



IPv6

Advanced

Exam Guide



IPv6 Advanced - Exam Guide

Our IPv6 Advanced materials will provide a phased framework to design and plan an IPv6 deployment over different networking infrastructures, providing the tools to make decisions that best fit your case.

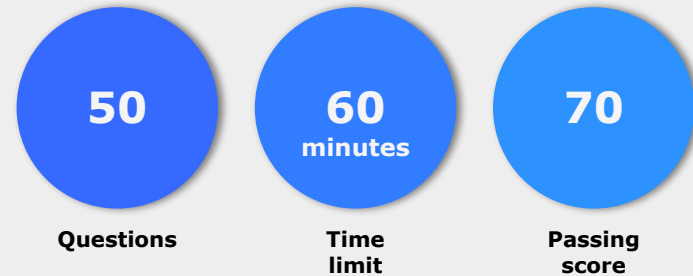
This exam is recommended for candidates who:

- Have at least six months of operational experience with IPv6, or;
- Have completed the RIPE NCC IPv6 Advanced e-learning course, optionally supplemented by the IPv6 Addressing Plan webinar or the in-person training course. Because this is an advanced-level exam, we recommend that you have already gained IPv6 Fundamentals-level knowledge before starting your studies.

The exam validates the ability to:

- Create a project plan and get approval for IPv6 deployment
- Design an IPv6 deployment strategy and get ready for deployment
- Design/plan IPv6 deployment in backbone networks (OSPFv3, IS-IS, BGP, MPLS, SRv6)
- Design/plan IPv6 deployment in access networks (in mobile + fixed access networks (including transition mechanisms)
- Design/plan IPv6 deployment in enterprise networks (multihoming, enterprise VPNs & SD-WAN)
- Design/plan IPv6 deployment in data centre and cloud networks (including DNS)
- Manage your IPv6 network (by troubleshooting and monitoring IPv6 networks)

Exam structure:



Each LIR receives **three** exam vouchers per year. Registered LIR contacts can claim these vouchers in the RIPE NCC Academy Dashboard.

Types of Questions



The exam contains different types of questions:

Multiple choice: Has one correct response and three incorrect responses.

Multiple response: Has two or more correct responses out of five or more alternatives.

Matching: Contains a list of items or statements that must be correctly matched to another list of items or statements.

Drag and drop: Drag words or images into gaps in a paragraph of text or a base image.

Unanswered questions are scored as incorrect.

Exam content distribution:

Domain	% of Exam
1. Get Approval for IPv6 Deployment	8%
2. Get Ready for IPv6 Deployment	18%
3. Deploy IPv6	66%
4. Manage IPv6 Networks	8%



How to study for the exam?

We offer several ways to help you prepare for the exam. Visit the RIPE NCC Academy to explore the available study options listed below.

[Go to the RIPE NCC Academy](#)

Relevant learning resources to study for the IPv6 Security exam

E-learning course

IPv6 Advanced

22h

Certification exam

IPv6 Advanced



In-person course

IPv6 Advanced

16h

Webinars

IPv6 Addressing Plan

1h

Taking our free online self-paced **IPv6 Advanced e-learning course** in the RIPE NCC Academy is the best way to prepare yourself for the IPv6 Fundamentals exam. The course consists of thirteen modules and eight activities and takes you about fifteen hours to complete.



Covers all exam knowledge and skills



Available for free for everyone

RIPE NCC members can attend an **in-person IPv6 Advanced course**. We offer courses throughout our service region, and attending a course is a great way to learn directly from our trainers and your peers.



Partially covers exam knowledge and skills



Available for members only

We also offer an **IPv6 Addressing Plan** webinar. Taking an RIPE NCC webinar is an easy way to interact directly with our trainers and ask them your questions!



Partially covers exam knowledge and skills



Available for free for everyone

Learning Resources



To pass the exam, you must demonstrate the minimum required level of knowledge, skills, and abilities listed below. The table on the next pages indicates the level of coverage provided by each learning resource (e-learning, in-person training, webinar) for each numbered learning objective. For the e-learning course, the module(s) where each learning objective is covered is also indicated.

1. Getting Approval for IPv6 Deployment

1.1 Getting the green light

1.1.1 Defend the need for IPv6 deployment

E-Learning
IPv6 Advanced
[22 hours]

Module 1.2

In-Person
IPv6 Advanced
[16 hours]

Yes

Webinar
IPv6 Addressing Plan
[1 hour]

1.2 Project planning

1.2.1 Identify the specific tasks associated with each phase of the recommended phased approach.

Module 1.1

Yes

1.2.1 Write an IPv6 deployment project plan.

Module 1.3

Yes



Learning Resources

2. Get Ready for IPv6 Deployment

2.1 Creating addressing plans

	E-Learning IPv6 Advanced [22 hours]	In-Person IPv6 Advanced [16 hours]	Webinar IPv6 Addressing Plan [1 hour]
2.1.1.1 Create an IPv6 addressing plan based on current and future needs, adhering to best practices	Module 2.1	Yes	Yes
2.1.1.2 Identify the main functionalities, benefits and drawbacks of IPAM tools	Module 2.2 (& Lab 2)	Yes	

2.2 Test environment

2.2.1 Identify the purpose and components of an IPv6 test environment	Module 2.3	Yes
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2.3 IPv6 transition strategies

2.3.1 Distinguish between the IPv6 transition strategy and access IPv6 transition mechanism	Module 2.3	Yes
2.3.2 Choose an IPv6 transition strategy depending on the network part and the benefits and drawbacks of each strategy	Module 2.3	Yes



3. Deploy IPv6

3.1 Backbone networks

	E-Learning IPv6 Advanced [22 hours]	In-Person IPv6 Advanced [16 hours]	Webinar IPv6 Addressing Plan [1 hour]
3.1.1 Describe how IPv6 is supported in OSPFv3	Module 3.1 (& Lab 3a)	Yes	
3.1.2 Describe how IPv6 is supported in IS-IS	Module 3.1	Yes	
3.1.3 Choose between IS-IS and OSPFv3 considering the provided network details	Module 3.1	Yes	
3.1.4 Describe how IPv6 is supported in BGP	Module 3.2 (& Lab 3b)	Yes	
3.1.5 Describe how IPv6 is supported in MPLS networks with the help of 6PE/6VPE	Module 3.3	Yes	
3.1.6 Describe how segment routing (SRv6) is implemented in IPv6 networks	Module 3.3	Yes	
3.1.7 Choose between 6PE/6VPE, LDPv6 and SRv6 considering the provided network details	Module 3.3	Yes	

3.2 Access networks

3.2.1 Describe the requirements for IPv6 deployment in a fixed broadband network	Module 4.1	Yes
3.2.2 Describe the requirements for IPv6 deployment in a mobile broadband network	Module 4.1	Yes



3.3. IPv6 transition mechanisms

3.3.1 Match the transition mechanisms with the related category (tunnelling, translating, dual stack mechanisms).

3.3.2 Describe how each IPv6 transition mechanism works (dual stack, 6RD, DS-LITE, Iw406, NAT64, 464XLAT, MAP-E and MAP-T)

3.3.3 Identify the benefits and drawbacks of each IPv6 transition mechanism.

E-Learning
IPv6 Advanced
[22 hours]

In-Person
IPv6 Advanced
[16 hours]

Webinar
IPv6 Addressing Plan
[1 hour]

Module 4.2

Yes

Module 4.2 (& Lab 4)

Yes

Module 4.2

Yes

3.4 Enterprise networks

3.4.1 Describe the requirements for IPv6 deployment in an enterprise network

3.4.2 Describe how IPv6 is supported in different operating systems

3.4.3 Choose the appropriate host IPv6 address configuration method

3.4.4 Explain how Happy Eyeballs works and why it is needed

3.4.5 Describe how IPv6 is supported in enterprise VPNs

3.4.6 Describe how IPv6 is supported in SD-WAN

3.4.7 Describe the approaches for IPv6 multihoming for Small Office Home Office (SOHO) enterprises

Module 5.1

Yes

Module 5.1

Yes

Module 5.1

Yes

Module 5.1

Yes

Module 5.2

Module 5.2

Module 5.2 (& Lab 5)

Yes



3.5. Data centre networks

	E-Learning IPv6 Advanced [22 hours]	In-Person IPv6 Advanced [16 hours]	Webinar IPv6 Addressing Plan [1 hour]
3.5.1 Describe the requirements for IPv6 deployment in a data centre network	Module 6.1 (& Lab 6)	Yes	
3.5.2 Choose the appropriate IPv6 deployment strategy based on the constraints in the data centre network	Module 6.1	Yes	

3.6 Cloud networks

3.6.1 Describe the requirements for IPv6 deployment in cloud networks	Module 6.1	Yes
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4. Manage IPv6 Networks

4.1 Troubleshooting

4.1.1 Choose the appropriate tools to troubleshoot problems in IPv6 networks	Module 7.1 (& Lab 7)	Yes
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4.2 Monitoring

4.1.2 Choose the appropriate tools to monitor IPv6 networks	Module 7.1	Yes
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Support

If you have any questions regarding the exam, please send an email to exams@ripe.net

Schedule Your Exam

To register for your exam, please visit exams.ripe.net

[Go to the RIPE NCC Academy](#)