Asosiasi Penyelenggara Jasa Internet Indonesia
INDONESIA INTERNET SERVICE PROVIDER ASSOCIATION

IDNIC indonesia network information centre

The Unknown Routes

Road To 100% RPKI ROA Coverage

NIR Workshop

Malaysia, 23rd Febuary 2025

Short Story

IIX (Indonesia Internet Exchange)

Is dropping RPKI Invalid!

Route Details - 203.119.13.0/24 as received from protocol pb_0079_as4622

Network	203.119.13.0/24
Gateway	123.108.8.3 PRIMARY
From Protocol	pb_0079_as4622
Age	2025-02-21 11:46:16
Metric	100
Type	BGP univ
BGP :: AS Path	4622
BGP :: Next Hop	123.108.8.3
BGP :: Local Pref	100
BGP :: Large Communities	7597:1000:1 RPKI VALID

Route Details - 103.144.90.0/23 as received from protocol pb_0012_as139981

Network	103.144.90.0/23
Gateway	123.108.8.86 NOT PRIMARY
From Protocol	pb_0012_as139981
Age	2025-02-21 12:31:35
Metric	100
Type	BGP univ
BGP :: AS Path	139981 139425
BGP :: Next Hop	123.108.8.86
BGP :: Local Pref	100
BGP :: Large Communities	7597:1101:10 RPKI Invalid

Short Story

IIX (Indonesia Internet Exchange)

Is dropping RPKI Invalid!

525
Peer

10.981
IPv4 Prefix

4512
IPv6 Prefix

IIX RPKI Statistic Feb 2023 (2 Years Ago)

ROA Coverage

only
40%
of advertised prefix

RPKI Invalid

only
1%
of advertised prefix

IIX RPKI Statistic Feb 2025 (Now)

ROA Coverage

85.5%
of advertised prefix

RPKI Invalid

only
1%
of advertised prefix

The Unknown Routes

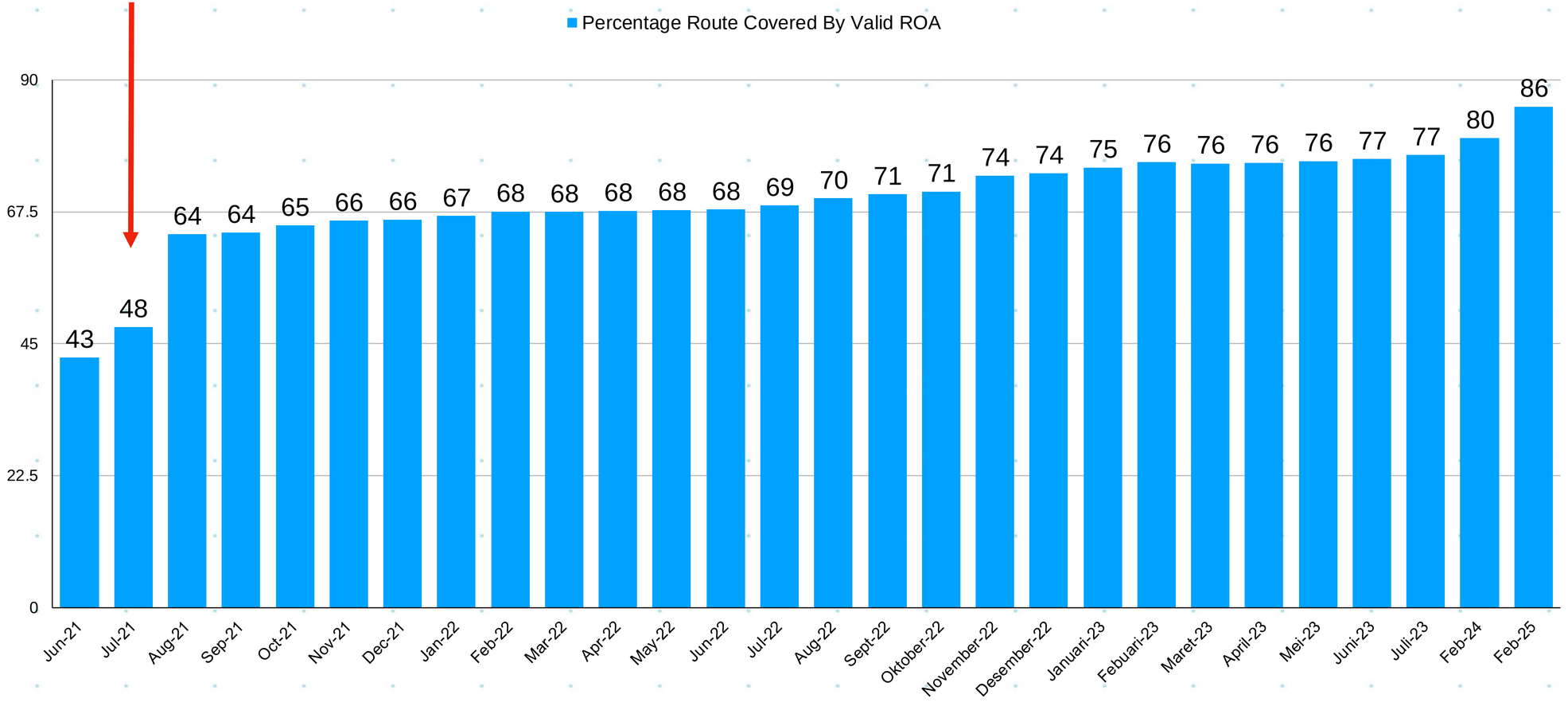
That means 60% (6.588) of prefix was in RPKI Unknown state

Dropping RPKI Invalid didn’t help prevent Route Leaks

and couldn’t protect most of IIX Peers

Indonesia RPKI Adoption

It was there 3 Years Ago



Road To 100% RPKI Adoption

Awareness

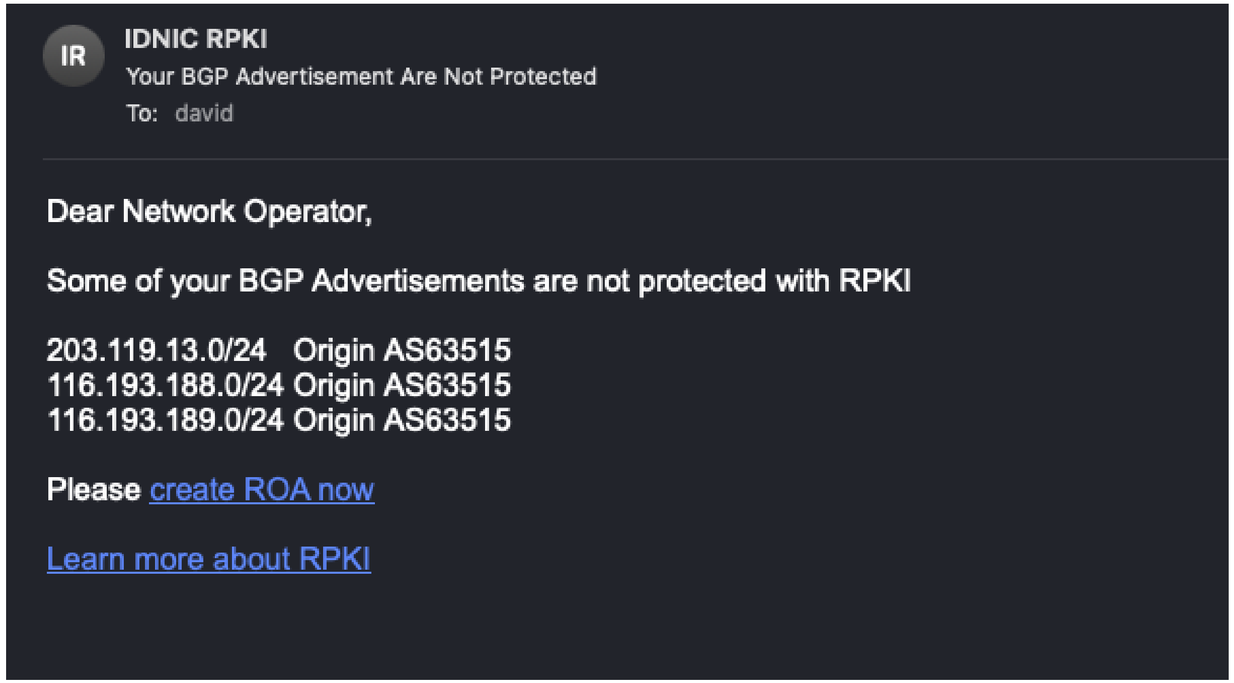
Facilitate

Monitoring

Increase RPKI Awareness

Workshop	Social Media	Direct Approach ✓
90% Conversion Rate	55% Conversion Rate	70% Conversion Rate
235 ROA Created	42 ROA Created	3641 ROA Created

Increase RPKI Awareness



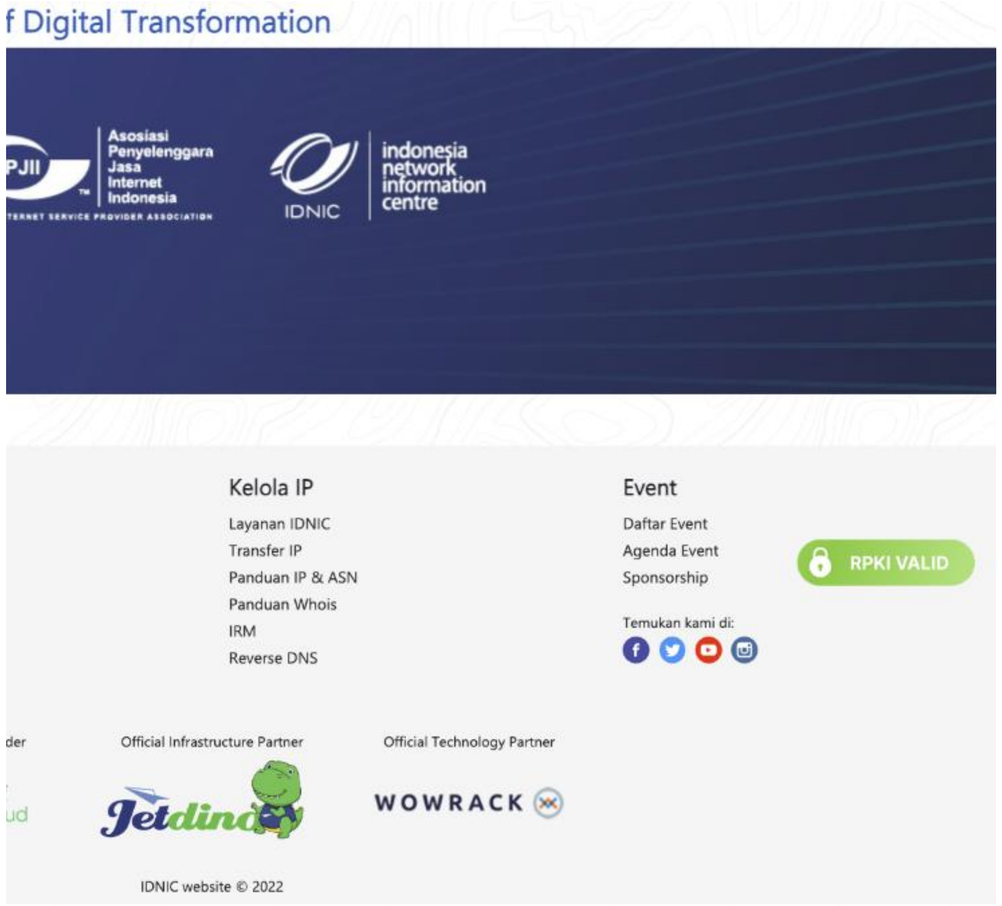
Direct email to IDNIC member, to warn that their BGP Advertisement isn’t secure

Increase RPKI Awareness

RPKI Badge

Badge on IDNIC Website, showing whether client IP has ROA or not

Increase RPKI Awareness



Embeddable RPKI Badge

Embeddable RPKI Badge, designed for member website. I will reflect website owner RPKI ROA status.

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indonesia network information centre
IDNIC

IDNIC

RPKI Repo Stats

Median of Rsync

125 RPS

Median of RRDP

431 RPS

Running RPKI Publication is a big responsibility.

Network Peak Traffic

515 Mbps

Avg CPU Usage

10%

Avg Memory Usage

34%

Runs On

CPU

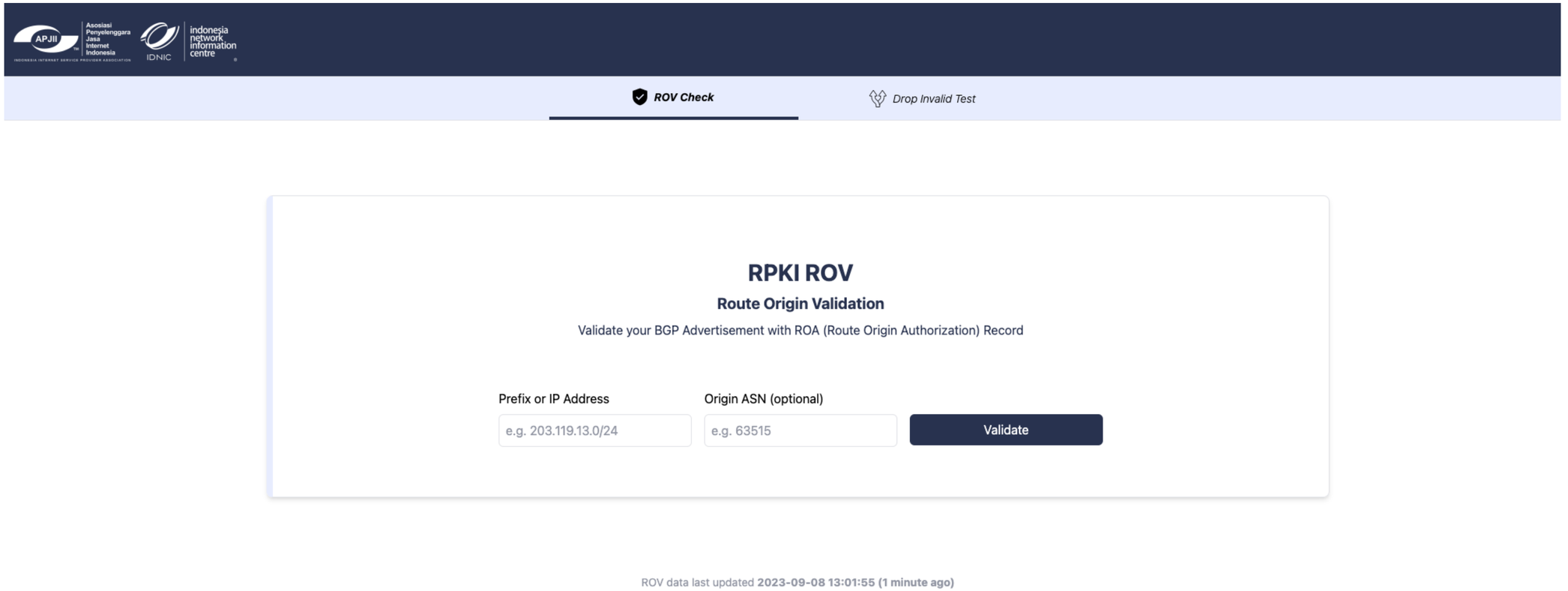
16 Core

RAM

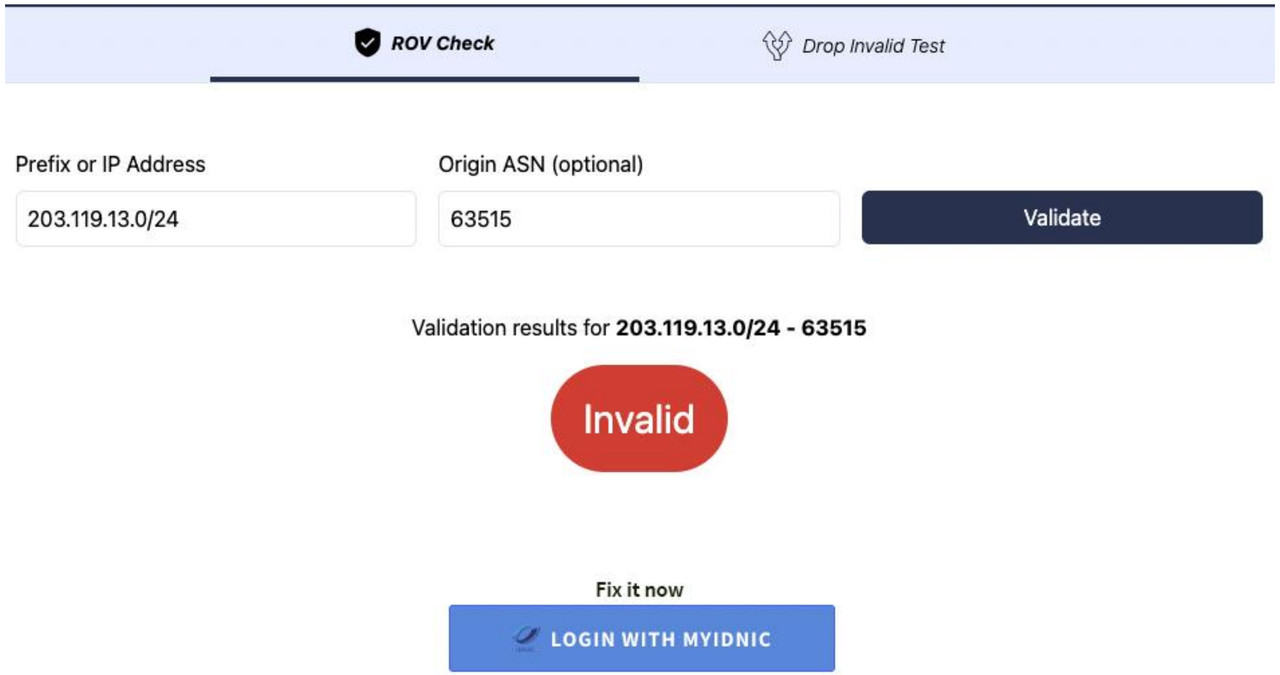
16Gb

PRO Tip: Use CDN

RPKI Tools


ROV Check
Drop Invalid Test
RPKI ROV
Route Origin Validation
Validate your BGP Advertisement with ROA (Route Origin Authorization) Record
Prefix or IP Address
e.g. 203.119.13.0/24
Origin ASN (optional)
e.g. 63515
Validate
ROV data last updated 2023-09-08 13:01:55 (1 minute ago)

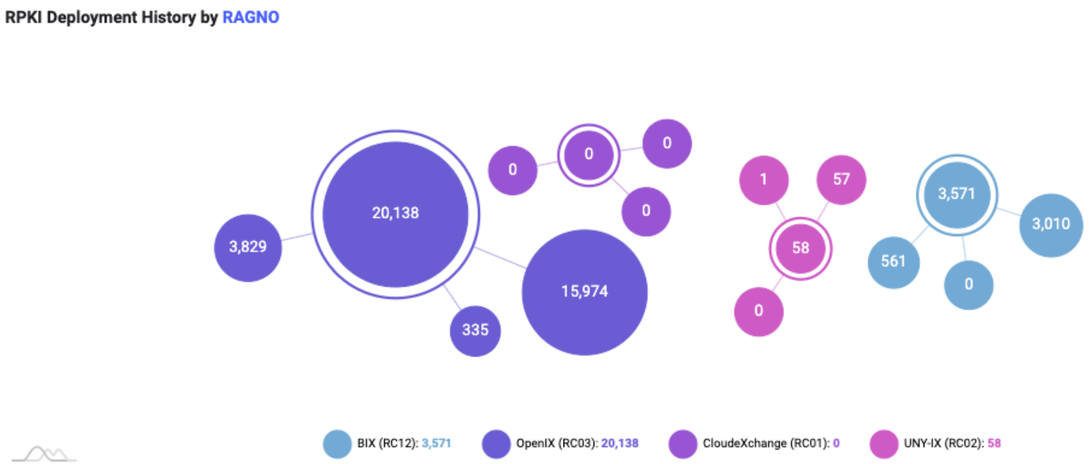
RPKI Tools

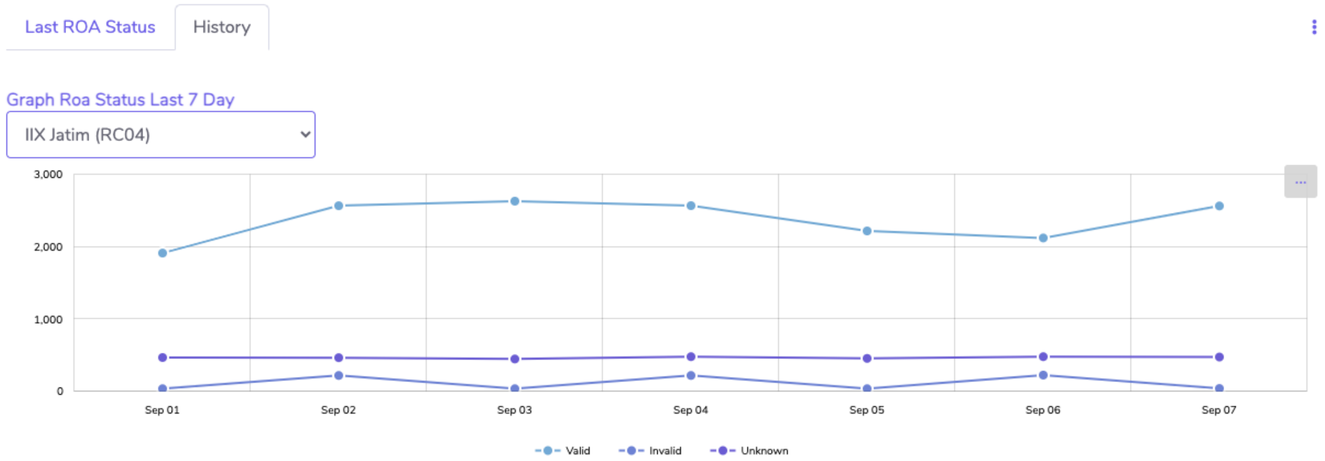


Action button to directly fix Invalid / Unknown ROA

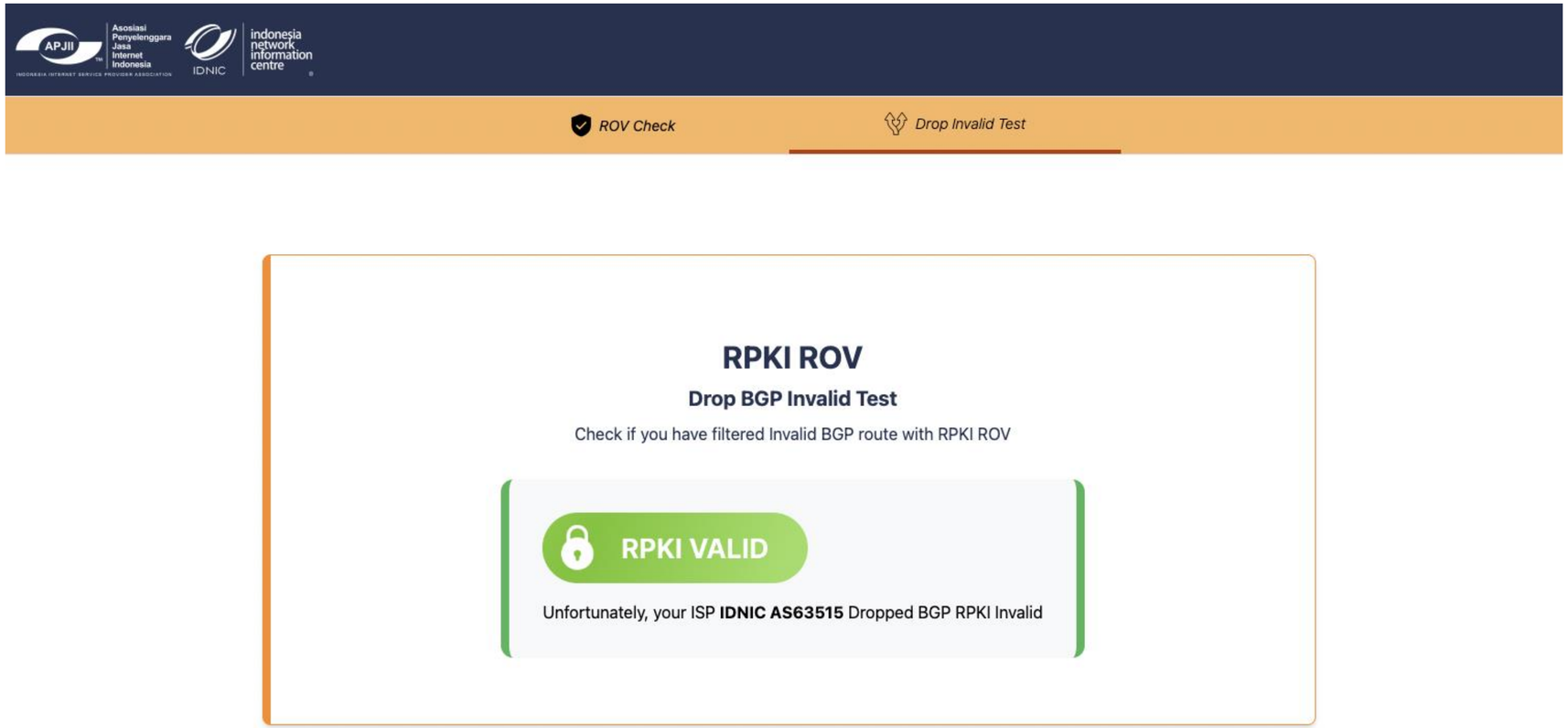
RPKI Monitoring

Monitor RPKI Progress in Internet Exchange Level





The Next Step



The Next Step

RPKI Drop Invalid Test - Share to Social Media