



Tutorial Slides

PeeringDB 2.0 Key New Infrastructure Features

- Complete rewrite in Python
 - Python: fast and clean, widely used and supported
 - HTML5: adaptive design for desktop and mobile
 - Support for a multideveloper environment
- Redesigned schema with data validation
 - All data is permissioned and editable
 - Input validation on fields: IP addresses, email addresses, etc.
 - Validation in PeeringDB record: dropdown box to select ASN at exchange
- Data versioning
 - Revision history for every data change
 - Easy to restore and roll back
 - Historical data import from CAIDA going back to 2010 (not available yet)
- RESTful API
 - Stateless
 - Incremental database syncs
 - With documentation and tools, oh my!



PeeringDB 2.0 Key New User Features

- Facilities and exchanges can now update their own info
 - Networks are still required to associate their record at a facility or exchange
- Multiple records of any type can be associated with an organization
 - Simpler organization management with a single account for network, facility, exchange records
- One account can manage multiple organizations
 - Manage all of the things with a single account
- Users can manage their accounts
 - Admin account for an organization can delegate fine-grained permissions
- Contact info has permissions
 - Private/users/public permissions
 - All users must register, no more guest account
 - Public view can see all info except contact info (no login needed)
- APIs and local database sync
 - Sync PeeringDB to a local database in any engine format

RESTful API Designed for Automation

- All operations are supported and are designed to be automated
 - Read
 - Create
 - Update
 - Delete
- Each object type has an associated tag
 - org
 - net
 - ix
 - fac
- List of objects: <https://peeringdb.com/apidocs/>
- API documentation: http://docs.peeringdb.com/api_specs/

Quick Examples Return Output in JSON

- List all networks: `curl -X GET https://<username>:<password>@www.peeringdb.com/api/net`
- Show a specific network: `curl -X GET https://<username>:<password>@www.peeringdb.com/api/net/20`

```
{ "meta": {}, "data": [ { "id": 20, "org_id": 10356, "org": { "id": 10356, "name": "20C", "website": "http://20c.com", "notes": "", "net_set": [20], "fac_set": [], "ix_set": [], "address1": "", "address2": "", "city": "Chicago", "country": "US", "state": "IL", "zipcode": "", "created": "2014-11-17T14:59:34Z", "updated": "2016-03-23T20:39:18Z", "status": "ok" }, "name": "20C", "aka": "", "website": "http://20c.com", "asn": 63311, " ... } ] }
```

List All Peers at an IXP (CATNIX)

Peers at this Exchange Point

Filter

Peer Name ▼ ASN	IPv4 IPv6	Speed Policy
Acens Technologies 16371	193.242.98.9 None	1G Open
ADAM 15699	193.242.98.137 2001:7f8:2a:0:2:1:1:5699	1G Open
Adamo Telecom Iberia S.A 35699	193.242.98.143 2001:7f8:2a:0:2:1:2:9518	10G Open
Altecom (Alta Tecnologia en Comunicacions, S.L.) 16030	193.242.98.4 2001:7f8:2a:0:1:1:1:6030	10G Open
bitNAP Datacenter 43578	193.242.98.160 2001:7f8:2a:0:3:1:4:3578	1G Open
BT Spain 12541	193.242.98.145 2001:7f8:2a:0:2:2:0:8903	1G Open
CATNIX-SERVICES 49638	193.242.98.119 None	6G Open
Claranet 8426	193.242.98.131 2001:7f8:2a:0:2:1:0:8426	1G Selective
Cloudflare 13335	193.242.98.153 2001:7f8:2a:0:2:1:1:3335	10G Open
Colt Technology Services 8220	193.242.98.13 None	1G Open
CSUC 13041	193.242.98.38 None	10G Open
Easynet Global Services 4589	213.234.0.15 2001:7f8:2a:0:2:1:0:4589	1G Selective
EBRETIC ENGINYERIA SL 199496	193.242.98.162 2001:7f8:2a:0:3:1:19:9496	1G Open

```
% curl -s -X GET https://www.peeringdb.com/api/netixlan\?ixlan_id=62 \
| jq '.data[]'
{
  "id": 459,
  "net_id": 91,
  "ix_id": 62,
  "name": "CATNIX",
  "ixlan_id": 62,
  "notes": "",
  "speed": 1000,
  "asn": 8220,
  "ipaddr4": "193.242.98.13",
  "ipaddr6": null,
  "is_rs_peer": false,
  "created": "2010-07-29T00:00:00Z",
  "updated": "2016-03-14T21:09:42Z",
  "status": "ok"
}
```

Local Database Sync

- Database sync gives you a local copy of PeeringDB for customization or internal use
 - Sync as often as you like
 - Incremental sync is supported
- Improves performance and reduces load on PeeringDB servers
- Build custom indexes and interfaces
- Add custom fields
- Choice of database engines
 - Currently supported: MySQL, Postgres, SQLite
- Sync using the provided tools or build your own using the API

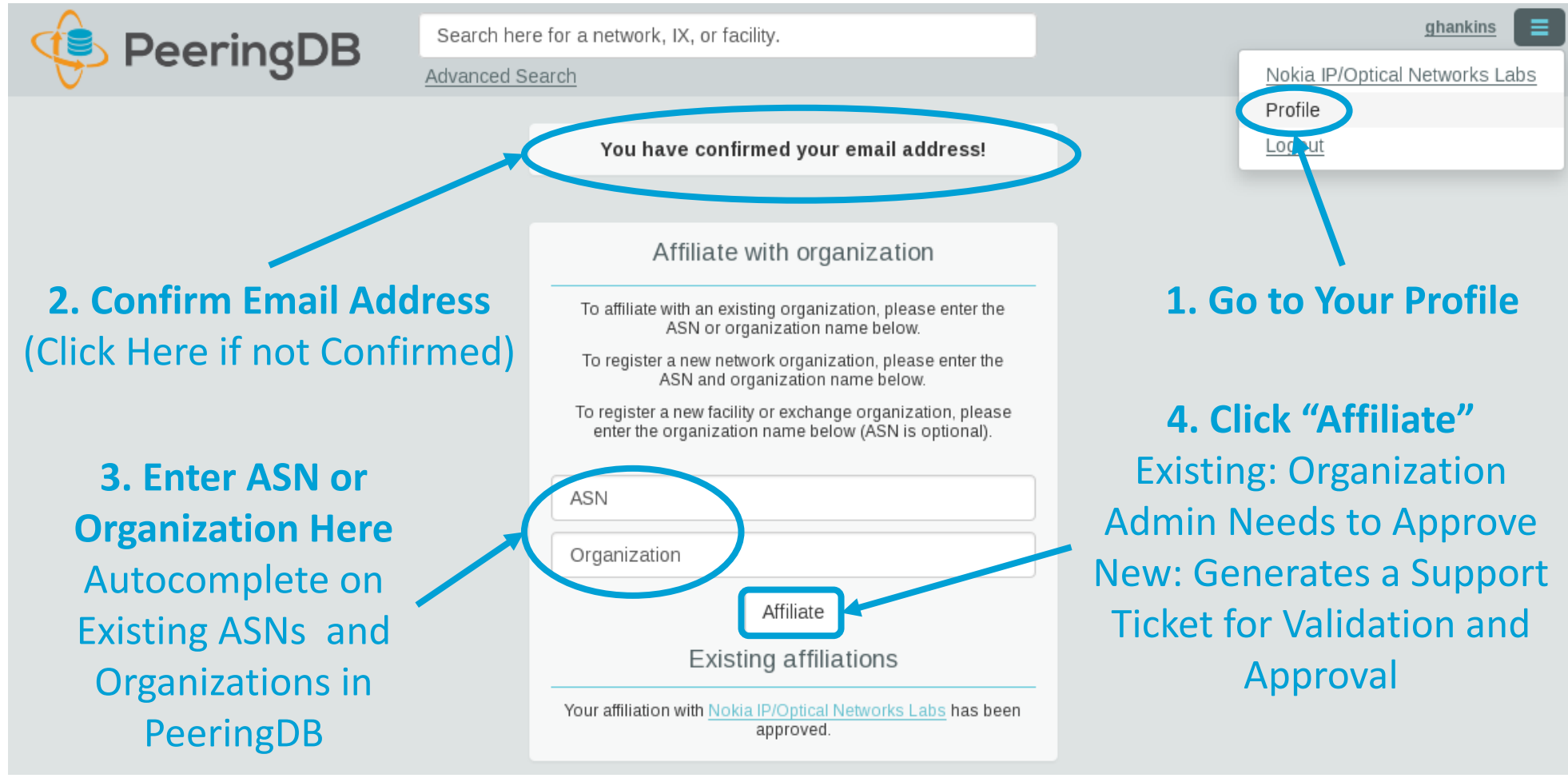
Django Library

- django-peeringdb is a Django library with a local PeeringDB database sync
- Defines the database schema to create a local database copy
- Easy to integrate in a common framework for locals tools and custom interfaces
- Supports multiple database engines (MySQL, Postgres, SQLite)
- Available at <http://peeringdb.github.io/django-peeringdb/>

Python Client

- peeringdb-py is a Python client for PeeringDB
- Gets objects and outputs in JSON or YAML format
- Provides a whois-like display of records
- Integrated local database sync
- Python library for integration with custom tools
- Available at <http://peeringdb.github.io/peeringdb-py/>
- Examples at <https://github.com/grizz/pdb-examples>

Register or Request Affiliation to an Existing Organization



2. Confirm Email Address
(Click Here if not Confirmed)

3. Enter ASN or Organization Here
Autocomplete on Existing ASNs and Organizations in PeeringDB

1. Go to Your Profile

4. Click "Affiliate"
Existing: Organization Admin Needs to Approve
New: Generates a Support Ticket for Validation and Approval

You have confirmed your email address!

Affiliate with organization

To affiliate with an existing organization, please enter the ASN or organization name below.

To register a new network organization, please enter the ASN and organization name below.

To register a new facility or exchange organization, please enter the organization name below (ASN is optional).

ASN

Organization

Affiliate

Existing affiliations

Your affiliation with [Nokia IP/Optical Networks Labs](#) has been approved.

ghankins

Nokia IP/Optical Networks Labs

Profile

Logout

Request Ownership of an Existing Organization

- Network records should already have an organization admin copied from PeeringDB 1.0
- Facility and exchange records will need to have an organization admin assigned

The screenshot shows the PeeringDB interface for an organization named 'Example-IX'. The top navigation bar includes the PeeringDB logo, a search bar, and the user name 'ghankins-example'. Below the search bar, there is a link for 'Advanced Search' and a prominent blue button labeled 'Request Ownership' with an arrow pointing to it. A text annotation above the button reads 'Click "Request Ownership" Generates a Support Ticket for Validation and Approval'. The main content area is divided into two sections: a table of organization details on the left and a 'Peers at this Exchange Point' section on the right. The organization details table includes fields for Organization, Long Name, City, Country, Continental Region, Media Type, and Protocols Supported. The peers section has a filter input and a table with columns for Peer Name, ASN, IPv4, IPv6, Speed, and Policy. A message below the peers table states 'Nothing matched your filter'.

PeeringDB Search here for a network, IX, or facility. ghankins-example

Advanced Search **Click "Request Ownership"**

Example-IX Generates a Support Ticket for Validation and Approval **Request Ownership**

Organization	Example-IX
Long Name	Example-IX, the only ATM multicast IX on the planet!
City	Atlanta
Country	US
Continental Region	North America
Media Type	ATM
Protocols Supported	<input type="radio"/> Unicast IPv4 <input checked="" type="radio"/> Multicast <input type="radio"/> IPv6

Peers at this Exchange Point Filter

Peer Name ▼	ASN	IPv4	IPv6	Speed	Policy
Nothing matched your filter You may filter by Exchange , ASN , Policy or Speed					

Multiple Records Under a Single Organization

LINX Silver Sponsor

Website	https://www.linx.net
Address 1	The London Internet Exchange Ltd
Address 2	5th Floor, 24 Monument Street
Location	London, , EC3R 8AJ
Country Code	GB

Facilities

Name ▼	Country	City
IXCardiff	United Kingdom	Cardiff

Networks

Name ▼	ASN
LINX NoVA (LINX USA Inc.)	21919
LINX Route Servers	8714
London Internet Exchange (LINX)	5459

Exchanges

Name ▼	Country	City
IXCardiff	United Kingdom	Cardiff
IXManchester	United Kingdom	Manchester
IXScotland	United Kingdom	Scotland
LINX LON1	United Kingdom	London
LINX LON2	United Kingdom	London
LINX NoVA	United States of America	Northern Virginia

Facilities are Shown Here
LINX has 1 Facility

Networks are Shown Here
LINX has 2 Network Records

Exchanges are Shown Here
LINX has 6 Exchange Records

One Account Managing Multiple Organizations

PeeringDB

Search here for a network, IX, or facility.
Advanced Search

job

Affiliate with Organization

To affiliate with an Organization, please enter a valid ASN or Organization name below.

ASN

Organization

Affiliate

Existing Affiliations

Your affiliation with [NTT Communications \(Global\)](#) has been approved

Your affiliation with [NLNOG RING](#) has been approved

Your affiliation with [Netwerkvereniging Coloclue](#) has been approved

Your affiliation with [Snijders IT](#) has been approved

Account "job" is
Affiliated with 4
Organizations

Organization User Management

Approve or Deny Pending Requests

Delegate Permissions for Members
Admins Have Access to Everything

Manage

[Add Facility](#) [Add Network](#) [Add Exchange](#) **Users** **Permissions**

Users requesting affiliation

Name	Email	Date
User	Confirmed	

Currently no users requesting affiliation with Nokia IP/Optical Networks Labs

Users in Organization

Name	Email	Group	
User			
Greg Hankins ghankins	greg.hankins@alcatel-lucent.com	admin member admin	Remove Save

Change User Access Levels
Admin – Administrator
Member – Delegate Permissions

Remove Users From the Organization
Does not Remove the User Account From PeeringDB

Administrative Permission Delegation

User “equinix-uk” can Manage Several Network Records, but no Exchanges or Facilities

The screenshot displays the PeeringDB administrative interface. At the top, a header bar shows the user 'Paul Cairney <paul.cairney@eu.equinix.com> equinix-uk'. Below this, a list of network records is shown, each with a checkbox for 'Create', 'Update', and 'Delete' actions. The records are: 'Network - Equinix Netherlands', 'Network - Equinix UK', 'Network - Equinix Germany', 'Network - Equinix France', and 'Network - Equinix Switzerland'. The 'Create', 'Update', and 'Delete' actions are all checked for these records. A search bar below the list contains 'Any Exchange'. To the right, there is an 'Add' button. Below this, a second header bar shows the user 'Raphael Ho <raphael.ho@ap.equinix.com> rho'. Below this, a list of network records is shown, each with a checkbox for 'Create', 'Update', and 'Delete' actions. The records are: 'Network - Equinix Connect', 'Any Exchange', and 'Any Facility'. The 'Create' and 'Update' actions are checked for these records, while the 'Delete' action is not checked. A search bar below the list contains 'Any Exchange'. To the right, there is an 'Add' button. Annotations include blue boxes around the network records for each user, blue circles around the 'Create', 'Update', and 'Delete' action labels, and blue arrows pointing from the text below to the corresponding checkboxes.

Create – New Entries in Record
Update – Change Existing Entries in Record
Delete – Delete Entries in Record

User “rho” can Manage the “Equinix Connect” Network Record, and Any Exchange or Facility

Network Record Contact Information Permissions

Contact Information

Role	Name	Phone
<input checked="" type="checkbox"/> NOC	Greg Hankins, Alastair	
	Users	as38016@alcatel-lucent.com
<input checked="" type="checkbox"/> Technical	Greg Hankins, Alastair	
	Users	as38016@alcatel-lucent.com

Role: Abuse

Name:

Email: name@example.com

Phone:

Visibility: Private

- Private
- Users
- Public

Separate Visibility Preferences for Each Role

Private – Organization Only (Default)

Users – Registered Users Only

Public – Anyone (no Login Required)

Roles:

Abuse

Policy

Technical

NOC

Public Relations

Sales

Adding Your Network to an IXP or Facility

1. Go to your network record and click on “Edit”
2. Start to type in the name of the IXP and select the IXP
3. If the IXP is missing, contact PeeringDB support
4. Add your IP addresses, port speed, and click the “RS Peer” box if you peer with the route server
5. Finally click on “Add Exchange Point”
 - Use the same procedure for adding a Facility

World Phone Internet Services Pvt. Ltd.

http://www.worldphone.in

18002

http://www.example.com

http://www.example.com

Cable/DSL/ISP

250

0

10-20Gbps

Heavy Inbound

Asia Pacific

Unicast IPv4 Multicast IPv6

2017-06-29T11:54:36Z

Public Peering Exchange Points

Exchange ▼

ASN

IPv4

IPv6

Speed (mbit/sec)

RS Peer

Filter

Nothing matched your filter
You may filter by Exchange, ASN or Speed

Exchange

Local ASN

IPv4

IPv6

Speed (mbit/sec)

RS Peer

Add Exchange Point

Private Peering Facilities

Facility ▼

ASN

Country

City

Filter

Nothing matched your filter
You may filter by Facility, ASN, Country, City

Facility

Add Facility

Adding a New Exchange to Your Organization

Manage

[Add Facility](#) [Add Network](#) **[Add Exchange](#)** [Users](#) [Permissions](#)

Add a new Exchange to your Organization. Note that the newly created Exchange will need to be approved by PeeringDB staff before it will appear in the search results or the API listings

Submit Exchange

Generates a Support Ticket for Validation and Approval

Enter Exchange Info Here, Then Click "Submit Exchange"

Name	<input type="text"/>
Website	<input type="text" value="http://www.example.com"/>
City	<input type="text"/>
Country	<input type="text" value="United States"/>
Continental Region	<input type="text" value="North America"/>
Media Type	<input type="text" value="Ethernet"/>
Unicast IPv4	<input type="checkbox"/>
Multicast	<input type="checkbox"/>
IPv6	<input type="checkbox"/>
Traffic Stats Website	<input type="text" value="http://www.example.com"/>
Technical E-mail	<input type="text" value="name@example.com"/>
Technical Phone	<input type="text"/>
Policy E-mail	<input type="text" value="name@example.com"/>
Policy Phone	<input type="text"/>

Editing Your Exchange Record

Example-IX Cancel Save

Organization	Example-IX
Long Name	Example-IX, the only ATM multicast IX on the planet!
City	Atlanta
Country	United States
Continental Region	North America
Media Type	ATM
Protocols Supported	<input type="checkbox"/> Unicast IPv4 <input checked="" type="checkbox"/> Multicast <input type="checkbox"/> IPv6
Contact Information	
Company Website	http://www.example.com
Traffic Stats Website	http://www.example.com
Technical Email	name@example.com
Technical Phone	
Policy Email	name@example.com
Policy Phone	

Peers at this Exchange Point Filter

Peer Name	IPv4	Speed
ASN	IPv6	Policy
Nothing matched your filter You may filter by Exchange, ASN, Policy or Speed		

Enter Exchange Info Here, Then Click "Save"

Networks are Still Required to Associate their Record at a Facility or Exchange

Editing Your Exchange Record

The screenshot displays the PeeringDB interface for editing an exchange record. It is divided into two main sections: LANs and Local Facilities.

LANs Section: A table with columns for Name, DOT1Q, and MTU. A blue box highlights the configuration for a 'Peering LAN'. The DOT1Q checkbox is checked, and the MTU is set to 9000. Below the table, there are input fields for Name (Peering LAN), DOT1Q (checked), and MTU (9000). There are also fields for IPv4 addresses and a 'Prefix' field with an 'Add' button.

Local Facilities Section: A table with columns for Facility, Country, and City. A search bar is present with the text 'Nothing matched your filter. You may filter by Exchange or Long Name'. The search bar contains the text 'atlanta', which is circled in blue. Below the search bar, a dropdown menu shows several facility options: Equinix Atlanta (AT2/3), Telx Atlanta, and Level(3) Atlanta Courtland.

Enter LAN Info Here
Name – Optional Name
DOT1Q – 802.1Q Tag
MTU
IPv4/IPv6 Addresses

Add Facilities Here
Autocomplete on Existing Facilities, Must Contact Support to Add a New Facility



Questions?