Routing Security Training Course

Solutions to Exercises 2 and 6

December 2014

RIPE NCC

Exercise 2: Routing policy in your aut-num

```
aut-num: AS130
as-name: Participant30-ASN
descr: RIPE NCC training courses - Participant 30 ASN
org: ORG-TCP30-TEST
admin-c: TP30-TEST
tech-c: TP30-TEST
remarks: **************IPv4 POLICIES*************
remarks: *** transit connection to AS1001 ***
import: from AS1001 action pref = 100; accept ANY
export: to AS1001 announce AS130 AS201
remarks: *** transit connection to AS1007 ***
import: from AS1007 action pref = 200; accept ANY
export: to AS1007 action aspath.prepend(AS130, AS130); announce AS130 AS201
remarks: *** IPv4 peering connection with AS601 ***
import: from AS601 action pref = 80; accept AS601
export: to AS601 announce AS130 AS201
remarks: *** Customer AS201 ***
import: from AS201 action pref = 80; accept AS201
export: to AS201 announce ANY
remarks: **************IPv6 POLICIES*************
remarks: *** IPv6 transit connection to AS1001 ***
mp-import: afi ipv6.unicast from AS1001 action pref = 100; accept ANY
mp-export: afi ipv6.unicast to AS1001 announce AS130 AS201
remarks: *** IPv6 transit connection to AS1007 ***
mp-import: afi ipv6.unicast from AS1007 action pref = 200; accept ANY
mp-export: afi ipv6.unicast to AS1007 action aspath.prepend(AS130, AS130); announce AS130 AS201
remarks: *** IPv6 peering connection with AS601 ***
mp-import: afi ipv6.unicast from AS601 action pref = 80; accept AS601
mp-export: afi ipv6.unicast to AS601 announce AS130 AS201
remarks: *** Customer AS201 ***
mp-import: afi ipv6.unicast from AS201 action pref = 80; accept AS201
mp-export: afi ipv6.unicast to AS201 announce ANY
remarks: ****************************************
status: OTHER
mnt-by: TEST-NCC-HM-MNT
mnt-by: CM30-MNT
changed: hostmaster@test.com 20141210
source: TEST
```

Exercise 6:

RPKI Quiz

In case multiple answers are possible, please circle all correct ones.

1. If a ROA is invalid, and there are no valid ROAs for that range in the cache,what will be the result of the BGP verification for that prefix?

   A. valid
   B. invalid
   C. unknown
   D. not enough info to answer the question

2. If the ROA size =/22 MaxLength=empty
   What size prefixes can be announced?

   A. /22
   B. /22 and more specific
   C. not /22, but more specific
   D. anything less specific than /22

3. Referring to Question2, What will the BGP verification status be of all other prefixes?

   A. valid
   B. invalid
   C. unknown
   D. not enough info to answer the question

4. If the ROA size =/21 MaxLength=22
   How many different prefixes can be announced?

   A. 0
   B. 1
   C. 2
   D. 3

5. Can you have several prefixes in a ROA?

   A. yes
   B. no

6. Can you create a separate ROA for each of your prefixes?

   A. yes
   B. no

7. Can you have overlapping ROAs of the same size?

   A. yes
   B. no

8. Can you have overlapping ROAs of the same size, with the same origin AS?

A. yes
B. no

9. You want to enable the following announcement from your AS333 (see diagram).
Which ROAs do you have to create? Fill out as many rows as needed in the table below.

ROA range	AS	max length
193.0.24.0/21	AS333	___
193.0.28.0/22	AS333	/23
193.0.24.0/24	AS333	___
193.0.25.0/24	AS333	___

10. You have created the following ROAs. See table below.
Encircle in the diagram below all the BGP route announcements, that will have the verification value = **"valid"** as a result.

ROA range	AS	max length
193.0.0.0/21	AS333	/22
193.0.2.0/23	AS333	/24
193.0.4.0/23	AS333	empty
193.0.5.0/24	AS333	empty
193.0.6.0/24	AS333	empty