

Digital Infrastructure Policy – Kingdom of Saudi Arabia

Thank you for the opportunity for ICANN to share comments on your draft digital infrastructure policy.

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About ICANN

To reach another person on the Internet you have to type an address into your computer - a name or a number. That address has to be unique so computers know where to find each other. ICANN coordinates these unique identifiers across the world. Without that coordination we wouldn't have one global Internet.

ICANN is a nonprofit public-benefit corporation with participants from all over the world dedicated to keeping the Internet secure, stable, and interoperable. It promotes competition and develops policy on the Internet's unique identifiers. Through the coordination role of the Internet's unique identifier systems, ICANN has an important impact on the expansion and evolution of the Internet.

ICANN's mission is to ensure the stability, security, and resilience of the Internet's unique identifier systems that allows thousands of networks across the globe to be one global interconnected Internet. This is vital in sustaining and fortifying the overall trust of Internet users around the world in the operation of the Internet.

Executive Summary

Within the key pillar of “Resilience and Internet Ecosystem,” ICANN would like to address two points outlined in the strategy. These points are as follows, with emphasis added on key language:

- Achieve leadership in the development of a dynamic, innovative, and resilient Internet ecosystem that fosters inclusivity and safeguards interests of KSA citizens and residents.
- Adopt best practices for protection of digital infrastructure from cyber threats and other shocks.

To this end, we would like to suggest considering the use of:

1. Internationalized Domain Names (IDNs)
2. Universal Acceptance of domain names (UA)
3. DNS ecosystem security

Internationalized Domain Names (IDNs)

The United Nations General Assembly sponsored the World Summit on the Information Society (WSIS) to bridge the digital divide and promote access to information and communication technologies (ICTs). Published in 2003, the WSIS [Geneva Declaration](#) makes a common commitment to “build a people-centered, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life.”

The WSIS Geneva Declaration identifies a linguistically diverse Internet as a key principle that significantly contributes toward such a knowledge-based society, leading to a commitment “towards multilingualization of the Internet” in the [WSIS Tunis Agenda](#), published in 2005. As part of this effort, to allow for better access, the Tunis Agenda explicitly asks signatories to advance the introduction of multilingualism in domain names,

and e-mail addresses, by implementing programs and strengthening cooperation for their global deployment.

As part of its 2003 recommendations for [multilingualism and universal access to cyberspace](#), UNESCO also asks member states to alleviate language barriers on the Internet by access to content, capacity-building, national policies, and collaborative research and development on, and local adaptation of, technology with extensive multilingual capabilities.

Internationalized Domain Names (IDNs) enable people around the world to use domain names in local languages and scripts. IDNs are formed using characters from different scripts, such as Arabic, Chinese, Cyrillic or Devanagari. These are encoded by the Unicode standard and used as allowed by relevant IDN protocols.

Saudi Arabia, through SaudiNIC, has been a key driver of the usage of Arabic IDNs. However, while much has been achieved, more is needed to enhance adoption and usage. This can partly be achieved through the encouragement of developing more Arabic content online, offering service in the Arabic language, and using IDN domain names, among others.

We recommend ensuring that the digital infrastructure of Saudi Arabia utilizes and understands IDNs.

More about IDNs at <https://icann.org/idn>.

Universal Acceptance of Domain Names (UA)

Universal Acceptance (UA) ensures that all domain names and email addresses, including new top-level domains and Internationalized Domain Names (IDNs) can be used by all Internet-enabled applications, devices, and systems. UA is essential for the continued expansion of the Internet. By making all systems interoperable, UA provides a gateway to billions of Internet users. It enables businesses, governments, and societies to better serve their customers, citizens and communities through the use of an increasing number of new domains, including domain names in Arabic, Chinese and many other scripts.

From a technical standpoint, Universal Acceptance is about the acceptance, validation, processing, storing, and displaying of all domain names and email addresses equally, consistently, and correctly. ICANN and its community have been working to promote Universal Acceptance (UA) awareness and adoption.

Universal Acceptance can help Arabic IDNs in becoming more widely used, making them more useful for local netizens. This also contributes to a global multilingual Internet where netizens can communicate in their language of choice.

We recommend incorporating support for all domain names and email addresses in all languages when building and using your digital infrastructure. Additionally, it is important to ensure that your technology solutions are UA-ready; both for existing systems and new ones. We suggest integrating UA-readiness into your procurement process to ensure that new systems are delivered with UA compatibility from the outset.

Lastly, the government could measure progress on IDNs and UA by using the following indicators, as part of their efforts to promote multilingualism in cyberspace.

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- The number of IDN registrations under the IDN country code top-level-domain (ccTLD).
 - The percentage of email servers listed in a ccTLD providing support of local language email addresses.
 - The percentage of locally developed websites and applications, serving the community, which support input and processing of domain names and email addresses in local language(s), e.g. by accepting Arabic email addresses through their contact forms, or allowing Arabic email addresses to allow a user to register for online services.

More about UA at <https://uasg.tech/>.

Domain Name Security Extensions (DNSSEC)

The Domain Name System (DNS) is a key component of a resilient Internet infrastructure. As part of the infrastructure resilience pillar, it is crucial to emphasize the importance of local DNS infrastructures, both for Authoritative servers and Resolver services. The objective is to ensure adherence to best operational practices within a secure and reliable ecosystem.

DNSSEC adoption must be pursued consistently across all locally managed namespaces. Operators should prioritize effective and secure access credential management, reinforcing these practices.

DNSSEC strengthens authentication in DNS traffic using digital signatures based on public key cryptography. With DNSSEC, it's not DNS queries and responses themselves that are cryptographically signed, but rather DNS data itself is signed by the owner of the data.

In Saudi Arabia, the TLDs .SA and السعودية are both DNSSEC signed, and you have one of the highest DNSSEC validation rates in the world as per <https://stats.labs.apnic.net/dnssec/SA>.

We suggest keeping DNSSEC as one of your security vectors when building networks.

More about DNSSEC at <https://www.icann.org/resources/pages/dnssec-what-is-it-why-important-2019-03-05-en>.



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