



## Unit-4

### Internet and E-mail usage

## What is a Domain Name Extension?

Prior to the early 1980's, in order to visit a host on a network, the user would be required to type in an IP address, which is a numerical string of code consisting of digits and periods. Computers on this early network were able to communicate and locate one another using these numerical Internet Protocol (IP) Addresses.

Since, at the time, there were not many computers on the internet, this system was manageable. With that said, it was still not easy nor efficient because you needed a way to keep track of every single IP address in the network. If you did not have the IP address, there was no way to visit or communicate with the desired website. An early internet user could not query a site, or go surfing the web as we do today, rather you were restricted to the sites that you already knew how to locate.

Basically, it was equivalent to having a map of a foreign country, but that map only listed the directions to a handful of cities. This limited where you could go and made discovery outside of the context of the given directions impossible. Thankfully, computer scientists of the Internet Engineering Task Force gathered together and decided to simplify the system.

These internet pioneers created what we now know as the website Domain Name System (DNS), a domain registration system that let complicated numerical IP addresses associate themselves with a specific domain name. So, instead of having to remember a difficult sequence of numbers, that looked similar to just about every other IP address, such as 75.839.021.73, a person would only have to remember a URL: Reddit.com.

In conjunction with this new Domain Name System, the earliest forms of domain extensions, also known as Top-Level Domains (TLDs) were created in an attempt to categorize domain names into groups. You will recognize them as a websites final aspect, .com, .net, .org, etc. When first created, each extension served a specific purpose and indicated the function of the website. While that still is somewhat true, the system is no longer as rigid. These domain name extensions soon became an essential part of any domain name. Because of that, we will dive into what domain name extensions are, their purpose, and give you tips on picking an extension for your website.

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## The original domain name extensions

In January of 1985, the body of computer scientists responsible for this internet categorization, known as the Internet Assigned Numbers Authority (IANA), created the very first six top-level domains: .com, .net., .edu, .mil, .gov, and .org. Not long after, the very first two-character country code domain extensions were created such as .ca or .us. As a result, .int was also added and the list of the 7 top level domain names was set.

### .com

The com in dot-com is short for commercial. Dot-coms are by far the most used extension and were originally intended for domains registered to commercial organizations. In total, there were five dot-coms registered in 1985, and they were:

1. Symbolics.com – March 15, 1985
2. BBN.com – April 24, 1985
3. Thnk.com – May 24, 1985



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4. MCC.com – July 11, 1985
5. DEC.com – September 30, 1985

By 1987, there were 100 domains registered as dot-coms. This extension was first administered by the U.S. Department of Defense, who quickly subcontracted the safeguarding of the domain with SRI International. By the early 90's, the National Science Foundation had taken over maintenance. They subcontracted Network Solutions (NSI) and authorized them to begin charging dot-com registrants an annual fee of \$50, with \$15 of that going to the U.S. Government and \$35 going to NSI. Registrants were required to pay for two years, making the registration fee \$100 total.

By the mid-90s, although dot-com was created for commercial entities, there were no restrictions on who was able to register these extensions. With the popularization and mainstreaming of the internet, the dot-com domain became open to the public and soon grew to be the most popular top-level domain for networking, businesses, websites, and emails.

### .edu

The dot-edu domain extension was first created for educational institutions all over the world, but while American educational institutes adapted the .edu, non-U.S. educational institutions used a country-level domain instead.

The first five .edu TLDs were registered on April 24 of 1985. They were:

1. University of California Berkeley – Berkeley.edu
2. Carnegie Mellon University – Cmu.edu
3. Purdue University – Purdue.edu
4. Rice University – Rice.edu
5. University of California, Los Angeles – UCLA.edu

In 1993, registration to a .edu was limited to four-year post-secondary educational institutions. This was made even stricter in 2001, restricting .edu registration to accredited American postsecondary educational institutions.

### .net

The dot-net domain extension is derived from the word network. Originally, it was meant for organizations that participated in networking technologies like infrastructure companies and internet service providers. In 1985, only one domain was registered to the dot-net extension, it was NORDUnet which looked like Nordu.net. This was created to connect Nordic educational networks with national research for the purpose of exchanging informative and explorative work within the network and worldwide.

While dot-net was created for networking purposes, these restrictions were not enforced, and this extension overtime became a “general purpose namespace.” Today, it is still widely used in the advertising sector and by network operators with many seeing it as a viable substitute for dot-coms.

### .gov

The dot-gov name is derived from the word government, meaning that it is restricted for American governmental bodies. Since the internet began as a U.S. federal government-sponsored research network, they limited the .gov designation to only U.S. governmental federal agencies.



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Agencies beneath the cabinet level needed to use subdomains of the parent agency. Over time, dot-gov became standard protocol for any governmental departments, agencies, programs, federally recognized tribes, U.S. territories, cities, towns, counties, and parishes. If other countries want to use .gov or something similar, they must use a second-level domain. For example, the United Kingdom is registered as .gov.uk

#### .mil

The dot-mil name is derived from the word military. Like with .gov, dot-mil is a domain name extension that is limited to the United States' military branches. The DOD (department of defense) uses dot-gov as its homepage and then employs three second-level domains within the dot-mil extension for DOD, Pentagon, and defense. Other countries must use second-level domains as well. Canada, for example, uses norad.mil for the jointly operated North American Aerospace Defense Command.

#### .org

The dot-org name is derived from the word organization and was first intended for non-profits. However, this constraint was not rigidly enforced and was eventually lifted. In July of 1985, the Mitre Corporation became the first group to register a dot-org with mitre.org. The domain was originally intended for non-profit entities, but this restriction was not enforced and has been removed. Presently, the domain is open and is regularly used by open-source projects, communities, for-profit entities, and schools.

### ICANN

The seven top-level domains remained as the only options for extensions for nearly thirteen years. It was not until September of 1998 that the Internet Corporation of Assigned Names and Numbers was established in order to manage the assignment and categorization of website domain names. By 2000, ICANN announced to the world that it would offer seven newly available Top Level Domains: .name, .aero, .biz, .coop, .info, .museum, and .pro. In order to further delineate the difference between the top extensions, ICANN designated that each top-level domain has a different registry, which is managed by a group monitored by and answerable to ICANN.

Extensions can be further separated by generic top-level domains, country code top-level domains, and infrastructure top-level domain.

### Generic top-level domains

Generic top-level domains are the most commonly used extensions. Generic top-level domains are further divided into three categories, restricted, unrestricted and sponsored.

- **Restricted** – These top-level domains are restricted to credentialed professionals, business, or individuals. They include .biz, .name, and .pro.
- **Unrestricted** – Unrestricted top-level domains are able to be purchased by anyone and as the name implies carry no restrictions on who or what may register. The most popular unrestricted TLDs are .com, .net, .org and .info.
- **Sponsored** – A specialized TLD, which has a sponsor that oversees the community represented by the extension. Such communities are generally based on professional, technical, ethnic, or geographical makeup. The most popular sponsored TLDs are .aero, .asia, .cat, .edu, .gov, .int, .jobs, .mil, .mobil, .museum, .tel, and .travel.



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#### Country code top-level domains

These extensions are reserved for sovereign states, countries, or dependent territories. Such ccTLDs consist of two letters and will look like .ca (Canada), .uk (Great Britain), .fr (France). They have little relevance to most individuals attempting to select the proper extension for their business.

#### Infrastructure top-level domain

This domain was originally restricted to the Advanced Research Projects Agency (ARPA) and was used mainly for reasons of technical infrastructure. It was the original domain installed in the Domain Name System and was first meant to simply be a short-term domain. Over time the acronym changed to Address and Routing Parameter Area.

#### Reasons to consider using a new domain extension

Today there are hundreds of available generic extensions. Because millions upon millions of websites are already up and running, it might be quite difficult to land a domain name extension that is applicable, relevant, and helpful to your business' future success. There are a variety of reasons why it might be wise to use a newer generic domain extension.

- **Availability** – Odds are, there is a very good chance that your company's name plus dot-com is already taken, especially if you want to use a general name such as deliciousbakedgoods.com. In order to land that dot-com, you might have to purposely misspell the company's name, leave out letters, or make different alterations that do not necessarily help build your brand. New domain extensions give you the option to retain your company's name and to use an extension that applies to the business. Writers can use dot-press, photographers can use dot-photography, and tech companies can use dot-tech.
- **Price** – dot-com domains, even in the unlikely event that they are available, can cost thousands, if not hundreds of thousands of dollars. That same name, or even better, more applicable names, without the dot-com, can cost significantly less. The cost of purchasing a slightly relevant dot-com may not be worth having a more relevant name that ends in a newer domain extension.
- **Clever naming** – New domain extensions allow companies to cleverly combine the name with the extension. For example, musical.ly, an American video social network app for video creation and live broadcasting, were able to utilize the extension in an applicable and easy to remember manner.
- **Google's algorithm** – Google's search engine algorithm does not punish websites for not using a generic top-level domain. They treat new gTLDs in a similar manner to original gTLDs.
- **Beating the rush** – Since new domain extensions are still a rather early concept and practice, there are still very popular names or ideas that are available that would never be for dot-coms. That said, the popularization of new domain extensions has led to an increased demand that is only expected to continue growing. Grabbing that perfect new gTLD can save you money and prevent other competitors from snagging it. The price of purchasing a domain name off another owner is far more expensive than simply the cost of registering a new available domain name.
- **Great for local businesses** – If you have a local business and want to be associated with that location, you can help build your branding and local image by claiming a new extension. For example, biketours.la might be a perfect name for a bike rental company that is in Los Angeles.



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## Choose the right domain extension for your business

There are several things that must be considered when selecting the right domain name. A thorough understanding of domain name extensions can help make this process infinitely better.

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