

Maduro's Menagerie: Twitter Client Usage in a Venezuelan Twitter Operation

Elena Cryst, Noah Schechter, Ronald E. Robertson, David Thiel
Stanford Internet Observatory
December 2, 2021



Contents

1	Introduction	2
1.1	Key Takeaways	2
2	Venezuela's Twitter Army	2
2.1	State Hashtags of the Day	3
2.2	Paying for Tweets	5
3	Summary Statistics	5
4	Themes and Tactics	7
4.1	Twitter Clients	8
4.2	Alex Saab Cheerleading Accounts	11
4.3	Mexico Group: Commercial Hashtags	12
5	Conclusion	13

1 Introduction

On December 2, 2021, Twitter announced that it had suspended a network of accounts that engaged in a political spam operation in support of the Venezuelan government. According to Twitter's attribution language, real people were encouraged to engage in spammy behaviors to show their support for Nicolás Maduro and his political party. According to Twitter, financial compensation may have been offered to accounts for sufficient engagement in bolstering Maduro's messaging.

Our assessment of the accounts shared suggested that the set may be more accurately characterized as four or five distinct groups linked to each other only by mentions of common public figures or popular hashtags and by behavior that violates similar parts of Twitter's policies. The network included accounts that reported locations in Venezuela, Colombia and Mexico, and engaged in automated tweeting behavior through the use of bots and feeds. The three regional groups were distinct and tweeted about different topics. In our assessment, we could not verify that these accounts were directly linked to tweet-for-hire schemes, although the Venezuelan accounts used behaviors described in [prior reporting](#) on this tactic. Other accounts in the network shared behavior similar to more commercial tweet-for-hire schemes: they promoted a mix of commercial brands and political hashtags. The accounts that reported their location as Mexico specifically engaged in behavior that amplified support for regional Mexican politicians. Shortly before the network was suspended, a small cluster of new accounts furiously tweeted for the release of [Alex Saab](#), a close ally of the Venezuelan president who was recently extradited from Cape Verde and is currently awaiting trial in [Miami](#) on charges of money laundering.

1.1 Key Takeaways

- Accounts used a range of seemingly proprietary Twitter clients to automate and amplify content supporting Venezuela's leading party and the Venezuelan president.
- Over an eight-month period that coincided with Nicolás Maduro's rise to power, 14 accounts rotated the use of 10 unique Twitter clients to post identically. We speculate that this behavior may have been used to either evade detection or test the strategy for future use.
- Twitter client usage may be a tool that enables tracking in pay-for-spam operations. Investigators may be able to use this data point to inform future investigations.

2 Venezuela's Twitter Army

Members of Venezuela's ruling party extensively use Twitter to push political messages and dominate the online conversation. Late president Hugo Chávez was an early adapter, joining Twitter in April 2010. His successor Nicolás Maduro

and the United Socialist Party of Venezuela (PSUV) have operationalized their Twitter engagement, pushing users and discourse onto the platform. 24.1% of Venezuelans use Twitter, compared to a regional average of just 12.1%.¹ In 2018, Bloomberg published a leaked government document titled “Project for the Formation of an Army of Trolls of the Bolivarian Revolution to confront a media war” (“Proyecto de Formación del Ejército de Trolls de la Revolución Bolivariana para enfrentar guerra mediática”). The document provided information on how to build web squadrons, manage vast networks of accounts, engage with online content, and build personas that were diversified enough to avoid detection. Regardless of whether this document is authentic, many of the tactics outlined have been observed on Venezuelan Twitter.

In January 2019, Twitter suspended a network of 1,196 Venezuelan accounts that “appear[ed] to be engaged in a state-backed influence campaign targeting domestic audiences.” Analysis of the dataset by researchers at the Digital Forensic Research Lab found that the accounts posted using automation services (such as dlvr.it and IFTTT) and proprietary apps, including one called “RTNicolasMaduro.”

Included in the January 2019 takedown was the suspended account @MippciVen, an account for the Venezuelan Ministry of Communication and Information. That account, and its replacement @Mippcivzla (a verified account created on March 8, 2017) have been responsible for pushing out Venezuela’s trending hashtags of the day.

2.1 State Hashtags of the Day

Venezuelan control over the domestic information environment includes state-run television, radio and newspapers, and domination of the domestic Twitter environment. The government runs a highly effective daily hashtag campaign that, according to another analysis by the DFRLab, almost always ranks the government’s hashtag into the country’s trending topics on Twitter. Since 2017, the strategy has been straightforward and overt: each day, the Twitter account for the Venezuelan Ministry of Communication and Information, @Mippcivzla, posts an “etiqueta del día,” or hashtag of the day. Hashtags are usually a patriotic multi-word phrase (such as #SoberaniaPatriaYPaz, meaning #SovereigntyPatriotismAndPeace).

A study of hashtags of the day used over a one month period in the lead up to the 2018 elections shows how a network of official government accounts and figures posted the hashtag and asked users to amplify the hashtag through original tweets, quote tweets, and retweets. The study explains how a network of “Patriotic Tweeters” sprang up jointly on Telegram and Twitter to instruct individuals on how to authentically share the content, subscribe via text message, and be entered into daily raffles. Hashtags continue to be posted by @Mippcivzla daily and shared by government officials and accounts.

¹Latinobarómetro, 2018. Taken from: <https://www.atlanticcouncil.org/wp-content/uploads/2021/04/DigitalAutocracyVEN-FINAL.pdf>.



Figure 1: A screenshot of the now defunct website <http://enred.nicolas-maduro.org.ve> taken by researchers at DFRLab. The text provides instructions on how to grant the application access to your twitter account to automatically retweet President Maduro (credit: [DFRLab, Archive](#)).



Figure 2: A screenshot of a pinned tweet from @Mippcivzla advertising the hashtag of the day for October 10, 2021.

2.2 Paying for Tweets

To ensure that topics trend, entities linked to the Venezuelan government provide financial incentives to individuals who use the hashtags. A [report](#) by the Atlantic Council details the process through which users could link their Carnet de la Patria (Homeland Card or Motherland Card) with their Twitter accounts to receive monetary bonuses.² The Carnet de la Patria is the primary individual identity card in Venezuela. Important for this scheme, it contains a digital wallet to distribute government benefits. It is also [criticized](#) as a form of social control that has strengthened the PSUV's power in the country. According to the Atlantic Council report, information on how to claim payouts for tweeting were shared in "Patriotic Tweeter" (Tuiteros Patriotas) Telegram groups.

3 Summary Statistics

The network shared by Twitter contained 277 accounts and 860,060 tweets. Most of the accounts were new, with two thirds (188) of the accounts created between January 2020 and May 2021. The oldest account dated to 2009. The network was most active in 2013 and 2014—a period of political turmoil in Venezuela after the death of President Hugo Chavez on March 5, 2013, and the rise of Maduro as his successor. The accounts shared by Twitter had another spike of activity in 2021 with the amplification of gubernatorial candidates in Mexico, and separately

²According to the report, the bonuses could be up to 384,000 bolivarianos or roughly \$0.22 a week. At the time, the minimum wage was roughly \$0.68/week.

amplifying hashtags supporting the release of arrested Colombian businessman Alex Saab.

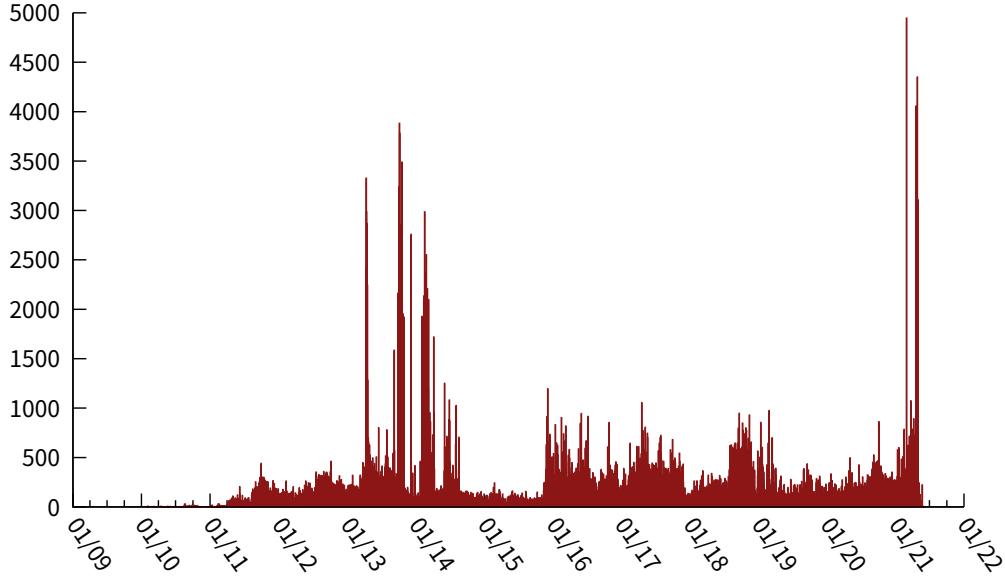


Figure 3: Tweets per day for the network shows the spike in activity during Maduro's consolidation of power in 2013–2014 and another spike in 2021.

This dataset is noteworthy for the large number of unique Twitter clients used to post, which will be discussed in detail in Section 4 on the following page. Overall, 121 Twitter clients were used, including a client called “PSUV” that was used for 146,768 tweets (the second most popular client after Twitter for iPhone), “RedTuiteros” (Network of Tweeters), and OlaBolivariana (Bolivarian Wave).

Rank	Tweet Client Name	# of Tweets
1	Twitter for iPhone	170,011
2	PSUV	146,768
3	Twitter for Android	94,973
4	RedTuiteros	91,782
5	web	58,720
6	OlaBolivariana	46,323
7	PatriaGrande	37,616
8	Twitter Web Client	36,851
9	GranPoloPatriotico	25,504
10	Twitter Web App	17,332

Table 1: Top 10 most used Twitter clients in the dataset.

4 Themes and Tactics

Using network analysis, we examined the network structure of the takedown data by creating networks for user mentions, retweets, and replies. We also created a bipartite projection linking users who shared the same hashtags. Using standard community detection techniques on these different networks, we found several clusters that suggested coordinated behavior. First, the user mentions graph—where nodes represent users and edges indicate mentions—revealed two clear communities of accounts.

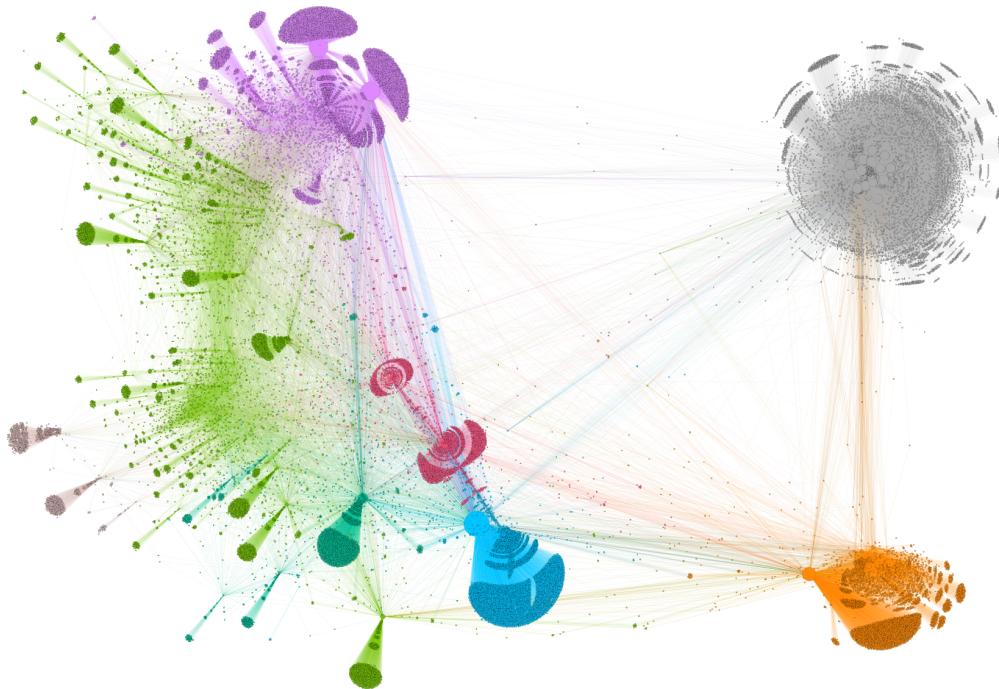


Figure 4: User Mention graph for the Venezuela dataset. Notes represent users and are sized by overall degree. Edges are tweets mentioning a user. Community detection was done using the Louvian method in Gephi, which found relatively high modularity for the network (0.61) and identified 10 communities which can be differentiated by the color of the nodes.

The distinct community colored gray in Figure 4 (top right) consists of a cluster of accounts that engaged in pro-PSUV content, often using specialized twitter clients, presumably to automate posting. These accounts displayed clear parallel patterns in their activity and frequently retweeted the same content. Their behavior is discussed further in Section 4.1 on the following page.

The accounts in the orange community were mostly created in 2017 and list their country of origin as Colombia. Many of the accounts in the green, purple, red, and blue clusters listed their locations as Mexico and amplified a variety of political and commercial hashtags. These accounts are discussed in Section 4.3 on page 12.

In the hashtags graph—where nodes represent users and edges indicated shared hashtag use—we observed a small but notable community of accounts that heavily

amplified hashtags about Alex Saab, a Colombian businessman who was arrested in Cape Verde in June 2020 on charges of laundering money on behalf of the Maduro regime, and who currently awaits trial in [Miami](#). This community is discussed in the section “Saab Accounts.”

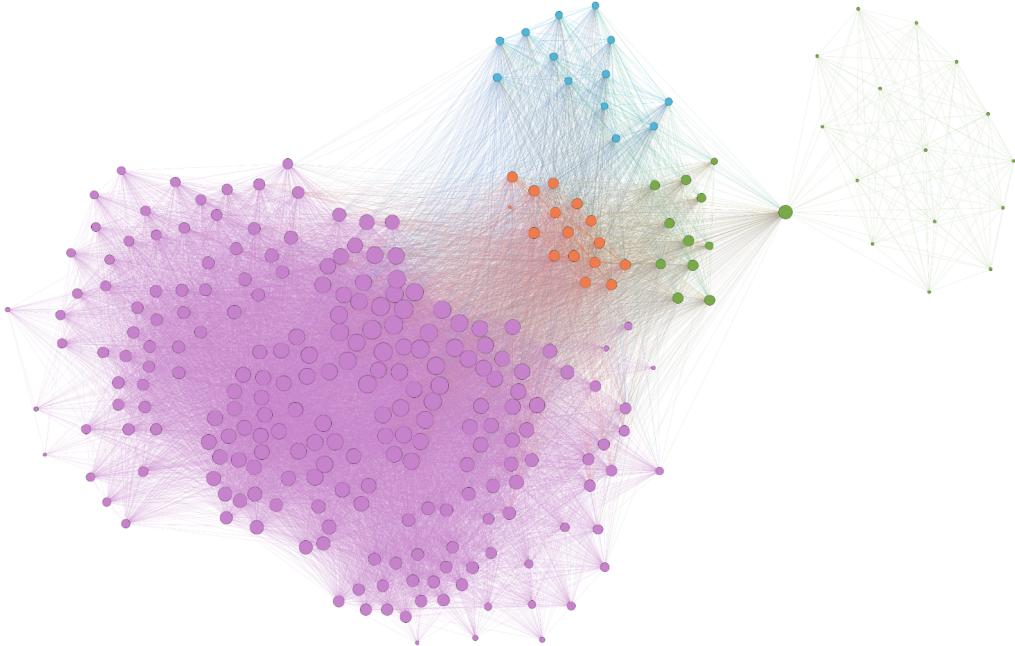


Figure 5: A network graph displaying linkages between accounts based on common hashtag use. The green cluster on the right all shared common hashtags mentioning Alex Saab.

4.1 Twitter Clients

The network analysis identified a community of 15 accounts that engaged in pro-PSUV messaging and exhibited clear signs of coordination. The oldest account was created in November 2009 and the newest in July 2012. Their use of Twitter over time, measured by tweets per day, show high post frequency and nearly identical patterns of tweets per day, particularly between December 2013 and August 2014, suggesting that the accounts may have been using the same automated posting strategies (see Figure 6 on the following page).

Accounts in this community made heavy use of a number of likely custom Twitter clients to post repetitive and nearly synchronous content. First, within the dataset, the 15 accounts were the exclusive users of a twitter client called “RedTuiteros” (network of tweeters) and all 15 accounts also used another more broadly used client, “PSUV” (the acronym for the ruling United Socialist Party of Venezuela). The RedTuiteros client was used to post 91,782 tweets between April 10 and October 31, 2013. These automated posts simultaneously pushed identical tweets or retweets across users. The PSUV client was used over a longer period (starting in 2012), mostly posting automated retweets of former Venezuelan president Hugo Chavez, and then of his successor Nicolás Maduro. Use of the PSUV client was

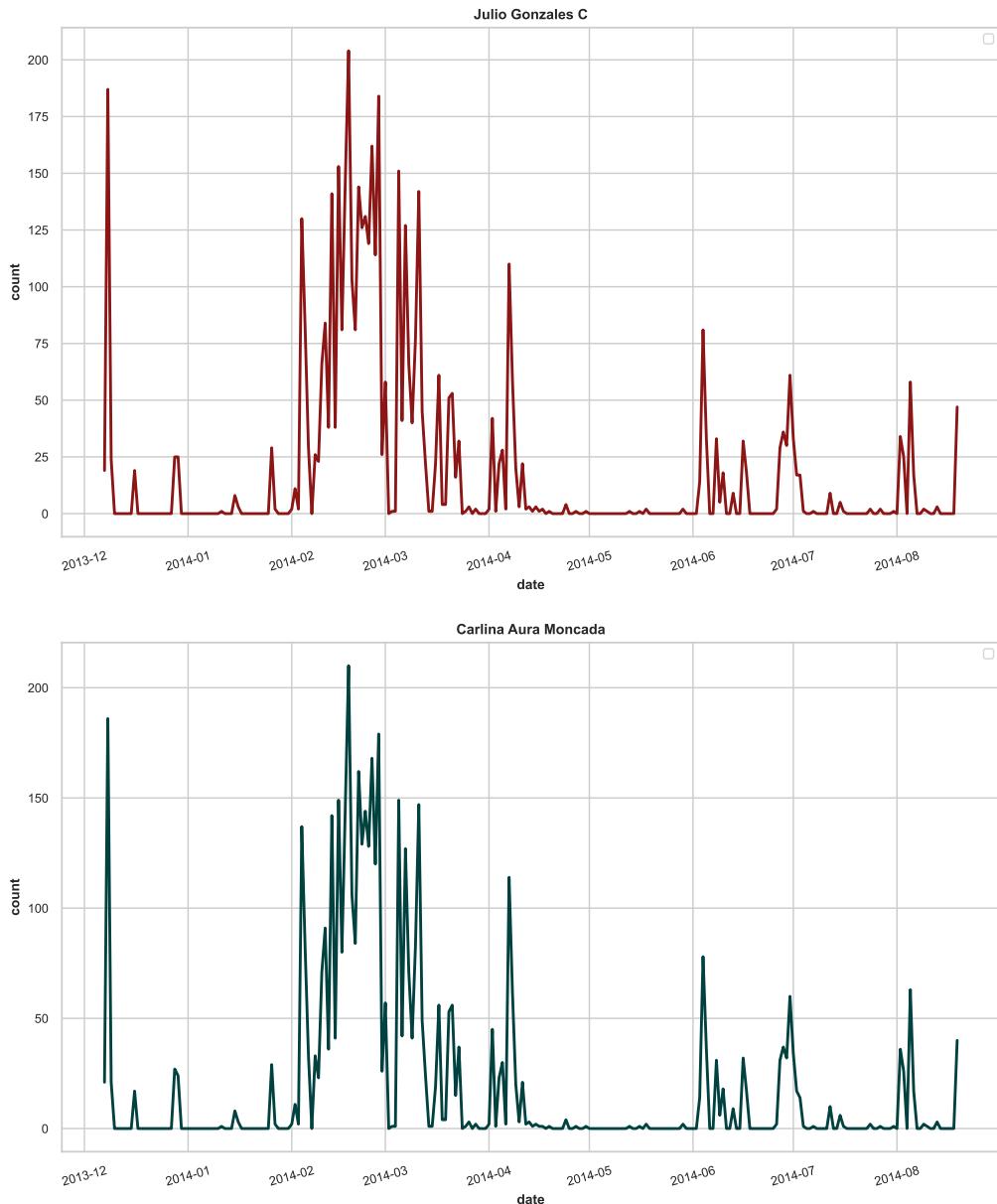


Figure 6: Graphs showing tweets per day for two accounts in the community of pro-PSUV accounts (colored gray in Figure 4 on page 7). All 15 accounts show nearly identical patterns of behavior.

not exclusive to this community, but this community made up nearly two thirds of the use within the network.

Interestingly, from December 2013 to August 2014, this community of accounts employed a set of ten new twitter clients to post identical tweets across the accounts. The names and long-term posting patterns of the Twitter clients used by the accounts in the network shared notable characteristics that provide evidence of coordination. All 10 clients were named after animals native to Venezuela: Cardenalito (red siskin, a bird in the finch family), cunaguardo (ocelot), Chiguire (capybara), tucusitos (hummingbird), Cachama (tambaqui, a type of fish), Cachicamo (armadillo), pavita (a type of owl), babo (a species of caiman), rabipelado (opossum), and guanaguanare (laughing gull).

The Chiguire (capybara) client was used by all 14 accounts over a two hour period on December 7, 2013. This was one day before the Venezuelan municipal elections on December 8, 2013. During that window, each account also began to use exactly two other animal clients, which they used until August 19, 2014. The number of tweets posted per user-client pairing were notably similar, varying from 2,028 to 2,654.

USERS	CLIENTS										<i>Total</i>
	Chiguire	rabipelado	guanaguanare	pavita	tucusitos	Cachama	babo	cunaguardo	Cachicamo	Cardenalito	
@joseomarsriay	6								2,524	2,589	5,119
@MarielysRosa	2										5,113
@alejandroa_	3									2,493	5,093
@alicialeo78	11								2,502		5,073
@CarlinaAura	2	2,078						2,863		2,560	4,943
@alexanderosas	5							2,877		2,028	4,910
@ArieChirino	4		2,468							2,428	4,900
@BrendaArenasy	5			2,443					2,448		4,896
@joseangelgg	3							2,428	2,433		4,864
@juaniros	2							2,410	2,446		4,858
@pavonarango	5				2,407	2,445					4,857
@keylanfernandez	5							2,376		2,442	4,823
@jgonzalezcoello	5			2,358	2,460			2,432			4,823
@yudistania	1								2,389		4,822
<i>Total tweets by client</i>	59	2,078	2,468	4,801	7,324	7,696	7,723	10,165	12,240	14,540	69,094

Figure 7: A table comparing all tweets from the animal twitter clients (columns) with the accounts they tweeted from (rows). Notice the relatively even distribution of tweets across couplets and users. Each user used exactly three clients.

Tweets were simultaneously posted across different pairs. For example, on December 8, 2013 at 12:31 AM UTC, 14 accounts retweeted the same [tweet](#) containing the hashtag “#VictoriaChavistaSegura.” They used seven different clients to amplify this hashtag, which shares the style of state-designated hashtags of the day.³ Other combinations of users and clients tweeted in similarly coordinated ways over the nine months of activity. The accounts may have used this behavior to limit detection as we were unable to identify a clear pattern to the order in which the different accounts and clients tweeted.

Beyond the discussed community of 15 accounts, Twitter clients were also used

³We cannot confidently say that this was a purposeful hashtag of the day organized by the Venezuelan state, however, the format of the hashtag (a patriotic phrase with each word capitalized) follows the pattern of the government’s hashtags.

by a larger set of accounts in this dataset to amplify state officials' accounts. The client PSUV was used by a total of 28 accounts to post 146,768 tweets from 2012 to 2021. These tweets were mostly retweets of state officials including President Maduro, former vice president and current minister of petroleum Tareck El Aissami, and current vice president Delcy Rodríguez. For example, 17 accounts simultaneously retweeted a new [tweet](#) by President Maduro on December 4, 2015 using the PSUV client. The retweets happened six minutes after Maduro's original tweet. This behavior seems indicative that the accounts used the twitter client PSUV to coordinate or automate tweets.

The clients OlaBolivariana (used by ten accounts for 46,323 tweets), Comando-Carabobo (used by three accounts for 5,009 tweets), and PatriaGrande (used by seven accounts for 37,616 tweets) automated other patriotic content and overlapped with the above discussed community's users. Many of the tweets were also retweets of politicians and official accounts. A Facebook page for the Ola Bolivariana (Bolivarian Wave) community was created in April 2012. The last post to the page was made in August 2017. The page links to a website that is now defunct.

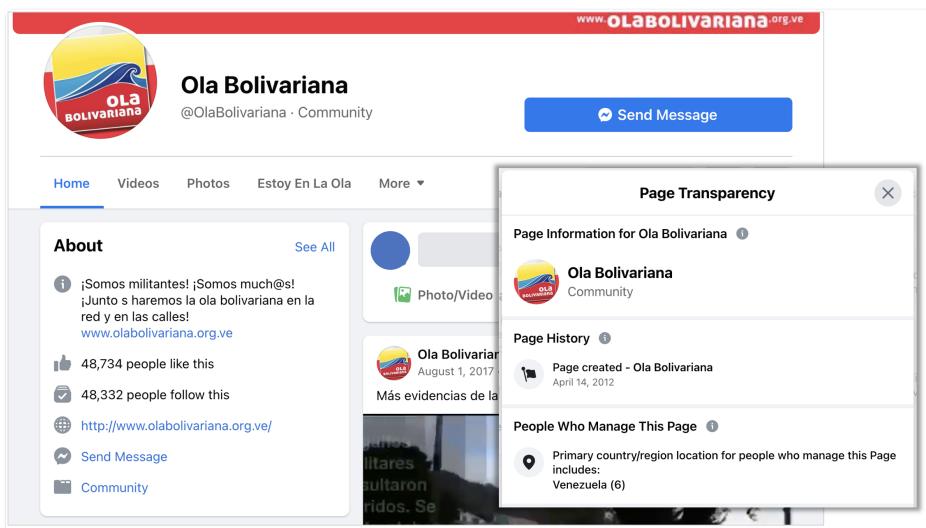


Figure 8: The Facebook page and page transparency for “Ola Bolivariana”. The about section reads, “We are militants! We are boys/girls! Together we will launch the Bolivarian wave on the web and on the street!”

4.2 Alex Saab Cheerleading Accounts

From the hashtag engagement graph, we observed a community of accounts that all used permutations of the hashtags #AlexSaab. Alex Saab is a Colombian businessman who has been characterized by the [United States](#) as a money launderer working on behalf of the Maduro regime to skirt Venezuela's trade embargo, and by [Venezuela](#) as a hero working to bring food aid into the country. He was [arrested](#) on an Interpol warrant on June 12, 2020 in Cape Verde when his private jet stopped to refuel en route from Caracas to Tehran. On October 16, 2021, he was extradited to stand trial in the United States. The dataset provided by

Twitter contains 17 accounts created between May 4 and May 9, 2021 that tweeted exclusively in support of freeing Alex Saab. The accounts tweeted in Spanish, English, and Portuguese (the official language in Cape Verde). The English and Portuguese tweets appear to be machine translations of the Spanish posts. The tweets call Saab a political prisoner and accuse Cape Verde of bowing to the pressure of the United States.

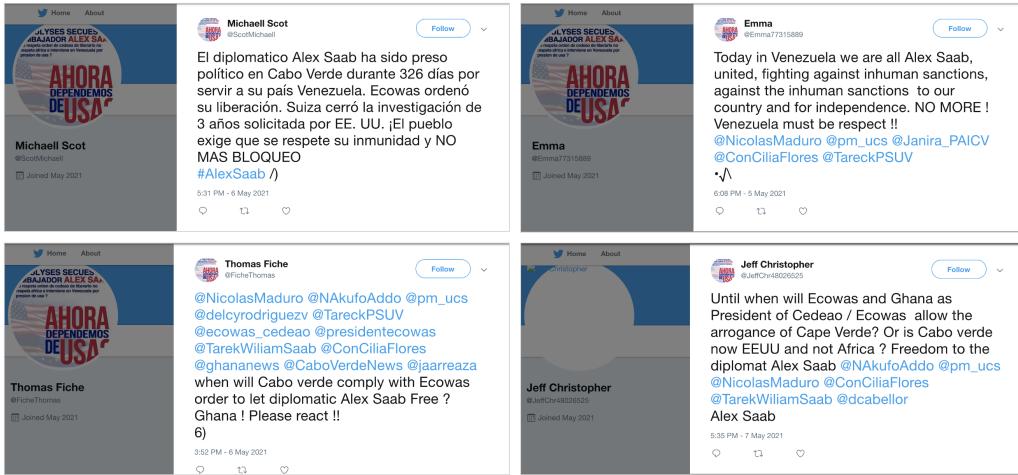


Figure 9: Tweets from accounts in the Alex Saab cluster found on archive.org.

From accounts observed on Archive.org (a non-comprehensive archive of these accounts), the accounts used either a photo of Alex Saab or a graphic advocating for his release as their profile picture. The accounts traded off tweeting, with one account posting multiple tweets within minutes or seconds of each other and then a different account tweeting for the next several hours. The accounts posted 556 tweets over six days, ranging from as few as four to as many as 115 tweets per account. This behavior coupled with the rapid account creation dates suggests that these accounts were spun up to target Cape Verde, the president of Ghana, and Cape Verde's other West African allies who could potentially have intervened on behalf of Saab. The accounts had few followers and no tweet engagement.

4.3 Mexico Group: Commercial Hashtags

Another group of accounts in this takedown amplified hashtags likely intended for a Mexican audience. Some of these accounts shared messages related to both Mexican brands and political candidates. The accounts heavily tweeted a single commercial or political hashtag at a time—usually over a few hours—before moving to another days later. This behavior seems indicative of mercenary behavior—an account may have been used by a promoter or paid to promote a specific hashtag – as the hashtags themselves seem to have little relation to each other.

The commercial hashtags used most frequently by accounts in this group were “#TWDxSTARChannel,” (short for The Walking Dead on STAR Channel, a TV show); “#SoyPuraPiraña” (referring to Heineken’s recently launched hard seltzer

brand); and “#INDIOSustentable” (a sustainability campaign by Mexican beer brand Cerveza Indio). Each of these hashtags was used over a short period of time (4-6 hours) on exactly one day. At least one hashtag, #TWDxSTARChannel, **trended** in Mexico on the day it was used by accounts in the takedown.

Some of the same accounts that used the commercial hashtags also used hashtags relating to Mexican politics. Of accounts that used #SoyPuraPiraña, about 60% also posted tweets including #YoConDavid (#ImWithDavid, referring to Zacatecas’s gubernatorial candidate David Monreal Ávila) and about 21% also used #KuriGanador (#KuriWinner, referring to the Mexican state of Querétaro’s gubernatorial candidate Mauricio Kuri González). González and Ávila both won their races in elections held on June 6, 2021, just over a month after these hashtags were used by accounts in this takedown. As further evidence of account coordination or shared management, a cluster of seven of these accounts created over a one-month period retweeted the same tweets within minutes of one another on multiple occasions.

Hashtag	# of Tweets	# of Accounts	First use	Last use
#TWDxSTARChannel	4,413	111	2021-03-01 16:01 UTC	2021-03-01 20:49 UTC
#INDIOSustentable	3,075	89	2021-04-22 15:00 UTC	2021-04-22 20:30 UTC
#SoyPuraPiraña	3,547	98	2021-04-28 17:01 UTC	2021-04-28 21:04 UTC
#YoConDavid	2,307	93	2021-04-21 21:59 UTC	2021-04-22 21:18 UTC
#KuriGanador	1,763	85	2021-04-30 14:30 UTC	2021-04-30 17:38 UTC

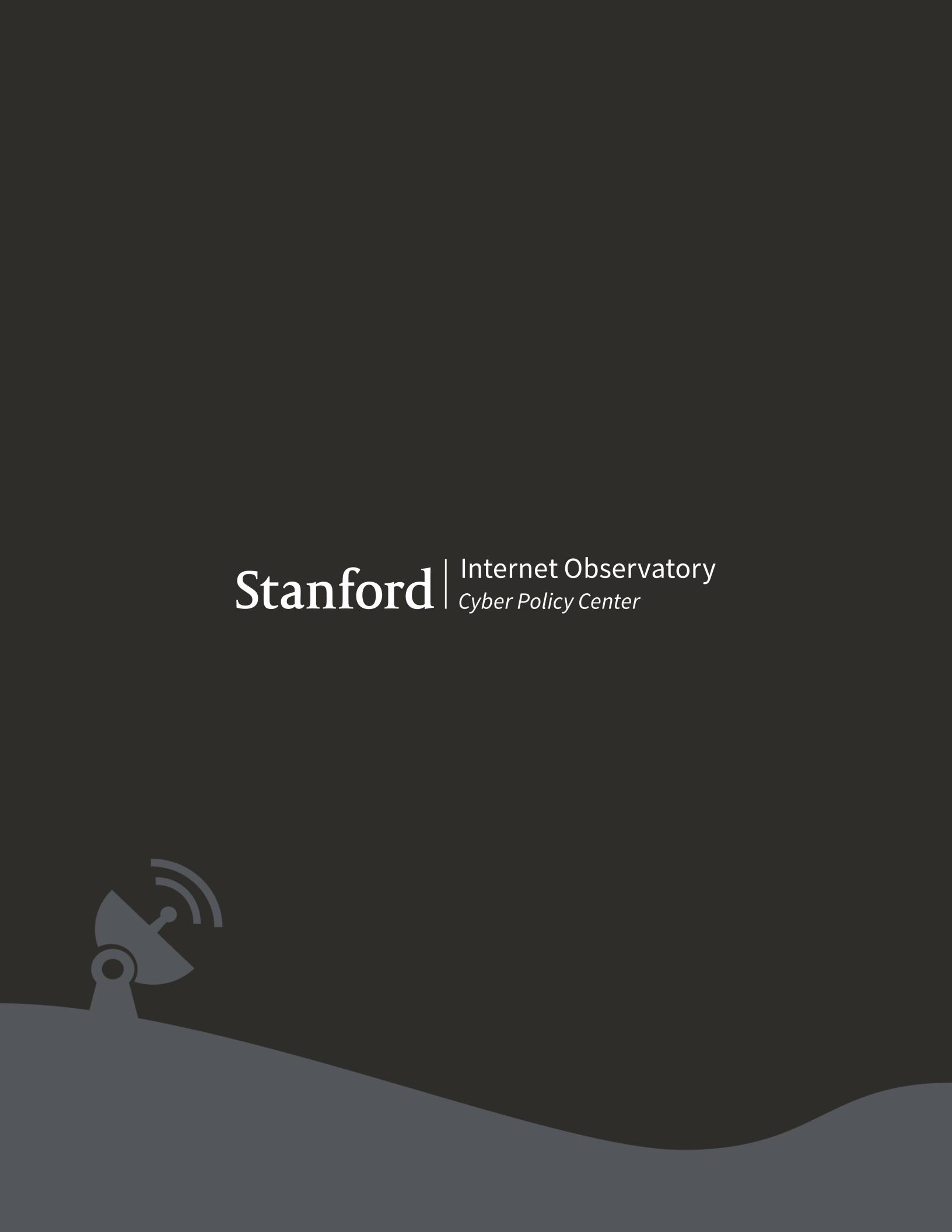
Table 2: A table showing the concentrated use of specific political and commercial hashtags over short spurts of time.

5 Conclusion

It is our interpretation based on analyzing the accounts that this network may be better described as 4 or 5 distinct groups linked to each other only by mentions of common public figures or popular hashtags and by behavior that violates similar parts of Twitter’s policies. We cannot confidently link the Mexican and Colombian accounts with the Venezuelan accounts. It is possible that these operations were completely isolated. We encourage other researchers to dive further into the data released in Twitter’s Information Operations [Archive](#).



The Stanford Internet Observatory is a cross-disciplinary program of research, teaching and policy engagement for the study of abuse in current information technologies, with a focus on social media. The Stanford Internet Observatory was founded in 2019 to research the misuse of the internet to cause harm, formulate technical and policy responses, and teach the next generation how to avoid the mistakes of the past.



Stanford | Internet Observatory
Cyber Policy Center