



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

Learning with the RIPE NCC

RIPE 88

Evelien Schilder - Sr. Learning Experience Designer

RIPE NCC Learning & Development

RIPE NCC Services

RIPE Community

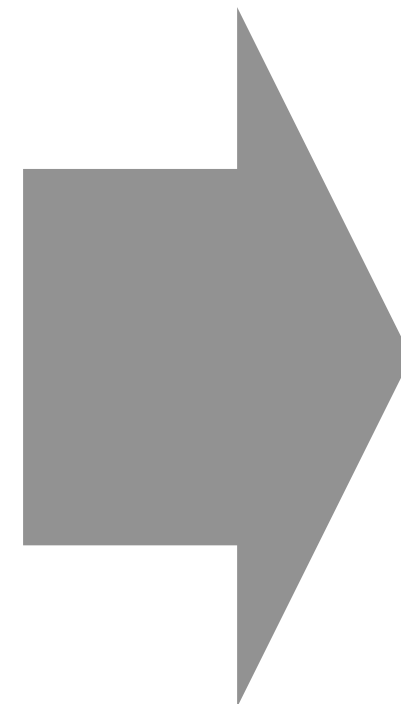
RIPE NCC Members

RIPE Labs	Training & Certification	IP / ASN
RIPEstat	RPKI	LIR Portal
K-root DNS	RIPE Database	General Meetings
RIPE Meetings & Regional Meetings	RIPE Atlas	

We Offer:



In person courses	Members
Live webinars	Open and Free
Self-paced e-learning RIPE NCC Academy	Open and Free
Exams Certified Professionals	Members 3 free exams/year Soon open to non-members for a fee



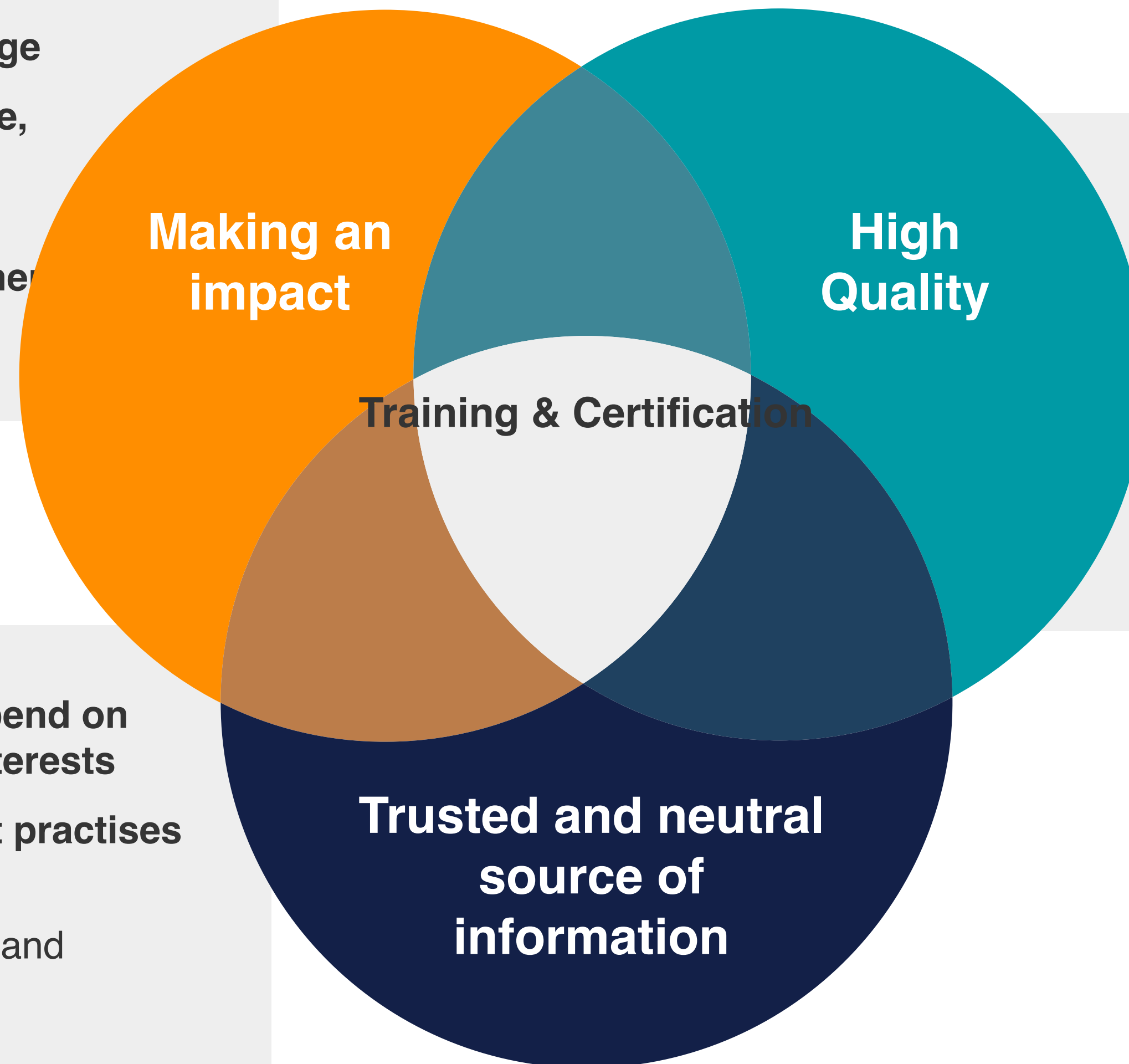
On the topics:

- Internet Registry & Governance**
- IPv6**
- BGP Security**
- Internet Measurements**

RIPE NCC's Training & Certification



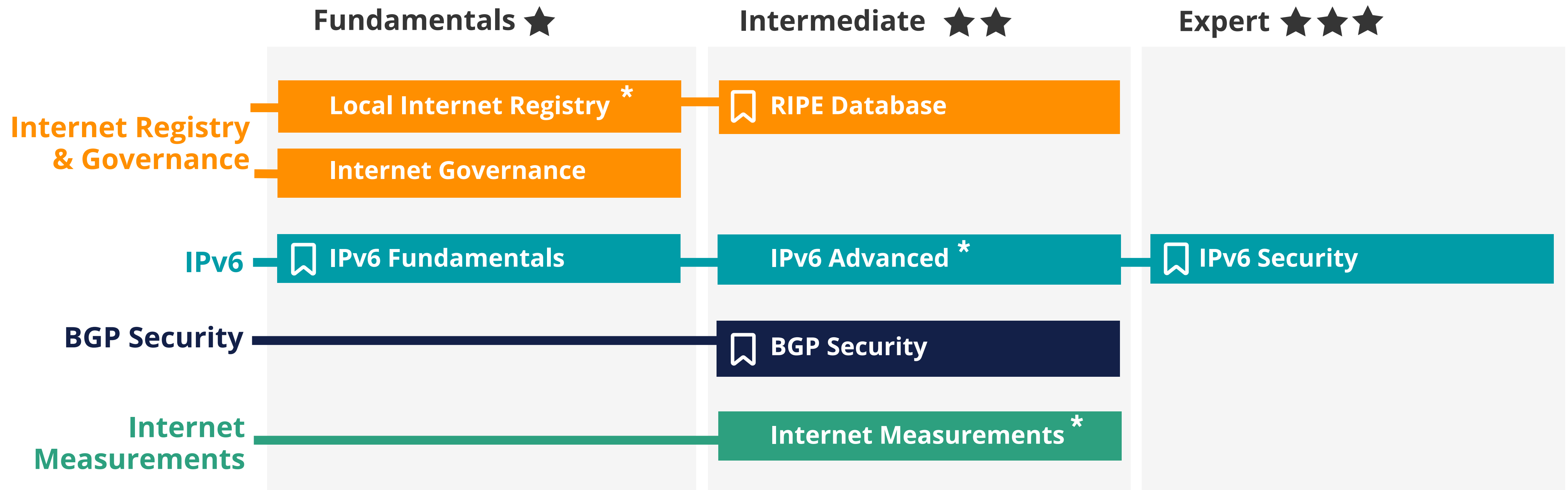
- Instruct in **best practices**
- Provide **practical knowledge**
- Contribute to a more **secure, stable, resilient** and **innovative** Internet
- Help with **career development**



- **Relevant** and **up-to-date** content tailored to **learners' needs**
- Involvement of **subject matter experts** in development
- **Sound pedagogical** methodologies
- **Engaging, interactive** and **accessible** learning experiences

- Information **does not depend on economic or political interests**
- Focusing on **best current practises** and **standards**
- Using **open source** tools and materials

Training & Certification Portfolio - Learning Paths



* We currently only offer webinars on these topics. E-learning courses on all of these topics are under development.

IPv6 Fundamentals Offerings Academia



IPv6 Fundamentals E-Learning Course - RIPE NCC Academy (☆ - 15 hours)

Unit 1. The future of the Internet. Why use IPv6?

- 1.1. IPv4 Exhaustion
- 1.2. Why We Need IPv6 Urgently
- Activity: Timeline

Unit 2. IPv6 Address Architecture

- 2.1. Address Notation
- 2.2. Subnetting
- Activity: Smart Home – Part 1
- 2.3. IPv6 Address Types and Scopes

Unit 3. IPv6 Protocols

- 3.1. Basic IPv6 Header
- Activity: Basic Headers
- 3.2. Multicast in IPv6
- 3.3. Deploying IPv6
- Activity: Path MTU Discovery

Unit 4. IPv6 Address Space

- 4.1. How to Get IPv6 Addresses from the RIPE NCC
- 4.2. Registering IPv6 Addresses in the RIPE Database
- Activity: Smart Home – Part 2
- Activity: Inet6num Status in the RIPE Database

Unit 5. IPv6 Deployment Strategies

- 5.1. Deployment Phases
- Activity: Case Scenario
- 5.2. Addressing Plans
- Activity: IPv6 Addressing Plan
- 5.3. Considerations for Network Services

Difficulty level:

Beginner ☆ - Intermediate ☆☆ - Advanced ☆☆☆

Note: Although this is considered a beginners' level course, the course does require prior knowledge on topics such as TCP/IP, binary/(hexa)decimal notation, CIDR, DHCP, NAT/CGN/LSN, ICMP, ARP, and DNS.

Webinars

- Introduction to IPv6 (☆ - 2 hours)
- IPv6 Host Configuration (☆☆ - 2 hours)
- IPv6 Addressing Plan (☆☆ - 2 hours)

Certified Professionals Exam

- IPv6 Fundamentals - Analyst (☆ - 1 hour)



Link to our course portfolio:



<https://tinyurl.com/5n9xjcta>

RIPE NCC Academy



- Launched in 2014
- Free for everyone
- Over a 100 self-paced modules
- 20-30 minutes per module
- Interactive, mix of text, videos, questions, hands on (lab) activities

The screenshot displays the RIPE NCC Academy website. At the top, there is a navigation bar with the RIPE NCC Academy logo and a user status indicator: "You are not logged in. (Log in)". Below the navigation bar is a large banner image of a person in a red jacket using a laptop outdoors. The main heading reads "Learn online with the RIPE NCC!". Below this, there is a sub-heading "Study at your own pace online with the RIPE NCC Academy e-learning courses." and a paragraph: "Create an account and enrol in the course of your choice. All courses are free, and you can follow them at your own pace. You can also study for a RIPE NCC Certified Professionals exam using these courses." Two orange buttons are present: "Enrol in a Course" and "Get Certified".

Below the banner is a section titled "Browse courses" with the sub-heading "E-Learning courses that go deep into one topic and will get you prepared for an exam." There are five course cards displayed:

- Internet Governance**: Learn how the Internet is governed and how you can be part of the process! This course will prepare you to participate in Internet governance processes and events and help bring to life your vision of what the Internet should be.
- BGP Security**: BGP is vulnerable. Analyse the threats to BGP and learn about the recommended security measures to protect your network against accidental and malicious misconfigurations. Gets you ready for the BGP Security - Associate exam.
- IPv6 Security**: Keep your IPv6 network secure. Learn to design a high-level strategy to protect your IPv6 infrastructure against common threats. Gets you ready for the IPv6 Security Expert exam.
- IPv6 Fundamentals**: Get started with IPv6. You will learn how IPv6 addresses work, how to subnet, best practices and IPv6-related RFCs among other topics. Gets you ready for the IPv6 Fundamentals - Analyst exam.
- RIPE Database**: Learn how the RIPE Database works. Practise querying, creating and updating objects. Understand database best-practices and more. Gets you ready for the RIPE Database Associate exam.

<https://academy.ripe.net>

RIPE NCC Academy



- Launched in 2014
- Free for everyone
- Over a 100 self-paced modules
- 20-30 minutes per module
- Interactive, mix of text, videos, questions, hands on (lab) activities

The screenshot shows the RIPE NCC Academy interface. At the top, there's a navigation bar with the RIPE NCC Academy logo and the name. Below it, the current module is identified as 'Module 3.1 - Basic IPv6 Header'. The main content area is titled 'Section 2 of 4' and 'IPv6 Extension Headers'. A horizontal line separates the title from the text below. The text explains that in IPv6, optional addressing and routing information is encoded in separate headers placed between the IPv6 header and the upper-layer PDU. These are called 'Extension Headers' and can be chained. A diagram below illustrates two examples: one with an IPv6 header (Next Header: TCP), a TCP Header, and Data; the other with an IPv6 header (Next Header: Routing), a Routing header (Next Header: TCP), a TCP Header, and Data. The bottom of the page shows navigation for 'Module 2.3 - IPv6 Address Types and Scopes' and 'Activity 3.a - Basic Headers'.

<https://academy.ripe.net>

RIPE NCC Academy



- Launched in 2014
- Free for everyone
- Over a 100 self-paced modules
- 20-30 minutes per module
- Interactive, mix of text, videos, questions, hands on (lab) activities

All the spam...

At Sandbox Inc. you keep receiving spam emails from the following IP address:

172.16.80.3

Find the abuse contact for this IP address in the [Training Database](#).

Type your text here

Submit

SANDBOX INC.

<https://academy.ripe.net>

RIPE NCC Academy



- Launched in 2014
- Free for everyone
- Over a 100 self-paced modules
- 20-30 minutes per module
- Interactive, mix of text, videos, questions, hands on (lab) activities

The screenshot displays the RIPE NCC Academy interface with three terminal windows and a list of available tools.

Host A: Shows a terminal session with commands like `alias alive2map.sh alive6`, `ping6 2001:db8:f:1:216:3eff:feee:b`, and `ping 2001:db8:f:1:216:3eff:feee:b`. It displays ICMP echo replies and ping statistics.

Host B: Shows a terminal session with Scapy commands like `a = IPv6(src="2001:db8:f:1:216:3eff:feee:b", ...)` and `b = ICMPv6GND_NS(tgt="2001:db8:f:1:216:3eff:feee:a")`.

Host C: Shows a terminal session with Termshark commands like `Filter: eth0` and a table of network traffic.

Available tools:

- Scapy
- THC-IPv6
- SI6 IPv6 Toolkit
- Termshark

Hints:

- Feel free to **resize terminal windows** by dragging (does not work in Safari)
- To scroll inside the tmux, use `Ctrl-B` and `PageUp/PageDown` (`Fn + Up/Down` on Mac)
- To open new tmux window, use `Ctrl-B c`

<https://academy.ripe.net>

Webinars



SHARE - JAD EL CHAM - RIPE NCC (PRESENTER)

Extension Headers Properties

- 1 Flexible (*use is optional*)
- 2 Only appear once (*except Destination options*)
- 3 Fixed (*types and order*)
- 4 Processed only at endpoints (*except Hop-by-Hop and Routing*)

12

VIDEO (1)
Jad El Cham - RI...

ATTENDEES (12)

- Hosts (2)
 - Jad El Cham - RIPE NCC (Host) 1)
 - Ondřej Caletka - RIPE NCC | Guest
- Presenters (1)
 - Jad El Cham - RIPE NCC (Presenter) | Guest
- Participants (9)

DOWNLOAD ME! - FILES SESSION 1

1. Basic IPv6 Protocol Security.pdf

USEFUL LINKS - SESSION 1

1. Provide Feedback
2. Download Scapy
3. The Hacker's Choice

CHAT

Everyone

Jad El Cham - RIPE NCC (Host): We should be we shall be starting shortly

Christian: all good

Andreas Lattka: Yes, all is fine

espen: all good

MORE VIDEOS

Q & A

No Questions Available

- 1-2 hour online live sessions

<https://learning.ripe.net>

From RIPE 87 onwards

- Gathered input from Academia about how to better work together
- Received input that integration with university LMSes is important
- We will establish LTI integration in our LMS
- Academic engagements

University of Kufa
Intro to Routing Security

December 2023

University of Doha (UDST)
Visited university and professors
and 2 student groups

February 2024

University of Crete
Intro to RPKI & Intro to IPv6

April 2024





Tell us how we can help you!

Takes about 3 minutes



ripe-ncc.typeform.com/academia