

# PRAVESH : Public DNS Resolver with Advanced Visibility and Extended Security Hub

*“PRAVESH is a National level effort towards securing the Indian Cyber Space”*



- 1.** Free Public DNS Services to the whole nation
- 2.** Safe & Secure browsing
- 3.** Privacy and Security of User's browsing data

India is one of the fastest growing digital economies in the world. As of 2018, the total internet users in India was 566 million and this figure is expected to reach 627 million in 2019. This rapid growth in the internet penetration was made possible with a slew of digital initiatives and policy decisions taken by the Indian Government during the last 5 years. The Government took efforts to bring about digital inclusion in rural areas through BharatNet, which aims to connect over 2,50,000 gram panchayats covering over 6,25,000 villages across India with a minimum of 100Mbps broadband connectivity. These efforts of the Government have helped to realize over 251 million internet users from rural India in 2018 and the rural India is expected to continue with its double-digit growth in the number of internet users in 2019.

## Indian Cyber Space

With more Users from the country connecting to the internet and with more transactions and businesses being carried out online, India is witnessing a silent digital revolution, where the people are the driving force behind it. The rapid expansion in the cyberspace along with the substantial increase in the number of people from India onboarded into the internet, has exposed these people to a huge plethora of cyber threats lurking across the cyberspace.

India has been the second most cyber-attacks affected country between 2016 to 2018, according to a new Data Security Council of India (DSCI) report. During the past 5 years, The Ministry of Electronics and Information Technology (MeitY), has undertaken various initiatives to secure the Indian people and the Indian cyber space from the cyber threats. The National Informatics Centre has established NIC-CERT to tackle cyber threats within the Government cyberspace managed by NIC. CERT-In handles the cyber threats at the national level. With the establishment of the Cyber Swachhta Kendra (CSK) and National Cyber Co-ordination Centre (NCCC), the efforts to secure the Indian cyberspace got invigorated. In this context, towards bolstering the security of the Indian cyberspace and to secure the Indian people from the prevailing cyber threats, MeitY has proposed to setup a national level public DNS service (PRAVESH) for the Indian people.

## DNS

Then Domain Name System (DNS) is one of the fundamental building blocks of the global internet, which keeps the internet accessible to everyone. When we try to access a website, the website name (ex: <https://meity.gov.in>) is entered into the browser and the browser sends this website name to a DNS Server in the form a DNS query. The DNS Server will then resolve this DNS Query and will return back an IP Address, For ex:164.100.94.103, this IP

Address belongs to the server which hosts the meity.gov.in website. If there is no DNS Server, then we cannot access any website in the internet. So the role of DNS is very critical

in the overall functioning and operations of the global internet. For internet users, their respective Internet Service Provider's (ISP) DNS is assigned by default. Some tech savvy users, change their internet settings and replace their ISP's DNS with a public DNS.

## Public DNS

Public DNS is a DNS Service which resolves any DNS Query sent by anyone in the internet. The service is offered free of cost and this DNS service is usually offered without any restrictions. Some of the popular public DNS Servers are 8.8.8.8 run by Google, 1.1.1.1 run by Cloudflare and many more. MeitY proposes to launch a similar Public DNS Server, which will be available for use by anyone across India. The Public DNS Server shall be implemented and managed by National Informatics Centre (NIC).

## Need for Indigenous Public DNS : PRAVESH

One of the key reasons on why an indigenous Public DNS is required for the nation is that, this service shall form a part of the overall Internet Resilience strategy, through which the core and critical technologies are localized with an attempt to ensure the seamless service delivery with less or no dependence on global internet, especially during crisis/emergency situations.

Another important reason for this indigenous Public DNS service, is to secure the Indian Cyberspace, by protecting the Indian public from cyber threats. This new Public DNS service shall have a built-in cyber-kavach. The cyber-kavach, shall comprise of a list of malicious domains, which may pose a security threat to the Internet users from India. The intelligence of malicious domains, which spreads/hosts malware, viruses, trojans, ransomware, phishing content, Advanced Persistent Threats...etc., shall be maintained by NIC-CERT and periodic intelligence from CERT-In will also be added to the overall intelligence. With such a robust threat intelligence framework, the Public DNS Service, shall block the DNS Requests to malicious domains which is present in the threat intelligence.

So if an internet User inadvertently clicks on a phishing link or visits a website containing malware, the Public DNS will not resolve the DNS request and it will rather re-direct the User to a custom block page, which shall contain the reason for blocking the domain and it shall also contain a link to CSK, with an advice to follow the instructions of CSK for cleaning the User's system. To avail the protection of the Public DNS, the User has to modify their internet settings and replace the ISP's DNS with the indigenous Public DNS of India. Initially, this Public DNS Service shall be offered to the internet users, within the country.

With the launch of this new Indigenous Public DNS Service, India aims to provide a much safer and secure cyberspace for the Indian people and the Indian Government shall strive to introduce many such indigenous digital

## Public DNS :

“One of the Core aspects of the Internet Resilience Strategy for the nation”



## PRAVESH

*Offers protection to its Users from sites hosting:*

- Virus
- Malware
- Trojan
- Worm
- Ransomware
- Phishing Content

initiatives in order to develop a self-reliant and self-sustaining digital ecosystem for the nation.

## References

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