



**RIPE
NCC**

RIPE NCC Measurement Tools Workshop

ENOG 9 | June 2015



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Schedule (another version)

3

10:00 - 11:30

First session

11:30 - 12:00

Break

12:00 - 13:30

Second session

Lunch

RIPEstat

- ~~Introduction to RIPE and the RIPE NCC~~ - *not part of this workshop*
- Introduction to RIPEstat
- More about widgets
- *List of widgets - optional*
 - *Exercise: Querying for a Resource*
- Useful routing widgets
 - *Exercise: BGPlay*
- Handling abuse
 - *Exercise: Handling Abuse*
- *Personalising RIPEstat - optional*
 - *Exercise: MyView*
- Comparing results
 - *Exercise: Comparing Results*
 - *Exercise: RIPEstat Use Cases*

RIPE Atlas

- Introduction to RIPE Atlas
- What you can get from RIPE Atlas as a visitor
- Exploring public probes
 - *Live Demo*
- Finding public measurements
 - *Exercise F: Analyse results*
- Creating a measurement
 - *Exercise G: Create a measurement*
- Network monitoring
 - *Exercise H: Setting up 'Status Checks'*
- *More RIPE Atlas features - optional*
- How to host a probe
- ~~Advanced topics - not part of this workshop~~
 - ~~Use cases and success stories~~
 - ~~RIPE Atlas anchors~~
 - ~~RIPE Atlas community~~



Introduction to the RIPE NCC

Section 1



RIPE
NCC



- **RIPE NCC**
- **Located in Amsterdam**
- **Not-for-profit organisation**
- **One of the five Regional Internet Registries (RIRs)**
- **10,000+ members (LIRs)**

Our service region

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RIR SERVICE REGIONS



- **Distribute IPv4, IPv6, ASNs**
- **Training courses**
- **RIPE Database**
- **Support RIPE community**
- **RIPE Atlas, RIPEStat, Resource Certification**

- Started in 1989
- Discussion forum open to all parties
- Not a legal entity and no formal membership
- Develops policies
- Work done in Working Groups
- Activities performed on a voluntary basis
- Decisions made by consensus





Introduction to RIPEstat

Section 2



RIPE
NCC

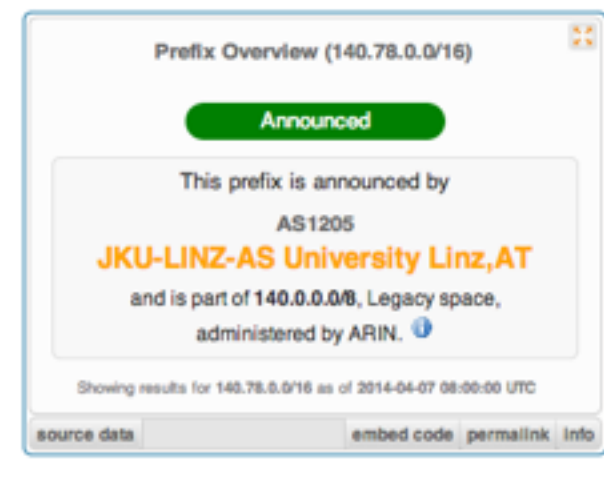
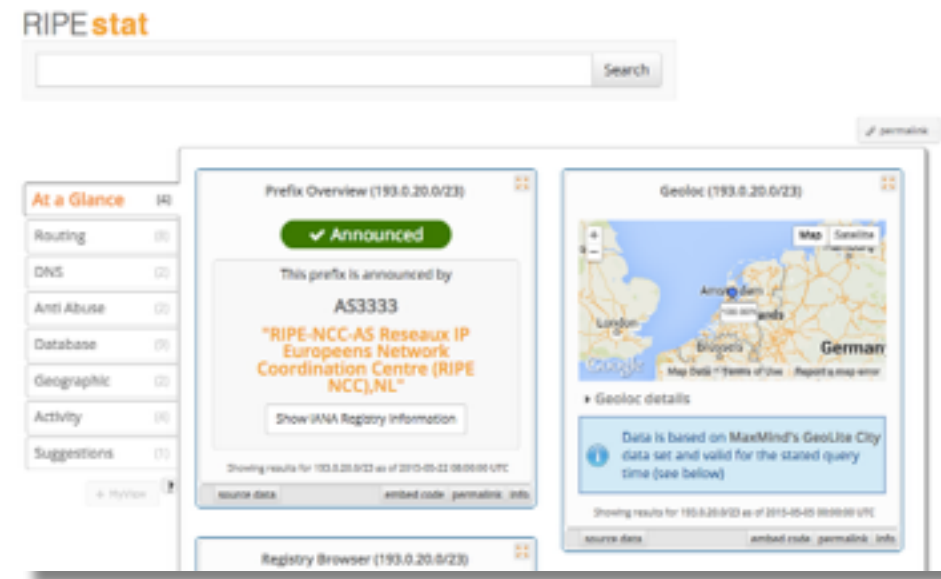
One interface for viewing all Internet number resource data

“One-stop shop”



- **RIPE Database**
- **Other RIR data**
- **BGP routing data (RIS)**
- **Active measurements (RIPE Atlas, DNSMON)**
- **Geolocation (third party)**
- **Blacklist data (third party)**
- **More...**

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



**RIPEstat shows
your own IP/ASN**

RIPEstat Home	«
About RIPEstat	>
Documentation	>
Use Cases	>

Your IP address is:
193.0.20.230

System Statistics

249,893

Requests seen in the last full hour on
RIPEstat

On RIPE Labs

RIPE Atlas Hackathon Results
Apr 10, 2015

Search RIPEstat

Search

Your network: **AS3333, 193.0.20.0/24** e.g.: IPv4 prefix/range, IPv6, ASN

RIPEstat Data API
RESTful. Versatile.
And all about data.



- IPv6 address/prefix
- IPv4 address/prefix
- ASN
- Hostname
- Country code

More tabs
with results

Widgets

The screenshot displays the RIPEstat website interface for the IP prefix 193.0.20.0/23. The page is organized into several widgets, each highlighted with a red circle and labeled with red arrows. The widgets include:

- At a Glance:** A sidebar menu on the left with tabs for Routing, DNS, Anti Abuse, Database, Geographic, Activity, and Suggestions.
- Prefix Overview (193.0.20.0/23):** A central widget showing the prefix is announced by AS3333, "RIPE-NCC-AS Reseaux IP Europeens Network Coordination Centre (RIPE NCC), NL".
- Geoloc (193.0.20.0/23):** A widget showing a map of Europe with a location pin and details about the data source (MaxMind's GeoLite City data set).
- Registry Browser (193.0.20.0/23):** A widget showing the inetnum: 193.0.20.0/23 and a list of related routes and inetnums.
- Routing Status (193.0.20.0/23):** A widget showing the routing status of the prefix, including a green checkmark indicating 100% visibility by 101 of 101 RIS full peers.

The page also features a search bar at the top, a navigation menu, and a footer with social media links and legal information.

- **For your own network:**
 - Is someone else announcing my prefix?
 - How visible is my new IPv6 network?
 - Is my BGP routing consistent with the Routing Registry?
 - Are my DNS and reverse DNS consistent?
 - Location of my customers' prefixes
 - Was my prefix visible yesterday in Tokyo?

- **For viewing other networks:**
 - How many IPv6 prefixes are announced in my country?
 - IPv6 in my country compared to neighbours
 - Who has more peers, AS1 or AS2?
 - How does the upstream outage look?
 - Is the prefix/ASN that I want already announced?
 - Which ASN announces an IP?
 - Where can I report abuse from an IP?



More About Widgets

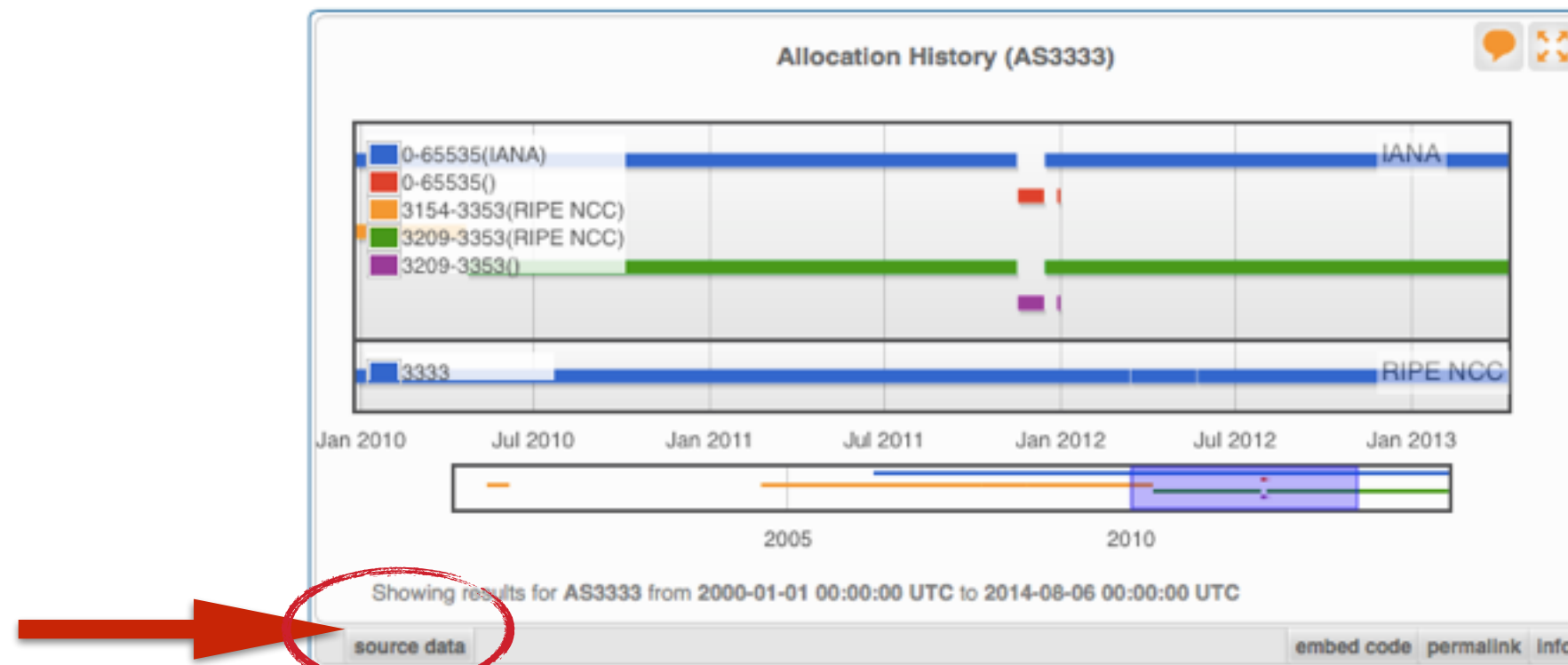
Section 3



RIPE
NCC

Get the data behind the widget!

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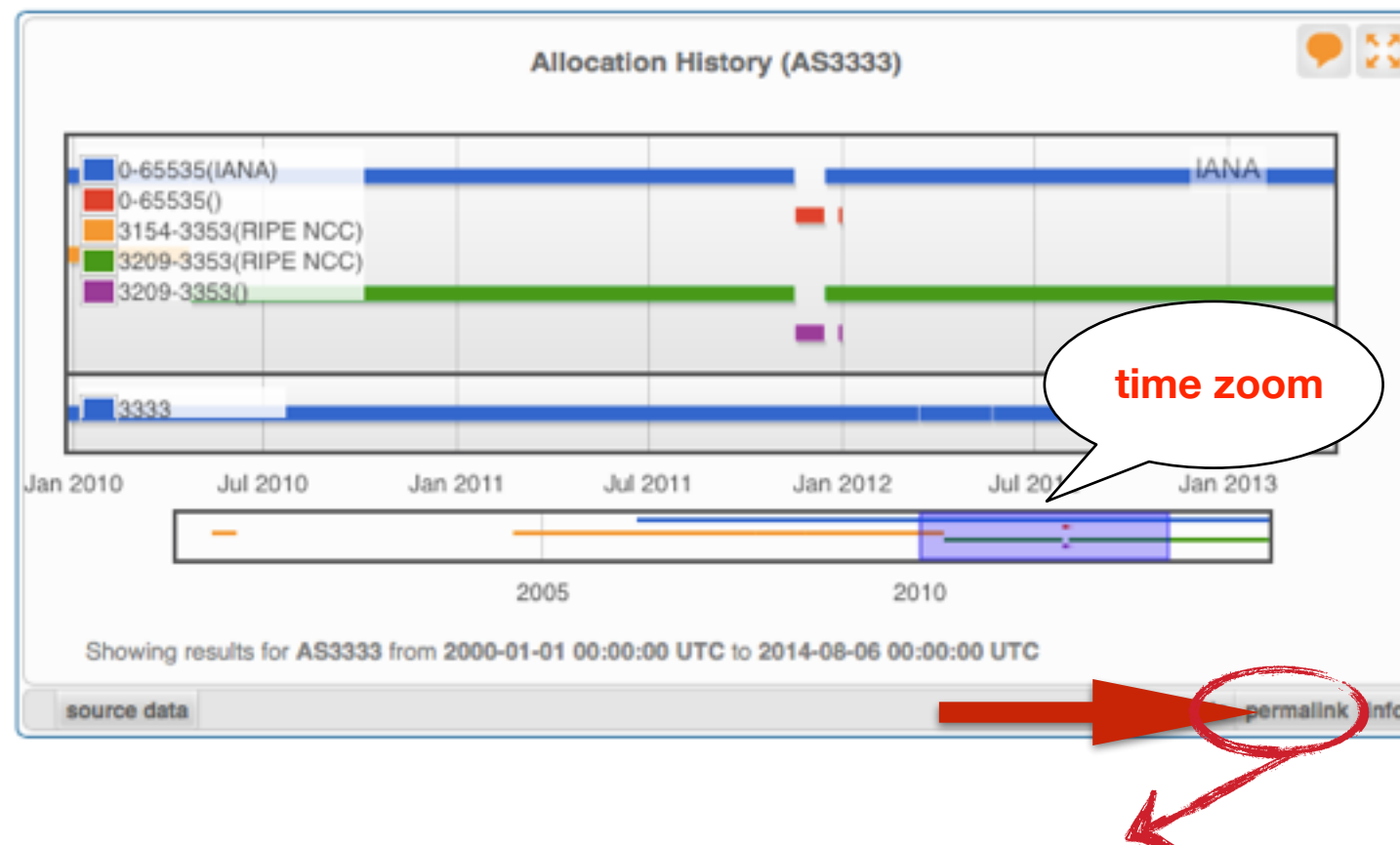


source data embed code permalink info

Get the data behind this widget with the Data API

<https://stat.ripe.net/data/allocation-history/data.json?resource=AS3333>

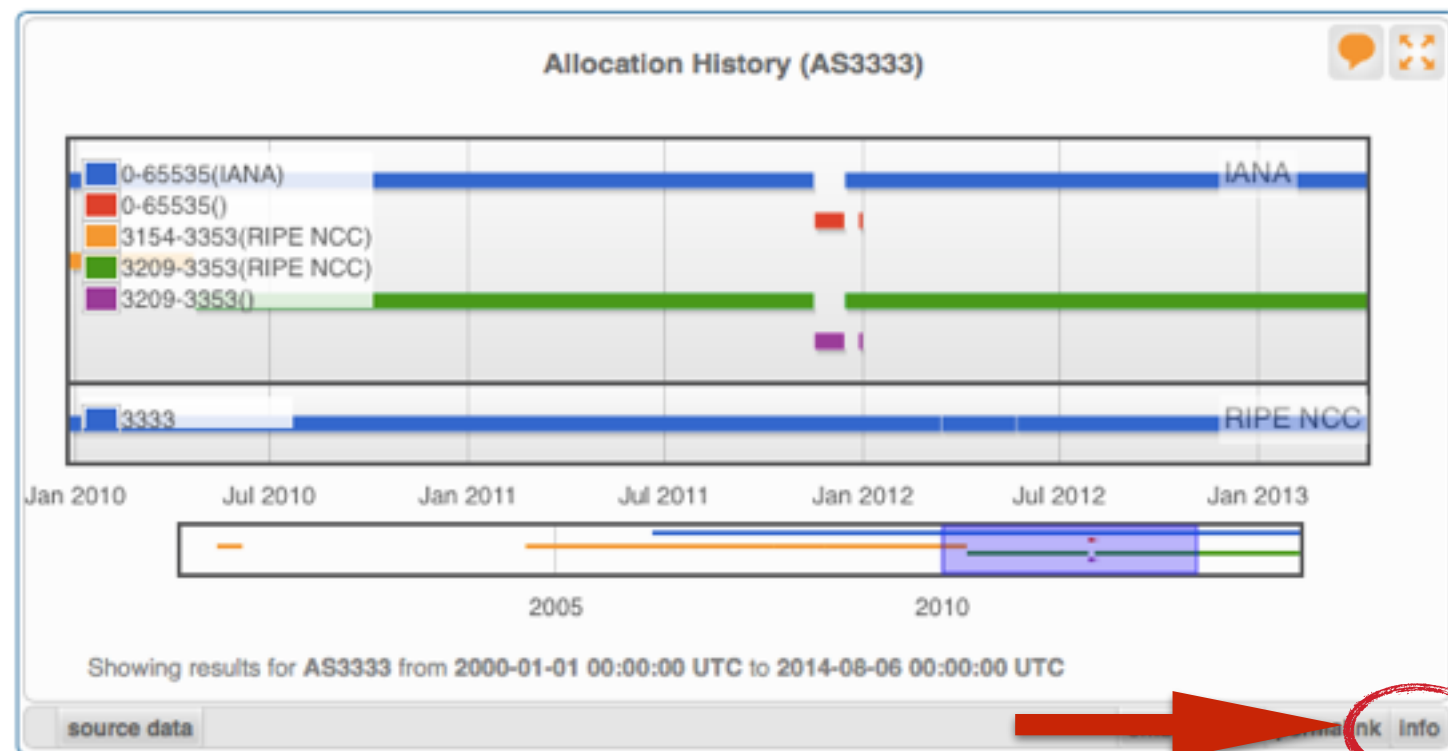
```
{
  "cached": true,
  "data": {
    "query_endtime": "2014-08-06T00:00:00",
    "query_starttime": "2000-01-01T00:00:00",
    "resource": "3333",
    "results": {
      "IANA": [
        {
          "resource": "0-65535",
          "status": "IANA",
          "timelines": [
            {
              "endtime": "2007-10-11T00:00:00",
              "starttime": "2007-10-11T00:00:00"
            },
            {
              "endtime": "2008-11-03T00:00:00",
              "starttime": "2007-10-27T00:00:00"
            }
          ]
        }
      ]
    }
  }
}
```



- Immutable shareable URL for each result!
- URL includes:
 - Zoom
 - History

Where's the data from?

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Content Explanation

What does this widget show?

Allocation History displays information about allocations and direct assignments of prefixes or AS numbers.

How can the visualisation be interpreted?

When the queried resource was a prefix, the graph will show how that prefix and related (more or less specific prefixes) were allocated over time. When the queried resource was an ASN, the graph will show the allocation of that ASN.

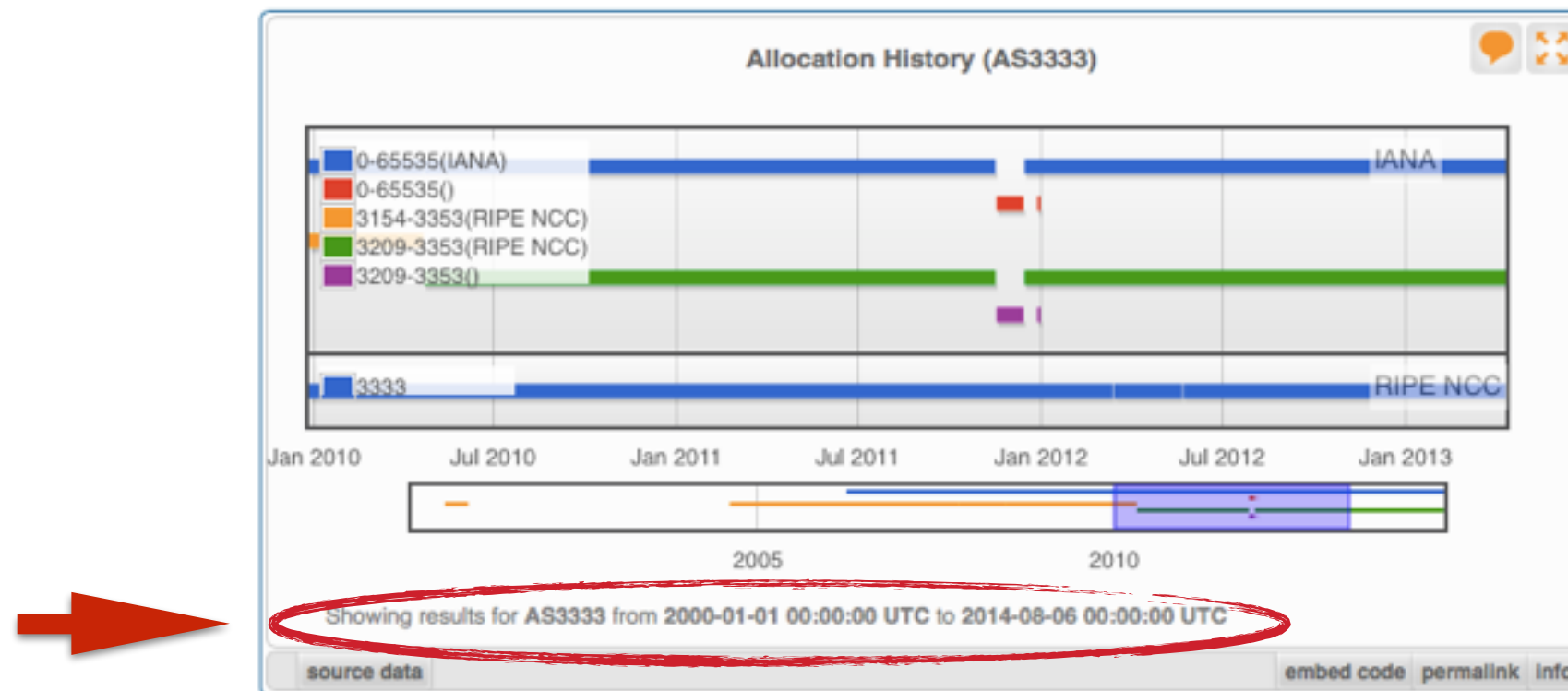
The legend will display all resources, including those which are not announced during the time range displayed. It is possible to change the displayed time period with the timeline selector underneath the graph.

The shaded area is displayed in the graph. This area can be adjusted by moving to the left or right end of the shaded area and then dragging it to the desired location. It is possible to change not only the start and end time, but also the length of the period which is shown.

What is the data source?

The RIR statistics files summarise the current state of allocations and assignments of Internet number resources. They are intended to provide a snapshot of the status of Internet number resources, without any transactional or historical details. Find details for each RIR here:

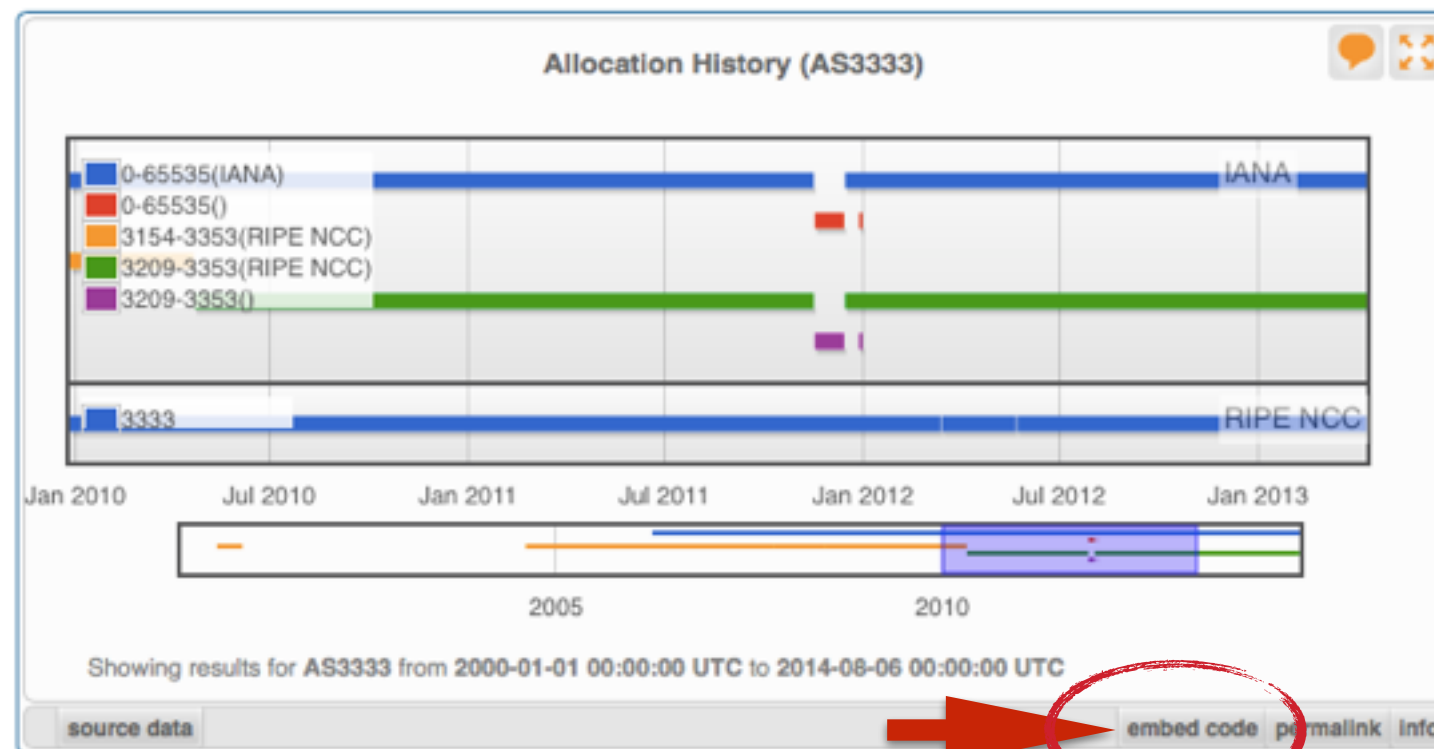
- AFRINIC
- APNIC
- ARIN
- LACNIC
- RIPE NCC



- Timestamp and time period of data
- Different widgets = different data update frequency
- Can be adjusted in most cases
 - Limits: different maximum granularities

Embed the widget!

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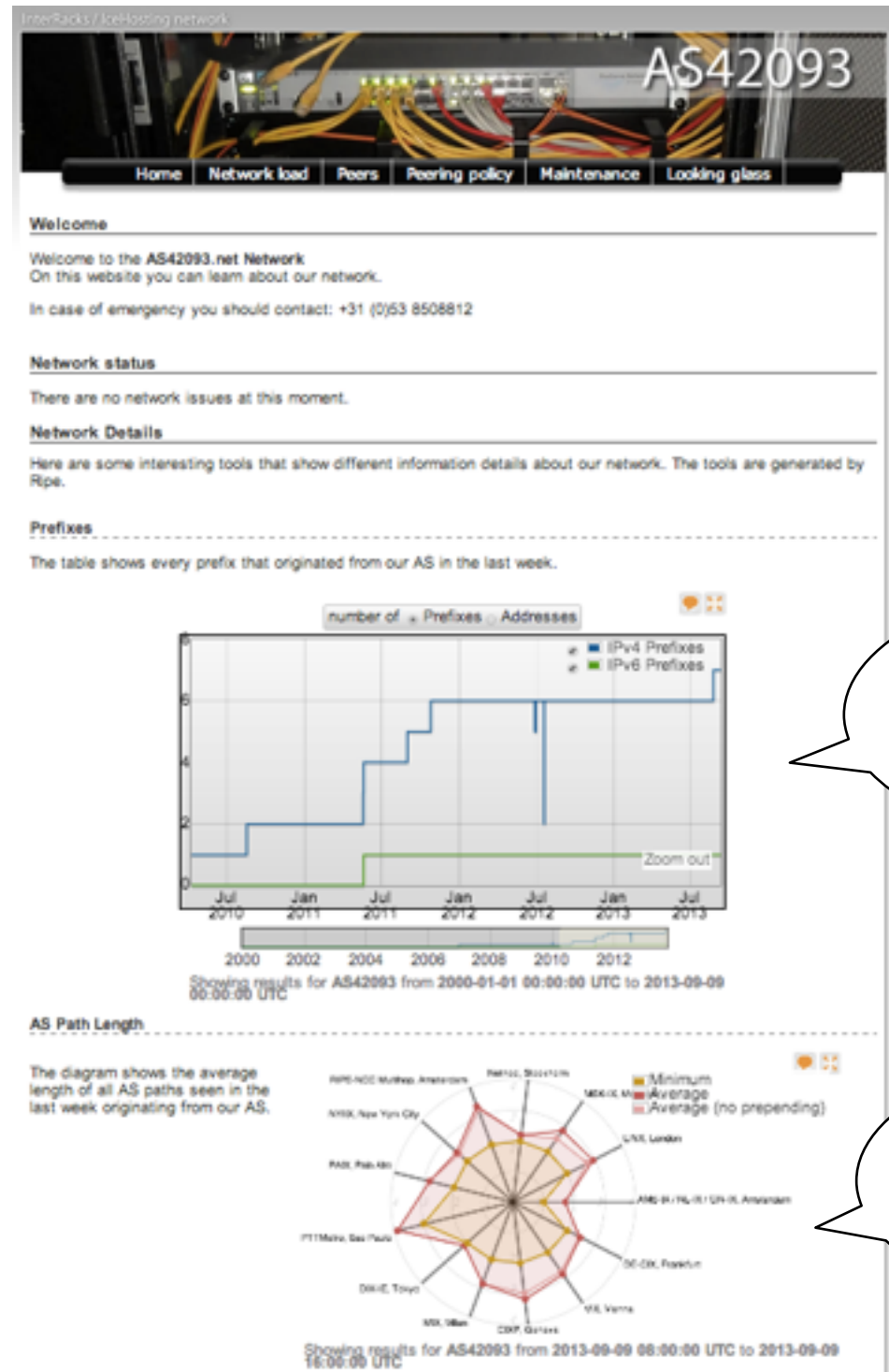
source data embed code permalink info

Embed this widget on your page

```
<script src="https://stat.ripe.net/widgets/widget_api.js"></script>
<div class="statwdgtauto"><script>ripestat.init("allocation-history",
{"resource":"AS3333"},null,{"size":"medium","disable":["controls"]})</script>
</div>
```

Copy and paste this code into an HTML webpage. Note: widget_api.js (the 1st line) only needs to be included once per page.

For more usage details please view the RIPEstat Widget API documentation.



This ISP embedded widgets on its page

Prefix Count widget

AS Path Length widget

List of Widgets

Section 4



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<https://stat.ripe.net/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 entries

Search:

Title (show slug)	Example	Prefix	IP address	ASN	Hostname	Country code
Abuse Contact Finder		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Address Space Hierarchy		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Address Space Usage		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allocation History		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Announced Prefixes		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AS Overview		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AS Path Length		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AS Routing Consistency		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ASN Neighbours		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ASN Neighbours History		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RIPE Atlas Probes		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
RIPE Atlas Measurement Targets		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



Exercise: Querying for a resource

Exercise A

Refer to the exercise booklet



**RIPE
NCC**



Visualising BGP Routing Information

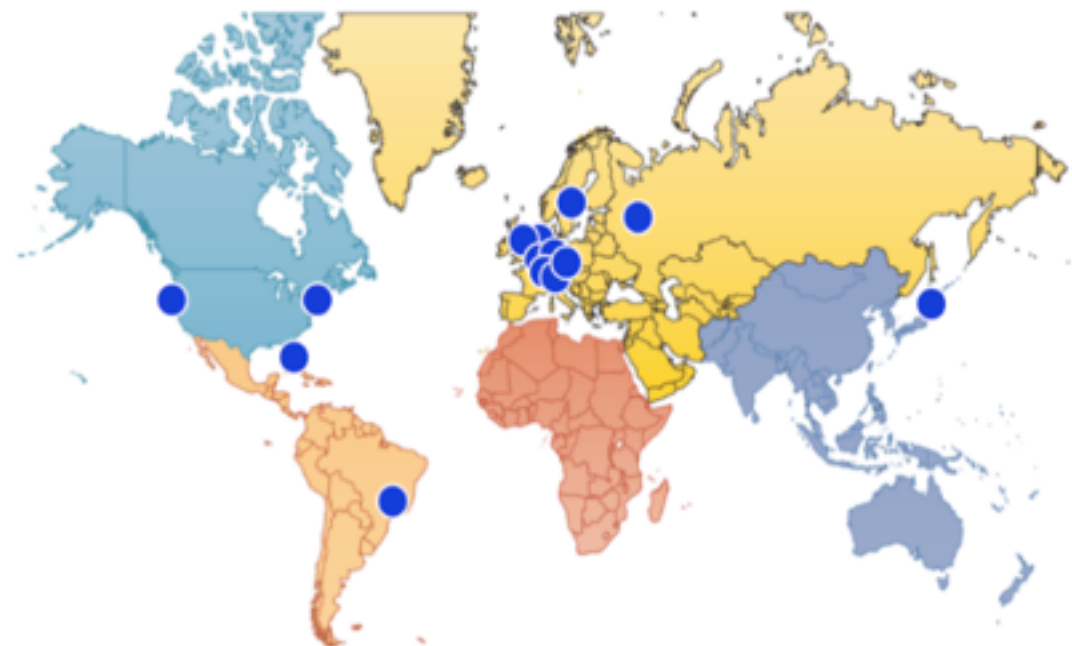
Section 5



RIPE
NCC

- **IP or ASN queried?**
 - You get different widgets!
- **ASN often visualised based on the prefixes it announces**

- RIPE NCC has been collecting BGP information since 1999
 - Raw data: ris.ripe.net
- RIS has 15 route collectors and 600+ peers
- RIPEstat visualises RIS data



At a Glance

Routing

DNS

Anti Abuse

Databases

Geographic (2)

Activity (4)

Suggestions (1)

+ MyView ?

Prefix Overview (140.78.0.0/16)


Announced

This prefix is announced by
AS1205
JKU-LINZ-AS University Linz,AT
and is part of 140.0.0.0/8, Legacy space,
administered by ARIN.

Showing results for 140.78.0.0/16 as of 2014-08-13 08:00:00 UTC

source data embed code permalink info

Geoloc (140.78.0.0/16)



Geoloc details

Data is based on MaxMind's GeoLite City data set and valid for the stated query time (see below)

Showing results for 140.78.0.0/16 as of 2014-08-01 00:00:00 UTC

source data embed code permalink info

Registry Browser (140.78.0.0/16)

Last updated on 2014-05-27 at 12:53:54 UTC. Show more

inetnum:
140.78.0.0/16

netname	JKU-LAN
descr	Johannes Kepler University
country	AT
org	ORG-JKU1-RIPE
admin-c	ULAC1-RIPE
tech-c	ULNA1-RIPE
status	LEGACY
mnt-by	AS1205-MNT
mnt-by	ACONET-LIR-MNT

Showing results for 140.78.0.0/16 as of 2014-08-13 13:26:45 UTC

RIPE NCC members can access historical information by signing in with their LIR's RIPE NCC Access account.

source data embed code permalink info

Routing Status (140.78.0.0/16)

At 2014-08-13 08:00:00 UTC, 140.78.0.0/16 was 100% visible (by 97 of 97 RIS full peers).

First ever seen before Jan 2004 (= beginning of available data).

Originated by: AS1205 (valid route object in RIPE)

No less-specific covering prefixes.

Advanced Settings

Compare to 1 week earlier | ☒ Exclude low visibility routes

Showing results for 140.78.0.0/16 as of 2014-08-13 08:00:00 UTC

Results exclude routes with very low visibility (less than 3 RIS peers seeing).

source data embed code permalink info

Announced?
By which AS?

Registered in
the RIPE
Database?

Announced?
By which AS?
What % visible?
Since when?

At a Glance (4)

AS Overview (AS1205)

Announced

Holder of this ASN:
JKU-LINZ-AS University Linz,AT

Showing results for AS1205 as of 2014-08-01 00:00:00 UTC

[source data](#) [embed code](#) [permalink](#) [info](#)

Geoloc (AS1205)

Map | Satellite

Map Data Terms of Use Report a map error

Geoloc details

Data is based on MaxMind's GeoLite City data set and valid for the stated query time (see below)

Showing results for AS1205 as of 2014-08-01 00:00:00 UTC

[source data](#) [embed code](#) [permalink](#) [info](#)

Registry Browser (AS1205)

Last updated on 2014-05-27 at 11:47:51 UTC. [Show more](#)

aut-num: AS1205

as-name JKU-LINZ-AS
org ORG-JKU1-RIPE
descr University Linz
admin-c ULAC1-RIPE
tech-c ULNA1-RIPE
mnt-by AS1205-MNT
mnt-by ACONET-LIR-MNT

Showing results for AS1205 as of 2014-08-13 13:49:15 UTC

RIPE NCC members can access historical information by signing in with their LIR's RIPE NCC Access account.

[source data](#) [embed code](#) [permalink](#) [info](#)

Routing Status (AS1205)

At 2014-08-13 08:00:00 UTC, AS1205 was visible to 100% of 97 IPv4 and 2% of 95 IPv6 RIS full peers.

First ever seen as origin announcing 193.186.172.0/22, on 2004-01-03 00:00:00 UTC.

Originated IPv4 prefixes: 3
Originated IPv6 prefixes: 0
Observed BGP neighbours: 2
Address space announced (IPv4): 67584 IPs
Address space announced (IPv6): equiv. to 0 /48s

Advanced Settings

Consent to earlier | ☒ Exclude low visibility routes

Showing results for AS1205 as of 2014-08-13 08:00:00 UTC

Results exclude routes with very low visibility (less than 3 RIS peers seeing).

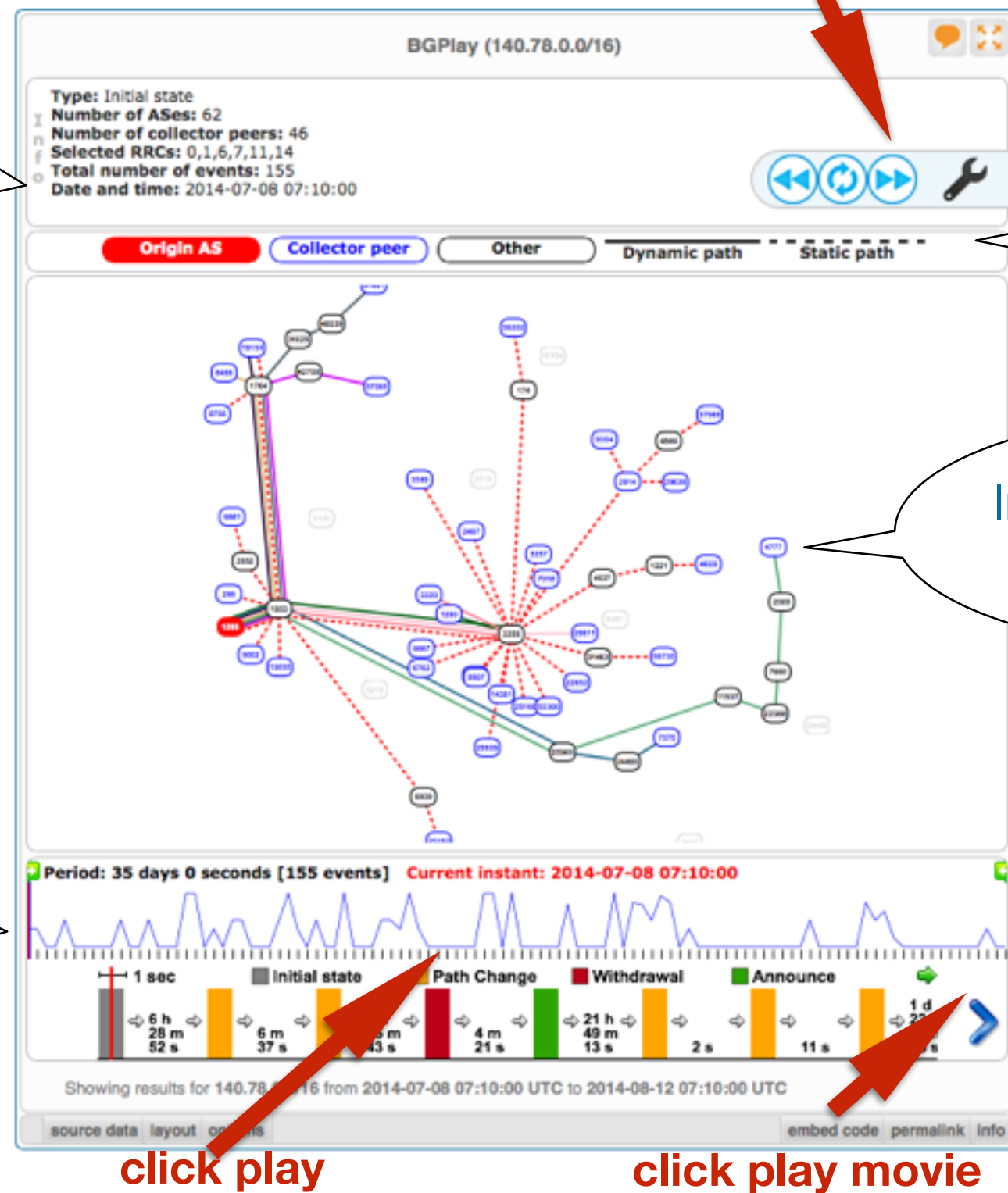
Given query time (2014-08-13 08:00:00 UTC) has been changed because it is earlier than the time there is data available for!

[source data](#) [embed code](#) [permalink](#) [info](#)

The rest is the same
as for a prefix

- **See how your network is routed**
 - Announcements
 - Withdrawals
 - Path changes
- **BGPlay shows routing history**
 - Animated graphic
 - Highly interactive

<https://stat.ripe.net/widget/bgplay>



BGP event, ASN
or ASN path details

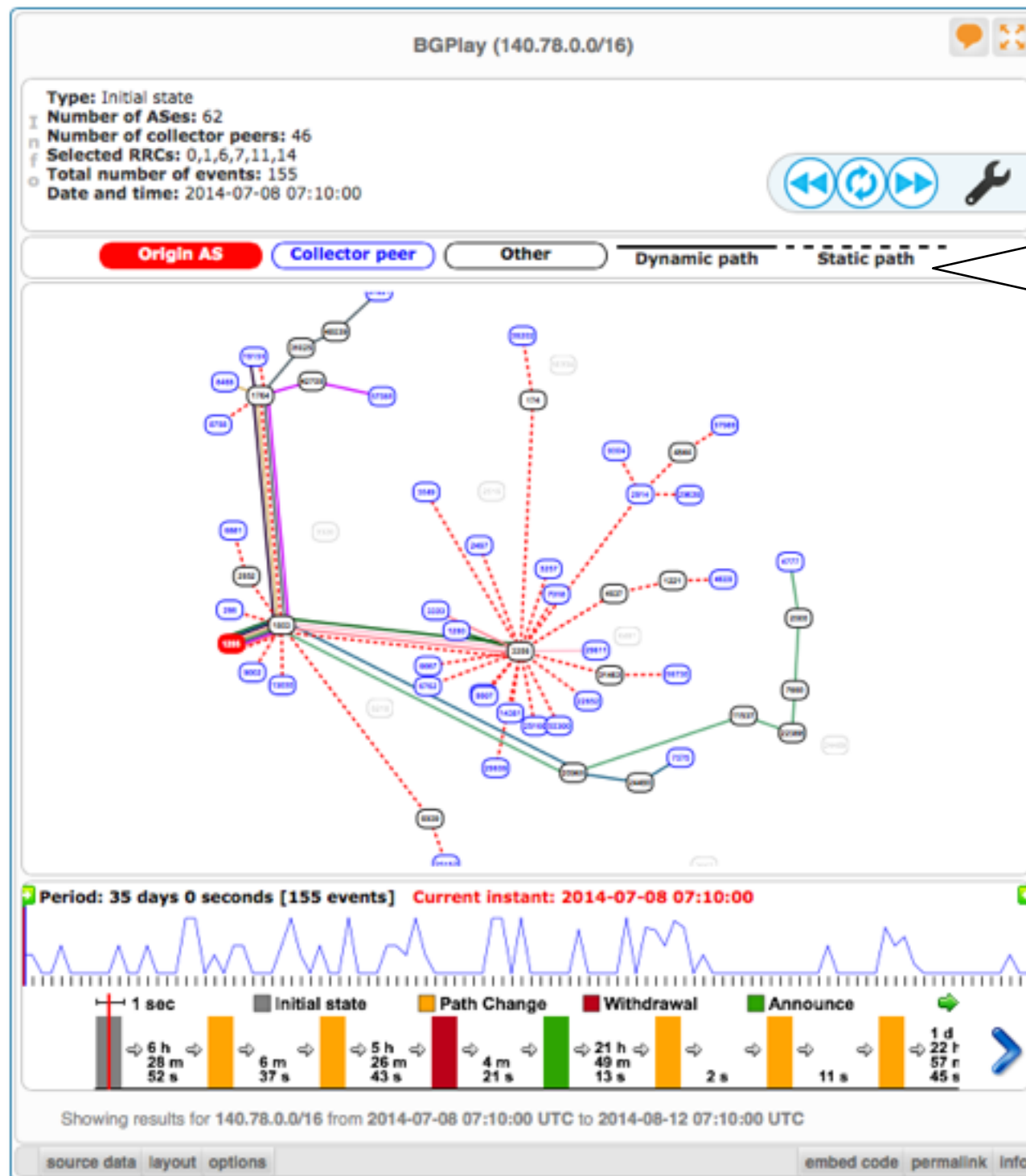
Control panel:

- Covered time period
- RRC selection

Interactive animated
graph

Control timeline

Detailed timeline
with events



Examples: (2013/8/28-30)

- 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
- Blackholing:
193.33.96.64

Announced Prefixes (AS1205)

Show 10 entries Search:

Prefix	First Seen ?	Last Seen ?
193.186.176.0/22	2014-07-30 08:00:00 UTC	2014-08-13 08:00:00 UTC
193.186.172.0/22	2014-07-30 08:00:00 UTC	2014-08-13 08:00:00 UTC
140.78.0.0/16	2014-07-30 08:00:00 UTC	2014-08-13 08:00:00 UTC


Showing 1 to 3 of 3 entries

[Click here](#) to load the entire history, starting from 2004-01-01 00:00 UTC!

[Advanced Settings](#)

☒ Exclude low visibility prefixes

Showing results for AS1205 from 2014-07-30 08:00:00 UTC to 2014-08-13 08:00:00 UTC

 Results exclude routes with very low visibility (less than 3 RIS peers seeing).

source data embed code permalink info

IPv4 vs IPv6?
Sort by prefix
or
Search "." vs "::"

Time period
shown in widget
Default:
last two weeks

Announced Prefixes (AS1205)

Show 10 entries

Search:

Prefix	First Seen ?	Last Seen ?
193.186.176.0/22	2004-01-22 16:00:00 UTC	2014-08-13 08:00:00 UTC
193.186.172.0/22	2004-01-01 00:00:00 UTC	2014-08-13 08:00:00 UTC
193.171.8.0/24	2008-12-09 08:00:00 UTC	2008-12-11 16:00:00 UTC
193.171.32.0/20	2008-12-09 08:00:00 UTC	2008-12-11 16:00:00 UTC
193.171.200.0/21	2008-12-09 08:00:00 UTC	2008-12-11 16:00:00 UTC
193.170.32.0/21	2008-12-09 08:00:00 UTC	2008-12-11 16:00:00 UTC
140.78.0.0/16	2004-01-01 00:00:00 UTC	2014-08-13 08:00:00 UTC

Showing 1 to 7 of 7 entries

Advanced Settings

☒ Exclude low visibility prefixes

Showing results for AS1205 from 2004-01-01 00:00:00 UTC to 2014-08-13 08:00:00 UTC

i

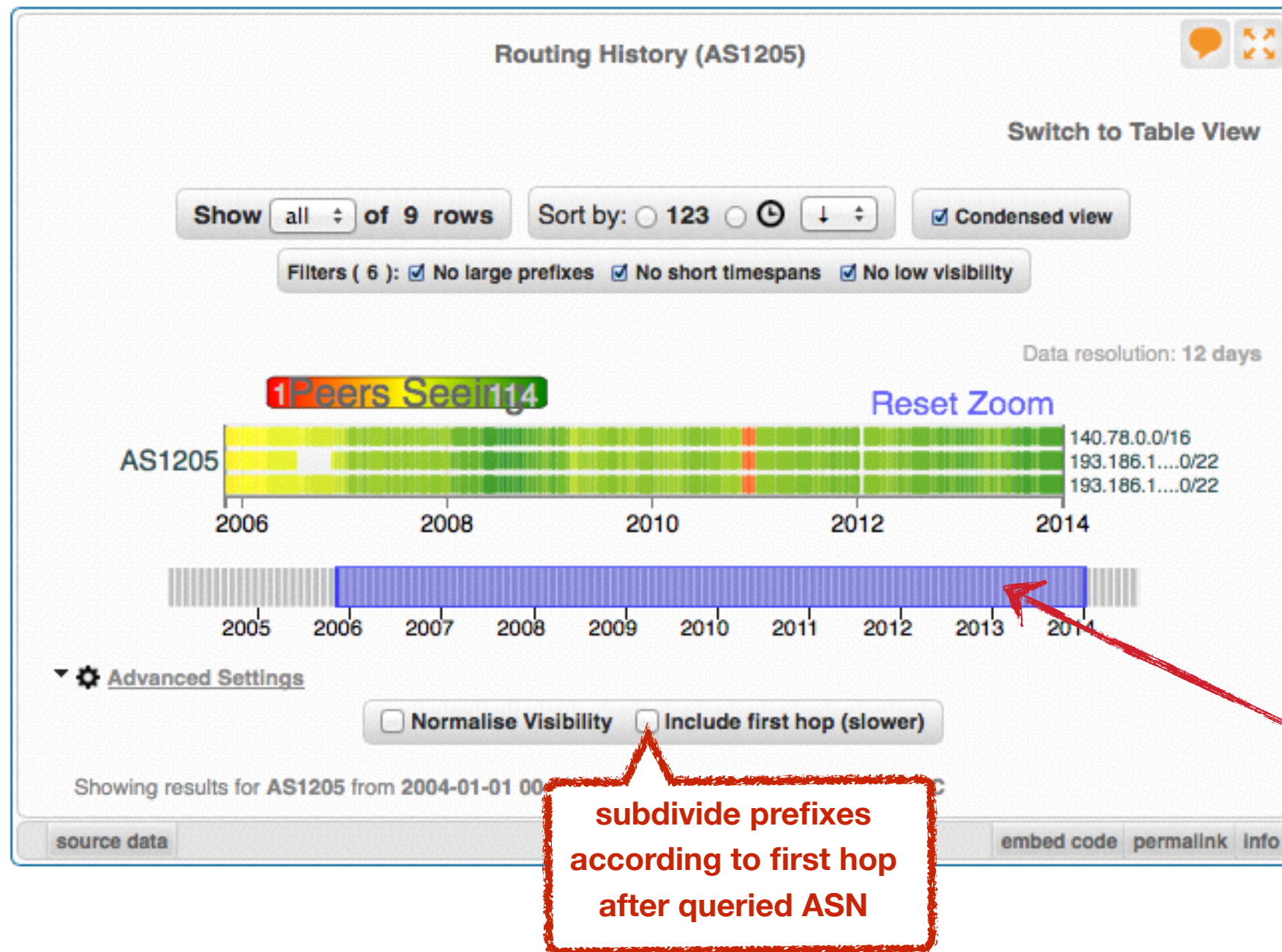
Results exclude routes with very low visibility (less than 3 RIS peers seeing).

source data

embed code

permalink

info



Time scale
selection



Exercise: BGPlay

Exercise B

Refer to the exercise booklet



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Reporting Abuse

Section 6



RIPE
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DON'T PANIC!

- **Spam or unauthorised access?**
 - Find IP in message headers or logs
- **Want to contact their admin?**
 - Find the correct email for reporting abuse
- **RIPE Database**
 - Contact details for every ASN and IP address
 - In Europe, the Middle East and parts of Central Asia

<https://labs.ripe.net/Members/cteusche/finding-anti-abuse-contact-information-with-ripestat>

- Take action with the Abuse Contact Finder

<https://stat.ripe.net/abuse>

RIPEstat Abuse Contact Finder

The RIPEstat Abuse Contact Finder may be able to help you find the email address that should be used to report network abuse originating from a particular IP address.

- You can learn more about network abuse in general and what you can do to stop it on the RIPE NCC's [Abuse Information page](#).
- You can learn more about how the RIPEstat Abuse Contact Finder works and how to report abuse in [this tutorial](#) on RIPE Labs.

RIPEstat

Abuse Contact Finder beta

Enter an IP address

source data embed code permalink info

For regular RIPEstat users: this widget, of course, can also be found on the regular result page in the "Anti Abuse" tab.

In -depth information
about abuse

Enter IP address

Abuse Contact Finder (2001:67c:2e8::/48) **BETA**

Email-Contact

abuse@ripe.net

Contact-Quality-Rating

★★★★★ (5/5)

This contact can be used to report abuse.

☐ Show Complete Details
☐ Info for Resource Holders

Showing results for 2001:67c:2e8::/48 as of 2013-08-30 14:39:00 UTC

BETA Beta status: Please note that even highly rated contacts can be incorrect

source data embed code permalink info

Rating of the contact

Email contact to report abuse

Abuse Contact Finder (2001:67c:2e8::/48) **BETA**

Email-Contact

abuse@ripe.net

Contact-Quality-Rating

★★★★★ (5/5)

This contact can be used to report abuse.

☐ Show Complete Details
☐ Info for Resource Holders

Showing results for 2001:67c:2e8::/48 as of 2013-08-30 14:39:00 UTC

BETA Beta status: Please note that even highly rated contacts can be incorrect

source data embed code permalink info

Details about the resource and abuse contact:

☒ Show Complete Details

Details

- Results for

193.0.18.0-193.0.21.255 ⓘ
abuse@ripe.net from abuse-contact role

- Special Network Resource Information

This resource has been identified to be related to this information:
RIPE NCC PI Allocation

Held by:
n.a. ⓘ

- RIR Information

RIR	RIPE NCC
RIPE's Whois	https://apps.db.ripe.net/search/query.html



Exercise: Handling Abuse

Exercise C

Refer to the exercise booklet



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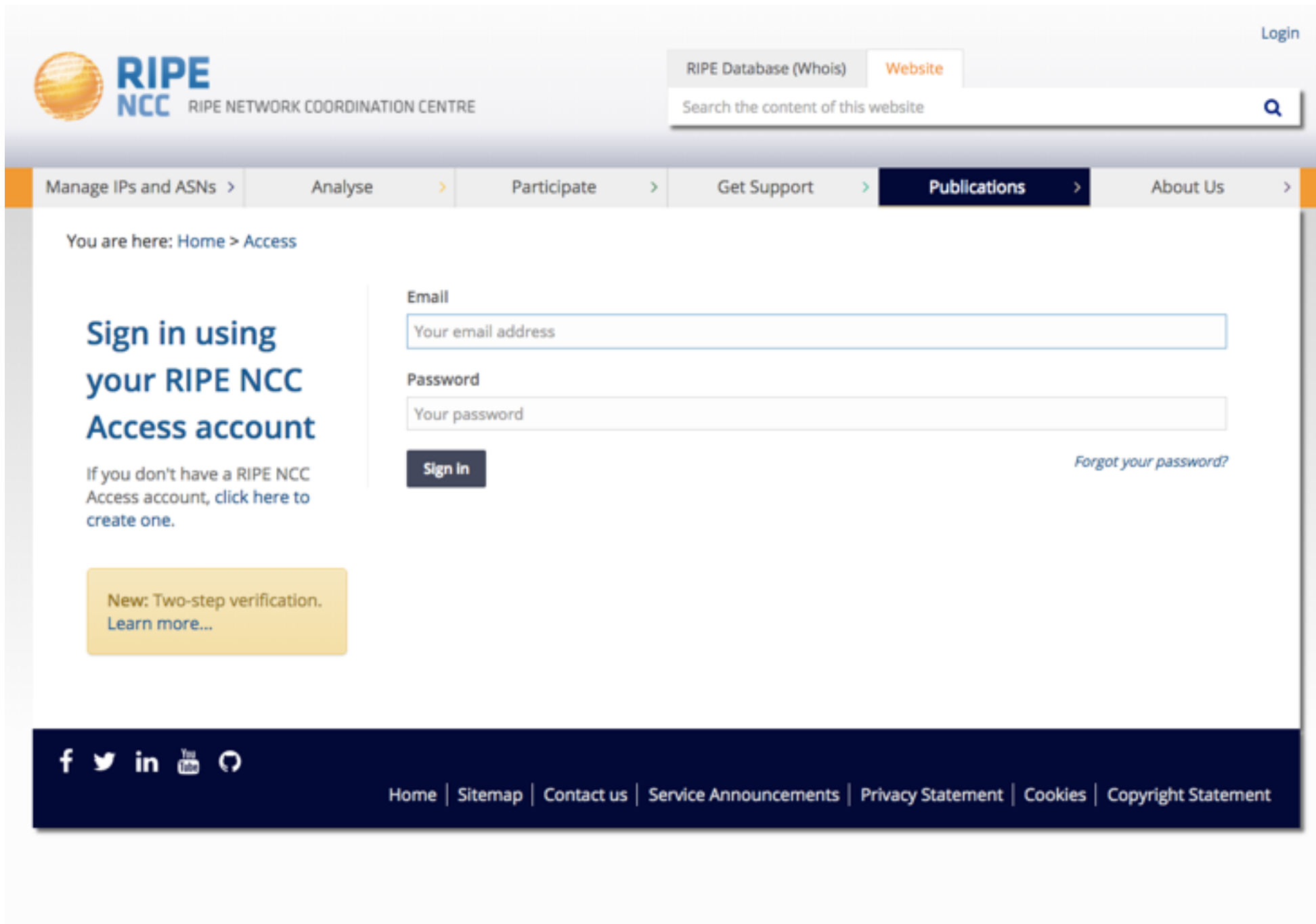
Personalising RIPEstat

Section 7



RIPE
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<https://access.ripe.net>



The screenshot shows the RIPE NCC Access account login page. At the top, there is a header with the RIPE NCC logo and the text "RIPE NETWORK COORDINATION CENTRE". To the right of the logo, there are two tabs: "RIPE Database (Whois)" and "Website". Below these tabs is a search bar with the placeholder text "Search the content of this website". In the top right corner, there is a "Login" link.

The main navigation bar is located below the header and contains several links: "Manage IPs and ASNs", "Analyse", "Participate", "Get Support", "Publications", and "About Us". The "Publications" link is currently selected.

The main content area is titled "You are here: Home > Access". It features a large heading "Sign in using your RIPE NCC Access account". Below this heading, there is a subheading "If you don't have a RIPE NCC Access account, click here to create one." and a yellow button labeled "New: Two-step verification. Learn more...".

To the right of the heading, there is a login form with two input fields: "Email" (with placeholder text "Your email address") and "Password" (with placeholder text "Your password"). Below these fields is a "Sign in" button. To the right of the "Sign in" button, there is a link "Forgot your password?".

The footer of the page is dark blue and contains social media icons for Facebook, Twitter, LinkedIn, YouTube, and Instagram. To the right of the icons, there is a list of links: "Home", "Sitemap", "Contact us", "Service Announcements", "Privacy Statement", "Cookies", and "Copyright Statement".

- If you have recurring lookup tasks that involve different widgets spread over multiple tabs
- Building a “history” of your lookups

Log into RIPE NCC Access account

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The screenshot displays the RIPE NCC website interface. At the top, the RIPE NCC logo and navigation links are visible. The main content area is divided into two sections. The left section, titled 'Sign in using your RIPE NCC Access account', contains a login form with fields for 'Email' and 'Password', a 'Sign in' button, and a link for 'Forgot your password?'. The right section, titled 'Search RIPEstat', features a search bar and a 'Search' button. A red arrow points from the 'Login' button in the top right corner to the login form on the left.

Sign in using your RIPE NCC Access account

If you don't have a RIPE NCC Access account, click here to create one.

New: Two-step verification. Learn more...

Search RIPEstat

Enter an IP address/prefix, ASN, country code or hostname

Your network: AS3333, 193.0.20.0/23

e.g.: IPv4 prefix/range, IPv6, ASN

RIPEstat Data API

RESTful. Versatile. And all about data.

- **Create custom views**
 - Click the “MyView” button
 - Drag and drop the widgets you want on the MyView tab
- **Created under “ASN” or “IP”**

The screenshot displays the MyView interface. On the left is a sidebar with a list of widget categories: At a Glance (4), Routing (11), DNS (1), Anti Abuse (1), Database (5), Geographic (2), Activity (2), and Suggestions (1). Below this list is a '+ MyView' button, which is circled in red. Underneath the button, there is a section for 'MyView-Test1' with a gear icon and a '(2)' count, and a 'New (my-v...' button with a gear icon and a '(0)' count. The main area of the interface shows a message: 'This view is empty :(Add content by dragging a widget onto the tab of this view.' Below this message is a preview of a view containing several widgets. One widget, 'Resource Overview', is circled in orange and has a tooltip that says 'Resource Overview'. Another widget, 'Registry Browser (AS3333)', is also visible. At the bottom of the main area, there is a link: 'For more information on custom views, please go to custom views.'

Newly created MyView

MyViews are only visible to you.
The option to share your views
will be available soon!

Re-order widgets
as you like

The screenshot shows the MyView interface. On the left is a sidebar with a list of widget categories: 'At a Glance (4)', 'Routing (11)', 'DNS (1)', 'Anti Abuse (1)', 'Database (5)', 'Geographic (2)', 'Activity (2)', and 'Suggestions (1)'. Below these is a '+ MyView ?' button and two custom views: 'MyView-Test1 (2)' and 'Monitor-2 (2)'. The 'Monitor-2' view is selected and highlighted in orange. The main area displays two widgets for AS1205. The top widget, 'AS Overview (AS1205)', has a green 'Announced' button and shows the holder 'JKU-LINZ-AS University Linz,AT'. It includes a note about the 16-bit ASN block and a timestamp 'Showing results for AS1205 as of 2014-08-14 08:00:00 UTC'. The bottom widget, 'Routing Status (AS1205)', shows a yellow alert box stating that AS1205 was visible to 100% of 97 IPv4 and 2% of 95 IPv6 RIS full peers at the same timestamp. Below this, it lists statistics: 'First ever seen as origin announcing 193.186.172.0/22, on 2004-01-03 00:00:00 UTC', 'Originated IPv4 prefixes: 3', 'Originated IPv6 prefixes: 0', 'Observed BGP neighbours: 2', 'Address space announced (IPv4): 67584 IPs', and 'Address space announced (IPv6): equiv. to 0 /48s'. There is also an 'Advanced Settings' link and a note at the bottom: 'Results exclude routes with very low visibility (less than 3 RIS peers seeing)'.

- Rename
- Re-order
- Control visibility
- Remove

- MyView is only accessible after you have queried an ASN or IP
- A MyView created after an ASN query is only **visible** for other ASN queries
- A MyView created after IP query is only **visible** for other IP queries
- This can be changed via settings

Monitor-2 was created after an ASN query

Monitor-2's Settings

Resource Properties

Simplified Advanced

For what resource type should this view be visible:
(Change by clicking on property)

☒ ASN ☐ IP ☐ Country

☒ view will be shown for resource type (e.g. 'ASN')
☐ view will **not** be shown for resource type (e.g. 'ASN')

Ok

You can change visibility, to make Monitor-2 available for IP range queries

- **RIPE NCC Access login required**
- **Customised selection of widgets**
- **It's like an extra tab, specifically for your queries**
- **By default, available for one type of resource (ASN or IP)**
- **Can't be shared**



Exercise: MyView

Exercise D

Refer to the exercise booklet



RIPE
NCC

Comparing Networks

Section 8

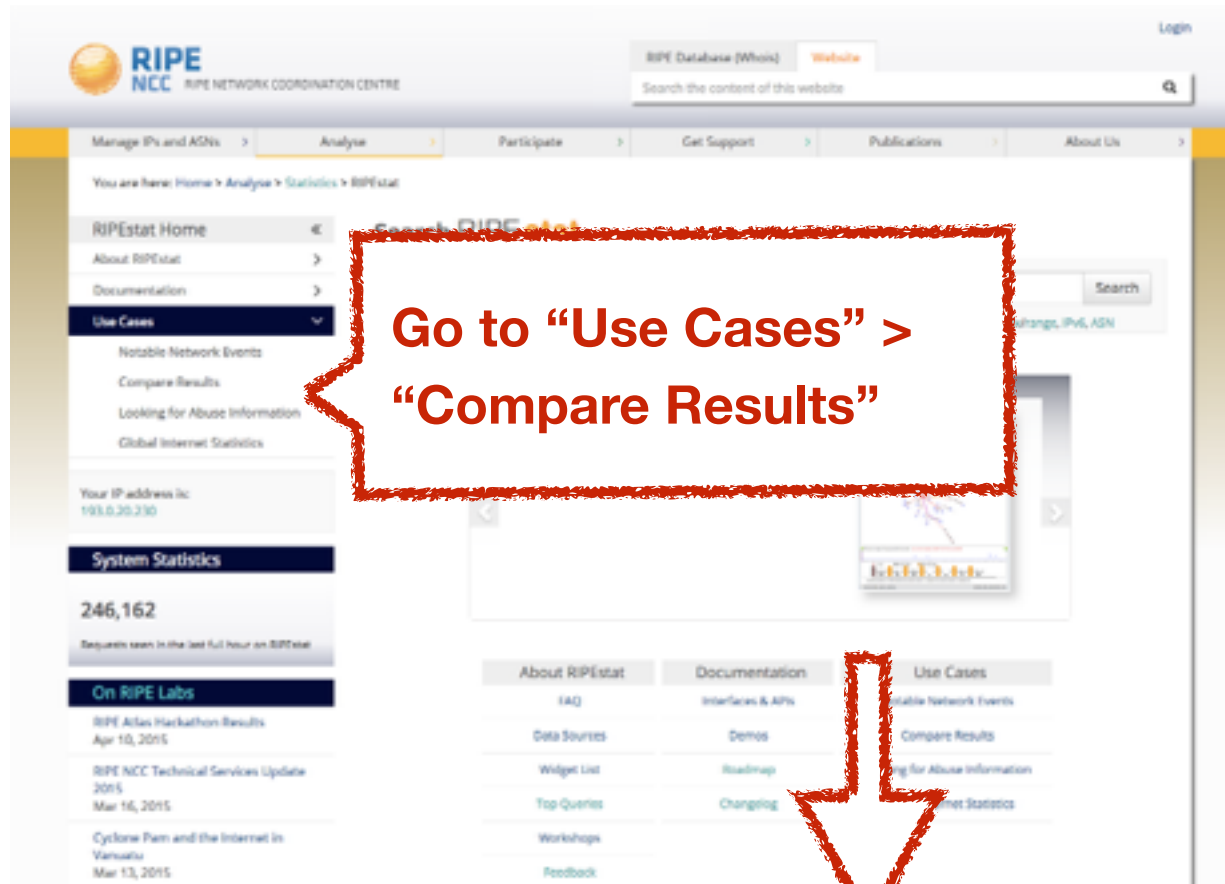


RIPE
NCC

- **Want to peer with AS-X?**
 - Learn by opening multiple widgets about AS-X
- **Choosing upstream ?**
 - Compare AS-X with AS-Y by opening same widget loaded with two different ASNs
- **Internet outage in a country?**
 - Open multiple country-related widgets in same view

https://labs.ripe.net/Members/suzanne_taylor_muzzin/ripestats-multiple-widget-and-resource-comparison

- Compare results in different widgets

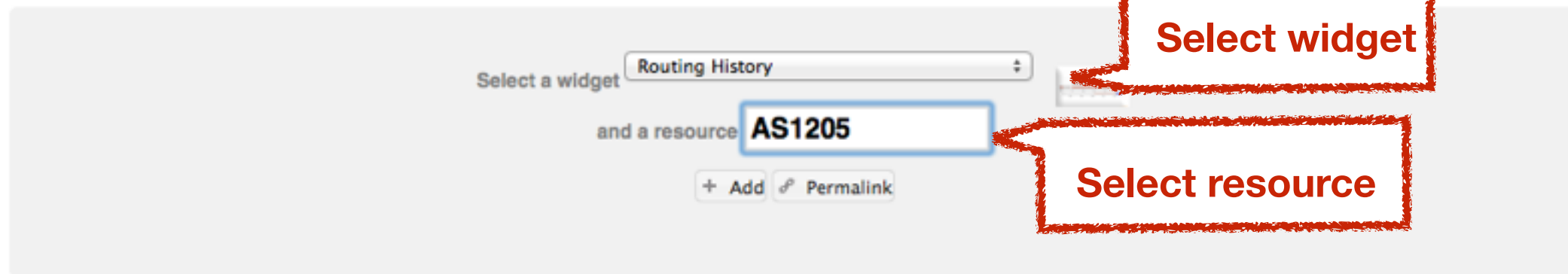


The screenshot shows the RIPE NCC website interface. The navigation menu on the left includes 'RIPEstat Home', 'About RIPEstat', 'Documentation', and 'Use Cases'. The 'Use Cases' menu is expanded, showing 'Notable Network Events', 'Compare Results', 'Looking for Abuse Information', and 'Global Internet Statistics'. A red arrow points from the 'Compare Results' link in the 'Use Cases' menu to the 'Compare Results' text below the screenshot.

Go to “Use Cases” > “Compare Results”

Compare Results

Select up to six different widgets from the list to compare at one time. Different resources can be queried for each widget.



The screenshot shows the 'Compare Results' interface. The 'Select a widget' dropdown is set to 'Routing History'. The 'and a resource' field is set to 'AS1205'. A red arrow points from the 'AS1205' field to the 'Select resource' text below the screenshot.

Select widget

Select resource

Compare results

63

Compare Results

Select up to six different widgets from the list to compare at one time. Different resources can be queried.

Select a widget: **Routing History**
and a resource: **as3333**
[+ Add](#) [Permalink](#)

1 Select "Routing History" widget

2 enter "AS3333"

3

Routing History (as3333)
Switch to Table View
Show **all** of 9 rows

Routing History (as1205)
Switch to Table View
Show **all** of 9 rows

Prefix Size Distribution (as1205)
by number of
Prefixes - Addresses

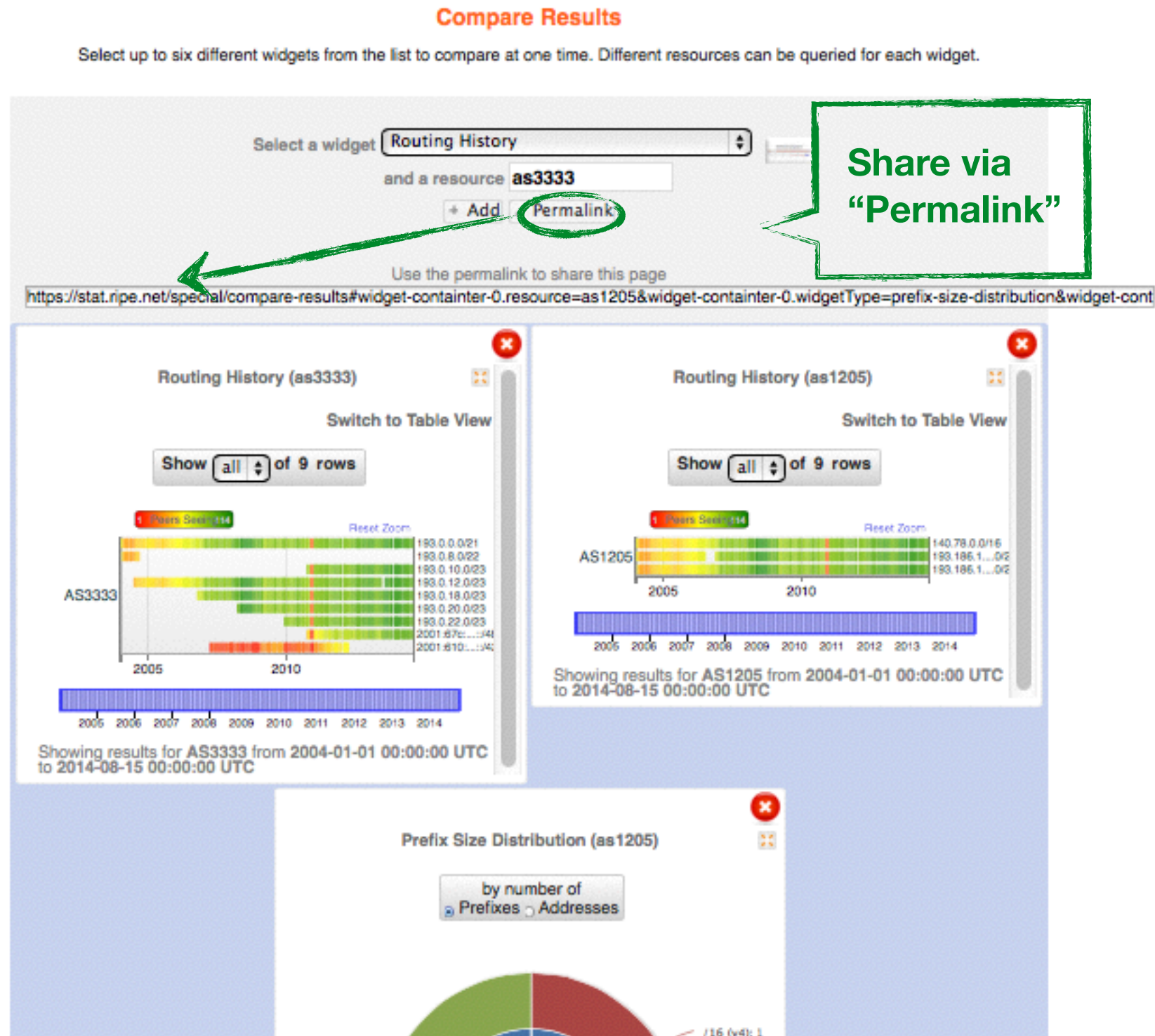
by number of
Prefixes - Addresses

Showing results for AS3333 from 2004-01-01 00:00:00 UTC to 2014-08-15 00:00:00 UTC

Showing results for AS1205 from 2004-01-01 00:00:00 UTC to 2014-08-15 00:00:00 UTC

Showing results for AS1205 as of 2014-08-15 08:00:00 UTC

Results exclude routes with very low visibility (less than 3 RIR peers seeing).



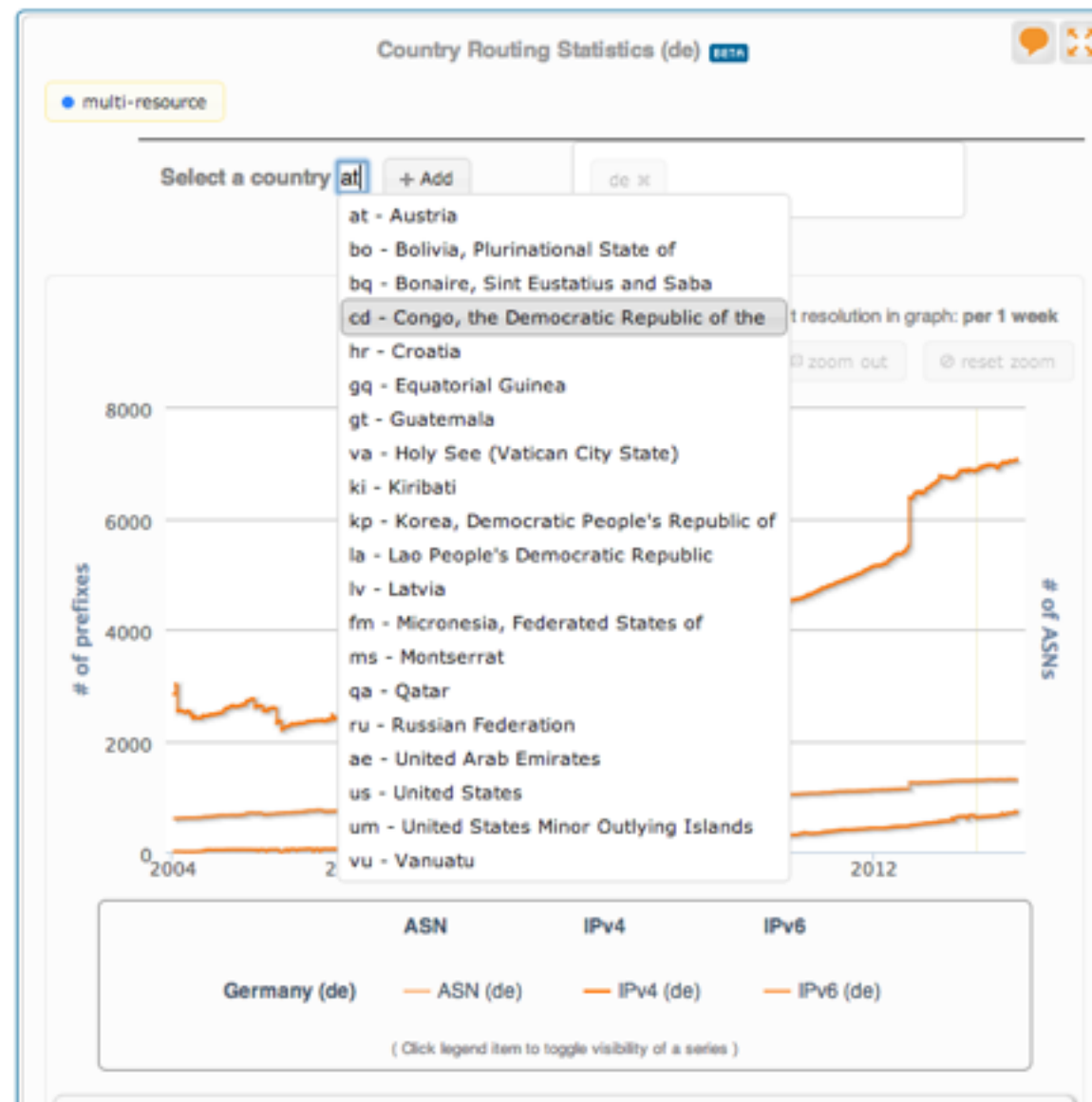
- No login required
- Add widgets **AND** input query for each widget (ASN, IP, etc.)
- It is a result page with widgets and query results
- Share it via a permalink

- Compare the growth of ASNs in DE and NL
- See IPv6 adoption rate in four countries at the same time
- Analyse IP hijacking with 'BGP Update Activity Widget'

<https://labs.ripe.net/Members/wilhelm/bgp-leaks-in-indonesia>

https://labs.ripe.net/Members/suzanne_taylor_muzzin/new-in-ripestat-in-widget-comparison-and-monitoring

- Country Routing Statistics





Exercise: Comparing Results

Exercise E

Refer to the exercise booklet



**RIPE
NCC**



Exercise: RIPEstat Use Cases

Exercise F



RIPE
NCC

- **How can you see whether someone has hijacked your prefixes?**
- **How can you see whether you had an outage?**





RIPE Atlas



RIPE
NCC

RIPE Atlas

- Introduction to RIPE Atlas
- What you can get from RIPE Atlas as a visitor
- Exploring public probes
 - *Live Demo*
- Finding public measurements
 - *Exercise F: Analyse results*
- Creating a measurement
 - *Exercise G: Create a measurement*
- Network Monitoring
 - *Exercise H: Setting up 'Status Checks'*
- *More RIPE Atlas features - optional*
- How to host a probe
- ~~Advanced topics - not part of this workshop~~
 - ~~Use cases and success stories~~
 - ~~RIPE Atlas anchors~~
 - ~~RIPE Atlas community~~



Introduction to RIPE Atlas

Section 9



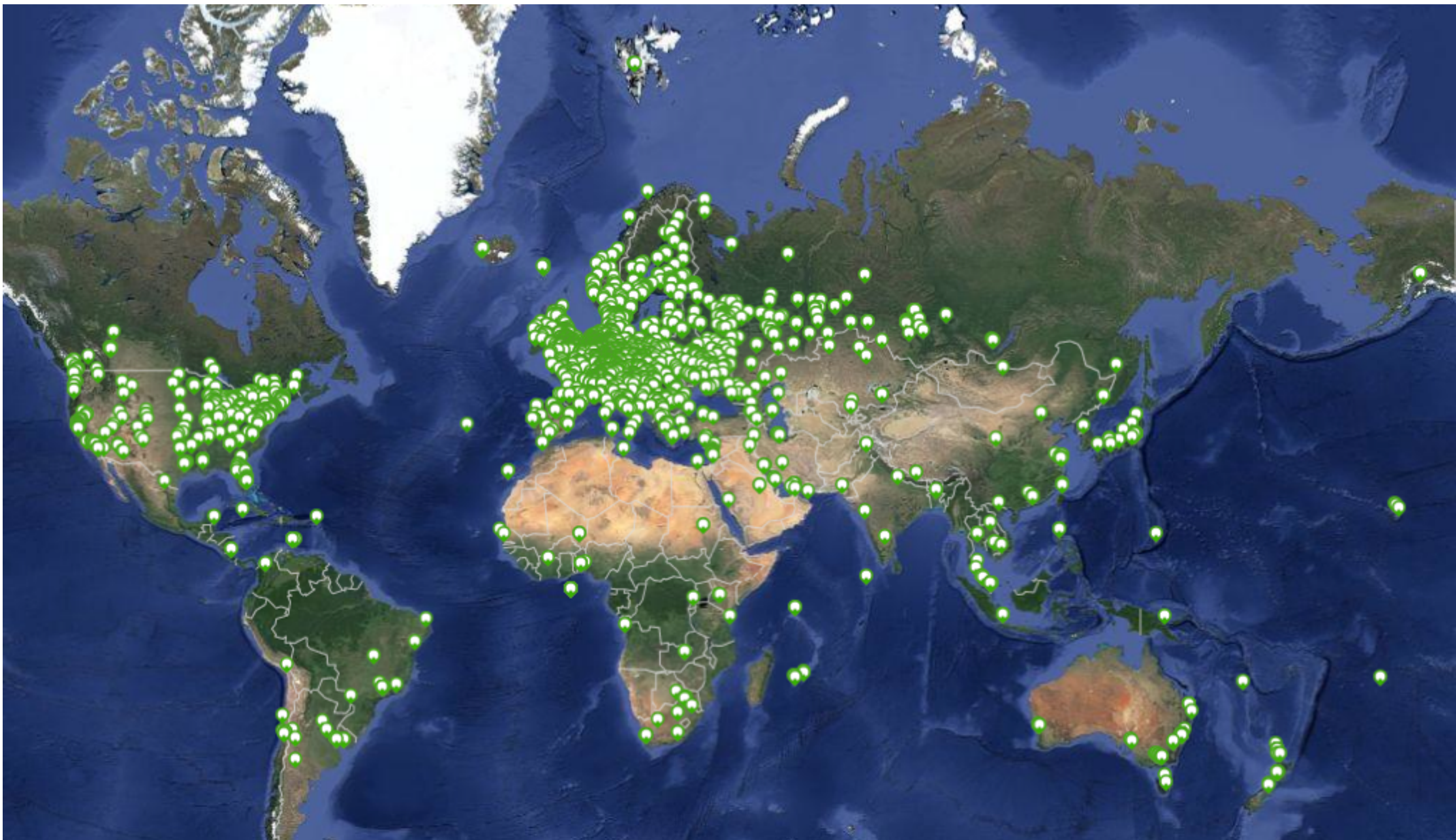
RIPE
NCC

- **RIPE Atlas = global active measurements platform**
- **Goal: View Internet reachability**
- **Probes hosted by volunteers**
- **Measurements performed towards root name servers**
 - Visualised as Internet traffic maps
- **Users can also run customised measurements**
 - ping, traceroute, DNS & SSL
- **Data publicly available**

- **7,800+** concurrent measurements
- Collecting **~2,800** results per second
- **8,200+** measurement devices (probes)

System Statistics	
Probes connected to RIPE Atlas	8241
Measurements currently running	7870
Results collected per second	2803

Country	Probes
United States	966
Germany	850
France	764
United Kingdom	579
Nederland	466
Russia	434
Czech Republic	246
Italy	235
Switzerland	204
Ukraine	199



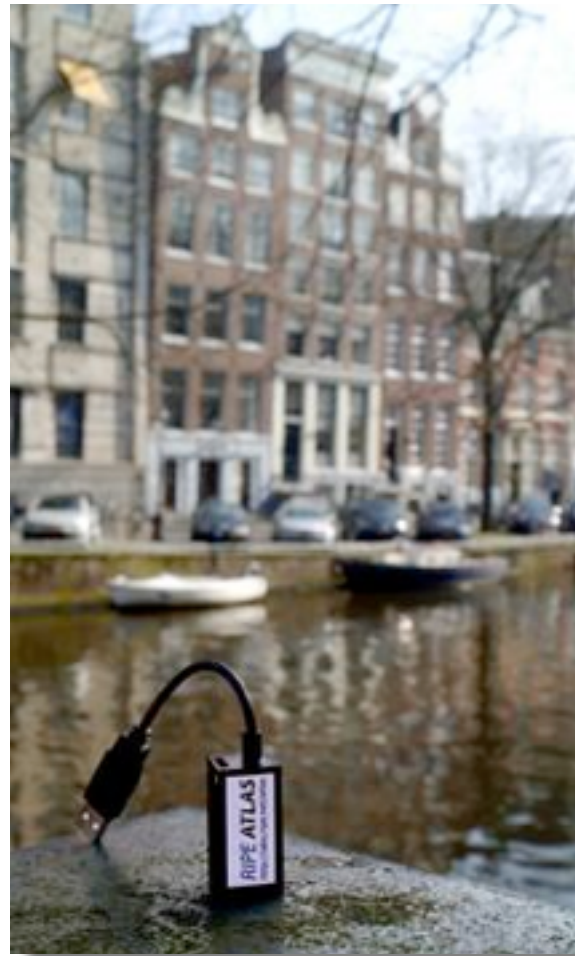
Global RIPE Atlas Network Coverage

This map shows the locations of all RIPE Atlas probes, including those that are connected, disconnected and abandoned (meaning they have not been connected for a long period of time).



- 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





- <https://atlas.ripe.net>
- Users mailing list: ripe-atlas@ripe.net
- Articles & updates on RIPE Labs:
<https://labs.ripe.net/atlas>
- Questions and bugs: atlas@ripe.net
- Twitter: [@RIPE_Atlas](https://twitter.com/RIPE_Atlas) and [#RIPEAtlas](https://twitter.com/hashtag/RIPEAtlas)

What You Can Get from RIPE Atlas as a Visitor

Section 10

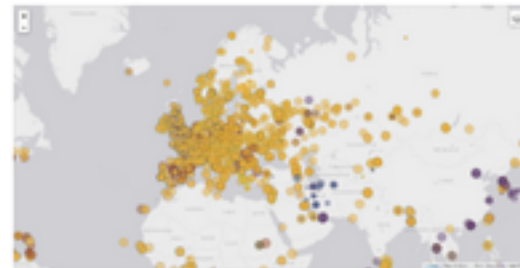


RIPE
NCC

[RIPE Atlas](#) «[About RIPE Atlas](#) >[Get Involved](#) >[Results](#) v[Internet Maps](#)[Coverage & Statistics](#)[Analyses & Use Cases](#)[Graphs](#)[RIPE Atlas Anchors](#)

RIPE Atlas - Map Visualisations

DNS Root Instances



Shows, for each probe, which root DNS server instance the probe ends up querying, when they ask a particular root server. In other words, it shows the "gravitational radius" for root DNS server instances.

Comparative DNS Root RTT



Shows a comparison of response time for DNS SOA queries to all the root DNS servers. For each probe, a marker shows the "best" root server with colour identifying the related minimum response time.

Root Server Performance



This map shows the reply time to the SOA query of a particular root DNS server, over the selected transport protocol (UDP, TCP or comparison of the two) for each probe.

RTT to Fixed Destinations



Shows the colour coding for the RTT value for the particular destination for each probe. The minimum / average / maximum values are based on standard "ping" measurements.

Reachability of Fixed Destinations



Shows if the particular fixed destination is reachable or not from each probe. Red markers indicate that the specific destination for these probes are unreachable and green reachable.

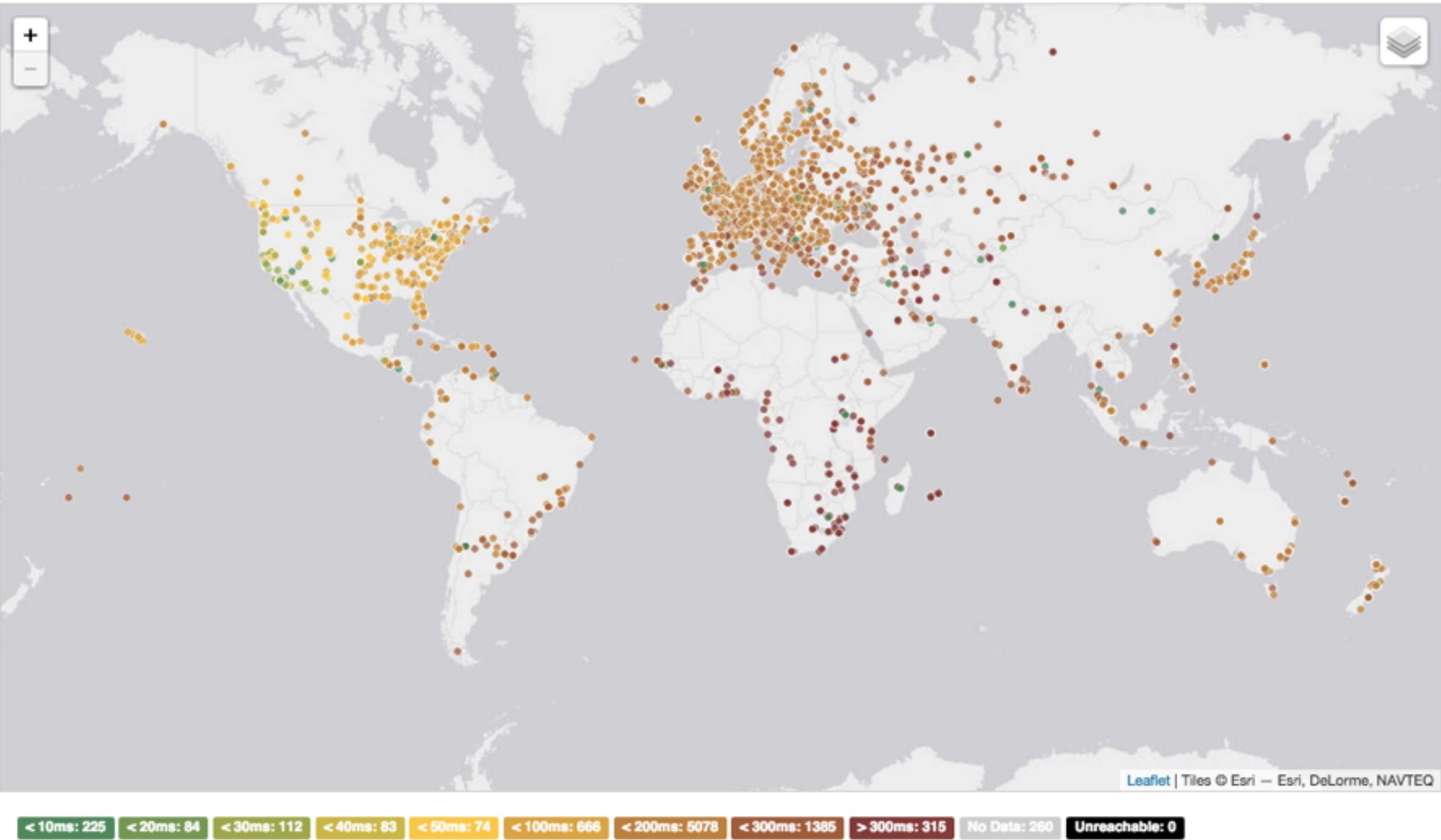
RIPE Atlas network extent



Shows the extent of the RIPE Atlas network, with all active and inactive probes.

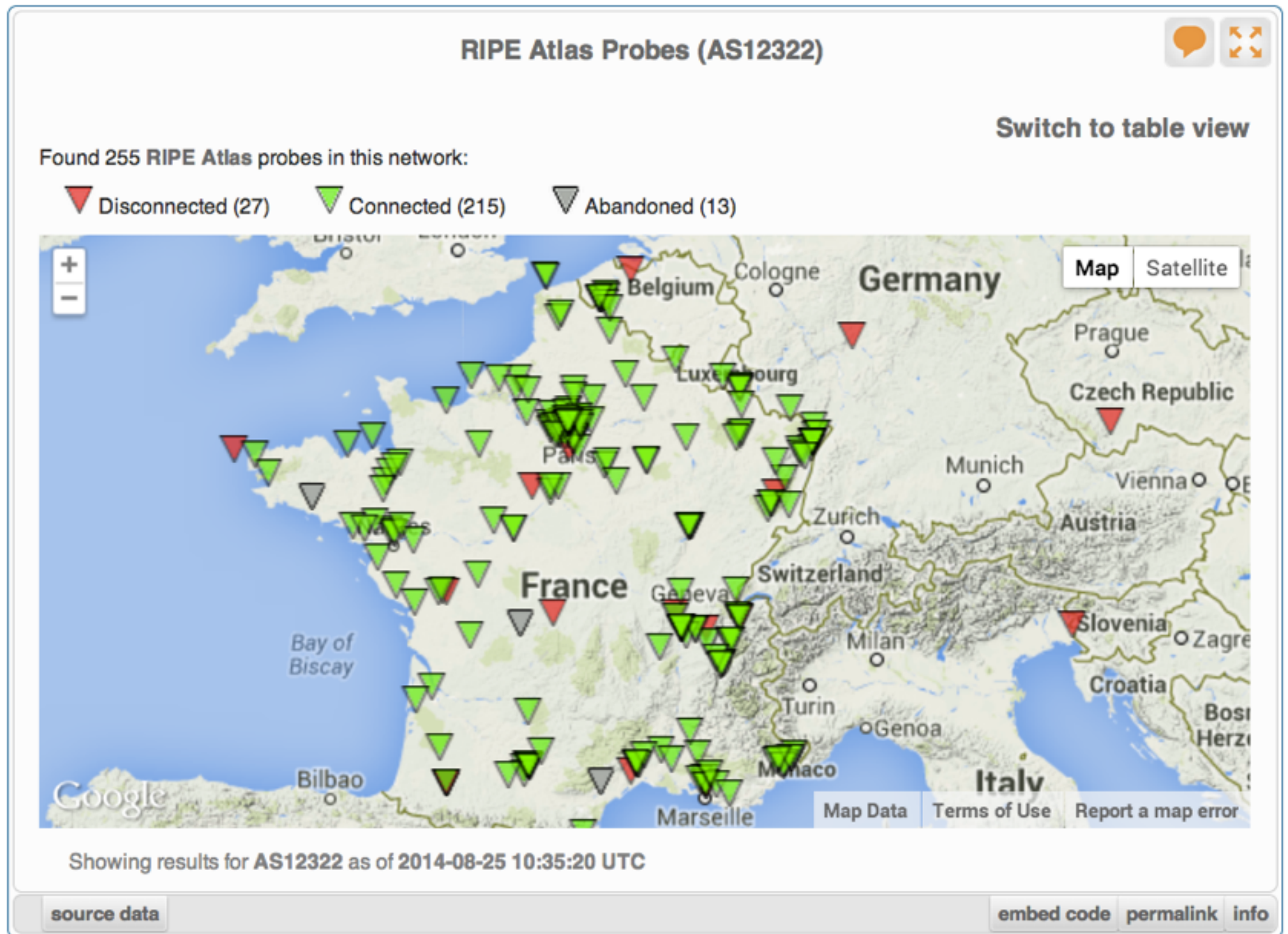
Where is B-root?

We display measurement results from the last hour only.



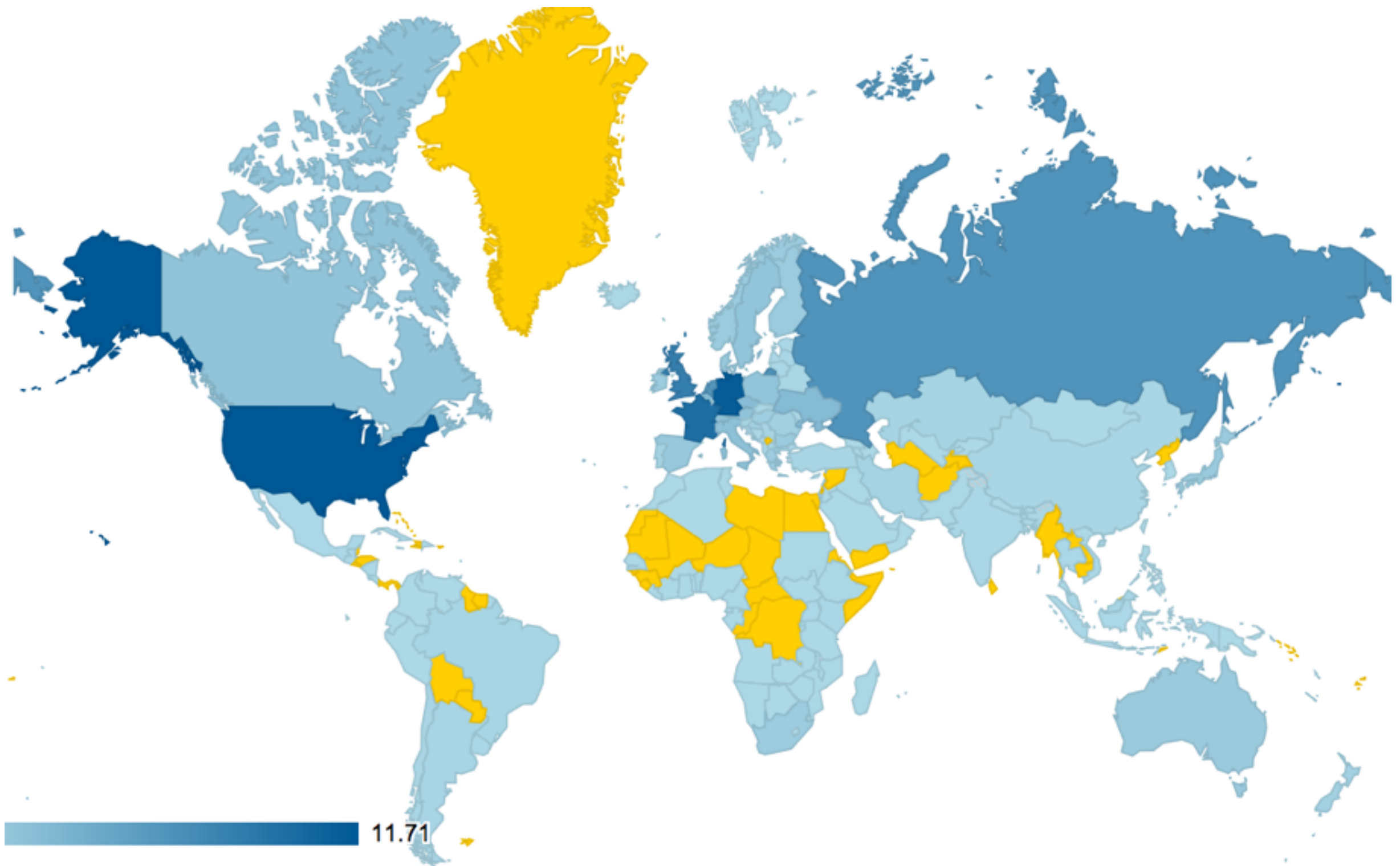
Probes per ASN (in RIPEstat)

85



Where we want to place probes

86



0 comments **RIPE Atlas: Measurements With Tagged Probes Coming Soon** Suzanne Taylor Muzzin — Sep 12, 2014 12:05 PM



We've been busy working on a number of developments, and we're really excited about particular that will be ready soon: creating customised measurements using tagged probes. Learn more about it - along with some other recent additions - and let us know what you

Tags: atlas, measurements, tools

» Read more

0 comments **Time Warner Cable Outage** Emile Aben — Aug 28, 2014 04:50 PM



The Time Warner Cable network suffered an outage on 27 August 2014 between approximately 9:40 and 10:55 UTC. We looked at some interesting details of this outage with RIS and RIPE Atlas.

Tags: atlas, routing

» Read more

0 comments **RIPE Atlas Midsummer Update 2014** Fatemah Mafi — Jul 24, 2014 05:30 PM



Since RIPE 68 in Warsaw, the RIPE NCC has developed and released a new version of the RIPE Atlas. We would like to inform the community of what we've been working on and how you can benefit from the RIPE Atlas service.

Tags: atlas, statistics

0 comments **How RIPE Atlas Helped Wikipedia Users** Emile Aben — Jul 09, 2014 12:25 PM

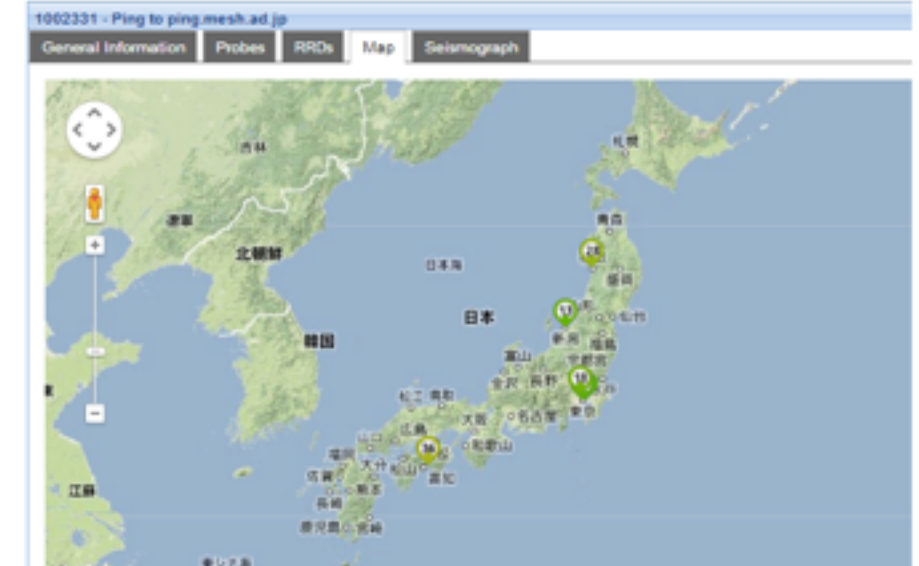


Engineers from the Wikimedia Foundation and the RIPE NCC recently launched a project to measure the latency of Wikimedia sites for users worldwide. The project aims to find ways to decrease latency and improve performance for users around the world.

標準以外の計測先の追加

任意の宛先 (UDM) を登録して計測を行うことも可能です。My Atlas>Measurements>New をクリックして計測先を作成します。任意の宛先への計測には「クレジット」が必要になります。プロの稼働時間に応じて (24時間連続稼働すると21,600クレジットが貯まる) 溜まっていき、TraceRouteを行う度に消費 (pingは1回につき3クレジットを消費) されます。

biglobe (ping.mesh.ad.jp) へのUDM



1 پست • صفحه 1 از 1

ai:vid
Information and Communications Technologies

Khoramyar

پست ها : 122
تاریخ عضویت: شنبه ۰۹
pm 12:52 2013
times 52 :Has thanked
times 57 :Been thanked

پروژه بین المللی سنجش اینترنت - رایب اطلس

توسط Khoramyar • سه شنبه مارس 18, 2014 1:42 pm

سازمان رایب - <http://www.ripe.net> - به عنوان یکی از پنج سازمان متولی منابع اینترنت جهانی پروژه بسیار جالب و جذابی را به نام پروژه اطلس شروع کرده است.

وب سایت رسمی پروژه اطلس: <https://atlas.ripe.net>

کاوشگران کوچک شبکه:

سازمان رایب، با تغییر دادن نرم افزار مودم های کوچکی از شرکت TPLink آنها را به Probe ها یا کاوشگر های کوچکی تبدیل کرده و آنها را به رایگان در اختیار متقاضیان میگذارند. متقاضیان از کشور های مختلفی آنها را دریافت میکنند و به اینترنت های منازل و محل کارشان متصل میکنند و این کاوشگرها از نزدیک ترین مودم به پروتوکول DHCP آی پی دریافت کرده و از خط اینترنت با مراکز سنجش رایب تماس میگیرند. مراکز سنجش رایب، به صورت ریموت به این کاوشگر ها دستور میدهند که چه سنجش هایی را انجام دهند.

این سنجش ها شامل دستور های ساده شبکه مثل Ping - Traceroute و چند سنجش دیگر مثل DNS و امانت آنها است.

عکس یک کاوشگر رایب اطلس:

Looking Up Public Probes

Section 11



RIPE
NCC

- **Create a RIPE NCC Access account**
 - Same for LIR Portal, RIPE Atlas, RIPEstat, RIPE Labs...
- **Advanced**
- **‘LIR contact’: additional benefits!**
 - Membership benefits for RIPE Atlas
 - Share probe management with LIR colleagues
 - Historical RIPE Database view in RIPEstat
- **Add yourself as ‘contact’ in LIR Portal**

Searching for probes

90

Christian Teuschel

RIPE NCC RIPE NETWORK COORDINATION CENTRE

RIPE Database (Whois) Website

Search IP Address or ASN

Manage IPs and ASNs > Analyse > Get Support > Publications > About Us >

You are here: Home > Analyse > Internet Measurements

Probes

Filter by id/asn/location/country/descript Connected IPv4/v6 Any Country

Mine Favourites Hidden Sponsored Ambassadorships Public

Id	ASN v4	ASN v6	Country	Description	Connection Status
23477	9143			PR-MON-01	1 week, 2 days
23474	34569				5 days, 10 hours
23452	5769				3 hours, 5 min
23442	4739				2 days, 1
23441	4804				1 week, 2 d
23434	20657			XLA SOA Probe	1 week, 2 days
23433	5421	5421		DCE - Sofia University	1 week, 2 days
23387	12322			CC&C Office, Echallon, France	1 week, 2 days
23381	9143			T-Home	1 day, 19 hours

Filter based on ASN, country, location...

Can mark probes as favourites

» You are here: [Home](#) > [Analyse](#) > [Internet Measurements](#) > [RIPE Atlas](#) > [Probes](#) > [Probe #10010](#)

Probe #10010 [\(Register\)](#)

[General](#) [Network](#) [Built-in Measurements](#) [User-defined Measurements](#)

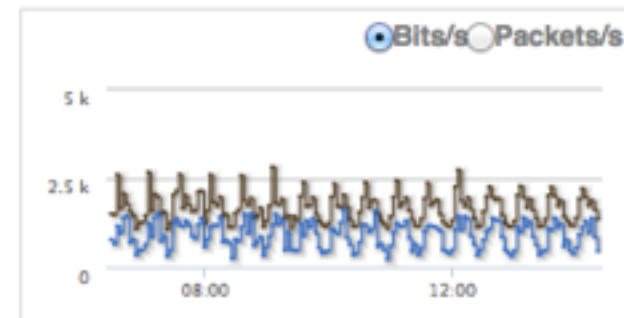
General Information [Edit](#)

Id	10010
MAC Address	F8:D1:11:A9:F3:2C
Architecture	tl-mr3020
Firmware Version	4680 (1070)
Router Type	
Bandwidth Limit	Not set
DNS Entry	Off
Shared Publicly	Yes
User Tags	NAT Chello 200MB
System Tags	V3 Resolves A Correctly Resolves AAAA Correctly IPv4 Works Auto GEOIP city IPv4 Capable IPv4 RFC1918

Management Sharing

Only the probe host is permitted to administer this probe.

Connection & Traffic [Edit](#)



Connected Time [3 days, 9 hours](#)



 [3 days, 9 hours](#)

Firmware #10010
4680

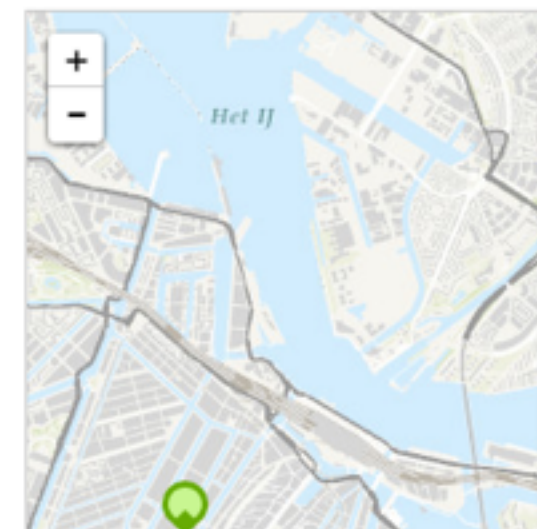
Architecture
tl-mr3020

MAC Address
F8:D1:11:A9:F3:2C

The displayed location is an automatic best guess of the **city** based on IP address.

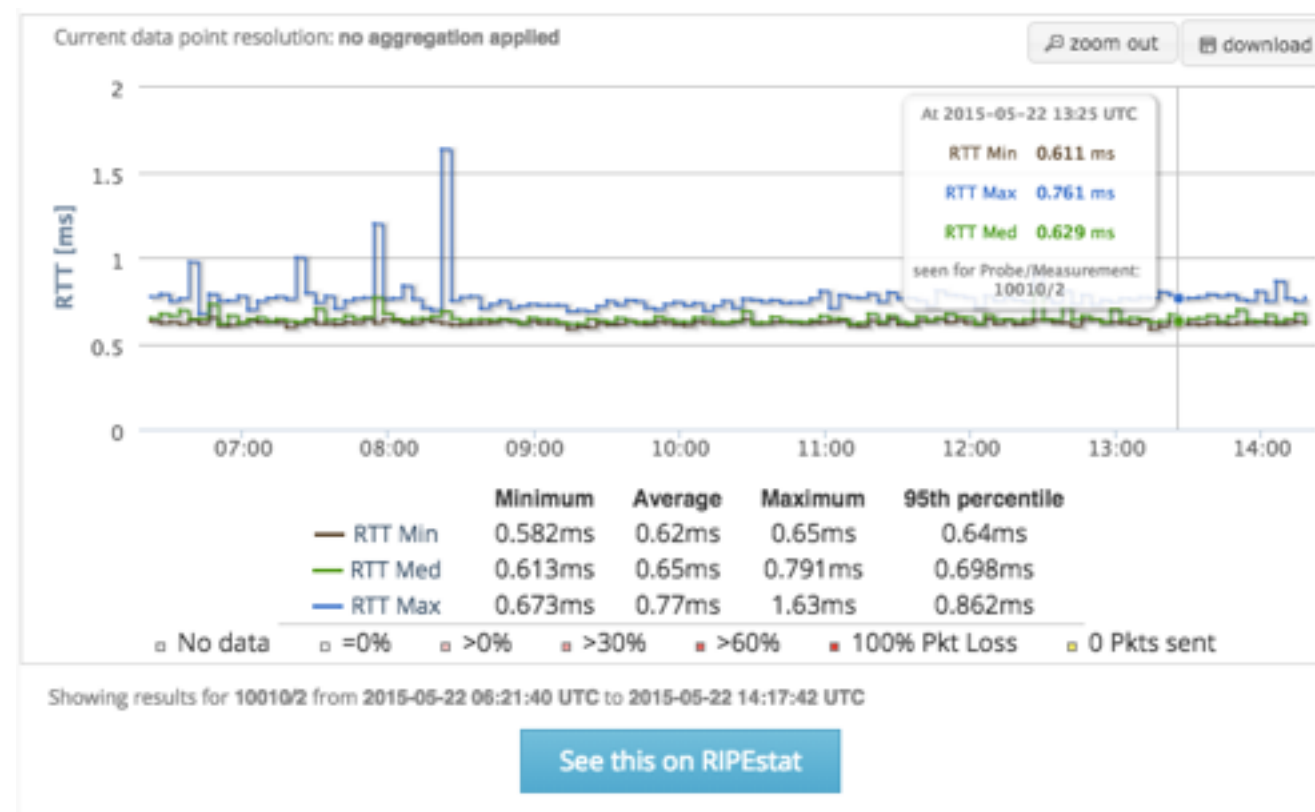
By manually setting a more accurate location you can help to improve the usefulness and correctness of RIPE Atlas.

[Update Location](#)



[Edit](#)

- Replace multiple RRDs graphs: zoom in/out in time, in the same graph
- Easier visualisation of an event's details
- Selection of RTT class (max, min, average)



Finding Results of Public Measurements

Section 12



RIPE
NCC

- Log into atlas.ripe.net
- Go to “My Atlas” > “Measurements”

Measurements

[+ Create a Measurement](#)

Any Status

IPv4/v6

All types

Of all time



Mine


Favourites

Hidden

Public

Id	Type	Target	Description	Probes	Time (UTC)	Status
1999490	○ IPv4 dns	j.root-servers.net	DNS measurement to j.root-servers.net	13	2015-05-11 14:59 2015-05-11 15:05	■
1999479	○ IPv4 dns	j.root-servers.net	DNS measurement to j.root-servers.net	30	2015-05-11 14:50 2015-05-11 15:00	■
1999477	○ IPv4 dns	j.root-servers.net	DNS measurement to j.root-servers.net	3	2015-05-11 14:47 2015-05-11 14:55	■
1999476	○ IPv4 dns	j.root-servers.net	DNS measurement to j.root-servers.net	1	2015-05-11 14:45 2015-05-11 14:55	■
1999465	○ IPv4 dns	j.root-servers.org	DNS measurement to j.root-servers.org	1	2015-05-11 14:42 2015-05-11 14:50	■
1999459	○ IPv4 dns	j.root-servers.net	UDP V4 Measurement	64	2015-05-11 14:09 2015-05-11 14:15	■

- Click on msm, then “Download”
- Or go to URL
- Or use the API
- Results in JSON
- Libraries for parsing available on GitHub
- <https://github.com/RIPE-NCC/ripe.atlas.sagan>
- <https://github.com/RIPE-Atlas-Community/>

 **DNS measurement to j.root-servers.net**

General Information Probes Map **Download Results**

Download the raw measurement result data here.

You can use this form to download the data through your browser, or use the preview on the right to help you query the REST API directly.

Start Date*: 2015-05-11 (start time of this measur...
All dates are start-of-day

Stop Date*: 2015-05-11 (start time of this measur...
All dates are end-of-day

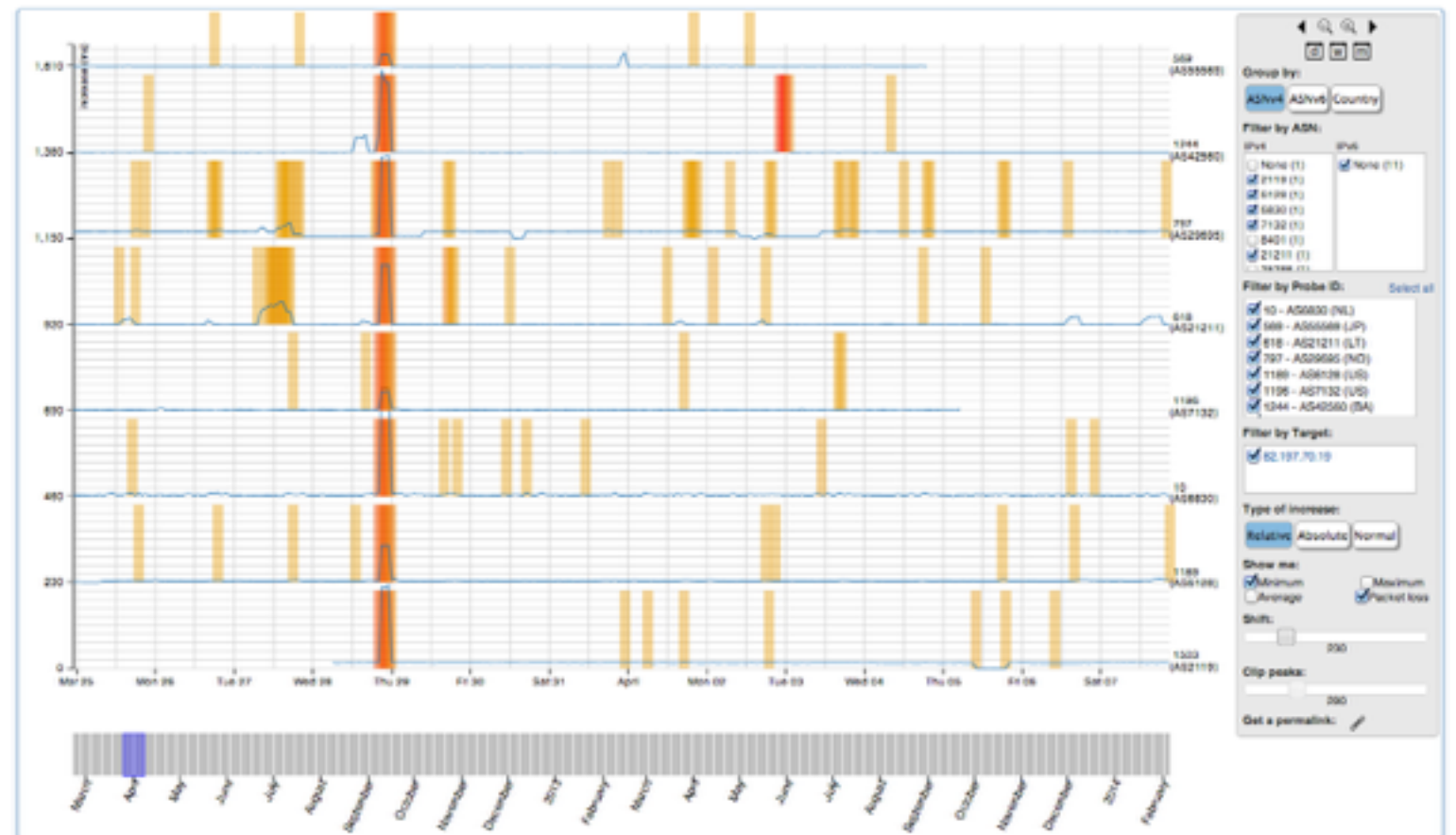
Format: JSON

Download

URL Preview

`https://atlas.ripe.net/api/v1/measurement/1999498/result/?start=1431302400&stop=1431388799&format=json`

- **Multiple ping measurements in one view**
- **Stacked chart and interactive control panel**
- **Go to Results > Anchors > choose one > ping**



https://labs.ripe.net/Members/massimo_candela/seismograph-user-guide

Search for msm by target in RIPEstat

97

Go to “RIPEstat >
“RIPE Atlas Activity”

RIPEstat — Internet Measurements and Analysis







https://stat.ripe.net/widget/atlas-targets#w.resource=8.8.8.8

You are here: Home > Data & Tools > RIPEstat > atlas-targets

RIPE Atlas Measurement Targets (8.8.8.8)

8.8.8.8

Show 10 targets/page Search:

Measurement ID	Stopped	Type	Target IP	Target Hostname
1040720 	ongoing	ping	8.8.8.8	google-public-dns-a.google.com
1006491 	ongoing	traceroute	8.8.8.8	not specified
1006192 	ongoing	ping	8.8.8.8	not specified
1004827 	ongoing	traceroute	8.8.8.8	not specified
1002630 	ongoing	ping	8.8.8.8	not specified
1478085 	2014-02-24 13:41 UTC	dns	8.8.8.5	not specified

- **There are many measurements already running!**
- **Search for existing public measurements first...**
- **Only then schedule your own measurement if you don't find what you're looking for**



Exercise: Analyse Measurement Results

Exercise G

Refer to the exercise booklet



**RIPE
NCC**

Section 13



- Log into atlas.ripe.net
- “My Atlas” > “Measurements”
- “New Measurement” or “One-off”
 - Most are periodic and last a long time
 - Choose type, target, frequency, # of probes, region...
 - You will spend credits
- <https://atlas.ripe.net/doc/udm>
- Or use the API:

<https://atlas.ripe.net/docs/measurement-creation-api/>

- **Measurements cost credits**
 - ping = 10 credits, traceroute = 20, etc.
- **Why? Fairness and avoid overload**
- **Hosting a probe earns credits**
- **Earn extra credits by:**
 - Being a member
 - Hosting an anchor
 - Sponsoring probes

<https://atlas.ripe.net/doc/credits>

You are here: [Home](#) > [Analyse](#) > [Internet Measurements](#) > [RIPE Atlas](#) > [My Atlas](#) > [My Credits](#)

[RIPE Atlas](#) <<

[About RIPE Atlas](#) >

[Get Involved](#) >

[Results](#) >

[My Atlas](#) v

[Probes](#)

[Measurements](#)

[Credits](#)

[API Keys](#)

[Messages](#)

[Ambassador Probes](#)

[LIR Benefits](#)

[Claim 1 Million Credits](#)

[IPv6 Connectivity Test](#)

[Quick Look](#)

[Settings](#)

Account Information

This is where you're able to view the history of your credits. There are visualisations available, and you can also transfer credits to someone else.

[History](#)

[Charts & Archives](#)

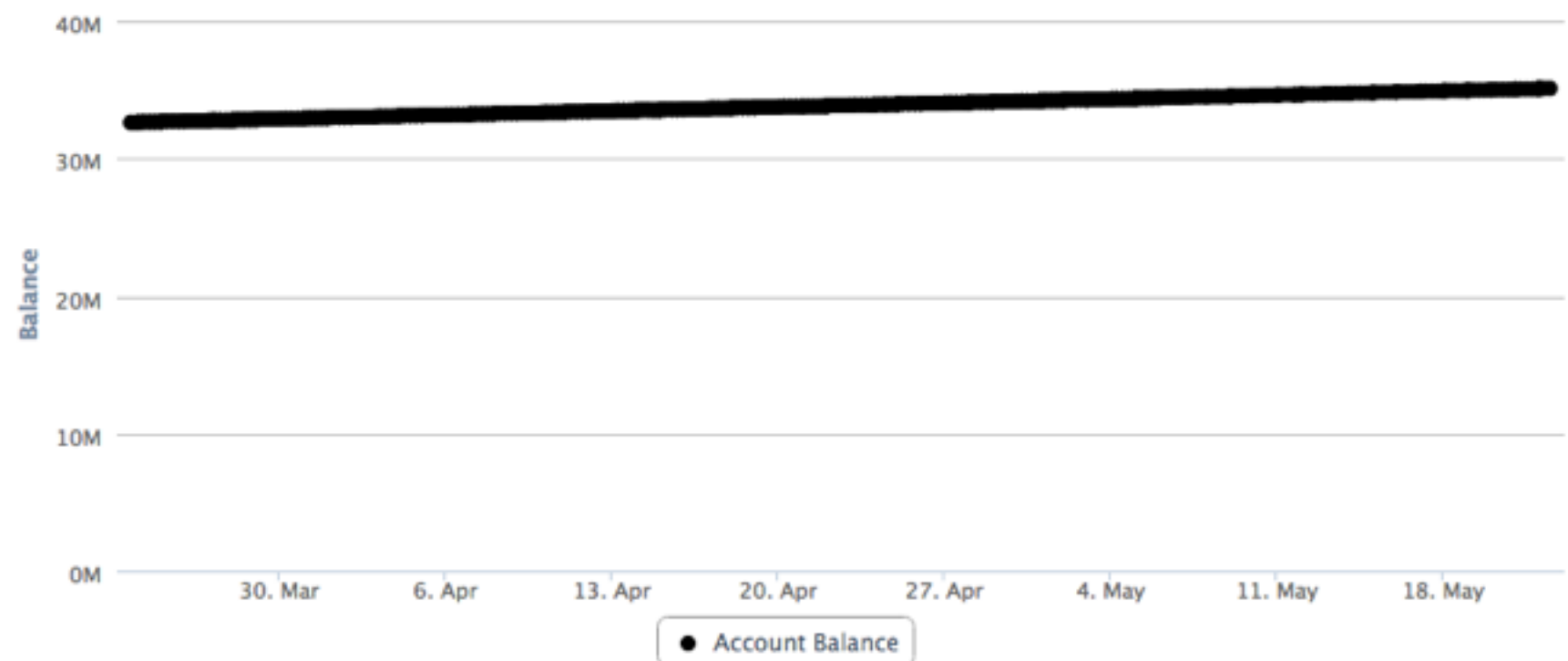
[Transfer](#)

Give credits
to someone

7,046
0.00 credits / hour

History

Account Balance
Daily account balance over time





Exercise: Create a Measurement

Exercise H

Refer to the exercise booklet



RIPE
NCC

Network Monitoring

Section 14



RIPE
NCC

- **Network operators use tools to monitor network health**
 - Nagios & Icinga
- **Tools receive input from RIPE Atlas via the API**
- **Benefits:**
 - Pings from 500 out of thousands of probes around the world
 - See your network from the outside
 - Plug into your existing practices

1. **Create a RIPE Atlas ping measurement**
2. **Go to “Status Checks” URL**
3. **Add your alerts in Icinga or Nagios**



- **Status Checks work via RIPE Atlas' RESTful API**
 - https://atlas.ripe.net/api/v1/status-checks/MEASUREMENT_ID/
- **You define the alert parameters, for example:**
 - Threshold for the percentage of probes that successfully received a reply
 - How many most recent measurements to base it on
- **What is the maximum packet loss acceptable**
- **Documentation:**
 - <https://atlas.ripe.net/docs/status-checks/>

- **Community of operators contributed configuration code!**
 - Making use of the built-in “check_http” plugin
- **GitHub repo examples:**
 - https://github.com/RIPE-Atlas-Community/ripe-atlas-community-contrib/blob/master/scripts_for_nagios_icinga_alerts
- **Post on Icinga blog:**
 - <https://www.icinga.org/2014/03/05/monitoring-ripe-atlas-status-with-icinga-2/>



Exercise: Setting up Status Checks

Exercise I

Refer to the exercise booklet



RIPE
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More RIPE Atlas Features

Section 15



RIPE
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- <https://atlas.ripe.net/docs/measurement-latest-api/>
 - Widget monitoring value in real time (100 probes pinging websites worldwide)
 - Alert based on average measurements per hour
 - Big network event, e.g. Internet outage in a region
 - DNS domain monitoring; configurable measurements using ten RIPE Atlas anchors
- https://labs.ripe.net/Members/suzanne_taylor_muzzin/ripe-atlas-latest-results-api-and-parsing-library

- Use API keys to:
 - Create measurements without logging in
 - Securely share your measurement data with others
- To create, manage and delete API keys:
 - <https://atlas.ripe.net/keys/>
 - <https://atlas.ripe.net/docs/keys2/>
- Examples:
 - <https://atlas.ripe.net/docs/rest/>

- **Probes:**
 - Hardware trust material (regular server address, keys)
 - No open ports; initiate connection; NAT is okay
 - Don't listen to local traffic
 - No passive measurements
- **Measurements triggered by “command servers”**
 - Inverse ssh tunnels
- **Source code published**
- **Reported vulnerabilities:**
 - <https://atlas.ripe.net/docs/security/>

- **RIPE Atlas:**

- Guaranteed approval to host a probe
- Do NOT have to host a probe in order to perform customised measurements
- 1,000,000 extra credits monthly via LIR Portal
- “Quick Look” measurements via LIR Portal
- IPv6 reachability testing (free - no credits needed)
- Sharing probe management with LIR colleagues

- **RIPEstat:**

- Historical view of RIPE Database objects

How to Host a Probe

Section 16



RIPE
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1. Create a RIPE NCC Access account
 2. Go to <https://atlas.ripe.net/apply>
 3. You will receive a probe by post
 4. Register your probe
 4. Plug in your probe
- If you receive a probe from an ambassador (trainer, sponsor, someone at a conference), just register it and plug it in!



The End!

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Loppu

Tmíem

Koniec