



IBERO SOLVER 2X2X2 LBL GUI

VERSIÓN 1.X.X

MANUAL DE USUARIO

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Índice

1. Introducción	4
2. Descarga e instalación	4
3. Uso	5
3.1. Introducción de colores	5
3.2. Resolución	7
3.3. Resultados	7
4. Licencia	9
5. FAQs	10
6. Enlaces	11
7. GNU Free Documentation License	12

1. Introducción

Ibero Solver 2x2x2 LBL GUI es una interfaz gráfica para el programa Ibero Solver 2x2x2 LBL, el cual proporciona los movimientos a realizar para resolver un cubo de 2x2x2 siguiendo el método LBL (*Layer-By-Layer*; Capa a Capa). Esta interfaz se puede usar en Windows, y está diseñada para facilitar la introducción de datos en el programa, la lectura de resultados, y en definitiva su uso general.

2. Descarga e instalación

El programa está escrito en Visual Basic, por lo que su ejecución no dará problemas; no obstante, el núcleo del programa es Ibero Solver 2x2x2 LBL, un programa de consola escrito en Fortran; por tanto, antes de usar el programa, hay que instalar un compilador que permita al ordenador entender las aplicaciones escritas en este lenguaje. Aquí se ha usado gfortran, un compilador perteneciente a la colección GCC, creada por el proyecto GNU.

En la Wiki de GCC (<http://gcc.gnu.org/wiki/GFortranBinaries>) hay muchas versiones para Windows; la más cómoda (es un instalador al uso) es ésta:

<http://users.humboldt.edu/finneyb/gfortran-windows-20130301.exe>

Tras descargarlo, hay que ejecutar el archivo. Se mostrará una ventana como ésta:

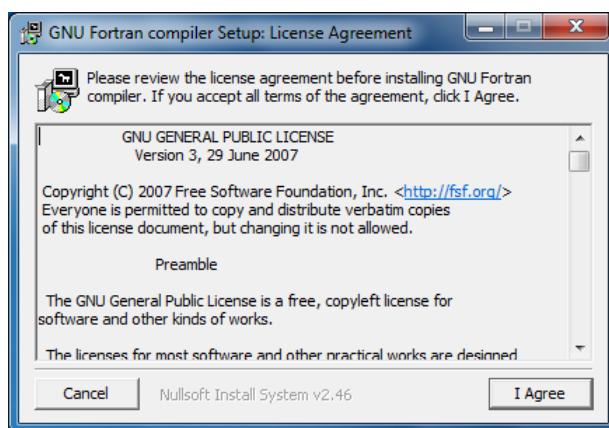


Figura 1: Ventana del instalador del compilador gfortran.

Y no habrá más que instalarlo de la manera habitual.

Para instalar el programa, habrá que descargarse de la web de Ibero Rubik el archivo comprimido del programa. Una vez descargado, habrá que descomprimirlo en una carpeta que el usuario elija (por ejemplo el Escritorio).

NOTA: La carpeta principal puede renombrarse, pero el contenido de la misma (las subcarpetas y los ejecutables) debe permanecer en una misma carpeta. Si alguna subcarpeta se borra o se mueven los archivos EXE, el programa no funcionará.

3. Uso

Al ejecutar “Tbero Solver 2x2x2 LBL GUI.exe”, aparecerá la ventana de la Figura 2, la cual contiene tres botones correspondientes a las tres fases de la utilización del programa.

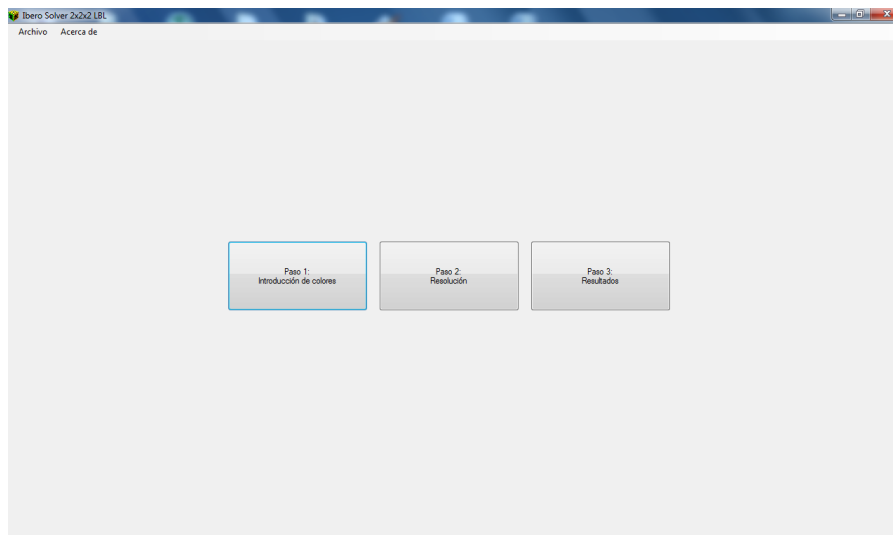


Figura 2: Ventana principal del programa.

Primero hay que pulsar el botón “Paso 1: Introducción de colores”; al acabar, el botón “Paso 2: Resolución” y acto seguido el botón “Paso 3: Resultados”

3.1. Introducción de colores

Al pulsar el botón del Paso 1, aparecerá la ventana de la Figura 3:

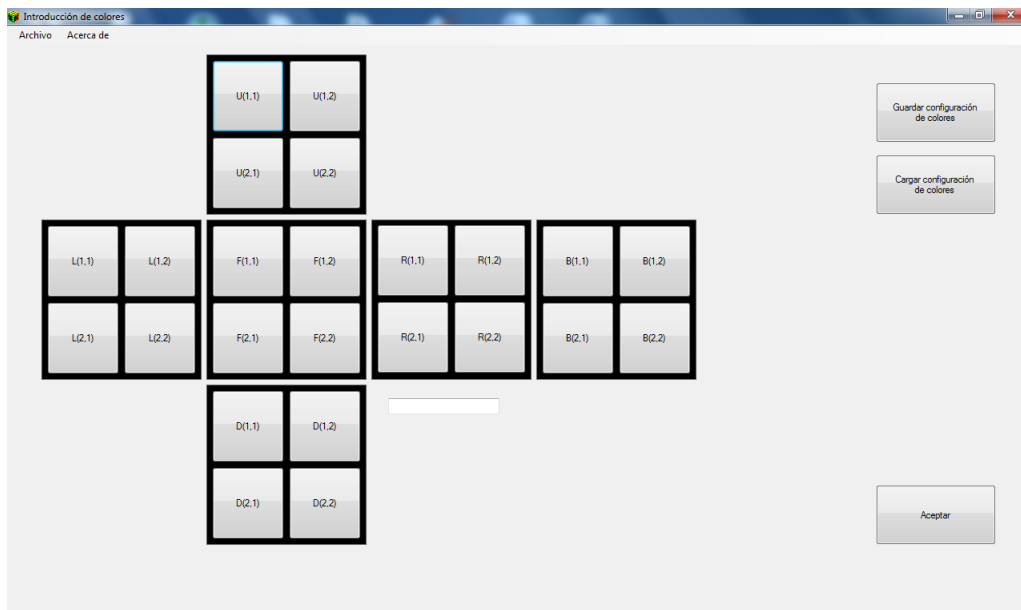


Figura 3: Ventana del Paso 1.

Esta ventana muestra un cubo de 2x2x2 extendido, con las cuatro pegatinas de cada cara, nombradas de manera matricial: U(1,1), U(1,2), U(2,1)...

Para introducir los colores del cubo:

1. Clickée en una de las pegatinas. Aparecerá un cuadro con los diferentes colores a elegir (Figura 4).
2. Seleccione el color apropiado; verá cómo la pegatina antes seleccionada cambia de color.
3. Repita el proceso (seleccionar pegatina, seleccionar color) con todas las pegatinas del cubo.

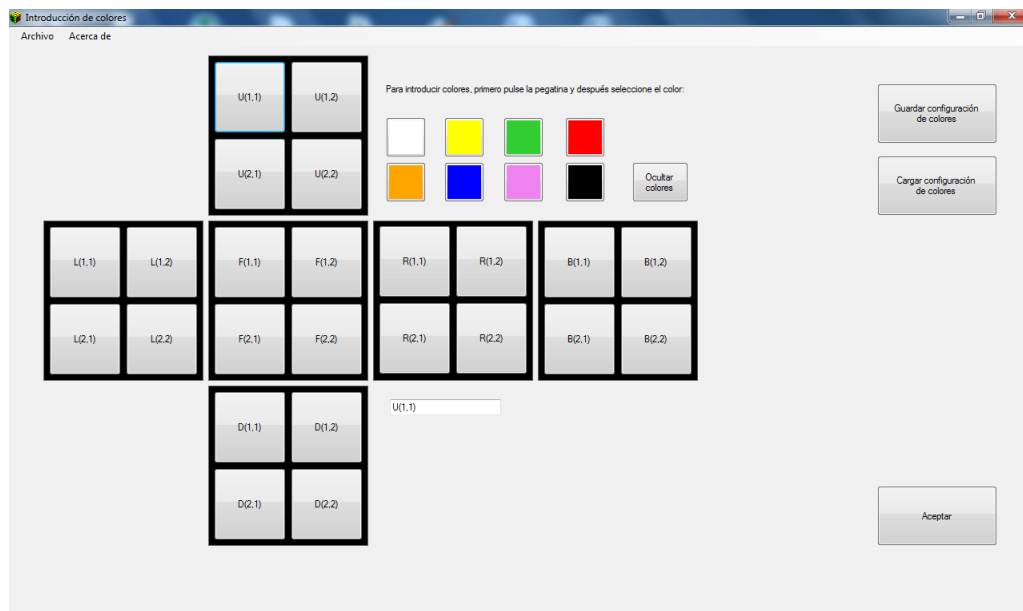


Figura 4: Ventana del Paso 1 con el menú de colores desplegado.

En un principio, puede parecer poco clara la vista del cubo desplegado, y la introducción de los colores especialmente en las caras superior e inferior. Éste es un caso particular del cubo transcrito al programa:

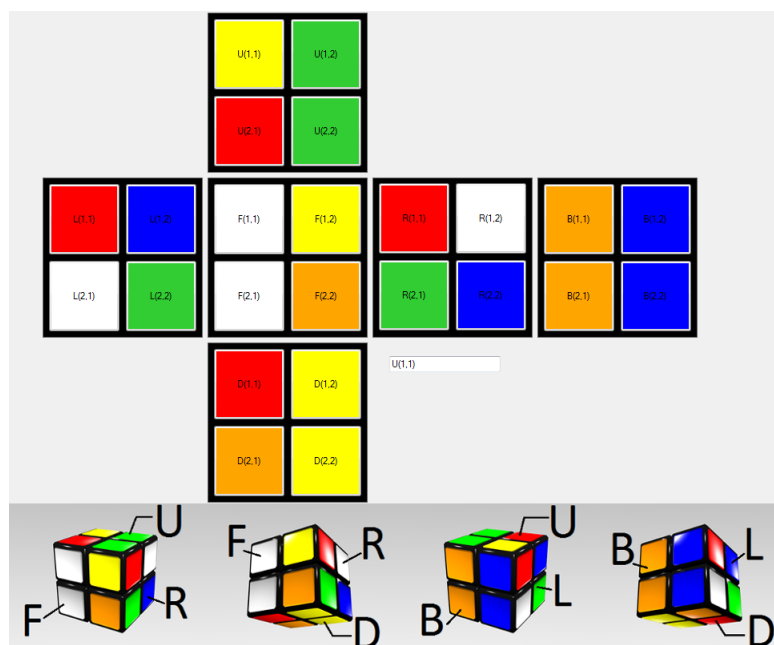


Figura 5: Ejemplo de cómo se introducen los colores en el programa.

3.2. Resolución

Cuando se pulsa el botón del Paso 2, se ejecuta Ibero Solver 2x2x2 LBL, escrito en Fortran, y que es el encargado de leer los datos introducidos a través de la interfaz, y de calcular los movimientos necesarios para resolver el cubo. En este paso, puede haber errores de ejecución; en ese caso, el programa mostrará un mensaje con el fallo en cuestión, similar al de la Figura 6:

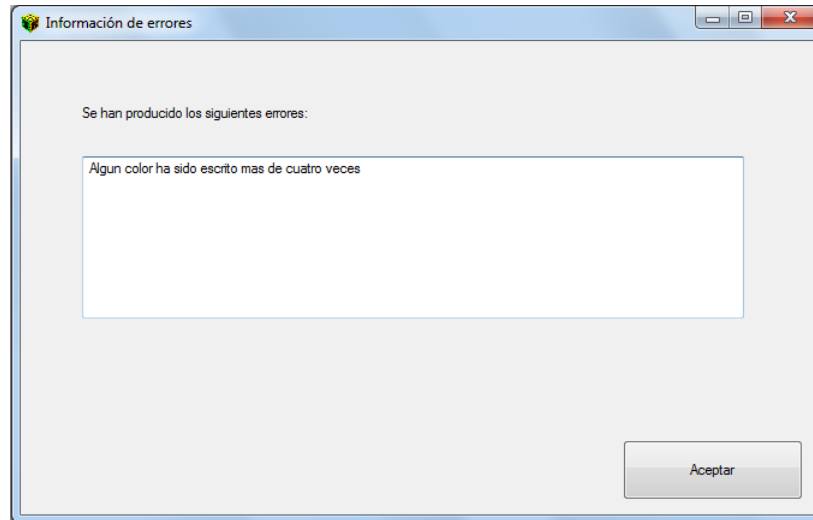


Figura 6: Ejemplo de error durante la resolución del cubo.

Mensajes de error que pueden producirse son:

- Escritura de un color más de cuatro veces
- Apertura incorrecta de los ficheros de las caras
- Apertura incorrecta de los ficheros de los resultados
- Reserva de memoria incorrecta para vectores y matrices

3.3. Resultados

Si se pulsa el botón del Paso 3, se abre la ventana de la Figura 7, en el que se leen todos los movimientos que resuelven el cubo. Si se pulsa en el botón “Mostrar los movimientos de cada paso”, se despliegan cuatro cuadros de texto adicionales (Figura 8), y repartiéndose los movimientos del primer cuadro de texto en esos cuatro nuevos cuadros.

- Paso 0: Contiene el movimiento a realizar para colocar la cara más completa arriba (si es necesario).
- Paso 1: Aquí están los movimientos que completan la capa superior.
- Paso 2: Aquí se incluye el giro de 180° del cubo para colocar la parte no resuelta arriba, y los movimientos que sitúan los amarillos en la cara superior.
- Paso 3: Con estos movimientos se permutan las piezas de la capa superior, resolviendo el cubo por completo.

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4. Modificar el programa
5. Transmitir versiones modificadas por él mismo en forma de código objeto, incluyendo siempre el código fuente.

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- Decir que la licencia GPL se aplica al código
- Indicar la ausencia de garantía
- Proporcionando una copia de la GPL con el programa

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En el programa, puede encontrar información sobre la licencia y el copyright (Figura 9) en el botón “Acerca de” → “Licencia”, en el menú de cualquiera de las ventanas, y una copia de la General Public License en la carpeta “help_files”, accesible desde “Acerca de” → “Ver manual de instrucciones”

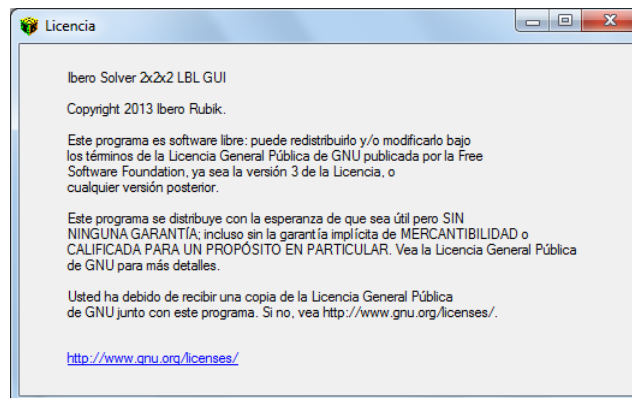


Figura 9: Ventana con información de la licencia.

5. FAQs

- **¿Por qué Fortran, y no otro lenguaje de programación más común?**

Fortran aún se sigue usando mucho en la ingeniería. Además, es un lenguaje eficaz para manipular matrices, y relativamente rápido (el tiempo de ejecución del programa está por debajo de 50 ms). No obstante, aquí también usamos Visual Basic para la interfaz gráfica.

- **¿Por qué hay que instalar un compilador para poder ejecutar el programa?**

Fortran, aun siendo muy eficaz para su propósito, no está muy extendido, por lo que Windows no lo “entiende”. Así que el compilador permite crear los ejecutables en Windows a partir del código fuente, y ejecutarlos.

- **He borrado accidentalmente una de las carpetas del programa.**

El programa dará error si intenta ejecutarlo. Recomendamos que se baje de nuevo el programa desde la web de Ibero Rubik.

- **He borrado accidentalmente un archivo.**

Si es un fichero de la carpeta “results” o de la carpeta “program_files”, no tiene mayor trascendencia; al ejecutar el programa se crearán de nuevo. Si es de la carpeta “faces”, el programa no funcionará, ya que necesita los datos escritos en él. Puede crearlo manualmente, llamarlo de forma análoga al resto de ficheros de la carpeta, y escribir los colores de las caras en él. Si es de otra carpeta, recomendamos que se baje de nuevo el programa desde la web de Ibero Rubik.

- **¿Por qué el nombre de las caras y los movimientos están en inglés si el programa está en español?**

Porque el programa se concibió originalmente en inglés. Además se decidió seguir usando la nomenclatura en inglés para las caras y los movimientos porque es una nomenclatura ampliamente extendida.

- **¿De qué forma puedo usar este programa según su licencia?**

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www.iberorubik.com

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