

Date: 21 July 2021

From: Co-chairs, AFRINIC Policy Development Working Group

To: AFRINIC Board of Directors

SUBJECT: REPORT ON THE POLICY PROPOSAL” RPKI ROAs for Unallocated and Unassigned AFRINIC Address Space”, AFPUB-2019-GEN-006-DRAFT03.

Introduction

In line with the Policy Development Process as documented in the Consolidate Policy Manual, we take note that the above-mentioned policy proposal attained rough consensus at the last Public Policy Meeting held in online format, 02-03 June 2021, during the AFRINIC-33 meeting.

As Co-chairs, we believe that the current version of the proposal (*version 3*) addresses concerns and observations made by interested community members that participated in discussions during the life cycle of the proposal since the first draft. The last call period was concluded on **Saturday 3rd July 2021 at 2359UTC.**

The table below shows the milestones in the policy proposal progress:

Date	Milestone/Activity
4 November 2019	The proposal was received on pdwg@afnic.net
5 November 2019	The proposal was posted to the RPD mailing list by the author https://lists.afnic.net/pipermail/rpd/2019/010043.html
	The policy proposal was given the ID <AF PUB-2019-GEN-006-DRAFT01> and posted on website https://afnic.net/policy/proposals/2019-gen-006-d1
11 November 2019	An announcement was made on the RPD mailing list https://lists.afnic.net/pipermail/rpd/2019/010125.html
4 December 2019	Proposal with ID <AF PUB-2019-GEN-006-DRAFT01> was presented and discussed at the AFRINIC-31 Public Policy Meeting. The PDWG Chairs announced that the policy proposal reached rough consensus. https://afnic.net/policy/development-working-group/ppm-afnic-31

29 January 2021	End of Last Call. The PDWG Chairs announced that some critical objections that should be addressed had been raised and thus the policy proposal was sent back to RPD mailing list for further discussion https://lists.afrinic.net/pipermail/rpd/2020/010326.html
30 July 2020	The Author(s) submitted a revised policy proposal, subsequently IDed as AFPUB-2019-GEN-006-DRAFT02
18 Aug 2020	AFRINIC published the Impact Assessment of the proposal on the website https://afrinic.net/policy/proposals/2019-gen-006-d2#impact
17 Sep 2020	Proposal with ID < AFPUB-2019-GEN-006-DRAFT02 > was presented and discussed at the <i>AFRINIC-32</i> Public Policy Meeting.
17 Sep 2020	Co-Chair decision: The proposal requires additional discussion and is sent back to the discussion stage on the RPD mailing list.
19 April 2021	The Author(s) submitted a revised proposal, subsequently IDed as AFPUB-2019-GEN-006-DRAFT03
23 April 2021	The proposal was posted to the RPD mailing list by the author https://lists.afrinic.net/pipermail/rpd/2021/013141.html
	AFPUB-2019-GEN-006-DRAFT03 was published on the AFRINIC website https://afrinic.net/policy/proposals/2019-gen-006-d3#proposal
29 April 2021	A new policy proposal was announced on the RPD mailing list on https://lists.afrinic.net/pipermail/rpd/2021/013159.html
3 June 2021	Proposal with ID < AFPUB-2019-GEN-006-DRAFT03 > was presented and discussed at the <i>AFRINIC-33</i> Public Policy Meeting.
3 June 2021	PDWG Chairs announced that rough consensus had been reached for the proposal AFPUB-2019-GEN-006-DRAFT03
4 June 2021	The start of the “last-call” period was announced by the Co-chairs. https://lists.afrinic.net/pipermail/rpd/2021/013214.html
8 June 2021	Reminder from PDWG Chairs to the Working Group that Last Call will end on 19 June 2021 https://lists.afrinic.net/pipermail/rpd/2021/013273.html
17 June 2021	Last Call was extended until 3 July 2021 https://lists.afrinic.net/pipermail/rpd/2021/013339.html
23 July 2021	End of Last Call Announcements and the decision of the AFRINIC PDWG Co-chairs was that there was consensus.

Additional Notes

The AFRINIC PDWG Co-chairs have gone through the discussions on the RPD mailing list during the Last Call and prepared this report. As supporting documentation, the summary of the assessment conducted is as follows:

Summary of the assessment

1. The assessments of the discussions in the PDWG before the AFRINIC-33 PPM are summarized in Table 1 below.

Concerns	Addressed/ Pending	Notes
I believe this policy would extend AFRINIC's power way beyond its control. AFRINIC is a registration entity and should not have authority over RPKI.	Addressed	Technical Understanding of RPKI. https://lists.afrinic.net/pipermail/rpd/2020/011240.html
It is going to create a centralization on the control of the internet which can result in an abuse of power. the risk of Internet centralization and undermine the legitimacy of AFRINIC as an impartial institution.	Addressed	https://lists.afrinic.net/pipermail/rpd/2020/011240.html
The current state of the RPKI infrastructure does not provide	Addressed	According to staff https://lists.afrinic.net/pipermail/rpd/2020/011348.html It will take 1 day.

<p>a sufficient period between revocation of ROA and notification that a given prefix has been allocated to an organization which can have a huge effect on the allocation It takes time to revoke AS0 state for one IP address, not to mention many of the resources are allocated in blocks. So it will be extremely inconvenient to the end-users and ISPs if their network takes a very long period to “recover”. Is the imperviousness of the current proposed policy when it comes to human/computer error when revoking the AS0 state.</p>		
<p>Policy that potentially asks AFRINIC to proactively interfere with routing</p>	<p>Addressed</p>	<p>AFRINIC is *only* providing a service, like the WHOIS, to provide accuracy of what resources have been allocated to members and what are unallocated.</p>

Table 1

2. During the Last Call Period, the PDWG actively discussed this proposal. A summary of the concerns/objections raised are shown in Table 2 below.

Concerns	Addressed/ Pending/ Invalid/ Operational	Notes
<p>In a situation where, due to human or machine error AS0 is injected by AFRINIC on already assigned resources, and expectedly this result in service disconnection, thus DOS, causing an SLA breach with service end users. *Who bears the final brunt for the consequences (e.g.poor QoS, fines, revenue cut, and loss of customers), Afrinic or resource owner?*</p>	<p>Addressed</p>	<p>https://www.afrinic.net/policy/proposals/2019-gen-006-d3#impact</p> <p>“unallocated and unassigned space here means available and reserved space as per the AFRINIC extended delegated stats file.”</p> <p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p> <p>Author https://lists.afrinic.net/pipermail/rpd/2021/013223.html</p>
<p>It is simply not in AFRINIC’s mandate to inject data into the routing database.</p> <p>Plus, the following concern that has been raised during the meeting still remains unaddressed:</p>	<p>Addressed</p> <p>Addressed</p>	<p>Contribution from Amreesh https://lists.afrinic.net/pipermail/rpd/2021/013224.html</p> <p>https://lists.afrinic.net/pipermail/rpd/2021/013225.html</p>

<p>how does this policy prevent hijacking as it's intended to do?</p>		
<p>An additional risk to consider about inviting RIRs into routing process is the possibility of malicious targeted "errors" which can be perpetrated by compromised members of staff.</p>	<p>Addressed</p>	<p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p>
<p>Cause not only is the injection of data like the AS0 into the Routing tools: Routing Database and RPKI outside the AFRINIC's scope, we should be aware that in cases of human or machine, it is going to lead to the loss of connection. I don't see how this is going to prevent hijackers from conducting or carrying out what they want to do.</p>	<p>Operational</p>	<p>Contribution from Amreesh https://lists.afrinic.net/pipermail/rpd/2021/013224.html</p> <p>https://www.afrinic.net/policy/proposals/2019-gen-006-d3#impact</p> <p>"unallocated and unassigned space here means available and reserved space as per the AFRINIC extended delegated stats file."</p> <p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p> <p>https://lists.afrinic.net/pipermail/rpd/2021/013239.html</p>
<p>Injecting it into the routing tool is something that is out of AFRINIC's scope. Additionally, although you have the liberty to choose whether to accept RPKI</p>	<p>Addressed</p>	<p>https://lists.afrinic.net/pipermail/rpd/2021/013224.html</p>

<p>or reject it, in case the policy gets ratified, you are clearly *accepting* RPKI with injected data, without an option to withdraw it.</p>		
<p>My issue with this proposal is the reclamation statement which I reiterated in the chat in the meeting that it looks too ambiguous. When it comes to reclamation there are grey and contentious areas that I think should not be attributed with this policy.</p>	<p>Addressed</p>	<p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p> <p>Mail from Jordi https://lists.afrinic.net/pipermail/rpd/2021/013259.html</p> <p>Mail from Nishal https://lists.afrinic.net/pipermail/rpd/2021/013311.html</p>
<p>What is really bothering me is that RIR is injecting its own data into RPKI, which makes the previous argument about how signing space is invalid.</p> <p>Further, the usage of RPKI will lead to AS0 all unallocated space for you. Consequently, the routing changes.</p>	<p>Addressed</p> <p>Ambiguous concern/object ion.</p>	<p>https://lists.afrinic.net/pipermail/rpd/2021/013224.html</p>
<p>Personally, I see the fact as there is no clear</p>	<p>Addressed</p>	<p>AFRINIC Policy Impact Assessment https://www.afrinic.net/policy/proposals/2019-gen-006-d3#impact</p>

<p>timeline - in policy - to when the ASO should be removed for reacquired resources</p> <p>.... or in the case of wrongfully assignment of ASO.</p> <p>I see a bigger picture where “wrong assignment” of ASO to “disliked” resource holder resources will be a norm. More especially as there is no stated timeline for this resolve.</p>	<p>Addressed</p>	<p>Mail from Jordi https://lists.afrinic.net/pipermail/rpd/2021/013277.html ““This and other operational details are left to the discretion of AFRINIC”.”</p> <p>https://lists.afrinic.net/pipermail/rpd/2021/013217.html</p> <p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p>
<p>The ultimate consequences is that certain types of disputes between members and AFRINIC will result in severe connectivity problems for the member.</p> <p>The member suddenly might find themselves in a situation where not only the AFRINIC registration of IP addresses falters (a serious problem), but additionally the member's</p>	<p>Addressed</p>	<p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p>

<p>internet connectivity is forcefully taken offline (an even bigger problem!)</p>		
<p>Any mistake AFRINIC makes in the ASO publication will result in significant problems for third parties. (Possibly outside AFRINIC region)</p>	<p>Addressed Operational</p>	<p>https://lists.afrinic.net/pipermail/rpd/2021/013307.html https://lists.afrinic.net/pipermail/rpd/2021/013311.html Staff Impact Assessment https://www.afrinic.net/policy/proposals/2019-gen-006-d3#impact</p>
<p>The draft policy *does not* mandate that a separate TA be used. I have previously suggested that this should be mandated in the policy, but this was not done.</p> <p>As long as the draft merely says that a different TA *could* be used, defences in this vein are bogus.</p>	<p>Addressed</p>	<p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html Staff Impact Assessment https://www.afrinic.net/policy/proposals/2019-gen-006-d3#impact</p>
<p>No, it is not possible to eliminate the potential for conflict between resource holders and AFRINIC.</p> <p>Some scenarios that I can anticipate:</p>	<p>Addressed (Operational)</p>	<p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html Mail from Nishal https://lists.afrinic.net/pipermail/rpd/2021/013306.html</p>

<ul style="list-style-type: none"> - Sanctions actions - Ex-parte injunctions - Banking/payment clearance disruptions - Bona fide disputes arising from the RSA - Bona fide disputes arising from the CPM - Administrative error <p>... and probably many more that I have not thought of.</p> <p>This policy elevates each one from an administrative inconvenience to a DOS at the scale of (potentially) millions of Internet users.</p>		
<p>Implementing this policy does present the potential to introduce some risk in the RPKI system operated by AFRINIC.</p>	<p>Addressed</p>	<p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p> <p>Mail from Nishal https://lists.afrinic.net/pipermail/rpd/2021/013335.html</p>
<p>This proposal suggests a solution which *could* lead to the opposite, almost in a non-recoverable way. We have already today seen</p>	<p>Addressed</p> <p>Operational</p>	<p>https://lists.afrinic.net/pipermail/rpd/2021/013311.html</p> <p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p>

<p>examples where ROAs has been revoked due to the fact that there has been error in the billing process. Imagine that error, or any other similar error, that would automatically create AS0 ROAs for space can be disastrous</p>		
<p>“that this policy does not provide adequate compensation, prompting us to ask the following questions: who will ensure that the asset value of intellectual property is preserved and properly protected, and who will be ultimately responsible for the financial consequences of anything that goes wrong with this policy?”</p>	<p>Addressed</p>	<p>Staff Impact Assessment https://www.afrinic.net/policy/proposals/2019-gen-006-d3#impact</p> <p>“unallocated and unassigned space here means available and reserved space as per the AFRINIC extended delegated stats file.”</p> <p>https://lists.afrinic.net/pipermail/rpd/2021/013307.html</p> <p>https://lists.afrinic.net/pipermail/rpd/2021/013311.html</p> <p>Mail from AFRINIC https://lists.afrinic.net/pipermail/rpd/2021/013399.html</p>

Table 2

Conclusion and Recommendation

Based on the above information, we advise the AFRINIC Board to ratify the draft policy proposal at its earliest convenience.

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AFRINIC PDWG CO-CHAIRS