



**RIPE NCC**

RIPE NETWORK COORDINATION CENTRE

# RIPE NCC RIS

Routing Information Service

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# What is RIS?



- RIS is a routing data collection platform, started in 1999
  - all historical data is publicly available
- Remote routing collectors (RRCs) deployed at Internet Exchange Points
- Collects raw BGP data from peers
  - Stores BGP messages and routing table dumps
- Real time routing information, as opposed to information in databases and routing registries
- Is source of data for many other services

# Route collectors locations



23 RRCs

1500+ peers

# Why we collect BGP data?



- BGP doesn't have built-in security mechanism and routing incidents are not rare
- Routing problems and Looking glasses are temporary
- BGP history is recorded to track what is happening and what has happened
- Better visibility → Greater security → Lower risk of BGP hijacks

# Who is RIS for?



- Network operators, policy makers
  - To check specific routing incidents
  - To troubleshoot Internet routing
  - To develop future plans based on routing trends
- Researchers
  - To investigate notable events occurring in the Internet (i.e. network disruptions in specific countries, Facebook outage, etc)

# How can you use RIS?



- Available as:
  - Raw data
  - Live stream (RIS Live)
  - Whois query interface (RISwhois)
- Visualisations available in RIPEstat

The screenshot shows the RIS Live interface at [ris-live.ripe.net](https://ris-live.ripe.net). It features a 'Demo' section with a configuration form and a 'Live RIS BGP messages' section showing a stream of JSON messages.

**Demo**  
Subscriptions to the stream are sent as a JSON object containing various filter parameters. You can adjust the parameters below and see the messages that are streamed on the right.

```
{
  "prefix": null,
  "path": null,
  "type": null,
  "require": null,
  "moreSpecific": true,
  "lessSpecific": false,
  "host": "rrc11.ripe.net",
  "peer": null,
  "socketOptions": {
    "includeRaw": false,
    "acknowledge": true
  }
}
```

**Code examples**  
Below are simple examples of using the RIS Live WebSocket interface. For a full guide, see the [RIS Live manual](#).

**Javascript**

```
/*
Subscribe to a RIS Live stream and output
every message to the javascript console.

The exact same code will work in Node.js
after running 'npm install ws' and including
the following line:

const WebSocket = require('ws');
*/
```

**Python**

```
/* Received at 16:38:56 (3.92 second delay)
{
  "timestamp": 1683988732.26,
  "peer": "198.32.160.122",
  "peer_asn": "396998",
  "id": "198.32.160.122-0188158cd9640000",
  "host": "rrc11.ripe.net",
  "type": "UPDATE",
  "path": [396998, 2914, 174, 37558, 37284, 37284],
  "community": [[2914, 420], [2914, 1007], [2914, 2000], [2914,
3000]],
  "origin": "INCOMPLETE",
  "announcements": [
    {
      "next_hop": "198.32.160.122",
      "prefixes": [
        "102.69.52.0/22"
      ]
    }
  ],
  "withdrawals": []
}
```

```
/* Received at 16:38:56 (3.92 second delay)
{
  "timestamp": 1683988732.26,
  "peer": "2001:504:1::a539:6998:1",
  "peer_asn": "396998",
  "id": "2001:504:1::a539:6998:1-0188158cd9640001",
  "host": "rrc11.ripe.net",
  "type": "UPDATE",
  "path": [396998, 137409, 12189, 19181],
  "community": [[7578, 1499], [12189, 10000], [65101, 2127],
[65102, 2000], [65103, 840], [65104, 19], [65500, 1499], [65500,
0006], [65500, 10000], [65500, 101001]]
}
```

# More tools to use RIS

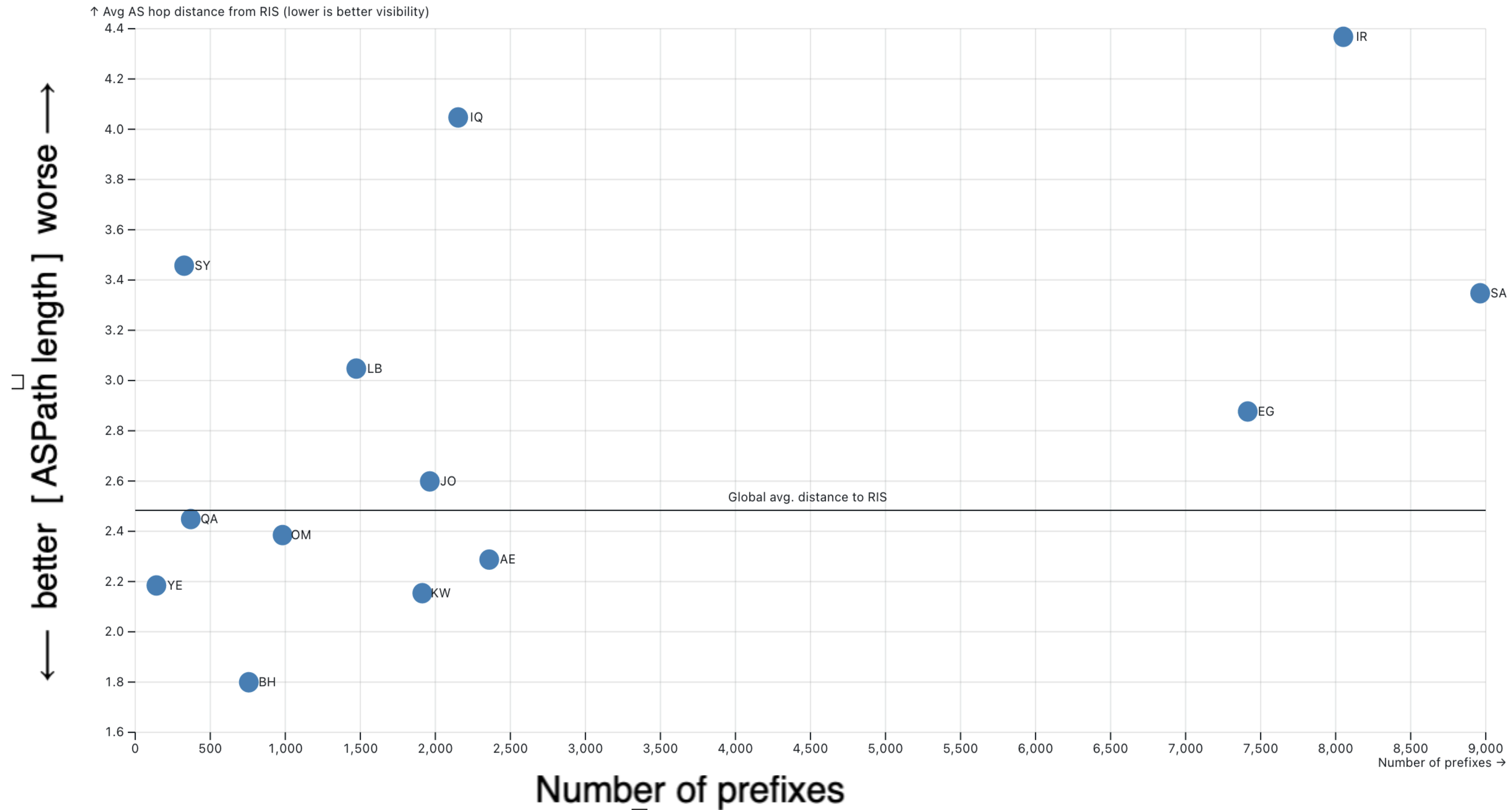


- Others have developed tools based on RIS data
- [bgp.he.net](https://bgp.he.net)
  - This service uses RIS data and provides a dashboard with various aspects of the Internet routing system.
- BGPalerter
  - This software monitors RIS data in near real-time to detect route hijacks and other incidents.
- <https://ihr.iijlab.net/ihr/en-us/> (Internet Health Report) / CAIDA IODA
  - These research projects uses RIS data to build experimental views using Internet routing data.

# Distance from countries in ME region



## Average ASPath length in RIS to country's prefixes





# Come peer with us!



- We invite **representative networks** in Saudi Arabia, Iraq, Iran, Syria, Egypt, Lebanon and Jordan to peer with RIS!
  - Send us an email: [ris-peering@ripe.net](mailto:ris-peering@ripe.net)
  - Provide full feed when possible
- Goals
  - Better routing visibility and more security for
    - Your network
    - Your country
    - The Internet

# RIS collectors



Collector	Location	IXP	Deployed	Removed	Collector	Location	IXP	Deployed
RRC00	Amsterdam	Multi-hop	1999		RRC13	Moscow	MSK-IX	2005
RRC01	London	LINX	2000		RRC14	Palo Alto	PAIX	2005
RRC02	Paris	SFINX	2001	2008	RRC15	Sao Paulo	PTT-Metro SP	2006
RRC03	Amsterdam	AMS-IX	2001		RRC16	Miami	NOTA	2008
RRC04	Geneva	CIXP	2001		RRC18	Barcelona	CATNIX	2015
RRC05	Vienna	VIX	2001		RRC19	Johannesburg	NAPAfrica JB	2016
RRC06	Tokyo	DIX-IE	2001		RRC20	Zurich	SwissIX	2015
RRC07	Stockholm	Netnod	2002		RRC21	Paris	FranceIX	2015
RRC08	San Jose	MAE-West	2002	2004	RRC22	Bucharest	InterLAN	2017
RRC09	Zurich	TIX	2003	2004	RRC23	Singapore	Equinix SG	2017
RRC10	Milan	MIX	2003		RRC24	Montevideo	LACNIC multi-hop	2019
RRC11	New York	NYIIX	2004		RRC25	Amsterdam	Multi-hop	2021
RRC12	Frankfurt	DE-CIX	2004		RRC26	Dubai	UAE-IX	2021



# Questions



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<https://ris.ripe.net>