



The Continued Need for IP Address Registration – What Will Change?

Axel Pawlik
RIPE NCC



What is registration?

- When IP address space is handed out, contact information of the address recipient is recorded
- The resulting “whois” record is held in a publicly accessible database, such as the RIPE Database
- For more than a decade, Regional Internet Registries (RIRs), such as the RIPE NCC, have played the role of:
 - Distributing IP addresses
 - Collecting registration information of the address recipients
 - Publishing this information in a public database

What is registration?

- A whois record looks like this:

inetnum:	193.0.0.0 - 193.0.7.255	← Addresses
netname:	RIPE-NCC	
descr:	RIPE Network Coordination Centre	← Registrant
descr:	Amsterdam, Netherlands	
remarks:	Used for RIPE NCC infrastructure.	
country:	NL	
admin-c:	AMR68-RIPE	
admin-c:	BRD-RIPE	
tech-c:	OPS4-RIPE	
status:	ASSIGNED PI Definition	
mnt-by:	RIPE-NCC-MNT	
mnt-lower:	RIPE-NCC-MNT	
source:	RIPE # Filtered	
role:	RIPE NCC Operations	
address:	Singel 258	
address:	1016 AB Amsterdam	← Contact details
address:	The Netherlands	
phone:	+31 20 535 4444	
fax-no:	+31 20 535 4445	
e-mail:	ops@ripe.net	
admin-c:	AMR68-RIPE	
admin-c:	BRD-RIPE	
tech-c:	GL7321-RIPE	
tech-c:	CNAG-RIPE	
tech-c:	SMCA-RIPE	
nic-hdl:	OPS4-RIPE	
mnt-by:	RIPE-NCC-MNT	
source:	RIPE # Filtered	



Why is registration information so important?

- Uniqueness
- Operational use
- Security
 - Up-to-date, reliable registration data is the only way to for an organisation to prove their “right of use” for specific addresses
 - With the exhaustion of unallocated IPv4 addresses and the emergence of address transfers, this will only become more important

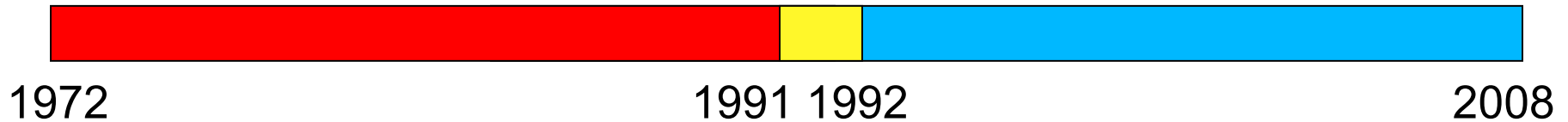


History of IP address registration

Jon Postel
and SRINIC

InterNIC

RIPE NCC



- Responsibility for registering IP addresses has shifted over time:
 - Jon Postel and the Stanford Research Institute Network Information Center (SRINIC) maintained the registry from 1972
 - InterNIC was established in September 1991 to fill this role
 - RIPE NCC established in April 1992, taking responsibility for IP address registration in Europe
- 91 /8s (or more than 1.5 billion addresses) were allocated before the RIRs were established!



Where are we now?

- Most of the registration data currently in the RIPE Database is for address space handed out by the RIPE NCC
- Approximately 98% of the data currently in the RIPE Database is correct
- Data is correct at the time of collection, but can easily become out of date:
 - Members may change their phone provider (and phone numbers), making contact information inaccurate
 - Mergers or acquisitions between member organisations may not be reported to RIPE NCC



“Legacy Space”

Pre-RIR allocations

- Very few of the pre-RIPE NCC allocations are registered in the RIPE Database
- 13% of all pre-RIR allocations are in the RIPE NCC service region
- Legacy address space holders already have addresses, so they do not need to become RIPE NCC members

However...

- Registration of address space is the only way to secure your “right of use” over your addresses, and prevent address hijacking, misuse etc.

The Challenge

- Our biggest challenge is finding and registering the pre-RIR legacy address space
- Who is holding this legacy space?
 - Large organisations who were online pre-1993
 - Governments who were online pre-1993
 - If you had email before 1993... then perhaps YOU!
- Registering these legacy addresses will make it harder for spammers and criminals to hijack those addresses - this is an important issue for everyone!



Resource Certification

- Certification of a resource means that the RIPE NCC has allocated the resource
 - Unique allocation
 - Recipient met the allocation criteria as per the appropriate allocation policy
 - RIPE NCC had at the time of allocation a business relationship with the recipient
- Nothing more, really



Common Interpretations

- Resource Certification provides a mechanism for establishing the **association** between Internet number resources and the holders of these resources
- Digital certificates will also allow holders to prove to others that they have the **right of use** for the certified resources
- It will allow the RIPE NCC to create an enhanced, more robust registry function
- It is the missing piece enabling **secure routing**



RIPE NCC: Our Goals

- To have a complete registry of IPv4 blocks in use in our service region, including
 - Addresses distributed by the RIPE NCC
 - Addresses distributed prior to the establishment of the RIPE NCC (“legacy address space”)
 - To have this 80% complete within two years

Questions?





Some questions for you!

- RIPE NCC will offer legacy space holders digital certificates to secure their address holdings - should we charge for this service? Provide it for the greater public good? And if so, who pays?
- The Internet is seen as a public utility, but if RIPE NCC is the only party providing certificates, does this raise issues of a monopoly?