

NRO RPKI Program

Securing the Internet routing system, together

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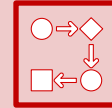
Agenda



PROGRAM
INTRO



PROGRAM TEAM



WHAT HAVE WE
BEEN WORKING
ON?



WHAT ARE WE
AIMING FOR IN
2025?









LEARN MORE
AND REACH OUT



Q&A

What's the NRO?



ABOUTACCOUNTABILITYINTERNET GOVERNANCETECHNICAL COORDINATIONPOLICYDOCUMENTS

MISSION

To actively contribute to an open, stable and secure internet, through:

Providing and promoting a coordinated Internet number registry system

Being an authoritative voice on the multi-stakeholder model and bottom-up policy process in Internet governance

Coordinating and supporting joint activities of the RIRs

- Agreement to work toward providing a robust, coordinated and secure RPKI service

- Purpose: **“To provide a more consistent and uniformly secure, resilient and reliable RPKI service”**

Why is this program important?

- It creates a space for structured **coordination and collaboration** on RPKI among the RIRs
- Current diversity/inconsistency among RIRs
 - In RPKI related services/features being offered
 - Hosted/delegated, testing env, API
 - In user experience
 - In API endpoints
 - In design decisions, implementations, etc.



E.g. Differences in the UI

Information Center - (Afrinic Ltd.)

Home > ROA > Add ROA

Add ROA

Please be patient while your transaction is being processed.

* Name: Please enter a unique ROA name. Spaces will be replaced by _.
RPKI_Course_ROA

Your AS Numbers: Please select your ASN from this list or enter any other valid ASN in the field below.
33764

* AS Number: 33764

IPv4 address range: Please select your prefix in the drop down list and click the 'v' button, then you can specify the details.
196.192.140.0/22

IPv4 prefixes: Please enter [Prefix] [Prefix Length] [Max Length] (Maximum length of more specific prefixes).
196.192.140.0 22 22

IPv6 address range: Please select your prefix in the drop down list and click the 'v' button, then you can specify the details.
2001:429::/40

IPv6 prefixes: Please enter [Prefix] [Prefix Length] [Max Length].
2001:429:: 40 40

* Not Valid Before (YYYY-MM-DD): 2022-01-07

* Not Valid After (YYYY-MM-DD): 2024-01-08

Cancel

Create route

Prefix: 2406:6400::/32

Origin AS: AS135541

Most specific announcement: /36

☒ ROA ☐ You are not permitted access to RPKI. Click [here](#) to enable two-factor authentication, which will allow you access to RPKI.

☐ Options ☐ Define Whois route attributes

☐ Notify additional contacts

ACCOUNT MANAGER

RPKI: Create ROA

Create route origin authorizations (ROAs) for the IP resources covered by your RPKI certificate.

Create a Route Origin Authorization (ROA)

*Origin AS: 38870

*Prefix: 168.112.112.0/24

*Max Length: 24

*Additional Prefix:

ROA Name: Optional. Provide a helpful nickname, such as DOOS_Mitigation

Next Step

A Route Origin Authorization (ROA) is a cryptographically signed object that states which Autonomous System (AS) is authorized to originate a particular prefix or set of prefixes.
For more information, visit ARIN's [Route Origin Authorization](#) documentation.

Inicio - Organización - RPKI

ROAs Create ROA / Create Route(s) CERTs

Create ROA / Create Route(s)

Para generar un ROA, debe ingresar un número de referencia, ingresar las fechas de validez inicial y final, el ASN de origen y los recursos de numeración que se le quieren asociar a este. Los bloques de direcciones IP que pueden ingresar son los que administramos. Si la organización está usando el RPKI, esta operación afectará los recursos asignados.

Nombre: ASIN: 0

Validez desde: 02/04/2021 Validez hasta: 02/06/2023

☒ ¿Extender la validez del ROA automáticamente?

#Este es un comentario

#Ejemplo
#192.0.2.0/24-30
#2000:0000:0000:0000::/48

#Recursos autorizados
#2001:219:252:0/22-32
#192.0.2.0/24-30

Guardar

RPKI Dashboard

9 CERTIFIED RESOURCES NO ALERT EMAIL CONFIGURED

41 BGP Announcements 4 ROAs

4 Valid 1 Invalid 36 Unknown 3 OK 1 Causing problems

BGP Announcements Route Origin Authorisations (ROAs) History

Create ROAs for selected BGP Announcements

Review and publish changes

Staged ROAs

Affected announcements

AS12654	2001:7fb:fe01::/48	← 48	UNKNOWN	→ VALID
AS12654	2001:7fb:fe0f::/48	← 48	UNKNOWN	→ VALID
AS12654	2001:7fb:fe0c::/48	← 48	UNKNOWN	→ VALID

Are those differences hindering the adoption of RPKI?

Program Team



The **NRO EC**, as the executive sponsor of the program, with a role of strategic goal prioritisation, approval and funding.



The NRO **RPKI Program Manager**, with a role of operational direction, oversight and support



The **RPKI Steering Group**, which includes RPKI experts from the five RIRs and has a role of specific direction and advise related to agreed objectives



Other RIR **RPKI Subject Matter Experts** (SMEs) and consultative groups, with a role of goal delivery and execution

RPKI Steering Group

Name	Title	RIR
Yogesh Chadee	Head of Value Added Services	AFRINIC
Anton Strydom	Director, Engineering	APNIC
Tom Harrison	Product and Delivery Manager - Registry Product	APNIC
Mark Kusters	Chief Technology Officer	ARIN
Brad Gorman	Senior Product Owner, Routing Security	ARIN
Carlos Martinez Cagnazzo	Chief Technology Officer	LACNIC
Jorge Cano	Senior Software Architect	LACNIC
Felipe Victolla Silveira	Chief Technology Officer	RIPE NCC
Tim Bruijnzeels	Principal Engineer RPKI	RIPE NCC



What have we been working on?

- **Better understanding of what a single, global RPKI system would look like**
 - Documentation of baseline for RPKI services/features offered by each RIR
 - User research with users interacting with multiple RIRs
 - Documentation of problem statement and exploration of solutions to improve current RPKI trust anchor configuration
- **Better measuring the robustness of the RPKI system as a whole**
 - Documentation of key aspects of robustness for each RIR
- **Keep the technical community informed and engaged throughout the program and to address RPKI-related concerns in a coordinated way**
 - Periodic progress updates at relevant events and through blog posts
 - Responded to community input in a coordinated way

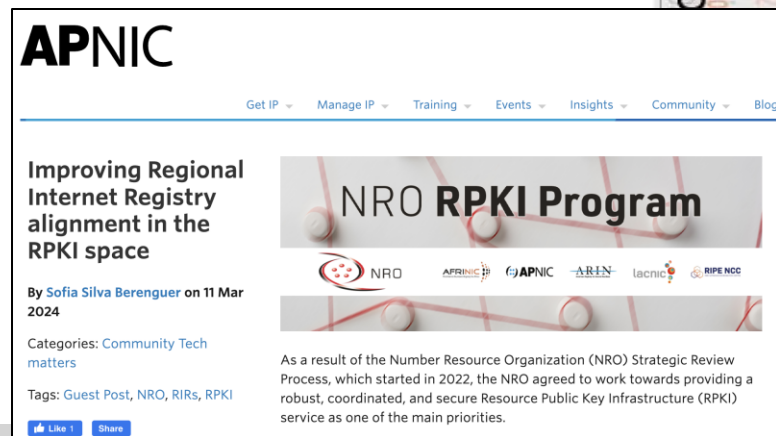
What are we aiming for in 2025?

- Progress towards improved transparency, robustness, and security of the RPKI system
- Increased consistency of the RPKI system user experience
- The technical community is kept informed and engaged throughout the program.

LEARN MORE AND REACH OUT

Do you want to know more?

- Visit our webpage:
 - https://www.nro.net/technical-coordination/security/certification/#rpki_program
- Read our blog series:
 - <https://blog.apnic.net/2024/03/11/improving-regional-internet-registry-alignment-in-the-rpki-space/>
 - <https://blog.apnic.net/2024/05/22/working-towards-a-coordinated-rpki-system/>
 - <https://blog.apnic.net/2024/08/26/are-differences-in-rir-rpki-implementations-hindering-rpki-adoption/>
 - <https://blog.apnic.net/2024/12/19/nro-rpki-program-2024-in-review/>



We want to hear from you!

- What are the **main barriers or obstacles** for RPKI adoption that could be solved (or at least improved!) through **better coordination and collaboration** among the RIRs?
- Are there **NIR Members** that also interact with other RIRs?
 - What challenges are they experiencing?
 - What are their expectations?
- Please reach out through rpki_program@nro.net

**THANKS FOR YOUR
ATTENTION!**

A large, three-dimensional white question mark is mounted on a vibrant orange wall. The question mark is composed of a large curved top and a rectangular base. The wall has a subtle texture, and the lighting creates soft shadows, giving the question mark a sense of depth. The bottom of the image shows a white baseboard and a wooden floor.

Number Resource Organization