

# Alice-LG at ECIX

(and Large BGP community IXP standards)

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NLNOG-day 2017

[lg.ecix.net](http://lg.ecix.net)

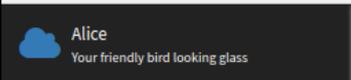
[github.com/ecix/alice-lg](https://github.com/ecix/alice-lg)

IRC: `freenode/#birdseye`

Alice-LG dev

Matthias Hannig: [github.com/mhannig](https://github.com/mhannig)

# Ig.ecix.net



- ROUTESERVERS
- rs1.lab (IPv4)  
Bird 1.6.3
  - rs1.lab (IPv6)  
Bird 1.6.3

## Welcome to Alice!

Your friendly bird looking glass

### ROUTES FILTERED

Network	AS Path	Gateway	Neighbour	ASN	RS
10.0.0.0/24 An IP Bogon was detected	1337	1.2.3.11	PEER AS1337 1.2.3.11 lab-isp-1	1337	rs1.lab (IPv4)
101.0.0.0/25 The prefix is longer than 24	1337	1.2.3.11	PEER AS1337 1.2.3.11 lab-isp-1	1337	rs1.lab (IPv4)
102.0.0.0/24 The advertised nexthop address is not the same as the peer	1337	1.2.3.12	PEER AS1337 1.2.3.11 lab-isp-1	1337	rs1.lab (IPv4)

Displaying 4 of 4 routes

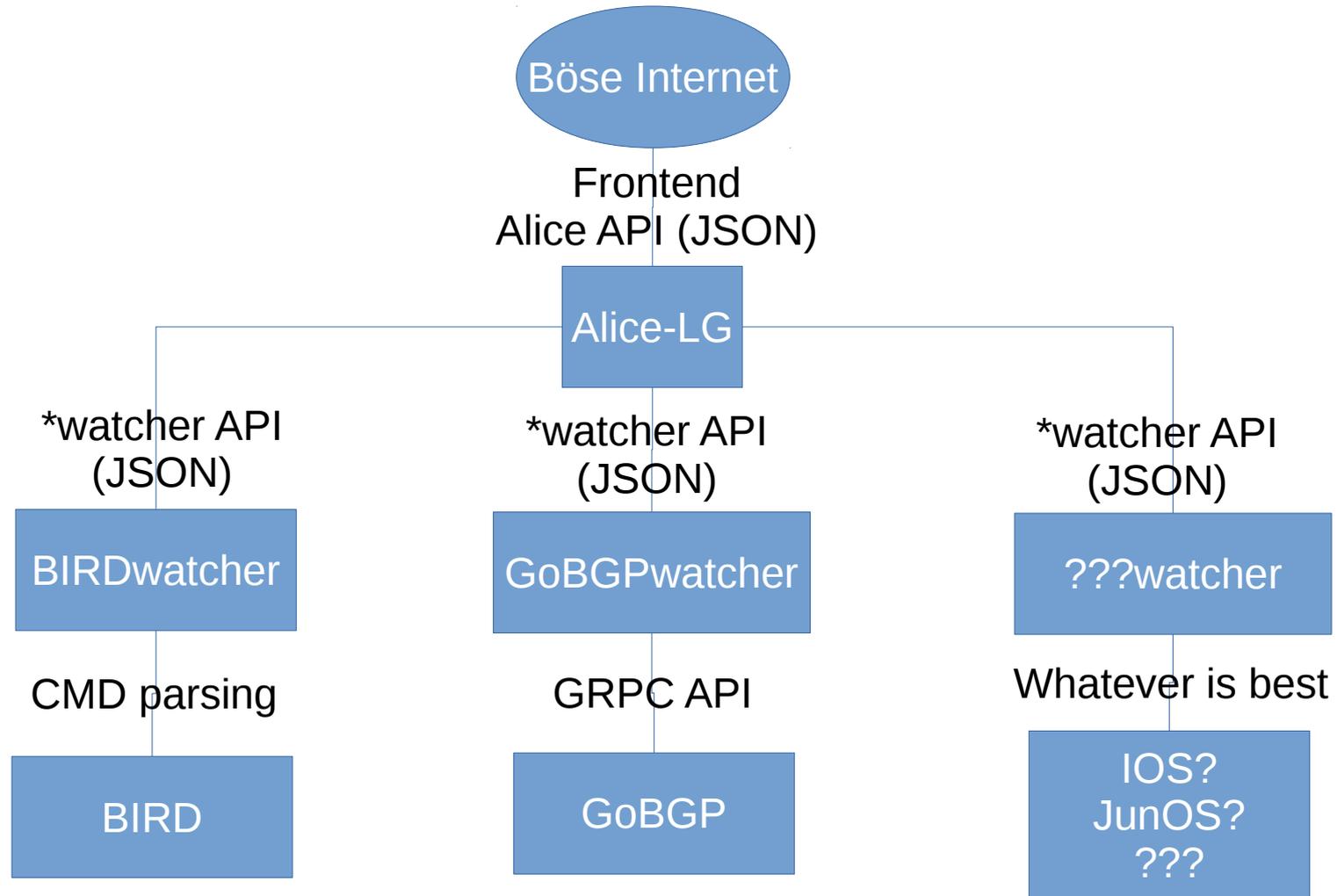
Query took 0.07 ms to complete

### ROUTES ACCEPTED

Network	AS Path	Gateway	Neighbour	ASN	RS
100.0.0.0/24	1337	1.2.3.11	PEER AS1337 1.2.3.11 lab-isp-1	1337	rs1.lab (IPv4)



# Alice-LG



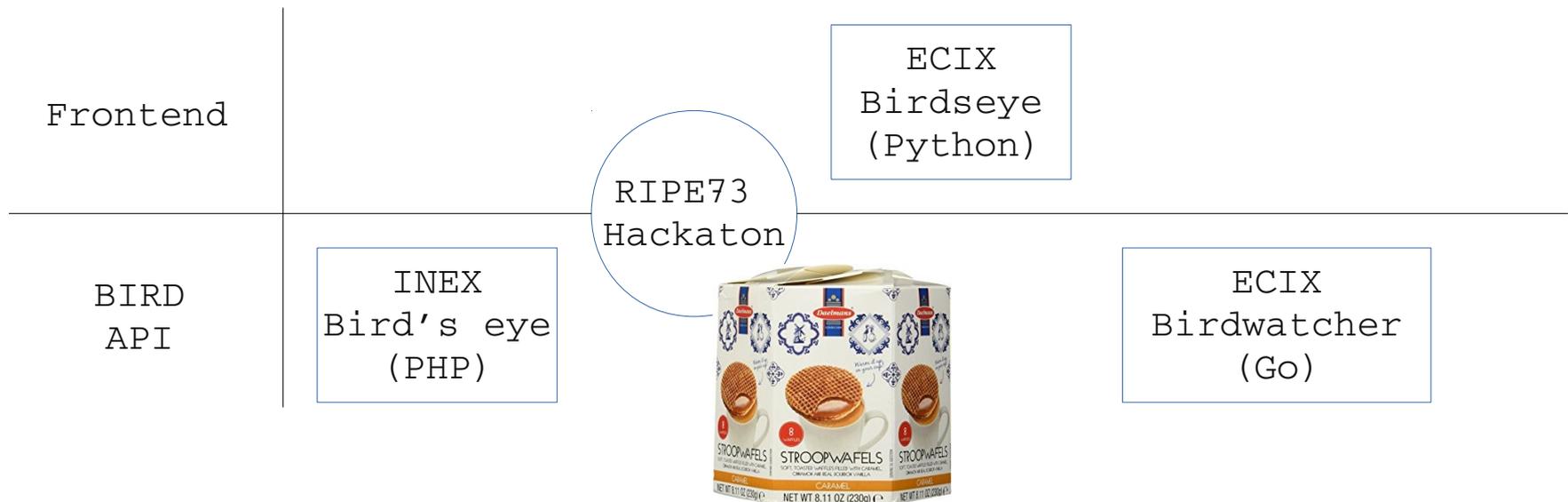
# (short) History

- RIPE73 :

<https://ripe73.ripe.net/archives/video/1505/>

- Bird's eye by Barry O'Donovan, INEX

<https://github.com/inex/birdseye>



# Alice-LG

Stichting NLNOG x Alice - The friendly bird looking glass x

localhost:8001/alice/routeservers/0

Apps Getting Started Imported From F New Tab

Alice  
Your friendly bird looking glass

rs1.lab (IPv4)

Filter by Neighbour, ASN or Description

Neighbour	ASN	State	Uptime	Description	Routes Recv.	Routes Filtered
1.2.3.11	1337	up	3 days	PEER AS1337 1.2.3.11 lab-isp-1	1	3
1.2.3.12	1338	up	4 days	PEER AS1338 1.2.3.12 lab-isp-2	1	1
1.2.3.15	1339	up	4 days	PEER AS1339 1.2.3.15 lab-isp-5	2	0
1.2.3.16	1340	up	4 days	PEER AS1340 1.2.3.16 lab-isp-6	2	0

Last Reconfig: **Monday, January 1, 0001 1:00 AM**

Daemon is up and running

ROUTESERVERS

- rs1.lab (IPv4)  
Bird 1.6.3
- rs1.lab (IPv6)  
Bird 1.6.3

Neighbour	ASN	State	Since	Description	Routes Recv.	Routes Filtered
1.2.3.109	1340	start	4 days	PEER AS1340 1.2.3.109 lab-isp-6	0	0
1.2.3.56	1340	start	4 days	PEER AS1340 1.2.3.56 lab-isp-6	0	0
1.2.3.89	1340	start	4 days	PEER AS1340 1.2.3.89 lab-isp-6	0	0
1.2.3.99	1340	start	4 days	PEER AS1340 1.2.3.99 lab-isp-6	0	0
1.2.3.78	1340	start	4 days	PEER AS1340 1.2.3.78 lab-isp-6	0	0
1.2.3.86	1340	start	4 days	PEER AS1340 1.2.3.86 lab-isp-6	0	0
1.2.3.50	1340	start	4 days	PEER AS1340 1.2.3.50 lab-isp-6	0	0
1.2.3.31	1340	start	4 days	PEER AS1340 1.2.3.31 lab-isp-6	0	0
1.2.3.112	1340	start	4 days	PEER AS1340 1.2.3.112 lab-isp-6	0	0
1.2.3.40	1340	start	4 days	PEER AS1340 1.2.3.40 lab-isp-6	0	0



# Alice-LG

Stichting NLNOG x Alice - The friendly bird looking glass

localhost:8001/alice/routeservers/0/protocols/ID7346\_AS1338/routes

Apps Getting Started Imported From F New Tab

Alice  
Your friendly bird looking glass

rs1.lab (IPv4) » PEER AS1338 1.2.3.12 lab-isp-2

ROUTESERVERS

- rs1.lab (IPv4)  
Bird 1.6.3
- rs1.lab (IPv6)  
Bird 1.6.3

Filter by Network, Gateway or Interface

**ROUTES FILTERED**

Network	AS Path	Next Hop
110.0.0.0/25 The prefix is longer than 24	1338	1.2.3.12

**ROUTES ACCEPTED**

Network	AS Path	Next Hop
12.0.0.0/8	1338	1.2.3.12

**ROUTES NOT EXPORTED**

Network	AS Path	Next Hop
100.0.0.0/24 The sender has specifically refused export to the target peer, either through sending 65000:AS, or through the portal	1337	1.2.3.11

Last Reconfig: Monday, January 1, 0001 1:00 AM

Daemon is up and running



# Alice-LG

The screenshot shows the Alice web interface with a modal window displaying BGP attributes for the network 100.0.0.0/24. The background interface includes a sidebar with 'Alice Your friendly bird looking glass' and 'ROUTESERVERS' listing 'rs1.lab (IPv4) Bird 1.6.3' and 'rs1.lab (IPv6) Bird 1.6.3'. The main content area is titled 'rs1.lab (IPv4) » PEER AS1338 1.2.3.12 lab-ign-2' and features a search filter 'Filter by Network, Gate'. It is divided into three sections: 'ROUTES FILTERED' (showing 110.0.0.0/24 with a note 'The prefix is longer than 24'), 'ROUTES ACCEPTED' (showing 12.0.0.0/8 with AS Path 1338 and Next Hop 1.2.3.12), and 'ROUTES NOT EXPORTED' (showing 100.0.0.0/24 with AS Path 1337 and Next Hop 1.2.3.11, and a note: 'The sender has specifically refused export to the target peer, either through sending 65000:AS, or through the portal'). A status box on the right indicates 'Last Reconfig: Monday, January 1, 0001 1:00 AM' and 'Daemon is up and running'. A faint illustration of a girl in a dress is visible in the bottom right corner.

Stichting NLNOG x Alice - The friendly t x

localhost:8001/alice/routeservers/0/protocols/ID7346\_AS1338/routes

Apps Getting Started Imported From F New Tab

Alice  
Your friendly bird looking glass

ROUTESERVERS

rs1.lab (IPv4)  
Bird 1.6.3

rs1.lab (IPv6)  
Bird 1.6.3

rs1.lab (IPv4) » PEER AS1338 1.2.3.12 lab-ign-2

Filter by Network, Gate

ROUTES FILTERED

**Network**

110.0.0.0/25  
The prefix is longer than 24

ROUTES ACCEPTED

**Network**

12.0.0.0/8 1338 1.2.3.12

ROUTES NOT EXPORTED

Network	AS Path	Next Hop
100.0.0.0/24 The sender has specifically refused export to the target peer, either through sending 65000:AS, or through the portal	1337	1.2.3.11

BGP Attributes for Network: 100.0.0.0/24

**Origin:** IGP

**Local Pref:** 100

**Next Hop:** 1.2.3.11

**MED:** 0

**AS Path:** 1337

**Communities:** 65011:15 9033:3251

**Large Communities:** 9033:65000:1338 9033:65033:10 9033:65666:9 9033:65667:4

Close

Last Reconfig: Monday, January 1, 0001 1:00 AM

Daemon is up and running

# Alice-LG API

- `api/config`
- `api/routeservers`
- `api/routeservers/0/status`
- `api/routeservers/0/neighbours`
- `api/routeservers/0/neighbours/ID109  
_AS31078/routes`
- `api/lookup/prefix?q=217.115.0.0`

# Alice-LG API



**stoepsel** 11:16 AM

!lg rs1.ham --name iphh



**errbot** APP 11:16 AM

## [rs1.ham.ecix.net \(IPv4\)](#)

AS12731 193.42.155.30 IPHH Internet Port Hamburg GmbH

up since 2017-01-26 23:25:31

Imported: 36

Filtered: 0

Exported: 33460

## [rs1.ham.ecix.net \(IPv6\)](#)

AS12731 2001:7f8:8:10:0:31bb:0:1 IPHH Internet Port Hamburg GmbH

up since 2017-01-26 23:25:32

Imported: 20

Filtered: 0

Exported: 8811

# Should not work ;)



**stoepsel** 5:15 PM

`!lg rs --reboot 5`



**errbot** APP 5:15 PM

**rs1.ber**

Errbot requested a reboot in 5 minutes

The system is going down for reboot at 2017-04-09 15:20:20.261644

**rs2.ber**

Errbot requested a reboot in 5 minutes

The system is going down for reboot at 2017-04-09 15:20:20.660305

---

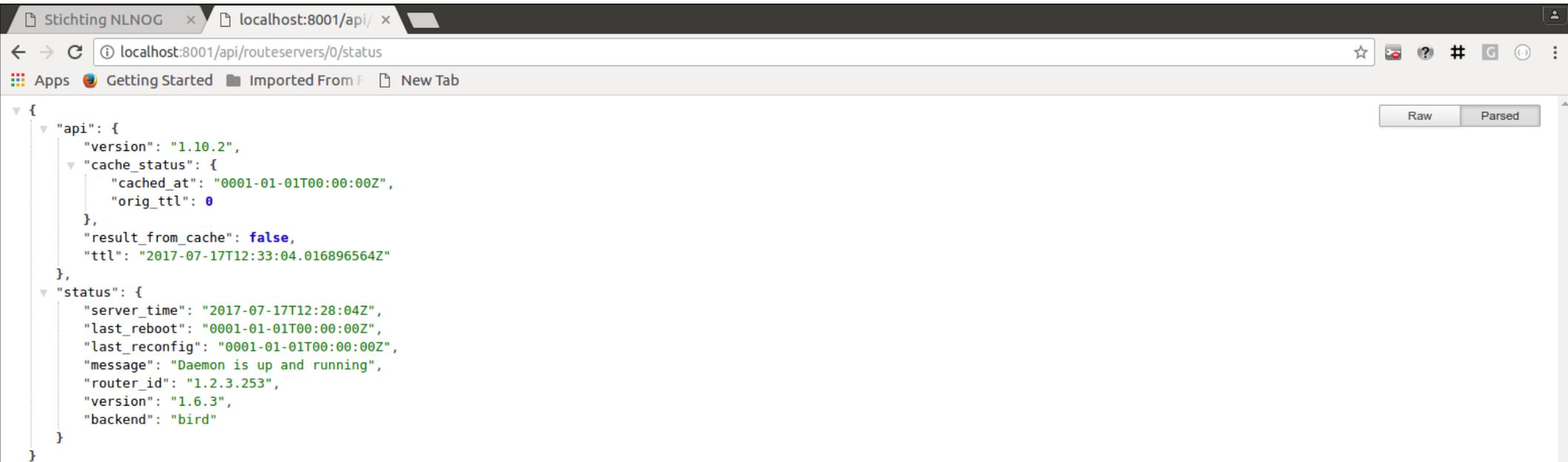
# Alice-LG API

```
{
  "version": "2.2.6",
  "routes": {
    "total_routes": {
      "filtered": 3,
      "imported": 8
    },
    "route_servers": [
      {
        "name": "rs1.lab (IPv4)",
        "routes": {
          "filtered": 3,
          "imported": 6
        },
        "state": "READY",
        "updated_at": "2017-07-17T14:04:08.021061555+02:00"
      },
      {
        "name": "rs1.lab (IPv6)",
        "routes": {
          "filtered": 0,
          "imported": 2
        },
        "state": "READY",
        "updated_at": "2017-07-17T14:04:08.151987992+02:00"
      }
    ]
  },
  "neighbours": {
    "total_neighbours": 112,
    "route_servers": [
      {
        "name": "rs1.lab (IPv6)",
        "state": "READY",
        "neighbours": 7,
        "updated_at": "2017-07-17T14:05:06.42508985+02:00"
      },
      {
        "name": "rs1.lab (IPv4)",
        "state": "READY",
        "neighbours": 105,
        "updated_at": "2017-07-17T14:05:06.392775084+02:00"
      }
    ]
  }
}
```

# Alice-LG API

```
{
  "version": "2.2.6",
  "routes": {
    "total_routes": {
      "filtered": 3,
      "imported": 8
    },
    "route_servers": [
      {
        "name": "rs1.lab (IPv4)",
        "routes": {
          "filtered": 3,
          "imported": 6
        },
        "state": "READY",
        "updated_at": "2017-07-17T14:04:08.021061555+02:00"
      },
      {
        "name": "rs1.lab (IPv6)",
        "routes": {
          "filtered": 0,
          "imported": 2
        },
        "state": "READY",
        "updated_at": "2017-07-17T14:04:08.151987992+02:00"
      }
    ]
  },
  "neighbours": {
    "total_neighbours": 112,
    "route_servers": [
      {
        "name": "rs1.lab (IPv6)",
        "state": "READY",
        "neighbours": 7,
        "updated_at": "2017-07-17T14:05:06.42508985+02:00"
      },
      {
        "name": "rs1.lab (IPv4)",
        "state": "READY",
        "neighbours": 105,
        "updated_at": "2017-07-17T14:05:06.392775084+02:00"
      }
    ]
  }
}
```

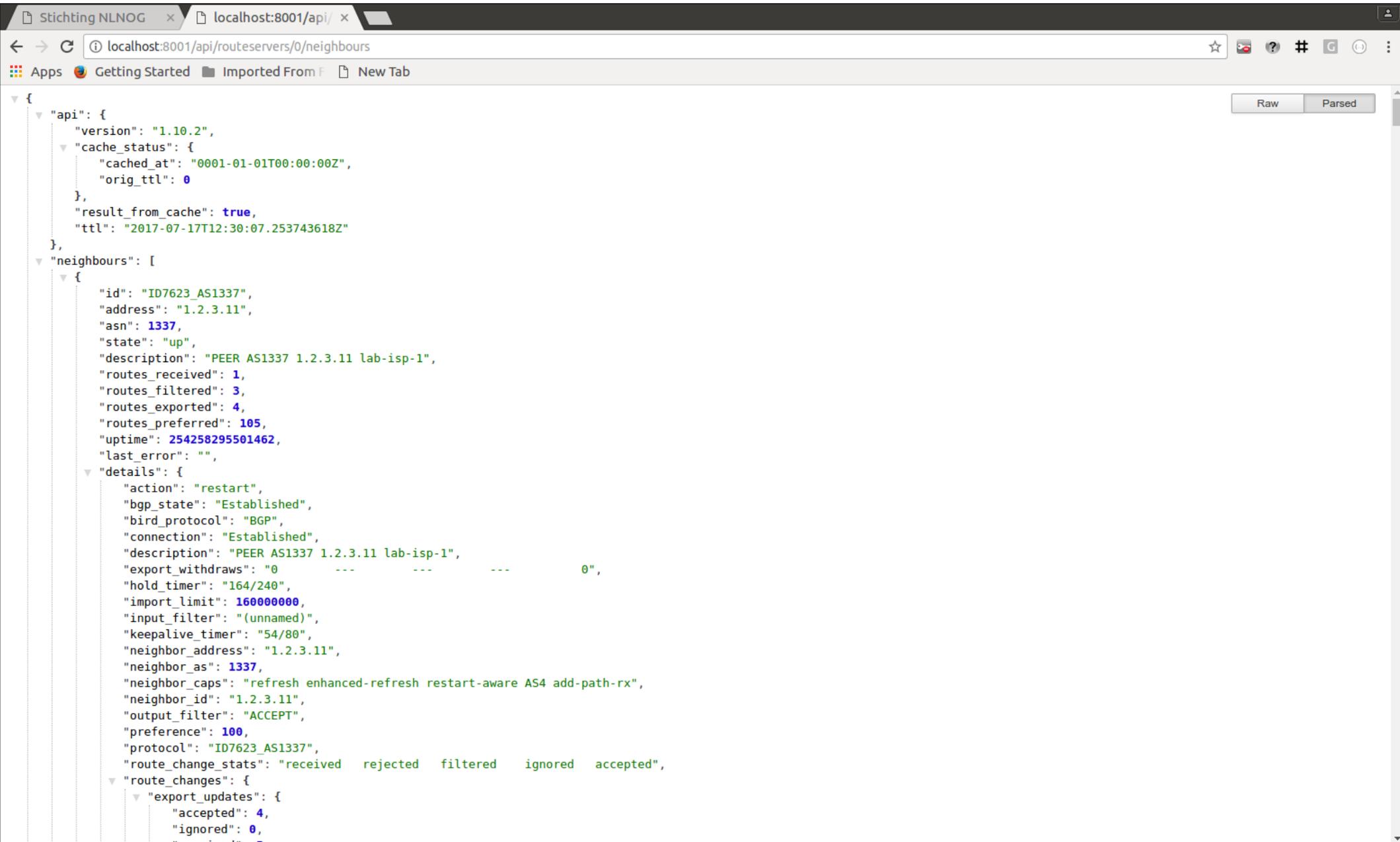
# Alice-LG API



The screenshot shows a web browser window with the address bar displaying `localhost:8001/api/routeservers/0/status`. The browser tabs include "Stichting NLNOG" and "localhost:8001/api/". The page content displays a JSON response in a tree view, with "Raw" and "Parsed" buttons on the right. The JSON data is as follows:

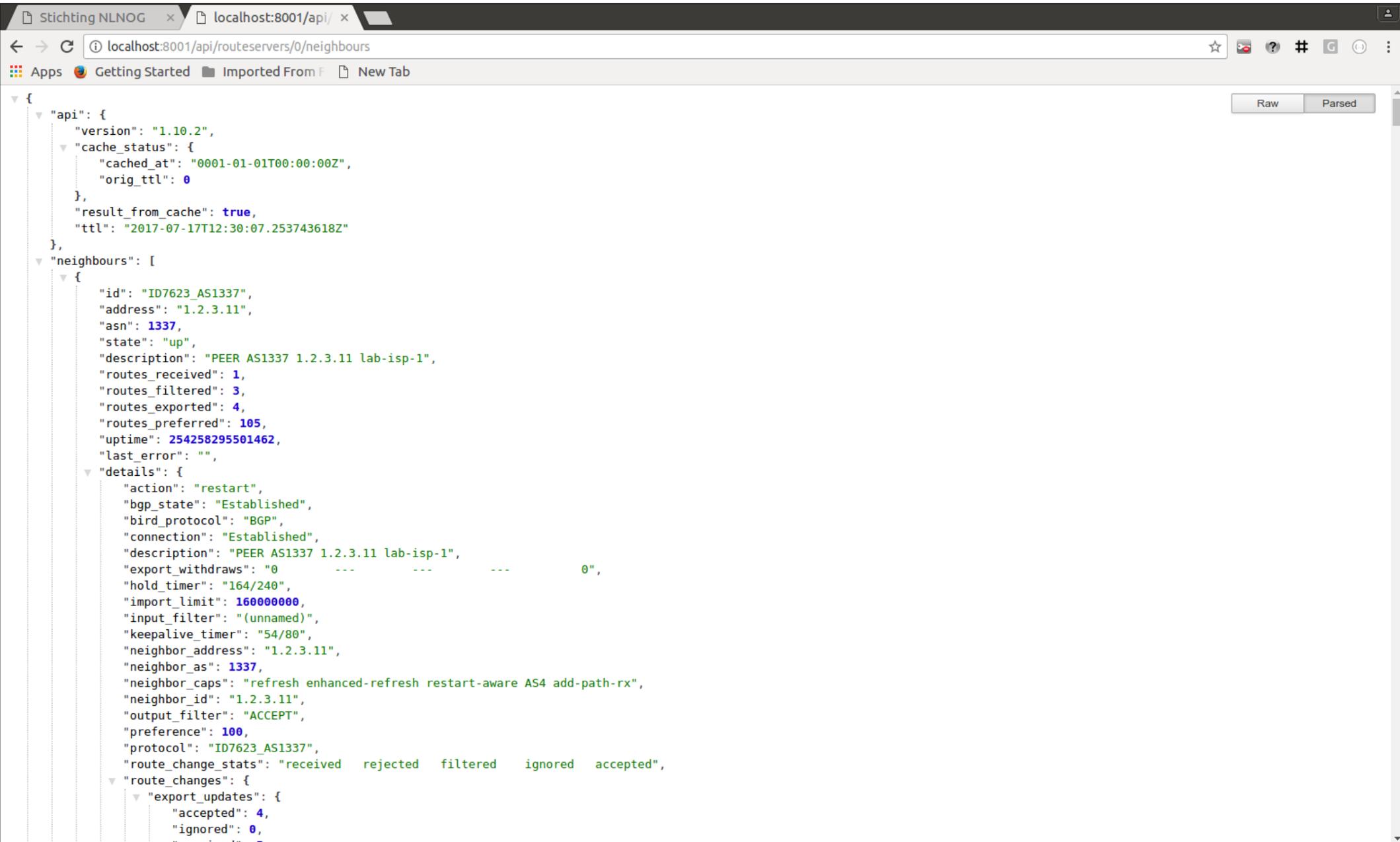
```
{
  "api": {
    "version": "1.10.2",
    "cache_status": {
      "cached_at": "0001-01-01T00:00:00Z",
      "orig_ttl": 0
    },
    "result_from_cache": false,
    "ttl": "2017-07-17T12:33:04.016896564Z"
  },
  "status": {
    "server_time": "2017-07-17T12:28:04Z",
    "last_reboot": "0001-01-01T00:00:00Z",
    "last_reconfig": "0001-01-01T00:00:00Z",
    "message": "Daemon is up and running",
    "router_id": "1.2.3.253",
    "version": "1.6.3",
    "backend": "bird"
  }
}
```

# Alice-LG API



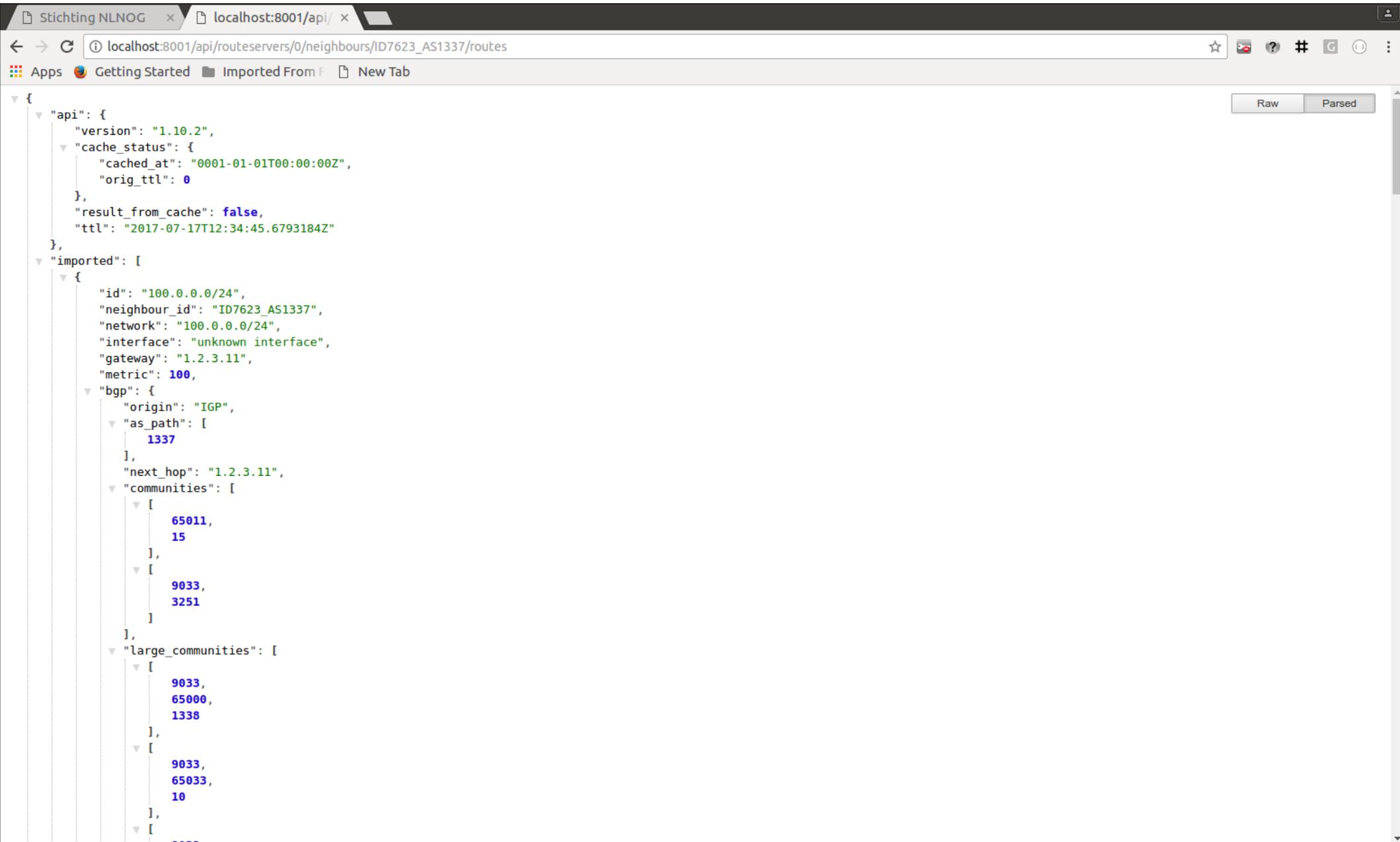
```
{
  "api": {
    "version": "1.10.2",
    "cache_status": {
      "cached_at": "0001-01-01T00:00:00Z",
      "orig_ttl": 0
    },
    "result_from_cache": true,
    "ttl": "2017-07-17T12:30:07.253743618Z"
  },
  "neighbors": [
    {
      "id": "ID7623_AS1337",
      "address": "1.2.3.11",
      "asn": 1337,
      "state": "up",
      "description": "PEER AS1337 1.2.3.11 lab-isp-1",
      "routes_received": 1,
      "routes_filtered": 3,
      "routes_exported": 4,
      "routes_preferred": 105,
      "uptime": 254258295501462,
      "last_error": "",
      "details": {
        "action": "restart",
        "bgp_state": "Established",
        "bird_protocol": "BGP",
        "connection": "Established",
        "description": "PEER AS1337 1.2.3.11 lab-isp-1",
        "export_withdraws": "0",
        "hold_timer": "164/240",
        "import_limit": 160000000,
        "input_filter": "(unnamed)",
        "keepalive_timer": "54/80",
        "neighbor_address": "1.2.3.11",
        "neighbor_as": 1337,
        "neighbor_caps": "refresh enhanced-refresh restart-aware AS4 add-path-rx",
        "neighbor_id": "1.2.3.11",
        "output_filter": "ACCEPT",
        "preference": 100,
        "protocol": "ID7623_AS1337",
        "route_change_stats": "received rejected filtered ignored accepted",
        "route_changes": {
          "export_updates": {
            "accepted": 4,
            "ignored": 0,
            "received": 0,
            "rejected": 0
          }
        }
      }
    }
  ]
}
```

# Alice-LG API



```
{
  "api": {
    "version": "1.10.2",
    "cache_status": {
      "cached_at": "0001-01-01T00:00:00Z",
      "orig_ttl": 0
    },
    "result_from_cache": true,
    "ttl": "2017-07-17T12:30:07.253743618Z"
  },
  "neighbours": [
    {
      "id": "ID7623_AS1337",
      "address": "1.2.3.11",
      "asn": 1337,
      "state": "up",
      "description": "PEER AS1337 1.2.3.11 lab-isp-1",
      "routes_received": 1,
      "routes_filtered": 3,
      "routes_exported": 4,
      "routes_preferred": 105,
      "uptime": 254258295501462,
      "last_error": "",
      "details": {
        "action": "restart",
        "bgp_state": "Established",
        "bird_protocol": "BGP",
        "connection": "Established",
        "description": "PEER AS1337 1.2.3.11 lab-isp-1",
        "export_withdraws": "0",
        "hold_timer": "164/240",
        "import_limit": 160000000,
        "input_filter": "(unnamed)",
        "keepalive_timer": "54/80",
        "neighbor_address": "1.2.3.11",
        "neighbor_as": 1337,
        "neighbor_caps": "refresh enhanced-refresh restart-aware AS4 add-path-rx",
        "neighbor_id": "1.2.3.11",
        "output_filter": "ACCEPT",
        "preference": 100,
        "protocol": "ID7623_AS1337",
        "route_change_stats": "received rejected filtered ignored accepted",
        "route_changes": {
          "export_updates": {
            "accepted": 4,
            "ignored": 0,
            "received": 0,
            "rejected": 0
          }
        }
      }
    }
  ]
}
```

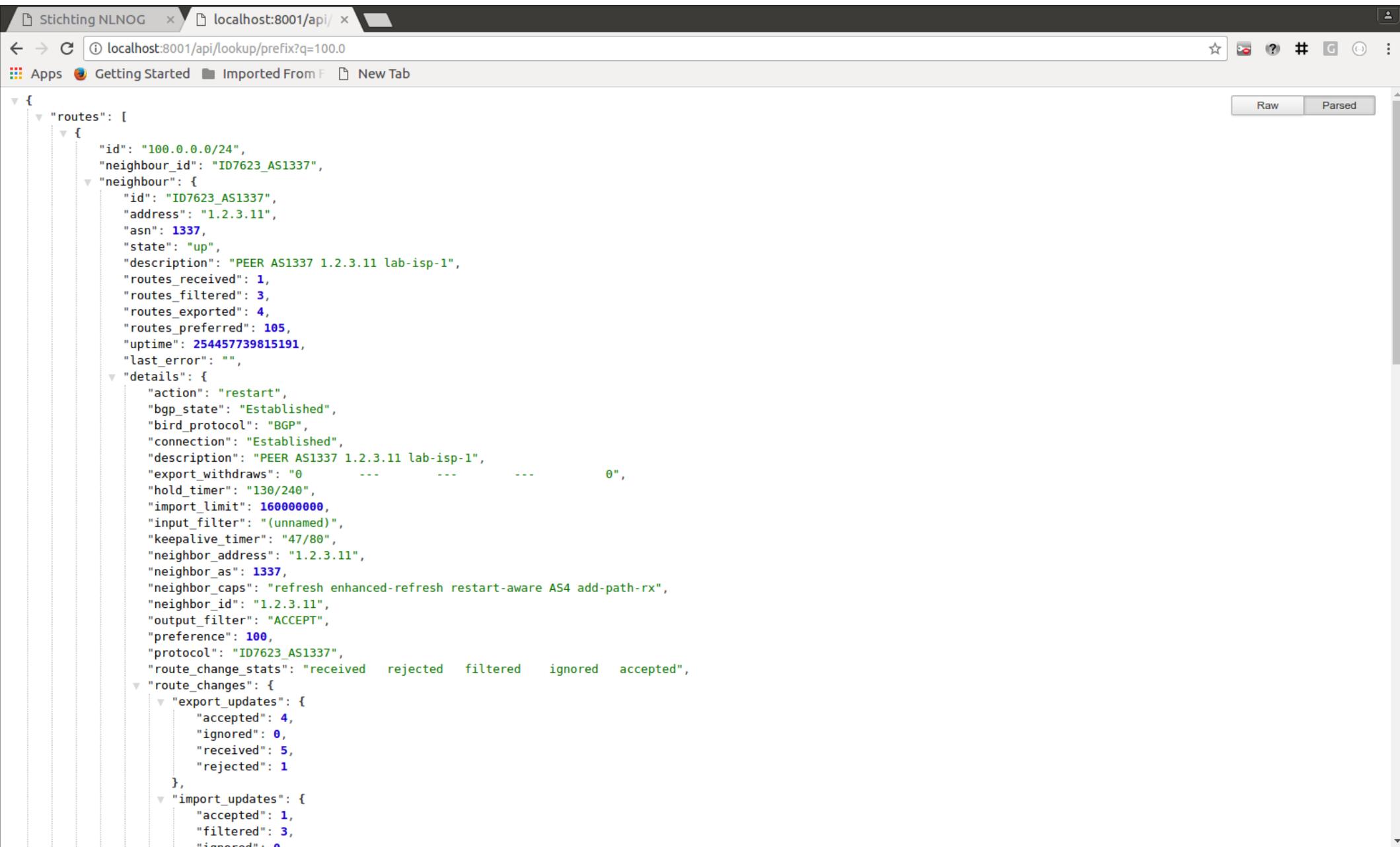
# Alice-LG API



The screenshot shows a web browser window with the URL `localhost:8001/api/routeservers/0/neighbours/ID7623_AS1337/routes`. The browser's developer tools are open, displaying a JSON response. The response is a list of route objects, with the first object expanded to show its details. The JSON structure is as follows:

```
{
  "api": {
    "version": "1.10.2",
    "cache_status": {
      "cached_at": "0001-01-01T00:00:00Z",
      "orig_ttl": 0
    },
    "result_from_cache": false,
    "ttl": "2017-07-17T12:34:45.6793184Z"
  },
  "imported": [
    {
      "id": "100.0.0.0/24",
      "neighbour_id": "ID7623_AS1337",
      "network": "100.0.0.0/24",
      "interface": "unknown interface",
      "gateway": "1.2.3.11",
      "metric": 100,
      "bgp": {
        "origin": "IGP",
        "as_path": [
          1337
        ],
        "next_hop": "1.2.3.11",
        "communities": [
          [
            65011,
            15
          ],
          [
            9033,
            3251
          ]
        ],
        "large_communities": [
          [
            9033,
            65000,
            1338
          ],
          [
            9033,
            65033,
            10
          ]
        ]
      }
    }
  ]
}
```

# Alice-LG API



The screenshot shows a web browser window with the address bar containing `localhost:8001/api/lookup/prefix?q=100.0`. The browser tabs include "Stichting NLNOG" and "localhost:8001/api/". The page content displays a JSON response in a REST client interface, with a "Raw" button and a "Parsed" button. The JSON data is as follows:

```
{
  "routes": [
    {
      "id": "100.0.0.0/24",
      "neighbour_id": "ID7623_AS1337",
      "neighbour": {
        "id": "ID7623_AS1337",
        "address": "1.2.3.11",
        "asn": 1337,
        "state": "up",
        "description": "PEER AS1337 1.2.3.11 lab-isp-1",
        "routes_received": 1,
        "routes_filtered": 3,
        "routes_exported": 4,
        "routes_preferred": 105,
        "uptime": 254457739815191,
        "last_error": "",
        "details": {
          "action": "restart",
          "bgp_state": "Established",
          "bird_protocol": "BGP",
          "connection": "Established",
          "description": "PEER AS1337 1.2.3.11 lab-isp-1",
          "export_withdraws": "0",
          "hold_timer": "130/240",
          "import_limit": 160000000,
          "input_filter": "(unnamed)",
          "keepalive_timer": "47/80",
          "neighbor_address": "1.2.3.11",
          "neighbor_as": 1337,
          "neighbor_caps": "refresh enhanced-refresh restart-aware AS4 add-path-rx",
          "neighbor_id": "1.2.3.11",
          "output_filter": "ACCEPT",
          "preference": 100,
          "protocol": "ID7623_AS1337",
          "route_change_stats": "received rejected filtered ignored accepted",
          "route_changes": {
            "export_updates": {
              "accepted": 4,
              "ignored": 0,
              "received": 5,
              "rejected": 1
            },
            "import_updates": {
              "accepted": 1,
              "filtered": 3,
              "ignored": 0
            }
          }
        }
      }
    }
  ]
}
```

# Birdwatcher API

Ornithologist was too hard to write

- Golang
- On the BIRD host
- ACL (IP) restriction
- Only show commands
- Rate limiting

# In progress

- Show exported routes
- Show peer to peer exports
- Better memory management
  
- What do YOU need in a LG?

# Known Alices

- `lg.ecix.net`
- `lg.coloclue.net`
  
- `you?`

# (Real short)

## IXP Large BGP communities

- [goo.gl/yBbDxD](https://github.com/goo.gl/yBbDxD) (github)
- Trying to standardize LBGP communities at IXPs
- Example:
  - (rsAS:0:asn) do not send to asn
  - (rsAS:1:asn) do send to asn
  - (rsAS:101:asn) prepend to asn once
  - (rsAS:1000:1) RPKI VALID

# IXP Large BGP communities

- Multiple IXPs have shown interest
  - ECIX (already implements LBGP communities, will support the standard)
  - DECIX
  - LINX
  - LONAP
  - MSK-IX
  - JPNAP
- Join in! Leave comments, create github issues!
- Ask your IXP to support LBGP! (and to use the standard)