

Activity and Incident Report for the ICANN Managed Root Server

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For the Reporting Period of 2019-11-01 - 2019-11-30

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1 Executive Summary

This monthly report provides operational and statistical information on the ICANN Managed Root Server (IMRS), known within the Domain Name System (DNS) as `L.ROOT-SERVERS.NET`.

IMRS is a collection of servers and associated hardware with global presence managed, controlled and supervised by ICANN that provide information about the Root Zone, which is the apex of a hierarchical distributed database for the Domain Name System (DNS).

More information on the Root Server System and its organizations can be found at <https://root-servers.org>. and about IMRS at <https://dns.icann.org/imrs>

A deeper understanding of the statistics in this document can be gained by accessing the IMRS Statistics dashboard at <https://stats.dns.icann.org>.

For this reporting period:

- There were no outstanding issues related to security or unplanned downtime.
- There were no observed anomalies in DNS Traffic to the IMRS

2 Performance Indicators

2.1 DNS Queries for this Period

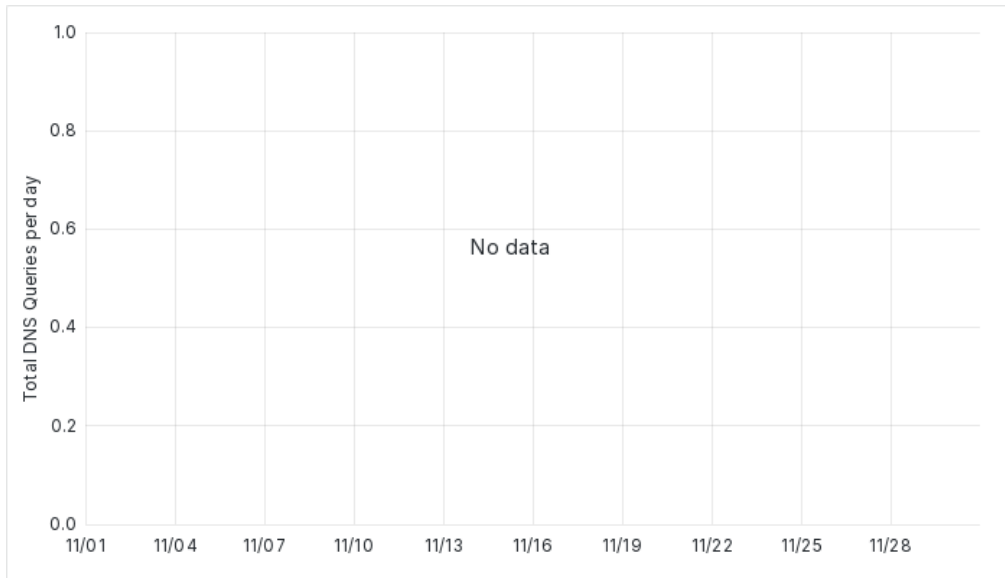


Figure 1: Number of daily DNS queries for this period

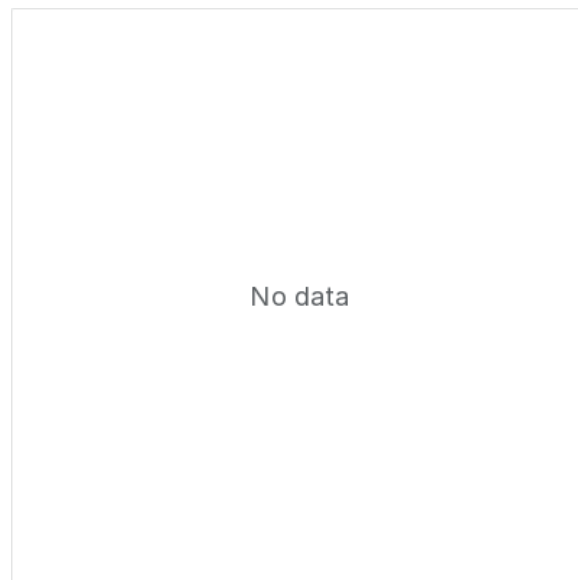


Figure 2: Total DNS queries distribution

2.2 DNS Query Distribution Trends



Figure 3: Query origins per ICANN Region

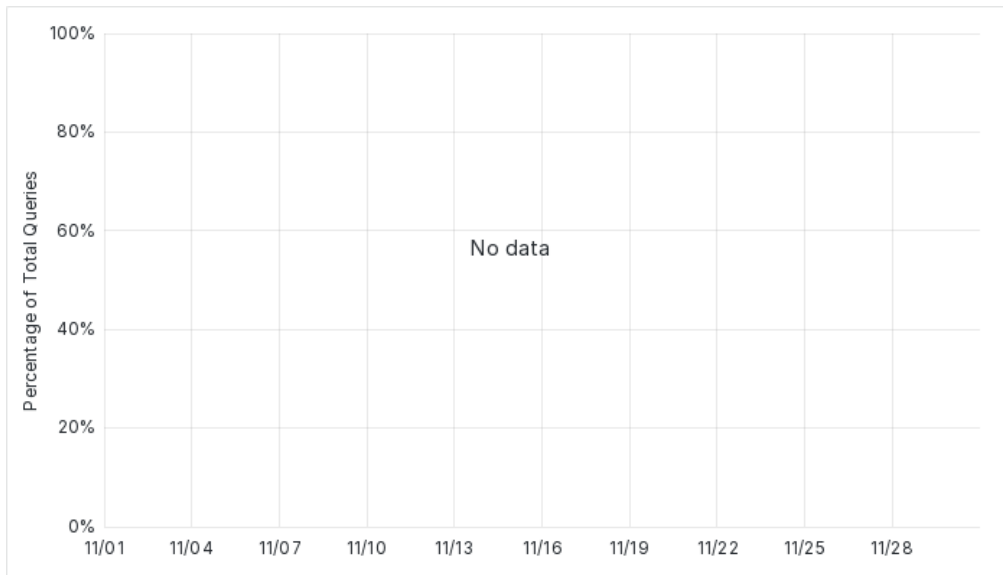


Figure 4: Query distribution percentage per ICANN region

3 Operational Indicators

3.1 Security Incidents related to IMRS

- During this period, no security incidents were reported, recorded nor published

For transparency, ICANN publishes a log of Information Security events at <https://www.icann.org/cybersecurityincidentlog>

3.2 Non-scheduled downtime events

- During this period, no irregular or unplanned downtime was observed

4 Size and location of the IMRS

4.1 Number of Instances

- 1 instance(s) were added in this period : Tunis-Carthage (Tunisia)
- 2 instance(s) were retired in this period : Zhengzhou (People's Republic of China) and Tokyo (Japan)
- 228 instances are located in 82 countries at the end of this period

4.2 Number of IMRS Cluster Instances

A "Cluster" is an IMRS instance consisting of a set of servers and associated hardware providing the IMRS service at a single location which is designed to serve a larger DNS query load, community, or specific region.

An IMRS Cluster is completely managed, controlled and supervised by ICANN.

At the moment of writing this report, there are six (6) ICANN Cluster Instances located in:

- El Segundo, CA (US)
- Prague (CZ)
- Reston, VA (US)
- Singapore (SG)
- Nairobi (KE)
- Cairo (EG)

4.3 Number of countries that have at least one instance presence by ICANN region

- Africa (10)
- AsiaPacific (32)
- Europe (24)
- LatinAmericaCaribbean (13)
- NorthAmerica (3)

4.4 Location for IMRS Instances by city

Abidjan (Cote d'Ivoire)	Christchurch (New Zealand)	Islamabad-Rawalpindi (Pakistan)
Al Muharraq (Bahrain)	Cochabamba (Bolivia)	Jakarta (Indonesia)
Amman (Jordan)	Colombo (Sri Lanka)	Jeddah (Saudi Arabia)
Anchorage (United States)	Copenhagen (Denmark)	Johannesburg (South Africa)
Ankara (Turkey)	Curitiba (Brazil)	Kalamazoo-Battle Creek (United States)
Apia (Samoa)	Dakar (Senegal)	Kharkiv (Ukraine)
Arlington County (United States)	Dammam (Saudi Arabia)	Kiev (Ukraine)
Asuncion (Paraguay)	Dar es Salaam (Tanzania)	Kolonia (Federated States of Micronesia)
Atlanta (United States)	Denver (United States)	Kuwait City (Kuwait)
Baku (Azerbaijan)	Des Moines (United States)	Lahore (Pakistan)
Bangkok (Thailand)	Dortmund (Germany)	Latina (Italy)
Beijing (People's Republic of China)	Dubai (United Arab Emirates)	Lawrence (United States)
Beirut (Lebanon)	Dundee (United Kingdom)	Leeds-Bradford (United Kingdom)
Belem (Brazil)	Dusseldorf (Germany)	London (United Kingdom)
Belgrade (Serbia)	El Prat de Llobregat (Spain)	Londrina (Brazil)
Belo Horizonte (Brazil)	Ezeiza (Argentina)	Los Angeles (United States)
Blantyre (Malawi)	Florence (Italy)	Lyon (France)
Bogota (Colombia)	Florianopolis (Brazil)	Madrid (Spain)
Bouake (Cote d'Ivoire)	Fortaleza (Brazil)	Mahe (Seychelles)
Brasilia (Brazil)	Geneva (Switzerland)	Majuro (Marshall Islands)
Bratislava (Slovakia)	Haarlemmermeer (Netherlands)	Malmo (Sweden)
Brisbane (Australia)	Hagatna (Guam)	Mandalay (Myanmar)
Brussels (Belgium)	Hamburg (Germany)	Mangere (New Zealand)
Cacador (Brazil)	Helsinki-Vantaa (Finland)	Marseille (France)
Callao (Peru)	Heraklion (Greece)	Mascot (Australia)
Campinas (Brazil)	Honiara (Solomon Islands)	Maseru (Lesotho)
Cape Town (South Africa)	Honolulu (United States)	
Carire (Brazil)	Incheon (South Korea)	
Chicago (United States)		

Melbourne (Australia)	Port Moresby (Papua New Guinea)	Santiago (Chile)
Metro Manila (Philippines)	Portland (United States)	Sao Jose dos Campos (Brazil)
Minsk (Belarus)	Porto (Portugal)	Sao Paulo (Brazil)
Mississauga (Canada)	Porto Alegre (Brazil)	SeaTac (United States)
Monterrey (Mexico)	Prague (Czech Republic)	Semey (Kazakhstan)
Montevideo (Uruguay)	Punta Caucedo (Dominican Republic)	Shanghai (People's Republic of China)
Moscow (Russian Federation)	Quito (Ecuador)	Sofia (Bulgaria)
Mumbai (India)	Rabat (Morocco)	St Denis (Reunion)
Muscat (Oman)	Ramallah (Palestine)	Stockholm (Sweden)
Nadi (Fiji)	Reno (United States)	Suva-Nausori (Fiji)
Natal (Brazil)	Reston (United States)	Tokyo (Japan)
New Taipei (TW)	Rio de Janeiro (Brazil)	Toronto (Canada)
Noumea (New Caledonia)	Riyadh (Saudi Arabia)	Uberlandia (Brazil)
Odessa (Ukraine)	Rochester (United Kingdom)	Vancouver (Canada)
Otopeni (Romania)	Rostov-on-Don (Russian Federation)	Wilmington (United States)
Ouagadougou (Burkina Faso)	Salvador (Brazil)	Winnipeg (Canada)
Papeete (French Polynesia)	San Jose (Costa Rica)	Yangon (Myanmar)
Paris (France)	San Jose (United States)	Yekaterinburg (Russian Federation)
Paris-Orly (France)	San Miguel de Tucuman (Argentina)	Yerevan (Armenia)
Perth (Australia)	San Salvador (El Salvador)	Yogyakarta (Indonesia)
Plaisance (Mauritius)	Sana'a (Yemen)	Zhengzhou (People's Republic of China)

Detailed information on IMRS locations can be found at <https://www.dns.icann.org/imrs/locations/>