

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	Note String	2³¹-1 Characters
boolean	false	Note boolean	Virtual machine dependent

[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.