

Applied AutoMod® 12

Release Notes

think it. apply it.

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Applied AutoMod 12.4

About this document

These *Release Notes* discuss the various changes and known issues in Applied AutoMod® 12.4. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (provided with a full license)
- *AutoMod Runtime User's Guide* (provided with a runtime license)
- *Model Communications User's Guide* (provided with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the customer portal.

Supported versions

Applied Materials supports AutoMod 12.2 and later releases. AutoMod Support incorporates patches into later releases of these versions as needed (for example, 12.4.1).

Supported operating systems

AutoMod 12.4 is supported as a 32-bit application on:

- Windows 7 Ultimate (32- and 64-bit operating systems)
- Windows 7 Professional (32- and 64-bit operating systems)
- Windows Vista Business with Service Pack 1 or greater (32- and 64-bit operating systems)
- Windows XP Professional with Service Pack 2
- Windows XP Professional x64 Edition with Service Pack 2
- Windows Server 2003 with Service Pack 1

AutoMod 12.4 also requires .NET Framework 2.0 and 3.0 (except with Windows 7).

■ Note

- You may see an error requiring the installation of Framework 1.1. You can ignore this error.
- To successfully run AutoMod 12.4 with .NET 3.0 and 2.0, and with the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows Server 2003, you must also run Windows Update to get the correct updates.

Applied Materials supports AutoMod 12.2 and later releases. AutoMod Support incorporates patches into later releases of these versions as needed (for example, 12.4.1).

Contacting support

If you have questions about the installation or upgrade process, contact your local support center. To obtain the latest contact information for your support center, click the following link, scroll down the login page, and then select your region:

www.softwaresupport.appliedmaterials.com

What's new

This section describes product enhancements included with AutoMod 12.4.

- **New Attributes.** A number of attributes formerly available only in Business Graphs are now implemented in code. These include attributes for the following entities:

- Blocks
- Control points
- Counters
- Loads
- Queues
- Resources
- Stations
- Systems
- Vehicles

For more information, see "Attributes" on [page 3](#). Also see the AutoMod Help.

- **Route Lists.** A new attribute for stations and control points, `route to`, gives you the ability to list the locations a vehicle will claim when traveling from the station or control point to a referenced destination. A similar attribute for vehicles, `route to`, gives you the ability to list the control points a vehicle will encounter when traveling from its current location to a referenced destination. Another new attribute for vehicles, `current route`, gives you the ability to list the control points a vehicle will encounter when traveling from its current location to its current destination.
- **Expanded Picking in Runtime.** You can now pick the following entities during a simulation:
 - Control points
 - Stations
 - Paths
 - Sections
 - Photoeyes
 - The names of all pickable entities
- **Stop Vehicle At.** A new **Stop Vehicle At** option in the AutoMod Debugger lets you automatically pause the simulation when a specific vehicle reaches a particular line of code. This feature is useful for debugging model logic that results in problems only when a particular vehicle executes the logic during a simulation.
- **Stop Load At.** In the AutoMod Debugger, when you click **Stop Load At**, the **Load ID** field in the Get Stop Load ID dialog box is now pre-filled with the load ID of the current load.

- **Next Action Breakpoint for Loads.** Formerly, you could set breakpoints for loads dying or changing load type. Now, you can also set a **Next Action** breakpoint. When the chosen load reaches its next action, AutoMod prints a message to the message window, and the simulation pauses. At that point, you can open the debugger and examine the values of the load's attributes.
- **Improvements to Where Used Dialog Box.** The Where Used dialog box has been redesigned to limit the need for scrolling and to improve usability on laptops and other computer with small monitors.
- **Naming Conventions.** The AutoMod editor now recognizes certain standard prefixes for entity names. Using these standard prefixes makes it easier to edit a source file, because when you close the file after adding a new entity, the Error Correction window anticipates the type of entity you need to define:
 - P_ Process
 - A_ Load attribute
 - L_ Load type
 - R_ Resource
 - RC_ Resource procedure
 - C_ Counter
 - SM_ State monitor
 - Q_ Queue
 - OL_ Order list
 - B_ Block
 - V_ Variable
 - BG_ Business graph
 - F_ Function
 - SR_ Subroutine
 - LB_ Label
 - T_ Table
 - RN_ Random stream

These prefixes are defined in the amodprefix.pref file in the lib directory in the AutoMod installation directory. You can edit this file if you prefer different prefixes. A prefix can have up to 12 characters (additional characters are ignored).

- **Negative Y Values in Business Graphs.** You can now define a negative minimum Y value for a TimeLine business graph.

New syntax

This section outlines the new syntax provided for model logic in AutoMod 12.4. For more information about a specific element, see the AutoMod Help.

Attributes

The following new attributes are defined (some of these attributes were formerly available in Business Graphs but are now implemented in code):

Entity	Attribute
Blocks	<ul style="list-style-type: none"> • average time per wait • utilization
Control points	<ul style="list-style-type: none"> • route to • vehicles delivering • vehicles enroute • vehicles retrieving
Counters	<ul style="list-style-type: none"> • average time per wait • utilization

Loads	<ul style="list-style-type: none">• current queue• current section• current station• orientation• previous station
Queues	<ul style="list-style-type: none">• average time per wait• utilization
Resources	<ul style="list-style-type: none">• average time per wait• downcount• utilization
Stations	<ul style="list-style-type: none">• route to• vehicles delivering*• vehicles enroute*• vehicles retrieving*
Systems (conveyors)	<ul style="list-style-type: none">• sections
Vehicles	<ul style="list-style-type: none">• loads claimed list• next location• number of loads claimed• current route• route to

*Power & free only.

Functions and procedures

There are no new functions or procedures in this release.

Actions

There are no new actions in this release.

Keywords

There are no new keywords in this release.

Pointer expressions

There are no new pointer expressions in this release.

What's changed

This section lists updates and changes included in the AutoMod 12.4 release.

The following defects have been fixed:

- If you launched Excel while the AutoMod editor was open, Excel was very slow to open.
- Opening an Excel file while running an AutoMod model that incorporated AutoMod Excel functions caused Excel to stop responding.

- In order to avoid a file-name conflict, the DTrace 2.0 utility has been renamed the Template Editor.
- Backorder statistics in order list reports were sometimes not updated correctly.
- Editing the graphic of a container in an arrayed queue could cause AutoMod to stop responding.
- On a Windows 7 machine running a 64-bit operating system, closing AutoMod or AutoView by clicking the Close button (X) closed the application window but could fail to terminate the process.
- In the debugger, clicking **Find** could fail to find a string in source code.
- AutoView could ignore a background color setting in Environment Settings.
- In VR graphics, blocks represented by imported graphics might not be claimed.
- The current queue container value could not be compared to a queue container pointer.
- A model run could terminate early with the display of a warning message about a null path pointer. Because of this fix, AutoMod will no longer support pseudo-arrayed access to entities in movement systems. For example, `cp1_4` will not equal `cp(1,4)`.
- When defining the capacity of individual queues in an array, the queue names could fail to appear in the Edit a Queue dialog box.

Syntax changes

Formerly, the `average waiting time` attribute for blocks, counters, queues, and resources returned the average waiting time of only those loads and vehicles that actually waited. It now returns the average waiting time for all loads and vehicles—even those that do not wait. The new `average time per wait` attribute returns the average waiting time of only those loads and vehicles that actually wait.

Known issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- On some machines, when you search for a term in the AutoMod Help, the Help viewer may display duplicates of hits in the syntax Help system. Workaround: navigate to `<automod>\help` and open the `syntax.chm` file directly.
- In Windows Vista, the use of an Aero-based theme may prevent AutoView from generating a valid AVI. This is a known issue with Windows. To resolve the issue, change your desktop theme to `Windows Classic` before generating the AVI.
- In AutoView, a carrier and load could briefly disappear when passing through a right-angle transfer.
- In AutoView, a segmented vehicle that backs up may come apart—particularly if it crosses a transfer.
- In path-based movement systems, ahead transfers can be defined with a velocity equal to one of the following:

- proportionately changing
- section of load origin
- from section
- to section
- slower section
- faster section

The **proportionately changing** definition is not functioning correctly; in reality, **proportionately changing** provides the same velocity as **to section**.

- If you install AutoSched AP 9.2.1 (or an older version) in the same directory as AutoMod 12.4, you should install AutoSched AP before AutoMod.
- In the SimController, when you redirect output files to a named run directory, if you use spaces or special characters in the directory name, the name will be truncated. Also, uppercase letters are converted to lowercase.
- If your model includes containers with a very large number of cells, memory limitations may cause the model to run slowly or may cause AutoMod to stop responding. As a guideline, you may want to limit each container to 1,000 cells—but the practical limit depends on your model and your hardware. AutoMod has been modified so that no more than 1,000 cells per dimension per container are graphically represented in the builder (the cells continue to exist, but they are not displayed graphically).
- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option was disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- Some graphics hardware can fail to draw 3D images in the Work Area or Simulation window, or cause the software to stop responding when you place or manipulate graphic entities. In many cases, you can solve this problem by adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the best configuration that resolves this issue for your hardware. (See Windows Help or contact your hardware vendor.)

- When you print the current view from within the VR Graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from release 11.2 and earlier cannot be opened in release 12.0 and later. Rerun the model in 12.4 to regenerate the .avw files. Also, be sure to move the existing .avw folder to a new location or delete it.
- In certain situations when you edit a `Belt` section type in a conveyor system (by opening the conveyor system, selecting **System/Default**, and clicking on **Section Types**), and click the **Templates** button, the builder stops responding.
- When the `translate` action moves a load backward on a conveyor system, the load may snap forward suddenly upon reaching its destination. Similarly, in some situations, loads may not scale properly. A load may jerk backward, scale back to its original size, and then jerk forward slightly.
- The first time you run the ActiveX “unload” demo from the Excel interface, a prompt may appear stating that the model is already running. After you run the model a second time, this problem is resolved.
- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.
- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12.4 AutoStat Help (HTML Help), open the Help system from AutoMod or from the Start menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.
 - **Note** If you're running on a Windows 7 or Windows Vista system, you will not be able to open the HTML Help files from these Java applications. You must open the Help system from AutoMod or from the Windows Start menu.

- Because of compatibility issues with Windows applications compiled from Java source, parallel AutoStat runs on remote machines may fail on Windows 7, Windows Vista, or Windows Server 2003.

Applied AutoMod 12.3.1 Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in Applied AutoMod® 12.3.1. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (provided with a full license)
- *AutoMod Runtime User's Guide* (provided with a runtime license)
- *Model Communications User's Guide* (provided with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 12.3.2).

Supported operating systems

AutoMod 12.3.1 is supported as a 32-bit application on:

- Windows 7 Ultimate (32- and 64-bit operating systems)
- Windows 7 Professional (32- and 64-bit operating systems)
- Windows Vista Business with Service Pack 1 or greater (32- and 64-bit operating systems)
- Windows XP Professional with Service Pack 2 or greater
- Windows XP Professional x64 Edition with Service Pack 2 or greater
- Windows Server 2003 with Service Pack 1 or greater

AutoMod 12.3.1 also requires .NET Framework 2.0 and 3.0.

Note To successfully run AutoMod 12.3.1 with .NET 3.0 and 1.1 and with the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows Server 2003, you must also run Windows Update to get the correct updates.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod_support@amat.com**

Phone: **(801) 736-3300, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's new

This section describes product enhancements included with AutoMod 12.3.1.

New syntax

Functions

You can use three new Excel functions to clear data from individual cells in Excel files:

- `XLClear`
- `XLClearA1`
- `XLClearR1C1`

Demonstration models

This release contains two new demonstration models:

- **Palletizer.** This bridge crane model contains two cranes that move loads from a conveyor onto pallets.
- **Tugger.** This model shows how to use vehicle segments to create trains. A tugger picks up loaded carts, delivers them to assembly stations, and retrieves the empty carts. The model shows you how to set up the initial segments, add and delete segments, and move segments from one vehicle to another. (See “Known issues” on [page 4](#) for information about segmented vehicles and AutoView.)

What's changed

This section lists updates and changes included in the AutoMod 12.3.1 release.

The following defects have been fixed:

- A known issue that prevented custom interfaces developed using ActiveX technology from functioning correctly under Windows Vista has been resolved. This was related to Microsoft changes to Windows Vista communication security policies.
- After a model was upgraded from 12.2.1 to 12.3, and then exported and imported, the control point configuration setting **No Change** could fail to work correctly.
- AutoMod could stop responding when a resource report was viewed in runtime.
- With certain hardware configurations, after opening a model from the .dir file and editing a path mover system, AutoMod could stop responding when the model was built.
- AutoMod could stop responding during the creation of a kinematic station.
- Deleting a motor from a conveyor or power & free system could cause AutoMod to stop responding.
- Editing a work list or park list could cause AutoMod to stop responding.
- In path mover systems, it was possible to add a control point to a list using **Same As**, and then delete the original control point.
- AutoMod could stop responding when building a model after a path or section was deleted.
- After a conveyor transfer was deleted and the section was moved, a new transfer could not be selected and AutoMod could stop responding.
- In VR graphics, when the user placed a bridge crane or AS/RS, the graphic did not appear until after the second click.
- In a path mover system, making a path type two-directional could cause AutoMod to stop responding when the model was run.
- If a user deleted a power & free chain (or all paths in a path mover system), then undid the deletion, and finally changed the direction of the system, the builder could stop responding.
- In rare cases, after a user deleted one of two path attach points on a vehicle segment, AutoMod could stop responding when the model was run.

Other more minor defects are also fixed. See the Product Issues page on the Maintuser Web page.

Syntax changes

There are no syntax changes in this release.

Known issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- If you launch Excel while the AutoMod editor is open, Excel may be very slow to open. This is a known issue with Microsoft Dynamic Data Exchange. If you close the editor, Excel will open normally. For other workarounds, contact AutoMod Support.
- In Windows Vista, the use of an Aero-based theme may prevent AutoView from generating a valid AVI. This is a known issue with Windows. To resolve the issue, change your desktop theme to windows classic before generating the AVI.
- Opening an Excel file while running an AutoMod model that incorporates AutoMod Excel functions can cause Excel to stop responding. If this happens, close Excel using the Windows Task Manager and avoid opening Excel while running the model.
- In AutoView, a carrier and load could briefly disappear when passing through a right-angle transfer.
- In AutoView, a segmented vehicle that backs up may come apart—particularly if it crosses a transfer.
- In path-based movement systems, ahead transfers can be defined with a velocity equal to one of the following:
 - proportionately changing
 - section of load origin
 - from section
 - to section
 - slower section
 - faster section

The **proportionately changing** definition is not functioning correctly; in reality, **proportionately changing** provides the same velocity as **to section**.

- If you install AutoSched AP 9.2.1 (or an older version) in the same directory as AutoMod 12.3.1, you should install AutoSched AP before AutoMod.
- In the SimController, when you redirect output files to a named run directory, if you use spaces or special characters in the directory name, the name will be truncated. Also, uppercase letters are converted to lowercase.

- If your model includes containers with a very large number of cells, memory limitations may cause the model to run slowly or may cause AutoMod to stop responding. As a guideline, you may want to limit each container to 1,000 cells—but the practical limit depends on your model and your hardware. AutoMod has been modified so that no more than 1,000 cells per dimension per container are graphically represented in the builder (the cells continue to exist, but they are not displayed graphically).
- If you installed hot patch build 2146.54 for AutoMod 12.1.2 build 2146.49, the change in build level may not be reflected in the AutoMod Version Details window or in the Sim Controller **Details** tab.
- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- Some graphics hardware can fail to draw 3D images in the Work Area or Simulation window, or cause the software to stop responding when you place or manipulate graphic entities. In many cases, you can solve this problem by adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the best configuration that resolves this issue for your hardware. (See Windows Help or contact your hardware vendor.)

- When you print the current view from within the VR Graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.3.1 to regenerate the .avw files. Also, be sure to move the existing .avw folder to a new location or delete it.
- In certain situations when you edit a Belt section type in a conveyor system (by opening the conveyor system, selecting **System/Default**, and clicking on **Section Types**), and click the **Templates** button, the builder stops responding.
- When the translate action moves a load backward on a conveyor system, the load may snap forward suddenly upon reaching its destination. Similarly, in some situations, loads may not scale properly. A load may jerk backward, scale back to its original size, and then jerk forward slightly.
- ~~The first time you run the ActiveX “unload” demo from the Excel interface, a prompt may appear stating that the model is already running. After you run the model a second time, this problem is resolved.~~
- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.

- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12.3.1 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.

Note If you're running on a Vista system, you will not be able to open the HTML Help files from these Java applications. You must open the Help system from AutoMod or from the Windows **Start** menu.

- Because of compatibility issues with Windows applications compiled from Java source, parallel AutoStat runs on remote machines may fail on Windows Vista or Windows Server 2003.

Documentation corrections and omissions

The ability to access the color of stations and control points (and station and control point types) in syntax is now planned for a future release. The same is true of scale:

- In the Help system, in the "Station attributes" and "Control point attributes" topics, disregard the color and scale attributes.
- In the *AutoMod User's Guide*, under "Changing the color of an entity" on page 7.13, disregard the reference to syntax in the note.
- In the *AutoMod User's Guide*, under "Precedence and inheritance in AutoMod" on page 15.7, the second table should be modified. Table entries corresponding to control points and stations and the set action should read "na" rather than "individual." Similarly, entries corresponding to control points and stations and "Attribute change" should read "na" rather than "individual or type."

Applied AutoMod 12.3 Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in Applied AutoMod® 12.3. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (provided with a full license)
- *AutoMod Runtime User's Guide* (provided with a runtime license)
- *Model Communications User's Guide* (provided with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 12.3.1).

Supported operating systems

AutoMod 12.3 is supported as a 32-bit application on:

- Windows Vista Business with Service Pack 1 or greater (32- and 64-bit operating systems)
- Windows XP Professional with Service Pack 2 or greater
- Windows XP Professional x64 Edition with Service Pack 2 or greater
- Windows Server 2003 with Service Pack 1 or greater

AutoMod 12.3 also requires .NET Framework 2.0 and 3.0.

Note To successfully run AutoMod 12.3 with .NET 3.0 and 1.1 and with the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows Server 2003, you must also run Windows Update to get the correct updates.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod_support@amat.com**

Phone: **(801) 736-3300, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's new

This section describes product enhancements included with AutoMod 12.3.

- **Control Point Types.** Control points are now based on templates called control point types. Control point types allow you to create multiple control points with the same attributes and procedures. When an older model is imported, a `DefaultControlPoint` type is created, and the existing system's default attribute values (`Control Point Capacity`, `Control Point Release`, `Control Point Alignment`, and `Enroute Limit`) are imported as default values for the `DefaultControlPoint` type.
- **Path Types.** In path mover systems, paths are now based on templates called guide path types. Guide path types allow you to create multiple paths with the same attributes and procedures. When an older model is imported, a `DefaultGuidePath` type is created, and the existing system's default path attributes are imported as default values for the `DefaultGuidePath` type.
- **Control Point and Station Default Configuration.** In path mover and power & free systems, the default configuration is now **No Change**. This means a vehicle or segment keeps its current configuration when it arrives at the location. (Selecting **Default** as the default configuration for a control point or station means a vehicle or segment will assume the configuration you have defined as the default for that vehicle or segment.) When an older model is imported, all existing control points and stations keep their existing configurations, but any new control points and stations will be created with the default set to **No Change**. The default configuration is also now **No Change** in kinematic systems, AS/RS, and bridge crane systems.
- **Station and Control Point Color.** You can now set the color of stations and control point types, as well as stations and control points, by editing these entities in the builder—in addition to using the Display dialog box.

- **Station and Control Point Scale.** You can now control the size of stations and control points, station and control point types, and station and control point names, by editing these entities in the builder—in addition to using the Display dialog box.
- **Station and Control Point Name Rotation.** You can now adjust the angle of a station or control point name. You accomplish this by editing stations and control points in the builder.
- **Path Navigation Distance.** A new attribute for stations and control points, path navigation distance to, gives you the ability to measure the distance traveled when moving from the station or control point along the shortest route to the referenced location, with the distance multiplied by any navigation factors on intervening paths.
- **Gantt Viewer.** You can use the SimGanttViewer to view detailed Gantt charts that graph many events in a simulation. Gantt charts can show the state of resources and state monitors throughout the run. You can view Gantt charts for each run type.
- **Path Editor.** The AutoMod Path Editor utility lets you automatically place control points along paths in a path mover system. This simplifies the construction of non-accumulating path mover systems, which provide faster runtime performance than accumulating systems.
- **SimController Enhancements.** You can now open AutoMod 11 models from the SimController. Also, you can now open AutoView from the Results tab—if an .avw file is displayed in the Output Data Files list—as well as from the **Utilities** menu. In addition, you can make snaps without reports when running a model from the SimController.
- **Vista Support.** AutoMod is now supported (as a 32-bit application) under Windows Vista Business.
- **Conveyor Center Line.** In conveyor systems, the Display dialog box now includes an option that draws a line down the center of each conveyor section. The default is invisible, and older models import without the center line.
- **NLS Command Prompt Setup.** You can now run Command Prompt Setup from the NLS program group in the Windows Start menu. This allows you to configure an NLS installation without impacting the system environment or other AutoMod installations.
- **Messages File.** You can now open all the runtime output files (for example, the .message, .print, and .report files) in Notepad for viewing while the model is running.
- **Task Bar Grouping.** AutoMod windows are now grouped into builder tasks and runtime tasks on the Windows taskbar. In addition, by mousing over the tasks, you can see information about them.

New syntax

This section outlines the new syntax provided for model logic in AutoMod 12.3. For more information about a specific element, see the AutoMod Help.

Attributes

The following new attributes are defined:

Entity	Attribute
Stations	path navigation distance to
Control Points	path navigation distance to
Sections	motor

Functions and Procedures

In path mover systems, you can now define most vehicle functions and procedures using control point *type* names as well as control point names. You can do the same thing with station type names in conveyor and power & free systems. Here's an example:

```
begin conv:DefaultStation station arriving procedure
end
```

This change applies to all vehicle functions and procedures that could formerly be defined using control point and station names.

Actions

There are no new actions in this release.

Keywords

There are six new system keywords:

- conlink_vsegdef
- cpconfig
- CPOINTTYPE
- GPATHTYPE
- namerot
- nscale

Pointer expressions

There are no new pointer expressions in this release.

What's changed

This section lists updates and changes included in the AutoMod 12.3 release.

The following defects have been fixed:

- Loads could get stuck on very short conveyor sections.
- Loads could fly off a conveyor, and AutoMod would stop responding.
- In conveyor systems with non-default transfers, deleting sections could incorrectly delete transfers.
- A kinematic vehicle could rotate to a new configuration graphically, with the rotation time taken correctly, but the vehicle's current configuration and destination configuration attributes would not be updated.
- AutoMod could stop responding when displaying variable reports during runtime.
- When a 12.2 model was imported into 12.2.1, power & free vehicles exhibited unusual movement on a slope.
- An entity defined with a certain type in a submodel could appear with a different type in the parent model.
- A kinematic vehicle's current configuration, as displayed in a report, could be different than the configuration specified in code.
- In systems with multiple control points very close together or on top of each other, AutoMod could fail to calculate the shortest path to a destination.
- Arrayed state monitors could fail to appear in displayed reports.
- On import, an 11.2 model generated grid spacing errors like "limits too large" and "limits too small."
- When run in AutoMod 12.2, an AutoMod 11.2 model with a certain load type caused AutoMod to stop responding.
- The graphic of a vehicle could temporarily stretch while rotating from a bi-directional to a spur path.
- Certain windows displayed incorrectly on high-resolution monitors.
- Formerly, the die process could appear when process statistics were displayed. It has been removed.
- Banding paths in a path mover system could also select control points in a conveyor system.
- A number of AutoView defects related to display differences between AutoView and AutoMod were also fixed, as were two defects that caused AutoView to stop responding.

Other more minor defects are also fixed. See the Product Issues page on the Maintuser Web page.

Syntax changes

The wait action must now be followed with a proper required keyword, such as for, until, or on. Older models that do not satisfy this requirement may generate a syntax error on import.

Known issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- Custom interfaces developed using ActiveX technology may not function correctly under Windows Vista. This is because of Microsoft changes to Windows Vista communication security policies. We are researching possible solutions.
- In Windows Vista, the use of an Aero-based theme may prevent AutoView from generating a valid AVI. This is a known issue with Windows. To resolve the issue, change your desktop theme to windows classic before generating the AVI.
- Opening an Excel file while running an AutoMod model that incorporates AutoMod Excel functions can cause Excel to stop responding. If this happens, close Excel using the Windows Task Manager and avoid opening Excel while running the model.
- In AutoView, a carrier and load could briefly disappear when passing through a right-angle transfer.
- In AutoView, a segmented vehicle that backs up may come apart—particularly if it crosses a transfer.
- In path-based movement systems, ahead transfers can be defined with a velocity equal to one of the following:
 - proportionately changing
 - section of load origin
 - from section
 - to section
 - slower section
 - faster section

The **proportionately changing** definition is not functioning correctly; in reality, **proportionately changing** provides the same velocity as **to section**.

- If you install AutoSched AP 9.2.1 (or an older version) in the same directory as AutoMod 12.3, you should install AutoSched AP before AutoMod.

- In the SimController, when you redirect output files to a named run directory, if you use spaces or special characters in the directory name, the name will be truncated. Also, uppercase letters are converted to lowercase.
- If your model includes containers with a very large number of cells, memory limitations may cause the model to run slowly or may cause AutoMod to stop responding. As a guideline, you may want to limit each container to 1,000 cells—but the practical limit depends on your model and your hardware. AutoMod has been modified so that no more than 1,000 cells per dimension per container are graphically represented in the builder (the cells continue to exist, but they are not displayed graphically).
- If you installed hot patch build 2146.54 for AutoMod 12.1.2 build 2146.49, the change in build level may not be reflected in the AutoMod Version Details window or in the Sim Controller **Details** tab.
- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- Some graphics hardware can fail to draw 3D images in the Work Area or Simulation window, or cause the software to stop responding when you place or manipulate graphic entities. In many cases, you can solve this problem by adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider

to the left. You might need to experiment to find the best configuration that resolves this issue for your hardware. (See Windows Help or contact your hardware vendor.)

- When you print the current view from within the VR Graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.3 to regenerate the .avw files. Also, be sure to move the existing .avw folder to a new location or delete it.
- In certain situations when you edit a Belt section type in a conveyor system (by opening the conveyor system, selecting **System/Default**, and clicking on **Section Types**), and click the **Templates** button, the builder stops responding.
- When the translate action moves a load backward on a conveyor system, the load may snap forward suddenly upon reaching its destination. Similarly, in some situations, loads may not scale properly. A load may jerk backward, scale back to its original size, and then jerk forward slightly.
- The first time you run the ActiveX “unload” demo from the Excel interface, a prompt may appear stating that the model is already running. After you run the model a second time, this problem is resolved.
- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known

problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.

- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12.3 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.

Note If you're running on a Vista system, you will not be able to open the HTML Help files from these Java applications. You must open the Help system from AutoMod or from the Windows **Start** menu.

- Because of compatibility issues with Windows applications compiled from Java source, parallel AutoStat runs on remote machines may fail on Windows Vista or Windows Server 2003.

Documentation corrections and omissions

The ability to access the color of stations and control points (and station and control point types) in syntax is now planned for a future release. The same is true of scale:

- In the Help system, in the “Station attributes” and “Control point attributes” topics, disregard the color and scale attributes.
- In the *AutoMod User's Guide*, under “Changing the color of an entity” on page 7.13, disregard the reference to syntax in the note.
- In the *AutoMod User's Guide*, under “Precedence and inheritance in AutoMod” on page 15.7, the second table should be modified. Table entries corresponding to control points and stations and the set action should read “na” rather than “individual.” Similarly, entries corresponding to control points and stations and “Attribute change” should read “na” rather than “individual or type.”

AutoMod 12.2.1

Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod® 12.2.1. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (provided with a full license)
- *AutoMod Runtime User's Guide* (provided with a runtime license)
- *Model Communications User's Guide* (provided with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 11.0 and 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 11.2.1 and 12.0.1).

Supported operating systems

AutoMod 12.2.1 is supported on Windows Server 2003 (Service Pack 1 or greater), Windows XP Professional (Service Pack 2 or greater), and Windows XP Professional x64 Edition (Service Pack 2 or greater). AutoMod 12.2.1 also requires .NET Framework 2.0 and 1.1.

Note To successfully run AutoMod 12.2.1 with .NET 2.0 and 1.1 and with the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows Server 2003, you must also run Windows Update to get the correct updates.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod_support@amat.com**

Phone: **(801) 736-3300, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's new

There are no new features in this release.

What's changed

This section lists updates and changes included in the AutoMod 12.2.1 release.

The following defects have been fixed:

- Graphics templates could fail to render correctly across section boundaries.
- A memory leak attributed to AutoView has been fixed.
- Inserting a substring equal to null or empty "" at the end of a string expression could cause AutoMod to stop responding. For examples of how a substring equal to null or empty "" is handled now, see examples 6 and 7 in the Help topic "String attributes."
- In the SimController, under the **Details** tab, pressing ENTER in the **Model Description** field could unexpectedly import a model.
- Certain 11.2 models with very small, unconnected sections or paths could be imported but could cause AutoMod to stop responding when compiled.
- In AutoView, a segmented vehicle backing up on a bidirectional path could leave the path while crossing a transfer.
- Even though a Vehicle Start List was set to **Random**, vehicles would start only at a specific control point.
- With breakpoints set on counters, turning on automation could cause the simulation to stop at different points than when automation was off.
- A model could fail to compile if the ASILIBS and ASILIBPATHS environment variables were set.

- Clicking **System** > **Where Used** and checking the use of certain attributes could cause AutoMod to stop responding.
- When creating a business graph in runtime, the warning Load Attribute Arrays must be selected individually could be displayed even when the statistic type was a non-arrayed attribute.
- A model could fail to compile if a counter used in a submodel initialization function was defined in the submodel.
- In rare models, clicking **AutoView** in the Define Snap Control dialog box could prevent the model from running to completion.
- The SimController has been updated to enclose path and model names in quotes when written to .cmd files that are used to launch AutoMod.
- Side rails now break correctly across conveyor section intersections where curbing is implemented in the GTX file.
- Vehicles that backed up on spur paths in runtime could travel forward in AutoView.
- Starting with SimController version 9.2.2.8, the SimController will support the use of AutoMod 11.0 Build 1942.61 and AutoMod 11.1 Build 1949.22.
- A defect that prevented the xLClearworkBook function from clearing more than 65536 rows and 256 columns has been fixed.

Other more minor defects are also fixed. See the Product Issues page on the Maintuser Web page.

Syntax changes

Conveyor and power and free sections have a new attribute: motor.

Known issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- In AutoView, a segmented vehicle that backs up may come apart—particularly if it crosses a transfer.
- In path-based movement systems, ahead transfers can be defined with a velocity equal to one of the following:
 - proportionately changing
 - section of load origin
 - from section

- to section
- slower section
- faster section

The **proportionately changing** definition is not functioning correctly; in reality, **proportionately changing** provides the same velocity as **to section**.

- If you install AutoSched AP 9.2.1 (or an older version) in the same directory as AutoMod 12.2.1, you should install AutoSched AP before AutoMod.
- In the SimController, when you redirect output files to a named run directory, if you use spaces or special characters in the directory name, the name will be truncated. Also, uppercase letters are converted to lowercase.
- If your model includes containers with a very large number of cells, memory limitations may cause the model to run slowly or may cause AutoMod to stop responding. As a guideline, you may want to limit each container to 1,000 cells—but the practical limit depends on your model and your hardware. AutoMod has been modified so that no more than 1,000 cells per dimension per container are graphically represented in the builder (the cells continue to exist, but they are not displayed graphically).
- If you installed hot patch build 2146.54 for AutoMod 12.1.2 build 2146.49, the change in build level may not be reflected in the AutoMod Version Details window or in the Sim Controller **Details** tab.
- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a

known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.

- Some graphics hardware can fail to draw 3D images in the Work Area or Simulation window, or cause the software to stop responding when you place or manipulate graphic entities. In many cases, you can solve this problem by adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the best configuration that resolves this issue for your hardware. (See Windows Help or contact your hardware vendor.)

- When you print the current view from within the VR Graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.2.1 to regenerate the .avw files. Also, be sure to move the existing .avw folder to a new location or delete it.
- In certain situations when you edit a Belt section type in a conveyor system (by opening the conveyor system, selecting **System/Default**, and clicking on **Section Types**), and click the **Templates** button, the builder stops responding.
- When the translate action moves a load backward on a conveyor system, the load may snap forward suddenly upon reaching its destination. Similarly, in some situations, loads may not scale properly. A load may jerk backward, scale back to its original size, and then jerk forward slightly.
- The first time you run the ActiveX “unload” demo from the Excel interface, a prompt may appear stating that the model is already running. After you run the model a second time, this problem is resolved.

- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.
- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12.2.1 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.

Documentation corrections and omissions

- The *Model Communications User's Guide* notes that the `OPCwriteInteger`, `OPCwriteReal`, and `OPCwriteString` functions write data asynchronously. In fact, these functions perform synchronous writes that are unvalidated.

AutoMod 12.2 Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod® 12.2. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (provided with a full license)
- *AutoMod Runtime User's Guide* (provided with a runtime license)
- *Model Communications User's Guide* (provided with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 11.0 and 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 11.2.1 and 12.0.1).

Supported operating systems

AutoMod 12.2 is supported on Windows Server 2003 (Service Pack 1 or greater), Windows XP Professional (Service Pack 2 or greater), and Windows XP Professional x64 Edition (Service Pack 2 or greater). AutoMod 12.2 also requires .NET Framework 2.0 and 1.1.

Note To successfully run AutoMod 12.2 with .NET 2.0 and 1.1 and with the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows Server 2003, you must also run Windows Update to get the correct updates.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod_support@amat.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's new

This section describes product enhancements included with AutoMod 12.2.

- **SimController.** The SimController gives you a streamlined way to open and run models, view the results of model runs, and redirect output files. You can also use the SimController to organize models into projects and to view model information, such as which version of AutoMod was used to save or archive the model. In addition, the SimController includes new tools that let you compare model runs and manage installed versions of AutoMod.
- **Microsoft C Compiler.** The Microsoft C compiler replaces the GNU compiler. You can now compile models with the Microsoft C compiler without having to customize AutoMod. The new compiler should increase compile speed and improve runtime performance.
- **Named Runs.** Using a new **-r** command line option, you can redirect all output files to a specified .nrd directory (named run directory) in the model directory. This option redirects the message file, print file, and all report files. It also redirects AutoView files and any files generated by syntax.
- **Tab-delimited Reports.** Using three new command line options, you can generate tab-delimited reports of model statistics. The **-b** command line option produces .rep files that you can view with Excel. The **-B** option also generates .rep files, and in addition generates a .replist file that allows you to compare the files using the SimController's AP Compare tool. The **-R** option is the same as **-b** but generates full reports, regardless of the model's report settings.
- **DTrace.** AutoMod 12.2 includes a revised DTrace utility. DTrace is the utility that lets you create and modify the graphic templates that help make AutoMod models realistic. The new software includes a more intuitive interface; many new features, including the ability to copy and paste elements among templates; direct support of the .gtx format (the source code for AutoMod's graphic templates); and an architecture based on .NET technology.

- **Graphics Configuration.** The installer now installs both the standard graphics and VR graphics versions of the AutoMod applications. By default, the VR graphics version opens the first time you launch the software. You can switch to standard graphics (or back again) simply by clicking an option in the new Graphics Configuration Tool.
- **nmake.** AutoMod has a new makefile for compiling models. It is written to use nmake, which is Microsoft's command line build utility. The makefile template, makefile.make, has been streamlined to minimize the rebuilding of files and to let you build other Visual Studio projects and solutions with your model. The nmake utility replaces gmake. Documentation for makefile.make is included within the file. Full documentation for nmake and for using makefiles can be found at msdn.microsoft.com.
- **Installation.** The installation is updated and streamlined. You can select a full, custom, or typical installation, and you no longer need to provide your name and company. Also, if you are using a license server to authorize your software, you can give the installer the name of the license server and avoid having to enter the server name when you launch a newly installed application.
- **Rebuild Model.** A new menu option lets you save and recompile a model in one step. Unlike the **Build** option, which compiles only code that has changed since the last build, **Rebuild Model** rebuilds all .c and .h files. This is similar to exporting, importing, and building a model, but it does not overwrite the model archive.
- **Where Used.** With the Where Used feature, you have been able to select a process system entity and see all references to the entity in your procedures, subroutines, and functions. Now, when you double-click a line in the Where Used results list, AutoMod opens the referenced source file in the editor and takes you to the line that references the entity.

New syntax

This section outlines the new syntax provided for model logic in AutoMod 12.2. For more information about a specific syntax element, see the AutoMod Help.

Attributes

The following new attributes are defined:

Entity	Attribute
Blocks	<ul style="list-style-type: none">• average waiting• current waiting• maximum waiting• minimum waiting• total waiting• average waiting time
Counters	<ul style="list-style-type: none">• average waiting• current waiting• maximum waiting• minimum waiting• total waiting• average waiting time
Loads	<ul style="list-style-type: none">• index
Order Lists	<ul style="list-style-type: none">• average backordered• current backordered• maximum backordered• minimum backordered• total backordered
Queues	<ul style="list-style-type: none">• average waiting• current waiting• maximum waiting• minimum waiting• total waiting• average waiting time
Vehicles	<ul style="list-style-type: none">• current configuration• destination configuration• index

Functions

New Excel functions allow you to read and write cells in Excel worksheets:

- XLGetArea
- XLGetAreaA1
- XLGetAreaR1C1
- XLSetArea
- XLSetAreaA1
- XLSetAreaR1C1

New Excel functions allow you to clear cells in Excel worksheets:

- XLClearWorkbook
- XLClearSheet
- XLClearRow
- XLClearColumnA1
- XLClearColumnC1
- XLClearArea
- XLClearAreaA1
- XLClearAreaR1C1

One new Excel function allows you to close Excel from AutoMod:

- XLClose

Actions

There are no new actions in this release.

Keywords

There are two new system keywords: backordered and configuration

Pointer expressions

There are no new pointer expressions in this release.

What's changed

This section lists updates and changes included in the AutoMod 12.2 release.

The following are no longer supported:

- The Tanks & Pipes module
- SDX files and SIMUL8 models
- Windows 2000 Professional

The following defects have been fixed:

- A failure to regenerate AutoMod files in the binary directory could prevent changes in source code from being reflected during runtime, especially concerning the definition of new entities.

- In some cases, small changes in source code were ignored in the model.
- A problem related to vehicle scale could prevent a load from completing a translation.
- A defect related to the graphical representation of connectors could cause carriers to overlap.
- When running with animation on, a timing problem could cause a negative time acceleration error.
- In AutoView, a problem related to the `pan to next view` statement could consume memory and, in some cases, cause AutoMod to stop responding.
- In standard graphics, while editing a template in a static system, some graphical elements could not be edited.
- The value of a resource pointer could fail to print correctly.
- A problem related to load lists could cause a load to be in a queue and on a vehicle at the same time.
- Other more minor defects are also fixed. See the Product Issues page on the Maintuser Web page.

Syntax changes

There are no syntax changes in AutoMod 12.2.

Known issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- If you install AutoSched AP 9.2.1 (or an older version) in the same directory as AutoMod 12.2, you should install AutoSched AP before AutoMod.
- In the SimController, when you redirect output files to a named run directory, if you use spaces or special characters in the directory name, the name will be truncated. Also, uppercase letters are converted to lowercase.
- If your model includes containers with a very large number of cells, memory limitations may cause the model to run slowly or may cause AutoMod to stop responding. As a guideline, you may want to limit each container to 1,000 cells—but the practical limit depends on your model and your hardware. AutoMod has been

modified so that no more than 1,000 cells per dimension per container are graphically represented in the builder (the cells continue to exist, but they are not displayed graphically).

- If you installed hot patch build 2146.54 for AutoMod 12.1.2 build 2146.49, the change in build level may not be reflected in the AutoMod Version Details window or in the Sim Controller **Details** tab.
- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- Some graphics hardware can fail to draw 3D images in the Work Area or Simulation window, or cause the software to stop responding when you place or manipulate graphic entities. In many cases, you can solve this problem by adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the best configuration that resolves this issue for your hardware. (See Windows Help or contact your hardware vendor.)

- When you print the current view from within the VR Graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.

- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.2 to regenerate the .avw files. Also, be sure to move the existing .avw folder to a new location or delete it.
- In certain situations when you edit a Belt section type in a conveyor system (by opening the conveyor system, selecting **System/Default**, and clicking on **Section Types**), and click the **Templates** button, the builder stops responding.
- When the translate action moves a load backward on a conveyor system, the load may snap forward suddenly upon reaching its destination. Similarly, in some situations, loads may not scale properly. A load may jerk backward, scale back to its original size, and then jerk forward slightly.
- The first time you run the ActiveX “unload” demo from the Excel interface, a prompt may appear stating that the model is already running. After you run the model a second time, this problem is resolved.
- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.
- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see

Version 12.2 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.

Documentation corrections and omissions

- Information about Tanks & Pipes should be disregarded. This module is no longer supported.
- The *Model Communications User's Guide* notes that the `OPCwriteInteger`, `OPCwriteReal`, and `OPCwriteString` functions write data asynchronously. In fact, these functions perform synchronous writes that are unvalidated.

AutoMod 12.1.3

Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod® 12.1.3. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (provided with a full license)
- *AutoMod Runtime User's Guide* (provided with a runtime license)
- *Model Communications User's Guide* (provided with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 11.0 and 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 11.2.1 and 12.0.1).

Supported operating systems

AutoMod 12.1.3 is supported on Windows 2000 Professional (Service Pack 4 or greater), Windows Server 2003 (Service Pack 1 or greater), and Windows XP Professional (Service Pack 2 or greater).

Note To successfully run AutoMod 12.1.3 with .NET 2.0 and the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows 2000 and Windows Server 2003, you must also run Windows Update to get the correct updates. This is a requirement for the Microsoft VS 2005 compiler.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod_support@amat.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's new

Formerly, when Sentinel was installed on another machine in your network, and that machine was doing the Sentinel authorization, you needed to set the `NSP_HOST` environment variable to the name of that machine. This is no longer necessary. The `NSP_HOST` environment variable is no longer used.

What's changed

The following defects are fixed in the AutoMod 12.1.3 release:

- Using the free action could cause AutoMod to stop responding.
- Using the take down action to take down a motor could generate an error and cause AutoMod to stop responding.
- Conveyors carrying very small loads could lock up.
- Certain combinations of acute angles and short path lengths could cause AutoMod to stop responding.
- In a submodel, creating a user-defined type with type `List Of LoadList` could cause AutoMod to stop responding.
- In path mover systems with bidirectional paths, the location selection function could fail.
- When a user named a new function in a source file, and then closed the source file and clicked **Define as Function** in the Error Correction dialog box, the name of the function failed to appear in the Define a Function dialog box. Instead, `Function1` appeared in the **Name** field.
- When running with animation on, a timing problem could cause a negative time acceleration error.
- Loads on a fixed interval conveyor could move independently of the interval boundaries.

- In a power & free system, a carrier could drop a dog for unknown reasons, but only when the fixed interval spacing was set to certain values.
- A timing problem could cause errors in conveyor velocity and induction space.
- After waiting for another vehicle to pass an intersection, a vehicle could wait longer than expected before continuing.
- Graphics attached to connectors in a segmented vehicle could fail to translate with the segments.
- The debugger **Load Stop At** function did not work in submodels.
- Certain models containing entities with long names could not be upgraded to version 12.1.
- A problem related to CPU usage prevented AutoView from opening certain models.
- In path mover systems, in unusual circumstances, vehicles could leave the path.
- The motion of ASRS cranes in AutoView could differ from their motion in AutoMod runtime.
- A kinematic system may not move correctly in standard graphics, although it does move properly in VR graphics.
- In a model using user C functions, a problem related to uninitialized arrays and memory usage could cause a model to become unresponsive, and could eventually cause AutoMod to stop responding.
- Using the custom installation procedure to install AutoView (and no other products) failed to properly install AutoView.
- Clicking **System > Where Used** and checking the use of certain attributes could cause AutoMod to stop responding.

Other more minor defects are also fixed. See the Product Issues page on the Maintuser Web page.

Syntax changes

There are no syntax changes in AutoMod 12.1.3.

Known issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- The Microsoft Virtual Machine is required to run AutoStat, the Model Zip Archiver, and the Process Server. Because the Windows 2000 installer that Microsoft released for the Windows Virtual Machine requires Windows 2000 Service Pack 2, you must install this service pack before you install the virtual machine on a Windows 2000 computer. The installer does not support later or earlier Windows 2000 service packs. If you installed later Windows 2000 service packs, you should either uninstall them or reinstall the operating system to obtain Windows 2000 Service Pack 2. Then install the virtual machine.

To install the virtual machine, select a custom setup in the AutoMod installer, then select **System Utils** and **Microsoft VM**. After the virtual machine is installed, you can install any remaining service packs to obtain the latest version of Windows 2000. You need to install the virtual machine only once on any Windows machine; after installation, the virtual machine is compatible with later releases of the Windows operating system.

- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- With some graphics cards (for example, some nVidia and ATI cards), graphics do not appear in the Work Area or Simulation window, or the software stops responding when you place or manipulate graphic entities. In many cases, you can solve this problem by adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the highest setting that resolves the graphics problem. (Depending on your card and your version of the Windows, these steps may differ. See Windows Help or the documentation that came with your graphics card.)

- You cannot move tank graphics using **Edit > Move**. The graphics appear in their new location in the build environment, but the moved or copied graphics disappear during simulation. Exporting and reimporting the model does not correct the problem. To move a tank, you must either delete the tank graphic, then replace it in the appropriate location, or select the tank in the Tank dialog box, then click **Edit Graphic**. To copy a tank, select the tank in the Tank dialog box and click **Copy**.
- When you print the current view from within the VR Graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.1.3 to regenerate the .avw files. Also, be sure to move the existing .avw folder to a new location or delete it.
- In tanks and pipes systems, when using VR graphics, AutoMod may stop responding if you repeatedly change the number of tanks in an array—changing from one number to another and back again.
- In certain situations when you edit a Belt section type in a conveyor system (by opening the conveyor system, selecting **System/Default**, and clicking on **Section Types**), and click the **Templates** button, the builder stops responding.
- When the translate action moves a load backward on a conveyor system, the load may snap forward suddenly upon reaching its destination. Similarly, in some situations, loads may not scale properly. A load may jerk backward, scale back to its original size, and then jerk forward slightly.

- The first time you run the ActiveX “unload” demo from the Excel interface, a prompt may appear stating that the model is already running. After you run the model a second time, this problem is resolved.
- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12.1.1 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.

Documentation corrections and omissions

- New path mover alignment options described in the *User's Guide* are not supported in this release. Control point alignment in path mover systems is limited to the **leading path attach point** default. The new alignment options (**leading edge**, **trailing edge**, **origin**, **center**, and **trailing path attach point**) are now planned for an upcoming release. (When older models are imported, vehicles are given one path attach point at the vehicle origin; therefore, alignment in AutoMod 12.1.2 is the same as in previous versions.)
- The `saveframedir` AutoView command is illustrated in the “AVI movie specification” and “MPEG movie specification” Help topics and on page 17.23 of the *AutoMod User's Guide*. In each case, the example syntax lacks quotation marks around the directory argument. You must enclose this argument in quotation marks. See the November 2006 *AutoFlash* newsletter.

AutoMod 12.1.2

Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod® 12.1.2. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (this ships with a full license)
- *AutoMod Runtime User's Guide* (this ships with a runtime license)
- *Model Communications User's Guide* (this ships with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 11.0 and 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 11.2.1 and 12.0.1).

Supported operating systems

AutoMod 12.1.2 is supported on Windows 2000 Professional (Service Pack 4 or greater), Windows Server 2003 (Service Pack 1 or greater), and Windows XP Professional (Service Pack 2 or greater).

Note To successfully run AutoMod 12.1.2 with .NET 2.0 and the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows 2000 and Windows Server 2003, you must also run Windows Update to get the correct updates. This is a requirement for the Microsoft VS 2005 compiler.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod_support@amat.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's New

This release includes the following enhancements:

- AutoMod now includes a trace feature in the build environment. The new trace utility generates a text file that will help the support team reproduce and analyze customer problems.

The trace utility is off by default. To start the utility:

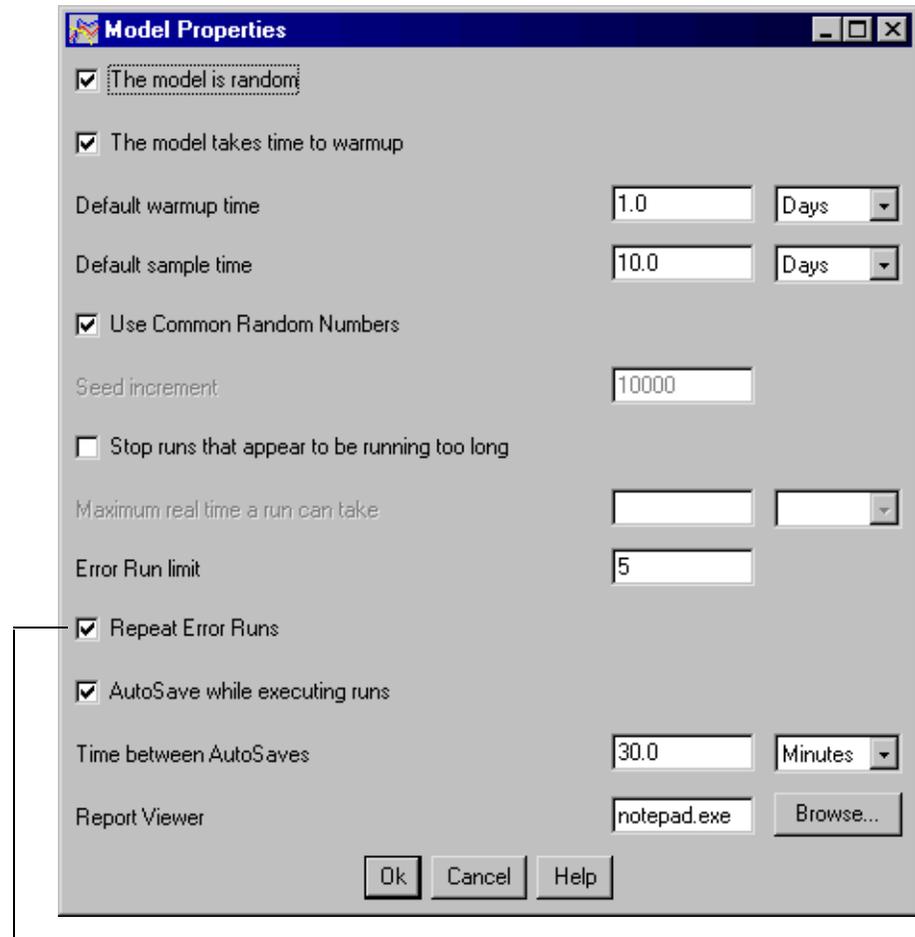
1. Set the global environment variable `AMODTRACE=true`.
2. Launch AutoMod from the command line using the `t` flag. For example, `am2 -i t warehouse` would launch AutoMod, import the warehouse model, and turn the trace utility on.

The trace utility writes a file of the form `usernamebuilderttrace.txt` to the `%ASI%` directory. You can choose a different directory by redefining the `AMODTRACEDIR` environment variable. (Observe the standard AutoMod rules regarding directory variables).

The file is overwritten each time you launch AutoMod with the trace utility on.

Tip To print trace data from multiple models into one file, open and close the models without closing AutoMod.

- AutoStat now allows you to indicate whether error runs should be repeated. The Model Properties dialog box includes a new **Repeat Error Runs** check box:



New check box

To follow current practice, leave this option checked. AutoStat will repeat error runs up to the **Error Run Limit**. This is the default.

If you clear the new check box, AutoStat will not repeat error runs. This is the case even if you stop runs and later restart; AutoStat will not repeat error runs when you restart runs.

What's Changed

The following defects are fixed in the AutoMod 12.1.2 release:

- In rare cases, some parts of graphics templates could fail to appear in runtime.
- Accelerating a conveyor could cause a negative distance error.

- In some path mover systems with accumulating vehicles, AutoMod could stop responding.
- Some .avi files contained spurious TOP views.
- In rare cases, a static system could be translated in runtime.
- One AutoMod 10.0 model failed to compile in AutoMod 12.1.1.
- The Process Server Setup dialog box is now available from the Windows **Start** menu.
- In kinematic systems, using an empty string as a configuration name could prevent a model from exporting.
- Some .igs files could not be imported.
- Too-frequent timing pulses to a PLC could overload the CPU.

Other more minor defects are also fixed. See the Product Issues page on the Maintuser Web page.

Syntax changes

There are no syntax changes in AutoMod 12.1.2.

Known Issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- The Microsoft Virtual Machine is required to run AutoStat, the Model Zip Archiver, and the Process Server. Because the Windows 2000 installer that Microsoft released for the Windows Virtual Machine requires Windows 2000 Service Pack 2, you must install this service pack before you install the virtual machine on a Windows 2000 computer. The installer does not support later or earlier Windows 2000 service packs. If you installed later Windows 2000 service packs, you should either uninstall them or reinstall the operating system to obtain Windows 2000 Service Pack 2. Then install the virtual machine.

To install the virtual machine, select a custom setup in the AutoMod installer, then select **System Utils** and **Microsoft VM**. After the virtual machine is installed, you can install any remaining service packs to obtain the latest version of Windows 2000. You need to install the virtual machine only once on any Windows machine; after installation, the virtual machine is compatible with later releases of the Windows operating system.

- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- With some graphics cards (for example, some nVidia and ATI cards), graphics do not appear in the Work Area or Simulation window, or the software stops responding when you place or manipulate graphic entities. In many cases, this problem is due to the hardware acceleration setting on your machine. To solve the problem, try adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the highest setting that resolves the graphics problem. (Depending on your card and your version of the Windows, these steps may differ. See Windows Help or the documentation that came with your graphics card.)

- You cannot move tank graphics using **Edit > Move**. The graphics appear in their new location in the build environment, but the moved or copied graphics disappear during simulation. Exporting and reimporting the model does not correct the problem. To move a tank, you must either delete the tank graphic, then replace it in the appropriate location, or select the tank in the Tank dialog box, then click **Edit Graphic**. To copy a tank, select the tank in the Tank dialog box and click **Copy**.

- When you print the current view from within the VR graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.1.2 to regenerate the .avw files.
- In tanks and pipes systems, when using VR graphics, AutoMod may stop responding if you repeatedly change the number of tanks in an array—changing from one number to another and back again.
- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.
- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12.1.2 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.

- If you're using Microsoft XP systems with Service Pack 1, some navigation buttons in the AutoMod Help system may not appear correctly. This is caused by a known problem in Internet Explorer. To correct the problem, download Microsoft patch Q811630_WXP_SP2_x86_ENU.exe (see the Microsoft Knowledge Base topic "Windows XP Patch: Enabling Applications to Access HTML Help in a New, Restricted Mode.") At release time, the patch is found at www.microsoft.com/downloads/details.aspx?familyid=2a086526-ae89-4cb3-a819-e6da160f2e66&displaylang=en.

Documentation corrections and omissions

- New path mover alignment options described in the *User's Guide* are not supported in this release. Control point alignment in path mover systems is limited to the **leading path attach point** default. The new alignment options (**leading edge**, **trailing edge**, **origin**, **center**, and **trailing path attach point**) are now planned for an upcoming release. (When older models are imported, vehicles are given one path attach point at the vehicle origin; therefore, alignment in AutoMod 12.1.2 is the same as in previous versions.)
- The saveframedir AutoView command is illustrated in the "AVI movie specification" and "MPEG movie specification" Help topics and on page 17.23 of the *AutoMod User's Guide*. In each case, the example syntax lacks quotation marks around the directory argument. You must enclose this argument in quotation marks. See the November *AutoFlash* newsletter.

AutoMod 12.1.1

Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod® 12.1.1. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (this ships with a full license)
- *AutoMod Runtime User's Guide* (this ships with a runtime license)
- *Model Communications User's Guide* (this ships with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 11.0 and 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 11.2.1 and 12.0.1).

Supported operating systems

AutoMod 12.1.1 is supported on Windows 2000 Professional (Service Pack 4 or greater), Windows Server 2003 (Service Pack 1 or greater), and Windows XP Professional (Service Pack 2 or greater).

Note To successfully run AutoMod 12.1.1 with .NET 2.0 and the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows 2000 and Windows Server 2003, you must also run Windows Update to get the correct updates. This is a requirement for the Microsoft VS 2005 compiler.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod-support@brooks.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's New

This release is limited to defect resolution; it includes no product enhancements and no new syntax.

What's Changed

The following defects are fixed in the AutoMod 12.1.1 release:

- A PC could run out of memory while reading large arrays from data files.
- In an ASRS, modifying the SRM shape definition and then adding a rack could cause AutoMod to stop responding.
- A defect related to transfers in conveyor and power & free systems could cause AutoView to stop responding.
- Saving an ACE graphic with **Shape > Save** or **System > Save** could cause ACE to stop responding.
- In rare cases, AutoMod could stop responding if a new job changed the destination of a vehicle while the vehicle was claiming a control point.
- In certain circumstances, selecting a business graph for a submodel caused AutoMod to stop responding.
- Opening a resources report, displaying the attributes of a resource, and clicking a state could cause AutoMod to stop responding.
- The `saveframedir` AutoView command now interprets the directory argument correctly (but does require quotation marks around the directory name). See the November *AutoFlash* newsletter.

Other more minor defects are also fixed. See the Product Issues page on the Maintuser Web page.

Syntax changes

There are no syntax changes in AutoMod 12.1.1.

Known Issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- The Microsoft Virtual Machine is required to run AutoStat, the Model Zip Archiver, and the Process Server. Because the Windows 2000 installer that Microsoft released for the Windows Virtual Machine requires Windows 2000 Service Pack 2, you must install this service pack before you install the virtual machine on a Windows 2000 computer. The installer does not support later or earlier Windows 2000 service packs. If you installed later Windows 2000 service packs, you should either uninstall them or reinstall the operating system to obtain Windows 2000 Service Pack 2. Then install the virtual machine.

To install the virtual machine, select a custom setup in the AutoMod installer, then select **System Utils** and **Microsoft VM**. After the virtual machine is installed, you can install any remaining service packs to obtain the latest version of Windows 2000. You need to install the virtual machine only once on any Windows machine; after installation, the virtual machine is compatible with later releases of the Windows operating system.

- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.

- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- With some graphics cards (for example, some nVidia and ATI cards), graphics do not appear in the Work Area or Simulation window, or the software stops responding when you place or manipulate graphic entities. In many cases, this problem is due to the hardware acceleration setting on your machine. To solve the problem, try adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the highest setting that resolves the graphics problem. (Depending on your card and your version of the Windows, these steps may differ. See Windows Help or the documentation that came with your graphics card.)

- You cannot move tank graphics using **Edit > Move**. The graphics appear in their new location in the build environment, but the moved or copied graphics disappear during simulation. Exporting and reimporting the model does not correct the problem. To move a tank, you must either delete the tank graphic, then replace it in the appropriate location, or select the tank in the Tank dialog box, then click **Edit Graphic**. To copy a tank, select the tank in the Tank dialog box and click **Copy**.
- When you print the current view from within the VR graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.1.1 to regenerate the .avw files.

- In tanks and pipes systems, when using VR graphics, AutoMod may stop responding if you repeatedly change the number of tanks in an array—changing from one number to another and back again.
- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.
- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12.1.1 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.
- If you're using Microsoft XP systems with Service Pack 1, some navigation buttons in the AutoMod Help system may not appear correctly. This is caused by a known problem in Internet Explorer. To correct the problem, download Microsoft patch Q811630_WXP_SP2_x86_ENU.exe (see the Microsoft Knowledge Base topic "Windows XP Patch: Enabling Applications to Access HTML Help in a New, Restricted Mode.") At release time, the patch is found at www.microsoft.com/downloads/details.aspx?familyid=2a086526-ae89-4cb3-a819-e6da160f2e66&displaylang=en.

Documentation corrections and omissions

- New path mover alignment options described in the *User's Guide* are not supported in this release. Control point alignment in path mover systems is limited to the **leading path attach point** default. The new alignment options (**leading edge**, **trailing edge**, **origin**, **center**, and **trailing path attach point**) are now planned for an

upcoming release. (When older models are imported, vehicles are given one path attach point at the vehicle origin; therefore, alignment in AutoMod 12.1.1 is the same as in previous versions.)

- The `saveframedir` AutoView command is illustrated in the “AVI movie specification” and “MPEG movie specification” Help topics and on page 17.23 of the *AutoMod User’s Guide*. In each case, the example syntax lacks quotation marks around the directory argument. You must enclose this argument in quotation marks. See the November *AutoFlash* newsletter.

AutoMod 12.1 Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod® 12.1. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide* (provided with a full license)
- *AutoMod Runtime User's Guide* (provided with a runtime license)
- *Model Communications User's Guide* (provided with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 11.0 and 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 11.2.1 and 12.0.1).

Supported operating systems

AutoMod 12.1 is supported on Windows 2000 Professional (Service Pack 4 or greater), Windows Server 2003 (Service Pack 1 or greater), and Windows XP Professional (Service Pack 2 or greater).

Note To successfully run AutoMod 12.1 with .NET 2.0 and the Visual Studio 2005 redistributables, you must install the appropriate service pack for your operating system (listed above). With Windows 2000 and Windows Server 2003, you must also run Windows Update to get the correct updates. This is a requirement for the Microsoft VS 2005 compiler.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod-support@brooks.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's new

This section describes product enhancements included with AutoMod 12.1.

- AutoMod 12.1 provides enhanced runtime performance. As a result, many models (particularly large models) now compile and execute more quickly. Runtime performance in 12.1 is better than 12.0, 11.0, and only 2% slower than AutoMod 10.0.141. (Results may vary, and are dependant on model design.)
- Because of internal improvements regarding the declaration of entities, many AutoMod models will now compile more quickly. This is particularly true of large models with many sections, paths, stations, or control points.
- You can now set the color of blocks, labels, queues, resources, and vehicle segments in the Edit... Graphics dialog boxes specific to those entities. You can now also set the color of these entities by using the set action and by changing attributes during simulation. (In addition, as before, you can set the color of these entities in the Display dialog box.)
- You can now scale the size of entities like stations, control points, and displayed names using the Display dialog box. Scaling the size of a name also causes the name to be repositioned appropriately; for example, if you shrink queue names, the names move closer to their queues.
- A new set of database functions allows you to open a data source, navigate the data source, execute database commands, and retrieve data. Data sources can be Microsoft Project files and flat text files, in addition to relational databases.
- A new set of Excel functions allows you to read and write Excel files from an AutoMod model. You can reference cells in Excel worksheets using both A1 and R1C1 formats.
- You can now use a macro in a C source file to point to an entity defined in an AutoMod model. The `AM_Poi nter` macro returns a pointer to the named entity. If you wanted a pointer to resource `R_stack`, for example, you could use the following code:

```
resource* myNewPoi nter = AM_Poi nter(model , "R_stack");
```

New syntax

This section outlines the new syntax provided for model logic in AutoMod 12.1. For more information about a specific syntax element, see the AutoMod help.

Attributes

The following new attributes are defined:

Entity	Attribute
Blocks	col or
Labels	col or
Queues	col or
Resources	col or
Vehicle segments	col or

Functions

New database functions allow you to open a data source, navigate the data source, execute database commands, and retrieve data:

- DBOpenSource
- DBOpenSourceUDL
- DBOpenSession
- DBExecuteCmd
- DBMoveFirst
- DBMoveLast
- DBMoveNext
- DBMovePrev
- DBGetRowData
- DBGetColumnCount
- DBGetColumnName
- DBCloseSession
- DBCloseSource
- DBGetErrMsg

New Excel functions allow you to read and write Excel files:

- XLGet
- XLSet
- XLGetA1
- XLSetA1
- XLGetR1C1
- XLSetR1C1

Actions

There are no new actions in this release.

Keywords

There are no new system keywords in this release.

Pointer expressions

A new `AM_Poi nter` macro returns a pointer to a named entity. If you wanted a pointer to resource `R_stacker`, for example, you could use the following code:

```
resource* myNewPoi nter = AM_Poi nter(model , "R_stacker");
```

What's changed

This section lists updates and changes included in the AutoMod 12.1 release.

- You now have more control over how loads stack during runtime. Formerly, if you translated a load in syntax, the translation was discarded when the load entered a stack. Now you can instruct AutoMod to retain all transformations when a load enters a stack. You can also perform transformations on a load while it's in a stack. Stacking behavior is controlled by new options in the Edit... Graphics dialog boxes for queues, vehicles, segments, and containers. (Old models may require modification to run as expected.)
- The color settings from the Display Settings window now more directly impact the value of the entity's color attribute (if the color attribute is inherit). This change makes the color attribute of entities with states (resources and queues) more consistent with other AutoMod entity color attributes.
- The Network License Server has been enhanced to accommodate Terminal Services on the Windows Server 2003 operating system, as well as on Windows XP.
- When editing a vehicle's initial segment list, you can now select multiple segments and add them as a group before or after a segment selected in the **Initial Segments** list.
- New authorization codes are now required for each "dot level" installation (11.2, 12.1, and so forth). Before, new codes were required only for major releases.
- The following are no longer supported:
 - BEdit
 - The Simulator

- Edit tables

- The various installation guides have been combined into one *AutoMod Installation* document. Your product CD contains a PDF version: aminstall.pdf. This file is also placed in the automod\help\manuals directory when you install AutoMod. As with all the AutoMod documentation, you can access this document from the Windows Start menu and, from within AutoMod, by clicking Help > Documentation. Printed installation documentation is no longer available.
- The *User's Guide*, *Runtime User's Guide*, and *Model Communications User's Guide* are provided as PDF files. Printed manuals are no longer available.

Syntax changes

The following table provides information about changes to actions in AutoMod 12.1. For more information about a specific action, see the AutoMod help.

Action	Description
set	The set action now allows you to set the color of blocks, labels, queues, resources, and vehicle segments.

The following C functions have been deprecated in AutoMod 12.1 and 12.0. You should discontinue your use of these functions. In upcoming versions, calls to these functions will fail.

Function	Superseded by...
FattachQueue	addition of containers feature (12.0)
FsetLabelColor	addition of label color attribute (12.1)
FsetQueueColor	addition of queue color attribute (12.1)
FsetResourceColor	addition of resource color attribute (12.1)

Known issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- The Microsoft Virtual Machine is required to run AutoStat, the Model Zip Archiver, and the Process Server. Because the Windows 2000 installer that Microsoft released for the Windows Virtual Machine requires Windows 2000 Service Pack 2, you must install

this service pack before you install the virtual machine on a Windows 2000 computer. The installer does not support later or earlier Windows 2000 service packs. If you installed later Windows 2000 service packs, you should either uninstall them or reinstall the operating system to obtain Windows 2000 Service Pack 2. Then install the virtual machine.

To install the virtual machine, select a custom setup in the AutoMod installer, then select **System Utils** and **Microsoft VM**. After the virtual machine is installed, you can install any remaining service packs to obtain the latest version of Windows 2000. You need to install the virtual machine only once on any Windows machine; after installation, the virtual machine is compatible with later releases of the Windows operating system.

- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In earlier versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- With some graphics cards (for example, some nVidia and ATI cards), graphics do not appear in the Work Area or Simulation window, or the software stops responding when you place or manipulate graphic entities. In many cases, you can solve this problem by adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the highest setting

that resolves the graphics problem. (Depending on your card and your version of the Windows, these steps may differ. See Windows Help or the documentation that came with your graphics card.)

- You cannot move tank graphics using **Edit > Move**. The graphics appear in their new location in the build environment, but the moved or copied graphics disappear during simulation. Exporting and reimporting the model does not correct the problem. To move a tank, you must either delete the tank graphic, then replace it in the appropriate location, or select the tank in the Tank dialog box, then click **Edit Graphic**. To copy a tank, select the tank in the Tank dialog box and click **Copy**.
- When you print the current view from within the VR Graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.1 to regenerate the .avw files. Also, be sure to move the existing .avw folder to a new location or delete it.
- In tanks and pipes systems, when using VR graphics, AutoMod may stop responding if you repeatedly change the number of tanks in an array—changing from one number to another and back again.
- In certain situations when you edit a Belt section type in a conveyor system (by opening the conveyor system, selecting **System/Default**, and clicking on **Section Types**), and click the **Templates** button, the builder stops responding.
- When the translate action moves a load backward on a conveyor system, the load may snap forward suddenly upon reaching its destination. Similarly, in some situations, loads may not scale properly. A load may jerk backward, scale back to its original size, and then jerk forward slightly.
- The first time you run the ActiveX “unload” demo from the Excel interface, a prompt may appear stating that the model is already running. After you run the model a second time, this problem is resolved.

- Because of the overhead involved in calculating the motion of vehicle segments, some models containing compact path mover systems and a large number of vehicles may run more slowly than other systems. If you have a model of this type, and performance is an issue, please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.
- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12.1 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.

Documentation corrections and omissions

- New path mover alignment options described in the *User's Guide* are not supported in this release. Control point alignment in path mover systems is limited to the **leading path attach point** default. The new alignment options (**leading edge**, **trailing edge**, **origin**, **center**, and **trailing path attach point**) are now planned for an upcoming release. (When older models are imported, vehicles are given one path attach point at the vehicle origin; therefore, alignment in AutoMod 12.1 is the same as in previous versions.)

AutoMod 12.0.3 Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod™ 12.0.3. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide*, volumes 1 and 2 (these ship with a full license)
- *AutoMod Runtime User's Guide* (this ships with a runtime license)
- *Model Communications User's Guide* (this ships with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on the [AutoMod Web site](#).

Supported versions

Support of the AutoMod product is limited to version 11.0 and 12.0. AutoMod Support reserves the right to incorporate patches into later releases of these versions as needed (for example, 11.2.1 and 12.0.1).

Supported operating systems

AutoMod 12.0.3 is supported on Windows 2000 and Windows XP Professional.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod-support@brooks.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's New

This release is limited to defect resolution; it includes no product enhancements and no new syntax.

What's Changed

This section lists updates, fixes, and other changes included in the AutoMod 12.0.3 release.

- After delivering a load, vehicles now move off the path correctly.
- In earlier versions of AutoMod, too much memory was used while running a model with the **-w** (no windows) command line option. This is now fixed.
- In earlier versions of AutoMod, running a model without animation took three seconds; running with the **-w** (no windows) command line option appeared to cause an infinite loop. These defects are now fixed.
- Deleting a resource cycle from one resource no longer deletes it from all resources.
- The power & free system no longer stops responding when canceling retrieve jobs.
- In previous versions of AutoView, the `asi.env` file and time scale were ignored, vehicles flipped around incorrectly, models flickered at vehicle inactivity, the camera was not attaching to vehicles or loads when panning, and some loads were missing. These defects have all been fixed in the 12.0.3 release.
- In the AutoMod editor, **Undo** now works correctly.
- Function definitions no longer cause the editor to stop responding when exiting.
- The station arriving procedure now works correctly.
- AGVs now move correctly after dropping off loads.
- Integer lists now show zeros.
- With the Model Zip Archiver, an existing read-only archive no longer causes an unhandled exception.
- The AutoMod build environment no longer stops responding when you build from a **Run Model** link.
- Other problems having to do with merging two models with different names, moving segments to a vehicle in a queue, and upgrading power & free models from version 11.0 to version 12.0 have all been fixed.

Known Issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- The Microsoft Virtual Machine is required to run AutoStat, the Model Zip Archiver, and the Process Server. Because the Windows 2000 installer that Microsoft released for the Windows Virtual Machine requires Windows 2000 Service Pack 2, you must install this service pack before installing the virtual machine on a Windows 2000 computer. The installer does not support later or earlier Windows 2000 service packs. If you installed later Windows 2000 service packs, you should either uninstall them or reinstall the operating system to obtain Windows 2000 Service Pack 2. Then install the virtual machine.

To install the virtual machine, select a custom setup in the AutoMod installer, then select **System Utils** and **Microsoft VM**. After the virtual machine is installed, you can install any remaining service packs to obtain the latest version of Windows 2000. You need to install the virtual machine only once on any Windows machine; after installation, the virtual machine is compatible with later releases of the Windows operating system.

- In very rare cases, AutoMod may stop unexpectedly. Because Microsoft has modified their C/C++ libraries and DLLs, some compatibility issues may exist when running AutoMod in the current Windows operating system. Instead of using a standard version of these libraries (msvcrt.dll), Microsoft has switched to a “known DLL” system. For standalone applications, this change would not be a problem; the product would use whichever library was linked in at compile time. However, because AutoMod models are compiled on the user’s machine, they are relinked with the local instances of the DLL, which may vary with each operating system. AutoMod uses both the C Run-Time Library and the Standard C++ Library, each of which has implementations of certain functions that are incompatible with each other. As long as the functions are used separately, no problems surface. However, when data is passed between the two functions, a model may stop unexpectedly.

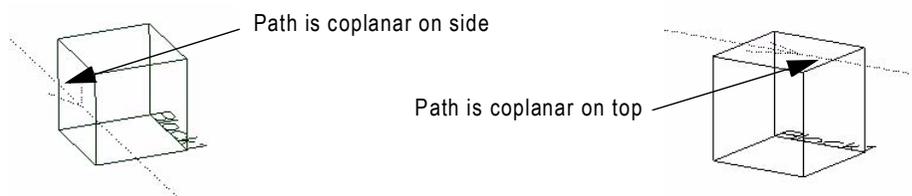
Often, recompiling the model resolves any issues. If this doesn’t work and your model still fails to run, remove any .am2rc files from the application path.

- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.

- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In previous versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- With some graphics cards (for example, some nVidia and ATI cards), graphics do not appear in the Work Area or Simulation window, or the software stops responding when you place or manipulate graphic entities. In many cases, this problem is due to the hardware acceleration setting on your machine. To solve the problem, try adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the highest setting that resolves the graphics problem. (Depending on your card and your version of the Windows, these steps may differ. See Windows Help or the documentation that came with your graphics card.)
- You cannot move tank graphics using **Edit > Move**. The graphics appear in their new location in the build environment, but the moved or copied graphics disappear during simulation. Exporting and reimporting the model does not correct the problem. To move a tank, you must either delete the tank graphic, then replace it in the appropriate location, or select the tank in the Tank dialog box, then click **Edit Graphic**. To copy a tank, select the tank in the Tank dialog box and click **Copy**.
- When you print the current view from within the VR graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- The Simulator software is no longer supported in AutoMod and has been placed with AutoSched AP.

- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in release 12.0 and later versions. Rerun the model in 12.0.3 to regenerate the .avw files.
- In tanks and pipes systems, when using VR graphics, AutoMod may stop responding if you repeatedly change the number of tanks in an array—changing from one number to another and back again.
- Runtime performance in AutoMod 12.0 should be comparable to earlier releases. Because of the increased overhead involved in calculating the motion of vehicle segments, however, some models containing path mover systems may run more slowly. This is particularly true of compact systems with many vehicles. If your model's performance is an issue (version 12.0.3 relative to an earlier version), please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.
- In VR Graphics, a vehicle may fail to claim a block if the path or section is coplanar with the side or top of the block.



There may also be rare cases, particularly with large blocks, where a vehicle succeeds in claiming the block but does not release it. This occurs only if the path or section changes direction within the block, then exits the block on a course that is coplanar with the side or top of the block.

- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.
- If you're using Microsoft XP systems with Service Pack 1, some navigation buttons in the AutoMod Help system may not appear correctly. This is caused by a known problem in Internet Explorer. To correct the problem, download Microsoft patch Q811630_WXP_SP2_x86_ENU.exe (see the Microsoft Knowledge Base topic "Windows XP Patch: Enabling Applications to Access HTML Help in a New, Restricted Mode.") At the time this document was released, the patch was found at:
www.microsoft.com/downloads/details.aspx?familyid=2a086526-ae89-4cb3-a819-e6da160f2e66&displaylang=en.

Documentation corrections and omissions

- New path mover alignment options described in the *User's Guide* are not supported in this release. Control point alignment in path mover systems is limited to the **leading path attach point** default. The new alignment options (**leading edge**, **trailing edge**, **origin**, **center**, and **trailing path attach point**) are now planned for release 12.1. (When older models are imported, vehicles are given one path attach point at the vehicle origin; therefore, alignment in AutoMod 12.0.3 is the same as in previous versions.)
- On page 7.15, in the "Toggling system visibility" paragraph, the *User's Guide* reads "select a system and type a number from **0** to **20** into the **System ID** text box." This should read "select a system and type a number from **1** to **20** in the **System ID** text box." You cannot assign a **System ID** of **0**.
- References to the Simulator in the *User's Guide* should be removed. This edit-table interface product is no longer available.
- References to BEdit in the *User's Guide* should be removed. This editor was replaced by amedit, or the AutoMod Editor, in release 11.0.

AutoMod 12.0.2 Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod™ 12.0.2. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide*, volumes 1 and 2 (these ship with a full license)
- *AutoMod Runtime User's Guide* (this ships with a runtime license)
- *Model Communications User's Guide* (this ships with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on [the AutoMod Web site](#).

Supported versions

With the release of AutoMod 12.0.2, support is limited to the following prior versions:

- 12.0.1
- 12.0
- 11.2.1
- 11.2
- 11.1
- 11.0

Supported operating systems

AutoMod 12.0.2 is supported on Windows 2000 and Windows XP Professional.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod-support@brooks.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's New

This release is limited to defect resolution; it includes no product enhancements and no new syntax.

What's Changed

This section lists updates and changes included in the AutoMod 12.0.2 release. The following defects were fixed:

- Containers translated in the builder could show a different translation in runtime.
- After a conveyor section was extended, a station could not be moved onto the extended portion of the section.
- Loads in a path mover system could overlap and then leave the path after completing one circuit and approaching another load.
- In some conveyor systems, when all sections in the system were moved by changing a value in the Section Edit dialog box, stations failed to move with the sections.
- A gamma distribution with an alpha of 1, when used in load creation specifications, resource cycles, and resource processing times, produced an incorrect distribution.
- Some models stopped responding while printing the distance between entities.
- When an older conveyor model was imported into version 12.0, the induction value for some transfers was incorrectly set.
- Other rarer or more minor defects having to do with memory and large movement systems, state monitor reports, counter editing, containers in kinematic systems, and the future events list.

Known Issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- The Microsoft Virtual Machine is required to run AutoStat, the Model Zip Archiver, and the Process Server. Because the Windows 2000 installer that Microsoft released for the Windows Virtual Machine requires Windows 2000 Service Pack 2, you must install this service pack before you install the virtual machine on a Windows 2000 computer. The installer does not support later or

earlier Windows 2000 service packs. If you installed later Windows 2000 service packs, you should either uninstall them or reinstall the operating system to obtain Windows 2000 Service Pack 2. Then install the virtual machine.

To install the virtual machine, select a custom setup in the AutoMod installer, then select **System Utils** and **Microsoft VM**. After the virtual machine is installed, you can install any remaining service packs to obtain the latest version of Windows 2000. You need to install the virtual machine only once on any Windows machine; after installation, the virtual machine is compatible with later releases of the Windows operating system.

- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In previous versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- With some graphics cards (for example, some nVidia and ATI cards), graphics do not appear in the Work Area or Simulation window, or the software stops responding when you place or manipulate graphic entities. In many cases, this problem is due to the hardware acceleration setting on your machine. To solve the problem, try adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the highest setting that resolves the graphics problem. (Depending on your card and your version of the Windows, these steps may differ. See Windows Help or the documentation that came with your graphics card.)

- You cannot move tank graphics using **Edit > Move**. The graphics appear in their new location in the build environment, but the moved or copied graphics disappear during simulation. Exporting and reimporting the model does not correct the problem. To move a tank, you must either delete the tank graphic, then replace it in the appropriate location, or select the tank in the Tank dialog box, then click **Edit Graphic**. To copy a tank, select the tank in the Tank dialog box and click **Copy**.
- When you print the current view from within the VR graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- The Simulator software, which is based on AutoSched, has been challenging to support given the new AutoMod architecture introduced by composite models. To ensure a timely release of AutoMod 12.0.2, we have postponed the release of an upgraded Simulator.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in release 12.0 and later versions. Rerun the model in 12.0.2 to regenerate the .avw files.
- In tanks and pipes systems, when using VR graphics, AutoMod may stop responding if you repeatedly change the number of tanks in an array—changing from one number to another and back again.
- Runtime performance in AutoMod 12.0 should be comparable to earlier releases. Because of the increased overhead involved in calculating the motion of vehicle segments, however, some models containing path mover systems may run more slowly. This is particularly true of compact systems with many vehicles. If your model's performance is an issue (Version 12.0.2 relative to an earlier version), please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you

click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.

- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.
- If you're using Microsoft XP systems with Service Pack 1, some navigation buttons in the AutoMod Help system may not appear correctly. This is caused by a known problem in Internet Explorer. To correct the problem, download Microsoft patch Q811630_WXP_SP2_x86_ENU.exe (see the Microsoft Knowledge Base topic "Windows XP Patch: Enabling Applications to Access HTML Help in a New, Restricted Mode.") At the time this document was released, the patch was found at:
www.microsoft.com/downloads/details.aspx?familyid=2a086526-ae89-4cb3-a819-e6da160f2e66&displaylang=en.

Documentation corrections and omissions

- New path mover alignment options described in the *User's Guide* are not supported in this release. Control point alignment in path mover systems is limited to the **leading path attach point** default. The new alignment options (**leading edge**, **trailing edge**, **origin**, **center**, and **trailing path attach point**) are now planned for release 12.1. (When older models are imported, vehicles are given one path attach point at the vehicle origin; therefore, alignment in AutoMod 12.0.2 is the same as in previous versions.)
- On page 7.15, in the "Toggling system visibility" paragraph, the *User's Guide* reads "select a system and type a number from **0** to **20** into the **System ID** text box." This should read "select a system and type a number from **1** to **20** in the **System ID** text box." You cannot assign a **System ID** of **0**.
- References to The Simulator in the *User's Guide* should be removed. This edit-table interface product is no longer available.
- References to BEdit in the *User's Guide* should be removed. This editor was replaced by amedit, or the AutoMod Editor, in release 11.0.

AutoMod 12.0.1 Release Notes

About this document

These *Release Notes* discuss the various changes and known issues in AutoMod™ 12.0.1. You can find detailed product documentation in the following guides:

- *AutoMod User's Guide*, volumes 1 and 2 (these ship with a full license)
- *AutoMod Runtime User's Guide* (this ships with a runtime license)
- *Model Communications User's Guide* (this ships with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on [the AutoMod Web site](#).

Supported versions

With the release of AutoMod 12.0.1, support is limited to the following prior versions:

- 12.0
- 11.1
- 11.2.1
- 11.0
- 11.2

Supported operating systems

AutoMod 12.0.1 is supported on Windows 2000 and Windows XP Professional.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod-support@brooks.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's New

This release is limited to defect resolution; it includes no product enhancements and no new syntax.

What's Changed

This section lists updates and changes included in the AutoMod 12.0.1 release. The following defects were fixed:

- In an .avi file produced from AutoView, the view could pan too quickly or suffer from choppiness.
- AutoView sometimes failed to display a panning shot (VR only).
- Some path mover vehicles were the wrong color in the builder.
- In the AutoMod debugger, the **Stop Load At** button may have failed to function.
- Other rarer or more minor defects having to do with setting transparency options, identifying loads, editing tank graphics, editing segment types, and changing path direction.

Known Issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- The Microsoft Virtual Machine is required to run AutoStat, the Model Zip Archiver, and the Process Server. Because the Windows 2000 installer that Microsoft released for the Windows Virtual Machine requires Windows 2000 Service Pack 2, you must install this service pack before you install the virtual machine on a Windows 2000 computer. The installer does not support later or earlier Windows 2000 service packs. If you installed later Windows 2000 service packs, you should either uninstall them or reinstall the operating system to obtain Windows 2000 Service Pack 2. Then install the virtual machine.

To install the virtual machine, select a custom setup in the AutoMod installer, then select **System Utils** and **Microsoft VM**. After the virtual machine is installed, you can install any remaining service packs to obtain the latest version of Windows 2000. You need to install the virtual machine only once on any Windows machine; after installation, the virtual machine is compatible with later releases of the Windows operating system.

- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In previous versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- With some graphics cards (for example, some nVidia and ATI cards), graphics do not appear in the Work Area or Simulation window, or the software stops responding when you place or manipulate graphic entities. In many cases, this problem is due to the hardware acceleration setting on your machine. To solve the problem, try adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the highest setting that resolves the graphics problem. (Depending on your card and your version of the Windows, these steps may differ. See Windows Help or the documentation that came with your graphics card.)

- You cannot move tank graphics using **Edit > Move**. The graphics appear in their new location in the build environment, but the moved or copied graphics disappear during simulation. Exporting and reimporting the model does not correct the problem. To move a tank, you must either delete the tank graphic, then replace it in the appropriate location, or select the tank in the Tank dialog box, then click **Edit Graphic**. To copy a tank, select the tank in the Tank dialog box and click **Copy**.

- When you print the current view from within the VR graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- The Simulator software, which is based on AutoSched, has been challenging to support given the new AutoMod architecture introduced by composite models. To ensure a timely release of AutoMod 12.0.1, we have postponed the release of an upgraded Simulator.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.0.1 to regenerate the .avw files.
- In tanks and pipes systems, when using VR graphics, AutoMod may stop responding if you repeatedly change the number of tanks in an array—changing from one number to another and back again.
- Runtime performance in AutoMod 12.0.1 should be comparable to earlier releases. Because of the increased overhead involved in calculating the motion of vehicle segments, however, some models containing path mover systems may run more slowly. This is particularly true of compact systems with many vehicles. If your model's performance is an issue (Version 12.0.1 relative to an earlier version), please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.
- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you

click a **Help** button or click **Help > Help**. Alternatively, to see Version 12 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.

- If you're using Microsoft XP systems with Service Pack 1, some navigation buttons in the AutoMod Help system may not appear correctly. This is caused by a known problem in Internet Explorer. To correct the problem, download Microsoft patch Q811630_WXP_SP2_x86_ENU.exe (see the Microsoft Knowledge Base topic "Windows XP Patch: Enabling Applications to Access HTML Help in a New, Restricted Mode.") At release time, the patch is found at www.microsoft.com/downloads/details.aspx?familyid=2a086526-ae89-4cb3-a819-e6da160f2e66&displaylang=en.

Documentation corrections and omissions

- New path mover alignment options described in the *User's Guide* are not supported in this release. Control point alignment in path mover systems is limited to the **leading path attach point** default. The new alignment options (**leading edge**, **trailing edge**, **origin**, **center**, and **trailing path attach point**) are now planned for release 12.1. (When older models are imported, vehicles are given one path attach point at the vehicle origin; therefore, alignment in AutoMod 12.0.1 is the same as in previous versions.)
- On page 7.15, in the "Toggling system visibility" paragraph, the *User's Guide* reads "select a system and type a number from **0** to **20** into the **System ID** text box." This should read "select a system and type a number from **1** to **20** in the **System ID** text box." You cannot assign a **System ID** of **0**.

AutoMod 12.0 Release Notes

About this document

These *Release Notes* discuss the various enhancements, changes, and known issues in AutoMod™ 12.0. You can find detailed documentation in the following guides included with this product:

- *AutoMod User's Guide*, volumes 1 and 2 (these ship with a full license)
- *AutoMod Runtime User's Guide* (this ships with a runtime license)
- *Model Communications User's Guide* (this ships with any license that includes the Model Communications or Model Communications Plus module).

Release notes for past releases can be found on [the AutoMod Web site](#).

Supported versions

With the release of AutoMod 12.0, support is limited to the following prior versions:

- 11.2.1
- 11.1
- 11.2
- 11.0

Supported operating systems

AutoMod 12.0 is supported on Windows 2000 and Windows XP Professional.

Contacting support

If you have questions about the installation or upgrade process, please contact AutoMod Support.

E-mail: **automod-support@brooks.com**

Phone: **(801) 736-3218, option 1**

FAX: **(801) 736-3443**

For customer support outside the United States, contact your distributor.

What's New

This section describes product enhancements included with AutoMod 12.0.

- In path mover systems and power & free systems, vehicles can now be assembled from multiple segments. This allows more accurate modeling of trains, tuggers, trailers, and other segmented vehicles.
- Single- or multi-dimensional containers, each composed of multiple cells, can now be placed in vehicles and queues. Loads can be placed in designated cells and can be stacked within cells. This improves the accuracy of load placement.
- In path-based vehicle systems, you can now specify how vehicles and carriers are attached to the path—either rigidly or loosely. With rigid attachment, a segment's orientation matches that of a sloping path. With loose attachment, the segment remains “flat” as the path slopes. This allows more accurate modeling of overhead and vertical paths.
- Vehicle segments can now have two path attach points. (Formerly, vehicles were attached to the path at one point—the vehicle origin.) This allows more accurate modeling of vehicles and segments that attach to a path at more than one point.
- Power & free and conveyor systems now accommodate repeatable spacing patterns. For example, you can now space dogs one foot apart, then two feet apart, then three feet apart, and then repeat the pattern.
- The AutoMod help system has been converted to HTML to allow for closer integration between the online help and the AutoMod file editor. The information in help topics has also been reorganized to improve usability.

New Syntax

This section outlines the new syntax provided for model logic in AutoMod 12.0. For more information about a specific syntax element, see the AutoMod help.

Actions

New actions allow you to add or delete vehicle segments during a simulation:

- add
- delete

Keywords

The new system keyword `undefined` evaluates to the value -1 (type Integer). If a container is a single-cell component of an arrayed container, the container attribute `dim index` is a positive integer; if not, `dim index` is undefined (-1). See “Container attributes” in the AutoMod Help.

Pointer expressions

AutoMod 12.0 provides pointers to the following new entity types:

- Containers
- Vehicle segments

Attributes

The following table provides a list of the new attributes defined for entities in a simulation.

Entity	Attributes
Containers	<ul style="list-style-type: none">• container• dim index• dim size• dimensions• height• length• load list• segment• queue• vehicle• vehicle list• width• You can also refer to a specific cell in a container by providing a cell reference (for more information, see the AutoMod help).
Loads	<ul style="list-style-type: none">• current container
Object lists	<ul style="list-style-type: none">• You can now use an Integer as an index to point to a specific item on a list. For example, if <code>V_List</code> is a variable of type <code>LoadList</code>, then <code>V_List(1)</code> points to the first load on the list, <code>V_List(2)</code> points to the second load on the list, and so on.
Queues	<ul style="list-style-type: none">• containers

Entity	Attributes
Vehicles	<ul style="list-style-type: none">• containers• current container• segments
Vehicle segments	<ul style="list-style-type: none">• capacity• containers• height• index• length• load list• type• vehicle• width

Functions

New functions allow you to select the container into which a load or vehicle moves when moving into a queue or getting on a vehicle:

- queue container selection function
- vehicle container selection function

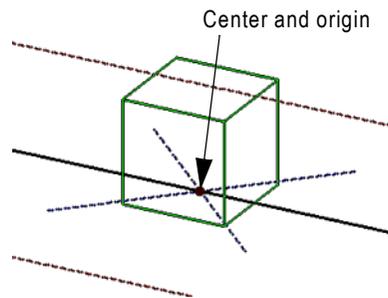
What's Changed

This section lists updates and changes included in the AutoMod 12.0 release.

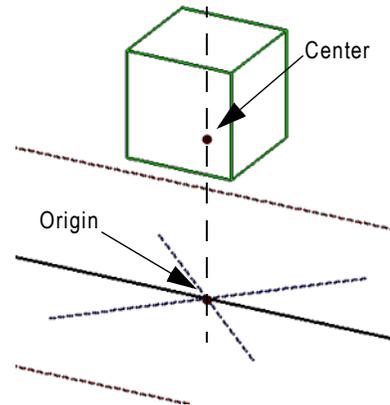
- Loads are positioned not with terminal control frames (TCFs), but by moving them into containers. TCFs in old models are converted to single-cell containers in the new release. A container created from a TCF takes the name of the TCF. (If a model uses both the TCF selection function and a container selection function, AutoMod issues a warning and calls only the TCF selection function.)
- AutoMod creates a default, single-cell container for any segment or queue that lacks a container. Even if the segment or queue has a capacity greater than one, the default container is created with a single cell.
- When you import a model from an earlier release, vehicles are imported as single-segment vehicles.
- Carrier and vehicle capacity is now defined at the segment level. Load pick up time and load set down time are also specified at the segment level.
- When a one-segment vehicle with one path attach point (or with superimposed path attach points) transfers to a crab path, the vehicle travels sideways as in previous versions. But if a vehicle contains two or more segments, or one segment with two separated attach points, the segments now continue to travel as if they were on a normal path instead of a crab path. This ensures that all path attach points remain attached to the path.
- You can now use the **Edit** menu to edit process system graphic entities (queues, load types, resources, labels, and blocks).
- The Edit Graphics dialog box for queues is now accessed from the Edit a Queue or from the Define a Queue dialog box, rather than from the Queue dialog box. The same is true for Load Types, Resources, Labels, and Blocks.
- AutoMod 12.0 is compatible with Service Pack 2 for Windows XP. (However, if a computer with SP2 is used as an AutoMod Network License server, you should either disable that machine's Windows firewall or make a security settings exception for the AutoMod program asiserv.)
- In AutoStat, you can no longer use common random numbers for an optimization analysis.
- A load placement defect in path mover systems is fixed. Formerly, when you imported a cell file graphic to represent a vehicle, and the graphic lacked a TCF, a TCF was created at the vehicle origin during runtime. Now, AutoMod creates a one-cell container centered over the origin and *above* the vehicle (that is, at a Z value equal to the upper extent of the graphic's bounding box).

- AutoView can now correctly animate fixed interval spacing, as long as the spacing is visible in AutoMod runtime.
- In conveyor and power & free systems, the *station* alignment option **Center** has been redefined, and a new **Origin** alignment option has been added. Power & free systems also contain two additional, new alignment options: **Leading Path Attach Point** and **Trailing Path Attach Point**.
- In conveyor and power & free systems, the *section* alignment **center** options have been redefined in documentation, and a new **origin with boundary** alignment option has been added. Power & free systems also contain two additional, new alignment options: **leading path attach point with boundary** and **trailing path attach point with boundary**.
- An entity's center is defined as its midpoint along the x axis. Its origin is a system-calculated point, typically at or near the center, marked by the triad, or axis symbol, in ACE. The center departs from the origin if an object is translated, in which case the origin remains in its original location and the center moves with the graphical object.

Before translation

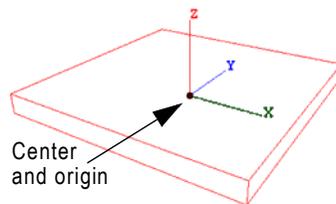


After positive Z translation

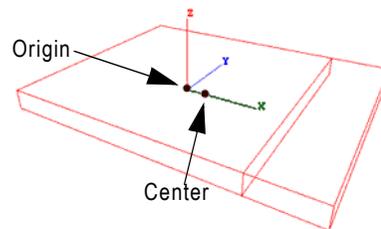


Similarly, if a graphical object is built up from a graphical primitive, the center shifts away from the origin as the object is built up on the front or back side.

Graphical primitive



Edited graphic



- The *Procedures Dictionary* has been discontinued. That information is found in the AutoMod Help.
- This is the last release for which printed users' guides will be provided. Beginning with release 13.0, the *User's Guide*, *Runtime User's Guide*, and *Model Communications User's Guide* will be provided only as PDF files.

Syntax changes

The following table provides information about changes to actions in AutoMod 12.0. For more information about a specific action, see the AutoMod help.

Action	Description
move	The move action now allows you to move vehicle segments from one vehicle to another during a simulation. You can also move loads or vehicles directly into a container.
configure	The configure action now allows you to configure a specific vehicle segment (for which one or more kinematic configurations have been defined).
rotate, translate, and scale	You can now rotate, translate, or scale a specific vehicle segment (independent of the vehicle's other segments).

In previous versions of the AutoMod software, the `tcf selection` function was called after a vehicle's pickup procedure. In AutoMod 12.0 and later versions, the `tcf selection` function is now called before a vehicle's pickup procedure.

Known Issues

The following issues have been found with this release. Where possible, workaround procedures are described. If you have questions regarding any of these issues, contact AutoMod Support. *Please read this list carefully before upgrading.*

- The Microsoft Virtual Machine is required to run AutoStat, the Model Zip Archiver, and the Process Server. Because the Windows 2000 installer that Microsoft released for the Windows Virtual Machine requires Windows 2000 Service Pack 2, you must install this service pack before you install the virtual machine on a Windows 2000 computer. The installer does not support later or earlier Windows 2000 service packs. If you installed later Windows 2000 service packs, you should either uninstall them or reinstall the operating system to obtain Windows 2000 Service Pack 2. Then install the virtual machine.

To install the virtual machine, select a custom setup in the AutoMod installer, then select **System Utils** and **Microsoft VM**. After the virtual machine is installed, you can install any remaining service packs to obtain the latest version of Windows 2000. You need to install the virtual machine only once on any Windows machine; after installation, the virtual machine is compatible with later releases of the Windows operating system.

- If you edit more than one source file at a time, your changes are not checked for errors when you close the files, and the files may not execute. In addition, any new entities you define in the logic are not created. Consequently, you should open a second source file only for viewing or copying.
- When you rename an entity, the software renames entity references only in source files defined within the current process system. If you rename an entity in a composite model, and the entity is referenced in a source file defined in another process system, you must find and replace occurrences of the name in those source files.
- In previous versions of AutoMod, when you saved a source file and exited the AutoMod editor, the **Change Spelling** option allowed you to edit the spelling of keywords without returning to the editor. In AutoMod 11.0 and later versions, the **Change Spelling** option has been disabled. To correct a word's spelling, click **Return to Edit** and change the word's spelling from within the AutoMod editor.
- If you edit an entity in the VR Graphics version of AutoMod (by selecting **Edit Template** from the **Shape Definition** list in the Edit Graphics dialog box), and the graphic contains a circle or arc, a known defect causes the software to stop responding. To work around this defect, edit the graphic in ACE (outside of AutoMod) and then reimport it.
- With some graphics cards (for example, some nVidia and ATI cards), graphics do not appear in the Work Area or Simulation window, or the software stops responding when you place or manipulate graphic entities. In many cases, this problem is due to the hardware acceleration setting on your machine. To solve the problem, try adjusting hardware acceleration.

Right-click on the Windows desktop and select **Properties**. Then select the **Settings** tab; click **Advanced**; select the **Troubleshooting** tab; and move the **Hardware acceleration** slider to the left. You might need to experiment to find the highest setting that resolves the graphics problem. (Depending on your card and your version of the Windows, these steps may differ. See Windows Help or the documentation that came with your graphics card.)

- You cannot move tank graphics using **Edit > Move**. The graphics appear in their new location in the build environment, but the moved or copied graphics disappear during simulation. Exporting and reimporting the model does not correct the problem. To move

a tank, you must either delete the tank graphic, then replace it in the appropriate location, or select the tank in the Tank dialog box, then click **Edit Graphic**. To copy a tank, select the tank in the Tank dialog box and click **Copy**.

- When you print the current view from within the VR graphics version of AutoMod, the printed view may be cropped in the X direction. To minimize cropping, use the default **X pos(ition)** and **Y pos(ition)** values in the Generic Plot Properties dialog box.
- The Simulator software, which is based on AutoSched, has been challenging to support given the new AutoMod architecture introduced by composite models. To ensure a timely release of AutoMod 12.0, we have postponed the release of an upgraded Simulator.
- Static system graphics from release 10.0 and earlier may not be visible when opened in AutoMod 11.0 and later. To use these older graphics, open the static system and click **Edit Graphic** on the Static System palette. In the Edit Object Graphics dialog box, select the relevant graphic and change the **Picture Unit** to **Micrometers**. Then save the graphic.
- Deleting the .dir directory when building or running a model corrupts the model.
- Parts of some photoeye graphics fail to change color correctly in runtime. The line is the correct color in all cases.
- Because of a change in the AutoView architecture, .avw files from earlier releases cannot be opened in the new release. Rerun the model in 12.0 to regenerate the .avw files.
- In tanks and pipes systems, when using VR graphics, AutoMod may stop responding if you repeatedly change the number of tanks in an array—changing from one number to another and back again.
- Runtime performance in AutoMod 12.0 should be comparable to earlier releases. Because of the increased overhead involved in calculating the motion of vehicle segments, however, some models containing path mover systems may run more slowly. This is particularly true of compact systems with many vehicles. If your model's performance is an issue (Version 12.0 relative to an earlier version), please let us know; we'd like to study the model with an eye toward better balancing software efficiency with model accuracy and realism.
- If you're using an old version of Adobe Acrobat Reader, some links in the main Documentation menu (a .pdf document) may not function. To correct the problem, download the current version of the Reader from www.Adobe.com. Also, on some systems, if you click a Web link in the Documentation menu, nothing happens. This occurs only with Internet Explorer and is due to a known

problem in the browser. It happens only if a browser window is open when you click the Web link. To work around the problem, close all Internet Explorer windows before clicking the link.

- Because context-sensitive HTML Help topics cannot be displayed in Windows applications compiled from Java source, AutoStat has been configured to launch Version 11 AutoStat WinHelp when you click a **Help** button or click **Help > Help**. Alternatively, to see Version 12 AutoStat Help (HTML Help), open the Help system from AutoMod or from the **Start** menu and go to an AutoStat topic. The AutoStat content in both Help systems is the same. The same is true for the other AutoMod Java utilities: the OPC Utility, the Model Zip Archiver, and Process Server Setup.
- If you're using Microsoft XP systems with Service Pack 1, some navigation buttons in the AutoMod Help system may not appear correctly. This is caused by a known problem in Internet Explorer. To correct the problem, download Microsoft patch Q811630_WXP_SP2_x86_ENU.exe (see the Microsoft Knowledge Base topic "Windows XP Patch: Enabling Applications to Access HTML Help in a New, Restricted Mode.") At release time, the patch is found at www.microsoft.com/downloads/details.aspx?familyid=2a086526-ae89-4cb3-a819-e6da160f2e66&displaylang=en.

Documentation corrections and omissions

- New path mover alignment options described in the *User's Guide* are not supported in this release. Control point alignment in path mover systems is limited to the **leading path attach point** default. The new alignment options (**leading edge**, **trailing edge**, **origin**, **center**, and **trailing path attach point**) are now planned for release 12.1. (When older models are imported, vehicles are given one path attach point at the vehicle origin; therefore, alignment in AutoMod 12.0 is the same as in previous versions.)
- On page 7.15, in the "Toggling system visibility" paragraph, the *User's Guide* reads "select a system and type a number from **0** to **20** into the **System ID** text box." This should read "select a system and type a number from **1** to **20** in the **System ID** text box." You cannot assign a **System ID** of **0**.