

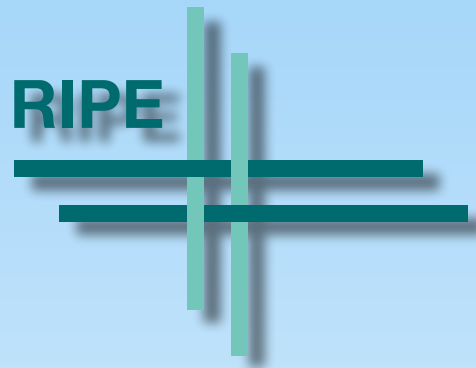


**RIPE
NCC**

RIPE & RIPE NCC

Matt Parker
Registration Service
RIPE NCC

Booking.com IT Day,
June 2014, Amsterdam

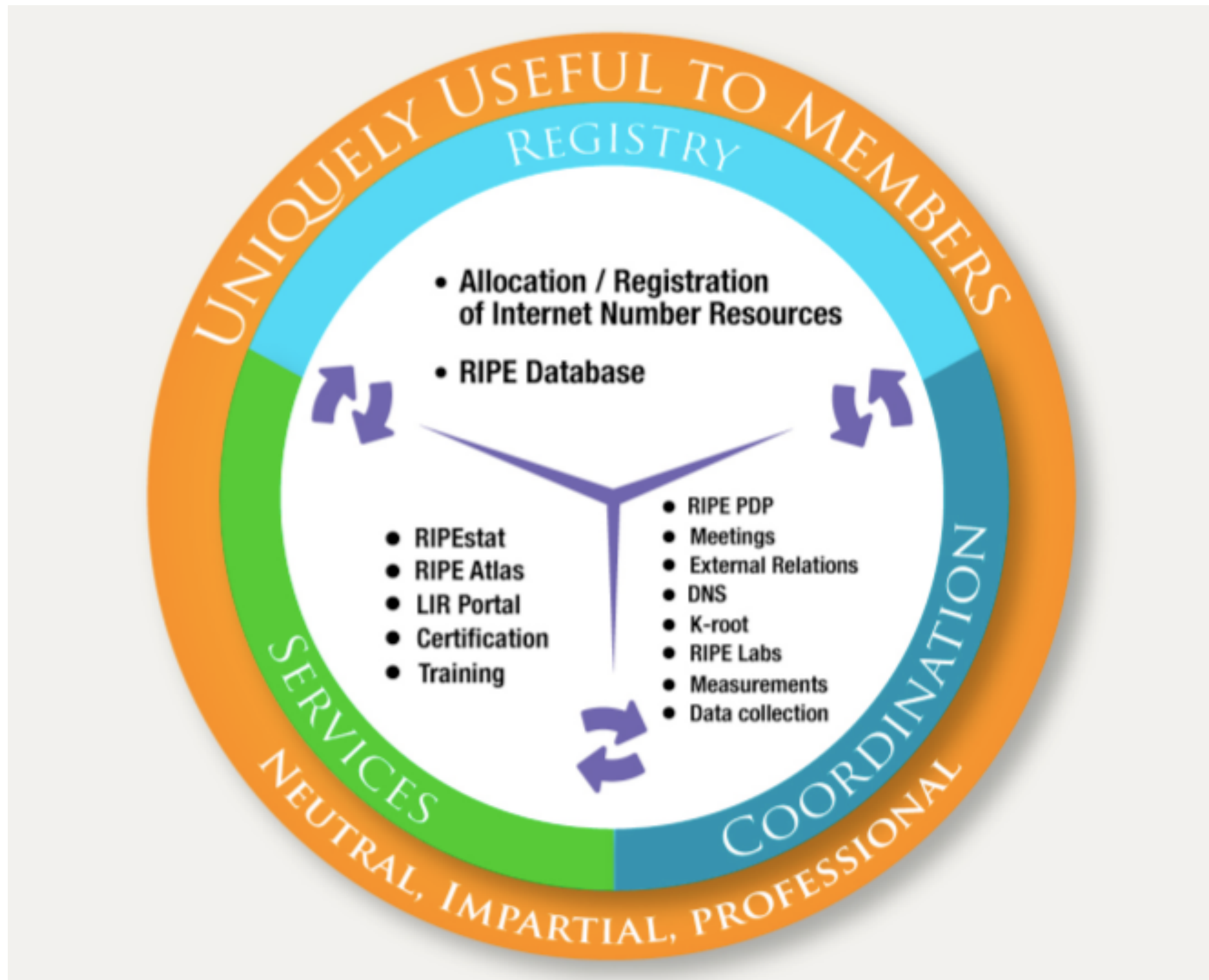


- Réseaux IP Européens
- Started in 1989
- Not a legal entity
- An open community
- No official membership
- Makes policies
- Meets twice a year
- Work is done in Working Groups on mailing lists



- RIPE Network Coordination Centre
- Started in 1992
- Not-for-profit organisation
- Located in Amsterdam
- Has members called Local Internet Registries (LIRs)
- Implements policies
- Facilitates two RIPE Meetings each year
- Provides services to both members and non-members
- Governed by an Executive Board elected by membership
- Neutral, Impartial, Open, Transparent







RIPE
NCC

Using RIPE Atlas and RIPEstat for Network Analysis

Christian Teuschel
Science Division
RIPE NCC

Booking.com IT Day,
June 2014, Amsterdam

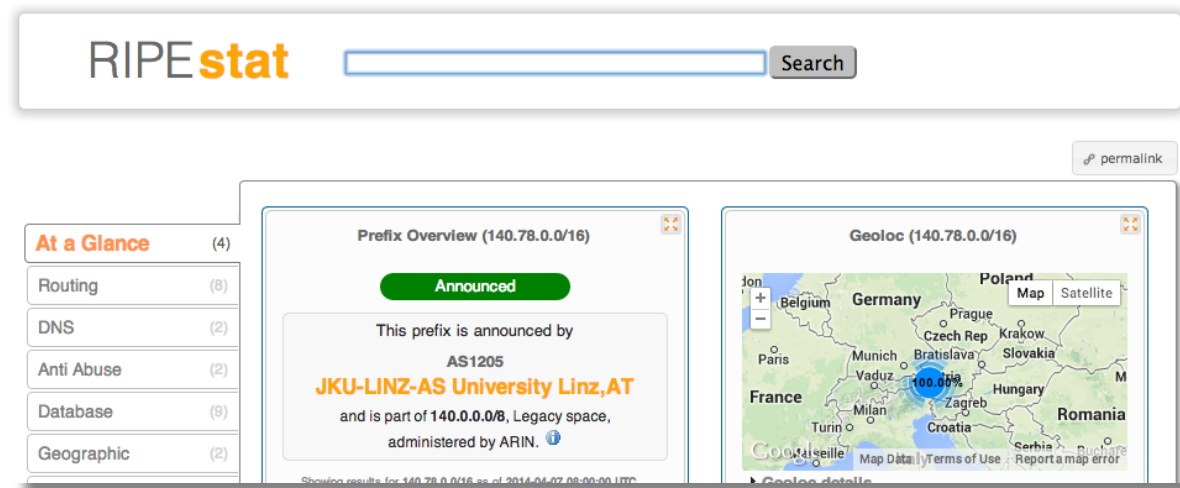


RIPEstat

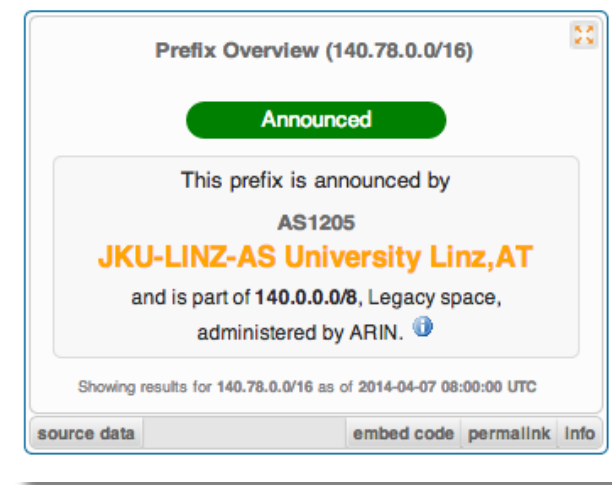


- Information system for Internet number resources
- Data
 - Routing data
 - Collected by RIS: <http://ris.ripe.net>
 - Registration data (whois)
 - RIPE Database & other RIR databases
 - MaxMind's geolocation data
 - Blacklist data
 - And many more: <https://stat.ripe.net/data-sources>

- RIPEstat Web



- RIPEstat Widget API



- RIPEstat Data API / RIPEstat Text API

- <https://stat.ripe.net/data/routing-status/data.json?resource=...>

- The result page

The screenshot shows the RIPEstat interface for AS3333. At the top, a breadcrumb trail reads 'You are here: Home > Data & Tools > RIPEstat > AS3333'. Below this is the RIPEstat logo and a search bar with a 'Search' button. A callout bubble points to the search bar with the text 'Search box'. On the left, a sidebar titled 'At a Glance' contains tabs for Routing (9/10), DNS (1), Anti Abuse (1), Database (5), and Geographic (2). A callout bubble points to these tabs with the text 'Widgets grouped into thematic tabs'. The main content area is divided into four widgets: 'AS Overview (AS3333)' showing 'RIPE-NCC-AS - Reseaux IP Europeens Network Coordination Centre (RIPE NCC)', 'Geoloc (AS3333)' with a map of Europe, 'Registry Browser (AS3333)' displaying a table of registry information, and 'Routing Status (AS3333)' showing a green status bar and various routing statistics. A callout bubble points to the Routing Status widget with the text 'Widgets display different types of information'.

You are here: Home > Data & Tools > RIPEstat > AS3333

RIPEstat

Search

permalink

At a Glance (4)

- Routing (9/10)
- DNS (1)
- Anti Abuse (1)
- Database (5)
- Geographic (2)

AS Overview (AS3333)

RIPE-NCC-AS - Reseaux IP Europeens Network Coordination Centre (RIPE NCC)

Showing results from 2013-08-30 00:00:00 UTC to 2013-08-30 08:00:00 UTC

source data embed code permalink info

Geoloc (AS3333)

Map Satellite Hamburg Bremen Amsterdam Cologne Belgium London

Google Map Data Terms of Use Report a map error

Geoloc details

Showing results for AS3333 as of 2013-08-01 00:00:00 UTC

source data embed code permalink info

Registry Browser (AS3333)

Last updated on 2012-04-17 at 10:12:15 UTC.

aut-num: AS3333

as-name	RIPE-NCC-AS
descr	Reseaux IP Europeens Network Coordination Centre (RIPE NCC)
org	ORG-RIEN1-RIPE
admin-c	JDR-RIPE
admin-c	BRD-RIPE
tech-c	OPS4-RIPE
mnt-by	RIPE-NCC-END-MNT
mnt-by	RIPE-NCC-MNT

Showing results for AS3333 as of 2013-08-30 14:44:20 UTC

source data embed code permalink info

Routing Status (AS3333)

AS3333 is visible by 97%
99% of 102 IPv6 RIS

First ever seen before

Originated IPv4 prefixes: 1
Originated IPv6 prefixes: 1
Observed BGP neighbours: 160
Address space announced (IPv4): 4608
Address space announced (IPv6): equiv. to 1 /48s

Compare to 1 week earlier

Showing results for AS3333 as of 2013-08-29 00:00:00 UTC

source data embed code permalink info

Widgets grouped into thematic tabs

Search box

Widgets display different types of information

- Is my network announced?
 - <https://stat.ripe.net/data/prefix-overview/data.json?resource=193/23>

```
"cached": true,  
"data": {  
  "actual_num_related": 0,  
  "announced": true,  
  "asns": [  
    {  
      "asn": 3333,  
      "holder": "RIPE-NCC-AS Reseaux IP Europeens Network Coordination Centre (RIPE NCC),NL"  
    }  
  ],  
}
```

- Feed it to your monitoring system (e.g. Icinga, Nagios...)
- Build a custom application

- Explore the RIPEstat Data API
 - With 40+ data calls
 - https://stat.ripe.net/docs/data_api

The screenshot shows the RIPEstat Data API documentation page. The header includes navigation tabs for Internet Coordination, Data & Tools (selected), LIR Services, and RIPE Community. Below the header is a search bar and a navigation menu with links to RIPE Database, Statistics, RIPE Labs, DNS, RIPE Atlas, RIPEstat, and Developer Documentation. The main content area is titled 'Overview' and describes the RIPEstat Data API as the public data interface for RIPEstat. It provides the basic URL for requesting data: `https://stat.ripe.net/data/<name>/data.json?param1=value1¶m2=value2&...` and the URL for metadata: `https://stat.ripe.net/data/<name>/meta`. A sidebar on the right lists various data calls available through the API, including Overview, Abuse Contact Finder, Address Space Hierarchy, Address Space Usage, Allocation History, Announced Prefixes, AS Overview, AS Path Length, AS Routing Consistency, ASN Neighbours, ASN Neighbours History, BGPlay, BGP State, BGP Updates, BGP Update Activity, Blacklist, Country Resource Statistics, Country Resource Lists, DNS Chain, Example Resources, Geolocation, Geolocation History, Looking Glass, and M-lab Activity Count.

Internet Coordination | **Data & Tools** | LIR Services | RIPE Community | Site Map | Contact | Help | RIPE Database Search

RIPE NCC RIPE NETWORK COORDINATION CENTRE

Search Site Search

RIPE Database | Statistics | RIPE Labs | DNS | RIPE Atlas | **RIPEstat** | Developer Documentation

RIPEstat Home • About RIPEstat • Documentation • Use Cases • Login

You are here: Home > Data & Tools > RIPEstat > Documentation > Interfaces & APIs > Data API

Overview

The RIPEstat Data API is the public data interface for RIPEstat. It is the only data source for the [RIPEstat widgets](#).

URL

The basic URL for requesting data is:

```
https://stat.ripe.net/data/<name>/data.json?param1=value1&param2=value2&...
```

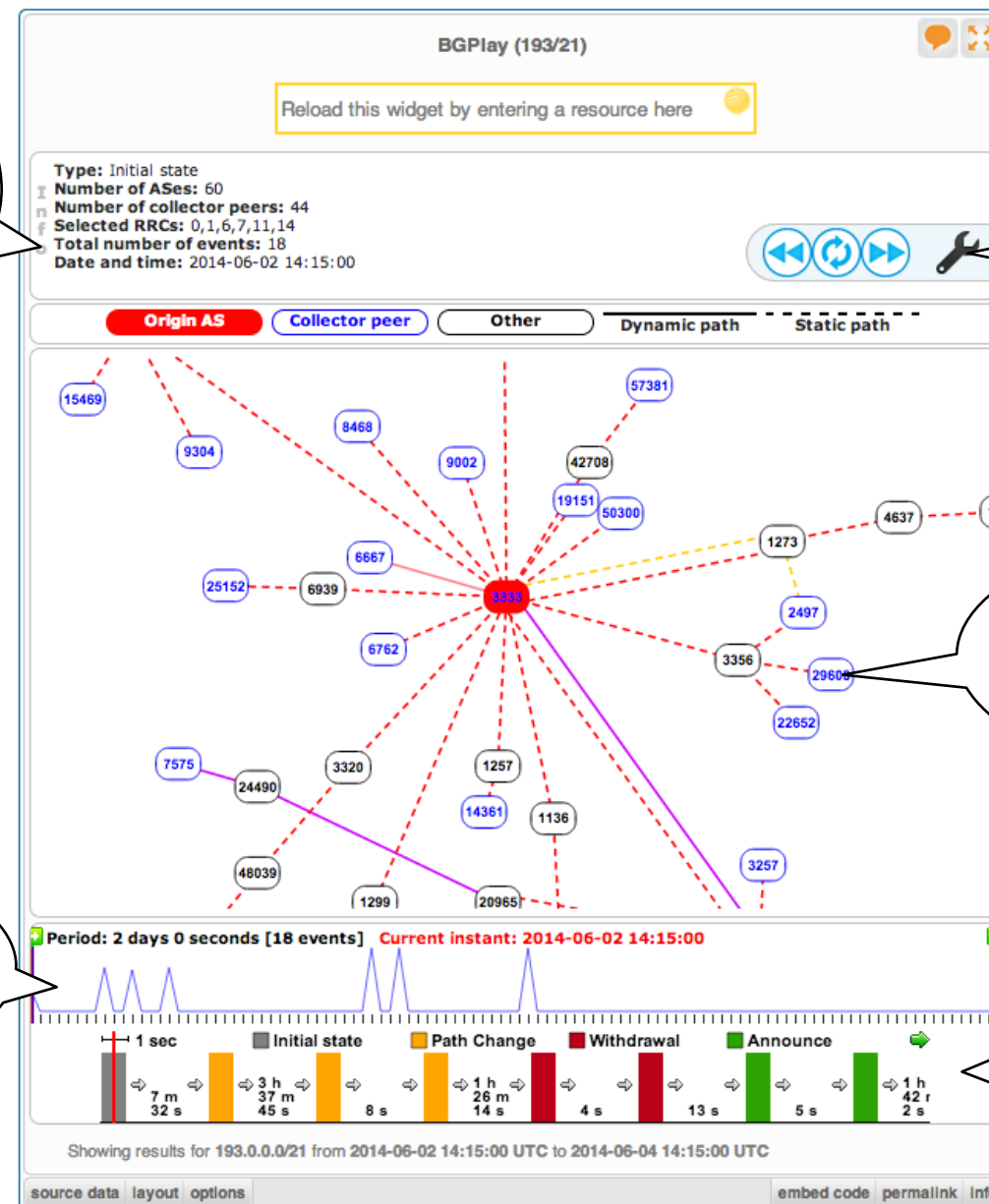
and to get metadata for a data call, including its methodology:

```
https://stat.ripe.net/data/<name>/meta
```

Overview
Abuse Contact Finder
Address Space Hierar...
Address Space Usage
Allocation History
Announced Prefixes
AS Overview
AS Path Length
AS Routing Consisten...
ASN Neighbours
ASN Neighbours Histo...
BGPlay
BGP State
BGP Updates
BGP Update Activity
Blacklist
Country Resource Sta...
Country Resource Lis...
DNS Chain
Example Resources
Geolocation
Geolocation History
Looking Glass
M-lab Activity Count

- Analyse the routing status for your network!
 - <https://stat.ripe.net/bgplay>

BGP event, ASN or
ASN path details



Control panel:

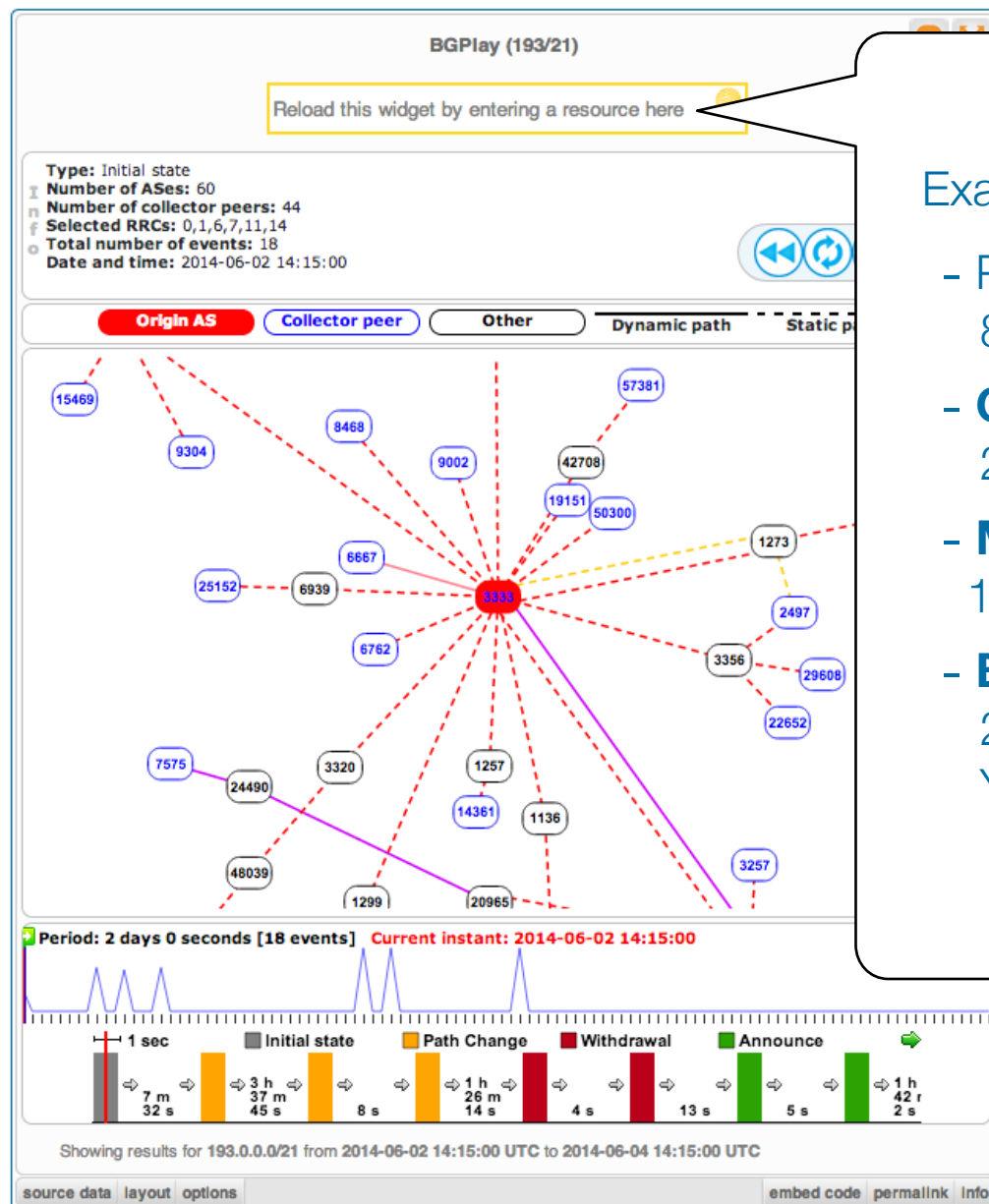
- Covered time period
- RRC selection

Interactive graph visualisation

Control timeline

Selection timeline

- Analyse the routing status for your network!
 - <https://stat.ripe.net/bgplay>



Examples:

- Prefix with **announcements** & **withdrawals**:
84.205.64.0/24
- **Check IPv6 connectivity**:
2001:67c:2e8::/48
- **Multi-homed** prefix:
199.7.80.0/24
- **BGP-Hijacking**
2008-02-28: 208.65.153.0/24
Youtube traffic by Pakistan Telecom AS17557

- Explore the RIPEstat Widget API
 - With 46 widgets
 - <https://stat.ripe.net/widget/list>



The screenshot shows the RIPEstat Widgets page. At the top, there's a navigation bar with links: Internet Coordination, Data & Tools, LIR Services, RIPE Community, Site Map, Contact, Help, and RIPE Database Search. Below this is a search bar labeled 'Search Site' with a 'Search' button. A secondary navigation bar contains links: RIPE Database, Statistics, RIPE Labs, DNS, RIPE Atlas, RIPEstat, and Developer Documentation. Below that, a breadcrumb trail reads: RIPEstat Home > About RIPEstat > Documentation > Use Cases > Login. The main heading is 'RIPEstat Widgets'. A text box explains that this is a complete list of widgets accessible via links, and that embedding code is available for each widget. Below this, there's a 'Show 100 entries' dropdown and a 'Search:' input field. A table lists widgets with columns: Title (show slug), Example, Prefix, IP address, ASN, Hostname, and Country code. The first two widgets shown are 'Abuse Contact Finder' and 'Address Space Hierarchy'. To the right, a 'Quick Links' sidebar lists: Looking For Abuse Information, FAQ, Feedback, Documentation, Mobile Version, and Widget List.

Internet Coordination Data & Tools LIR Services RIPE Community Site Map | Contact | Help | RIPE Database Search

RIPE NCC RIPE NETWORK COORDINATION CENTRE

Search Site Search

RIPE Database Statistics RIPE Labs DNS RIPE Atlas RIPEstat Developer Documentation

RIPEstat Home • About RIPEstat • Documentation • Use Cases • Login

You are here: Home > Data & Tools > RIPEstat > About RIPEstat > Widget List

RIPEstat Widgets

This is a complete list of all of the widgets that RIPEstat offers. Each of these widgets can be accessed using the links below.

When you view a widget you can also get code for **embedding** it in your own pages. The full procedure for embedding and configuring widgets is described in the Widget API Documentation.

Show 100 entries Search:

Title (show slug)	Example	Prefix	IP address	ASN	Hostname	Country code
Abuse Contact Finder		✓	✓	✓		
Address Space Hierarchy		✓	✓			

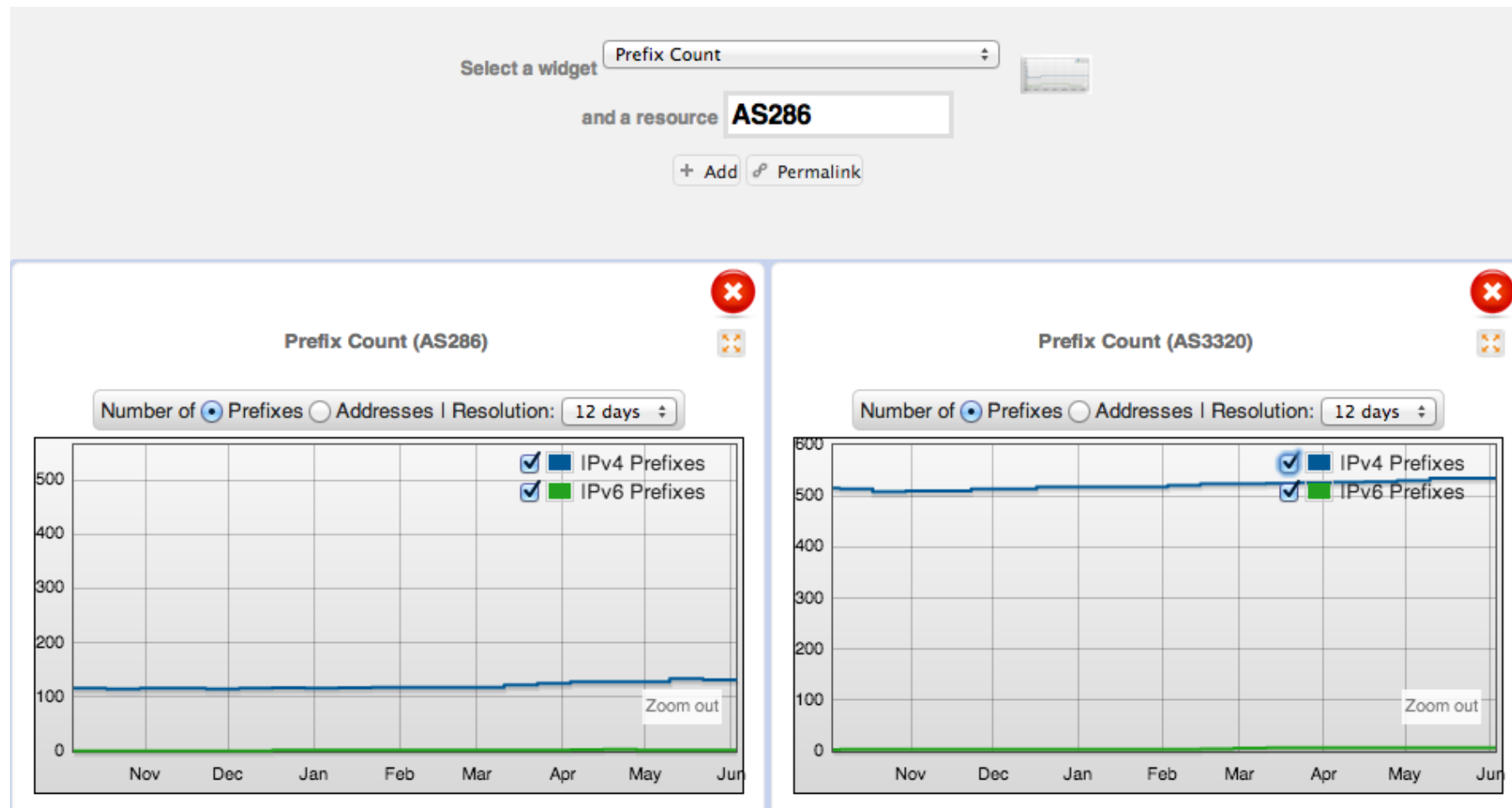
Quick Links

- Looking For Abuse Information >
- FAQ >
- Feedback >
- Documentation >
- Mobile Version >
- Widget List >

- Compare the number of routed prefixes of two ASNs?
 - <https://stat.ripe.net/special/compare-results>

The screenshot shows the RIPEstat website interface. At the top, there's a navigation bar with 'Data & Tools' selected. Below it, a sub-menu shows 'RIPEstat' selected. The main content area is titled 'Compare Results' in red. It contains a form with a dropdown menu labeled 'Select a widget' with 'Prefix Count' selected. Below this is a text input field labeled 'and a resource'. At the bottom of the form are two buttons: '+ Add' and 'Permalink'.

- Compare the number of routed prefixes of two ASNs?
 - <https://stat.ripe.net/special/compare-results>

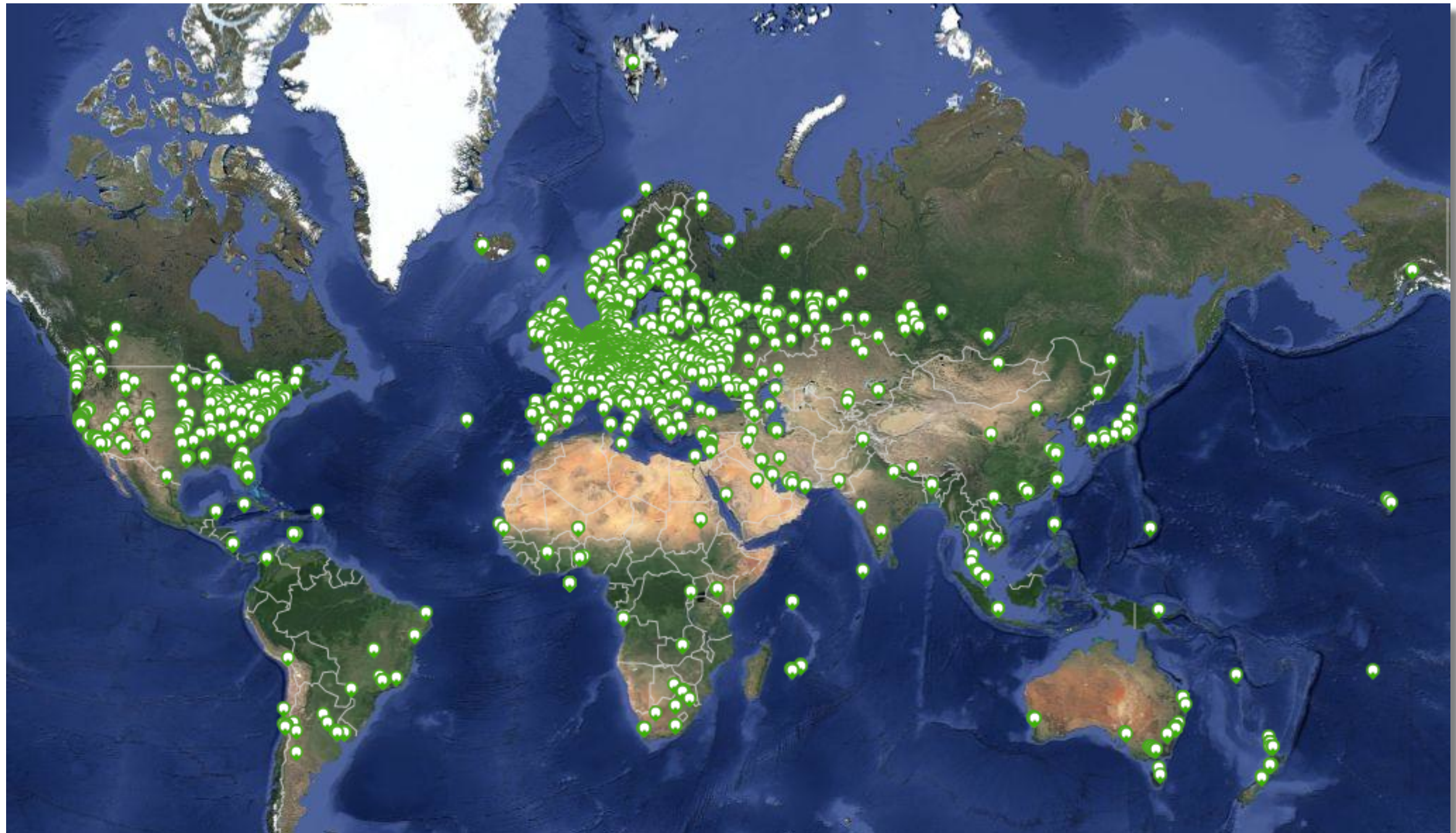




RIPE Atlas



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- 6,200+ probes connected
- 8,000+ active users this year
- Doing:
 - Built-in measurements
 - User-defined measurements
 - Four types of user-defined measurements available to probe hosts and RIPE NCC members: ping, traceroute, DNS, SSL
- Goal by end of 2014:
 - 10,000 connected probes

Country	Probes
United States	948
Germany	908
Russian Federation	773
France	721
United Kingdom	705
Netherlands	518
Ukraine	376
Belgium	214
Czech Republic	193
Italy	191

- By hosting a probe, you earn credits
- To perform measurements, you spend credits
 - pings costs 10 credits, traceroutes costs 20, etc.
- Credit system introduced to ensure **fairness** and **protect system from overload**
- Extra credits can be earned by:
 - Being a RIPE NCC member
 - Hosting a RIPE Atlas anchor
 - Sponsoring multiple probes
- More details: <https://atlas.ripe.net/doc/credits>

- v1 & v2: Lantronix XPort Pro
- v3: TP-Link TL-MR3020 powered from USB port
 - Does not work as a wireless router
 - Same functionality as the old probe
- RIPE Atlas anchor: Soekris net6501-70



- Anchors: well-known targets and powerful probes
- Anchoring measurements
 - Measurements between anchors
 - 200 probes targeting each anchor with measurements
 - Each probe measures 4-5 anchors
- Vantage points for new DNSMON service
- 60 RIPE Atlas anchors
 - Goal for end of 2014: 100 anchors worldwide



- Become a Anchor host
 - <https://atlas.ripe.net/get-involved/become-an-anchor-host/>



RIPE Atlas Anchor Hosts (part 1)

RIPE Atlas & RIPEstat | 24



RIPE Atlas Anchor Hosts (part 2)

RIPE Atlas & RIPEstat | 25



- Distribution model changed for ordinary probes!
 - https://labs.ripe.net/Members/fatemah_mafi/changes-to-the-distribution-model-for-ripe-atlas-probes
 - Consider sponsoring probes
<https://atlas.ripe.net/get-involved/become-a-sponsor/>



- Probes have hardwired trust material (registration server addresses / keys)
- The probes don't have any open ports; they only initiate connections - this works fine with NATs, too
- Measurements are scheduled by centralised “command servers” via reverse ssh tunnels
- **Probes don't listen to local traffic**
- Measurement source code published
- Reported vulnerabilities: <https://atlas.ripe.net/docs/security/>



RIPE Atlas

Network Monitoring



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- Network operators use tools for monitoring health of networks
 - Nagios, Icinga etc.
- Tools can receive input from RIPE Atlas, via API
- Benefits:
 - Doing pings from 1,000 out of 6,000+ probes around the world
 - Looking at your network from the outside
 - Plug into your existing practices

- Three easy steps:
 1. Create a RIPE Atlas ping measurement
 2. Go to “Status Checks” URL
 3. Make alerts available to Icinga, Nagios etc.
- https://labs.ripe.net/Members/suzanne_taylor_muzzin/introducing-ripe-atlas-status-checks

- Quick-Look Feature

The screenshot displays the RIPE Atlas Quick Look feature. On the left, a sidebar contains navigation links: Internet Coordination, Data & Tools, and LIR Services. Below these are links for RIPE Database, Statistics, RIPE Labs, DNS, and RIPE. A breadcrumb trail shows 'You are here: Home > Data & Tools > RIPE Atlas'. The main content area is titled 'Quick Look' and explains that RIPE Atlas Quick Look measurements allow RIPE NCC to see how the RIPE Atlas network sees a target of their choice anywhere in the world. It includes a text input field for 'The address of your target' and a dropdown for 'IPv4'. On the right, a world map shows RTT measurements for various locations, color-coded by RTT range. A legend at the bottom indicates the RTT ranges: <10, <20, <30, <40, <50, <60, <70, <80, <90, 100+, and Unreachable. The map shows high RTT values (red) for locations like India and South Africa, and low RTT values (green) for locations like the United States and Europe.

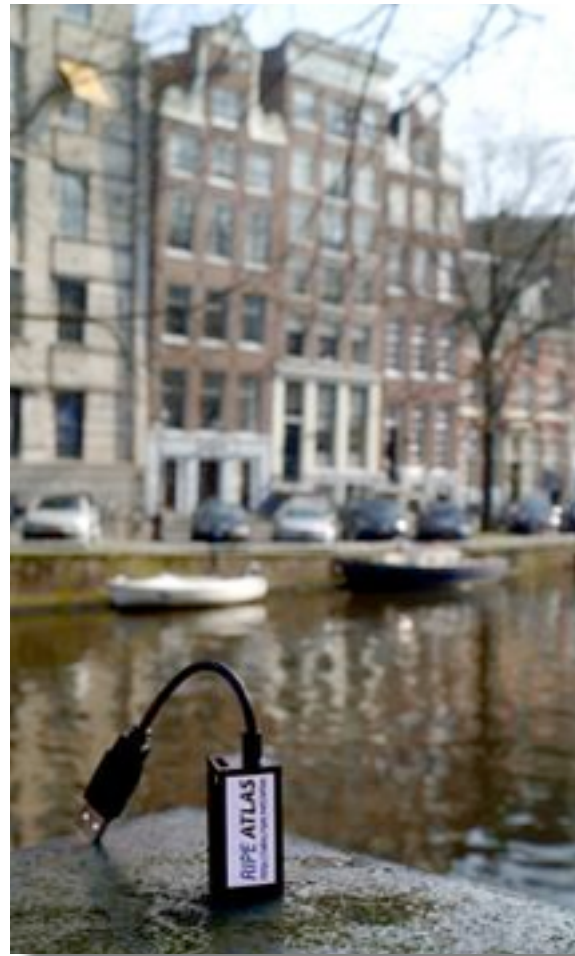
- For RIPE NCC members only
- No credits required

- Investigating problems of slow servers:
 - <http://engineering.freeagent.com/2014/01/24/atlas-probes/>
- Selective blackholing (examples based on RIPE Atlas)
 - https://ripe68.ripe.net/presentations/176-RIPE68_JSnijders_DDoS_Damage_Control.pdf
- Anycast analysis:
 - https://labs.ripe.net/Members/stephane_bortzmeyer/the-many-instances-of-the-l-root-name-server
- Evaluation of new IXP peering partners:
 - https://labs.ripe.net/Members/daniel_gomez/basic-evaluation-of-new-ixp-peering-partners-with-ripe-atlas-and-zabbix

- “Why we wanted an Atlas anchor”
 - https://labs.ripe.net/Members/tim_kleefass/how-fast-the-ripe-atlas-anchor-has-paid-off

- “It is quite common in the IPv6 world to have devices that believe they are connected to the IPv6 Internet while they are not”
 - “When you use RIPE Atlas to measure the connectivity of an IPv6 device, 90% success is the maximal reachability you'll get.”
 - https://labs.ripe.net/Members/stephane_bortzmeyer/how-many-atlas-probes-believe-they-have-ipv6-but-are-wrong

- Probe code & data analysis:
 - <https://github.com/RIPE-Atlas-Community/>
- Code to make your analysing life easier:
 - Parser for measurement data
 - <https://github.com/RIPE-NCC>



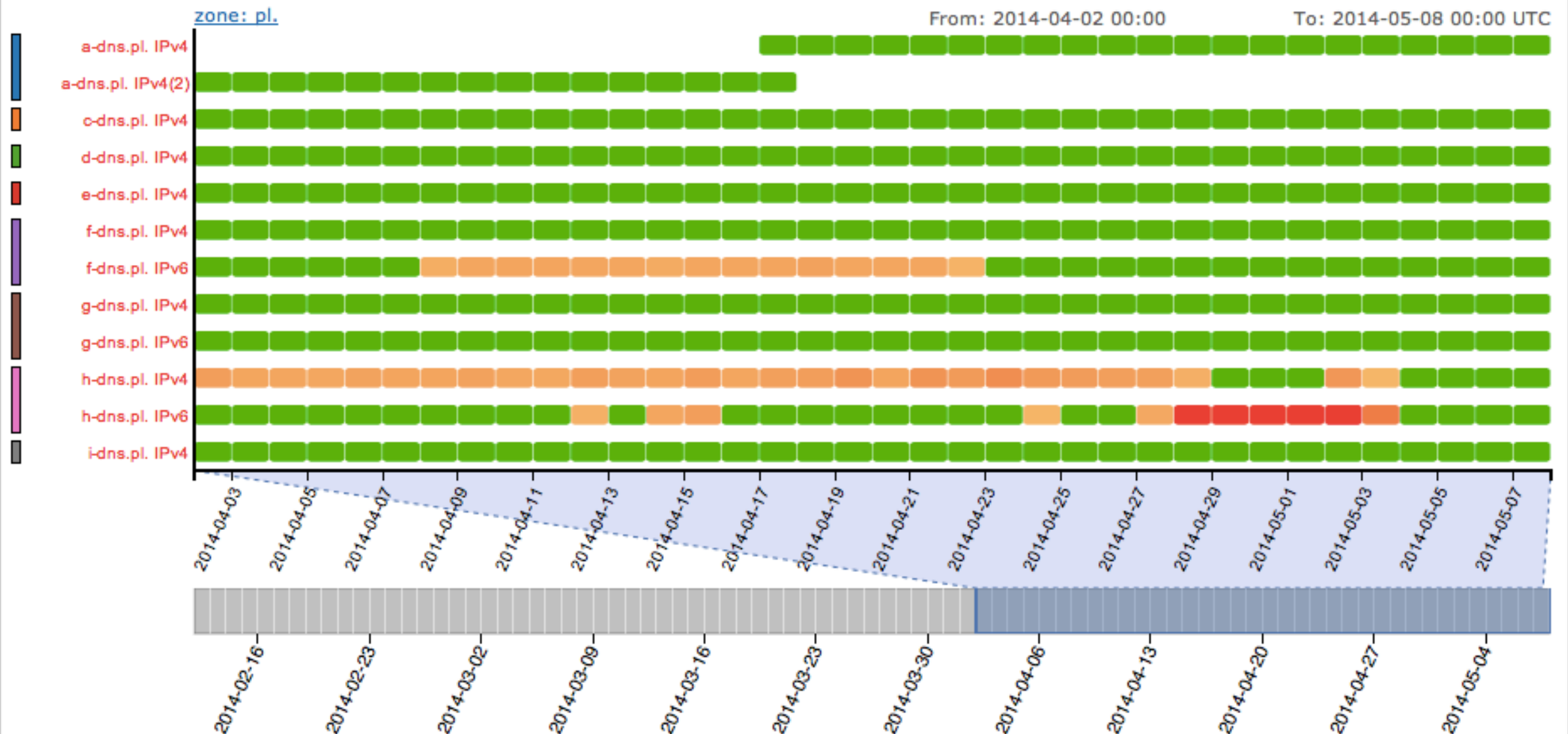
- RIPEstat
 - stat@ripe.net
 - <https://stat.ripe.net>
- RIPE Atlas
 - atlas@ripe.net
 - <https://atlas.ripe.net>
- On Twitter
 - @RIPE_Atlas, #RIPEAtlas & #RIPEstat
- On RIPE Labs (<https://labs.ripe.net>)
- <http://roadmap.ripe.net>

A large, 3D orange question mark stands prominently in the center. It is surrounded by numerous smaller, light gray 3D question marks that are scattered across the white background, some appearing to float or be in motion. The overall effect is one of many questions or a state of uncertainty.

DNSMON beta

DNS responses for Protocol: Servers: [Show RIPE Atlas measurements](#)Unanswered queries: ■ ≤ 4% ■ > 22%

Data resolution: 1 day



Use your mouse wheel or click and drag a selection to zoom, press the left/right arrow keys to shift the time window, press the shift key to remove rows from the displayed results

- “Old” DNSMON service migrated to RIPE Atlas
- Using RIPE Atlas anchors as vantage points
 - instead of TTM boxes
- Currently monitoring small selection of zones
 - root-nameservers & 30 ccTLDs and few gTLDs
- New zones will be added next year
- On the roadmap: “domain checks”
- <https://atlas.ripe.net/dnsmon>
- https://labs.ripe.net/Members/fatemah_mafi/an-updated-dns-monitoring-service