Monitoring, Testing, and Deployment of RPKI Using RTRlib and RPKI MIRO

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RTRlib: In a Nutshell

General objective
• Highly efficient implementation of RPKI-RTR client protocol
• C library for RPKI prefix origin validation

Details
• Fetch validated prefixes + origin ASes from RPKI cache
• Keep the routers validation database in sync
• Provide an interface between local database and routing daemon to access validated objects
• Allow also for validation of BGP updates
• Fully compliant with all relevant IETF RFCs/drafts

It’s open-source!
http://rtrlib.realmv6.org
https://github.com/rtrlib/rtrlib/
RTRlib in the RPKI Architecture
Applications Using RTRlib

Open Source BGP Daemons + RPKI Origin Validation

• Quagga
  – Fork will be integrated in the master branch soon
• BIRD
  – External CLI, as well as
  – Integration in main BIRD source code, should be available w/ next release

Example Monitoring Tools

• REST BGP RPKI Validator
• RPKI Web Browser Plugin
• Support in CAIDA BGPStream
• Advantage using RTRlib underneath:
  Independent of specific cache server
RTRlib: Live Monitoring of Origin Validation

**Objective:** Emulate origin validation of your BGP peer

**Setup – No Firmware Changes at Your Router:**
- Tools: RTRlib + Python Script + BGPMon
- Establish peering between your router and BGPMon

Demo
http://rpki-read.realmv6.org
RPKI MIRO: In a Nutshell

General objective
• Monitoring and Inspection of RPKI Objects

Details
• Functions to collect RPKI data from remote repositories
• An intuitive browser to visualize RPKI objects
• Statistical analysis of the collected objects.

It’s open-source!
http://rpki-miro.realmv6.org
https://github.com/rpki-miro/
RPKI MIRO in the RPKI Architecture
RPKI MIRO: Browser

Try it!
rpki-browser.realmv6.org
RPKI MIRO: Stats

- RPKI MIRO allows for distributed RPKI probes
- Fetching RPKI objects
  - Currently, only rsync support
  - Support for delta protocol on the way
- We can add your CA, let us know!
Contact

RTRlib (and integrations in Quagga, BIRD, and CAIDA BGPStream)
• http://rtrlib.realmv6.org
• http://rpki-read.realmv6.org
• https://github.com/rtrlib

RPKI MIRO
• http://rpki-miro.realmv6.org
• http://rpki-browser.realmv6.org
• https://github.com/rpki-miro

Email: m.waehlisch@fu-berlin.de :: http://www.inf.fu-berlin.de/~waehl
BACKUP
RTRlib: Memory Consumption

RTRlib: Delay While Loading ROA Data