



**RIPE NCC**  
RIPE NETWORK COORDINATION CENTRE

# RIPE Atlas

Designing for tomorrow; a  
sneak peek into upcoming  
RIPE Atlas changes

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# **RIPE Atlas Intro**

A quick overview of RIPE Atlas

# An Introduction



- RIPE Atlas is a **global active measurements platform**
- Goal: view Internet reachability
- Probes hosted by volunteers
- Data **publicly available**

# RIPE Atlas Measurements



- **Built-in** global measurements towards root nameservers
  - Visualised as Internet traffic maps
- **Built-in** regional measurements towards “anchors”
- Anchors measure each other in a “mesh” measurement
- **Users** can run customised measurements
  - ping, traceroute, DNS, SSL/TLS, NTP and HTTP\*

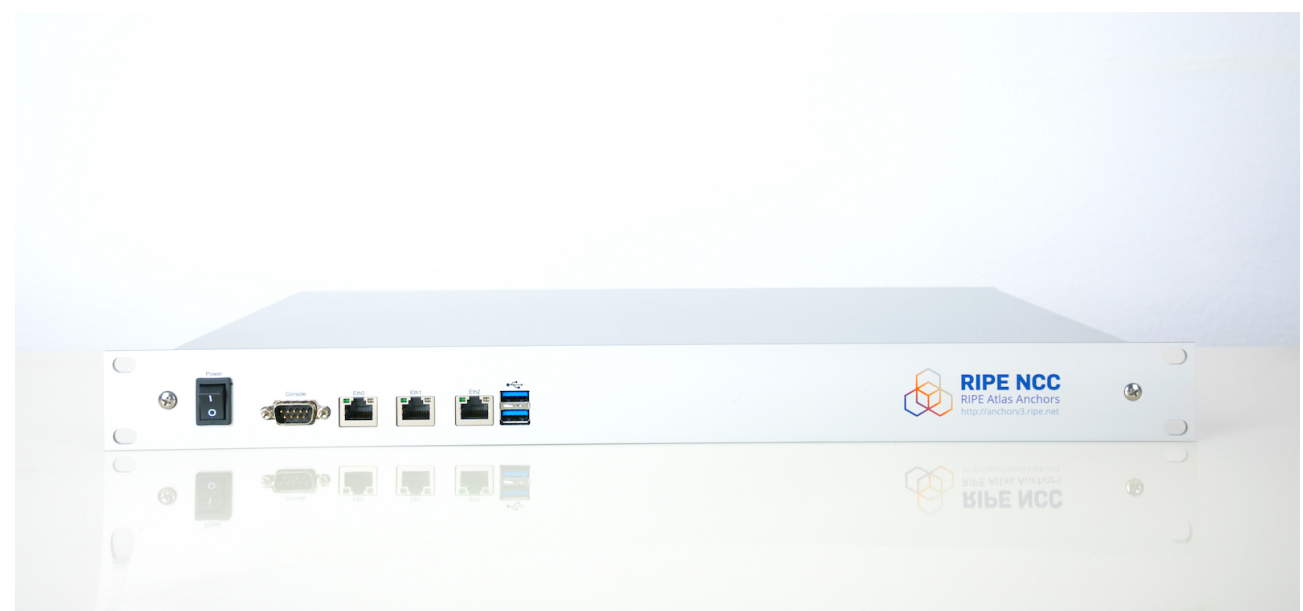
# Probes and Anchors



- **12,000+** probes connected (**800+** RIPE Atlas Anchors)
- **15,000+** results collected per second
- **35,000+** measurements currently running



*RIPE Atlas probe*



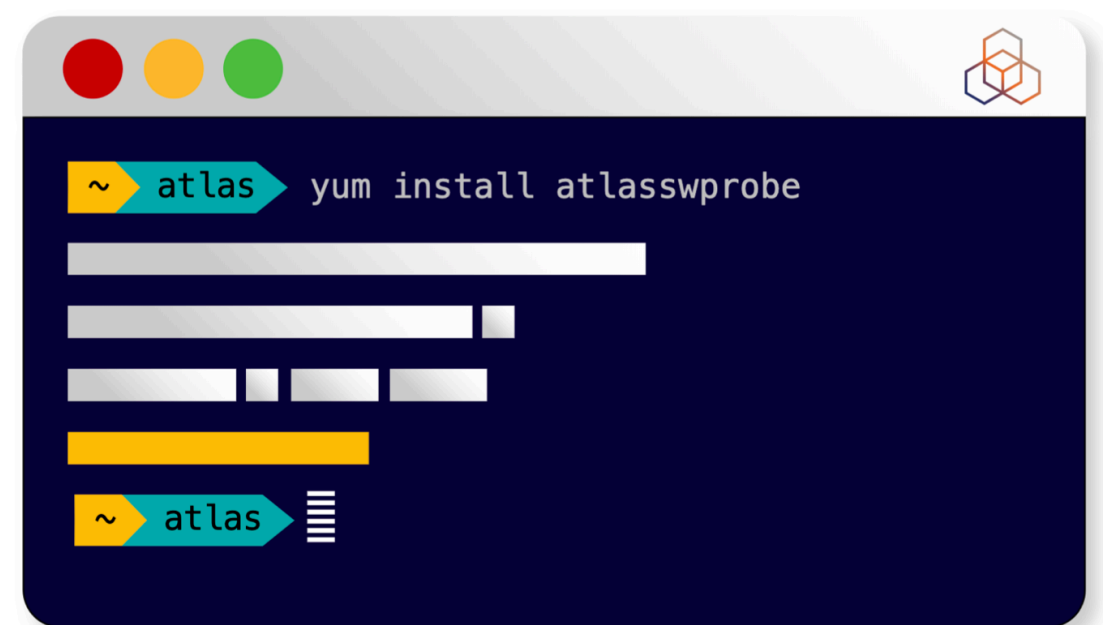
*RIPE Atlas anchor*

# New: RIPE Atlas Software Probes



- Software packages that work like regular probes
- Install and run on your (virtual), machines, routers, servers etc
- Currently supporting:
  - CentOS 7 and 8; Debian (9 and 10) and Raspbian; Docker; Turrís Routers
- Further information: [atlas.ripe.net/docs/software-probe/](https://atlas.ripe.net/docs/software-probe/)

Apply to host a software probe:  
<https://atlas.ripe.net/apply/>





# Backend Changes

What will change in the near future

# Big Data backend changes



- We will move from 1 big store with everything to a hot/cold model
  - Recent data will be faster to retrieve
  - Backend will be more stable as heavy queries are offloaded
- Hot storage
  - 1 month of the most recent data (HBase)
- Cold storage
  - S3 (or similar object store) for everything else



# New measurements



- HTTP for everyone
  - Every user can run HTTP measurements but only using probes that have opted-in for HTTP
- StartTLS, TLS 1.3
  - Currently being worked on

# API keys security enhancements



- Following best practices
- Much faster backend validation of API keys
- “Rekey” option to quickly replace lost keys

Label

Created  
2023-11-05

UUID  
563866a4-176b-4ded-9395-22efb0adac19

Copy UUID

-----  
This is the only time this key will be shown. Please copy it and keep it somewhere safe.

Enabled  
ON



Valid From

Valid To

📅 2023-11-05

📅 2024-11-05

Permissions



*This is the caption of the photo. It explains what's in the photo.*

# Other backend and API changes



- Credit Research pool
  - Researchers can request to use a special credit pool for running their campaigns (implemented via the Bill me option)
  - Integrated with a form to ask for elevated permissions
- Many new API endpoints
  - API for sponsors and ambassadors
  - Settings API for quotas, requesting credits, notifications
  - Additional fields on many existing endpoints



# Frontend changes

Designing for speed and usability

# A new measurement form



- Simplified layout
- Much faster
- Better probe selection
- More sensible defaults
- Already on production

The screenshot displays a three-step measurement creation form.   
**Step 1: Definitions** includes a header with a menu icon and a close icon. Below it is a instruction: "Please select the type of measurement you want to create (you can add multiple)." followed by buttons for PING, TRACEROUTE, DNS, TLS, HTTP, and NTP. A "PING Configuration" modal is open, showing "IPv4" and "IPv6" tabs, a "PING to" field with a "Target (Required) Enter Target" input (marked as required with a red error message), and a "Description" field with the placeholder "Ping measurement to". A "+ MORE OPTIONS" button is also present.   
**Step 2: Probe Selection** features a header with a menu icon and a close icon. It contains buttons for "SEARCH", "RANDOM BY..." (with a dropdown arrow), "IDS LIST", and "REUSE FROM EXISTING MEASUREMENT". Below these is a "Probe Selection" section showing "10 Random Probes AREA: Worldwide" with a close icon.   
**Step 3: Timing** has a header with a menu icon and a close icon. It includes the instruction: "Please select if this is a one-off (vs. ongoing) measurement and start and end times (if needed). All times are in UTC." Below this is a "This is a One-off:" toggle switch (currently off). At the bottom are "Start Time:" and "End Time:" fields, each with a calendar icon and the options "ASAP" and "Never".

*The new measurement creation form*

# New measurement listing



- Better performance
- Clean separation of public and mine
- Easier to see builtins and anchoring
- Search will create a permalink that can be saved
- Already on production

## Measurements

This is a list of all RIPE Atlas measurements.

[LEARN MORE](#)

PUBLIC

MINE

Search Measurements

Search

All

Built-In

Anchoring

<

>

ID	Type All	IPv4/v6 All	Target	Description	Probes	Interval All	Time (UTC)
<a href="#">63253944</a>	ping	4	151.251.119.1/32	<div>single-radius</div> <div>geolocation</div> <div>Active geolocation of 151.251.119.1/32</div>	500	one-off	<div>&gt;</div> 2023-11-05
<a href="#">63253943</a>	ping	4	82.199.96.1/32	<div>single-radius</div> <div>geolocation</div> <div>Active geolocation of 82.199.96.1/32</div>	497	one-off	<div>&gt;</div> 2023-11-05

PUBLIC

MINE

Search Measurements

All

Non-public

Favourites

Hidden

<

>

ID	Type All	IPv4/v6 All	Target	Description	Probes	Interval All
<a href="#">63210002</a>	dns	6		<div>workshop</div> <div>uob</div> <div>DNS measurement</div>	50	240
<a href="#">63210001</a>	sslcrt	6	workshop.atlasprobes.nl	<div>workshop</div> <div>uob</div> <div>SSL measurement to workshop.atlasprobes.nl</div>	50	900

# New probe listing

- Same separation of public and mine as with measurements
- Improved speed
- Search will create a permalink that can be saved
- Available in production



## Probes

Apply for a Probe

This is a list of all current RIPE Atlas probes, including information specific to each probe. More probes are continually coming online.

[SEE PROBES MAP](#)

PUBLIC

MINE

Search Probes  
Search

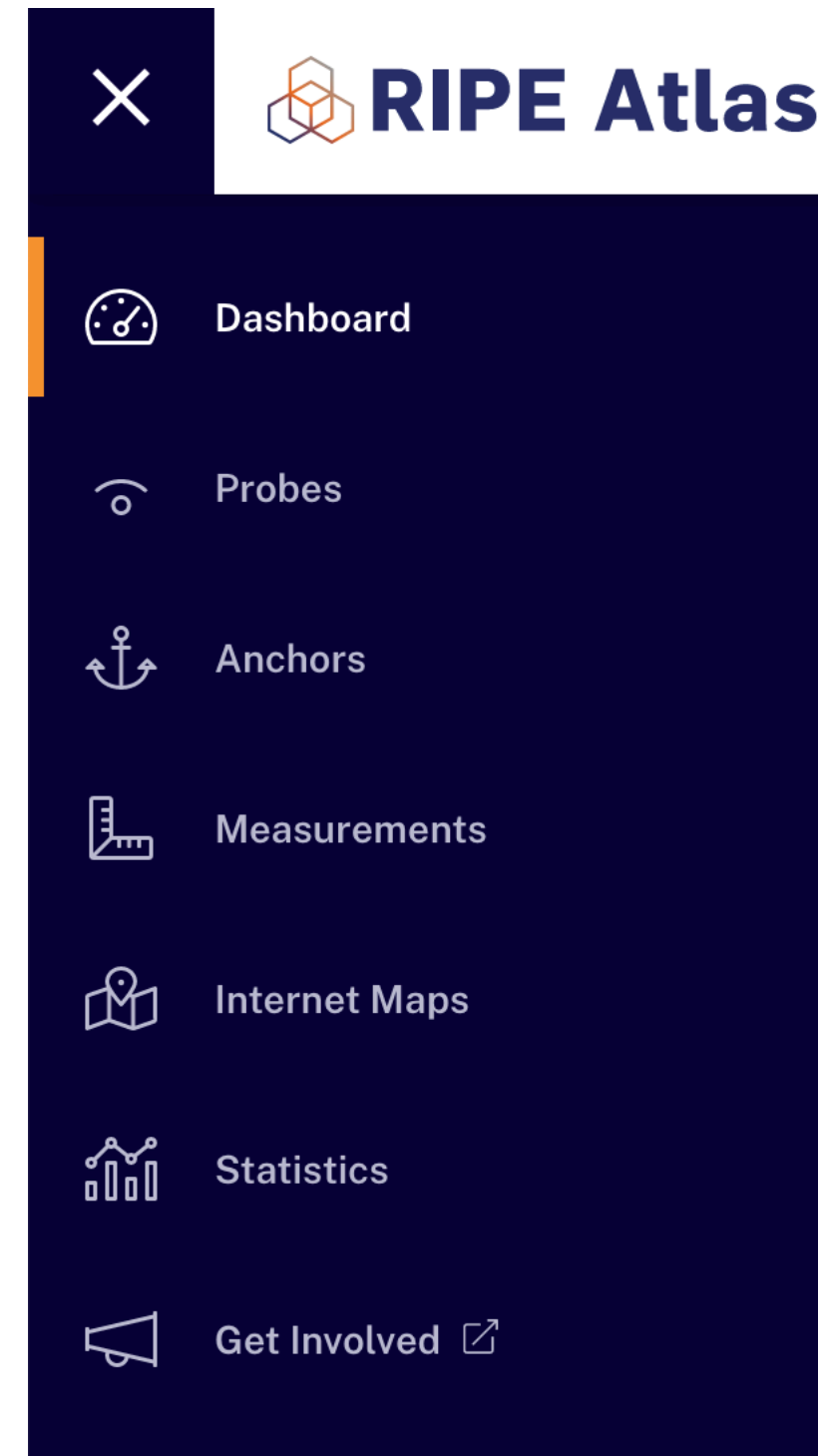
All Public Non-public Anchoring

ID	asn_v4	asn_v6	Country	Description	Connection Status	Public?
			All			
<a href="#">1006717</a>	<a href="#">23473</a>	<a href="#">23473</a>	United States		12 hours	
<a href="#">1006716</a>	<a href="#">8767</a>		Germany	IN-Ulm @ASAM-Net	15 hours	
<a href="#">1006715</a>	<a href="#">12389</a>	<a href="#">12389</a>	Russian Federation	Rostelekom	18 hours	
<a href="#">1006714</a>	<a href="#">24560</a>		India		5 hours	

# Separate ‘app’ and ‘promo-pages’



- How to's and community pages will move to a separate site
- Focus on the core functionality of Atlas





# New Dashboard



- Available cards based on your roles
- Cards can be shown or hidden
- Cards can be moved around
- Available in beta-ui

The screenshot shows the RIPE Atlas dashboard for user Johan. At the top, a welcome message is followed by a row of role badges: Probe Host, Anchor Host, Ambassador, Sponsor, NCC HTTP User, and LIR Member. Below this is a 'News Flash' section with a message about a new feature. The dashboard is divided into two main columns. The left column contains a 'Credits' card showing a balance of 493,323,020.751 and a 'Requests' card with links to 'Request Probes' and 'Request T-Shirts'. The right column features an 'Ambassador Probe Management' section with a search bar and a table of probes. The table has columns for Probe ID, Host, Status, Event, Tag, Handed out, Country, and a checkbox. The bottom of the dashboard shows a pagination bar with 'Records per page: 5' and '1-5 of 33'.

**Welcome Johan** ✓ Probe Host ✓ Anchor Host ✓ Ambassador ✓ Sponsor ✓ NCC HTTP User ✓ LIR Member

Thank you for being a Probe Host, Anchor Host, RIPE Atlas Ambassador, RIPE Atlas Sponsor and LIR Member.

**News Flash**

There is some new [feature available](#) in RIPE Atlas!

This card will only show when there is some news that we want to alert our members about.

**Credits** ⓘ

**493.323.020.751**  
Credit Balance  
-2036855.2083 credits /hour [See Cred](#)

**Requests** ⓘ

[Request Probes](#)

[Request T-Shirts](#)

**Ambassador Probe Management** ⓘ

🔍 Search probes

<input type="checkbox"/>	Probe ID ↓	Host	Status	Event	Tag	Handed out	Country	Ne
<input type="checkbox"/>	<a href="#">50496</a>	johan2	Offline	AFRINIC Tu...		No Date	US	te
<input type="checkbox"/>	<a href="#">50305</a>	AFRINIC Atlas	Offline	AFRINIC Tu...		No Date	AO	Ac
<input type="checkbox"/>	<a href="#">50232</a>	Yasmine Bilkis I...	Offline	AFRINIC Tu...		2018-12-07	SL	Me
<input type="checkbox"/>	<a href="#">50085</a>	S Moonesamy	✓	AFRINIC Tu...		No Date	MU	Ac
<input type="checkbox"/>	<a href="#">30389</a>		Never	Menog 2017				

Records per page: 5 1-5 of 33 << < > >>

# New dashboard (continued)



My Measurements

Search Measurements

AllNon-publicFavouritesHidden

ID	Type	IPv4/v6	Target	Description	Probes	Interval	
1039484	ping	4	google.com		12	one-off	
1039501	trace	6	awan.bluesapphiresoftware.net	Traceroutev6 to awan.bluesapphiresoftware.net in LIR queue	1500	900	
1078897	sslcrt	4	nl-ams-as3333-2.anchors.atlas.ripe.net		50	one-off	
1788921	ping	4	besar.binatang.nl	Ping measurement to besar.binatang.nl	51	one-off	
1896787	ping	4	besar.binatang.nl	Quick Look IPv4 Ping to besar.binatang.nl	100	one-off	

Records per page: 5Page 1 of 79 | 1-5 of 394

My Probes

Search Probes

AllFavouritesHidden

ID	asn_v4	asn_v6	Description	Connection Status	Public?
No data available					

Events

Search events

Event	Date	Location	
118th IETF	4 - 10 Nov · Ongoing	Prague	I'll be there
An Evening with NL-ix in Berlin	9 Nov	Berlin	I'll be there
RSNOG	9 Nov	Belgrade	You are going
AOPF/AONOG 20223	9 - 10 Nov	Luanda	I'll be there
Supercomputing 2023 (SC23)	12 - 17 Nov	Denver	I'll be there

Records per page: 51-5 of 14

Messages

Search messages

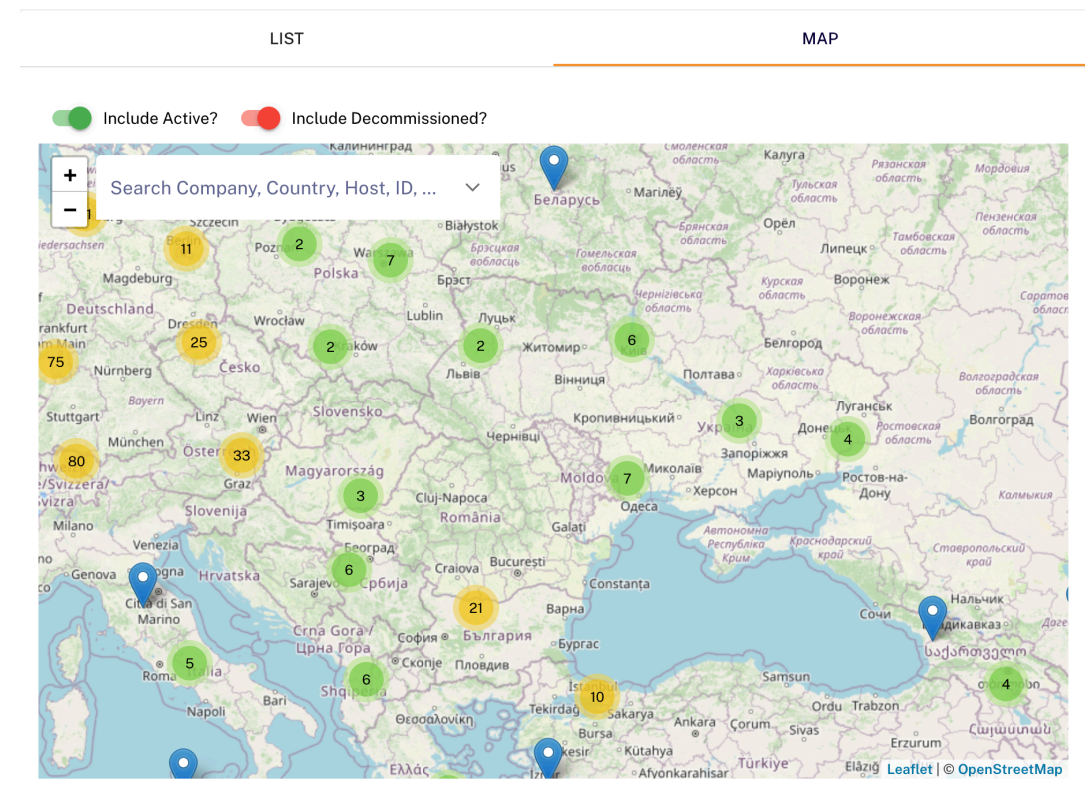
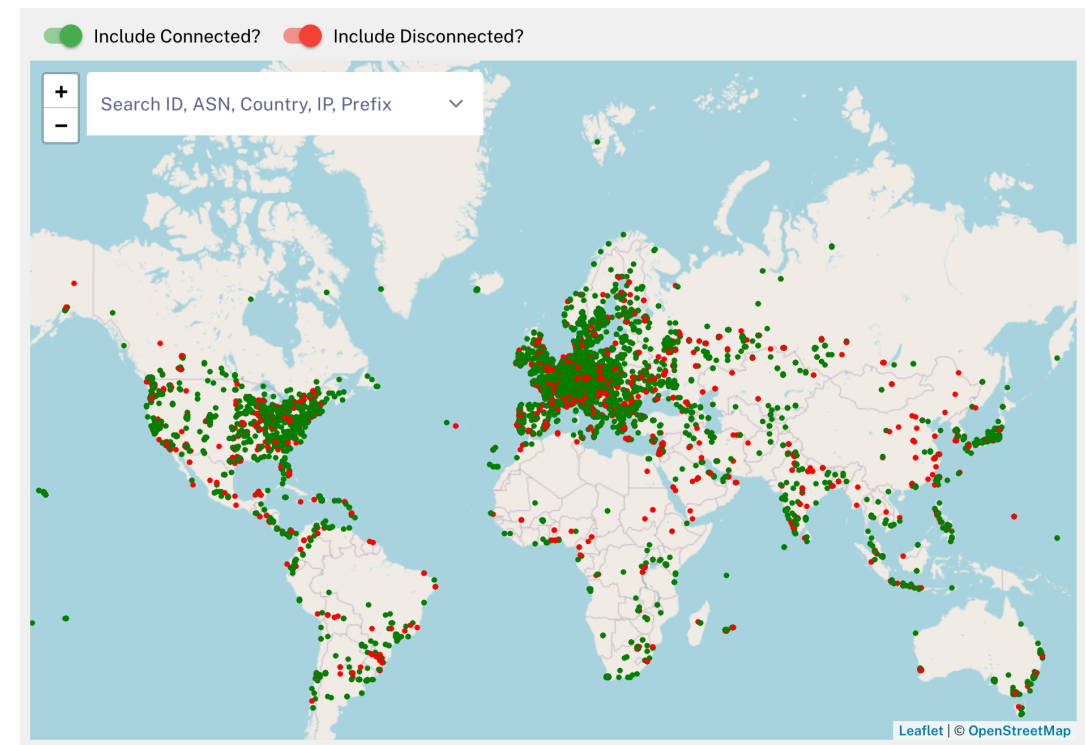
Time	Action	Message
2023-11-04 @ 09:25:12 UTC	Probe auto-tagged	Your probe #50001 was automatically tagged as "system: IPv6 Stable 1d"
2023-11-04 @ 06:25:13 UTC	Probe auto-untagged	Your probe #50001 was automatically untagged as "system: IPv6 Stable 1d"
2023-11-04 @ 03:25:13 UTC	Probe auto-tagged	Your probe #50001 was automatically tagged as "system: IPv6 Stable 1d"
2023-11-04 @ 00:49:26 UTC	Probe auto-tagged	Your probe #5000 was automatically tagged as "system: Resolves AAAA Corri
2023-11-04 @ 00:49:25 UTC	Probe auto-tagged	Your probe #5000 was automatically tagged as "system: Resolves A Correctly

Records per page: 51-5 of 1253

# New mapping framework



- Much much faster
- Clustered and unclustered variants



# New Settings page



- Page is a placeholder
- More control over the behaviour of the app
- Vastly expanded notification options

**Preferences**  
Please choose app prefs below

Please Choose Language

English (UK) ▾

Choose Infocard Theme

Default ▾

Image

No file selected.

T-shirt size

Facebook

Twitter

Instagram

Social Other

Notifications

☒ When Probes go Offline

☒ When Probes go Online

☒ When Probes have Shipped

Contact Preferences

Name

Company

Email Address

Shipping Address

Shipping Address line 2

City

Province

Country

Post Code

Phone Number

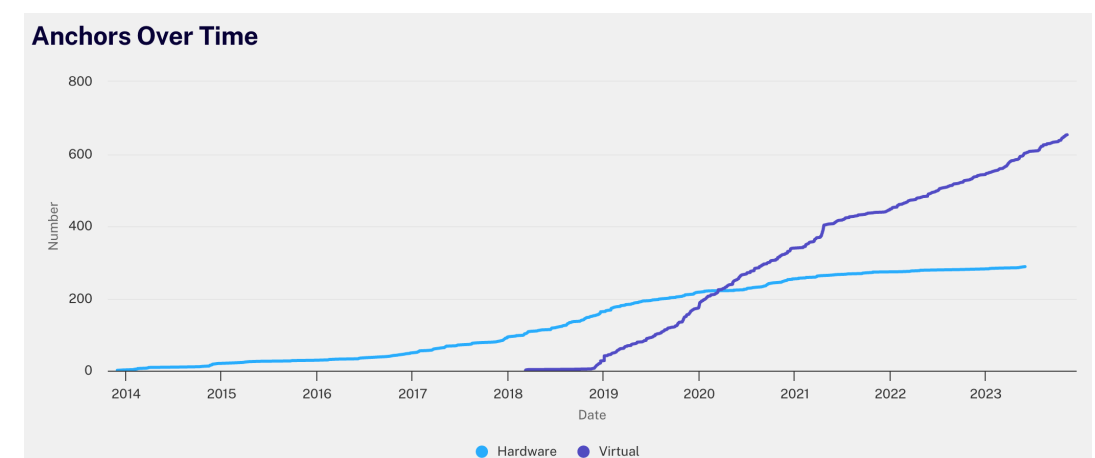
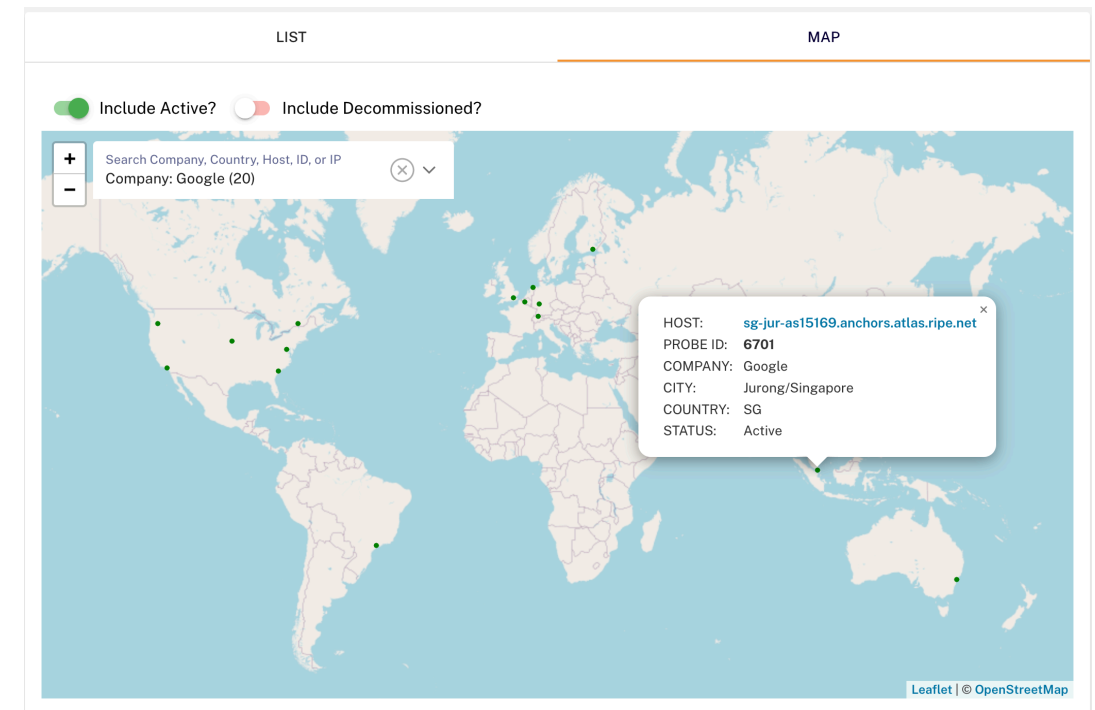
☐ Push Notifications

☐ Email Notifications

# Anchor maps and graphs



- Showing anchors on a map works again
- Show only anchors based on search criteria like company or country
- New graphing framework



# New Statistics page

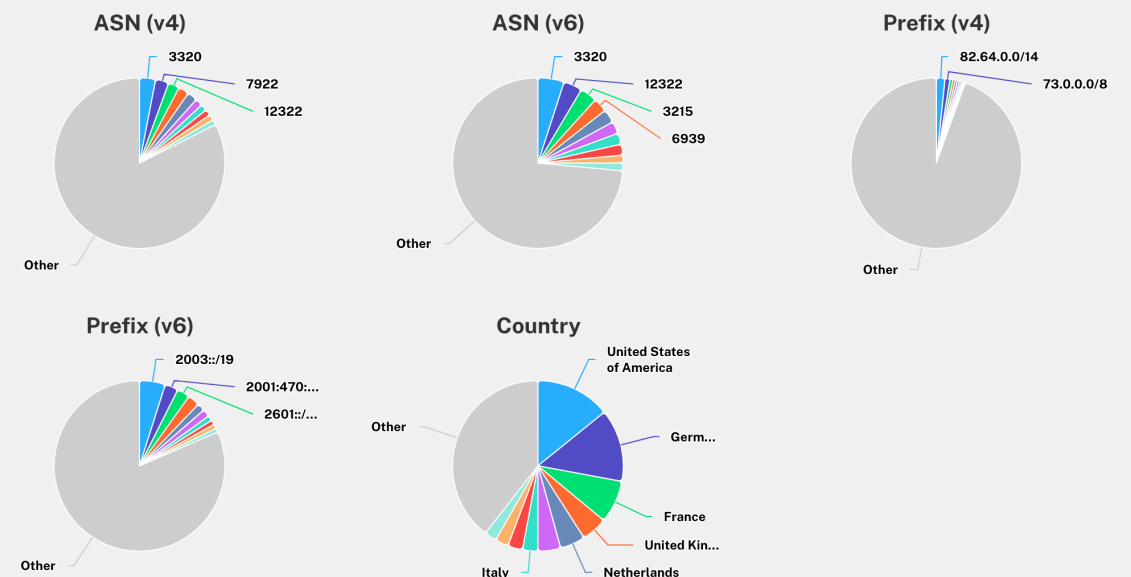


- May move to the promo pages

## ASN / IP Prefix / Country Coverage

Coverage Type	Covered	Total	Percentage
IPv4 ASNs Coverage	3814	75009	5.08 %
IPv6 ASNs Coverage	1853	32192	5.76 %
Countries Coverage	178	100	90.82 %

## Top ASNs / Prefixes / Countries



# How can you help?



- Please give us feedback on the new pages at <https://beta-ui.atlas.ripe.net/>
- Fill in the survey that we will make available soon
- Talk to me after lunch
- Email me: [jterbeest@ripe.net](mailto:jterbeest@ripe.net)



# Questions



[jterbeest@ripe.net](mailto:jterbeest@ripe.net)