RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Country Codes in the Extended Delegated Statistics and the RIPE Database

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Why this presentation?

- **In general, the country code refers to the country where the network is located**
- **But, what does that actually mean?**
  - A network can be spread over multiple countries
  - Today it can be in one country, tomorrow in another
  - We accept what the user tells us without any verification
- **Scope: IPv4/IPv6 Allocations and PI assignments**
- **Inconsistencies with other RIR regions**
  - Most RIRs use legal country

Why this presentation? (2)

- **Until recently, the location of the network and legal presence matched each other in most cases**
- **Growing number of out-of-region members**
- **Increase in requests to update the country code in Extended Delegated Statistics**
  - Out-of-region country codes increasing
- **People start using country code for other purposes, e.g. commercial purposes, leading to inaccurate data**

Example

- **LIR requests country code to be changed from one in RIPE region to one in APNIC region**
- **Inter-RIR transfer?**
  - Network location does not change but customers have issues with some applications based on restrictions on the country
- **Country code updated as requested**
- **Some weeks later transfer request received to transfer the range to another organisation in ARIN region**

Documentation RIPE Database

- **RIPE Database Manual:**

  "It has never been specified if this is the country where the addresses are used, where the issuing organisation is based or some transit country in between. There are no rules defined for this attribute. It cannot therefore be used in any reliable way to map IP addresses to countries." (https://www.ripe.net/manage-ips-and-asns/db/support/documentation/update-ref-manual)

- **RIPE Database Attribute:**

  “country: Identifies the country. Valid two-letter ISO 3166 country code”

Extended Delegated Statistics

- **Extended Delegated Statistics file created in 2008 as part of an effort from the RIRs to:**
  - Create one joint standard format
  - Publish reserved and free address space in addition to Allocated/Assigned
  - ftp://ftp.ripe.net/pub/stats/ripencc/

Documentation Extended Delegated Statistics

- **Format and Conditions used in Extended Delegated Statistics**

  "cc = … The cc value identifies the country. However, it is not specified if this is the country where the addresses are used. There are no rules defined for this value. It therefore cannot be used in any reliable way to map IP addresses to countries." (ftp://ftp.ripe.net/pub/stats/ripencc/RIR-Statistics-Exchange-Format.txt)

- **Readme file Extended Delegated Statistics**

  "… indicates the country where resources were first allocated or assigned. However it is not intended that the data be considered as an authoritative statement of the location where any specific resource may currently be in use. (ftp://ftp.ripe.net/pub/stats/ripencc/_README)

RIPE Database vs. Extended Delegated Statistics

RIPE Database	RIPE NCC Creates Object with Country Code	User Maintains
Extended Delegated Statistics	RIPE NCC Adds Entry with Country Code	RIPE NCC Maintains

```
inetnum:        31.42.184.0 - 31.42.187.255
…
country:        US
status:         ASSIGNED PI
…
source:         RIPE
```

```
ripencc|UA|ipv4|31.42.184.0|1024|20110223|assigned
```

Status in other RIRs

RIR	Extended Delegated Statistics	RIR Database	Updates
AFRINIC	Legal Presence (Region only)	Legal Presence (Region only)	RIR Managed Same Value
APNIC	Legal or network presence	Legal or network presence	RIR Managed Mostly same value
ARIN	Legal or network presence	Legal or network presence	User can update Same Value
LACNIC	Legal Presence (Region only*)	Legal Presence (Region only*)	RIR Managed Same Value

- **APNIC looking at options to have multiple country codes for different purposes in Extended Delegated Statistics**

(* *some remnants from the past may exist)*

As intended…or change needed?

- **Leave up to resource holder to decide which country code to use**
  - Information could be meaningless, as not legal or network based
- **Define country code for RIPE DB and Extended Delegated Statistics**
  - Legal country of resource holder: can be verified by RIPE NCC
  - Location of network: difficult to verify by RIPE NCC
- **Should the RIPE DB country code remain synced with Extended Delegated Statistics?**

Questions

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