ARIN, a nonprofit member-based organization, supports the operation of the Internet through the management of Internet number resources throughout its service region; coordinates the development of policies by the community for the management of Internet Protocol number resources; and advances the Internet through informational outreach.
The ARIN region includes many Caribbean and North Atlantic islands, Canada, the United States and outlying areas.

- Total organizations served: 37,000+
  - Organizations paying fees for services: 20,000+
  - Member organizations: 5,580+
ARIN is:

Independent
Not-for-profit

Fee for services, not number resources
100% community funded

Membership based
Internet service providers (ISPs), telecommunication organizations and large corporations

Community “Regulated”
Community developed policies
- Member-elected governing boards
- Open and transparent
ARIN Manages:

- IP address allocations & assignments
- Autonomous System Number assignment
- Transfers
- Reverse DNS
- Record Maintenance
- Directory service
  - Whois
  - Routing Information (Internet Routing Registry)
  - WhoWas

https://www.arin.net/resources/index.html
ARIN technologies for managing Internet number resources:

- ARIN Online – customer web portal
- Domain Name System Security (DNSSEC)
- Resource Certification (RPKI)
- Whois RESTful Web Service
- Registration Data Access Protocol (RDAP) directory services
- Community Software Project Repository
- Operational Test and Evaluation Environment

https://www.arin.net/resources/services/
Current Focus

• **IPv6 Transition Awareness** Targeting ISPs, Content Providers, and Various Industry Sectors

• Continue advocacy of *community-based multi-stakeholder policy development model* in Internet Governance

• Continue ARIN Online interface/functionality *enhancements per user feedback* and staff experience

• Improve services based on customer survey results
ARIN’s Role in Internet Security

• Promoting Database Accuracy

• Promoting Domain Name System Security

• Promoting Resource Certification
ARIN Whois Directory Service

Contains registration information about:

- IPv4 addresses, IPv6 addresses and AS numbers
- Organizations (Orgs) that hold them
- Points of Contact (POC) for resources & organizations
- Customer reassignment information (from ISPs to their customers)
- Original registration date and last updated date
Accurate Whois Data is:

• Comprehensive
  – All required data is registered and complete

• Correct
  – Data has been verified by staff as being accurate

• Current
  – Data has been confirmed to be up to date or recently updated
Why is Accurate Whois Data Important?

• **Internet operability and stability**
  – Helps network operators identify and work with each other to resolve technical and/or abuse issues

• **Public safety**
  – Used by law enforcement in investigations and to identify the responsible party for service of process

• **Protection from number resource hijacking**
  – Hijackers often target stale or inaccurate data

• **Core RIR function according to RFC 7020**
  – “A core requirement of the Internet Numbers Registry System is to maintain a registry of allocations to ensure uniqueness and to provide accurate registration information of those allocations in order to meet a variety of operational requirements”

• **Contractual requirement**
  – Per ARIN’s Registration Service Agreements (RSA/LRSA)
Point of Contact (POC) records in Whois:

743,839

- Validated: 177,742
  - Have updated their records within 12 months
- Non-validated: 243,195
- Orphaned: 322,905
  - Not associated with any number resources
How To Protect Your Whois Data

• Keep your Whois information updated and accurate.
• Respond to ARIN’s annual POC validation email request.
• Submit a transfer or name change request to ARIN if your company has undergone a merger, acquisition, or name change
  o This keeps the database up to date with current information!
• Use two factor authentication to log into ARIN Online

https://www.arin.net/resources/request/poc.html#validation
Securing Core Internet Functions

• The Internet relies on two critical resources:
  – **Domain Name System**: Translates domain names to IP addresses and IP addresses to domain names
  – **Routing**: Directs data traffic across the Internet

• These critical resources are **not** secure

• ARIN supports **DNSSEC** and **RPKI** to secure these critical resources
DNS Security Challenges

• Originally the Internet was smaller/safer, security was less of a concern

• With Internet growth comes a spike in malicious behavior and exploitable DNS weakness like:

  – **Cache “poisoning”**: Using false DNS records to direct users to malicious sites/software

  – **Spoofing**: Maliciously answering DNS requests by pretending to be the correct recipient
DNS Cache Poisoning Example:

- Attacker gives the nameserver a “poisoned” (incorrect) response to www.arin.net
- If accepted, this nameserver will direct people to the fake site, typically for hours
- Any nameservers that trust the poisoned one will also become poisoned.
Domain Name System Security (DNSSEC)

• A security system that protects Internet clients from counterfeit DNS data by verifying digital signatures embedded in the data.

• Allows users to validate that the DNS records they receive came from the correct source.
Things to Know about DNSSEC

• Provides a DNS extension which authenticates responses
  – When you ask how to get to www.arin.net, DNSSEC verifies the answer is from ARIN and not someone pretending to be us
• Doesn’t ensure the answer is correct, just that it’s coming from the right place
• Requires configuration of both your network and your ARIN number resources
Internet Routing Security Challenges

• Internet routing depends on network relationships based on mutual trust.
• For successful routing, each party trusts that the route used to transmit information is safe & accurate.
• As the Internet has grown, abuse and attacks have also grown.
Resource Certification

• ARIN supports Resource Public Key Infrastructure (RPKI)

• Cryptographically certifies network resources
  – AS Numbers
  – IP Addresses

• Also certifies route announcements
  – Route Origin Authorizations (ROAs) allow you to authorize your Internet resources to be routed
Things to Know about RPKI

• Allows routers (or other processes) to validate routes
• Provides stronger validation than existing technologies, such as:
  – IRR registries
  – LOAs
• Can be hosted by ARIN and requires some configuration
Security: In Conclusion

• If you are not using DNSSEC or RPKI, you **are** vulnerable to attacks

• Implementation documentation is available:
  – https://www.arin.net/resources/dnssec/index.html
  – https://www.arin.net/resources/rpki/
Technical Support

- Ask ARIN
- Phone Help Desk
  - 7AM – 7PM ET M-F
  - +1.703.227.0660
- Email support via hostmaster@arin.net
- arin-tech-discuss mailing list
  - Make sure to subscribe
  - Archives contain useful information
Community Engagement

- Policy Development – open to all
- Internet Governance
- IPv6 awareness outreach
- Community Consultations
- ARIN on the Road events
- Educational materials
Q&A