protest holding a Brazilian flag. This could be a key indicator and worth remembering. However, one should not jump to the conclusion that this event is taking place in Brazil simply by the flag being in the video. This could, for example, be a Brazilian community protesting in London. The people in the video are speaking Portuguese; this is an additional identifier but for the same reason should not lead you to make the assumption this event is occurring in Brazil.



This is the first structure contained in the video which could be vital in geolocation. This appears to be a town hall, shopping mall or something similar. It is also worth mentioning that the palm trees in front of the structure could also contribute to identifying the location of events. Additionally, the title of the video is Prefeitura, meaning City Hall in Portuguese.



This screenshot also depicts another structure which could be important for a successful geolocation. The structure resembles a footbridge and has a distinctive shape.



This is the first clear image of the footbridge and we can see the protest taking place in front of it.



This image also depicts the footbridge in the background. Additionally, as seen above in Step 2 the police in the video seem to be part of the “Guarda Municipal Rio,” which is the Rio Police Force. This is a very important indicator as it allows us to place this location in Rio De Janeiro, Brazil.



This is another image of the “Prefeitura.”

Corroborating Images



Geolocation

Once we have identified the city, the next step is to use the other indicators outlined above to identify the exact location and coordinated. In this case, we would start by searching Prefeitura in Google Maps in Rio de Janeiro. As you can see this search yields a variety of results.



When searching through the results, the image of the **Controladoria General Do Municipio Cgm** matches with the structure identified in the video.

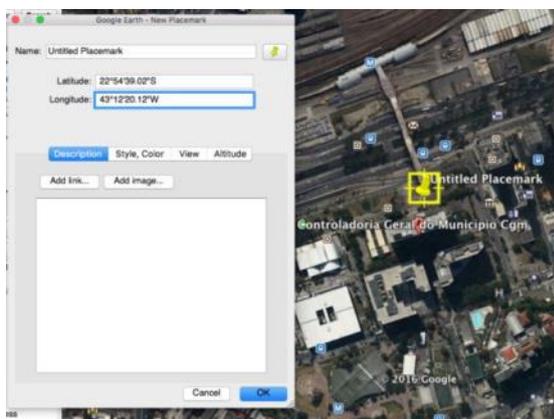


When using Google Maps with satellite images, we can also see the bridge in front of this structure.

The next step is to find the coordinates.



First, search for the Town Hall in Google Earth by typing ('Controladoria General Do Municipio Cgm Rio de Janeiro'). An 'A' pinpoint will pop up showing the Town Hall building.



Then, drop a pin over the 'A' or over the building as this will allow you to identify the coordinates. Initially, the coordinates given are in degrees, so they must be converted to decimal.



Once converted, the decimal degree coordinates are:

Latitude -22.910839

Longitude -43.205265

Welcome to OnlineConversion.com
 Decimal Degrees/Degrees Minutes Seconds

This will convert your degree notation into a decimal degree or vice versa.
 When converting to decimal don't bother about " sign or any other... just separate the degrees from minutes and seconds with a space like this:
 30 0 19, which will mean 30° 0' 19".

Degree	Decimal
43°12'20.12"W	-43.2055888888889
<input type="button" value="Convert"/>	<input type="button" value="Clear"/>

2.4 Step 4: Time of Events

The next, and final, step in verifying this video will be to identify the time of the event depicted. There are many ways to do this, for example by searching for corroborating evidence. In this case, the weather conditions depicted are also distinctive, as it is raining. Therefore, checking if the weather during the alleged time of the event matches with the weather reported on that day and time, can also help in the process of verification. Using the available tools for verifying the time of the event, the following steps should be taken:

<p>weather Rio de Janeiro, Brazil Monday, April 14, 2014</p> <p>Recorded weather for Rio de Janeiro, Brazil: <input type="button" value="Show metric"/> <input type="button" value="More"/></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>time range</td> <td>day of Monday, April 14, 2014</td> </tr> <tr> <td>temperature</td> <td>(70 to 77) °F (average: 74 °F)</td> </tr> <tr> <td>relative humidity</td> <td>(88 to 100)% (average: 94%)</td> </tr> <tr> <td>wind speed</td> <td>(1 to 23) mph (average: 9 mph)</td> </tr> </table> <p style="text-align: right;">Units ▾</p> <p>Weather history: <input type="button" value="Day"/> <input type="button" value="Show metric"/> <input type="button" value="Less"/></p> <p>Temperature:</p> <p>low: 70 °F Tue, Apr 15, 12:00am... average: 74 °F high: 77 °F Mon, Apr 14, 7:00am...</p> <p>Conditions:</p> <p>fog: 100% (16.6 hours) rain: 87.4% (14.5 hours)</p>	time range	day of Monday, April 14, 2014	temperature	(70 to 77) °F (average: 74 °F)	relative humidity	(88 to 100)% (average: 94%)	wind speed	(1 to 23) mph (average: 9 mph)	<p>WolframAlpha:</p> <p>The description of the video states that this event occurred on the 14 April, 2014. According to WolframAlpha (using the searchwords “weather Rio de Janeiro 14-04-2014”), it was raining in Rio de Janeiro on this day. This contributes to, but does not confirm that this event occurred on the date stated in the description of the video.</p>
time range	day of Monday, April 14, 2014								
temperature	(70 to 77) °F (average: 74 °F)								
relative humidity	(88 to 100)% (average: 94%)								
wind speed	(1 to 23) mph (average: 9 mph)								

Ocupa Prefeitura - #TelerjResiste - Rio de Janeiro, 14/04/2014

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Video ID: clrlCxJihWI

Upload Date (YYYY/MM/DD): 2014-04-14

Upload Time (UTC): 20:32:39 (convert to local time)

Thumbnails:



reverse image search



reverse image search

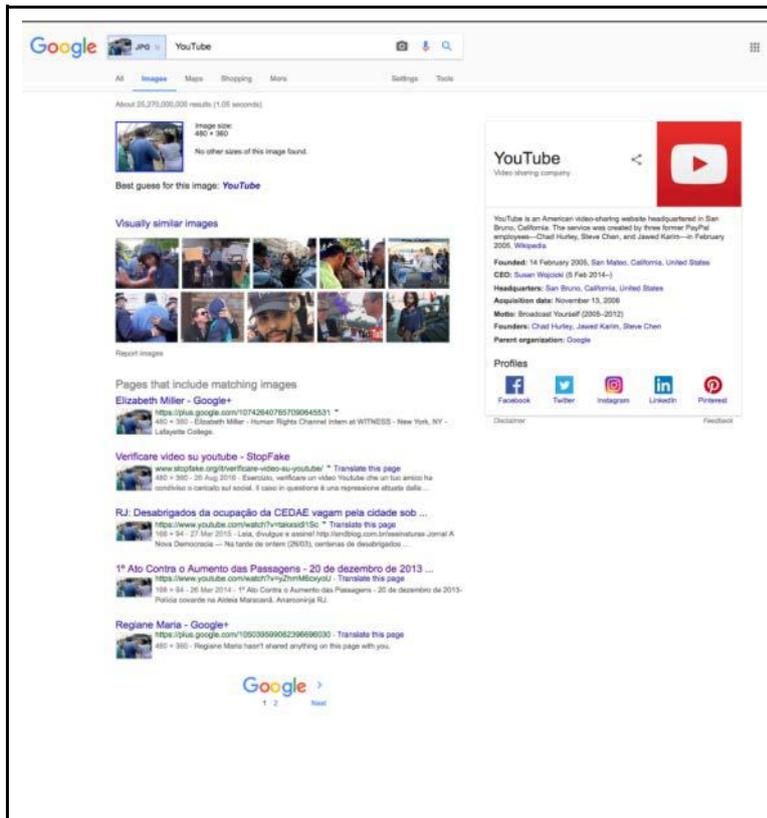


reverse image search



reverse image search

Metadata Analysis #1: Inserting the YouTube hyperlink into the metadata analysis tool, leads to the following results (see screenshot to the left). According to the analysis, the video was uploaded on the 14 April, 2014 at 20:32 UTC. Since the results of the metadata analysis tool show time in UTC, a time conversion must be made. The [time zone converter](#) states that 20:32 UTC is 17:32 Rio de Janeiro time (UTC -3). Four thumbnails have been created from this video, on which a reverse image search can be conducted.



Metadata Analysis #2: When clicking on “reverse image search” on the metadata analysis page, a Google Reverse Image Search results page appears (see screenshot to the left). As can be seen, there are some links that pop up, that could possibly contain the same video. However, when looking at the dates and opening the pages themselves, it can be seen that the links do not contain older versions of the video. This means that there is no proof that the video could have been captured on an earlier event. This increases the likelihood of the content being captured on the alleged time.

- [Photo gallery](#)
- [Corroborating video 1](#)
- [Corroborating video 2](#)
- [Corroborating video 3](#)
- [Corroborating video 4](#)

Corroboration: In order to find other relevant content, a search on YouTube and Google was conducted. Search terms that were used were “protest”, “Rio de Janeiro” and “14 April 2014”. Using such terms led to an online photo gallery of the protest on that day. The page is originally in Portuguese, yet translations of the page indicates that this image gallery is dedicated to this specific protest. Additionally, search results on YouTube led to a total of four videos, which all depict the same protest and are also said to be from 14 April, 2014. The fact that there is more material from the same event and that all these claim it occurred on 14 April, 2014 adds to the likelihood that the event occurred on that day.

Conclusion: From the information collected, it seems highly likely that the alleged time of the event in the video is correct. First of all, the weather on the alleged day matches with the weather in the video. Second, the video was uploaded in the early evening of the day the protest allegedly happened, suggesting it was uploaded after the event occurred. Third, no older versions of the video from before April 14, 2014 could be found. Finally, corroborating material could be found, which also claims that the event occurred on the 14 April, 2014. When all indicators are brought together, it is possible to draw the conclusion that this event took place in Rio de Janeiro and on the time stated in the description of the video.

2.5 Example Verification Conclusion

In sum, the following could be said about the results of the verification of this piece of content. The video analyzed depicts a protest by civilians and a relatively forceful response by the police force. After verification some conclusions could be drawn about the video. First, the video did depict the use of force by authorities. The authorities were identified to be part of the municipal forces of Rio de Janeiro: the Guarda Municipal de Rio de Janeiro. Second, the account that uploaded the video has limited validity, due to the amount of views it has. However, the account did upload on similar topics and the user was found to be a media activist. Unfortunately, this also means that the user could also be biased. Third, geolocation confirmed that the protest occurred in front of the town hall of Rio de Janeiro: the Controladoria General Do Municipio Cgm. Finally, it can be concluded that the alleged time of the event, April 14 2014, was correct. This was confirmed by an analysis of the weather, time of upload and corroborating evidence.