



GAMS Workshop

Development & Deployment

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www.gams.com



**INFORMATICS
RISING**



GAMS at a Glance

General Algebraic Modeling System

- Algebraic Modeling Language
- 30+ Integrated Solvers
- 10+ Supported MP classes
- 10+ Supported Platforms
- Connectivity- & Productivity Tools
 - IDE
 - Model Libraries
 - GDX, Interfaces & Tools
 - Grid Computing
 - Benchmarking
 - Compression & Encryption
 - Deployment System
 - APIs (C, Fortran, Java, .Net ...)
 - ...

The screenshot displays the GAMS IDE interface. On the left, a code editor shows GAMS script for creating a GDX file. In the center, a table lists model elements:

Entry	Symbol	Type	Dim	Nr Elem
10	GanttData	Par	3	14
4	Points	Par	2	200
8	Scatter2D	Par	2	40
9	Scatter3D	Par	2	60
13	ScenarioData	Par	2	136,000
12	StockData	Par	3	800
11	Surface	Par	2	2,500
5	Vector2D	Par	2	80
6	Vector2Db	Par	2	80
7	Vector3D	Par	2	120
1	YearDataA	Par	1	8
2	YearDataB	Par	1	8
3	YearDataC	Par	1	8

On the right, two charts are visible: 'StockData' showing line graphs for IBM, DELL, HP, and SUN, and 'Surface' showing a 3D surface plot. A status window at the bottom shows the execution log for 'chartdat.gms'.



Monthly System Downloads



Download GAMS Distribution 23.8.1 - March 17, 2012

Note: To deliver GAMS with the best performance we are using the [Amazon CloudFront](#) web service, a global network of edge locations for content delivery.

Microsoft Internet Explorer users who have enabled SmartScreen Filter may get several warnings during the download of a GAMS system. If you do not want to ignore please cancel the download and download the current version for [Windows 32 bit](#) or [Windows 64 bit](#) as a zip-file and unzip this file before running the setup program.

Please consult the [release notes](#) before downloading a system. The installation notes for [Windows](#) and [UNIX](#) and the complete [system documentation](#) are included in any

Windows

[Windows 32 bit](#) Windows 7, Windows Vista, Windows XP, Windows Server 2008, Windows Server 2003, and compatible on AMD- or Intel-based (x86_32) archite

[Windows 64 bit](#) Windows 7 x64, Windows Vista x64, Windows Server 2008 x64, Windows Server 2003 x64, and compatible on AMD- or Intel-based (x64_64) archi

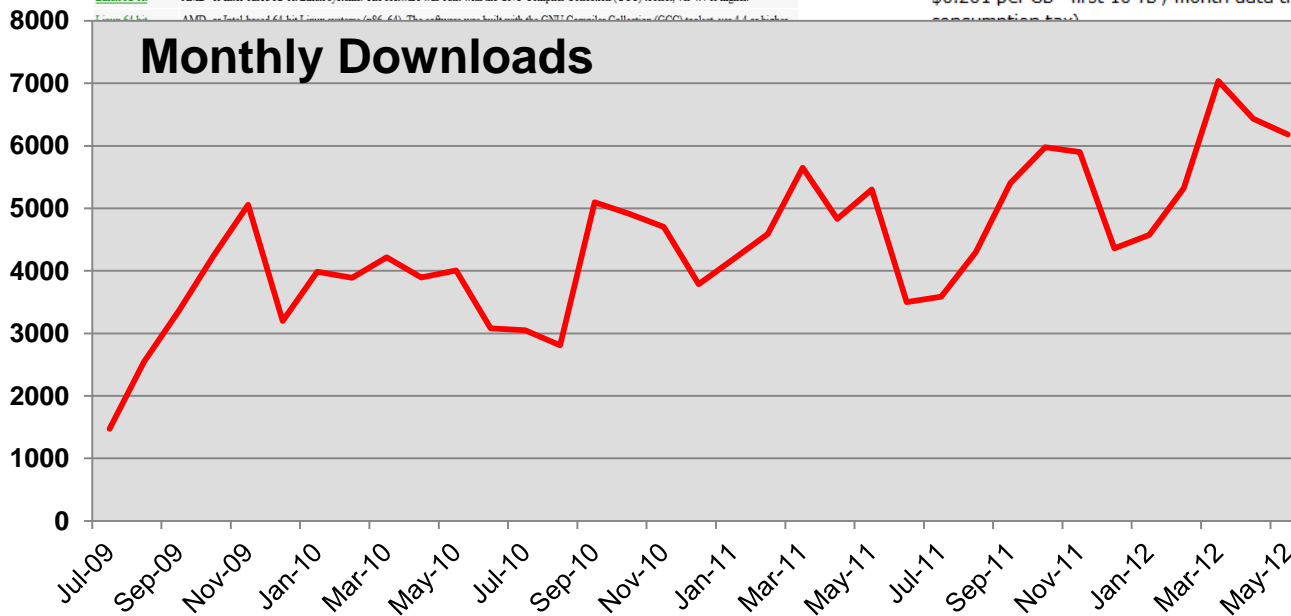
Unix

[AIX](#) AIX 5.3 or higher, PowerPC chip, 64 bit (ppc_64)

[Linux 32 bit](#) AMD- or Intel-based 32-bit Linux systems. The software was built with the GNU Compiler Collection (GCC) toolset, ver 4.4 or higher.

[Linux 64 bit](#) AMD- or Intel-based 64-bit Linux systems (x86_64). The software was built with the GNU Compiler Collection (GCC) toolset, ver 4.4 or higher.

Amazon CloudFront			\$67.04
Download Usage Report >>			
United States			
\$0.120 per GB - first 10 TB / month data transfer out	197.126 GB	23.66	
\$0.0100 per 10,000 HTTPS Requests	3 Requests	0.01	
\$0.0075 per 10,000 HTTP Requests	52,154 Requests	0.04	
			23.71
Europe			
\$0.120 per GB - first 10 TB / month data transfer out	212.982 GB	25.56	
\$0.0120 per 10,000 HTTPS Requests	1 Request	0.01	
\$0.0090 per 10,000 HTTP Requests	16,456 Requests	0.01	
			25.58
Asia Pacific (Tokyo) Region			
\$0.201 per GB - first 10 TB / month data transfer out (includes consumption tax).	23.800 GB	4.78	
	4,676 Requests	0.01	
			4.79
	transfer out	39.512 GB	7.51
		1 Request	0.01
		18,087 Requests	0.02
			7.54
	transfer out	21.656 GB	5.41
		1,535 Requests	0.01
			5.42





Release Notes:

www.gams.com/docs/release/release.htm

GAMS Distribution 23.9

To use this distribution, the maintenance expiration date for your license must be later than July 4, 2012.

Distribution History

[23.9.3](#) (Maintenance Release), Release Date September 27, 2012

[23.9.2](#) (Maintenance Release), Release Date September 4, 2012

[23.9.1](#) (Major Release), Release Date July 10, 2012

GAMS Maintenance Release 23.9.3

Maintenance releases do not provide any new features. They are issued to provide bug fixes, performance improvements and maintenance releases of solver libraries. The License Check Date remains the same as for the prior major release. This means that any license file that worked with major release [23.9.1](#) will also work with this maintenance release.

- [GAMS System](#)
 - [APIs](#)
 - [GAMS](#)
 - [Utilities](#)
- [Solvers](#)
 - [Coin-OR](#)

GAMS System

APIs

.NET

- Constructor of `GAMSWorkspace` now appends conditionally the GAMS system directory to the PATH environment variable. This fixes a problem with applications



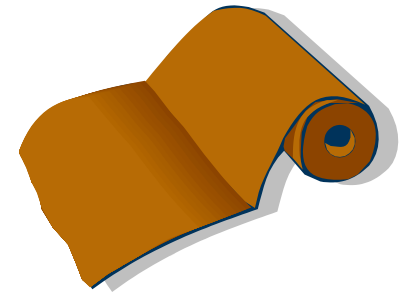
GAMS@INFORMS 2012

- GAMS Booth in the Exhibit Area
- Software Demo
 - Lutz Westermann, Sunday, 1:30pm, West 202- CC
- .NET API
 - Object Oriented GAMS API: .NET and Beyond, Michael Bussieck, Monday, 8am, Suite 322
- GDXRRW
 - GDXRRW: Exchanging Data between GAMS and R, Steven Dirkse, Monday, 11am, Suite 322
- Stochastic Programming
 - Stochastic Programming in GAMS, Lutz Westermann, Monday, 11am, Suite 322



Cutting Stock Problem: Objective

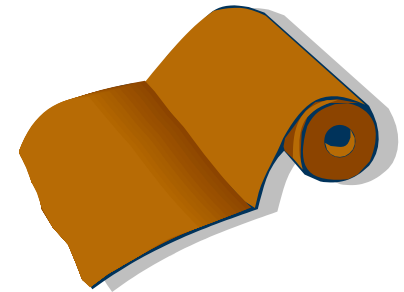
- Cut finished widths ...
 - of different sizes
 - from large raw paper rolls
 - in order to meet customer's demand
- Objective: minimize the cost of raw paper rolls used





Cutting Stock Problem: Input / Output

- Input:
 - Number of different cut widths with...
 - Size of width
 - Demand quantity
 - Available types of raw rolls with . . .
 - Size
 - Cost
- Intermediate
 - (Sub)set of possible patterns
- Output:
 - Type and quantity of required raw paper rolls
 - Patterns to cut



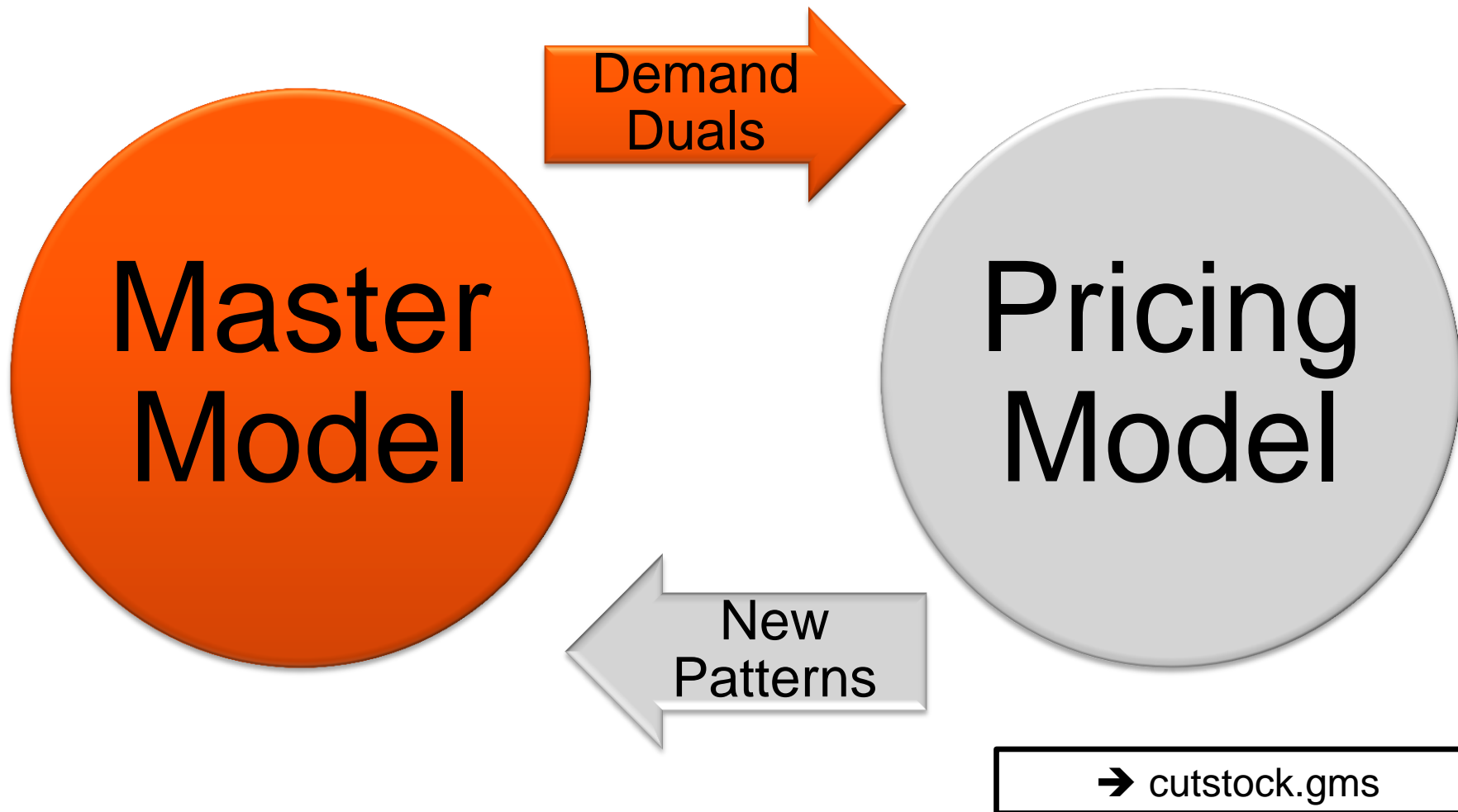


Cutting Stock Data

- Pre-compute all patterns
 - In monolithic application
 - In a separate GAMS job: communicate with GDX
 - In a different language: communicate with GDX
- Compute patterns on the fly
 - The master model becomes an RMIP
 - Patterns arise as solutions to a knapsack problem



Cutting Stock Problem: Column Generation





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