



RIPE
NCC

Tutorial: Using RIPEstat

Christian Teuschel
Research & Development

- Basics
 - 3 layers of RIPEstat
 - RIPEstat Web
 - Result page
 - Customize the result page
 - Compare results
 - Handling abuse
 - Work with BGPlay

- Advanced
 - Work with widgets
 - Create a dashboard
 - RIPEstat Data API
 - Using Javascript to work with raw data
 - Nagios check



RIPEstat

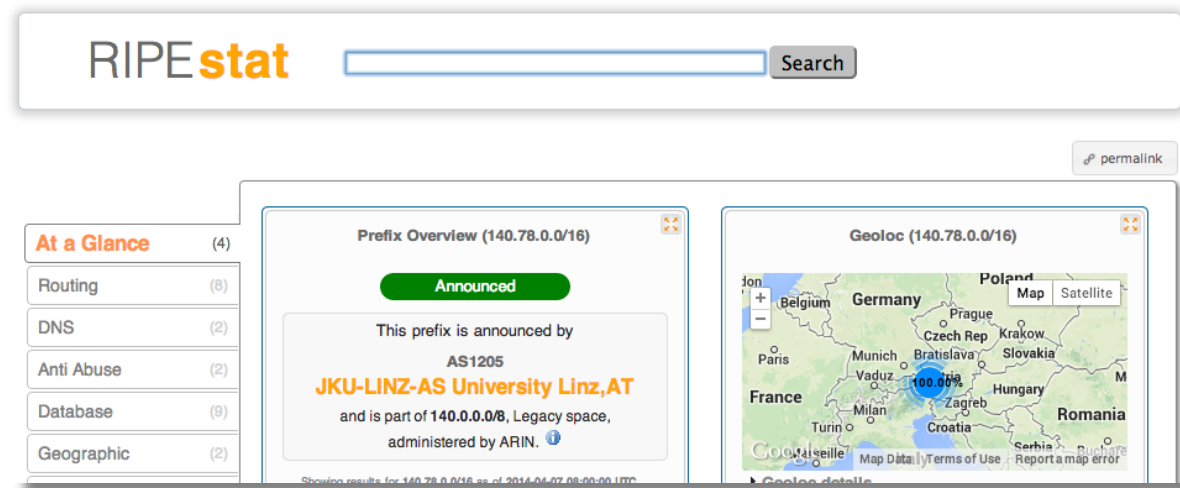
Basics



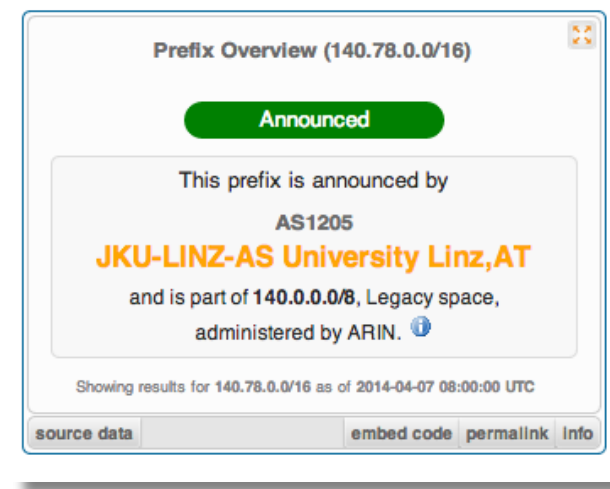
RIPE
NCC

- 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
<http://stat.ripe.net>



- RIPEstat Widget API



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

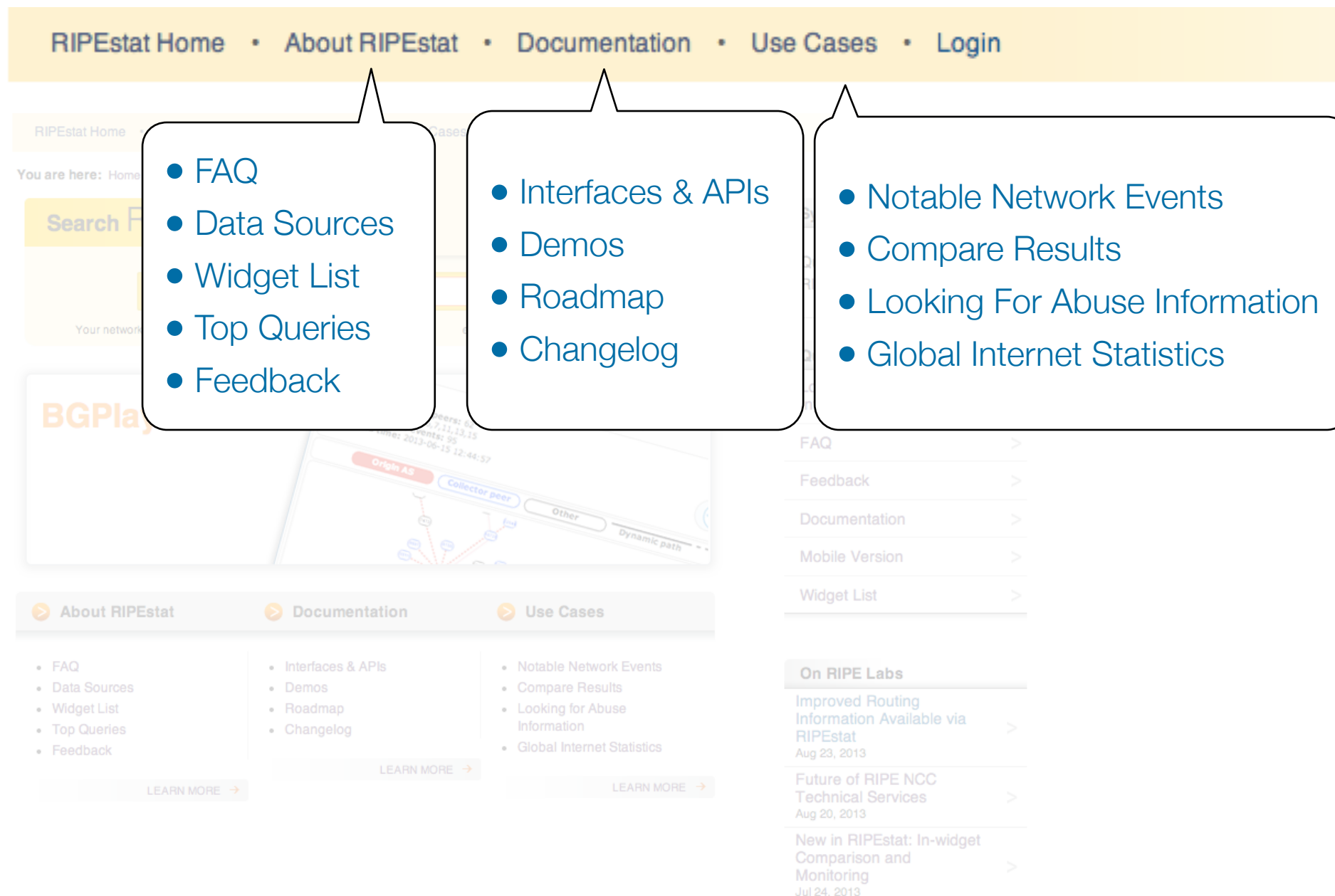
- Finding information on RIPEstat

The screenshot shows the RIPEstat web interface with several callouts highlighting key features:

- Search input:** A callout points to the search bar labeled "Search RIPEstat".
- Recent new features:** A callout points to the "BGPlay is back!" banner, which displays statistics for BGPlay (193.0.20.0/23) and a network diagram.
- Links to most used features:** A callout points to the "Quick Links" sidebar, which includes links for "Looking For Abuse Information", "FAQ", "Feedback", "Documentation", "Mobile Version", and "Widget List".
- RIPEstat related articles on RIPE Labs:** A callout points to the "On RIPE Labs" section, which lists articles such as "Improved Routing Information Available via RIPEstat" and "Future of RIPE NCC Technical Services".

The interface also includes a top navigation bar with links like "RIPEstat Home", "About RIPEstat", "Documentation", "Use Cases", and "Logout (Christian Teuschel)". A "You are here" breadcrumb trail shows the current location: "Home > Data & Tools > RIPEstat". A "Your network" field displays "AS3333, 2001:67c:2e8::/48" and provides examples like "e.g.: IPv4 prefix/range, IPv6, ASN".

- Information structure on RIPEstat



1. Querying for a Resource (Web)

- Task: Enter “AS3333” in the search box



1. Querying for a Resource (Web)

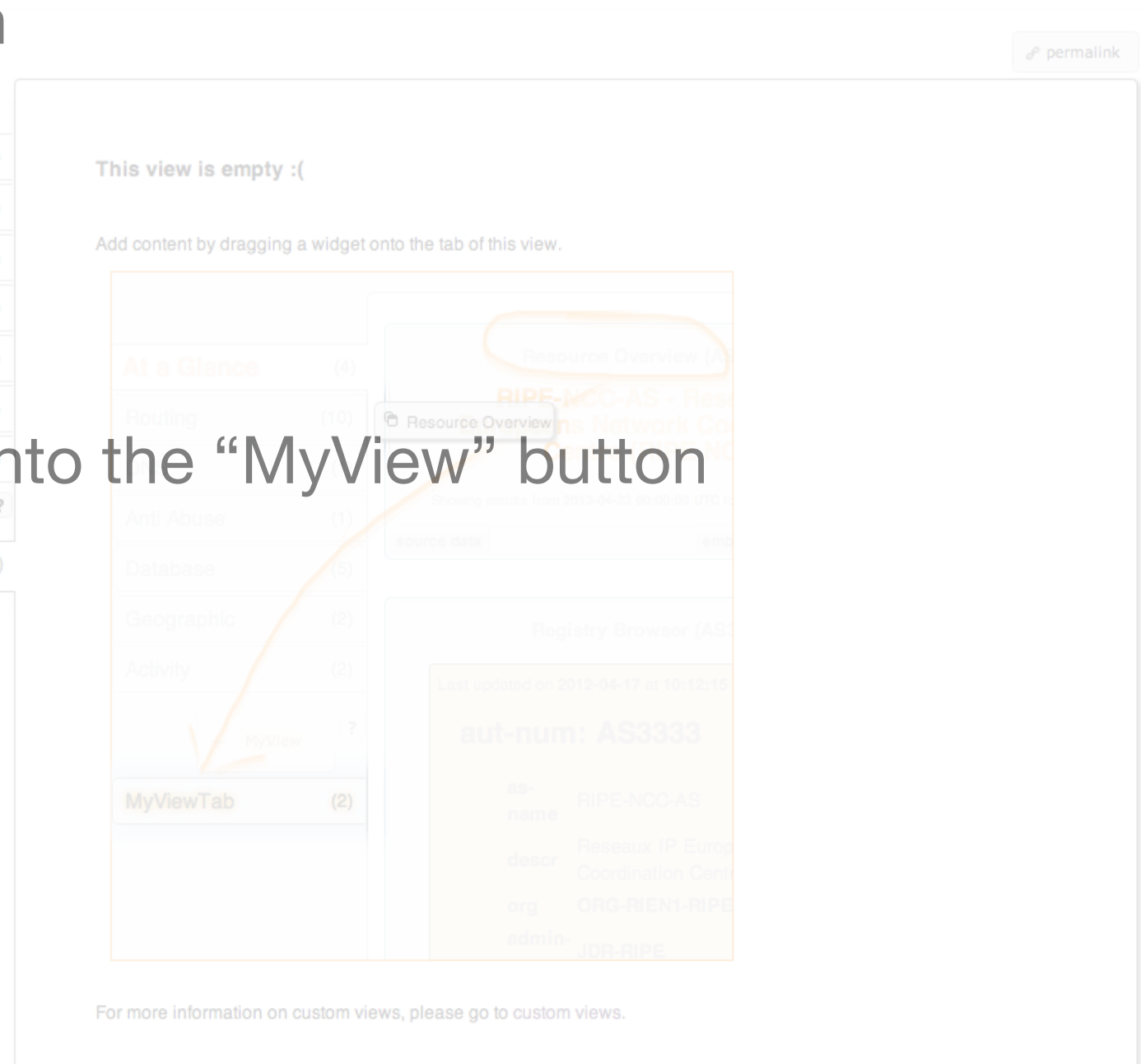
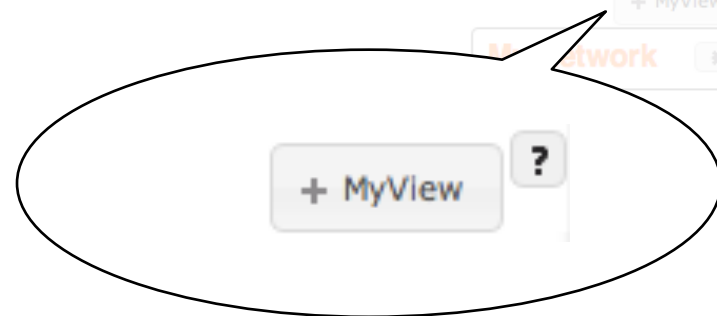
- Result page

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 a list of thematic tabs: Routing (9/10), DNS (1), Anti Abuse (1), Database (5), and Geographic (2). A callout bubble points to this sidebar with the text 'Widgets grouped into thematic tabs'. The main content area displays four widgets: 'AS Overview (AS3333)' showing the name 'RIPE-NCC-AS - Reseaux IP Europeens Network Coordination Centre (RIPE NCC)', 'Geoloc (AS3333)' showing a map of Europe with a callout bubble pointing to it saying 'Widgets display different types of information', 'Registry Browser (AS3333)' showing details for 'aut-num: AS3333' including as-name, descr, org, admin-c, tech-c, mnt-by, and 'Routing Status (AS3333)' showing a green checkmark and 'AS3333 is visible by 97%'. Each widget has a 'source data', 'embed code', 'permalink', and 'info' link at the bottom.

- Tasks
 - What network announces 140.78.50.90?
 - Is 193.3.4.2 routed?
 - In which country is 91.229.42.0/23 used?
 - What is its corresponding INETNUM object?
 - What widget provides real-time routing status?
 - By what percent did the number of prefixes announced within Poland increased over the last two years?
 - How would you share interesting network events with a colleague?

- Create custom views
 - Click the “MyView” button

- Drag and drop a widget onto the “MyView” button



At a Glance (4)

Routing (6/8)

DNS (2)

Anti Abuse (2)

Database (8/9)

Geographic (2)

Activity (2)

+ MyView ?

My Network ⚙️ (0)

Newly created MyView

permlink

This view is empty :(

Add content by dragging a widget onto the tab of this view.

At a Glance (4)

Routing (10)

DNS (1)

Anti Abuse (1)

Database (5)

Geographic (2)

Activity (2)

MyView ?

MyViewTab (2)

Resource Overview (AS)

RIPE-NCC-AS - Res

Europe's Network Co

Centre (RIPE NC

Showing results from 2013-04-23 00:00:00 UTC to

source data emb

Registry Browser (AS)

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

aut-num: AS3333

as-name RIPE-NCC-AS

descr Reseaux IP Europ

Coordination Cent

org ORG-RIEN1-RIPE

admin-JDR-RIPE

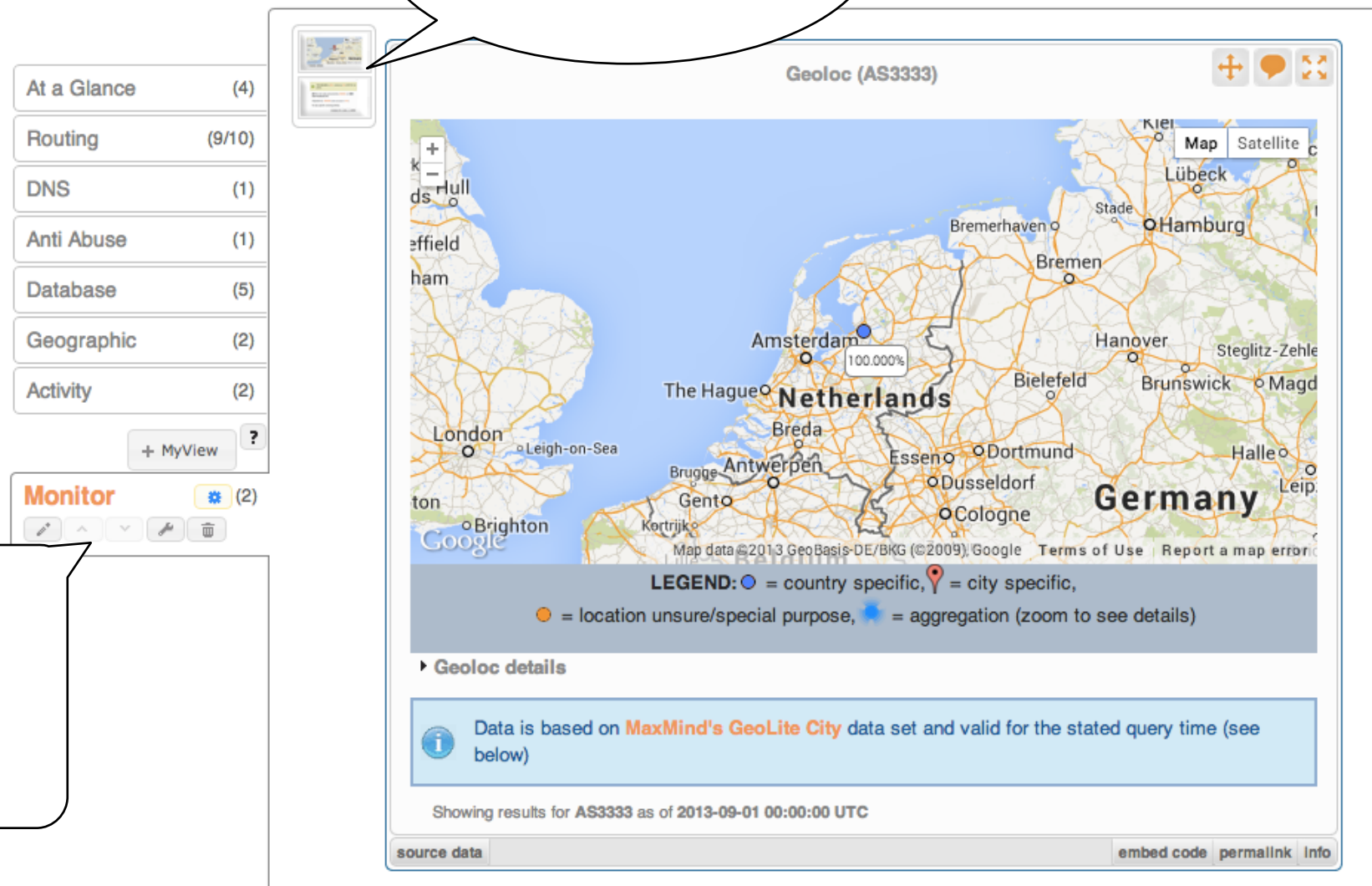
For more information on custom views, please go to custom views.

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

- Customise MyViews

Re-order widgets as you like

- Rename
- Re-order
- Control visibility
- Remove



- Tasks
 - Go to “<https://stat.ripe.net>” and click on “Login”
 - “...click here to create one.”

Create a new RIPE NCC Access account.

RIPE NCC Access enables you to sign into various RIPE NCC services using one password.

Already have an account? Then [click here to manage it](#).

First name

Last name

Email

Password (minimum length: 8)

Confirm Password

Enter the words you see in the box below

8253285



[Privacy & Terms](#)

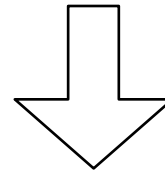
Sign up

- Tasks
 - Create a MyView for a prefix containing the following widgets:
 - Routing Status
 - Looking Glass
 - Routing History
 - Create another MyView with a least two widgets and give it a meaningful name

- Compare results in different widgets

RIPEstat Home • About RIPEstat • Documentation • Use Cases

Go to “Use Cases” >
“Compare Results”



You are here: Home > Data & Tools > RIPEstat > Use Cases > Data Comparator

Compare Results

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

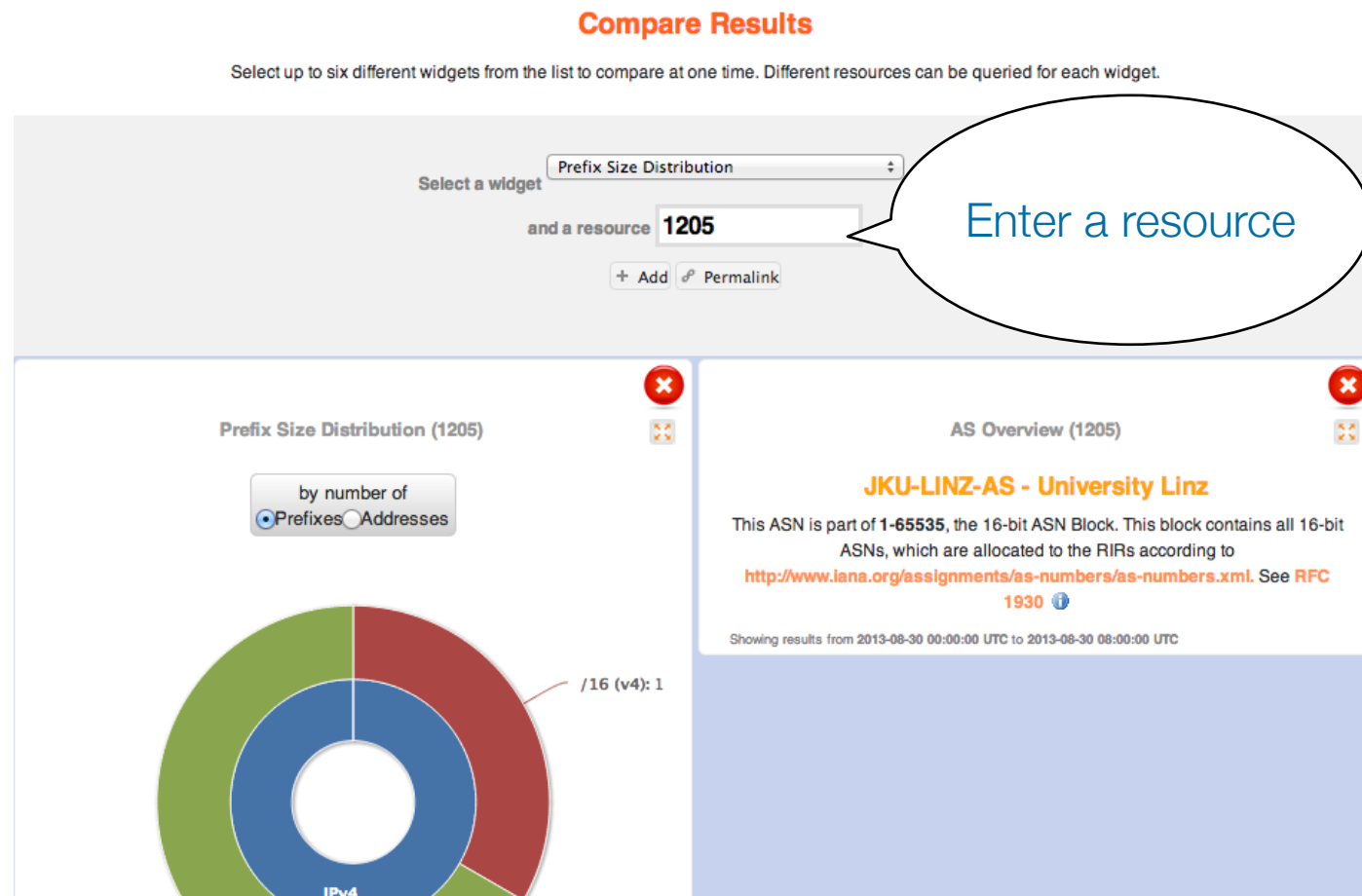
Select a widget

+ Add  Permalink

Select a widget

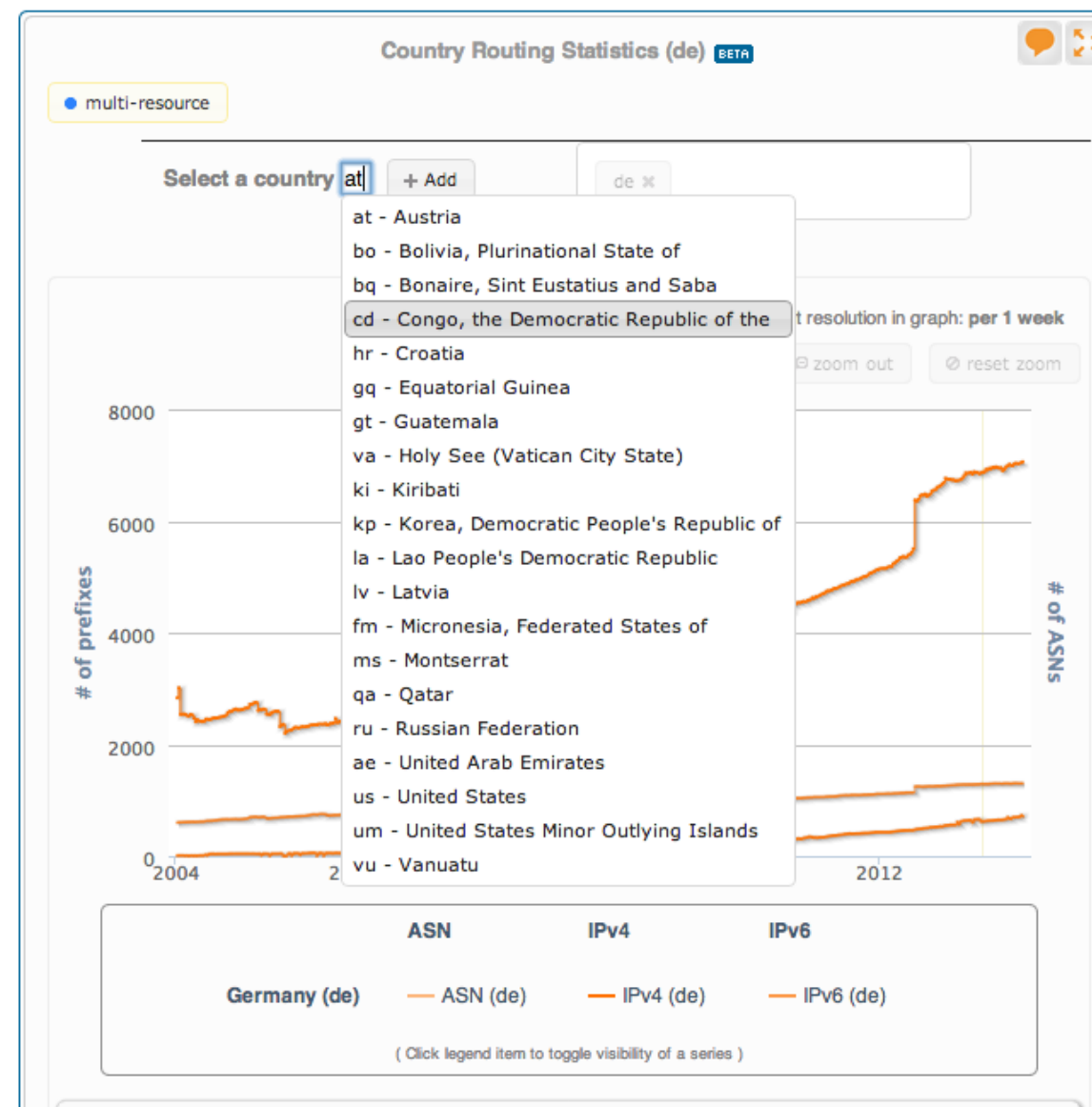
3.Compare Resources (Web)

- Compare results in different widgets
 - Select the “Prefix Size Distribution” widget
 - Enter “AS1205”



Enter a resource

- In-widget comparison
 - Country Routing Statistics



- Tasks
 - Compare the number of announced prefixes for two networks over the past two years using the widget comparison page
 - How does the Internet in Poland compare to the UK? Use in-widget comparison!

- Take action in an abuse case with the Abuse Contact Finder

The screenshot shows the RIPEstat Abuse Contact Finder interface. At the top, a navigation bar contains links: RIPEstat Home, About RIPEstat, Documentation, and Use Cases. A callout bubble points to the 'Use Cases' link, stating: "Go to 'Use Cases' > 'Looking For Abuse Information'". Below the navigation bar is a large downward-pointing arrow. Under the arrow, the breadcrumb path is shown: "You are here: Home > Data & Tools > RIPEstat > Use Cases > Looking For Abuse Information". The main heading is "RIPEstat Abuse Contact Finder". Below this, a paragraph states: "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." There are two information boxes: the first says "You can learn more about network abuse in general and what you can do to stop it on the RIPE NCC Abuse Information page." and the second says "You can learn more about how the RIPEstat Abuse Contact Finder works and how to report abuse in this tutorial on RIPE Labs." A callout bubble points to these boxes, stating: "In-depth information about abuse". Below the information boxes is the "Abuse Contact Finder" widget, which includes the RIPEstat logo, the title "Abuse Contact Finder BETA", and a text input field labeled "Enter an IP address". A callout bubble points to this input field, stating: "Enter the IP address". At the bottom of the widget are links for "embed code", "permalink", and "info". Below the widget, a note states: "For regular RIPEstat users: this widget, of course, can also be found on the regular result page in the 'Anti Abuse' tab."

RIPEstat Home • About RIPEstat • Documentation • Use Cases

Go to "Use Cases" > "Looking For Abuse Information"

You are here: Home > Data & Tools > RIPEstat > Use Cases > Looking For Abuse Information

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.

i You can learn more about network abuse in general and what you can do to stop it on the RIPE NCC Abuse Information page.

i 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

embed code permalink info

Enter the IP address

In-depth information about abuse

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

The screenshot shows the 'Abuse Contact Finder' interface for the IP range 2001:67c:2e8::/48. It displays an 'Email-Contact' of **abuse@ripe.net** and a 'Contact-Quality-Rating' of 5 stars (5/5). A callout bubble points to the email address with the text 'Email contact to report abuse to'. Another callout bubble points to the 5-star rating with the text 'Rating of the contact'. Below the rating, it states 'Contact can be used to report abuse.' The interface also includes checkboxes for 'Show Complete Details' and 'Info for Resource Holders', a timestamp 'Showing results for 2001:67c:2e8::/48 as of 2013-08-30 14:39:00 UTC', a beta status warning, and navigation links at the bottom: 'source data', 'embed code', 'permalink', and 'info'.

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

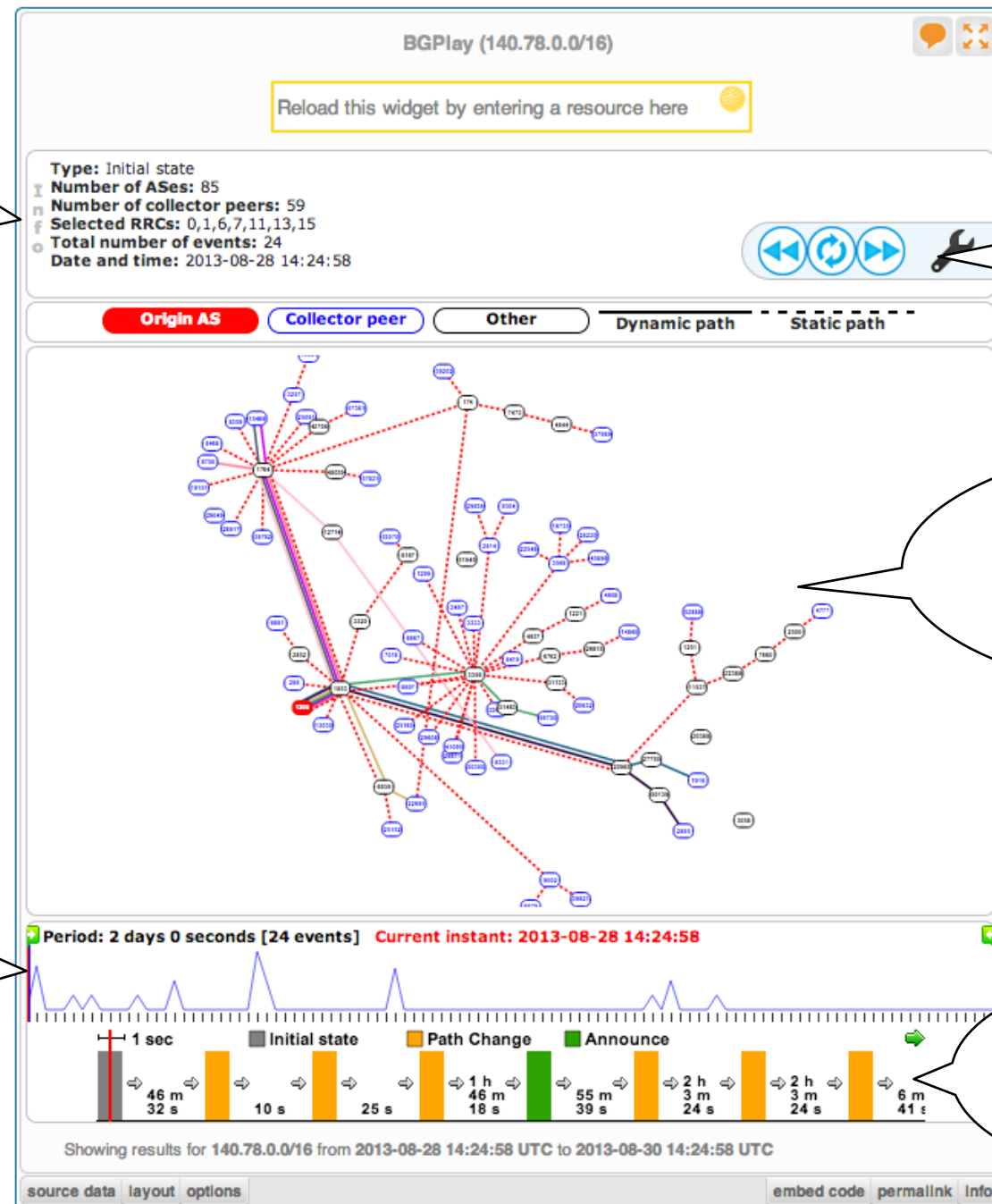
RIR	RIR's Whois
RIPE NCC	https://apps.db.ripe.net/search/query.html

- Tasks
 - What is the abuse contact for 193.0.20.22 or the hotel network?
 - Check an IP address from your home network
- **Discussion:**
 - What can you do in these cases?
 - No abuse contact found
 - No response on an abuse report

- Use BGPlay to see how your network is routed
 - BGPlay is a tool that show the routing state in an animated and highly-interactive manner
 - Go to: <https://stat.ripe.net/widget/bgplay>

5.Let's BGPlay! (Web)

BGP event, ASN or
ASN path details



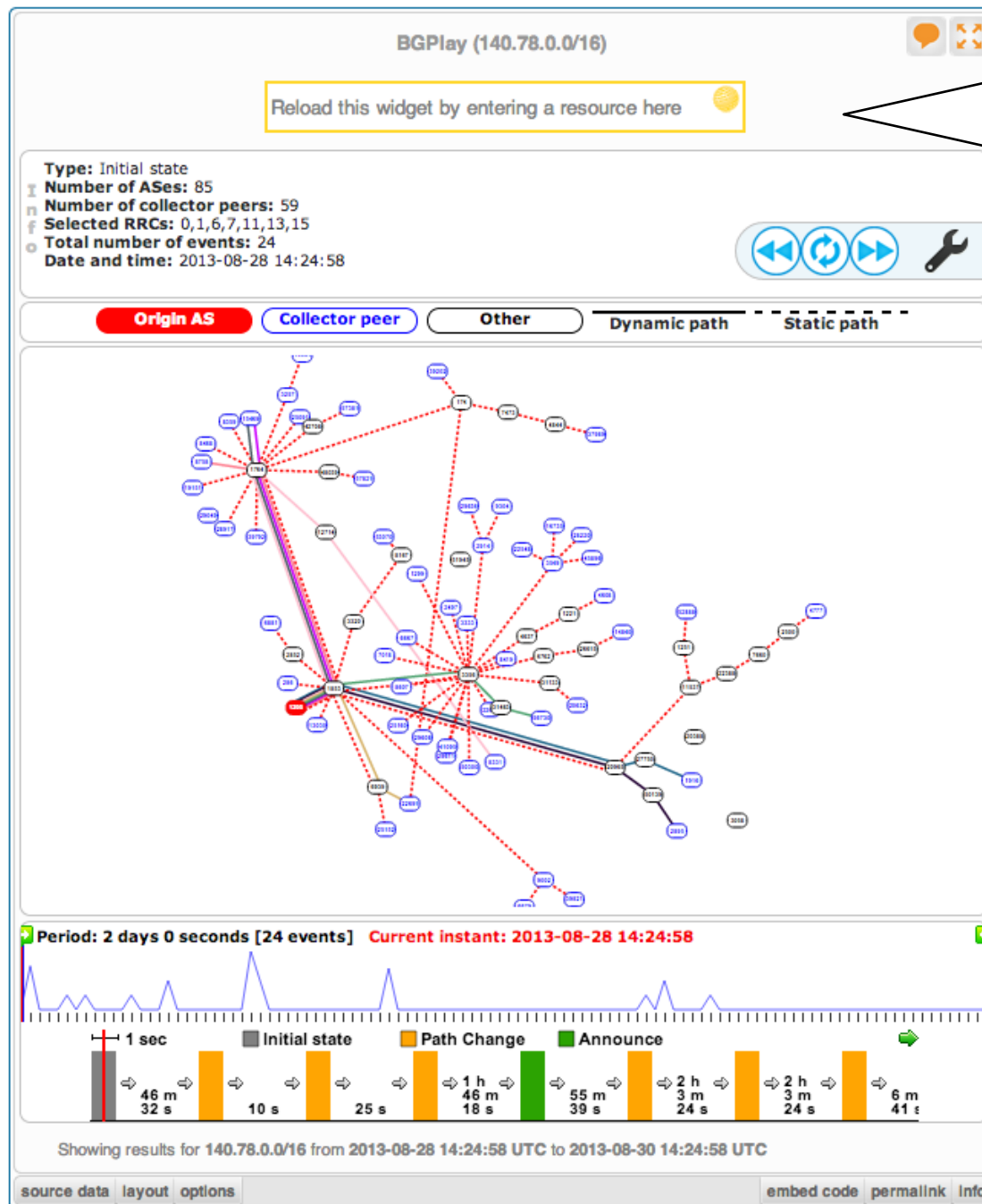
Control panel:
- Covered time period
- RRC selection

Interactive graph visualisation

Control timeline

Selection timeline

5.Let's BGPlay! (Web)



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

- Task
 - Find the up-stream provider for AS1205
 - Is AS3333 multi-homed?
 - Check the IPv6 connectivity of your own network



RIPEstat

Advanced

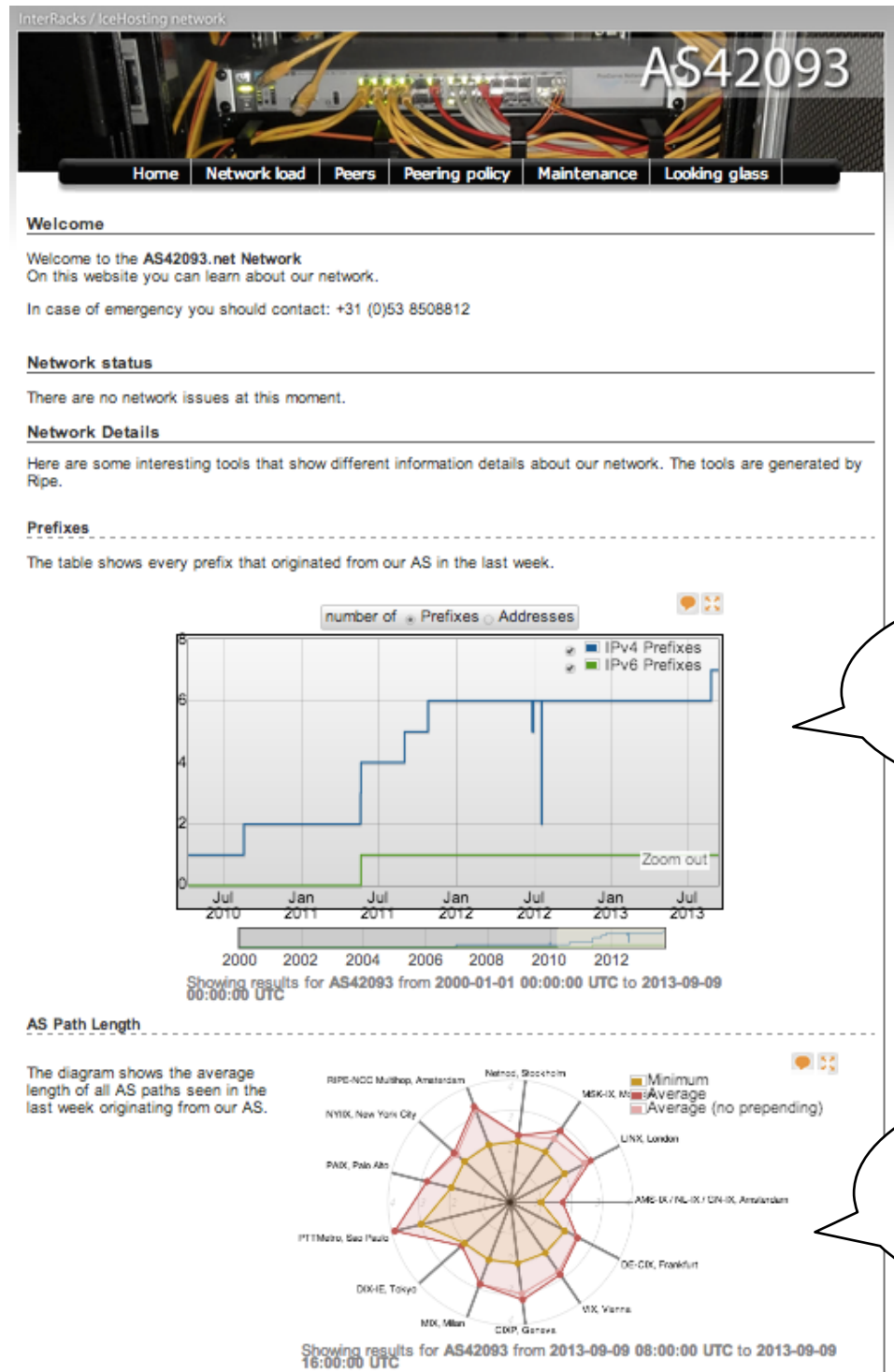


RIPE
NCC

- Visualising raw data
 - What is the concept?
 - The RIPEstat Widget API uses the RIPEstat Data API (or any other RESTful-API) to create visualisations helping to make the data more understandable
 - Build on top of open web standards (HTML, CSS, Javascript)
 - RIPEstat widget API documentation:
https://stat.ripe.net/docs/widget_api

6.Embedding Widgets On Your Site

This ISP embedded widgets on its page.



- Task
 - Create a simple dashboard page to monitor your network
 - Create a simple HTML page
 - Download the sample page:
https://stat.ripe.net/widgets/demo/widget_home.html
 - Embed three widgets of your choice
 - Make the widget smaller and remove the RIPEstat logo

```
ripestat.init(  
  widget-type  
  [, { loading-parameters } ]  
  [, html-element-id ]  
  [, { styling-parameters } ]  
  [, load-callback() ]  
)
```

- Using raw data output
 - What is the concept?
 - The RIPEstat Data API provides the lowest level of access to data. This data can be fed into custom applications or just used for scripting.
 - RIPEstat data API documentation:
https://stat.ripe.net/docs/data_api

- Tasks
 - Use your browser to retrieve all announced prefixes for AS6714

- Tasks

- A simple check on a resource of your choice if it is seen on the Internet
 - Create a simple script using resource-overview or routing-status

https://stat.ripe.net/widgets/demo/script_me.html

```
var prefix = "140.78/16";
var dataAPIUrl = "https://stat.ripe.net/data/prefix-overview/data.json?resource=" + prefix;
jQuery.ajax({
  url: dataAPIUrl,
  error: function() {
    alert("error");
  },
  success: function( response ) {
    alert("success");

    // get announcement status
    var aStatus = response["data"]["announced"];

    // display result
    var container = jQuery("#announcement-status");
    container.html(prefix + " is announced: " + aStatus);
  },
  dataType: "jsonp"
});
```

- Create a Nagios check using the RIPEstat Data API
 - Nagios is a monitoring tool that supports the development of custom checks (like other monitoring tools)
 - Result codes for a check show the state:

State	Result Code
Ok	0
Warning	1
Error	2

Example of a Python based check:

```
if args.transit:
    transit = args.transit.split(',')
origin = args.origin.split(',')
nagios_status = 0
origin_errors = 0
transit_errors = 0
nagios_message = ""
url = "https://%s/data/looking-glass/data.json?resource=%s" % (args.statserver, urllib2.quote(args.prefix, ''))
lookingglass_raw = urllib2.urlopen(url)
lookingglass_json = json.load(lookingglass_raw)
if lookingglass_json['data_call_status'] != "supported":
    print "WARN: %s is under maintance " % (args.statserver)
    sys.exit(1)
for rrc in lookingglass_json['data']['rrcs']:
    for peer in lookingglass_json['data']['rrcs'][rrc]['entries']:
        aspath = peer['as_path'].split()
        details = peer['details'][0].split()
        peer_addr = details[0]
        nexthop = details[2]
        router_id = details[3]

        if len(aspath) > args.minpath:
            if aspath[-1] not in origin :
                origin_errors += 1
                nagios_message = nagios_message + ( "Origin mismatch %s (%s): %s; " % (rrc, peer_addr, aspath[-1]))
            if args.transit:
                if aspath[-2] not in transit :
                    transit_errors += 1
                    nagios_message = nagios_message + ( "Transit mismatch %s (%s): %s; " % (rrc, peer_addr, aspath[-2]))

if origin_errors == 0 and transit_errors == 0:
    nagios_message = "OK: %s Origin is %s " % (args.prefix, args.origin)
    if args.transit:
        nagios_message = "%s and all transits match %s" % (nagios_message, args.transit)
elif origin_errors >= args.crit or transit_errors >= args.crit:
    nagios_status = 2
    nagios_message = "ERROR: " + nagios_message
elif origin_errors >= args.warn or transit_errors >= args.warn:
    nagios_status = 1
    nagios_message = "WARN: " + nagios_message
```

