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# SixXS

**SixXS accommodates an enhanced version
of a tunnel broker to assist
LIRs in having a rapid IPv6 deployment
in their organisation by providing a native
and tunneled IPv6 broker,**

**giving IPv6 access to their clients even though client
hardware doesn't support IPv4.**

**- We are still looking for participating LIRs**

# SixXS IPv6Gate

**http://ipv6gate.sixxs.net**

**http://<host>.sixxs.org**

**Makes your IPv4 website
reachable over IPv6**

# Ghost Route Hunter (GRH)

**URL:** http://www.sixxs.net/tools/grh/

**Contact:** info@sixxs.net

**A tool for hunting down Ghost Routes in the IPv6 routing tables and detecting/ displaying TLA availability.**

# How it works (in short)

**Cisco, Zebra and Juniper style IPv6 BGP tables
are provided currently by:**

**6WiN/DFN (Germany)**
- **AORTA / UPC Distribution Services (Europe)**
- **Academia Sinica Computing Centre (Taiwan)**
- **BIT (Netherlands)**
- **Cesnet (Czech)**
- **CWI (Netherlands)**
- **Hurricane Electric (US)**
- **Intouch / IPng.nl (Netherlands)**
- **NDSoftware (France)**
- **Noris Network AG (Germany)**
- **stuba.sk (Slovakia)**
- **SURFnet (Holland)**
- **TILAB (Italy)**
- **Verat (Yugoslavia)**

# Ghost Routes

**3ffe:8050::/28** (19 ghosted paths)

| Reporter | Nexthop | Count | ASpath (origin transit- as ...) |
|---|---|---|---|
| cwi.nl | 2001:610:128:c216::1 | 26/26 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 293 3425 1103 |
| verat.net | 2001:750:e::20 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 5424 1275 15589 |
| ndsoftwarenet.com | 2001:768:e:9::1 | 27/30 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 5424 1275 3320 15671 8379 8379 8379 8379 |
| verat.net | 2001:7a0:100:ff00::14 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 5424 1275 3320 |
| ndsoftwarenet.com | 2001:7a8:1:f004::1 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 3549 13193 |
| bit.nl | 2001:7f8:1::a500:3265:1 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 3549 3265 |
| bit.nl | 2001:7f8:1::a500:3265:2 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 3549 3265 |
| surfnet.nl | 2001:7f8:1::a500:3549:1 | 24/24 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 3549 |
| ndsoftwarenet.com | 2001:7f8:2:c01d::2 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 5408 1752 |
| stuba.sk | 3ffe:2200:0:8003::2 | 24/24 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 5424 1275 |
| stuba.sk | 3ffe:2200:0:800a::2 | 23/23 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 5424 |
| surfnet.nl | 3ffe:3900:a0::1 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 293 3425 |
| verat.net | 3ffe:4009:ffff::6 | 27/30 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 3549 12702 1849 25396 25396 25396 25396 |
| verat.net | 3ffe:4009:ffff::a | 26/26 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 5424 1275 3320 13110 |
| verat.net | 3ffe:4010:ff0b::1 | 24/24 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 13944 |
| verat.net | 3ffe:4013:f:12::1 | 26/26 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 3549 13193 25358 |
| verat.net | 3ffe:80ef:100:1::1 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 13944 25336 |
| verat.net | 3ffe:8270:0:1::64 | 25/25 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 5424 1275 20834 |
| verat.net | 3ffe:82b0:0:1:1::18 | 26/26 | 3557 6939 278 4554 5609 33 10479 6342 6435 4618 9264 7660 2500 4725 3748 237 12199 145 11537 786 5623 10318 6175 3549 12702 16186 |

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ROUTE
BUSTERS

# Prefix length distribution

**The following prefixlengths
are delegated by the RIR's.**

| | | | |
|---|---|---|---|
| 58x | /24 | RIPE | 151 |
| 56x | /28 | APNIC | 96 |
| 259x | /32 | ARIN | 45 |
| 55x | /35 | 6BONE | 136 |

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GHOST ROUTE BUSTERS

# IPv6 TLA's per country (49)

| #  | Country          | Count |
|----|------------------|-------|
| 1  | United States    | 69    |
| 2  | Japan            | 62    |
| 3  | Germany          | 36    |
| 4  | Netherlands, The | 25    |
| 5  | United Kingdom   | 19    |
| 6  | Korea            | 18    |
| 7  | Italy            | 15    |
| 8  | France           | 13    |
| 9  | Austria          | 10    |
| 10 | Finland          | 10    |
| 11 | Poland           | 10    |
| 12 | Sweden           | 10    |
| 13 | Switzerland      | 10    |
| 14 | Mexico           | 9     |
| 15 | Taiwan           | 9     |
| 16 | China            | 7     |
| 17 | Europe           | 7     |

| #  | Country        | Count |
|----|----------------|-------|
| 18 | Norway         | 7     |
| 19 | Portugal       | 7     |
| 20 | Spain          | 7     |
| 21 | Australia      | 5     |
| 22 | Singapore      | 5     |
| 23 | Thailand       | 5     |
| 24 | Canada         | 4     |
| 25 | Denmark        | 4     |
| 26 | Belgium        | 3     |
| 27 | Luxembourg     | 3     |
| 28 | Malaysia       | 3     |
| 29 | Russia         | 3     |
| 30 | Turkey         | 3     |
| 31 | Argentina      | 2     |
| 32 | Asian Pacific  | 2     |
| 33 | Brazil         | 2     |
| 34 | Greece         | 2     |

| #  | Country               | Count |
|----|-----------------------|-------|
| 35 | Hong Kong             | 2     |
| 36 | Hungary               | 2     |
| 37 | India                 | 2     |
| 38 | Ireland               | 2     |
| 39 | Lithuania             | 2     |
| 40 | Slovakia              | 2     |
| 41 | Yugoslavia            | 2     |
| 42 | Chile                 | 1     |
| 43 | Cyprus                | 1     |
| 44 | Czech Republic        | 1     |
| 45 | Estonia               | 1     |
| 46 | Papua New Guinea      | 1     |
| 47 | South Africa          | 1     |
| 48 | Tunisia               | 1     |
| 49 | United Arab Emirates  | 1     |

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GHOST ROUTE BUSTERS
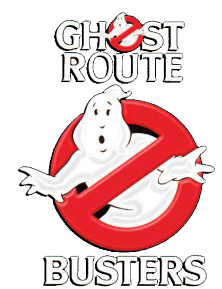
# RIPE (29 countries)

| | | | |
|---|---|---|---|
| 1 | 🇩🇪 | Germany | 30 |
| 2 | 🇳🇱 | Netherlands, The | 18 |
| 3 | 🇬🇧 | United Kingdom | 12 |
| 4 | 🇦🇹 | Austria | 9 |
| 5 | 🇫🇮 | Finland | 9 |
| 6 | 🇫🇷 | France | 9 |
| 7 | 🇮🇹 | Italy | 8 |
| 8 | 🇸🇪 | Sweden | 7 |
| 9 | 🇵🇱 | Poland | 6 |
| 10 | 🇪🇺 | Europe | 5 |

| | | | |
|---|---|---|---|
| 11 | 🇳🇴 | Norway | 5 |
| 12 | 🇵🇹 | Portugal | 4 |
| 13 | 🇪🇸 | Spain | 4 |
| 14 | 🇨🇭 | Switzerland | 4 |
| 15 | 🇩🇰 | Denmark | 2 |
| 16 | 🇮🇪 | Ireland | 2 |
| 17 | 🇱🇹 | Lithuania | 2 |
| 18 | 🇱🇺 | Luxembourg | 2 |
| 19 | 🇷🇺 | Russia | 2 |
| 20 | 🇹🇷 | Turkey | 2 |

| | | | |
|---|---|---|---|
| 21 | 🇧🇪 | Belgium | 1 |
| 22 | 🇨🇾 | Cyprus | 1 |
| 23 | 🇨🇿 | Czech Republic | 1 |
| 24 | 🇪🇪 | Estonia | 1 |
| 25 | 🇬🇷 | Greece | 1 |
| 26 | 🇭🇺 | Hungary | 1 |
| 27 | 🇹🇳 | Tunisia | 1 |
| 28 | 🇦🇪 | United Arab Emirates | 1 |
| 29 | 🇾🇺 | Yugoslavia | 1 |

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# RIPE prefixes

| Prefix | tld | Name | State | Last seen | |
|---|---|---|---|---|---|
| 2001:600::/35 | | EU-UUNET-19990810 | assigned | | 2003-01-24 02:30:48 |
| 2001:608::/32 | | DE-SPACE-19990812 | assigned | 2003-01-24 02:30:48 | |
| 2001:610::/32 | | NL-SURFNET-19990819 | assigned | 2003-01-24 02:30:48 | |
| 2001:618::/32 | | UK-BT-19990903 | assigned | 2003-01-24 02:30:48 | |
| 2001:620::/35 | | CH-SWITCH-19990903 | assigned | | 2003-01-24 02:30:49 |
| 2001:628::/35 | | AT-ACONET-19990920 | assigned | | 2003-01-24 02:30:48 |
| 2001:630::/32 | | UK-JANET-19991019 | assigned | 2003-01-24 02:30:48 | |
| 2001:638::/35 | | DE-DFN-19991102 | assigned | | 2003-01-24 02:30:48 |
| 2001:640::/35 | | RU-FREENET-19991115 | assigned | 2002-12-10 19:59:37 | |
| 2001:648::/35 | | GR-GRNET-19991208 | assigned | | 2003-01-24 02:30:48 |
| 2001:650::/32 | | DE-ECRC-19991223 | assigned | 2003-01-24 02:30:48 | 2003-01-24 02:30:48 |
| 2001:658::/32 | | DE-TRMD-20000317 | assigned | 2003-01-24 02:30:48 | |
| 2001:660::/32 | | FR-RENATER-20000321 | assigned | 2003-01-24 02:30:48 | 2003-01-24 02:30:49 |
| 2001:668::/32 | | EU-NACNET-20000403 | assigned | 2003-01-24 02:30:48 | |
| 2001:670::/35 | | FI-EUNET-20000403 | assigned | | 2003-01-24 02:30:48 |
| 2001:678::/35 | | DE-JIPPII-20000426 | assigned | never | |
| 2001:680::/35 | | DE-XLINK-20000510 | assigned | | 2003-01-24 02:30:48 |
| 2001:688::/32 | | FR-TELECOM-20000623 | assigned | never | 2003-01-24 02:30:48 |
| 2001:690::/32 | | PT-RCCN-20000623 | assigned | 2003-01-24 02:30:48 | |
| 2001:698::/32 | | SE-SWIPNET-20000828 | assigned | 2003-01-24 02:30:48 | |
| 2001:6a0::/35 | | PL-ICM-20000905 | assigned | | 2003-01-24 02:30:48 |
| 2001:6a8::/32 | | BE-BELNET-20001101 | assigned | | 2003-01-24 02:30:48 |
| 2001:6b0::/32 | | SE-SUNET-20001218 | assigned | 2003-01-24 02:30:48 | |
| 2001:6b8::/32 | | IT-CSELT-20001221 | assigned | 2003-01-24 02:30:48 | |
| 2001:6c0::/35 | | SE-TELIANET-20010102 | assigned | | 2003-01-24 02:30:48 |
| 2001:6c8::/32 | | DK-TELEDANMARK-20010131 | assigned | 2003-01-24 02:30:48 | |
| 2001:6d0::/35 | | RU-ROSNIIROS-20010219 | assigned | never | |
| 2001:6d8::/32 | | PL-CYFRONET-20010221 | assigned | never | 2003-01-24 02:30:48 |
| 2001:6e0::/35 | | NL-INTOUCH-20010307 | assigned | | 2003-01-24 02:30:48 |
| 2001:6e8::/32 | | FI-TELIVO-20010321 | assigned | 2003-01-24 02:30:48 | |
| 2001:6f0::/35 | | SE-DIGITAL-20010321 | assigned | 0000-00-00 00:00:00 | |
| 2001:6f8::/32 | | UK-EASYNET-20010322 | assigned | 2003-01-24 02:30:48 | 2003-01-24 02:30:48 |
| 2001:700::/32 | | NO-UNINETT-20010406 | assigned | 2003-01-24 02:30:48 | |
| 2001:708::/32 | | FI-FUNET-20010503 | assigned | 2003-01-24 02:30:48 | |
| 2001:710::/35 | | UK-INS-20010518 | assigned | never | |
| 2001:718::/32 | | CZ-TEN-34-20010521 | assigned | 2003-01-24 02:30:48 | |
| 2001:720::/32 | | ES-REDIRIS-20010521 | assigned | 2003-01-24 02:30:48 | |

# TLA report for RIPE region

The database currently holds 151 IPv6 TLA's.

Of which:

- 45 IPv6 TLA's didn't have a routing entry.

- 4 only announced a /35 while they have been assigned a /32.

- 5 announce both their /32 and their /35.

# Questions?

http://www.sixxs.net/tools/grh/

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