

# **GAMS IDE Documentation**

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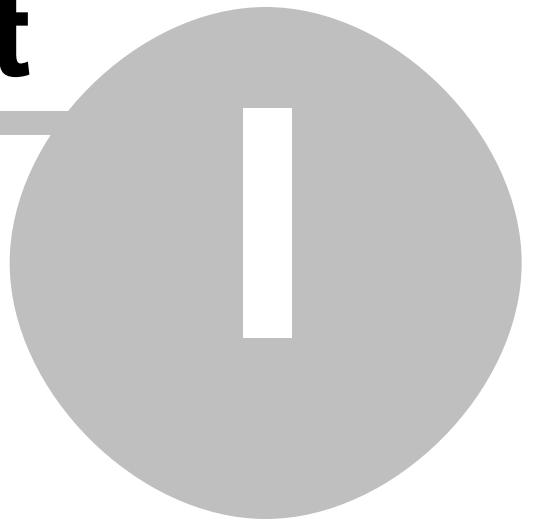
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This document contains the on-line help of the GAMS IDE. Its main purpose is to provide this documentation in a printable format.

**Part**



# 1 Contents

The GAMS IDE is a general text editor with the ability to launch and monitor the compilation / execution of GAMS models. Progress of a compilation / execution can be monitored in the process window. The process window is also used as a navigation tool to locate syntax errors in the source code and to find various anchor points in the listing file. The IDE also facilitates the selection of default solvers and manages GAMS parameters on a file by file basis.

The IDE uses some new GAMS features which are not available in versions prior to version 95.

The on-line help only covers the use of the IDE, not the GAMS language. There is a mechanism however to access the GAMS documentation from the editor; see Online Documentation<sup>[6]</sup>.

The interactive nature of the Windows environment often makes it difficult to reproduce a program bug reported by a user. If possible, try to reproduce the bug after a fresh start, noting the steps leading to the problem.

Guided Tour of the GAMS IDE<sup>[8]</sup>  
Menus and Windows<sup>[14]</sup>

## 1.1 Online Documentation

The GAMS IDE has its own integrated help system. This system documents the use of the IDE.

To allow for GAMS language documentation, solver documentation and user model documentation a file access mechanism is available from the IDE. As the user selects the help menu, the menu is extended with all files found in the 'docs' directory. Selecting a file from the menu will launch the program associated with that file.

## 1.2 Contact Information

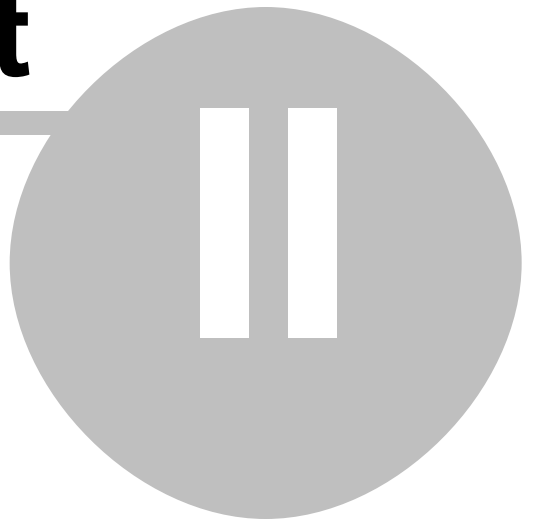
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**Part**



## 2 Guided Tour

This section is a hands-on demonstration of some of the features of the GAMS IDE.

- Open a model in the model library<sup>[8]</sup>
- Running a model<sup>[9]</sup>
- Selecting Solvers<sup>[10]</sup>
- Navigating the listing file<sup>[10]</sup>
- Correcting a syntax error<sup>[10]</sup>
- Using the IDE for existing GAMS models<sup>[11]</sup>

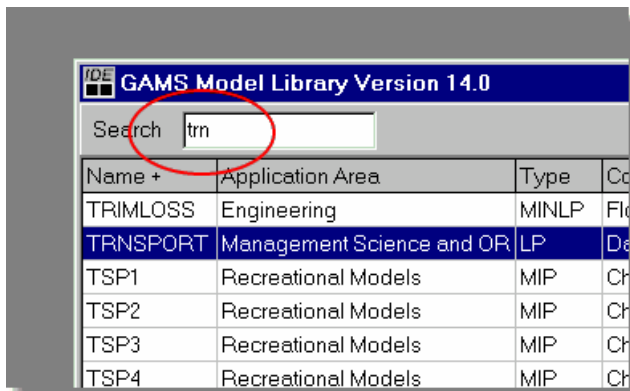
### 2.1 Open a model in the model library

When you run the GAMS IDE for the very first time, the program may ask you to create a project. The project file is used to remember the various settings for the editor; the file does not contain any GAMS source code. When installing the GAMS IDE, a default project file is created; more details about this can be found in the Installation Notes<sup>[36]</sup>.

After creating the project, you will see the main window; no text file is shown. Note that the file name of the project is shown in the title bar of the main window.

We can enter a small GAMS model now, but it will be easier to open one of the existing models in the model library. On the menu, use the mouse and click on 'File'; on the sub-menu shown, select 'Model library', and select 'Open GAMS Model Library'. This will show all the models available in the GAMS Model library. Using the mouse, move the button in the scrollbar and use the mouse to select the model 'TRANSPORT'. Double-click using the mouse, or press the Enter key to select the model.

Typing the first characters of the model name in the Search field helps to locate the model:



### 2.2 Edit source

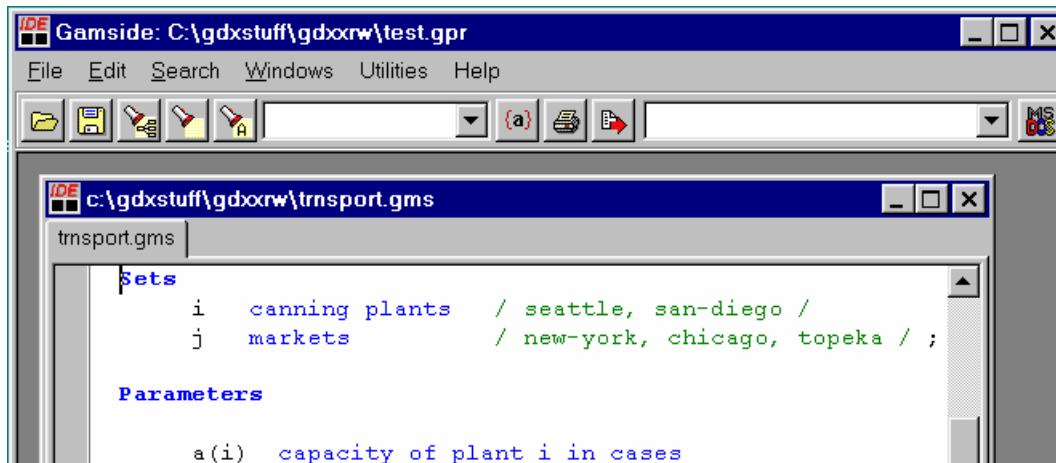
The TRANSPORT model will be opened in the editor, and the title bar of the edit window will show the complete file name. The model file and required data files, if any, are copied to the current project

directory.

The edit window is organized as a tabbed notebook. The tabs allow you to navigate quickly between various files by clicking on the corresponding tab.

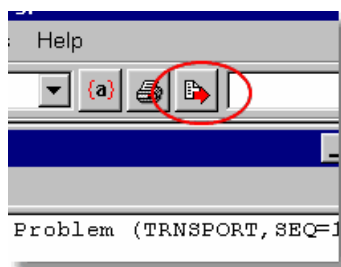
On the bottom of the main window you see 1:1. This indicates that the edit cursor is on line one, column one. This box will be updated as soon as the cursor moves to a different location. The next box does not show any text at this time. As soon as the file is modified, it will show 'Modified'. The next box shows 'Insert'; this indicates that any text entered in the editor will be inserted rather than overwrite existing text. Pressing the Insert key will toggle between Insert and Overwrite, and the shape of the text cursor will change. The last box will show additional information when moving the mouse over buttons, menu items etc.

The editor uses colors to differentiate between various syntactic elements of the language. The color scheme used depends on the file extension of the current file. By default, the editor recognizes '.gms' as the file extension for GAMS files. Additional file extensions can be identified as GAMS files; see Options | Editor<sup>[26]</sup>.



## 2.3 Running a model

To run the TRANSPORT model, use the mouse and click on the run button on the main window. When moving the mouse over various buttons, a small yellow box will appear indicating the function of the button. You can also start a run from the File menu. The File menu has a Run command, and the F9 in the right margin of the menu indicates that pressing the F9 key can also be used for this command.



Like many other edit commands, the run or compile command will always use the current (active) file as the file to use.

## 2.4 Selecting Solvers

When this is the very first time you execute the run command, you will be asked if you want to select your default solvers. Selecting solvers for the various model types will let you override the defaults assigned when you installed the software. It is also a good idea to revisit this option screen after installing a different GAMS license file.

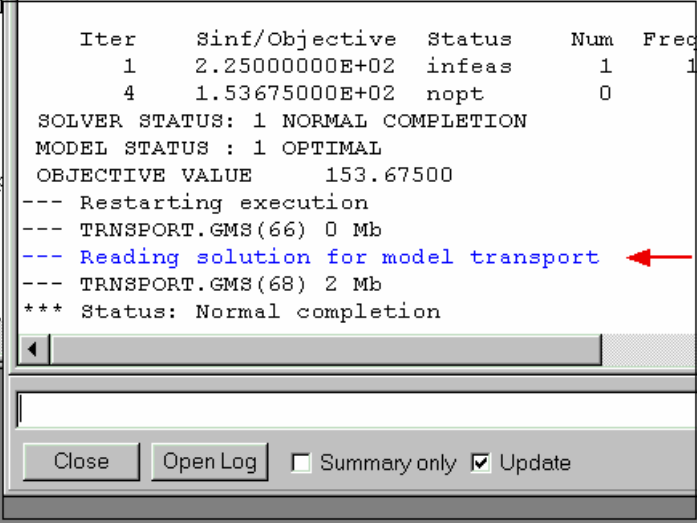
Pressing F1 while viewing the solver selection screen will give more help, or click on the following link to the solver selection<sup>[30]</sup> help screen, and come back to this point by clicking the 'back' button.

## 2.5 Navigating the listing file

After starting the run, a new window, called the Process Window, will be shown. The Process Window shows the progress of the GAMS execution. You can change the size of the Process Window and move it to a more convenient location.

The Process Window<sup>[34]</sup> can show multiple GAMS processes running at the same time. Like the Edit Window, it is organized like a notebook with tabs. The top of the windows will show how many processes are active.

After the run has finished, we can use this window to open the listing file and position the cursor. Use the mouse and double-click on the line "---Reading solution for model TRANSPORT". This line is shown in blue. The listing file will be opened, and the cursor is positioned on the "Solve Summary".



```

Iter      Sinf/Objective  Status    Num  Freq
   1      2.25000000E+02  infeas    1    1
   4      1.53675000E+02  nopt      0    0
SOLVER STATUS: 1 NORMAL COMPLETION
MODEL STATUS : 1 OPTIMAL
OBJECTIVE VALUE      153.67500
--- Restarting execution
--- TRANSPORT.GMS(66) 0 Mb
--- Reading solution for model transport
--- TRANSPORT.GMS(68) 2 Mb
*** Status: Normal completion

```

The screenshot shows a window with a scrollable text area containing the solver output. A red arrow points to the line "--- Reading solution for model transport", which is highlighted in blue. Below the text area are buttons for "Close", "Open Log", "Summary only" (unchecked), and "Update" (checked).

## 2.6 Correcting a syntax error

The edit window will show two tabs on the notebook; one for the '.gms' file, the second for the '.lst' file. Select the trnsport.gms tab, so we can modify the model.

After selecting the gms file, we want to introduce a syntax error. Position the cursor on line 37 for the table statement and type a comma after the j. You can use the mouse or the up- and down arrow keys to move to line 37. You can also specify a line number directly by pressing Ctrl+G and enter the line number.

Click the run button again to run the model. The gms file will be saved automatically. Notice that the lst file disappeared from the editor. The process window will show the GAMS errors in red; double-click on the red line with "\*\*\*\* Error 2". In stead of showing the lst file, the cursor will move to the gms file and the position of the cursor will be close to the syntax error.

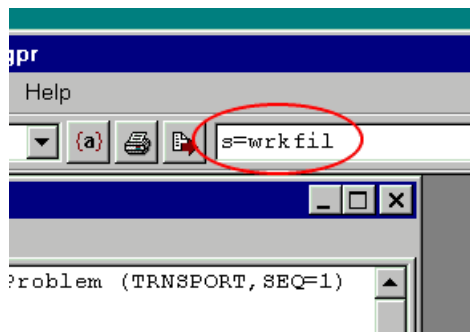
A double-click in the process window will position the cursor in the lst file when the line is black, and position the cursor in the gms file when the line is red. To position the cursor in the lst file when the line is red, hold down the Shift key when double-clicking.

## 2.7 Using the IDE for existing GAMS models

When you want to use the GAMSIDE to edit an existing GAMS model, create a new project file in the same directory used for starting the GAMS run from the DOS prompt. See File | Project | New Project <sup>[15]</sup>.

A project file is used to store various options, such as search strings etc., but more important, it defines the starting directory for the GAMS run.

When you want to run GAMS with additional command line parameters, these parameters can be specified in the right-most entry field on the main window.



For example, to save a workfile after the run is complete, enter S=wrkfil. To make a second run using the previously saved workfile, specify R=wrkfil. The parameters you specify in this field are associated with the current edit file. There are more options to specify parameters, see GAMS Parameters <sup>[31]</sup>.

The parameters used are saved between edit sessions and can be used again by clicking on the down-arrow in the parameter field.

## 2.8 Using the mouse

The mouse can be used to position the cursor, select and move text, or get access to the PopUp menu.

Getting access to the PopUp menu:

A right mouse click will provide access to the PopUp menu.

Positioning the cursor:

To position the cursor, move the mouse to the desired location and click once using the left mouse button.

Selecting text:

**Word**

Double click on the word using the left mouse button.

**Text**

Position the cursor on the first character you want to select, and while holding down the left mouse button, move the cursor to the last character to be selected.

**Second method:**

Position the cursor on the first character you want to select using single click with the left mouse button. While holding down the Shift key, select the last character you want to include with a single left mouse click.

**Text in columns**

Position the cursor on the first character you want to select, and while holding down the left mouse button and the Alt key, move the cursor to the last character to be selected.

**Second method:**

Position the cursor on the first character you want to select and single click the left mouse button. While holding down the Alt key and the Shift key, select the last character you want to include with a single left mouse click.

```
b(j) demand at market j in cases
/   new-york  325
    chicago   300
    topeka    275 / ;
```

**Moving text using the mouse:**

When text has been selected, it can be moved (dragged) to a different location. Click inside the selected text and hold down the left mouse button. Moving the mouse will change the cursor and when you reach the new location for the text, release the mouse button.

**Part**



## 3 Menus and Windows

File Menu <sup>[14]</sup>  
 Edit Menu <sup>[17]</sup>  
 Search Menu <sup>[22]</sup>  
 Windows Menu <sup>[24]</sup>  
 Utilities Menu <sup>[25]</sup>  
 Options Menu <sup>[26]</sup>  
 Main form: Buttons and Fields <sup>[31]</sup>

Other Windows <sup>[32]</sup>  
 GDX data browser <sup>[32]</sup>  
 Print Dialog <sup>[33]</sup>  
 Process Window <sup>[34]</sup>

### 3.1 File Menu

New <sup>[15]</sup>	Ctrl+N
Open <sup>[16]</sup>	Ctrl+O
Reopen <sup>[17]</sup>	Alt+R
Open in New Window <sup>[17]</sup>	Ctrl+Shift+O
Model Library <sup>[17]</sup>	
Project <sup>[15]</sup>	
Save <sup>[16]</sup>	Ctrl+S
Save As <sup>[17]</sup>	
Save All <sup>[16]</sup>	Ctrl+Shift+S
Close <sup>[14]</sup>	
Run <sup>[16]</sup>	F9
Compile <sup>[14]</sup>	Ctrl+F9
Options <sup>[26]</sup>	
Print <sup>[15]</sup>	
Previous <sup>[15]</sup>	
Exit <sup>[15]</sup>	

#### 3.1.1 File | Close

Close current file

Close the current file in all edit windows. If the current file was modified, you will be asked to save the file. If you created a new file, save the file under a different name than the default name provided.

#### 3.1.2 File | Compile

Compile current file

The current file is used for a compile only step

See Gams Parameters <sup>[31]</sup> for the use of parameters

See also Process Window <sup>[34]</sup>

### 3.1.3 File | Exit

Exit the program

If there were any files modified, you will be asked to save these files first. Clicking Cancel or pressing the Esc key will cancel the exit

### 3.1.4 File | New

Create a new file.

A Tab is added to the current edit window, and a temporary name is assigned.

See also Mini Explorer<sup>[32]</sup> for details how to use the file dialog.

### 3.1.5 File | Previous

Shows a list of the last files opened in the editor.

The files shown are project specific; each project has its own list of recently used files.

Selecting a file will open that file by adding a tab to the current window. Holding down the Shift key when selecting a file will open the file in a new edit window.

### 3.1.6 File | Print

Print the current file

When showing the Print Dialog<sup>[33]</sup> you can select the printer, preview the text to be printed and print a selected pages on the printer.

### 3.1.7 File | Project

A Project file serves as a place holder to remember which edit windows and which files were open when the project was closed in order to restore these windows in the same state when the project is opened again.

In addition, the directory where the project file is located is used:

As the destination directory for GAMS models opened in the Model Library

As the default directory for file operations when GAMS executes, such as searching for INCLUDE files and writing the LISTING- and PUT files

To write temporary files

When the IDE is used for the first time, a new directory, c:' is created to serve as the initial project directory (see also Installation Notes<sup>[36]</sup>.)

During installation, the file extension GPR is registered with Windows to open a project; so a double-click in the Windows Explorer will launch the GAMSIDE and open the specified project file.

Project Menu

#### Open Project

Open an existing project. After selecting an existing project file, all modified files will be saved and the selected project will be opened. All files which were open when this project was closed will be opened in the editor.

#### New Project

Create a new project. After selecting the directory and the name for the new project, all modified files will be saved and all active edit windows will be closed.

### Previous Projects

Shows a list of previous used projects; click on the name to close the current project and open the new project. If any files were modified, you will be asked to save the modified files.

## 3.1.8 File | Open

Open one or more existing files

You will see a file dialog; in this dialog you can select various file types, like GMS (GAMS) LST (GAMS listing file) TXT (regular text file) etc. Selecting more than one file is allowed.

If a file was open already; it will not be opened again. Instead, the edit window and the Tab for that file will become the active edit window. If the file was modified in the editor, you will be asked if you want to reload the file from disk.

To open a file in a new window, see: File | Open in New Window<sup>[17]</sup>, or hold down the Shift key while selecting a file.

You can also open files by dragging the file to the editor. Select one or more file in the Windows Explorer, and while holding down the right mouse button, move the selection to the editor and release the mouse button.

When you open a file with the .gdx file extension, the file will not be opened as a text file, but a GDY data browser<sup>[32]</sup> will be shown instead.

See also Mini Explorer<sup>[32]</sup> for details how to use the file dialog.

## 3.1.9 File | Run

Run the current file as a GAMS input file

The file is used for a compile and execute step.

See Gams Parameters<sup>[31]</sup> for the use of parameters

See also Process Window<sup>[34]</sup>

## 3.1.10 File | Save

Save the current file

The current file will be saved. If the file has a temporary name, like noname1, you will be prompted for a new name.

## 3.1.11 File | Save All

Save all modified files

If any file has a temporary name, like noname1, you will be asked to specify a new file name; see File | Save As<sup>[17]</sup>

### 3.1.12 File | Reopen

Reopen the current file.

The current file is loaded from disk into the editor again, and any changes made will be lost. When the file was modified, you will be asked to confirm the action, because all changes made will be lost.

### 3.1.13 File | Open Model Library

Open GAMS Model Library  
Open User Model Library

Browse a model library.

From this menu you can open the GAMS standard model library or open a custom model library. A model library is identified by a file with the extension '.glb'.

After opening a model library, a list will be shown of the models found in the library. Select the model by double-clicking the entry or by pressing the Enter key. The columns can be sorted by clicking on the column header. A second click on the same header will reverse the sort order. A '+' or a '-' indicates the current column header.

The Search field can be used to search for a string of characters in a model entry. The search is applied to all the columns shown. To search for the next or previous occurrence of the search string, use the down- and up-arrow respectively.

When opening a model from the library, existing files in the current project directory with the same name will not be overwritten unless you confirm the overwrite.

Some models require one or more data files; these data files will not be opened in the editor automatically, but they will be copied to the current project directory.

### 3.1.14 File | Save As

Save current file with a new name

You will see a window in which you can navigate to a new directory and specify a new name for the file. Note that you can also create a new directory using this window.

See also Mini Explorer<sup>[32]</sup> for details how to use the file dialog.

### 3.1.15 File | Open in New Window

Open one or more files in a new edit window

You will see a file dialog; in this dialog you can select various file types, like GMS (GAMS) LST (GAMS listing file) TXT (regular text file) etc. Selecting more than one file is allowed.


See also Mini Explorer<sup>[32]</sup> for details how to use the file dialog.

## 3.2 Edit Menu

On the edit menu you find a number of edit commands in addition to the many keyboard commands available; see Editor Keys<sup>[19]</sup>

### 3.2.1 Edit Window PopUp Menu

The PopUp Menu can be activated with a right mouse click or with the special key available on some Windows keyboards.

In addition to the regular editing keys , the following commands are available:

**Close File** (Shift+F4)

Close the current file in all edit windows. If the current file was modified, you will be asked to save the file. If you created a new file, save the file under a different name than the default name provided.

**Close Window** (Ctrl+F4)

Close the current Edit Window. If any of the files in the current edit window was modified, you will be asked to save the file.

**Next File** (Alt+N)

Switch to the next file in the edit window.

**Previous File** (Alt+P)

Switch to the previous file in the edit window

### 3.2.2 Edit | Copy (Ctrl+C)

Copy the selected text to the ClipBoard

### 3.2.3 Edit | Cut (Ctrl+X)

Copy the selected text to the clipboard and delete the text

### 3.2.4 Edit | Paste (Ctrl+V)

Insert text stored in the ClipBoard at the current cursor location

### 3.2.5 Edit | Redo (Shift+Ctrl+Z)

Redo the last Undo command

When using the undo command, a change made can be undone by using the Redo command

### 3.2.6 Edit | Select All

Select all text in the current file

### 3.2.7 Edit | Undo (Ctrl+Z)

Undo the last change

The undo command will undo the last change made. After using the command, you can use the undo command again, until there are no more changes to be undone or the capacity of the undo stack is exhausted. The undo commands can be 'undone' by using the redo command.

### 3.2.8 Edit | Delete

Delete the selected text.

The content of the ClipBoard is not affected.

### 3.2.9 Edit | Word Wrap

Select if long lines should be wrapped inside the edit window.

This is a global display option; it does not affect the content of a file.

### 3.2.10 Editor Keys

The following tables show all the available key combinations that are available when editing text.

In addition to the keyboard, the mouse can be used to position the cursor and select text; see using the mouse<sup>[11]</sup>.

Please note that Up, Down, Left and Right refer to the arrow keys on the keyboard.

Cursor Movement<sup>[20]</sup>  
 Special Edits<sup>[22]</sup>  
 Find and Replace Text<sup>[21]</sup>  
 Copy / Paste & Delete (ClipBoard)<sup>[19]</sup>  
 Selecting Text<sup>[21]</sup>  
 Selecting Text (in Columns)<sup>[22]</sup>  
 Undo and Redo changes<sup>[22]</sup>  
 Files and Windows<sup>[20]</sup>

#### 3.2.10.1 Copy / Paste & Delete (ClipBoard)

Function		
Copy block	Ctrl+C	Ctrl+Insert
Cut block	Shift+Delete	Ctrl+X
Delete block	Ctrl+Delete	
Delete character left	Backspace	
Delete character right	Delete	
Delete Line	Ctrl+Y	
Delete to end of line	Ctrl+Shift+Y	
Delete word left	Ctrl+Backspace	
Delete word right	Ctrl+T	
Duplicate line	Ctrl+Shift+L	
Paste block	Shift+Insert	Ctrl+V

### 3.2.10.2 Cursor Movement

<b>Movement</b>	
Cursor to bookmark	Ctrl+0 to Ctrl+9
Set bookmark on/off	Ctrl+Shift+0 to Ctrl+Shift+9
Cursor to begin file	Ctrl+Home
Cursor to end of file	Ctrl+End
Cursor to line number	Ctrl+G
Cursor to matching parenthesis	F8
Cursor down one page	PgDn
Scroll down	Ctrl+Down
Cursor down	Down
Cursor left	Left
Cursor left previous word	Ctrl+Left
Cursor right	Right
Cursor right next word	Ctrl+Right
Cursor to end of line	End
Cursor up	Up
Cursor up one page	PgUp

### 3.2.10.3 Files and Windows

<b>Operation</b>	
Close edit window	Ctrl+F4
Close file	Shift+F4
Execute compile	Shift+F9
Execute run	F9
Next file tab	Alt+N
Open file	Ctrl+O
Open file in new window	Ctrl+Shift+O
Previous file tab	Alt+P
Read file at cursor	Alt+Shift+R
Reload file	Alt+R
Save all files	Ctrl+Shift+S
Save file	Ctrl+S
Write block to file	Alt+Shift+W

### 3.2.10.4 Find And Replace

Function	
Find and Replace text	Ctrl+R
Find next (continue replace)	F3
Find previous (continue replace)	Shift+F3
Find text	Ctrl+F

### 3.2.10.5 Selecting Text

Selection	
Select all	Ctrl+A
Mark down	Shift+Down
Mark line	Ctrl+L
Mark text left	Shift+Left
Mark text right	Shift+Right
Mark page down	Shift+PgDn
Mark page up	Shift+PgUp
Mark to begin of file	Ctrl+Shift+Home
Mark to end of file	Ctrl+Shift+End
Mark to end of line	Shift+End
Mark to begin of line	Shift+Home
Mark to top of screen	Ctrl+Shift+PgUp
Mark up	Shift+Up
Mark word left	Ctrl+Shift+Left
Mark word right	Ctrl+Shift+Right

### 3.2.10.6 Selecting Text in Columns

Selection	
Mark column down	Alt+Shift+Down
Mark column left	Alt+Shift+Left
Mark column left word	Alt+Ctrl+Shift+Left
Mark column page down	Alt+Shift+PgDn
Mark column page up	Alt+Shift+PgUp
Mark column right	Alt+Shift+Right
Mark column right word	Alt+Ctrl+Shift+Right
Mark column to bottom	Alt+Ctrl+Shift+End
Mark column to end of file	Alt+Ctrl+Shift+PgDn
Mark column to end of line	Alt+Shift+End
Mark column to file begin	Alt+Ctrl+Shift+PgUp
Mark column to line begin	Alt+Shift+Home
Mark column to top	Alt+Ctrl+Shift+Home
Mark column up	Alt+Shift+Up

### 3.2.10.7 Special Edits

Action		
Insert line break	Enter	
Convert selected text to lower case	Alt+Shift+L	
Tab	Ctrl+I	Tab
Toggle Insert / Replace	Insert	
Convert selected text to upper case	Alt+Shift+U	
Indent block	Ctrl+Shift+I	
Outdent block	Ctrl+Shift+U	

### 3.2.10.8 Undo and Redo changes

Action		
Redo	Alt+Shift+Backspace	Ctrl+Shift+Z
Undo	Alt+Backspace	Ctrl+Z

## 3.3 Search Menu

The search menu has a number of commands to search for text in the current edit window or to search for text in files stored on disk.

Find 

Ctrl+F

Replace <sup>[23]</sup>	Ctrl+R
Find Again <sup>[23]</sup>	F3
Search backward <sup>[23]</sup>	Shift+F3
Match Parenthesis <sup>[24]</sup>	F8
Goto Line <sup>[24]</sup>	Ctrl+G
Find in Files <sup>[23]</sup>	

### 3.3.1 Search / Replace Text

The find / replace window is organized as a notebook with tabs. Clicking on a tab will show the parameters controlling the . The last tab, 'Search Results', will be shown automatically when searching for text in files commences.

When closing the window, in addition to all parameter settings, the search results will be preserved during the same edit session. Ending the edit session will clear all search results.

Some parameters, like 'Whole words', are repeated for multiple search functions. Changing such a value will affect the value in all notebook pages.

The 'Text to find field' and 'Replace with' field will remember previous searches. Click on the down-arrow to see the previous values used.

Also see Find in Files <sup>[23]</sup>

#### Case sensitive

When enabled, the case of the search string is used to find a match. When disabled, the case of the search string is ignored for finding a match.

#### Whole Words

When enabled, a match will only occur if the specified string is surrounded by a word separator. Word separators include parenthesis, brackets etc.

#### Direction: Forward / Backward

Indicates direction from the current cursor location

#### Scope: Global / Selected text

When text was selected in the editor prior to executing the search command, a search can be limited to the selected text.

#### Origin: From Cursor / Entire scope

A search can start from the current cursor location or at the beginning of the text.

### 3.3.2 Search | Find Again

Find next match in the current file. When replacing text, you will be prompted to confirm the replacement of the text found.

See Find / Replace text <sup>[23]</sup> for how to start a text search.

### 3.3.3 Search | Find in Files

Search for a text string in files on the disk (see also Find / Replace text <sup>[23]</sup>)

After specifying the search parameters, you can search for a text string occurring in files stored on disk. If you did not save your current files, some strings may not be found, because the files were not

written to disk. Use the mouse to click on the search button, or press the Enter key, to start the search.

After a search is complete, you can double-click on a file name shown and open that file in the editor. When you double-click on the text found, the cursor will be positioned on that line. In addition, the options used for the search are copied to the search parameters, so you can use the F3 key to search for the next occurrence for example.

The search window will only display a limited number of characters to the left of the text that was found. The symbol '«' will be shown if one or more characters are not displayed.

The following parameters can be specified:

**File Path**

Name of a directory where the search should start. You can enter the directory name from the keyboard, or click on the button to get a directory dialog window.

**File mask**

The file pattern used for the search. To search GAMS files, specify \*.gms; all files can be searched by specifying \*.\* . Multiple patterns can be specified when they are separated by a ; (semi-colon)

**File names only**

When enabled, only the name of the file in which the search text occurred will be shown. When disabled, all matching lines in which the search text occurs will be shown as well.

**Include sub-directories**

When enabled, all sub-directories will be searched; when disabled, only the specified directory will be searched.

### 3.3.4 Search | Goto Line

Position the cursor on the specified line number.

### 3.3.5 Match Parenthesis


Find the matching parenthesis.


Position the cursor after a parenthesis (or a curly brace or a square bracket.) Pressing the F8 key will position the cursor after the matching parenthesis. If a matching parenthesis cannot be found, the cursor will not move.


## 3.4 Window Menu

The window menu has commands to open additional views of the same file and help you to arrange the multiple window shown.

Tile Horizontal 

Tile Vertical 

Cascade 

Arrange All 

### 3.4.1 Window | Arrange All

Arrange all minimized Edit Windows at the bottom of the main window

### 3.4.2 Window | Cascade

Arrange all edit windows on top of each other with the current window on top

### 3.4.3 Window | Tile Horizontal

All visible edit windows will be arranged horizontally.

### 3.4.4 Window | Tile Vertical

All visible edit windows will be arranged vertically.

## 3.5 Utilities

The sub-menu lists the utilities that can be called from the GAMSIDE:

GDXDIFF 

### 3.5.1 Utilities | GDXDIFF

Parameters used to call the GDXDIFF utility.

GDXDIFF compares two GDX files and creates a third GDX file indicating the differences between the two files. After executing the program, the log will be shown, and the difference file will be shown in the data viewer.

The parameters used are stored with the current project.

GDX files and the GDXDIFF program are described in a separate document.

Parameters:

#### Input file one

The full path name of the first GDX file. Click the button next to this field to use an Explorer dialog to locate the file.

#### Input file two

The full path name of the second GDX file. Click the button next to this field to use an Explorer dialog to locate the file.

#### Difference file

The full path name of the difference file. When this field is empty, the file 'diffile.gdx' will be written in the current project directory. Click the button next to this field to use an Explorer dialog to locate the file.

#### Eps

Two values are considered equal when their absolute difference is smaller than the Eps value.

#### RelEps

Two values are considered equal when their relative difference is smaller than the RelEps value.

#### Ignore set text

When enabled, difference in explanatory texts for set tuples is ignored.

#### Field to compare

Specifies the field(s) to compare for variables and equations.

## 3.6 Options

Specify various options

The options are presented in the form of a notebook with tabs. Using the mouse to click on a tab will show different options. After changing one or more options, click on OK to accept all changes, or on Cancel to ignore all changes made.

With a few exceptions, the options are all global, i.e. they apply to all projects. When an option is project specific, it will be indicated.

The following tabs are available:

Editor <sup>[26]</sup>  
Execute <sup>[28]</sup>  
Output <sup>[30]</sup>  
Directories <sup>[27]</sup>  
Solvers <sup>[30]</sup>  
Licenses <sup>[30]</sup>  
Colors <sup>[27]</sup>  
File Extensions <sup>[29]</sup>  
Execute2 <sup>[29]</sup>

### 3.6.1 Options | Editor

Specify options for the editor

#### Font

The font to be used. Double-click to get a list of fonts from which you can select the new editor font. This font will also be used in other windows when showing a list of items.

#### Font Size

Size of the font to be used

#### Auto Indentation

When enabled, pressing the Enter key will position the cursor on the next line under the first non-blank character facilitating indented text entry.

#### Syntax colors

When enabled, color the text based on the syntax of the language. The syntax used depends on the file extension of the file being edited. GAMS files always have the 'gms' file extension. The colors used for the syntactical elements can be specified in the colors options.

#### Highlight URLs

When enabled, a URL, like [www.gams.com](http://www.gams.com) can be shown in a different color. Clicking on a URL will launch the default web browser with the selected URL as the active page.

#### Show special characters

When enabled, the Tab and End of Line characters will be visible.

#### Maximum lines for Syntax colors

Syntax colors will be disabled for files with a number of lines exceeding the specified number. Determining syntax colors for large files can slow down the editing of text. Reduce this number to increase the responsiveness of the editor.

#### GAMS file extensions

In addition to the 'gms' file extension, additional file extensions can be specified to enable GAMS syntax colors. Multiple file extension should be separated by a comma (,).

A file with a 'GAMS file extension' can be run or compiled as a GAMS model. The run button and the additional parameters will be enabled. See also File Extensions<sup>[29]</sup>.

**Tab key action**

This option determines what happens when you press the Tab key:

Insert Tab:

A tab character is inserted. See also 'Show special characters' above.

Insert blanks:

Blank characters are inserted using the value of the tab size

Smart tabs:

Blank characters are inserted until the cursor is under a non-blank character of the previous line

**Tab Size**

This value used to expand tabs with blank characters when reading a file. The valid range is 1..12. Tab expansion to blanks will not take place when the 'Tab key action' is set to 'Insert Tab'.

**Tab stops**

Specify the tab stops when editing text; column numbers should be separated by a comma.

**Show Hints**

When enabled, the little yellow rectangles (balloon help) will be shown with Hint text for the selected item. The bottom of the main window will always show the hint text regardless of this setting.

**Files to save before Run or Compile**

Select which modified files you want to save before making a run or a compile.

**Right margin position**

Indicates the position of the thin vertical line drawn in the editor to indicate the right margin. A value less or equal to two will hide the line.

### 3.6.2 Options | Colors

Specify the colors used for the syntactic elements.

The syntax used to color the text depends on the file extension of the file being edited.

Select a syntactic element, like reserved word. The current settings for Foreground and Background color will be shown. When selecting a different color, the text below

### 3.6.3 Options | Directories

Specify directories

User Model Library Directory

You can specify a model directory by entering the path, or double-click to navigate to a new directory.

The user directory can be used for an additional set of models provided by an instructor for use in a GAMS class for example.

### 3.6.4 Options | Execute

Specify the execution environment for a GAMS run.

The following options are available:

#### **Executable**

The fully qualified name of the GAMS.EXE file. This file will be used when executing or compiling a GAMS file. Click the button next to this field to use an Explorer dialog.

#### **Update button**

Checks if there are any .zip or .pck files in the GAMS system directory and runs GAMSINST.EXE if any of these files can be found. The system cannot be updated when a GAMS run is still active or when the GAMS system directory is located on a network drive.

#### **DOS Window**

The GAMS system executes in a DOS window; this window can be completely hidden, be minimized on the task bar or shown while GAMS executes. The latter is intended for debugging purpose.

#### **Max Processes**

The maximum number of tabs used in the process window<sup>[34]</sup>.

#### **Max lines in process window**

Specifies the maximum number of lines in the process window. When the number of lines in the process window exceeds this number, the lines will be written to the log file. After the job has finished, the log file can be opened in the editor for further inspection.

#### **Update Process Window**

When enabled, the status information shown in the process window will be updated continuously and the text will scroll up, so the last line is always visible. When disabled, the text will not scroll.

#### **Open listing file after model completion**

When enabled, the listing file (.LST) will be opened in the editor as soon as the model execution has finished. When disabled, the listing file can be opened using the file open command or by double clicking a line of text in the process window.

#### **Process window part of edit window**

When enabled, the process window acts like one of the edit window, and can move within the boundaries of the mainform. When disabled, the process window can float around anywhere on the desktop.

#### **Check file date and time when opening a file automatically**

Some files can be opened automatically, like the LST file when a GAMS run has finished, or by a double-click on the name of a PUT file shown in the process window. When this option is enabled, a warning message will be given when the time on the file precedes the start time of the GAMS run.

#### **Use Following Additional Parameters**

When enabled, the parameters following will be added to the parameters passed to GAMS.EXE. The parameters shown will be used when the option is enabled. Use the down arrow key, or click on the down arrow, to see and re-use previous parameters. The use of additional parameters and the text for the parameters are project specific options.

Additional parameters can be specified which are specific for a file; see GAMS parameters<sup>[31]</sup>.

### 3.6.5 Options | Execute2

Specify parameters for another system to execute the current file in the editor.

The following options are available:

#### Executable

The fully qualified name of the EXE file. This file will be used when executing file with the given file extension(s). Click the button next to this field to use an Explorer dialog to locate the file.

#### Parameters

This string describes the command line of the program to be called. The text will be copied, and the following macros are recognized:

%filename%:

The name of the file selected in the editor.

%projdir%:

The directory of the active project.

%options%:

The text specified in the editor next to the run button.

#### File extensions

One or more file extensions, separated by commas. The file extensions in this field are used to recognize files associated with the executable program.

### 3.6.6 Options | File Extensions

Associate file extensions with the GAMS IDE.

Using the Windows Explorer, a program can be started with a double-click on the file name. The program executed depends on the file extension. For example, a 'txt' file extension will launch NotePad to edit the file. The file extensions specified do not make these files GAMS file automatically. i.e. apply GAMS syntax colors and enable the Run/Compile for these file. See GAMS file extensions <sup>[26]</sup>.

You can associate the GAMS IDE with one or more file extensions using the following options. Under WinNT/Win2000 you may have to log in as administrator to make these changes.

When the GAMS IDE starts, the program will look for file extensions associated with the GAMSIDE. Files that are associated with other versions of the IDE will be associated with the running version automatically.

#### GAMS IDE file extensions

Lists the file extensions associated with the IDE.

#### Delete

Remove the association between the selected file extension and the IDE.

#### Add

The file extension entered in the edit field will be added to the list of extensions associated with the IDE. The edit field will only accept letters and digits.

#### Defaults

Replace all file extensions with the GAMS standard file extensions ('gms', 'gpr', 'log' and 'lst').

### 3.6.7 Options | Licenses

Let you specify a different GAMS license. By default, GAMS will look for a file called GAMSLICE.TXT in the GAMS system directory. Here you can specify a different license file.

### 3.6.8 Options | Output

Options that control the format of the GAMS listing file.

**Page Width**

Print width, in characters, for the listing file

**Page Height**

Number of lines used on a page for the listing file

**Date Format****Time Format****Page Control**

### 3.6.9 Options | Solvers

Shows a matrix of available solvers and model types.

Three types of solver defaults can be displayed: the system defaults as determined by the GAMS installation files, the defaults managed by the IDE and the defaults for the current project.

The first column shows all available solvers. The second column shows the license status of the solver obtained from the GAMS license file (gamslice.txt). When a solver is enabled for a limited time period, this column will show the number of days remaining for evaluation.

Use the mouse to select an entry in the matrix to select a default solver for a given model type. A mouse click in the license column will make the selected solver the default solver for all applicable model types.

The matrix shows the available solvers for all types of GAMS models. A small rectangle indicates that the solver is the default solver for the model type; a dot indicates a possible selection, and the dash indicates a possible selection for a special solver. Special solvers are only shown for information, they cannot be selected from the matrix. To select a special solver, you will have to specify the solver using additional parameters (see GAMS Parameters<sup>[31]</sup>) or with an option statement in the GAMS model. The 'Legend' button will show the meaning of the symbols used; a mouse-click will make the legend disappear again.

The 'Reset' button above the matrix will remove all default assignments. When the button is disabled, this is an indication that the system defaults cannot be modified. (This can happen in a network environment when you do not have write permission for the GAMS system directory.)

The solver selection is processed in the following order:

- System defaults
- Local defaults
- Project defaults

The last solver specified will be used.

Note that the GAMS option statement can overwrite your default selections also.

## 3.7 Main Form: Buttons and entry fields

The main form shows a number of buttons and entry fields. The buttons are available to ease the use of the mouse, and all have equivalent menu commands.

Entry Field:

### Search string

The current search string used. This field shows the same information as the 'Text to find field' of the Find Window. Likewise, it will remember previous searches. Click on the down-arrow to see the previous values used.

### GAMS parameters

Specify parameters for the GAMS system when executing / compiling the current model file. The parameters are associated with the GAMS file name, excluding the file path. This field is a drop down box, which allows you to review and select previous values.

Pressing the Enter key in this field will start a GAMS run (F9); pressing Shift+Enter will start a compile only GAMS run.

Buttons:

File Open <sup>[16]</sup>  
 File Save <sup>[16]</sup>  
 Search in Files <sup>[23]</sup>  
 Search <sup>[22]</sup>  
 Find again <sup>[23]</sup>  
 Match parenthesis <sup>[24]</sup>  
 Print file <sup>[15]</sup>  
 Run <sup>[16]</sup>  
 Command prompt <sup>[31]</sup>

### 3.7.1 Command prompt

Create a command prompt window.

The current directory will be the same as the current project directory.

The system PATH will be extended by adding the GAMS system directory.

### 3.7.2 GAMS Parameters

When running or compiling a GAMS model, the GAMS system is called with the current file name and a number of parameters. There are various methods to specify these parameters:

- The GAMS system default parameters. These parameters are stored in a file called GMSPRM95.TXT (or GMSPRMNT.TXT for Windows/NT)
- The parameters added internally by the GAMS IDE; these include the default solver selections <sup>[30]</sup>.
- Parameters specified in Options | Execute <sup>[28]</sup>; these parameters are project specific.
- Parameters specified on the main window that are associated with a specific GAMS file.

The parameters are processed in the order specified above. When a parameter is specified multiple times, the one specified last will be used.

## 3.8 Other Windows

Other Windows in the GAMS IDE:

GDx data browser<sup>[32]</sup>

Mini Explorer<sup>[32]</sup>

Print Dialog<sup>[33]</sup>

Process Window<sup>[34]</sup>

### 3.8.1 GDx data browser

The GDx data browser shows the contents of a GDx file. GDx files can be created by GAMS or by some utilities included with a GAMS system.

The grid on the left side shows all symbols found in the GDx file, and is sorted by the symbol name. A mouse click on the top row will select a different column for the sort, or will reverse the sort order for that column.

After selecting a symbol, the window on the right shows the data for selected symbol. The data window is divided in two areas: the plane index and the data. The indices used can be re-arranged, using the mouse using a drag and drop mechanism. To move an index, move the mouse cursor to the source location, select the source by pressing down the left mouse button and while holding down the button, move to the target location and release the mouse button.

An index can be moved between rows and columns in the data display, and be moved between the data and the plane index. Such an arrangement is stored in the project file, and will be used when the symbol is displayed again.

Fields and buttons:

#### **Reset button**

A mouse click on the reset button restores the indices to their default display, and enables squeezing of default values.

#### **Decimals selector**

Using the mouse, one can select the number of decimals to be displayed.

#### **Squeeze defaults checkbox**

When enabled, default values for a variable or equation will not be displayed. When disabled, all available values will be displayed.

#### **PopUp Menu**

The PopUp menu can be activated with the PopUp key on the keyboard or using a mouse click with the right button. The following options are available:

#### **Write symbol to HTML file**

Write the current symbol formatted as an html table to a file.

#### **Write ALL symbols to HTML file**

All symbols will be written as html tables. The sequence the symbols are written is the same as the sequence shown in the left window. Note that the sequence can be changed by clicking on the column headers.

### 3.8.2 Mini Explorer

When opening or saving files, the IDE uses a file dialog to identify files. The dialog allows the selection of one or more files, the type of file and the directory to be used.

In addition to these functions, you can create a new directory, and show more details of the files in the current directory. When showing more file details, a mouse click on the name of a column, will sort the files by that column.

Note that the question mark icon will provide more help for the selected items.

### 3.8.3 Print Dialog

Specify various options before printing or previewing the current file.

The following options are available:

#### **Print Selected Block**

When enabled, only the selected text will be printed

#### **Header & Page Numbers**

When enabled, every page will have the file name, date and page number printed.

#### **Line numbers**

Places line numbers in the left margin.

#### **Syntax print**

Uses text attributes, such as bold and italic, to indicate elements with syntax highlighting.

#### **Page Control Codes**

When enabled, a line feed character in the text will cause a new page to be printed

#### **Two Pages**

When disabled, the pages will be printed in the current printer paper orientation (landscape or portrait.)

When enabled, the pages will be printed depending on the current page orientation. If the page orientation is set to portrait, every sheet will be printed in landscape, with two facing pages. If the page orientation is set to landscape, every sheet will be printed in portrait with a single long page.

#### **Color print**

Uses color to indicate elements with syntax highlighting. Requires a color printer.

#### **Printer font**

The font used for printing. Double-click this field to get a list of fonts from which you can select the new printer font.

#### **Font Size**

The font size used for printing

#### **All Pages**

When selected, all pages will be printed

#### **Page Range**

When selected, you can specify page ranges, for example, 1,5-6 will print page one, five and six.

### **BUTTONS**

#### **Ok**

Use the selected parameters and show the printer selection dialog. This window allows the selection of the destination of the output (printer, preview or file) and allows the selection of a different printer. .

**Close**

Save all parameters and close the window.

**3.8.4 Process Window**

The process window shows the progress of a GAMS job during the compilation / execution and solution phases.

Multiple jobs can be running at the same time; the different jobs are organized in the form of pages in a notebook. Clicking on a tab will show the current status for that job.

Error messages are shown in red with an indication where the error occurred. A double-click with the mouse will open the file and position the cursor on the error. If you want to see the error in the listing file, hold down the Shift key while double-clicking the red line.

Important locations in the listing file are shown in blue. A double click on such a line will position the cursor in the listing file.

A double-click on a line which is not red or blue, will position the cursor in the listing file.

Buttons:

Depending if a process is still running or has finished, the following buttons are available:

**Interrupt**

Signal the solver to stop at a convenient point.

Typically, solvers will check for a user interrupt in the same places where the resource limit is checked. A user might wish to trigger an interrupt in order to stop a MIP job that has found a good integer feasible point but does not yet satisfy the convergence tolerances, or to return an intermediate point for an LP or NLP. The solver will return the current point and the appropriate model status, with a solution status of 8 (USER INTERRUPT), and the GAMS run will continue.

**Stop**

Stop the current Job.

The job will be stopped as soon as possible, and some files may be left in the process directory. No solution file will be written either.

It may be necessary to send the stop signal a few times to actually stop the process.

**Close**

Close the current process


**Open Log**

The LOG file for the current job will be opened in an edit window.

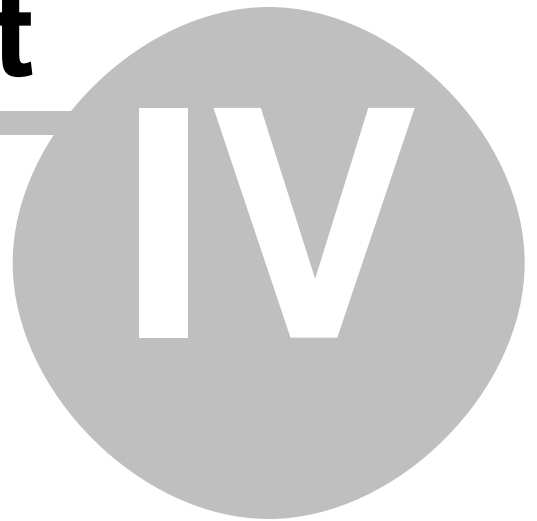
**Options****Summary only**

When enabled, the process window will only show lines that are red or blue or that start with '----'. This will reduce the number of lines displayed in the process window by eliminating lines showing solver iteration information etc.

**Update**

When enabled, the status information shown in the process window will be updated continuously and the text will scroll up, so the last line is always visible. When disabled, the text will not scroll. (This is the same option as described under File | Options | Execute | Update Process Window )

**Part**



## 4 Installation Notes

The gams IDE can be installed in any directory of your choice; this directory can be set to read-only after the installation is complete.

In addition to the standard GAMS files, the IDE is comprised of the following files:

gamside.exe	the IDE
gamside.chm	the help file

During installation, a few additional files and directories are created in the windows directory.

gamside.ini	system settings
gamsdir	initial project directory
gamsdir.gpr	initial project file

The installation process also registers the .gpr file extension so you can launch the GAMSIDE by clicking on a GAMS project file.

If the windows directory is not suitable to store the gamside.ini file, a new location can be specified as a parameter when executing gamside.exe. The file name gamside.ini is required to be recognized as the initialization file. A new directory can be specified when creating a windows shortcut to the executable.

For example: when the executable is located in the directory \\server\gams, and the initialization is located in c:\Local Users, the Target in shortcut can be specified as:

```
\\server\gams\gamside.exe "c:\Local Users\gamside.ini"
```

### 4.1 Known Problems

Floppy Disk Drive Spins <sup>36</sup>  
 Error Opening a File <sup>36</sup>

#### 4.1.1 Floppy Disk Drive Spins

Floppy disk drive spins when starting a solver

This has been observed when a virus checking program is active. Try to add the GAMS system directory to the list of directories to be ignored by the virus checker, or disable the virus checker when running the GAMS IDE.

#### 4.1.2 Error Opening a File

Some users are getting an error trying to read a large file into the GAMS IDE.

The message reads something like: 'value must be between 0 and 65538'

The problem is most likely caused by an old DLL. To verify the version of the DLL causing the problem, use explorer, and select the file: windows\System\comctl32.dll  
 Right mouse click,  
 select Properties,

select Version.

If the version indicates 4.0, then the outdated version of the DLL is causing the problem.

The DLL cannot be replaced while Windows is running! To replace the DLL, the user needs to obtain a later version (version 4.70 and later works correctly)

1. Put the new version of `comctl32.dll` on a floppy disk
2. On the Start menu, select Shutdown
3. Select Restart computer in MSDOS mode
4. Copy the file from the floppy disk to the `Windows\System` directory
5. Reboot the computer

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