

Analysis of recent .LR DNSSEC outage

Outside view.

Inside view can be explored from post-mortem at <https://archive.psg.com/240614.dns-post-mortem>

Timings and data from DNSviz analysis

lr. NS ns-lr.afrinic.net. [s01-ns2.cinx, s01-ns2.pkl, s03-ns2.iso]
lr. NS fork.sth.dnsnode.net. [u3.stu, u3.sub]
lr. NS rip.psg.com. [rip.psg.com]

[Before the outage]

[2024-03-27 01:01:22 UTC](#)

DS with SHA1 in root zone

Serial: 1711158309 & 1710801441

KSK: 29984

ZSK: 31398 & 36070

Valid signature on DNSKEY RRSET by KSK seen at rip.psg.com and fork.sth.dnsnode.net

Expiration 20240401023440

Inception 20240318010440

Valid signature on SOA by ZSK 36070 seen at rip.psg.com and fork.sth.dnsnode.net

Expiration 202404060

Inception 14530 20240323001530

Valid signature on SOA by ZSK 31398 seen at rip.psg.com and fork.sth.dnsnode.net

Expiration 20240406014530

Inception 20240323001530

Valid signature on DNSKEY RRSET by KSK seen at ns-lr.afrinic.net

Expiration 20240401153733

Inception 20240318143721

ZSK (31398) not in responses from ns-lr.afrinic.net

Valid signature on SOA by ZSK 36070 seen at ns-lr.afrinic.net

Expiration 20240402085554

Inception 20240318213721

Status

Zone: secure

Zone consistency issue

[After the beginning of the outage]

[2024-06-10 19:56:39 UTC](#) [Do]

Serial : 17 18 04 91 07

KSK : 29984

No signature seen at rip.psg.com and fork.sth.dnsnode.net.

Valid Signature on DNSKEY RRSET by KSK seen at ns-lr.afrrinic.net

Expiration 20240624195147

Inception 20240610182147

Status

Zone: bogus

Zero ZSK

Valid signature on the DNSKEY RRSET seen at ns-ls.afrrinic.net

No signature on RRETS by ZSK

[2024-06-12 03:30:53 UTC](#) [Do + 1 day, 7 hours, 34 minutes, and 14 seconds]

Serial: 17 18 16 27 62

KSK: 29984 & 23689

ZSK: 42940

Invalid signature by KSK (29984) on DNSKEY RRSET seen at ns-lr.afrrinic.net

Expiration 20240626012025

Inception 20240611235025

Valid signature by KSK (29984) on DNSKEY RRSET seen at ns-lr.afrrinic.net

Expiration 20240626032602

Inception 20240612015602

Valid Signature by KSK (23689) on DNSKEY RRSET seen at ns-lr.afrrinic.net

Expiration 20240626032602

Inception 20240612015602

Status

Zone: bogus

Signature on DNSKEY RRSET restored (Valid)

Invalid signature on DNSKEY RRSET seen at ns-lr.afrrinic.net

No signature on RRETS by ZSK

[2024-06-12 21:34:29 UTC](#) [Do + 2 days, 1 hour, 37 minutes, and 50 seconds]

Serial: 17 18 22 58 94

KSK: 29984

ZSK: 42940

Invalid signature by KSK (29984) on DNSKEY RRSET seen at ns-lr.afrinic.net and fork.sth.dnsnode.net.

Expiration 20240626012025

Inception 20240611235025

Valid signature by KSK (29984) on DNSKEY RRSET seen at all NS

Expiration 20240626205813

Inception 20240612192813

Valid signature by ZSK (42940) on SOA RRSET seen at all NS

Expiration 20240626205813

Inception 20240612192813

Status

Zone bogus

Signature on DNSKEY RRSET restored

Invalid signature seen at ns-lr.afrinic.net and fork.sth.dnsnode.net

[2024-06-13 10:36:25 UTC](#) [Do + 2 days, 14 hours, 39 minutes, and 46 seconds]

Serial: 1718251170

KSK: 29984

ZSK: 42940

Invalid signature by KSK (29984) on DNSKEY RRSET seen at ns-lr.afrinic.net

Expiration 20240626012025

Inception 20240611235025

Valid signature by KSK (29984) on DNSKEY RRSET seen at all NS

Expiration 20240626205813

Inception 20240612192813

Valid signature by ZSK (42940) on SOA RRSET seen at all NS

Expiration 20240627040056

Inception 20240613023056

Status

Zone: Secured

Invalid signature seen at ns-lr.afrinic.net

[2024-06-15 09:51:51 UTC](#) [Do + 4 days, 13 hours, 55 minutes, and 12 seconds]

Serial: 1718403068

KSK: 29984

ZSK: 42940

Valid signature by KSK (29984) on DNSKEY RRSET seen at all NS

Expiration 20240628221104

Inception 20240614204104

Valid signature by ZSK (42940) on SOA RRSET seen at all NS

Expiration 20240628221104

Inception 20240614204104

Status

Zone: Secure