

# IX-F Member Export

## Update, Real World Sightings & Uses

Barry O'Donovan - [barry.odonovan@inex.ie](mailto:barry.odonovan@inex.ie)

# IX-F Member Export

- An agreed and standardized JSON schema.
- Allows IXPs to export their member lists.
- Consumed by tools such as PeeringDB, networks with internal peering tools, prospective members and the many other tools appearing in the peering eco-system.

E.g. <https://www.inex.ie/ixp/api/v4/member-export/ixf/1.0>

# IX-F Member Export

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 **should** to be correct and up to date.

# Version Timeline

- V0.3 - RIPE69, London, Nov. 2014 (Nick Hilliard, Elisa Jasinska)
- V0.4 - February 2015
- V0.5 - May 2015
- V0.6 - April 2016 (17 implementations)
- V0.7 - January 2018 (24 implementations)
- **V1.0 - July 2019**

# Implementations in 2019

# Implementations in 2019

Using the IX-F IXPDB<sup>1</sup> as a source:

- 574 recorded IXPs
- ~30% with IX-F Member Export (163)
- Euro-IX Region: 205 IXs with ~35% (72)

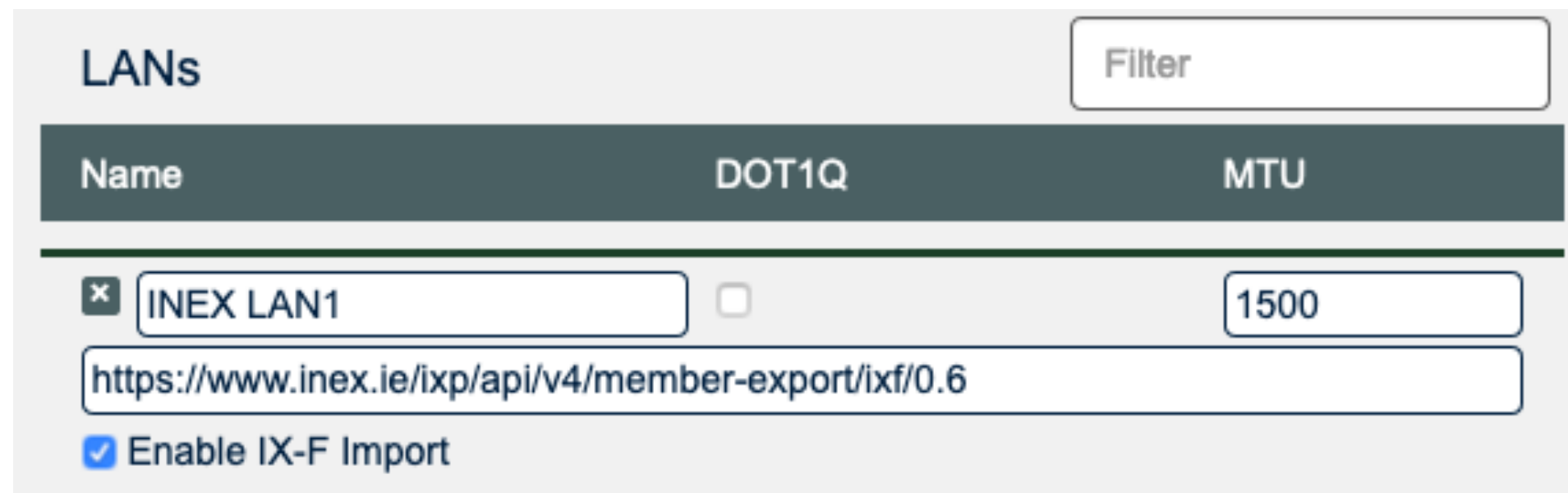
---

<sup>1</sup> <https://api.ixpdb.net/v1/provider/list>

# Real World Sightings & Uses

# PeeringDB and IX-F Member Export

IXP's can register their IX-F Member Export:



The screenshot shows a web interface for configuring LANs. At the top, there is a 'Filter' input field. Below it is a table with columns 'Name', 'DOT1Q', and 'MTU'. The first row of the table is for 'INEX LAN1', with a checkbox in the 'DOT1Q' column and the value '1500' in the 'MTU' column. Below the table, there is a text input field containing the URL 'https://www.inex.ie/ixp/api/v4/member-export/ixf/0.6'. At the bottom, there is a checkbox labeled 'Enable IX-F Import' which is checked.

Name	DOT1Q	MTU
INEX LAN1	<input type="checkbox"/>	1500

<https://www.inex.ie/ixp/api/v4/member-export/ixf/0.6>

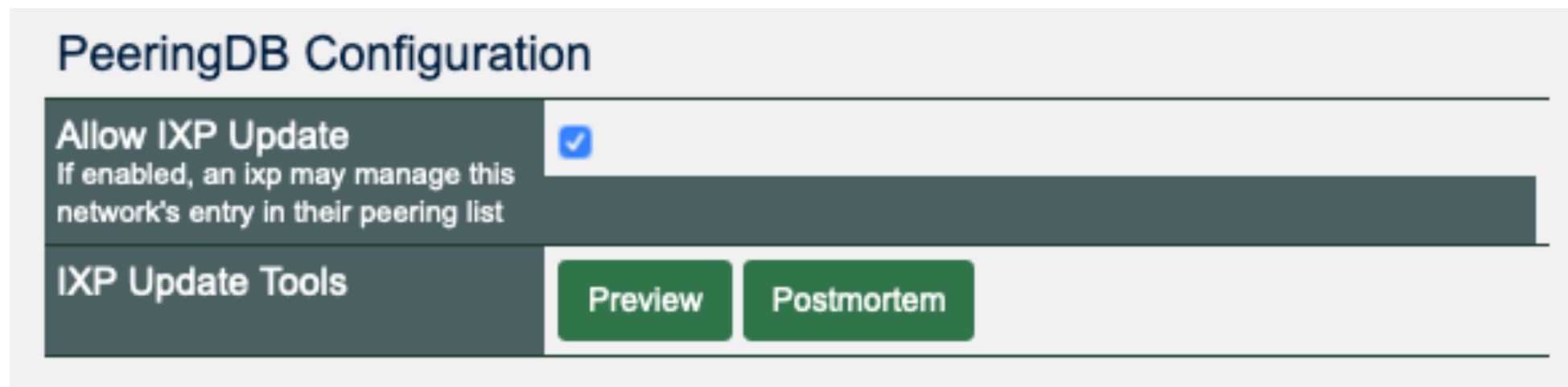
☒ Enable IX-F Import

PeeringDB has excellent tooling which shows errors and a preview of actions.



# PeeringDB and IX-F Member Export

Networks can indicate if they wish their data to be updated by an IX's IX-F Export.



The screenshot shows the 'PeeringDB Configuration' interface. It features a section titled 'Allow IXP Update' with a subtext 'If enabled, an ixp may manage this network's entry in their peering list'. A blue checkmark icon indicates this option is enabled. Below this, there is a section titled 'IXP Update Tools' containing two green buttons: 'Preview' and 'Postmortem'.

PeeringDB also excellent tooling which shows a preview of actions and history. Note that it's **all IX's or no IX's for this feature**.

# PeeringDB Rules for Data Import

`allow_ixp_update: no (default)`

- If a network has an IXP entry with differing (asn, ipaddr4, ipaddr6), the network's IXP entry is removed \*
- If a network has an IXP entry with any other differing information (speed, route server peer), this information is not changed
- If a network does not have an entry for the IXP, nothing is done

# PeeringDB Rules for Data Import (cont.)

`allow_ixp_update: yes`

- If a network has an IXP entry with any differing information, the entry is updated (IPv4, IPv6, speed, route server peer)
- If a network does not have an entry for the IXP, one is added

# Import Currently Disabled - What Happened?

- PeeringDB updates network / IX connections from IX data.
- If a network asserts: *we are in 'IX' with 'IPv4/6' address* but the IX data says otherwise, PeeringDB removes the connection.
- This affected \$bignetwork when provisioning a port at an IX last August<sup>2</sup>. *Network has linked internal provisioning tool to PeeringDB.*

---

<sup>2</sup> Discussed in PeeringDB issue [#518](#). Also: [#474](#), [#505](#), [#518](#), [#540](#).

# Networks' Peering Management Tools

- Microsoft's [public peering request](#) pulls network name, NOC details, IX connections and IX IPs from PeeringDB.
- [Google's ISP Portal](#) does likewise.
- Expect to see similar integrations like this from other networks (e.g. LinkedIn).
- As IXs, we need to encourage them to use the IX-F Member Export (as well as PeeringDB) where available.

# Networks' Provisioning Systems

Some networks are using this to provision their routers / peering sessions.

# ARouteServer

A Python tool to automatically build feature-rich configurations for BGP route servers.

Can generate configuration from IX-F Member Export<sup>3</sup>:

```
arouteserver clients-from-euroix --url <URL> <ixp_id> -o <output_file>
```

---

<sup>3</sup> [https://arouteserver.readthedocs.io/en/ ... #create-clients-yml-file-from-euro-ix-member-list-json-file](https://arouteserver.readthedocs.io/en/...#create-clients-yml-file-from-euro-ix-member-list-json-file).

# IXP Manager

IXP Manager has supported the IX-F Member Export since v0.3.

It is enabled by default and *just works*.

E.g. <https://www.inex.ie/ixp/api/v4/member-export/ixf/1.0>



# IXP Manager Data Import?

*(planned work)*

Populate a fresh IXP Manager installation from an IX-F Member  
Export data set.

# Asymmetric Routing Detector

A tool to detect asymmetric routing over IXPs  
using bi-directional traceroutes from RIPE  
Atlas probes.

<https://www.inex.ie/ard/> ~ <https://github.com/inex/ixp-as>

# References

- [IX-F Member Export Homepage \(GitHub\)](#)
- [IXPDB](#) and its [IXP](#) directory
- [IX-F Member Export JSON validator](#)
- [Example generation scripts](#)
- [IXP Manager's IX-F Member Export documentation](#)

# Thank You

## Questions / Comments?

If you'd like more information / talks on this in future forums, let Bijal and the Euro-IX FPC know.