Help for Puzzle v1.2...

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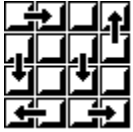**Game Menu**

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Scramble

This option will make a series of random tile moves, the result being an image that is mixed up, and will require many tile movements to restore.   An image may be 'scrambled' several times for greater effect.

When an image is loaded from a bitmap file, a Pre-scrambled option is available which will scramble the image before it is seen.   Puzzles are very difficult to solve when the original has not been (recently) seen.

It will always be possible to restore a scrambled image.

Unscramble
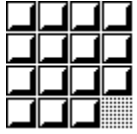
This option restores the image to it's original state - unscrambled.   This is cheating!

Paste

To paste an image into Puzzle from the clipboard, select '**Paste**' from the '**Special**' menu. Puzzle will resize the image to fit the Puzzle window.

Try this: hit the '**Print Screen**' key, then select '**Paste**' from the '**Special**' menu.   The *whole screen* will have been copied to the clipboard, and then into Puzzle.

How to Play

Puzzle is played by first selecting an <u>image</u> to work with, <u>scrambling</u> the tiles, then moving the tiles around by clicking on them with the <u>mouse</u>, or using the arrow keys on your <u>keyboard</u>.   Try to reconstruct the original image.

Puzzle will let you know when an image has been solved!

(See <u>Algorithm</u> for a description of how Puzzle solves itself.)

Number of tiles

The number of tiles in Puzzle can be changed somewhat to alter the difficulty of solving Puzzle.   Grids of tiles in the **4x4**, **5x5**, **6x6**, **7x7** and **8x8** arrangements are available from the Game menu.
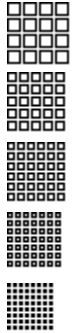
A larger number of tiles means that it is more difficult to recognize the original location of each tile, and therefore harder to solve.   Try <u>numbering tiles</u> to make this easier.

Exit

Exiting Puzzle causes preferred settings to be written to the **WIN.INI** file.   These will be written to a section titled **[Puzzle]**.   Puzzle stores the following information:

- screen location and size of the Puzzle window.
- image style (lines, letters ...) and any bitmap file name.
- whether tile numbering is in effect.
- whether the arrow key directions are swapped.
- whether Idle solving is in effect.

Paste from Bitmap file

Bitmap files can be loaded into Puzzle by selecting 'Paste from...' from the 'Special' menu. Puzzle will resize the image to fit the Puzzle window.   The bitmap file name is saved as a default when you <u>exit</u> Puzzle.

There is an option available on the dialog box which forces the image to be <u>Pre-scrambled</u> before it is displayed.   This will make solving the puzzle much harder!

Try loading some of the wallpaper bitmaps you have.

Image style

There are five different types of image that can be used with Puzzle.   Image style can be changed with the '**Special**' menu.   Where appropriate, Puzzle tries to provide some variation in the appearance and coloring of these patterns.

Lines - consists of a colored fan of lines, or concentric ellipses.   Standard system colors are used to generate this image.

Letters - presents a more traditional appearance to Puzzle.   Standard colors again. Selects a font from any of the installed fonts.   This includes the various type faces provided by font management software.   Note: there are symbol fonts available - don't expect to see just letters.

Shapes - many colored different shapes, using a color palette.   If you have a 256-color display driver, this will be one of the more visually appealling images.

Paste - will take an image that has been copied to the clipboard, and resize that image to fit the Puzzle window.

Paste from - will load a bitmap from a file, prompting for the file name.   It too will be resized to fit the Puzzle window.

Swap key directions

This option reverses the effect of using the arrow keys to move tiles around in Puzzle.   The 'up' key will be interpreted as 'down', and 'left' as 'right'.   Some prefer to think of the arrow keys moving the <u>space</u> around, and others prefer to think of them moving the tiles around.

With this option enabled, the keyboard usage is:
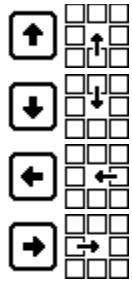
See the help topic '<u>Keyboard</u>'.

Tile numbering

Sometimes, when an image is pasted or loaded into Puzzle, two or more tiles may be identical.   This option will place a tile identification letter in the lower right corner of each tile.

This option can also be switched on, then off to provide a clue to the location of the tiles, which makes some of the more difficult puzzles easier to solve.

Shareware

Puzzle is shareware.   This means that Puzzle may be freely distributed, provided this documentation accompanies the program unaltered, and no charge beyond duplication and distribution is made.   You may use Puzzle for a trial period.   If you use and enjoy Puzzle, you must pay for Puzzle.

Please support Shareware.   See the '**About Puzzle...**' option in the '**Help**' menu for details on how to register.   Registered users will receive a free copy of the next version when available.

Mouse

In order to move a tile using the mouse, move the mouse cursor over the tile that you wish to be moved.   Note that the tile must be adjacent to the space.
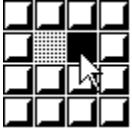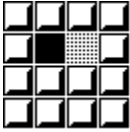
To move the black tile shown into the space to the left, simply click on the tile with the mouse (any mouse button).
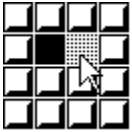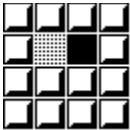
Any tile that is adjacent to the space can be moved into the space by simply clicking on that tile.

Keyboard

In order to move a tile using the keyboard, the arrow keys (cursor control keys) are used.   In the example, the black tile is moved right, into the space, by hitting the 'left' arrow key.

The tile has moved into the space, leaving a space behind it.   The appearance is that the space moves in the direction of the arrow keys.

There is an option in the 'Special' menu that will reverse this, so that the right arrow key will move the tile to the left of the space right.   See 'Swap key directions' help topic.   This option is a preference that is saved when you exit Puzzle.

Key usage summary:
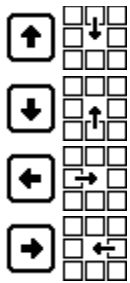
Space
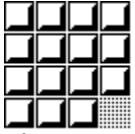
The space is the one tile that has been removed to allow the other tiles to be moved around. In the **4x4** tile arrangement shown, the space is the sixteenth tile, initially in the lower right corner.

Solve

The puzzle is solved slowly.   Solving can be interrupted at any time by clicking with the mouse on the puzzle, or hitting a key.   Resume by selecting '**Solve**' again, or double-clicking on the puzzle.

Try running two instances of Puzzle, and attempting to solve one before the other can solve itself.

(note: Puzzle relies on system timers, and if none are available, this option just <u>unscrambles</u> the image.)

Quick solve

Solves the puzzle as fast as possible.   The speed depends largely on the size of the Puzzle window, and how fast bitmaps can be displayed on your system.

Quick Solve can be interrupted at any time by clicking with the mouse on the puzzle, or hitting a key.   Resume by selecting '**Quick Solve**' again.

(note: Puzzle relies on system timers, and if none are available, this option just <u>unscrambles</u> the image.)

Solve if idle

If Puzzle determines that nothing has happened for a minute or so, it will impatiently solve itself.   Turning off this option will prevent this.   This option is saved when Puzzle <u>exits</u>.

Save to Bitmap file

This option will save a copy of the image currently displayed by Puzzle to a bitmap file (extension '**bmp**').   The image is saved as an uncompressed bitmap.

Solve algorithm

The algorithm used to solve the puzzle is very simple.

The computer can determine where a tile must be moved, by using the <u>tile numbering</u> labels.   The tiles are moved in the sequence in which they are labelled, which is left to right, top to bottom.   The last two rows are handled top to bottom, left to right.

The moves used must not disturb any tile that has already been moved into position, which, given the sequence means that tiles above and to the left should not be disturbed.   After a tile has been moved into position, the <u>space</u> is relocated to the position just to the right, or below the tile.

Only one special move needs to be known.   That move positions the last tile on the horizontal row of tiles by disturbing only the one tile to it's left, then restoring it.   This move is also used on the last two rows of the puzzle.

Pre-scrambled
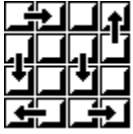
This option causes the image being loaded to be scrambled before it is displayed.   This makes solving the puzzle a lot harder than it sounds.   Think of solving a jigsaw puzzle without looking at the picture box...

Problems

If problems or bugs are found in Puzzle,   please contact the author, as detailed in the
'**About Puzzle...**' dialog box.   All problems will be addressed.

Following are situations where Puzzle does not shine:

Large, colorful bitmaps consume lots of memory.   When memory is low, Puzzle may not
function correctly.   Tiles may appear blank, and tile numbering may not function.   Bitmaps
files may not load.   Puzzle tries to detect these problems and warn the user.

When the Puzzle window is large, bitmaps can take a long time to initialize.   A smaller
window will help.