



Indian Web Browser Development Challenge

For Prelims: Indian Web Browser Development Challenge, Controller of Certifying Authorities, Secure Sockets Layer, [Aatmanirbhar Bharat](#).

For Mains: Indian Web Browser Development Challenge.

Source: [PIB](#)

Why in News?

Recently, the Ministry of Electronics & Information Technology (MeitY) has launched the **Indian Web Browser Development Challenge (IWBC)**, inviting developers to create an Indigenous Indian Web Browser for global use.

- A key requirement of this competition is that the browser ideas must trust the **Controller of Certifying Authorities (CCA)**, the Indian government's authority responsible for digital signatures, including **SSL (Secure Sockets Layer) certificates**.

What is a Web Browser?

- The web browser is an application software to **explore [www \(World Wide Web\)](#)**. It provides an **interface between the server and the client** and requests to the server for web documents and services.
- It works as a compiler to render HTML which is used to **design a webpage**.
- Whenever we search for anything on the internet, the browser loads a web page written in HTML, including text, links, images, and other items such as stylesheet and JavaScript functions.
 - **Google Chrome, Microsoft Edge, Mozilla Firefox, and Safari** are examples of web browsers.

What is the Indian Web Browser Development Challenge?

- **About:**
 - The IWBC is an **Open Challenge Competition** that seeks to inspire and empower technology **enthusiasts, innovators, and developers from all corners** of the country to create an **indigenous web browser**.
 - **It will have its** own trust store with an inbuilt Controller of Certifying Authorities (CCA) India root certificate, cutting edge functionalities and **enhanced security & data privacy protection features**.
 - IWBC is **spearheaded by MeitY, CCA and [C-DAC Bangalore](#)**.
 - The competition is **being organised and financed in collaboration** with the **IT Ministry's** Research and Development division and the **[National Internet Exchange of](#)**

India.

- **Objective:**
 - Proposed browser will focus on **accessibility and user friendliness**, ensuring **built-in support for individuals** with diverse abilities.
 - Moreover, the **browser envisions the ability to digitally sign documents** using a crypto token, **bolstering secure transactions and digital interactions**.
- **Significance:**
 - The challenge marks a significant **stride towards an [Aatmanirbhar Bharat](#)**, designed to strengthen India's digital sovereignty through the development of the Indian Web Browser.
 - This challenge addresses one of the critical components - Web browser - through which the **end users accessing the Internet**.

What are Secure Sockets Layer (SSL) Certificates?

- **About:**
 - An SSL certificate is a **digital certificate that authenticates a website's identity** and enables an encrypted connection.
 - It is a security protocol that creates an **encrypted link** between a **web server and a web browser**.
 - Companies and organizations need to add SSL certificates to their websites to **secure online transactions** and keep customer information private and secure.
- **Role of Root certifying Authorities in Trust:**
 - While India has a legally valid root certifying authority called the **Root Certifying Authority of India**, established in 2000 under the CCA, the certificates issued by it are **not widely recognized by popular web browsers**.
 - The CCA has established the **RCAI under section 18(b) of the IT Act** to digitally sign the public keys of CAs in the country.
 - The RCAI is operated as per the **standards laid down under the Act**.
 - This reliance on foreign authorities has raised concerns over **digital security and foreign exchange outflow**.
- **Issues with Indian SSL System:**
 - India lacks a root certifying authority that is trusted by **major browsers like Google Chrome, Mozilla Firefox, and Microsoft Edge**.
 - This has led to Indian government and private websites **obtaining SSL certificates from foreign certifying authorities**.
 - A notable incident involving the **[National Informatics Centre \(NIC\)](#)**, a CCA-approved organization responsible for hosting and maintaining various Union and State Government websites, underscored **trust issues in Indian certifying authorities**.
 - In 2014, browsers and operating systems stopped trusting India's CCA after the NIC was linked to issuing fraudulent certificates.
 - While NIC's authorization for SSL certificate issuance was revoked, the **trust in Indian certifying authorities remained compromised**.

UPSC Civil Services Examination Previous Year's Question (PYQs)

Prelims:

Q. Consider the following statements: (2019)

A digital signature is

1. an electronic record that identifies the certifying authority issuing it
2. used to serve as a proof of identity of an individual to access information or server on Internet
3. an electronic method of signing an electronic document and ensuring that the original content is unchanged

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Ans: (c)

- Digital signature is not a record, and the identification of certifying authority is ascertained from the digital certificate, not digital signature. Hence, statement 1 is not correct.
- A digital signature is used to authenticate the identity of the sender of a message or the signer of a document, and not to serve as a proof of users' authenticity to access a website or information on the Internet. Hence, statement 2 is not correct.
- A digital signature is an electronic form of a signature that allows the recipient to trust the fact that a known sender sent the message and it was not altered in transit. Hence, statement 3 is correct. Therefore, option (c) is the correct answer.

Mains:

Q: Discuss different types of cyber crimes and measures required to be taken to fight the menace. **(2020)**

Q: Discuss the advantages and security implications of cloud hosting of servers vis-a-vis in house machine based hosting for government businesses. **(2015)**

Q: What is a digital signature? What does its authentication mean? Give various salient built-in features of a digital signature. **(2013)**

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