

# The Usage of Maxlength

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# Default Behavior: ROV

Default behavior – something that works in most cases.

The recommended default behavior for ROV – reject invalids.

# When Route Becomes Invalid?

If the set of candidate ROAs is not empty **AND** none of candidate ROAs:

- Has asID value that matches the origin AS;
- Has maxlen higher or equal then the prefix length.

# When Route Becomes Invalid?

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- Has maxlength higher or equal then the prefix length.

Does it really work out of the box in most cases?

# Hosted CA

RIPE – suggests maxlength equal to the current prefix length;

APNIC – suggests maxlength equal to the current prefix length;

ARIN – TBD;

AFNIC – suggests maxlength equal to the current prefix length;

LACNIC – hosted ROAs are not available;

# Maxlength & Invalids: Reject by Default?

- Ingress filtering
  - works by default for leafs;
  - doesn't work by default for transit ISPs (blackhole, etc.);
- Egress filtering
  - works by default for Tier1;
  - doesn't work by default for everybody else (blackhole, etc.);

# Security Perspective: ROA + ASPA

	BGP Hijacks	BGP Route Leaks
Mistake	ROA	ASPA
Malicious	ROA + ASPA	ROA + ASPA

In perfect world maxlength is not needed to fight malicious activity

# Security Perspective: Partial Adoption

- What if you specified maxlength=23 (or smaller);
- What if your upstream provider is rejecting invalids;
- What if somebody announces /24, even with invalid ASN;
- And invalid route is propagated, and thus preferred;
- What you will do? (accept postmortem)

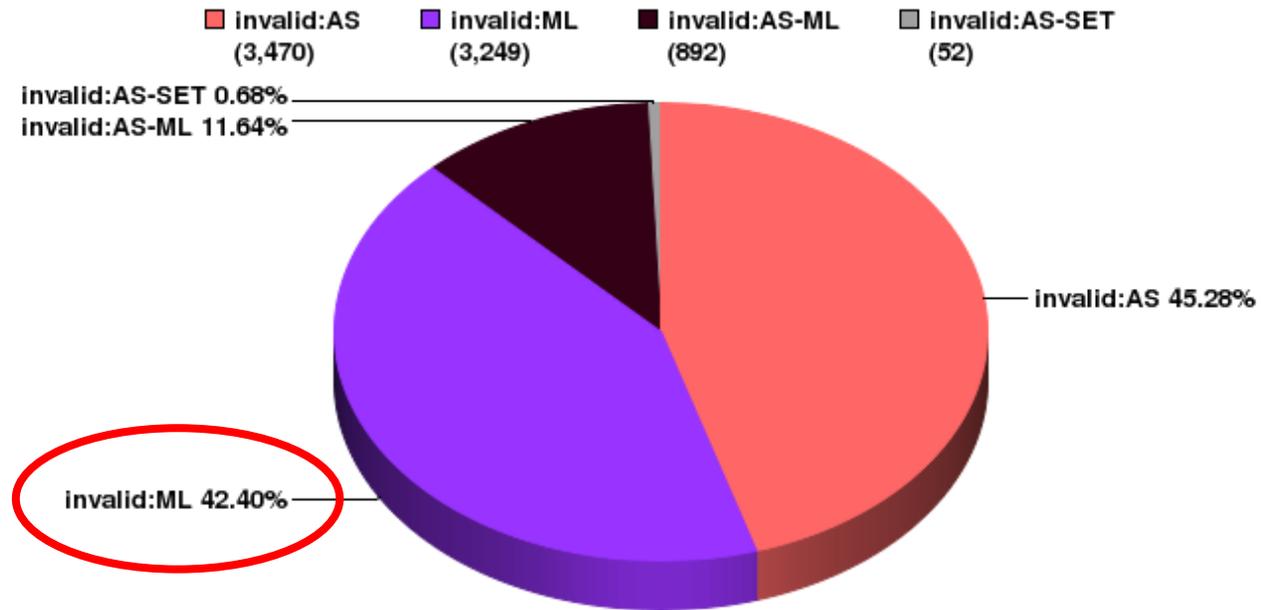
# Maxlength: Is It working by default?

- Ingress filtering
  - works by default for leafs;
  - doesn't work by default for transit (blackhole, etc.);
- Egress filtering
  - works by default for Tier1;
  - doesn't work by default for everybody else (blackhole, etc.);
- Security risks at the state of partial adoption;

# Invalids & Maxlength

## Global: Detailed Validation Results for 'Invalid'

7,663 Unique IPv4 Prefix/Origin Pairs



# Question to WG

Some networks are setting maxlength to /32, /128;  
Other networks are already crafting RPKI-cache to increase maxlength;  
Significant number of networks are using defaults from RIRs portals.

Ignore? Accuse? Lead?