

Lab - Research Networking Standards

Objectives

- Research Networking Standards Organizations
- Reflect on Internet and Computer Networking Experiences

Background / Scenario

Using web search engines like Google, research the non-profit organizations that are responsible for establishing international standards for the internet and the development of internet technologies.

Required Resources

Device with internet access

Instructions

Step 1: Research Networking Standards Organizations

In this step, you will identify some of the major standards organizations and important characteristics, such as the number of years in existence, the size of their membership, the important historical figures, some of the responsibilities and duties, organizational oversight role, and the location of the organization's headquarters.

Use a web browser or websites for various organizations to research information about the following organizations and the people who have been instrumental in maintaining them.

You can find answers to the questions below by searching the following organizational acronyms and terms: ISO, ITU, ICANN, IANA, IEEE, EIA, TIA, ISOC, IAB, IETF, W3C, RFC, and Wi-Fi Alliance.

1. Who is Jonathan B. Postel and what is he known for?
-Jonathan B. Postel was an American computer scientist who played a major role in the early development of the Internet. He is best known for managing the Internet Assigned Numbers Authority (IANA) and editing many Request for Comments (RFC) documents. He helped develop core Internet protocols such as TCP/IP and oversaw domain name and IP address assignments.
2. Which two related organizations are responsible for managing the top-level domain name space and the root Domain Name System (DNS) name servers on the internet?
Internet Corporation for Assigned Names and Numbers (ICANN)

Internet Assigned Numbers Authority (IANA)
3. Vinton Cerf has been called one of main fathers of the internet. What internet organizations did he chair or help found? What internet technologies did he help to develop?
-Vinton Cerf helped found the Internet Society (ISOC) and served as chairman of the Internet Corporation for Assigned Names and Numbers (ICANN). He helped develop the TCP/IP protocols, which are the foundation of the modern Internet.
4. What organization is responsible for publishing Request for Comments (RFC)?
-The Internet Engineering Task Force (IETF) publishes RFCs.
5. What do RFC 349 and RFC 1700 have in common?
-Both RFC 349 and RFC 1700 contain assigned numbers related to Internet protocols. RFC 1700 is known as the "Assigned Numbers" document.

6. What RFC number is the ARPAWOCKY? What is it?
-ARPAWOCKY is RFC 527. It is an April Fools' Day RFC written in a humorous style, similar to the poem "Jabberwocky."
7. Who founded the World Wide Web Consortium (W3C)?
-Tim Berners-Lee founded the World Wide Web Consortium (W3C).
8. Name 10 World Wide Web (WWW) standards that the W3C develops and maintains?
HTML, CSS, XML, DOMSVG, WCAG, RDF, OWL, MathML, WebRTC
9. Where is the Institute of Electrical and Electronics Engineers (IEEE) headquarters located and what is the significance of its logo?
-The Institute of Electrical and Electronics Engineers (IEEE) headquarters is located in New York, USA. Its logo includes a diamond shape with a right-hand rule symbol, representing electricity and engineering principles.
10. What is the IEEE standard for the Wi-Fi Protected Access 2 (WPA2) security protocol?
-The IEEE standard for WPA2 is IEEE 802.11i.
11. Is the Wi-Fi Alliance a non-profit standards organization? What is their goal?
-Wi-Fi Alliance is a non-profit organization. Its goal is to promote Wi-Fi technology and certify products for interoperability and security.
12. Who is Hamadoun Touré?
-Hamadoun Touré is a Malian engineer who served as Secretary-General of the International Telecommunication Union (ITU).
13. What is the International Telecommunication Union (ITU) and where is it headquartered?
-The International Telecommunication Union (ITU) is a United Nations agency responsible for information and communication technologies. It is headquartered in Geneva, Switzerland.
14. Name the three ITU sectors. ITU-R (Radiocommunication)
ITU-T (Telecommunication Standardization)
ITU-D (Telecommunication Development)
15. What does the RS in RS-232 stand for and which organization introduced it?
16. What is SpaceWire?
-SpaceWire is a high-speed communication network standard used in spacecraft and satellites for onboard data handling.
17. What is the mission of the ISOC and where are its headquarters located?
-The Internet Society (ISOC) promotes the open development and use of the Internet for the benefit of all people. Its headquarters are in Reston, Virginia, USA.
18. What organizations does the IAB oversee?
-The Internet Architecture Board oversees the Internet Engineering Task Force (IETF) and the Internet Research Task Force (IRTF).
19. What organization oversees the IAB?
-The Internet Society (ISOC) oversees the IAB.

20. When was the ISO founded and where are its headquarters located?

-The International Organization for Standardization (ISO) was founded in 1947. Its headquarters are located in Geneva, Switzerland.

Step 2: Reflect on Internet and Computer Networking Experiences

Take a moment to think about the internet today in relation to the organizations and technologies you have just researched. Then answer the following questions.

1. How do the internet standards allow for greater commerce? What potential problems could we have if we did not have the IEEE?

-Internet standards allow devices and systems to communicate properly, which makes online banking, shopping, and global business possible. Without IEEE standards, devices from different manufacturers might not work together, causing network failures and slowing innovation.

2. What potential problems could we have if we did not have the W3C?

-Without W3C standards, websites might not work consistently across different browsers. This would create compatibility problems, reduce accessibility, and make online services unreliable

3. What can we learn from the example of the Wi-Fi Alliance with regard to the necessity of networking standards?

-We learn that certification and clear standards are important to ensure devices work together securely. Without common standards, wireless communication would be unstable and confusing for users.