

IPv6 Troubleshooting - Best Practice for Helpdesks (1 day)

Best current practice in IPv6 troubleshooting for residential ISP Helpdesk staff (RIPE BCOP)

You will learn:

- IPv6 essentials
- How IPv6 differs from IPv4
- How IPv6 works
- Basic IPv6 configuration commands on common platforms
- IPv6 troubleshooting techniques on common platforms
- How to utilise RIPE's *IPv6 Troubleshooting for Residential ISP Helpdesks* document
- How to use the `isp.testipv6.com` test tool
- When to pass faults to engineers or second line support

Course Benefits

Many ISPs have already deployed or are in the process of deploying, IPv6. A key aspect of any deployment is ensuring that all staff have the necessary IPv6 skills. In an ISP providing residential broadband service it is crucial that front line Helpdesk staff have an understanding of IPv6 and of basic IPv6 troubleshooting techniques.

This short course provides the basic knowledge, techniques and understanding required by ISP Helpdesk staff. This course is aligned with RIPE's current best practice (IPv6 Troubleshooting for Residential ISP Helpdesks) and their recommended IPv6 test tools for residential ISPs.

The practical aspects of this course are applicable to all operating systems usually found in residential environments.

This course is designed to be run on-site as a closed course for a specific ISP. As such it can be tailored to reflect a specific IPv6 deployment and Helpdesk practice. It can also be modified to reflect the skill set of existing Helpdesk staff.

Who Should Attend

This course is ideal for ISP Helpdesk staff providing IPv6 support to residential customers.

It is designed to be tailored to fit the existing technical know-how of your Helpdesk staff.

Demonstrations can be carried out on a mixture of Windows, Linux and MacOS.

Course Contents

Background to IPv6

- Why your ISP is deploying IPv6
- The IPv4 address exhaustion problem
- How IPv6 solves IPv4 address problem
- Other benefits brought by IPv6

IPv6 Protocol Basics

- The IPv6 address structure
- Important IPv6 addresses
- Link and global addresses
- Important IPv6 prefixes
- Viewing address configuration
- Testing IPv6 addresses

Autoconfiguration of IPv6

- IPv6 Auto-configuration methods
- Stateless address autoconfiguration
- DHCPv6
- Other methods
- Verifying IPv6 configuration
- Troubleshooting IPv6 configuration

Internetworking IPv6

- Basic IPv6 routing
- The IPv6 default route
- Testing routing
- Path MTU discovery
- Troubleshooting routing and MTU issues

Overview of IPv6 Features

- IPv6 IPsec
- Quality of service in IPv6
- IPv6 mobility

IPv6 Connectivity Options

- IPv4 and IPv6 compatibility
- IPv6 transition mechanisms
- Dual stack operation
- Tunnelled IPv6
- 6to4
- Teredo
- NAT64 and DNS64
- Other techniques
- Understanding different connectivity scenarios
- Performance issues

IPv6 and DNS

- AAAA, PTR, A6 & DNAME RRs
- `ip6.arpa.` & `ip6.int.`
- IPv6 in BIND and MS DNS servers
- Testing IPv6 name resolution
- Troubleshooting name resolution

Testing & Troubleshooting IPv6

- RIPE Best Current Practice
- Using `isp.testipv6.com`
- Basic IPv6 tests
- DNS IPv6 troubleshooting
- Checking a router's IPv6 configuration
- When to escalate IPv6 problems
- Understanding `isp.testipv6.com` codes
- Acting on `isp.testipv6.com` results

Practical Work

During the course there will be numerous short demonstrations.

These will use the most common operating systems (Windows, Linux and MacOS).

The demonstrations will look at:

- Viewing basic IPv6 configurations
- Auto-configuration of IPv6
- Examining IPv6 Router configuration
- Testing IPv6 DNS operation
- Determining connectivity and viewing different transition mechanisms
- Using the `isp.testipv6.com` tool
- Troubleshooting IPv6

The Trainers

All our trainers are practising IPv6 consultants with extensive experience of IPv6 in many different environments and across a range of platforms and operating systems. They are ideally suited to bringing you the highest quality of training.

Tailored Programme

This course is designed so that it can be tailored to your specific IPv6 deployment and internal IPv6 policies.

If required, Erion can provide you with a tailored IPv6 training programme which can be based on modules from any of our standard courses and adjusted to match your specific needs. Please contact us for details.

The Company

Erion is the world's leading IPv6 training company with the world's most comprehensive portfolio of IPv6 training courses. Erion's courses cover all aspects of IPv6 on all major operating systems and platforms.

For further information about the training and our company see our web-site at www.erion.co.uk.