## WILLY BYTE IN THE DIGITAL DIMENSION

## Command Summary for Apple II, II + Ile, Ilc

TO START: Insert the disk in the drive with SIDE TWO facing up and then turn on your computer. Follow the on-screen prompts and flip the disk to side one when you're instructed to.

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TO LEAVE DEMO: Press the JOYSTICK BUTTON or the SPACE BAR
TO SWITCH TO KEYBOARD CONTROL: PTEss CONTROL K
TO SWITCH TO JOYSTICK CONTROL: PTess CONTROL J
TO EXIT POWER ROOM AT WILL: Press CONTROL X
TO RESTART GAME: PTess CONTROL R
TO TURN SOUND ON/OFF: Press CONTROL S
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\left.|  | PLAY COMMANDS |  |
| :--- | :---: | :--- | :--- |
|  | (FOR ALL ROOMS EXCEPT POWER) |  |$\right]$| KEYBOARD CONTROL | JOYSTICK CONTROL |  |  |
| :--- | :--- | :--- | :--- |
| move left | J | move left | STICK LEFT |
| move right | L | move right | STICK RIGHT |
| move up | 1 | move up | STICK UP |
| move down |  | move down | STICK DOWN |
| jump/pick up tool | A | jump/pick up tool | BUTION 0 |
| drop tool | D | drop tool | BUTION 1 |
| stop | K | stop | HANDS OFF |

POWER ROOM PLAY COMMANDS
(Willy can jump in eight directions in the POWER room.)

KEYBOARD CONTROL
diagonally up and left up
diagonally up and right left
right
diagonally down and left down
diagonally down and right

JOYSTICK CONTROL

TAP BUTTON 0 to get started

Moving stick normally allows vertical, horizontal, and diagonal jumps.

CTRL P (Program) - Allows you to construct your own pattern using hexadecimal code. Here's a brief description of how this works:
For each group of 4 power pads, 0000 , one value is given to denote which of those pads are present and which are not. In hexadecimal, we count from 0-15 using the standard decimals 0-9 followed by the six (hex) alpha characters, A-F.
This is how all possibilities for on-off variations of the four power pads can be represented using only one numeric place:

|  | $X=$ OFF | $0=O N$ |  |
| :---: | :---: | :---: | :---: |
| $0=0000$ | (ALL OFF) | $8=\times 000$ |  |
| 1000 x |  | $9=\times 00 \times$ |  |
| $2=00 \times 0$ |  | $A=\times 0 \times 0$ |  |
| $3=00 \times \mathrm{x}$ |  | $B=X 0 \times X$ |  |
| $4=0 \times 00$ |  | $C=X \times 00$ |  |
| $50 \times 0 \times$ |  | $D=\times \times 0 \times$ |  |
| $00 \times 0$ |  | $E=X \times \times 0$ |  |
| $7=0 \times \times$ |  | $F=X \times X \times$ | (ALL ON) |

The row of numbers that appears across the top of the screen in Program mode shows the binary value for each vertical column of pads. Hexidecimal is just a faster, simpler way to represent binary patterns in two places, with the " 1 's" place representing the 8-4-2-1 pattern and the "10's" place representing the 80-40-2010 pattern. Thus, by using both places together, you are able to control two congruous patterns of 4 at once, which is actually just one larger pattern of 8 . This pattern of eight "on" or "off" pads symbolizes the same kind of organization as one byte (eight bits) of information inside the computer.
PRESSING CTRL P AGAIN RETURNS YOU TO GAME PLAY.
NOTE: IT IS POSSIBLE TO CONSTRUCT SITUATIONS WHICH ARE IMPOSSIBLE TO PLAY THROUGH. IF THIS OCCURS, PRESS CONTROL P AGAIN AND ENTER A MORE FEASIBLE PATTERN.
CTRL N - Allows you to move forward and backward (using > and < , respectively) to view and play higher (or lower) levels.
PRESSING CTRL N AGAIN RETURNS YOU TO GAME PLAY.

| ASCII | HEXADECIMAL | BINARY | ASCII | HEXADECIMAL | BINARY |
| :---: | :---: | :---: | :---: | :---: | :---: |
| SPACE | 20 | 00100000 | > | 3E | 00111110 |
| $!$ | 21 | 00100001 | ? | 3F | 00111111 |
| " | 22 | 00100010 | @ | 40 | 01000000 |
| \# | 23 | 00100011 | A | 41 | 01000001 |
| S | 24 | 00100100 | B | 42 | 01000010 |
| \% | 25 | 00100101 | C | 43 | 01000011 |
| \& | 26 | 00100110 | D | 44 | 01000100 |
| , | 27 | 00100111 | E | 45 | 01000101 |
| ( | 28 | 00101000 | F | 46 | 01000110 |
| ) | 29 | 00101001 | G | 47 | 01000111 |
| . | 2 A | 00101010 | H | 48 | 01001000 |
| + | 2 B | 00101011 | 1 | 49 | 01001001 |
| . | 2 C | 00101100 | J | 4A | 01001010 |
| - | 2 D | 00101101 | K | 4B | 01001011 |
|  | 2 E | 00101110 | L | 4 C | 01001100 |
| 1 | 2 F | 00101111 | M | 4D | 01001101 |
| 0 | 30 | 00110000 | N | 4 E | 01001110 |
| 1 | 31 | 00110001 | $\bigcirc$ | 4 F | 01001111 |
| 2 | 32 | 00110010 | P | 50 | 01010000 |
| 3 | 33 | 00110011 | Q | 51 | 01010001 |
| 4 | 34 | 00110100 | $R$ | 52 | 01010010 |
| 5 | 35 | 00110101 | S | 53 | 01010011 |
| 6 | 36 | 00110110 | T | 54 | 01010100 |
| 7 | 37 | 00110111 | U | 55 | 01010101 |
| 8 | 38 | 00111000 | V | 56 | 01010110 |
| 9 | 39 | 00111001 | w | 57 | 01010111 |
| : | 3A | 00111010 | X | 58 | 01011000 |
| ; | 3B | 00111011 | Y | 59 | 01011001 |
| $<$ | 3 C | 00111100 | Z | 5A | 01011010 |
| $=$ | 3D | 00111101 | $\wedge$ | 5E | 01011110 |

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