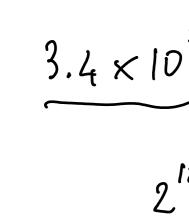
3/21/24, 10:10 AM

OneNote

## 4.5 IPV6 ADDRESSING

martedì 12 marzo 2024 09:00

https://www.google.com/intl/en/ipv6/statistics.html



Representation in Hexadecimal Format

An IPv6 address consists of 128 bits, divided into eight groups of 16 bits each. Each group is represented by four hexadecimal digits (since each hex digit represents 4 bits, and 4 bits \* 4 = 16 bits). Hexadecimal numbers use the digits 0-9 to represent values zero to nine, and the letters A-F (or a-f) to represent values ten to fifteen. Therefore, an IPv6 address looks something

2001:0db8:85a3 2000:2000:8a2c:0370:73

## How to Shorten an IPv6 Address

 Omit Leading Zeros: Within any 16-bit block of an IPv6 address, leading zeros can be omitted. For example, 0db8 can be shortened to db8, and 0000 can be simply written as 0.

2. Use Double Colon for Consecutive Zeros: A double colon :: can replace consecutive sections of zeros only once in an IPv6 address to shorten it. This is because the double colon tells the system that groups of zeros have been omitted to shorten the address. For example, the IPv6 address 2001:0db8:0000:0000:0000:8a2e:0370:7334 can be shortened to 2001:db8::8a2e:0370:7334.

It's important to note that the double colon :: can only be used once in an address because using it more than once would create ambiguity regarding the number of zeros omitted in each instance.

An example of a fully abbreviated IPv6 address might look like this:

 $https://clickandfind-my.sharepoint.com/personal/zingirian\_clickandfind\_onmicrosoft\_com/\_layouts/15/Doc.aspx?sourcedoc=\{a0cadf98-59b4-4d67-b3a4-21516a59a24c\}\&action=view\&wd=target\%28CN2024.one\%7C3756d2e0-a09c-4a5d-9a6a-40cbeee6ac6d\%2F4.5\ IPV6\ ADDRESSING\%7Ca0ab9078-78b5-4ba9-935a-936c9c6dbf6d\%2F\%29\&wdorigin=NavigationUrl$