APNIC
Unassigned Space Report

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The Problem

- How can you tell if a route advertisement is incorrect?
  - By "incorrect" it is meant that the route advertisement is referring to address space that has not been allocated by any RIR to any end party
  - i.e. advertising an address block taken from the unallocated address pool

The "normal" ISP solution

- Use an administrative process to check the RIR whois database to see if the address block has been allocated
  - No single whois database that is authoritative for the entire IPv4 address space
  - Each RIR has a different response syntax to whois queries

The Idea

- The RIRs to coordinate the operation of a set of "lists" (registries)
- These registries contain the inverse of the allocated address space
- These registries can be used in a variety of ways to determine the validity of a routing request

The Application

- Existing ISP administrative processes can use a deterministic process to check if a proposed route advertisement is valid

APNIC Space Registry

- The registry contains the maximally aggregated description of the inactive address blocks for IPv4 and IPv6

- The registry also contains the active (assigned) address blocks for IPv4 and IPv6
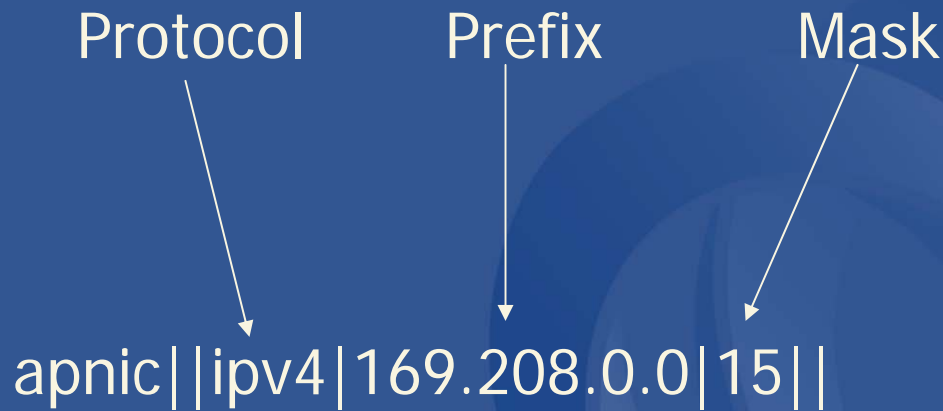
The Free Space Registry

- ftp://ftp.apnic.net/pub/apnic/freespace/apnic-ipv4-latest.inactive

```
#*********************************************************************
#IMPORTANT: For an explanation of this report and the terms and conditions of
#its use, please refer to the following following:
# #ftp://ftp.apnic.net/pub/apnic/stats/apnic/_README-apnic-stats.txt
#*********************************************************************
1|apnic|20030226|1419|20030226|19700101|28338
apnic||ipv4|169.208.0.0|15||
apnic||ipv4|169.210.0.0|15||
apnic||ipv4|169.212.0.0|14||
apnic||ipv4|169.216.0.0|14||
apnic||ipv4|169.220.0.0|15||
apnic||ipv4|169.222.0.0|16||
apnic||ipv4|169.223.0.0|16||
apnic||ipv4|202.0.8.0|23||
apnic||ipv4|202.0.52.0|22||
apnic||ipv4|202.0.56.0|21||
```

For example

- 169.208.0.0/15 is not an assigned prefix

Protocol Prefix Mask

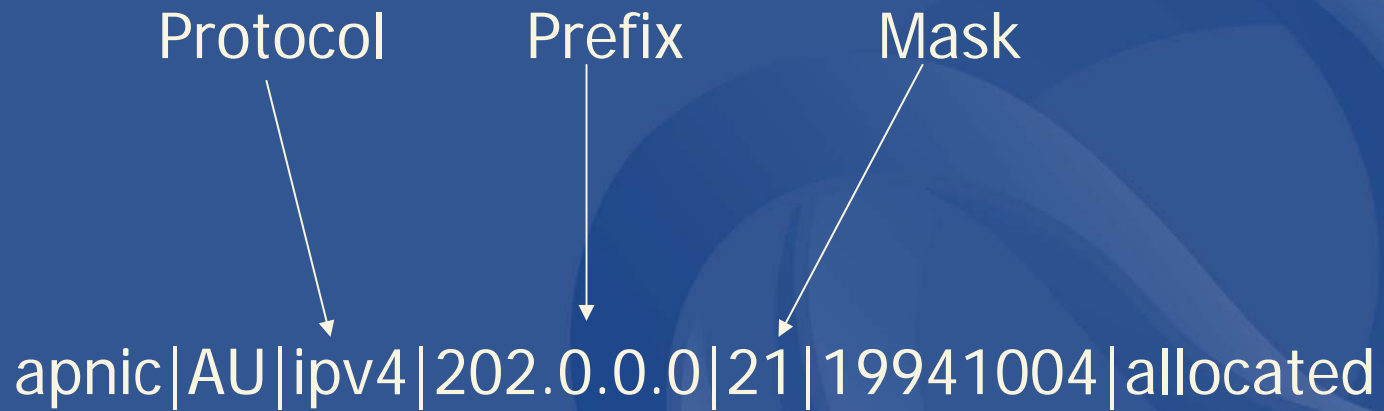apnic||ipv4|169.208.0.0|15||

The Active Space Registry

- ftp://ftp.apnic.net/pub/apnic/freespace/apnic-ipv4-latest.active

```
#*********************************************************************
#IMPORTANT: For an explanation of this report and the terms and conditions of
#its use, please refer to the following following:
#
#ftp://ftp.apnic.net/pub/apnic/stats/apnic/_README-apnic-stats.txt
#*********************************************************************
1|apnic|20030226|3599|19930101|20030225|74609
apnic|JP|ipv4|129.60.0.0|16|20030214|allocated
apnic|AU|ipv4|129.78.0.0|16|20030214|allocated
apnic|AU|ipv4|129.94.0.0|16|20030214|allocated
apnic|AU|ipv4|129.96.0.0|16|20030214|allocated
apnic|AU|ipv4|129.127.0.0|16|20030214|allocated
apnic|JP|ipv4|129.136.0.0|16|20030214|allocated
apnic|AU|ipv4|129.180.0.0|16|20030214|allocated
apnic|JP|ipv4|129.249.0.0|16|20030214|allocated
apnic|KR|ipv4|129.254.0.0|16|20030214|allocated
apnic|AU|ipv4|202.0.0.0|21|19941004|allocated
```

For example

- 202.0.0.0/21 is an assigned prefix

Protocol   Prefix   Mask

apnic|AU|ipv4|202.0.0.0|21|19941004|allocated

APNIC Registry Contents

apnic-ipv4-latest.inactive

apnic-ipv4-latest.active

apnic-ipv6-latest.inactive

apnic-ipv6-latest.active

History files:

apnic-<proto>-<yyymmdd>.[in]active

Questions?