|  | **ASCII Reference Sheet** |  |
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## What is ASCII?

ASCII (American Standard Code for Information Interchange) is a widely used system for character encoding. It was originally developed in 1963 as a 7-bit system allowing for 128 characters. Symbols 0-31 and 127 were reserved for control characters (e.g. “Backspace” or “Delete”) with the numbers 32-126 being used for printable characters. As the 8-bit “byte” became standardized, ASCII was extended to the 8-bit format you see below.

| **Num.** | **Bits** | **Char.** |  | **Num.** | **Bits** | **Char.** |  | **Num.** | **Bits** | **Char.** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 32 | 00100000 | Space |  | 64 | 01000000 | @ |  | 96 | 01100000 | ` |
| 33 | 00100001 | ! |  | 65 | 01000001 | A |  | 97 | 01100001 | a |
| 34 | 00100010 | " |  | 66 | 01000010 | B |  | 98 | 01100010 | b |
| 35 | 00100011 | # |  | 67 | 01000011 | C |  | 99 | 01100011 | c |
| 36 | 00100100 | $ |  | 68 | 01000100 | D |  | 100 | 01100100 | d |
| 37 | 00100101 | % |  | 69 | 01000101 | E |  | 101 | 01100101 | e |
| 38 | 00100110 | & |  | 70 | 01000110 | F |  | 102 | 01100110 | f |
| 39 | 00100111 | ' |  | 71 | 01000111 | G |  | 103 | 01100111 | g |
| 40 | 00101000 | ( |  | 72 | 01001000 | H |  | 104 | 01101000 | h |
| 41 | 00101001 | ) |  | 73 | 01001001 | I |  | 105 | 01101001 | i |
| 42 | 00101010 | \* |  | 74 | 01001010 | J |  | 106 | 01101010 | j |
| 43 | 00101011 | + |  | 75 | 01001011 | K |  | 107 | 01101011 | k |
| 44 | 00101100 | , |  | 76 | 01001100 | L |  | 108 | 01101100 | l |
| 45 | 00101101 | - |  | 77 | 01001101 | M |  | 109 | 01101101 | m |
| 46 | 00101110 | . |  | 78 | 01001110 | N |  | 110 | 01101110 | n |
| 47 | 00101111 | / |  | 79 | 01001111 | O |  | 111 | 01101111 | o |
| 48 | 00110000 | 0 |  | 80 | 01010000 | P |  | 112 | 01110000 | p |
| 49 | 00110001 | 1 |  | 81 | 01010001 | Q |  | 113 | 01110001 | q |
| 50 | 00110010 | 2 |  | 82 | 01010010 | R |  | 114 | 01110010 | r |
| 51 | 00110011 | 3 |  | 83 | 01010011 | S |  | 115 | 01110011 | s |
| 52 | 00110100 | 4 |  | 84 | 01010100 | T |  | 116 | 01110100 | t |
| 53 | 00110101 | 5 |  | 85 | 01010101 | U |  | 117 | 01110101 | u |
| 54 | 00110110 | 6 |  | 86 | 01010110 | V |  | 118 | 01110110 | v |
| 55 | 00110111 | 7 |  | 87 | 01010111 | W |  | 119 | 01110111 | w |
| 56 | 00111000 | 8 |  | 88 | 01011000 | X |  | 120 | 01111000 | x |
| 57 | 00111001 | 9 |  | 89 | 01011001 | Y |  | 121 | 01111001 | y |
| 58 | 00111010 | : |  | 90 | 01011010 | Z |  | 122 | 01111010 | z |
| 59 | 00111011 | ; |  | 91 | 01011011 | [ |  | 123 | 01111011 | { |
| 60 | 00111100 | < |  | 92 | 01011100 | \ |  | 124 | 01111100 | | |
| 61 | 00111101 | = |  | 93 | 01011101 | ] |  | 125 | 01111101 | } |
| 62 | 00111110 | > |  | 94 | 01011110 | ^ |  | 126 | 01111110 | ~ |
| 63 | 00111111 | ? |  | 95 | 01011111 | \_ |  |  |  |  |