



An Introduction to GAMS with GAMS Studio: Part 3

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Outline

- Configuring Studio
- Libraries and User Model Libraries
- Comparing Files
- Studio with Modular Projects

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Configuring Studio

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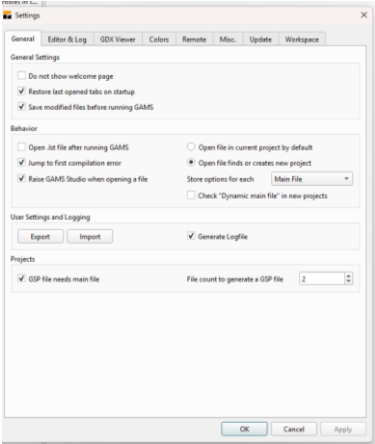
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Studio Settings: General



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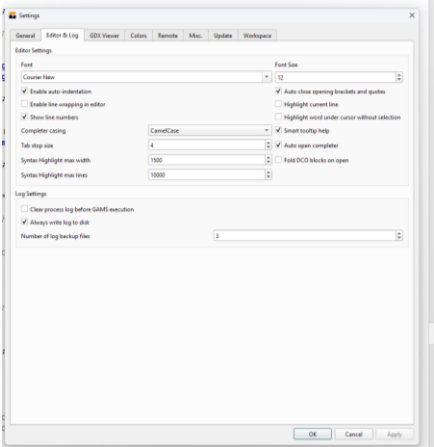
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Studio Settings: Editor & Log



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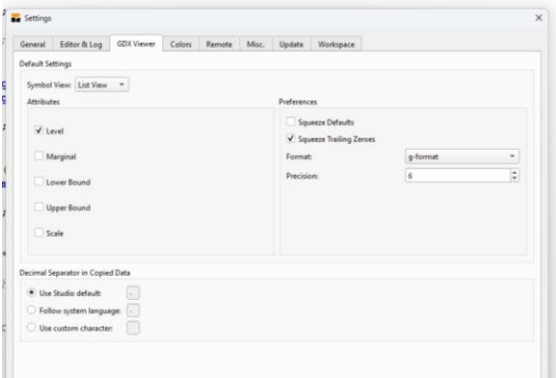
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Studio Settings: GDX Viewer



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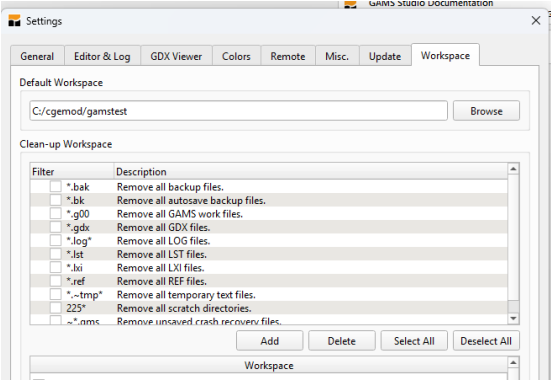
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Studio Settings: Workspace



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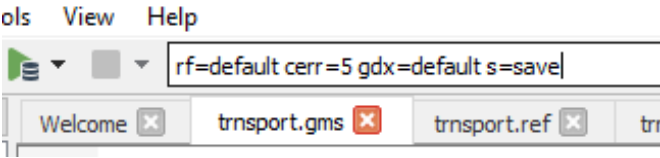
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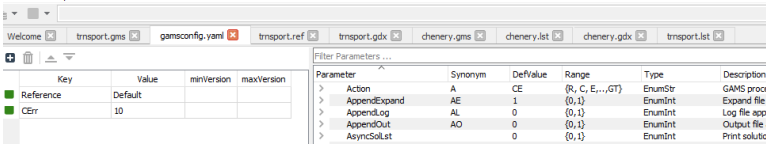
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Command line and GAMS Configuration

Command line



GAMS Default Configuration



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User Model Libraries

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Libraries and User Model Libraries

User Model Libraries are libraries additional to those provided by GAMS

- In Windows Explorer create a directory, C:\cgemod\libraries. We suggest doing this on the top level of you working drive (C drive).
- Add the sub directory trans_lib to the master directory, i.e., C:\cgemod\libraries\trans_lib. (Each course adds a library).
- Add the sub directory downloads to the master directory, i.e., C:\cgemod\libraries\downloads. (This sub directory is to keep the downloads in case a library is corrupted.)
- Download the trans.zip file from the cgemod site (http://cgemod.org.uk/int_gams.html) (save in the download sub directory).
- Unzip the contents of the file trans.zip into the sub directory called trans_lib.

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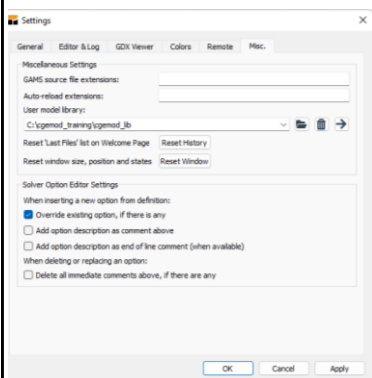
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 Libraries and User Model Libraries v1
Making the User Library available in Model Library Explorer



- Open Studio settings - File > Settings or F7 and go to the Misc tab.
- Change the path for the User Model library,
C:/Users/.../Documents/GAMS/
modellibs (the exact path will
depend on the settings on your PC) to
C:/cgemod_training/cgemod_
lib.
- Close down the Studio Settings
window remembering to click OK at
the bottom of the Misc tab.

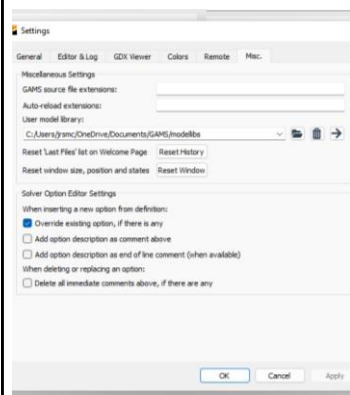
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Libraries and User Model Libraries v2
Making the User Library available in Model Library Explorer



- Copy all of the files in the `cgemod_lib` sub directory – just the contents of the directory NOT the directory.
- Open Studio settings - File > Settings or F7 on the toolbar and go to the Misc tab.
- Click on the ‘Open Location’ button (→), which will open a Windows Explorer window. Make sure the directory `...\GAMS\modellibs` is open.
- Create a sub directory called `...\GAMS\modellibs\cgemod_lib`
- Then Paste the contents of the `C:\cgemod_training\cgemod_lib` directory into the `...\GAMS\modellibs\cgemod_lib` directory.
- Close down the Studio Settings window remembering to click OK on the Misc tab.

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Libraries and User Model Libraries

Model Library Explorer

Filter model tabs ...

Intro to Studio Lib (5)

Model Library (430)

Test Library (895)

API Library (61)

Data Utilities Library (145)

ET

SeqNr	Name	Model Type	Type	Modeling Points	
01	transport1	Transport cost problem	LP	Structure of GAMS model	None
02	Syntax	Syntax errors 1 to 4	LP	Debugging a GAMS model	None
03	Execution	Execution errors 1 and 2	LP	Debugging a GAMS model	None
04	transport2	Transport model exercises	LP	Modifying a GAMS model	Adding markets and wholesalers
05	transport3	Transport exercise solutions	LP	Modifying a GAMS model	Adding markets and wholesalers

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Libraries and User Model Libraries

cgemod_training

Name	Date modified	Type	Size
cgemod_lib	03/09/2022 11:32	File folder	
downloads	03/09/2022 11:31	File folder	

View

Sort by

Group by

Refresh

Customise this folder...

Paste

Paste shortcut

Undo Delete

Give access to

SVN Checkout...

TortoiseSVN

WinMerge

New

Properties

Folder

Shortcut

Microsoft Access Database

Using File>New Project to create a new directory AND a new project

cgemod_training

Name	Date modified	Type
cgemod_lib	03/09/2022 11:32	File folder
downloads	03/09/2022 11:31	File folder
transport	03/09/2022 11:58	File folder

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Libraries and User Model Libraries

File Edit GAMS MIRO Tools View Help

Project Explorer

transport

Welcome [transport]

Nametransport

Working directoryC:\GAMS_training\transport

Base directoryC:\GAMS_training\transportWorking director

Main GMS-no runnable-

File Edit GAMS MIRO Tools View Help

Project Explorer

transport

Welcome Dransport

Nametransport

Working directoryC:\GAMS_training\transport

Base directoryC:\GAMS_training\transport

Main GMS-no runnable-

Model Library Explorer

Intro to Studio Lib (5)Model Library (400)Test Library (895)API Library (84)Data Utilities Library (145)GNP Library (104)F2N Library (42)NOA Library (1)

Segle	Name	Model Type	Type	Modeling Points
01	transport1	Transport cost problem	LP	Structure of GAMS model
02	Syntax	Syntax errors 1 to 4	LP	Debugging a GAMS model
03	Execution	Execution errors 1 and 2	LP	Debugging a GAMS model
04	transport2	Transport model exercises	LP	Modifying a GAMS model
05	transport3	Transport exercise solutions	LP	Modifying a GAMS model

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Libraries and User Model Libraries

GAMS Studio

File Edit GAMS MIRO Tools View Help

Project Explorer

transport

trans.gms

Welcome [transport] trans.gms

1\$TITLE A TRANSPORTATION PROBLEM (TRNSPORT,SEQ=1)

2\$OFFUPPER

3* This problem finds a least cost shipping schedule that meets

4* requirements at markets and supplies at factories

5*

cgemod_training > transport

Name	Date modified	Type
clean_tr.dat	03/09/2022 12:07	DAT File
trans.gms	03/09/2022 12:07	GAMS file
trans.gms.1.bak	03/09/2022 12:04	BAK File
transexcel.xls	03/09/2022 12:07	Microsoft Excel 97...
tutorial.pdf	03/09/2022 12:07	Microsoft Edge P...

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Comparing Files

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Comparing Files

Access to comparison software is valuable. They allow easy comparisons between different model versions, which can be helpful when searching for ‘changes’, ‘errors’ and ‘bugs’.

1. MS Word: using Review>Compare produces a comparison of two selected documents
2. **WinMerge**: using File>Open then selecting 2 or 3 documents to compare
3. NotePad++: open two documents and then using Plugins>Compare

The courses offered by cgemod assume the participant has access to comparison software. Our examples assume WinMerge.

With open-source programmes be careful when installing them, especially if they come from third-party sites.

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Studio with Modular Projects

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Studio with Modular Projects

Name	Status	Date modified	Type	Size
10_CS_Data	✓ R	31/08/2022 11:02	File folder	
11_DYN_Data	✓ R	31/08/2022 11:02	File folder	
20_GDX_Data	✓ R	31/08/2022 11:02	File folder	
21_Restart	✓ R	31/08/2022 11:02	File folder	
30_CS_Calib	✓ R	31/08/2022 11:02	File folder	
31_CS_Close	✓ R	31/08/2022 11:02	File folder	
32_CS_Expts	✓ R	31/08/2022 11:02	File folder	
40_DYN_Calib	✓ R	31/08/2022 11:02	File folder	
41_DYN_Close	✓ R	31/08/2022 11:02	File folder	
42_DYN_Updates	✓ R	31/08/2022 11:02	File folder	
43_DYN_Expts	✓ R	31/08/2022 11:02	File folder	
50_CS_Analysis	✓ R	31/08/2022 11:02	File folder	
51_DYN_Analysis	✓ R	31/08/2022 11:02	File folder	
60_Results	✓ R	31/08/2022 11:02	File folder	
clean_stg_t.bat	✓ R	13/03/2020 09:41	Windows Batch File	
stg_t.gms	✓ R	10/03/2021 08:00	GAMS file	
stg_t_dyn.gms	✓ R	04/10/2021 16:17	GAMS file	
stg_t_dyn_expt.gms	✓ R	13/03/2020 09:41	GAMS file	

STAGE_t model with comparative static and recursive dynamic modules

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Studio with Modular Projects

GAMS Studio

File Edit GAMS MIRO Tools View Help

Project Explorer

stg_t_dyn

30_CS_Calib

stg_t_data_load.inc

stg_t_calibchk1.inc

stg_t_cap_val.inc

stg_t_convnt.inc

stg_t_descrip.inc

stg_t_diagnost.inc

stg_t_list.inc

stg_t_parmcalib.inc

stg_t_reassign.inc

stg_t_samchk1.inc

stg_t_samchk2.inc

stg_t_struct.inc

stg_t_varinit.inc

stg_t_varinit2.inc

31_CS_Close

stg_t_cl_base.inc

stg_t_cl_tv.inc

stg_t_cl_tyh.inc

stg_t_reset.inc

stg_t_dyn.gdx

stg_t_dyn.gms

stg_t_dyn.lst

stg_t_dyn.ref

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stg_t_reset

Scontext

If closure rules are to be

it is necessary to first fr

closure rule or the equatio

Sofftext

*** FOREIGN EXCHANGE MARKET

ER.LO

CAPWOR.LO

PWM.LO (c)

PWE.LO (c)

*** INVESTMENT-SAVINGS CLOSU

SADJ.LO

SHADJ.LO

SEADJ.LO

DSHH.LO

DS.LO

DSEN.LO

IADJ.LO

INVEST.LO

INVESTSH.LO

*** ENTERPRISE CLOSURE RULES

OEDADJ.LO

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Studio with Modular Projects

ndchk1.inc

stg_t_samchk2.inc

stg_t_struct.inc

stg_t_varinit.inc

Search & Replace

Search Term: FD0

Replace:

☒ Case Sensitivity ☐ Use Regex ☐ Whole Words

This Project

Include Filter: *

Exclude Filter:

40 matches; 20 files searched.

Process Log

Filename	Line	
..._dyn/30_CS_Calib/stg_t_varinit.inc	95	ADFD.L(ff,a) = ADFD0(ff,
..._dyn/30_CS_Calib/stg_t_varinit.inc	97	FD.L(ff,a) = FD0(ff,a);
..._t_dyn/31_CS_Close/stg_t_cl_tv.inc	208	ADFD.FX(ff,a) = ADFD0
..._dyn/31_CS_Close/stg_t_cl_base.inc	210	ADFD.FX(ff,a) = ADFD0
..._t_dyn/30_CS_Calib/stg_t_list.inc	139	ADFD0(ff,a) Shift paran
..._t_dyn/30_CS_Calib/stg_t_list.inc	169	FD0(ff,a) Demand for
..._t_dyn/31_CS_Close/stg_t_cl_tyh.inc	208	ADFD.FX(ff,a) = ADFD0
..._t_dyn/stg_t_dyn/stg_t_dyn.gms	1211	FDPRODFF(ff,a)\$FD0(ff,i
..._t_dyn/stg_t_dyn/stg_t_dyn.gms	1468	FMEQUIL(f)SSUM(a, FD0(f
..._dyn/30_CS_Calib/stg_t_varinit2.inc	88	ADFD.L(ff,a) = ADFD0(ff,
..._dyn/30_CS_Calib/stg_t_varinit2.inc	90	FD.L(ff,a) = FD0(ff,a);
..._n/30_CS_Calib/stg_t_data_load.inc	313	* Forcing FSIO and FD0 t
..._n/30_CS_Calib/stg_t_parmcalib.inc	334	FD0(ff,a) Demand for

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Studio with Modular Projects

ndchk1.inc

stg_t_samchk2.inc

stg_t_struct.inc

stg_t_varinit.inc

Search & Replace

Search Term: FDO

Replace:

☒ Case Sensitivity ☐ Use Regex ☐ Whole Words

Folder < > Find All

Include Filter: * Exlude Filter:

Path: I-22 Recursive Dyn CGE/Mod O16/Mod O16 code/stg_t_dyn/stg_t_dyn Include Subdirectories

57 matches; 84 files searched.

Process Log

Filename	Line	Conte
..._dyn/30_CS_Calib/stg_t_varinit.inc	95	ADFD.I(ff,a) = ADFD0(ff,a);
..._dyn/30_CS_Calib/stg_t_varinit.inc	97	FD.I(ff,a) = FDO(ff,a);
...dates/stg_t_cap_update_3_sol.inc	112	...(kp,a),WF0(kp)*WFDIST0(kp,a)*FC
...tg_t_dyn/30_CS_Calib/stg_t_list.inc	139	ADFD0(ff,a) Shift parameter for fa
...tg_t_dyn/30_CS_Calib/stg_t_list.inc	169	FDO(ff,a) Demand for factor f by
..._DYN_Close/stg_t_dyn_d_putty.inc	196	FD.FX(k,a) = FDO(k,a);
..._DYN_Close/stg_t_dyn_d_putty.inc	217	ADFD.FX(ff,a) = ADFD0(ff,a);
...1_DYN_Close/stg_t_dyn_d_clay.inc	217	ADFD.FX(ff,a) = ADFD0(ff,a);
...n/30_CS_Calib/stg_t_parmcalib.inc	334	FDO(ff,a) Demand for factor f by
...n/30_CS_Calib/stg_t_parmcalib.inc	354	ADFD0(ff,a) Shift parameter for fa
...n/30_CS_Calib/stg_t_parmcalib.inc	439	FDO(f,a) = FACTUSE(f,a);
...n/30_CS_Calib/stg_t_parmcalib.inc	447	FSIO(ent,f) = SUM(a, FDO(f,a)) - (SU
...n/30_CS_Calib/stg_t_parmcalib.inc	451	Ensure FSIO and FDO are consisten
...n/30_CS_Calib/stg_t_parmcalib.inc	458	FDTOT0(f) = SUM(a, FDO(f,a));
...n/30_CS_Calib/stg_t_parmcalib.inc	474	FS0(f) = SUM(a,FDO(f,a));
...n/30_CS_Calib/stg_t_parmcalib.inc	503	WFDIST0(f,a)SFD0(f,a) = (SAM(f,a)/f

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An Introduction to GAMS with
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The End

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