IX-F / Internet eXchange Federation

AfPIF 2018
Cape Town, South Africa
Andy Davidson, IX-F, Euro-IX, Asteroid,

Workshop agenda

1. What is the Internet eXchange Federation (IX-F)?
2. History and objectives
3. Global update on IXPAs
4. Introduction to the IXPDB

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What is the Internet eXchange Federation?

The Internet eXchange Federation (IX-F) is a transnational organization for coordinating the efforts of Internet eXchange Point Associations (IXPAs).

Our membership includes the African Internet Exchange Point Association (AFIX), the Asia Pacific Internet Exchange Point Association (APIX), the European Internet Exchange Point Association (Euro-IX), and the Latin America, and Caribbean Internet Exchange Point Association (LAC-IX).

Collectively, these IXPAs represent over 145 IXPs across 6 continents.

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What is the Internet eXchange Federation?

The IX-F Board consists of two representatives from each IXPA:

AFIX – Nishal Goburdhan, JINX and Kyle Spencer, UIXP

APIX – Katsuyasu Toyama, JPNAP and Gavin Tweedie, Megaport

Euro-IX – Andy Davidson, Asteroid and Ondrej Filip, NIX.CZ

LAC-IX – Gabriel Adonaylo CABASE and Nico Scheper, AMS-IX Caribbean

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History and objectives

History

- MoU signed by APIX, EuroIX, and LAC-IX in 2012
- AFIX joined in 2014

Objectives

- Address increasing policy and regulatory issues around the world
- Facilitate interaction between IXPAs to address shared challenges and goals
- Provide a central resource for IXP related data, research, and BCPs
- Act as a unified voice or central contact point for IXPs

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4 IXPAs representing 145 IXPs on 6 continents

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Global update on IXPAs

Euro-IX

- Leading development of IXPDB
- Analysis tools soon available on the Euro-IX website
- 33rd forum to be held in Venice, Italy in November 2018

APIX

- Peering Asia #2 to be held in Hong Kong in October 2018

AFIX

- Working toward formalization
- ISOC transitioning ownership of AfPIF and training workshops to AFIX

LAC-IX

- LAC Peering Forum launched 2018
- Increased government interest in IXPs

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Introduction to the IXPDB

The Internet eXchange Point Database (IXPDB) aims to be an authoritative, comprehensive, public source of data related to IXPs.

The IXPDB collects data directly from IXPs through a recurring automated process that integrates with common IXP measurement and management software. It also integrates data from second and third-party sources in order to provide a comprehensive and corroborated view of the global interconnection landscape. The combined data can be viewed, analyzed, and exported via a powerful web-based interface and software API.

Project sponsors: Euro-IX, LAC-IX, APNIC, CZ.NIC, ISOC

Website: http://ixpdb.net

Mailing list: https://lists.euro-ix.net/mailman/listinfo/ixpdb

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Some History

- IXPDB is new only by name, the “Euro-IX database” existed since 2001 when Euro-IX started
- With the formation of the IX-F it didn’t make sense for each IXPA to have it’s own database
- IXPs have no control over their data in PeeringDB :(
- IX-F committed to build the IXPDB
  - 2014 Hackathon in Sheffield together with PeeringDB
  - Initial development contracted to 20c - PeeringDB developers
  - Now contracted to NIX.CZ

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IXPDB - Details

A single repository for IXP data

- Data on members (ASN, IPs, etc.)
- Traffic statistics, hardware vendor data, and much more...

IXPDB provides authoritative data

- Published from the IXPs own databases and IXP Manager and Asteroid

Various databases could be used to verify and validate data against IXPDB

- Send notification where discrepancies were seen

Other databases could use the IXPDB as a sub-set

The IXPDB is complementary to other databases and has scope to further improve data quality to benefit the community.

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IXPDB - How does it work?

- The IX-F JSON Schema export is an agreed and standardized JSON schema which allows IXPs to make their member lists and other data available:

https://github.com/euro-ix/json-schemas

- The IX-F export allows the individual IXP to be the source of data about their own IXP and it's exposure
- IXPs publish this data publicly, privately and via other systems like IXP Manager and Asteroid
- The IXPDB publishes a single API that contains all the data
- IXPAs holding workshops to support IXPs.

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IXPDB

- Database / API is live
- IXPs will be able to pick what level of exposure they want
- IXPAs can approve and create new IXPs
- So can other admins
- Last updated field allows users to see when data was last updated
- Aggregated vendor data at IXPs and Participants available now
- Aggregated traffic data – NEW!
- Geo-location and maps - NEW!
- Bringing back analysis and advanced search tools to Euro-IX website!

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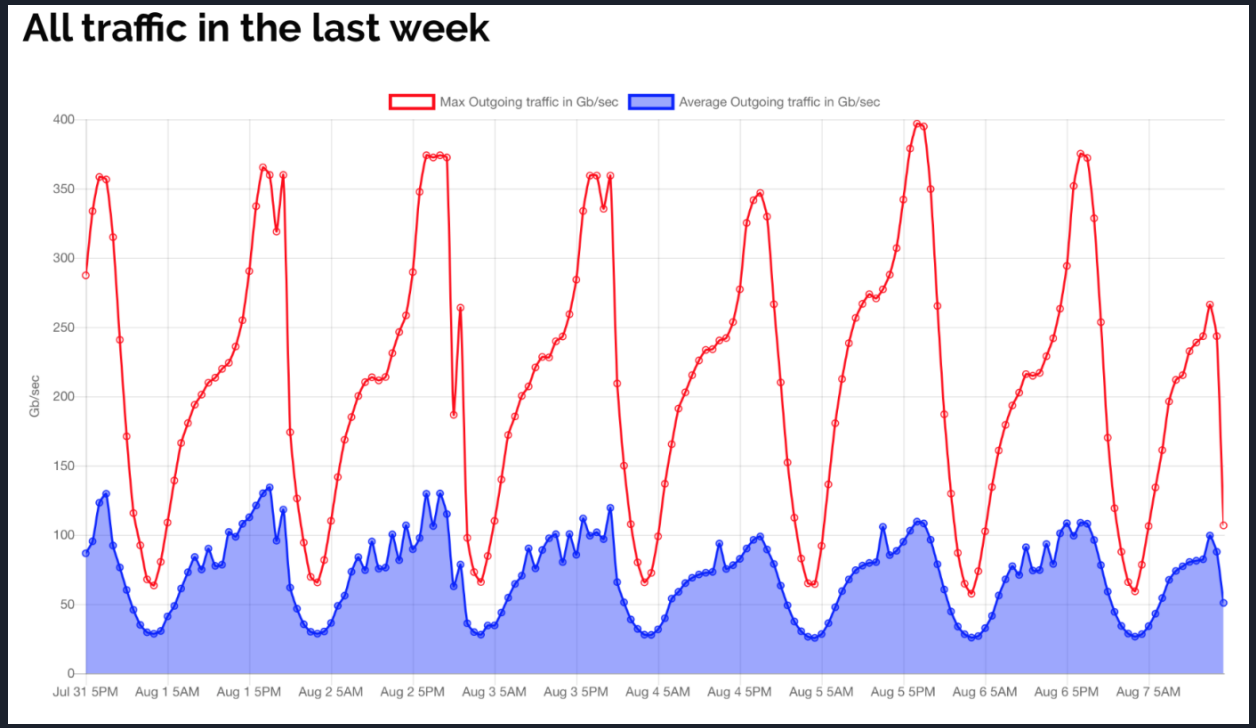
IXPDB - Aggregated Data



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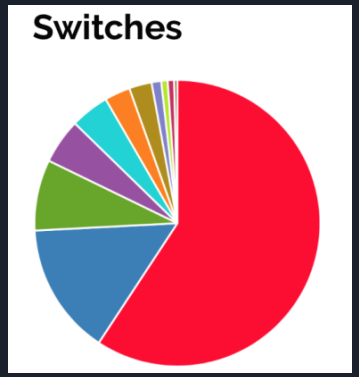
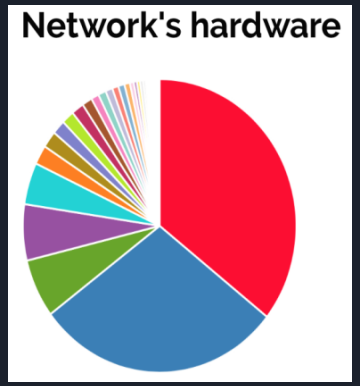
IXPDB - Aggregated Data





IXP Hardware and Participant Hardware

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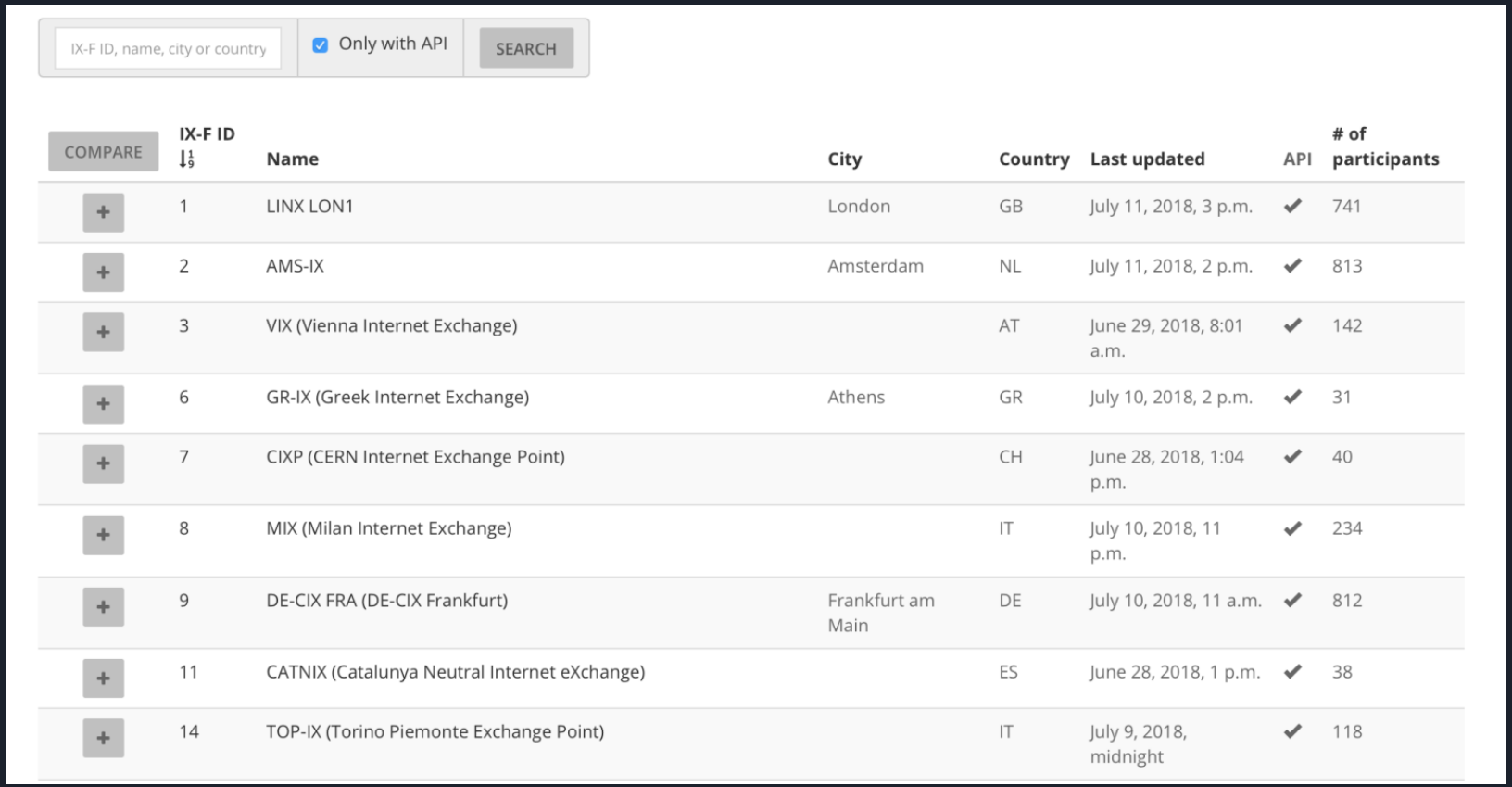

COMPARE	IX-F ID	Name	City	Country	Last updated	API	# of participants
+	1	LINX LON1	London	GB	July 11, 2018, 3 p.m.	✔	741
+	2	AMS-IX	Amsterdam	NL	July 11, 2018, 2 p.m.	✔	813
+	3	VIX (Vienna Internet Exchange)		AT	June 29, 2018, 8:01 a.m.	✔	142
+	6	GR-IX (Greek Internet Exchange)	Athens	GR	July 10, 2018, 2 p.m.	✔	31
+	7	CIXP (CERN Internet Exchange Point)		CH	June 28, 2018, 1:04 p.m.	✔	40
+	8	MIX (Milan Internet Exchange)		IT	July 10, 2018, 11 p.m.	✔	234
+	9	DE-CIX FRA (DE-CIX Frankfurt)	Frankfurt am Main	DE	July 10, 2018, 11 a.m.	✔	812
+	11	CATNIX (Catalunya Neutral Internet eXchange)		ES	June 28, 2018, 1 p.m.	✔	38
+	14	TOP-IX (Torino Piemonte Exchange Point)		IT	July 9, 2018, midnight	✔	118

Screenshot of IXPDB list of providers that automate their export

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IXPDB

- Website: http://ixpdb.net (work in progress)
- Mailing list for users:

  https://lists.euro-ix.net/mailman/listinfo/ixpdb

- API is available - https://api.ixpdb.net

If you think this is good work, like we do, fund us :)

secretariat@ix-f.net

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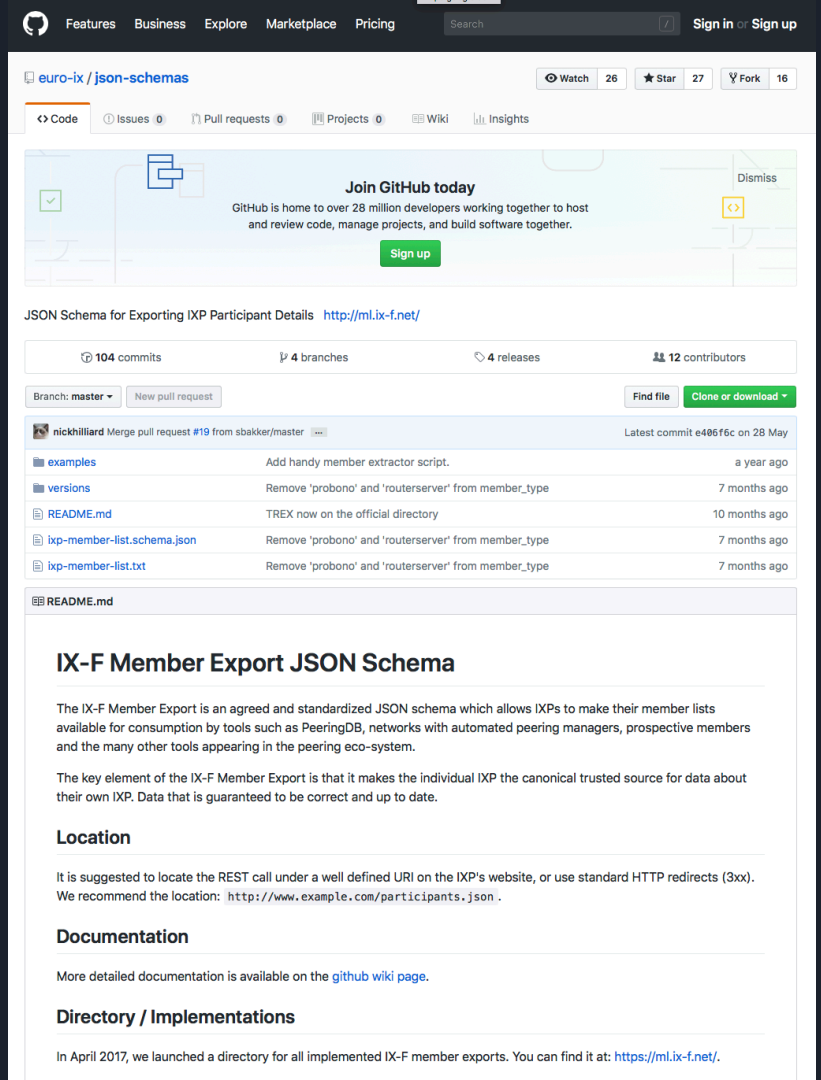
JSON Schema



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JSON Schema for Exporting IXP Participant Details http://ml.ix-f.net/

104 commits 4 branches 4 releases 12 contributors

Branch: master New pull request Find file Clone or download

nickhilliard Merge pull request #19 from sbakker/master ... Latest commit e406f6c on 28 May

examples	Add handy member extractor script.	a year ago
versions	Remove 'probono' and 'routerserver' from member_type	7 months ago
README.md	TREX now on the official directory	10 months ago
ixp-member-list.schema.json	Remove 'probono' and 'routerserver' from member_type	7 months ago
ixp-member-list.txt	Remove 'probono' and 'routerserver' from member_type	7 months ago

README.md

IX-F Member Export JSON Schema

The IX-F Member Export is an agreed and standardized JSON schema which allows IXPs to make their member lists available for consumption by tools such as PeeringDB, networks with automated peering managers, prospective members and the many other tools appearing in the peering eco-system.

The key element of the IX-F Member Export is that it makes the individual IXP the canonical trusted source for data about their own IXP. Data that is guaranteed to be correct and up to date.

Location

It is suggested to locate the REST call under a well defined URI on the IXP's website, or use standard HTTP redirects (3xx). We recommend the location: `http://www.example.com/participants.json` .

Documentation

More detailed documentation is available on the github wiki page.

Directory / Implementations

In April 2017, we launched a directory for all implemented IX-F member exports. You can find it at: https://ml.ix-f.net/.

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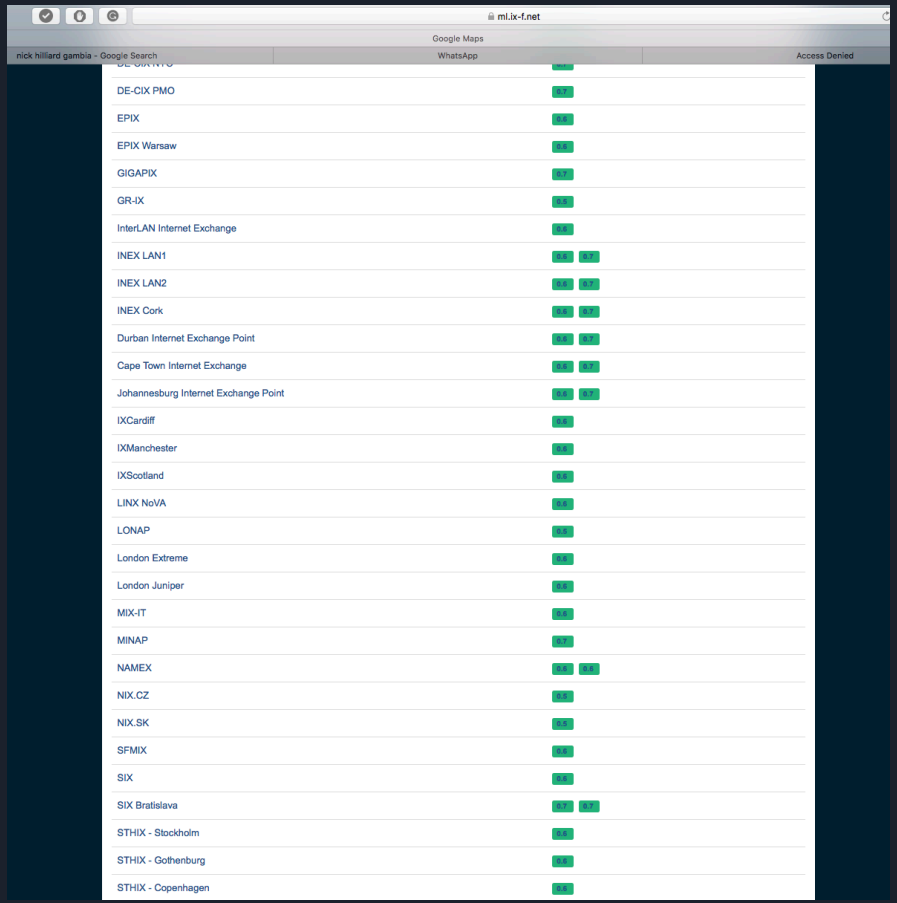
Wide adoption



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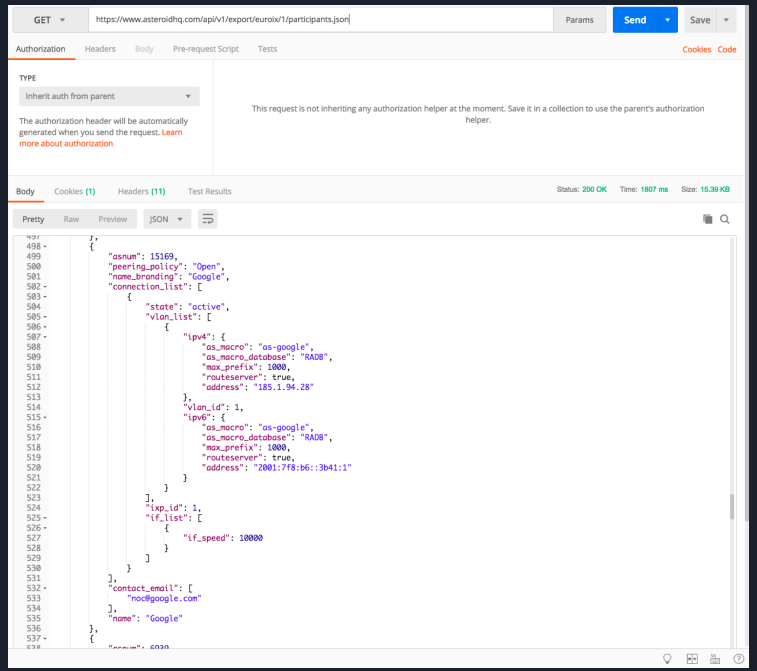
Simple, well understood format



Future uses

- Peering networks – look for sessions, considering new IXPs
- Peering networks – automate session establishment
- IXPs – configure services
- AF-IX – Automatically update the website
- Researchers

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Thank you!