

## Java Data Type

Data Type	Default	Size (Bit)	Range
byte	0	8	-128 to 127
short	0	16	-32768 to 32767
int	0	32	$-2^{31}$ to $2^{31}-1$ -2147483648 to 2147483647 ±2 Billion ± 9 zeros) (10 digits)
int (unsigned) (Java SE 8 and later)	0	32	0 to $2^{32}-1$ 0 to 4294967295 (0 to 4 Billion ± 9 zeros) (10 digits)
long l L	0l 0L	64	$-2^{63}$ to $2^{63}-1$ -9223372036854775808 to 9223372036854775807 (±9 Quintillion ± 18 zeros) (19 digits)
long (unsigned) (Java SE 8 and later) l L	0l 0L	64	0 to $2^{64}-1$ 0 to 18446744073709551615 (0 to 18 Quintillion ± 18 zeros) (19 digits)
float f F	0f 0F 0.0f 0.0F	32	$2^{-126}$ to $2^{127}$ 1.4e±045 to 3.4e+038
double d D	0d 0D 0.0d 0.0D	64	$2^{-1022}$ to $2^{1023}$ 4.9e±324 to 1.8e+308 (Approximate)
char	'\u0000'	16	'\u0000' (or 0) to '\uffff' (or 65535).
String (or any object)	null	<a href="#">Note String</a>	<a href="#">2<sup>31</sup>-1 Characters</a>
boolean	false	<a href="#">Note boolean</a>	<a href="#">Virtual machine dependent</a>

[Note String](#): From the source code

```
class String implements java.io.Serializable {
    private char value[];
    // 4 bytes + 12 bytes of array header private int offset;
    // 4 bytes private int count;
    // 4 bytes
}
```

whatever the value of Integer.MAX\_VALUE is (which on most systems will be  $2^{31}-1$  )

[Note boolean](#): Size of the boolean in java is virtual machine dependent. Any Java object is aligned to an 8 bytes granularity. A Boolean has 8 bytes of header, plus 1 byte of payload, for a total of 9 bytes of information. The JVM then rounds it up to the next multiple of 8.