

MooD 17 Release Notes

These release notes are designed to assist deployment engineers.

To see what's new in this software release, see <https://supportportal.moodinternational.com/hc/en-us>.

Here's a summary of updates to this document per version:

16.057	<p>Added support for SQL Server 2019</p> <p>Added additional notes for SQL Server setup.</p> <p>Added extra information about third party licences.</p> <p>Added known issue regarding Windows Updates causing issues with the formatted text editor and graphs in Business Architect.</p> <p>Added instructions for changing the default Excel range selection mechanism.</p>
16.076	<p>Updated the instructions for working around Request Validation exceptions raised by ASP.NET to recommend the new feature for turning off request validation per panel, control, symbol/node or field.</p> <p>Updated instructions for issues when using the placeholder localhost in SQL Connections.</p>
16.082.01/.02	<p>Added information about printing from Active Enterprise with conditional formatting applied to matrices.</p> <p>Added information about fixing Custom Visualisations which fail to render due to Content Security Policies.</p> <p>Added a list of issues fixed since the last major release.</p> <p>Added breaking changes:</p> <ul style="list-style-type: none"> • executable files have been renamed. • encryption added to the MoodSynchronizeRepository command line.
16.085	<p>Microsoft Office no longer needs to be installed for most of MooD to function – some paragraphs have been reworded.</p> <p>Now MooD supports the ODBC Driver 17 for SQL Server – more information on how to configure the preferred ODBC Driver has been added.</p> <p>Added known Web issue regarding an error: registry key access marked for deletion.</p> <p>Added a list of additional issues fixed since the last major release.</p> <p>A potential breaking change to security has been introduced. MooD is more secure <i>out of the box</i> by providing a default CSP. (See the What's New article here). See additional notes in the Breaking Changes section.</p>

	Updated the client and server requirements.
16.085.01	Added a list of issues fixed) Added a section about using a shared repositories manager configuration file.
MooD 17	<p>Added details of change to Standard mode rendering in the web, including potential changes to web rendering of:</p> <ul style="list-style-type: none"> • Multi-Element Picker • Calendar Chart • Measures Editor • XHTML panel content • Custom Visualizations <p>Added details of the changed handling of Country Codes for France in the World Map panel.</p> <p>Added details of the removal of provision of Underscore.js library for Custom Visuals. Updated dependency information – we now install/require .Net 4.8 Added details of the change to Repository Manager regarding removing the ability to specify an alternative data file location for SQL Server instances.</p> <p>The ODBC 18 Driver is now shipped by default. Added extra notes on the configuration of the ODBCPreferences.xml file Added potentially breaking change for the ODBC driver</p> <p>Changed minimum client and server requirements to align with modern operating systems, database servers and browsers.</p> <p>Added notes on removal of Repository Managers SQL CE dependency. Added details on migrating repository lists from Repository Manager 16 to 17. Updated information on controlling repository connections in shared environments.</p> <p>Added notes on changes to the Cross Site Request Forgery protection to Breaking Changes and Known Issues.</p> <p>Added details about the use of the MooD.exe Command Line Interface and the various options available.</p> <p>Removed the list of issues fixed per version – this is published on the web site in future.</p> <p>Added a section describing the ports used by MooD products. See Default Ports used by MooD products</p> <p>Added a section describing the Command Line capable programs.</p>

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Installing Mood

MooD is compatible with Microsoft® Windows® installations only. Additionally, you will need to connect to a SQL Server database to read or create MooD Repositories. Installation instructions for SQL Server are not included in this document. Please see [System Requirements](#) for information on platform and database requirements.

We recommend all Windows Updates are applied before installing MooD. Failure to do so could cause the installation to fail, request reboots, or take hours to process. Please see the minimum client specifications in the link above for more information.

If you need to use Business Architect only, then you do not need to install the other components. However, MooD Business Integration Engine and MooD Active Publisher both require MooD Business Architect to be installed first.

If you are installing all three, we recommend installing Business Architect first, followed by Business Integration Engine and finally Active Publisher. We also recommend uninstalling in the reverse order. Please refer to the *Active Enterprise Setup Guide*, available from MooD Support Portal for more instructions.

To install MooD Business Architect, locate **Business Architect Setup.exe** and **execute it**. The installation will guide you through the process of installing prerequisites and will let you choose the installation location if you do not want to accept the default of **C:\Program Files (x86)\MooD\17**.

Once installed, a **MooD** icon will appear on your desktop. Double-click this icon to open Repository Manager. If you need to install a licence, run Repository Manager **as an Administrator** to enable MooD for all logged in users. This is particularly important if you also intend to install MooD Active Publisher and MooD Business Integration Engine, which use different service accounts.

Known Installation Issues

MooD takes a long time to install or complains of a failure to register a component.

If recent Windows Updates have not been applied, the Microsoft Visual C++ 2015-2022 Redistributable prerequisite may experience the following issues:

- An apparently quick install, followed by the message “**failure to register moodmodelpublisher.dll.**”
 - To resolve this error, cancel the install
 - Go to the *Apps and Features* Windows applet
 - In the installed programs list, click **Repair** on the Redistributable
 - Try to install MooD again.
- A very slow install, possibly hours, we believe that Microsoft’s Redistributable is comparing your Windows Updates and downloading required Windows Updates. We recommend waiting until it has completed. To avoid this situation, install MooD whilst disconnected from the network, or install all Windows Updates before attempting to install MooD.
- Prompts to install the Visual C++ Runtime when it’s already installed (this is a known Microsoft issue). Accept the EULA and continue - the install will run through very quickly.
- Due to the above issue, when uninstalling 16.045 and re-installing 16.032, you may be presented with an error that a newer version of Visual C++ is already installed - in which case uninstall the 2017 version and try again.

Some files are left behind when I uninstall MooD

Uninstalling Business Architect will purposely leave some files on your system:

- RepositoryManagerData.xml - the connection details for your repositories.
- custom.cdf - the default custom dictionary file.

Uninstallation will remove all the other files.

Uninstalling Mood, or other products may stop other Mood Software from working

MooD Active Publisher and MooD Business Integration Engine depend on a valid installation of MooD Business Architect being present on the machine. Uninstalling MooD Business Architect will prevent these products from working. In addition, MooD depends on many Microsoft components which appear in the *Programs and Features* Windows applet. If these are removed, MooD may stop working, or may prevent MooD from uninstalling. If this occurs, you may have to reinstall these programs before being able to use or uninstall MooD. This can be achieved by repairing or reinstalling the MooD Business Architect installer again.

After restarting mid installation, the installer did not continue automatically

When an installation requires a system reboot mid installation (.NET Framework, Visual C++, ODBC driver sometimes do), the installer should automatically continue after the machine has restarted. If a few minutes has passed after logging back into the machine and the installer has not automatically restarted, simply run the installer again and it should allow you to continue the installation. Sometimes when manually launching the installer again it may prompt you with another system restart. For example, the ODBC driver installer has been known to show the message

“A previous installation required a reboot of the machine for changes to take effect. To proceed, restart your computer and then run setup again.”

This usually happens when Windows Updates are installing, which is why it is recommended to ensure all Windows updates are installed **before** running the installer. Once they are, simply restart the machine again, reboot the installation manually and everything should work as expected.

It is also possible that group policies can prevent installers from allowing programs to be run after restarts.

The installer says the product is installed after cancelling the installation

If you cancel the installation mid install (noticed specifically when cancelling the ODBC driver installation), close the installer and then reopen it, it may say that "A version of MooD 17 Business Architect is already installed." when it is not, and present you with the options to **Uninstall** and **Repair**. To resolve the issue, you can simply click **Repair** to fix the installation and install the product and any missing prerequisites.

The ODBC driver fails to install due to external installations (e.g., Windows Updates)

Occasionally, the ODBC driver installation may fail with the following or similar messages:

“User ‘SYSTEM’ has previously installed an install for product ‘Microsoft SQL Server 1017 Setup (English). That user will need to run that install again before they can use that product. Your current install will now continue.”

“An installation for Microsoft SQL Server 2017 Setup (English) is currently suspended. You must undo the changes made by that installation to continue. Do you want to undo those changes?” – In this case it is recommended to select the No option to prevent breaking other installations.

In the case that this occurred, it was due to Windows updates installing a SQL Server 2017 update in the background, which conflicted with the ODBC driver installation. Therefore, it is firstly recommended to close any Mood installers and ensure any pending Windows updates or other installations are complete, restart the machine if required, and then continue with your Mood installation.

History of Breaking Changes

Breaking changes since Mood 15

Since build 100 of Mood 15, many concepts have been removed from the product, and we have discontinued support for some third-party technologies. This is an ongoing effort to streamline the product and user experience. This programme continued into Mood 16 with full and widespread consultation with our solution builders and partners. Features removed in 16.x will not be retrospectively removed in Mood 15.x. Users can continue to use those features in Mood 15, but should migrate to alternatives before upgrading to Mood 16.

Mood Repository Manager detects when a repository uses these concepts, and it provides a warning when an upgrade is attempted. Note: **The upgrade action is irreversible. Data may be lost. Always ensure you have a verified and credible backup of your repository before upgrading to Mood 16.**

If the data is not upgraded, then it is deleted. If you still require this data in your upgraded repository, our support department may be able to help you export it from your backup and re-import the required data into replacement structures which *are* supported. Please see the table in the next section for the full list of changes between Mood Versions.

Mood 16 replaced many Mood 15 Web Panels with modern, interactive versions. This allows for better design aesthetics and the use of Material Design principles. The balance had to be struck between upgrading solutions like-for-like whilst not polluting the vision and power the new panels can bring. As such, panels may look different from their Mood 15 equivalents.

When panels on a model upgrade from Mood 15, any appearance settings will be upgraded to best fit the new look and feel. For example, where the panel supports them, settings like *font style*, *line colour* will be upgraded. Where there are new options, these will either try and use an appropriate setting from the original panel or be set to the default value for the new panel. Options that are no longer relevant to the

panel will be discarded.

The new design principles encourage more use of space, and solution designers should endeavour not to cram as much as possible on a single page. However, the size and fit of upgraded panels on model will be kept as close as possible to the original to limit the amount of rework required. For example, a *Radio Buttons* panel showing five options displayed in an appropriately sized panel should still fit in the same sized panel in a repository upgraded from Mood 15. However, if the panel had used column grouping, some text may appear clipped with ellipsis (...) because the new control does not support dynamic column widths. You may also notice that a **new** *Radio Buttons* panel added to model will, by default, be configured with a more generous amount of vacant space, and requires more space to fit those five options (reflecting the new desired look & feel); the panel can still be configured to use less space to attempt to match the style of upgraded panels.

New panels added to the model may have different default settings than in Mood 15, but can be sized and styled to fit with upgraded panels. For example, in Mood 15 a Button panel added to the model had a grey gradient fill, in Mood 16 they will be plain white.

Breaking changes between Mood builds

Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
Upgrade of 2008se Repositories	15.100	Use build 99 or lower to upgrade a 2008se repository.	No	No
Simul8	15.100	Support for integration with the business simulation tool <i>Simul8</i> has been removed.	No	No
Table fields	15.101	The Table field type has been deleted, and as such all column definitions and data is also deleted. Table fields can be replicated by using multiple row relationship fields.	Yes	No
Internet Explorer 7.x	15.103	Viewing our web pages with IE7.x is no longer supported.	-	-
Microsoft SQL Server 2005.x	15.103	Storing a Mood Repository on this database version is no longer supported. Install a later version of SQL Server.	No	-
The pre-canned <i>comment field</i> within relationship fields.	15.105	The field is deleted, a normal string or text field is better suited and better supported.	Yes	No
Node sequences on models	15.105	Each node on a model could be assigned a particular sequence. Users could use this to replay the order in which events happen in a workflow. This poorly supported feature was removed.	No	No
Oracle 11gr2	15.105	Storing a Mood Repository within an Oracle database is no longer supported. Migrate to a supported version of SQL Server (either use Mood Integrator or database migration tools). Repository manager will not connect or list Oracle servers. Mood still supports Oracle as a 3 rd party data source.	-	-
Roles	15.106	The Role concept (typically used as the <i>Assigned Role</i> of a process) has been deleted from the product. A normal relationship to a user-defined type could be used instead.	Yes	No
Scenarios	15.106	The Scenario concept and Scenario Context Models have been removed from the product. A normal element type and model can be used instead, but there is no automatic conversion process.	Yes	No
Aztec Sunchart Visualization	15.107	The visualization will no longer work.	No	-

Delegated requirement links	15.107	A niche, and confusing sub-concept of requirement links was deleted.	Yes	No
Office 2007	16.001	MooD is no longer tested with Office 2007 products.		
Windows Vista (any)	16.001	MooD products are no longer supported or tested on any version of Windows Vista.		
Windows XP (any)	16.001	MooD products are no longer supported or tested on any version of Windows XP.		

Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
Internet Explorer 8.x, 9.x, 10.x	16.001	Viewing our web pages with these browsers is no longer supported, although some sites may appear to work. We also do not support users with supported browsers <i>emulating</i> an unsupported browser version.	-	-
Web Publisher (not Active Publisher)	16.002	The ability to produce a static set of web pages which users shared on CD, USB or archived has been removed from the product. Users who value this feature need to stay on Mood 15 until further notice, or migrate to Active Publisher. Publishing Scheme configurations will be deleted.	-	No
Field Activation	16.005	Field activation – where any field of any element could perform a calculation or retrieve a value from an Excel file or other source was the root cause of multiple performance issues, limiting the success and longevity of solutions. The vast majority of activations discovered could be replaced by new functionality introduced into <i>Smart Columns</i> or by scheduled imports. The conversion needs to be performed by the user before upgrade.	Yes	Latest value kept.
Memo fields (Rich Text)	16.005	The field type <i>Memo</i> in Mood has been removed as RTF is not a Web friendly format, and there were significant performance issues at scale converting RTF to HTML and searching within RTF. During the upgrade process, Memo fields are upgraded into HTML fields. The quality of upgrade depends on the complexity of content. We recommend reviewing the upgraded content to determine if more work is required before making the solution live to your users. Typically, embedded images and documents are lost, and complex formatting may not appear as intended.	Yes	Attempted
The <i>Keep History</i> feature on field data.	16.006	The ability to track historical changes of simple field types has been removed. It was poorly supported and little used.	Yes	No
Microsoft Access Repository upgrades	16.007	Upgrades of Mood repositories stored in Microsoft Access files are no longer supported.	-	-
Mood 2010 Repository Manager settings file upgrade	16.007	The feature where repositories and servers from a Mood 2010 installation were automatically recognized when launching Mood 16 for the first time, has been	No	No

		removed. Servers and repositories will have to be reconfigured, or use Mood 15 as a pathway to retain the information.		
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Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
Many action panels can no longer use Symbol Styles, but can use Style Sheets.	16.027	<p>A new feature to handle styling of Web Action Panels, called Style Sheets has been introduced.</p> <p>If users have applied normal Mood Styles to these action panels, those panels will be disassociated from those styles, and the panels will adopt their last known appearance when the model was saved.</p> <p>If you have modified the Mood Style after a diagram has been saved, Repository Manager will list the models you should revisit and re-save <i>before</i> you continue with the upgrade.</p>	Yes	Yes
Bing maps have been removed	16.045	<p>Bing maps in Mood have been non-functional for many years, and with the popularity of alternatives that we <i>do</i> support, we have decided to remove the component instead of attempting to resurrect it. If this becomes a major issue for you or your customers please contact our support department.</p>		
Formatted Text Editor has been upgraded	16.048	<p>The third-party component which powers the Formatted Text Editor has been upgraded from TinyMCE v3 to TinyMCE v4. Any client-side customisations to this component may no longer work and will likely need updating to use the latest DOM structure and event model. See https://www.tiny.cloud/docs-4x/ for further information.</p>	No	No
Executable files renamed	16.082	<p>Many Mood executable files have been renamed. This helps both support personnel and customers identify which processes and services are critical to their Mood installation and makes them easy to list in alphabetical order within Task Manager.</p> <p>This may break any existing script or SSIS execution calls via MoodSynchronizeRepository</p> <p>Changes are:</p> <p>MoodInt.exe is now MoodIntegrator.exe</p>	No	N/A

CefSharp.BrowserSubprocess.exe is now Mood.CEF.SubProcess.exe

Salamander.HTMLRendering.exe is now
MoodHTMLRendering.exe

ChkRep.exe is now MoodValidator.exe

In the services control panel Business Integration Engine 16 is now
Mood Business Integration Engine 16

The service short name BIE_16 is now
MoodBIE_16

BusinessIntegrationEngine.exe is now
MoodBusinessIntegrationEngine.exe

BIEManager.exe is now
MoodBIEManager.exe

Salamander.RepositoriesManager.Server.exe is now
MoodRepositoryManagerService.exe

synchronize-repository.exe is now
MoodSynchronizeRepository.exe

RepositoryManager.exe is now
MoodRepositoryManager.exe

RepositoryManager.com.exe is now
MoodRepositoryManager.com.exe

		BulkDefinitionFieldCreator.exe is now MoodBulkDefinitionFieldCreator.exe		
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Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
MooDSynchornizeRepository command line	16.082	<p>The command line of this tool previously allowed plain text passwords to be provided. As part of our security uplift, this is no longer allowed. Passwords must be encrypted when used on the command line to avoid exposing them.</p> <p>For more information use the command line <code>MooDSynchronizeRepository.exe /help</code></p> <p>Existing pipelines which call this executable will need to be changed.</p>	No	N/A
Centralized management of Content Security Policies	16.085	<p>In this version of Mood we allowed users to configure content security policies for Web Preview and Active Enterprise from within Business Architect, and those policies are now stored in the repository – meaning less management of Web.Config files during an upgrade or re-hosting. See the What’s New article here.</p> <p>The change to the configuration of the Content-Security-Policy (CSP) header as detailed in the 'What's New' section may constitute a breaking change under the following circumstances:</p> <ul style="list-style-type: none"> • A CSP header was never configured in the Mood Active Enterprise (MAE) web.config file - or the default value was removed. • It was found necessary to amend the CSP in the MAE web.config file to allow specific solution functionality e.g. a Custom Visual, an XHTML panel or a specific Tile Server for a map. <p>Where a CSP is too strict for the required functionality, a web user who is accessing MAE or Web Preview via a browser, will experience broken functionality e.g. missing images or data, incorrect fonts.</p> <p>To diagnose this, the user can press F12 to open the browser Developer Tools. If an overly restrictive CSP is the culprit the Developer Tools console will include red</p>	No	N/A

error messages giving details on which resources are being blocked by which CSP directives.

If a CSP header is specified in the MAE web.config file, it will be used for MAE pages, in preference to the value configured in the Active Publishing settings. This is to ensure continuity for the MAE site.

Immediately after upgrade it is possible that users of Web Preview will encounter problems which are not encountered on MAE. To rectify this, please start by copying the CSP to the Active Publishing Settings as described below.

It is strongly recommended, that as an upgrade step, any customised CSP which is in the MAE web.config file is copied to the Active Publishing Settings (please refer to the 'What's New guide') and the addition of the CSP header is removed from the MAE web.config file.

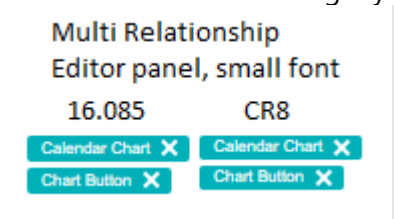
If problems persist, the CSP will need modification to permit the restricted functionality. Resources to assist with this are detailed in the 'What's New' guide, or Mood Support can be contacted.

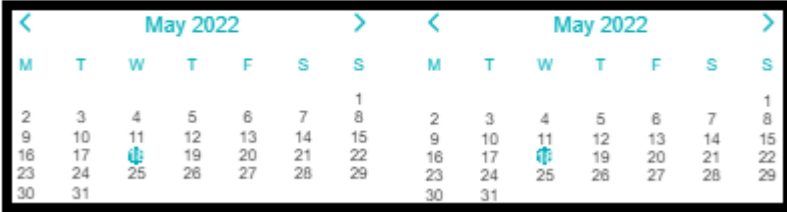
If the CSP is causing problems for your users which need urgent resolution, the CSP (both in MAE web.config and in Active Publishing Settings) can be temporarily set to an extremely unrestrictive policy. e.g.

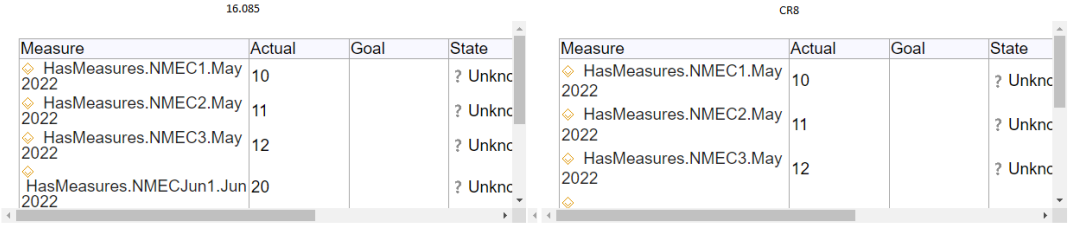
```
default-src * data: blob: 'unsafe-inline' 'unsafe-eval'; form-action *; frame-ancestors *;
```

Please **DO NOT** continue to use the unrestrictive CSP in the long term, as it effectively removes a layer of security against hacking. It is far better to work through and address the problems being caused by the default CSP.

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Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
Web navigation and opening in a new window or tab.	16.085	<p>Confusing options available to users of Navigation actions in a Button Action have been simplified (as mentioned in this article).</p> <p>Navigations configured to open in a new window, or a new tab, will open a new window or new tab, and not re-use a previously 'new' tab or window.</p>	No	Yes
Web rendering changed from Quirks mode to Standard mode	17	<p>MAE versions up to 16.085 served web pages with a DOCTYPE of XHTML Transitional. Versions of MAE after this will serve all pages with the HTML5 DOCTYPE.</p> <p>The practical result of this is that the browser will now render MAE pages in "Standards mode" rather than in "Quirks mode".</p> <p>For most of the Mood web page components, this will not result in a change to how they display in the browser.</p> <p>Where necessary and with some exceptions, Mood panels have been modified to ensure that they display the same as before. A few of the panels cannot be modified to ensure the same display for all configurations. These panels are detailed below.</p>	No	No
Web rendering of Multi Element picker	17	<p>Where the Multiple Element Picker is configured to use a small font size, the 'pills' for the selected items have slightly less height than previously:</p>  <p>This may affect the display of a page where a Multiple Element Picker control has been specifically sized to display an expected number of selected items. As the new display items are smaller, this change should not result in truncation of the visible elements.</p> <p>This visual difference is less marked or does not exist when using the default font size or larger.</p>	No	No

Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
Web rendering of Calendar Chart	17	<p>Where a calendar grid is configured with a small font, the grid can display 1px greater in height and there is a 1px change in location of the selected day highlight.</p> <p style="text-align: center;">Smaller with small font Smaller with small font</p> <p style="text-align: center;">16.085 CR8</p>  <p>This may affect the appearance of a page if the panel has been sized exactly, but as the difference should be at most 1px, it should not affect usability. The same change will exist for the Calendar grid which is used for other calendar controls, but as these 'pop-up' in a dialog, they will not affect the appearance of a page. This visual difference is less marked or does not exist when using the default font size or larger.</p>	No	No

Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
Web rendering of the Measures Editor	17	<p>The height of each entry in the list of measures has changed at all font sizes. The picture below, which shows the change when the panel is configured to use a large font; the difference is less marked when using a default sized font.</p>  <p>This control can appear in Pop-up or Inline forms. As can be seen from the image, as the control is a list, it is already resilient to having more or less content. This may affect page appearance in the circumstance that an Inline Form is used and has been sized specifically to display a particular number of Measures. In this instance, the form will become scrollable, so usability will not be restricted.</p>	No	No
Web rendering of XHTML panels and Custom Visualization	17	<p>The display of any HTML which has been included in a Generic XHTML panel (either as static HTML or created by JavaScript) or in a Custom Visualization may be affected by the change from Quirks to Standard mode rendering. These will have to be checked individually.</p> <p>Please refer to the 'Tips on fixing display differences with XHTML and Custom Visualizations' below if necessary.</p>	No	No

Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
Handling of Country Codes for France in the World Map panel	17	<p>The World Map panel can be displayed at High or Low resolution. Previously the panel mapped country code 'fr' to France in Low resolution, but 'fx' to France in High resolution. This has been changed so that either 'fr' or 'fx' will map to France in either resolution.</p> <p>This change may result in information being displayed on the map which would not previously have been shown e.g. if a World Map panel set to Low resolution is given data for Region Code 'fx', and Colour 'Red' this will now result in France being displayed Red whereas previously it would have had no effect.</p>	No	No
Removal of automatic inclusion of 'Underscore.js' library for Custom Visuals	17	<p>Custom Visual packages may specify certain specific JavaScript libraries which will be included in the web page at run-time by Mood, without the library having to be bundled in the Custom Visual package.</p> <p>Prior to CR8 the list of available libraries included Underscore.js version 1.3.3. In CR8 and later version this library will not be available for inclusion in this fashion and if required must be packaged in the Custom Visual package.</p>	No	No
The Query engine "Is Exactly" condition now behaves correctly for empty lists.	17	<p>From this build onwards Queries will behave logically when element conditions are given two empty lists.</p> <p>For example: where Relationship1 is exactly Relationship2 Will now pass the condition if both Relationship1 and Relationship2 are empty. (Issue Number 11468)</p>	No	No
Repository Manager no longer provides a means to provide an alternative data file location on Server Instances	17	<p>From Mood 17 administrators will no longer be able to provide an alternative datafile location for new or existing server instances in Repository Manager, Repository Manager will respect the data and log locations configured within SQL server. This means that the data and log files for any new repositories created or restored in Mood 17 will be created in the locations configured within SQL Server.</p>		
Removal of Salamander.uuid from Salamander.js	17	<p>From Mood 17 the JavaScript functions within Salamander.uuid will no longer be available to custom XHTML panels. Equivalent code can be provided on request to patch any panels which made use of these functions.</p>	No	No

Feature Removed / unsupported	Build Removed or changed	Impact/Assessment.	Warning given?	Data upgraded?
<p>ODBC 18 driver installed and installed by default</p>	<p>17</p>	<p>The ODBC 18 driver does not support all previous databases or operating systems, so this may be a breaking change for those on unsupported platforms. See this Microsoft Article.</p> <p>The Microsoft default settings for their ODBC 18 driver connections, is to NOT trust the server certificate and to have an encrypted connection.</p> <p>Previously the default was to trust the server certificate and have encryption <i>only if sql server forced you to</i>.</p> <p>Not trusting the server certificate means that the client does not fully trust that the server is legitimate until it re-validates the server's certificate with the chain of trust the client can see.</p> <p>Thus if clients do not have the specific server certificate or a common root chain of trust, connections may fail with SSL errors.</p> <p>To prevent our Mood users from failing immediately after an upgrade from M16->M17, we will automatically default to trusting the server certificate (self signed or SSL) as before, and turn encryption on. That is: TrustServerCertificate=yes;Encrypt=yes;</p> <p>To be more secure, it's recommended you</p> <ul style="list-style-type: none"> • change the default in ODBCPreferences.xml to TrustServerCertificate=no;Encrypt=yes; or add this to the Server Properties ODBC text box in Repository Manager. • use an SSL certificate which is in a common root authority chain of trust, • ensure that TrustServerCertificate=yes; or Encrypt=no; is removed from the server connection properties and any repository property page in Repository Manager. • If you had any SQL Server connections in Business Architect's Synchronize view Manage Connections window then you may want to verify that your connections are still operational and add relevant ODBC parameters there. Consider upgrading any ConnectionString based connections to use the new ODBC driver. 	<p>No</p>	<p>Yes</p>

<p>Repository Manager no longer uses SQL CE as a backend data source.</p>	<p>17</p>	<p>Repository Manager has been re designed to use an XML file instead of SQL CE 3.5 as a backend data store, and so is no longer included as part of the installation process. In order to migrate your Server and Repository lists from Repository Manager 16 to 17, you must export your Repository Manager list prior to uninstalling Moodle 16. A command line tool is provided from Moodle v16.85.02 that allows users to export the repository and server lists to a folder of your choice, which can then be used by Repository Manager 17 to recreate these lists. After installing Moodle 17, you can import the Repository list using the Import tool provided in the new Repository Manager by selecting the 'File' tab and clicking 'Import'. The import can only be completed if there are no servers added to your Moodle 17 installation. You will be asked to select the folder that contains your exported repository list and when you click 'OK' the import will be completed.</p>	<p>No</p>	<p>Yes</p>
<p>Cross Site Request Forgery protection mechanism is applied to Web Preview</p>	<p>17</p>	<p>By default Web Preview will use the cookie-based Cross Site Request Forgery (CSRF) protection mechanisms which are currently present only in Moodle Active Enterprise (MAE). Whilst this should not adversely affect users, it is possible that some hosting environments or some Repositories may have problems in Web Preview caused by this mechanism. When this occurs the user will see the message in the Notification Bar at the bottom of the screen:</p> <p>"The action you requested has not been performed, please refresh the page or try again"</p> <p>Please refer to the 'Known Issues' section for guidance on how to identify and address any problems.</p>	<p>No</p>	<p>No</p>
<p>Cross Site Request Forgery protection cookie to use SameSite=Strict</p>	<p>17</p>	<p>By default the CSRF protection mechanism will set two of the cookies which it uses to have SameSite=Strict. Whilst this increases the strength of the CSRF mechanism it may be a cause of 'false positive' detection of suspected CSRF activity. When this occurs the user will see the message in the Notification Bar at the bottom of the screen:</p> <p>"The action you requested has not been performed, please refresh the page or try again"</p>	<p>No</p>	<p>No</p>

		Please refer to the 'Known Issues' section for guidance on how to identify and address any problems.		
Password hashing strength increased.	17	<p>This is not technically a breaking change, but something to be aware of.</p> <p>In Moodle 17 we increased the password hashing strength that's used by the inbuilt Moodle user/password mechanism (rather than Windows Authentication). This means that users who use this legacy mechanism may have to wait 2 seconds for an initial login to be processed. This is expected. However, we do not automatically upgrade user's passwords at the point of upgrading a repository in Repository Manager. Therefore, if you are worried about hashes-at-rest being cracked in many years to come through technological advances, you can, via the UI, reset all users passwords who have not logged in recently (and where SecurityType is not equal to 3 in the MoodleUsers table). In a future update we plan to allow feature for administrators to churn through (potentially) thousands of users and 'over hash' the current hashes. Please contact our development team if you have any questions about this.</p>	No	No
Default Permissions-Policy header in MAE.	17	<p>Moodle 17 introduces a Permissions-Policy set by default in the MAE web.config file. The default value of this header should not cause problems with any standard MAE functionality but may impact bespoke XHTML panels or Custom Visuals which use JavaScript API which are restricted by the policy e.g. GeoLocation.</p> <p>If the functionality of an XHTML panel or Custom Visual is not behaving as expected in MAE, open the browser Developer Tools for the affected page. Console errors should be raised if the Permissions-Policy is restricting the functionality.</p> <p>If this is the case the Permissions-Policy may be relaxed sufficiently to permit the required functionality by modifying the value in the <customHeaders> section of the web.config file. Please refer to https://developer.mozilla.org/en-US/docs/Web/HTTP/Permissions_Policy for the correct syntax.</p>	No	No

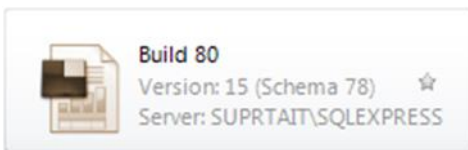
Upgrading Mood Repositories

Schemas & Upgrades

The **schema** is fundamental to each repository and its upgrade process. A schema defines the structure of the database within which Mood Repository data is stored. When this structure changes, through functional evolution, your repository data and structure may need to be transformed. Mood Repository Manager can manage this process for you.

The Mood schema will change much less frequently than the Mood build number. Builds introduce features and bug fixes on top of a schema. Hence, a schema can support several future builds. Once you have upgraded to a schema, you cannot revert to an older schema, hence why taking a backup is important.

In Repository Manager, repositories that do not match the schema of your current build appear in shades of brown (sepia). For example:



Such repositories cannot be opened in your version of Mood unless upgraded to the same schema.

IMPORTANT: Before upgrading any repository, first ensure the repository is not being used by other users and then **take a backup**. If failures occur during the upgrade process, you **must not** attempt to use the resulting repository – you should revert to the backup and try again, or contact the Support team.

To upgrade to a newer schema, in Repository Manager, select the repository and then select **Upgrade** (it is one of the few commands available to you). However, note the following:

Once a repository has been upgraded to a new schema, you cannot open it in a version of Mood with an earlier schema.

Upgrades via the Command line interface

Repository Manager has a command-line interface which enables you to run various functions to aid in the deployment of a Mood Environment. You can also schedule this via Task Scheduler. For more information, at the command prompt where Mood is installed, type

```
MoodRepositoryManager /?
```

Restoring a repository with Change Data Capture Enabled

Restoring a backup of a repository from Mood 16 Build 32 or below that uses CDC will cause an exception to occur that the user *does not have elevated credentials to rebuild indexes*.

To solve this issue, restore the backup using SQL Management Studio using T-SQL with the KEEP_CDC parameter and then connect the Repository via Repository Manager to continue the upgrade process. Newer Mood repositories can be restored directly through Repository Manager, and CDC data will be kept automatically.

Upgrading Mood 2010 Repositories

Mood 16 can upgrade Mood 2010 repositories stored in SQL Server databases. However, Mood no longer supports upgrading repositories stored in Microsoft Access®, please use Mood 15 to upgrade the Access database into a SQL Server database and continue from there.

Blueprint Repositories may be provided by the Mood Install. If you need to use these repositories, please upgrade them yourself prior to incorporation.

Upgrading Mood 2008se repositories

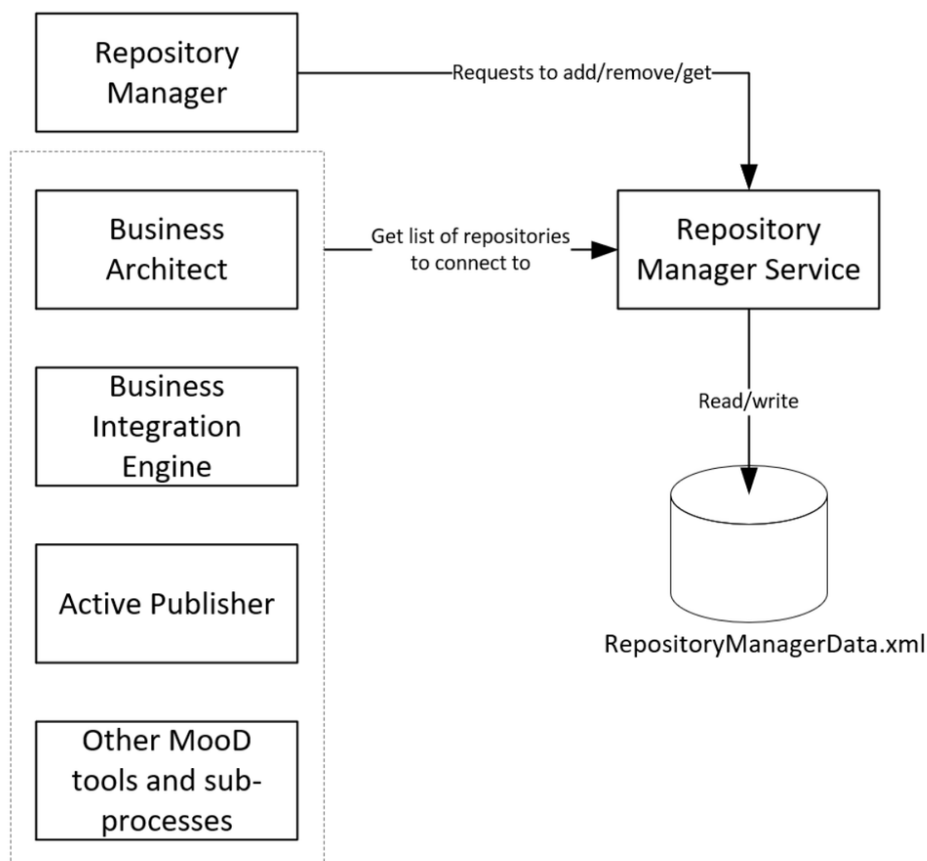
Use a build of Mood 15 (prior to build 100) to upgrade the repository.

Controlling repository connections in shared environments

Background

MooD Repository Manager uses an XML file to store information about repositories available to the current machine. It is possible to configure MooD to share a single view of available repositories in Repository Manager across multiple installs, within a strict set of pre-conditions, explained below. This would allow one administrator to control the available repositories.

First, let's look at how each install on a machine (physical or virtual) of MooD works with repository manager.



In a typical *Citrix* or *Parallels*-style environment, all users typically login to the same server machine, so will share visibility of the repository list as there is one Repository Manager Service and one XML file.

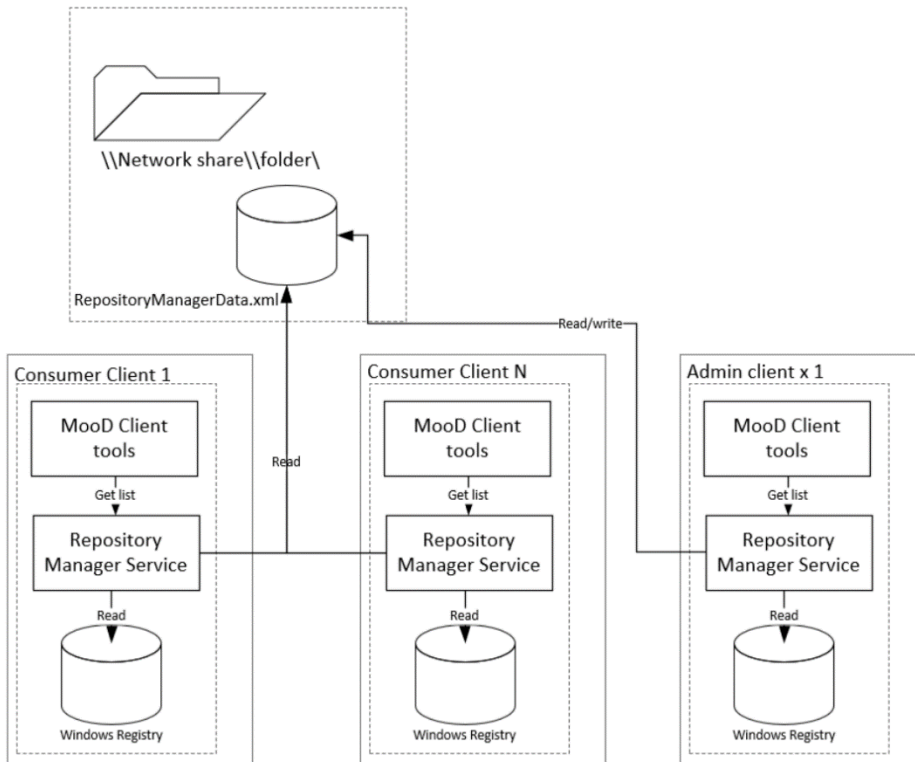
However, in a situation where all computers on the network have their own installation, then this pattern is repeated multiple times, with multiple XML files (one per machine). This can mean disparity between what repositories are visible on each machine, and easy control by administrators to remove or add repositories across the installations.

In all these environments, its typically undesirable for users to create their own repositories, without at least following a process, as each requires infrastructure consideration.

Thus, we have allowed the XML file to be read from a shared network location, which can additionally support strict file permissions.

Overview of XML File Sharing

By configuring the start-up arguments of the *MooD Repository Manager Service 17*, in the Windows Registry of **each** machine involved, the XML file can be moved to a shared network location. As the XML data store is not an ACID database like SQL Server, this setup requires that all consumers are *read only* and one admin client is configured to be *read and write*.



Note: The local XML file on each machine is ignored.

The following prerequisites are required for this method to work:

- An intranet/LAN environment in a domain.
- Domain joined clients, each with individual installations of Business Architect.
- These machines must be permanently connected to the network for MooD to work.
- All clients can access a shared network folder.
- One client is nominated as the only client that should update the XML data source.
- Consumer clients are not expected to add or remove repositories or servers.
- You have permissions to alter the windows registry on all machines involved and are competent to edit it.
- You expect all users to see all repositories in Repository Manager (even if the SQL Server denies access).
- You accept that if the file server hosting the shared network folder is unavailable that MooD clients may not be able to connect to repositories.

- You accept that some features which require write access to the XML file will now no longer function as expected on the consumer clients, such adding or removing tags, setting or un-setting favourites, adding or removing repositories or servers.

Configuring the shared XML file

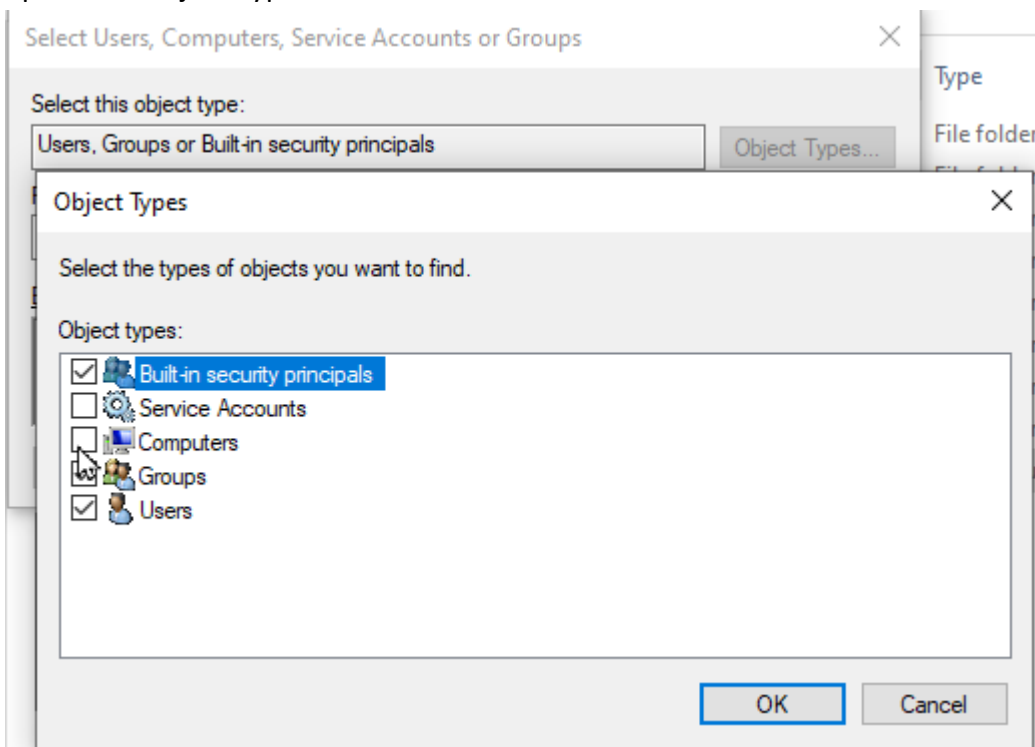
On the admin-client, configure the repositories and servers as you would normally.

Now copy the XML file from the local install to a network folder, e.g.

\\myserver\myfolder\RepositoriesManagerData.xml

Configure permissions of this file, (right mouse button the file, properties, security, Edit...).

- Add the “Authenticated Users” principal with the ability to **read** the file. As the name implies, this allows all authenticated users on the network; but also includes all computer’s “Local System” accounts on the network, which all Repository Manager Services run as. This provides access for the consuming clients. If you require more specific lockdowns, then you can add all involved domain machines as described below:
- If the name of the administrator machine is called ADMINPC, then add a dollar sign as the account name, allowing ADMINPC\$ to have read-write permissions. For this, you need to tick the *Computers* option in “Object Types...”



Configuring a consumer

The following registry path defines how the repository manager service is started.

Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\MooD
Repository Manager Service 17

Inside this registry location will be an expandable string value, **ImagePath** as below:

Name	Type	Data
(Default)	REG_SZ	(value not set)
Description	REG_SZ	Manages the connection details of MooD repositories for all users and services.
DisplayName	REG_SZ	MooD Repository Manager Service 17
ErrorControl	REG_DWORD	0x00000003 (3)
ImagePath	REG_EXPAND_SZ	"C:\Program Files (x86)\MooD\17\MooDRepositoryManagerService.exe"
ObjectName	REG_SZ	LocalSystem
Start	REG_DWORD	0x00000002 (2)
Type	REG_DWORD	0x00000010 (16)

Each read-only consumer will require the ImagePath updating as follows, replacing the XML file location as desired:

```
"C:\Program Files (x86)\MooD\17\MooDRepositoryManagerService.exe" "\\myserver\myfolder\RepositoryManagerData.xml" ReadOnly
```

Manually restart the MooD Repository Manager Service 17, from the Windows Services control panel.

Whenever the repository manager service is started (automatically or manually) it should now use these parameters and consume the shared XML file on the network.

Check the Windows Event log for any errors.

Note: We would expect that as part of a network deployment, the updating of the windows registry and restarting of the service on installation, would be an automated deployment process.

Note: If the XML file should be modified then the Read Only consumer will refresh the in memory data store to reflect these changes, however there could be up to a 30 second delay between the changes being saved, and the changes being displayed.

Configuring the administrator

Similar to the client change above, the **ImagePath** needs editing, and the service restarting. This time the ImagePath needs to denote this machine is read-write. Please use the following syntax, replacing the location of the XML file as desired. ReadWrite, means that this client is able to both Read and Write and should be limited to only one instance of the service.

```
"C:\Program Files (x86)\MooD\17\MooDRepositoryManagerService.exe" "\\myserver\myfolder\RepositoryManagerData.xml" ReadWrite
```

View the Windows Event log for any failures.

Attempt to show and hide repositories on the administrator client and watch as the consumer clients repositories list automatically updates.

Note: If the XML file should be manually modified outside of Repository Manager then the Shared Read service instance will not update to reflect these changes and Repository Manager should be restarted in order that these changes are shown to the user.

Business Architect Command Line Interface

MooD.exe offers a command line interface with two main commands: `-open` and `-updatepassword`. In both commands the password can be provided in either encrypted or unencrypted form. It is recommended to use the encrypted version for security reasons.

NOTE: To encrypt a password consult the Repository Manager command line help using:

```
MooDRepositoryManager help
```

Open Command

The `-open` command offers you a mechanism to open MooD Business Architect with a specific repository and user. It accepts three parameters:

- *repositoryName*: Specifies the name of the repository you want to open (required).
- *userName*: Optional. Use this parameter to specify a user that will access the requested repository.
- *password*: Optional. Use this parameter to provide a password for the specified user.

If *userName* and *password* are not provided, Business Architect will start, and the user will need to provide that information in the user interface. This is the same experience a user would have when loading a repository via Repository Manager.

Examples

Here are some examples of how to use the `-open` command:

```
mood.exe -open MyRep
```

This command opens the repository named "MyRep" without requiring a username or password.

```
mood.exe -open MyRep StandardUser
```

This command opens the "MyRep" repository with the username "StandardUser" without requiring a password, however the user may need to enter this themselves.

```
mood.exe -open MyRep Administrator  
[x01~\19p8C2TcCvPR5ObyKwwl0Pwq/RCKyflSFhEC3/Fo07Dccw2Zl0Nw2utSk82pfk6tkfNZNYU5sY=
```

This command opens the "MyRep" repository with the username "Administrator" and the provided encrypted password.

Update Password Command

The `-updatepassword` command allows you to change a repository user's password and operates entirely without a UI. It requires four parameters:

- *repositoryName*: Specifies the name of the repository where the user's password needs to be updated.

- *userName*: Specifies the username for which you want to change the password.
- *currentPassword*: The current password of the user.
- *newPassword*: The new password for the user.

To aid with diagnostics and for facilitating use in batch files, the `-updatepassword` command returns an exit code, and writes an entry in the Mood 17 event log.

Example

Here is an examples of how to use the `-updatepassword` command:

```
mood.exe -updatepassword MyRep Administrator
[x01-/19p8C2TcCvPR5ObyKwwl0Pwq/RCKyf1SFhEC3/Fo07Dccw2Zl0Nw2utSk82pfk6tkfNZNYU5sY=
[x01-A6W6xih1dfAZHQFI4ftm4evbrAp2QpEMXm0IpMzBdJenz0lv+LeXP1fDvzPh9aL9CXJQx0bzCio=
```

This command updates the password for the "Administrator" user in the "MyRep" repository using encrypted string passwords.

Troubleshooting

When using the `-updatepassword` command in Mood.exe, it's useful to understand the possible exit codes, which provide information about the success or failure of the operation. These exit codes (%ERRORLEVEL% in batch files) can help you diagnose and resolve any issues that may arise during password updates:

Exit Code 0 (Success): This exit code indicates that the password update was successful. The user's password in the specified repository has been changed to the new password.

Exit Code 1 (Parameters Missing): Ensure that you have included all the parameters in the format of the example given.

Exit Code 2 (Repository Not Found): Ensure that the repository is visible in Repository Manager and accessible from the location where you are running the application.

Exit Code 3 (Failed to Connect to the Repository): Double-check the provided credentials (username and current password) to ensure they are correct. Make sure that the database server is running and reachable.

Exit Code 4 (Unable to Find a Connection User): This exit code could indicate an issue with the Repository Manager or a related configuration problem. Ensure that the connection user is properly configured in the repository and that the required permissions are granted.

Exit Code 5 (Failed to Update the Password): Exit code 5 suggests that the application encountered an issue while trying to update the password. This could be due to insufficient permissions to modify the user's password. Make sure the connection user has the necessary privileges.

Exit Code 6 (Failed to Load ODBC Drivers): To resolve this, ensure that your ODBC drivers are configured correctly and up-to-date.

Command Line capable programs

The following programs have the capability to support command line options

Program	Help
MooDRepositoryManager.com	/?
MooD.exe	None, see above for syntax.
MooDBIEManager.com	/?
ConfigureActivePublisher.com	/?
MooDSSISExecution.exe	/?
MooDSynchronizeRepository.exe	/?
MooDIntegrator.exe	/?

Known Issues by Product Area

This section lists known issues by the product areas listed below.

- [Active Enterprise](#)
- [Business Architect](#)
- [Knowledge Activation](#)
- [Microsoft Visio® Business Integration Activator](#)
- [Microsoft® Project Synchronization Activator](#)
- [Synchronization Activator Technologies](#)
- [XMI® Business Integration Activator](#)
- [Business Integration Engine](#)

Active Enterprise

Active Enterprise Requirements

Active Enterprise requires that both Mood and Business Integration Engine are installed previously. For further information and detail on how to smoothly install Active Enterprise and its prerequisites see the [Active Enterprise Server Setup](#) document, available from Mood Support.

Action panel rendering issues

- Action panel content is always drawn on top of the panel label and border (in Business Architect the label and border are drawn on top).
- When published, action panel content is always drawn on top of the model image. If any model content (shapes or lines) overlaps an action panel, it will be drawn in a square block on top of the action panel. Any transparent parts of this block cannot therefore be clicked through to the action panel beneath. Performance indicators, when turned on, advise the user which items they may need to move, or change the z-order of, to ensure that this overlapping does not adversely affect the action panels.
- Action panel content is not clipped if it overlaps the edge of the model.

- Shape styling is not supported.
- Only a subset of bar, milestone and plot shapes in Time Line and Bar chart matrices are supported.

Opening Knowledge Activations in a new window

Windows may not open due to the web browser's pop-up blocker. This can occur when clicking on a button or link action panel or with the navigate action panel. The browser will report that the window has been blocked and provide the option to allow pop-ups. This should be enabled for the published site.

“A potentially dangerous Request.Form value was detected from the client” exception when saving data

By default, ASP.NET validates all information sent to the server for potential cross-site scripting attacks. If you try to save data containing certain text patterns (such as **<script>**), ASP.NET will detect this as a possible cross-site script attack and display the exception. Mood encodes all data before putting it on the page, so normally this added protection is unnecessary and can be removed. However, if the site has been extended with custom pages and controls, it may not be safe to disable it.

Workaround

Edit **web.config** and choose one of two methods, the first being the recommended:

The first method is to add some request validation exclusions to the **mood.web -> security -> requestValidation** section (and there are examples of these in the **web.config**). There are various ways of excluding parts of a solution from request validation. Exclusions can be added by specifying types of panels, types of web controls, symbols (nodes) on a model or fields. These exclusions can be combined to target specific parts. Information about the panel name, control name and node are included in the exception when it occurs e.g.

```
"A potentially dangerous Request.Form value was detected from the client (...="). Node Id: B640DF86F6664C5E891952735E132B62; Node Label: Text Editor; Panel Type: Text Editor; Control Type: TextBox;"
```

To edit the list of exclusions in **web.config** (this walkthrough assumes you do not already have a security element elsewhere, as you can only have one; and that you've not had much experience with editing web.config or XML files)

Find the section

```
<mood.web>
```

Then just before the comment start tag **<!--** ensure you have the following structure:

```
<mood.web>
  <security>
    <requestValidation>
```

```

    <!-- put your request validation rules here-->
  </requestValidation>
</security>
<!-- existing commented out block -->
</mood.web>

```

Now copy the relevant examples from the commented-out block into the rules section above.

e.g.

```

<mood.web>
  <security>
    <requestValidation>
      <!-- This will turn off request validation for all TextBox controls
on a page, that includes the "Text Editor" panel and also text boxes
that appear in popup forms or composite controls like the login panel. -
->
      <add panelType="Text Editor" />
    </requestValidation>
  </security>
<!-- existing commented out block -->
</mood.web>

```

Should you accidentally delete the sections in the web.config, we've included a template structure here for your convenience:

```

<mood.web>
  <security>
    <requestValidation>

      <add controlType="control Type" /> <!-- This will turn off request validation for all
controls with the given type on a page, so if the control type "TextBox" were used then that would include
the "Text Editor" panel and also text boxes that appear in popup forms or composite controls like the
"Login" panel. -->

      <add panelType="panel Type" /> <!-- This will turn off request validation for all controls
for a given panel type, for example if "Text Editor" were used then all "TextBox" controls on a page from
"Text Editor" panels on a model, but not those from composite controls or in popup forms would be
excluded. -->

      <add nodeId="node id" /> <!-- This will turn off request validation for all controls for the
given symbol/node specified by the id on the model, symbol ids can be inspected by right clicking a panel
on a model and choosing "Examine" then looking at the "General" information "Symbol ID"-->

      <add nodeLabel="label name" /> <!-- This will turn off request validation for all controls
for any symbols/nodes on any models for the given label, in this example that is where the label is "label
name". -->

```

```
<add fieldTypeid="field Type id" /> <!-- This will turn off request validation for all controls set to edit the field specified by the field type id, the id can be inspected by going to the Repository "Manage Field Types" and opening the field "Details" for the "Field Type ID". -->
```

```
<add fieldType="field Type" /> <!-- This will turn off request validation for all controls set to edit fields of the specified field type, where field types are the simple types, String, Boolean, Whole, Fractional, Date, Time, DateTime, and the Formatted Text, Pick List, or Relationship types. -->
```

```
<add controlType="TextBox" nodeLabel="my label" /> <!-- The parameters can be used in any combination to target specific controls, so for instance this will turn off request validation for all text box controls for panels that have the label "my label". -->
```

```
</requestValidation>  
</security>  
</mood.web>
```

The second method is to change the request validation mode and revert to the .net 2.0 validation mode (note this may disable some cross-site scripting detection and other request validation capabilities):

```
<system.web>  
  <httpRuntime requestValidationMode="2.0"/>  
</system.web>
```

Then, either add `validateRequest="false"` to the **pages** element, to allow this behaviour on all pages:

```
<system.web>  
  <pages validateRequest="false"/>  
</system.web>
```

Or edit each `.aspx` page you require to support or suppress this error (i.e. **controller.aspx**, **login.aspx**) and add a `validateRequest="false"` attribute to the **Page** directive, for example:

```
<%@ Page language="c#" AutoEventWireup="true"  
  Inherits="Salamander.ActivePublisher.Controller"  
  EnableViewState="False" Codebehind="Controller.aspx.cs"  
  aspcompat="true" ValidateRequest="false"%>
```

Performance counters

When enabling performance counters, ensure that the Active Enterprise application pool is running under an administrative security context. Mood will create the performance counters if they are not already present on the Active Enterprise server (which requires administrative privileges).

Printing Conditionally formatted matrices from Active Enterprise

When printing matrices with cell formatting set to “no formatting” and conditional formatting applied to cells, printouts do not contain conditional format colouring applied to cells.

Workaround

Enable “Background Graphics” in advanced printer settings dialog

Content-Security-Policy prevents Custom Visual from functioning in the web

This can occur when a Custom Visual attempts to access a resource (e.g. data from an external web service, images from a tile server) which is forbidden by the default security mechanisms which safeguard the use of Custom Visuals.

When trying to view and use a Custom Visual panel in Active Enterprise or Web Preview, the panel does not display or does not operate as expected. Looking in the browser’s Development Tools (usually press F12 in the browser), there will be errors logs in the console indicating a violation of the Content-Security-Policy. The error log will usually indicate which resource request (e.g. a URL) is violating which directive of the Content-Security-Policy.

Workaround

In Business Architect, open the Active Enterprise settings and select the ‘Security’ tab. This tab contains a field named ‘Visualization Content Security Policy’ which enables a solution administrator to modify the content-security-policy which is used for Custom Visuals. By adding the necessary statements to the relevant directives, the policy may be relaxed to allow access to the required resources without compromising the security of the application.

Note: The Visualization page receives two content-security-policy instructions, one specific to Visualizations and also the site-wide content-security-policy which is specified as a custom header in the web.config file. For any given directive, the browser will enforce the most restrictive of the two policies.

Therefore, for the amendments to the ‘Visualization Content Security Policy’ to work in Active Enterprise, any additions made to the ‘Visualization Content Security Policy’ must also be added to the Content-Security-Policy header value which is declared in the web.config file. Note that the additions should be made individually for each directive, do not overwrite the entire policy.

```
<system.webServer>
...
  <httpProtocol>
    <customHeaders>
      ...
      <add name="Content-Security-Policy" value="default-
src..."/>
```

Editing a form fails with System.Runtime.InteropServices.COMException

Message:

System.Runtime.InteropServices.COMException Retrieving the COM class factory for component with CLSID {25336920-03F9-11CF-8FD0-00AA00686F13} failed due to the following error: 800703fa Illegal operation attempted on a registry key that has been marked for deletion.

Workaround

Restart the server, it should not return. This was discovered on a server that had not restarted for over 30 days, and this was possibly caused by Windows Updates.

Starting Active Publisher / Visiting the web page fails with System.Runtime.InteropServices.COMException

Message:

[COMException (0x80040154): Retrieving the COM class factory for component with CLSID {F6E98D2C-3767-4B23-B16D-194D6B4BA973} failed due to the following error: 80040154 Class not registered (Exception from HRESULT: 0x80040154 (REGDB_E_CLASSNOTREG)).] (or similar, possibly with ValidateThisExeAgainstBusinessArchitect in the exception message).

Workaround

This may be caused if the Application Pool in IIS does not have the *Enable 32-bit applications* setting enabled.

Starting Active Publisher / Visiting the web page fails with System.Runtime.InteropServices.COMException

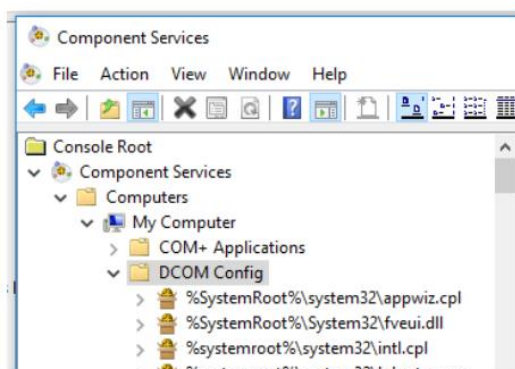
Message:

An error occurred while loading the requested model. Retrieving the COM factory.... 8007005 Access is denied. ... E_ACCESSDENIED. Or similar.

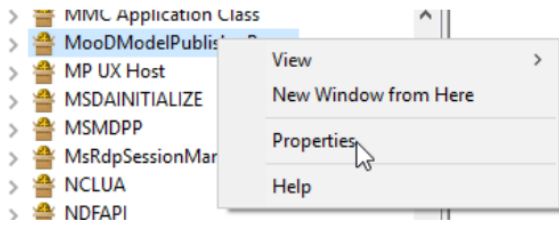
Workaround

This may be because the Windows User account used by the IIS App Pool does not have *Activation* permissions to our COM component MoodModelPublisher.17

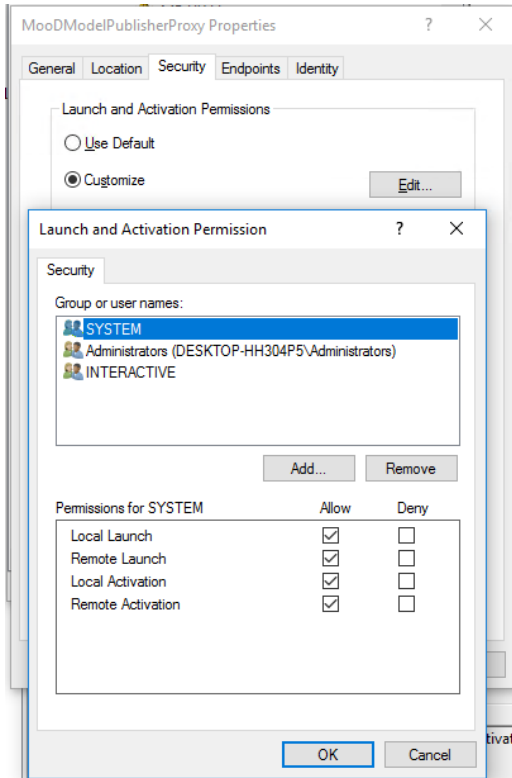
Launch DCOMCNFG.



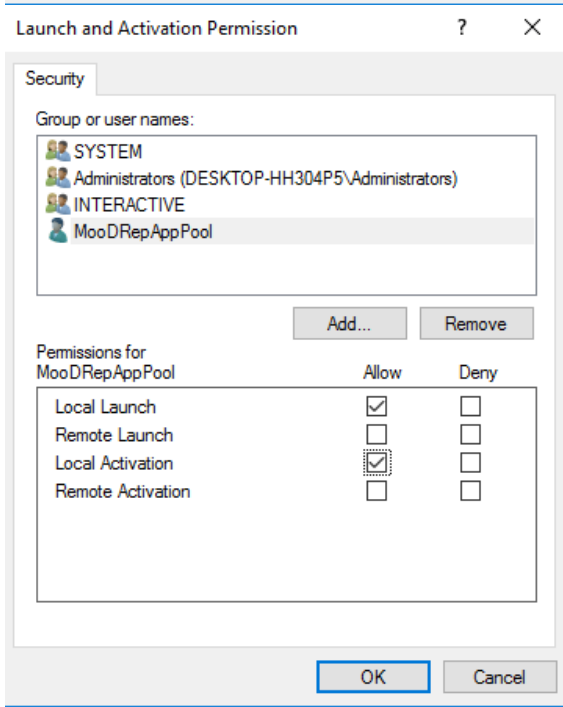
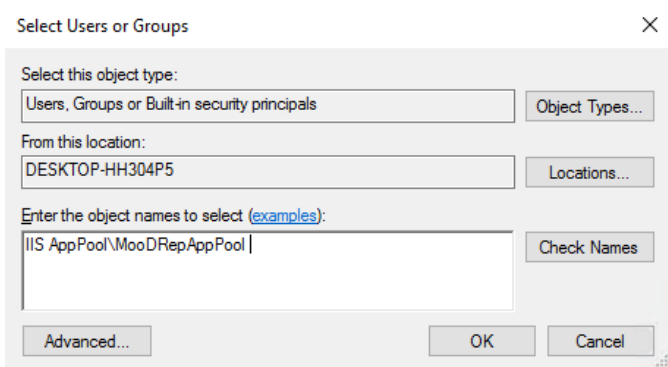
Find the MoodModelPublisherProxy node, and view the properties of it.



Go to the **Security** Tab, and click **Customize** on the Launch and Activation Permissions.



Click **Add...** and add the Application Pool user i.e. MoodRepAppPool, giving them 'Local launch' and 'Local Activation' permissions.



- Apply these changes and close the DCOM Configuration windows.
- Now try the Active Publisher site again, your login model should now load!

Tips on fixing display changes with XHTML and Custom Visualizations which arise from the change from “Quirks mode” to “Standards mode”

Any web rendering changes encountered due to the change from “Quirks mode” to “Standards mode” rendering are likely to be differences in the height of HTML elements, or in the vertical spacing between them. Of the stock Mood web components which needed changing, most were addressed by applying the one or more of the following Cascading Style Sheets (CSS) properties to the affected elements:

`/* This is the most common fix, particularly for elements which are inline */
vertical-align: top;`

`/* This can be necessary for some container elements, as under some circumstances Quirks mode treated elements as though they had line-height: 0; However, the property is inherited by child elements, so child elements will probably need to be given line-height: normal; */
line-height: 0;`

The easiest way to try CSS changes to a web panel in order to determine what elements need which properties is to use the browser's Developer Tools, which allow editing of the page CSS and show changes immediately. Once the required changes are known, they can be saved to the solution as follows:

- XHTML panels have a specific CSS tab which allows specification of bespoke CSS.
- Custom Visualizations can have CSS added to a .css file in the package (which will then need to be imported as a new version), or can have bespoke CSS added to an instance of the Visualization by selecting 'Edit Style' in the panel settings.

Active Enterprise fails to start

Message

Server Error in '<your application>' Application.

Could not load file or assembly 'CefSharp' or one of its dependencies. An attempt was made to load a program with an incorrect format.

Solution

Incorrect format exceptions typically indicate an incompatible mix of 32bit and 64bit technologies. In this particular instance, after an update of .Net 4.8 (or windows update), the Application Pool of the IIS worker process had somehow had the *Enable 32-bit applications* property changed to be **False** in the Advanced Settings window. This property needs to be **True**.

"The action you requested has not been performed, please refresh the page or try again" in Notification Bar

This message is raised by default when the Cross Site Request Forgery (CSRF) protection mechanism identifies that a request has the characteristics of a CSRF attack. As the mechanism is based on cookies, this can fire on 'false positives' under certain web environment circumstances.

If this happens frequently in an environment, it is possible to fine-tune or disable the mechanism to enable continued use of the Mood web site, although this may come at the cost of increased vulnerability to CSRF attacks.

If this is encountered as a problem when using Web Preview, the CSRF protection can be switched off in two ways:

- For all users of a Repository by unchecking the 'Web Preview CSRF protection' option on the Security tab of the Active Publishing Settings;
- For all web preview running on a specific machine by adding a specific Registry key – please refer to Mood Support for details.

If this is encountered as a problem for users of Mood Active Enterprise, the properties of the CSRF protection mechanism can be fine-tuned by using settings in the web.config file. Notes and guidance on doing this can be found in the web.config file.

If this suddenly becomes a problem for MAE users after upgrading to Mood 17, it is possible that the cause is the additional SameSite="Strict" cookie property. This behaviour can be reverted to the same as Mood 16 by setting the attribute in the web.config file: sameSite="".

Business Architect

Drawing artefacts with ultra-high resolution screens

When users view Mood Business Architect with an ultra-high resolution display, for example 3840x2160 pixels, the user interface may look cramped, icons are too small, controls overlap and some buttons may be awkward to press. Many of these issues are a direct result from increasing text scaling in the Display Settings. Mood has addressed many such issues, but some may linger and be visually unappealing. We will continue to resolve these issues over time. For the best experience, we recommend using Mood at 100% magnification on a lesser resolution.

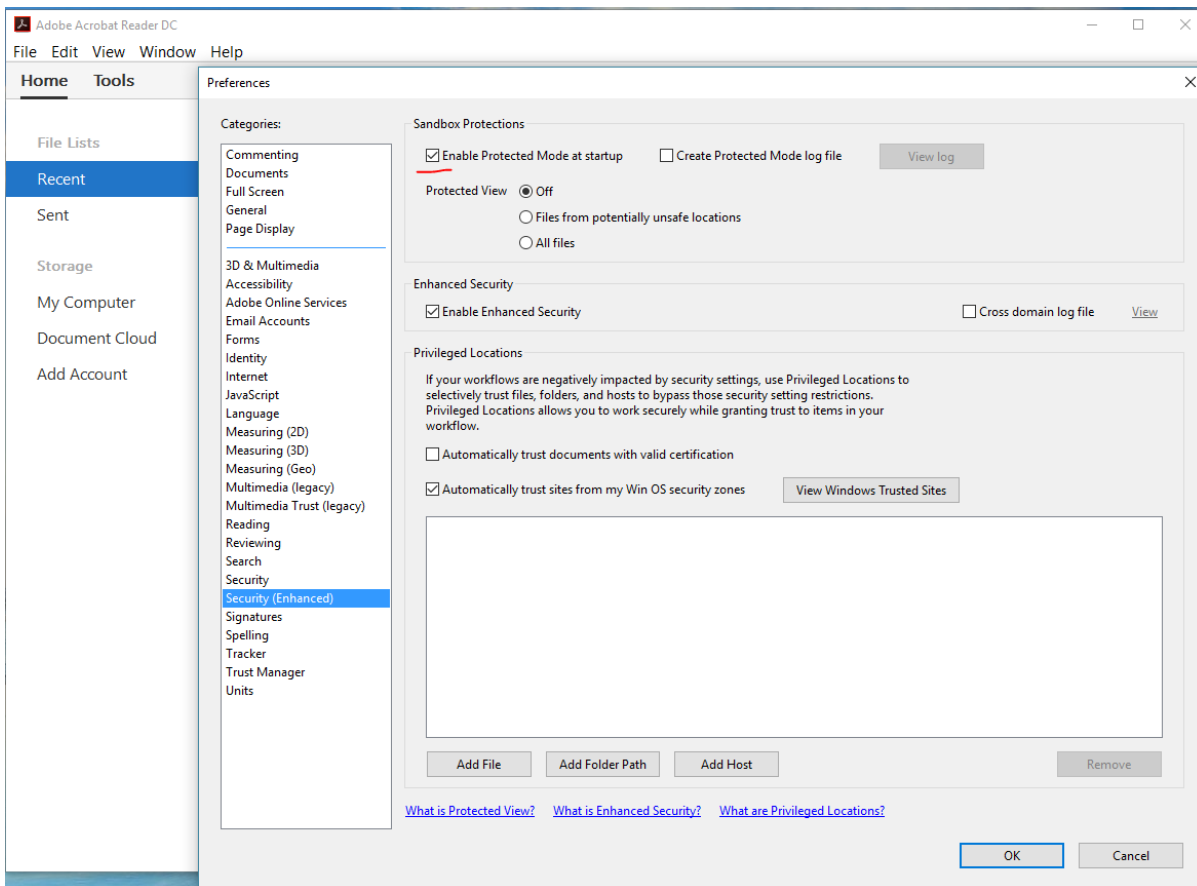
Using Citrix with multiple monitors and different text scaling

When using Citrix with multiple monitors where each monitor has mixed text scaling factors, mouse clicks can appear to be 100 pixels away from your intended location. Business Architect can also render as a completely black box, making the product unusable. When both displays are set to 100% scaling, this issue does not occur. As of writing, this is not a scenario supported by Citrix XenDesktop or XenApp environments, [see here](#) for more details.

Helpfiles do not launch

Helpfiles for Mood products are shipped in Adobe Acrobat format (.PDF). When you press F1 or navigate to them via the menu systems, you may receive messages asking how you would like to open the file. If you have installed Adobe Acrobat Reader DC, and have associated the product with PDF files yet are *still* being prompted, please use Acrobat Reader to open the files yourself, located in the Mood Installation folders.

The alternative is to turn off security features in Adobe Acrobat Reader, which we **do not recommend**.



Microsoft Office Automation - May Require Visual Basic for Applications

MooD does not require Microsoft Office products to be installed unless the following functions are used:

- Document comparisons in the Archive feature of Document Exports.
- Excel Native mode for Excel synchronizers.
- Selecting Excel data ranges when you have enabled the registry key `TryUseExcel` (see later).

In this scenario Visual Basic for Applications must be installed as part of your Microsoft Office installation. It is installed with a typical Microsoft Office installation, but can be omitted during a custom installation.

Formatted text editor displays red error text after a long wait. Some graph panels show after a very long wait.

This appears to have been an issue introduced by the installation of .NET 4.8, as part of the May 2019 Windows Feature update, and is subsequently fixed in [KB4511555](#) released August 30th 2019.

An alternative workaround is,

- at the Windows search bar/Cortana, type 'OptionalFeatures.exe', press Enter.

- Scroll down and expand Internet Information Services
- Expand World Wide Web Services
- Expand Security
- Tick Request Filtering
- Wait for the update to install and then retry the action. (You may have to restart Business Architect).

Copy and Paste actions fail for Formatted Text fields

Some security policies, especially in Windows Server Operating Systems, may restrict the programmatic access to the clipboard for Internet Explorer. Whilst this may seem unrelated, the Formatted Text editor in Mood Business Architect is a mini IE control, which is unfortunately tied to the settings for Internet Explorer. To change the security setting required:

- At the *type here to search* prompt in the Windows taskbar, type **Internet Options**.
- In the **Security** tab, select the **Internet zone**.
- Click the **Custom Level...** button.
- Scroll down to the **Scripting** section.
- Set **Allow Programmatic clipboard access** to **Enable**.
- Press **OK**.
- Press **OK** again to close the **Internet Options** and apply the change.

Knowledge Activation

Cannot connect to a document stored within a public folder on a Microsoft® Exchange server

When following an Activated link to a document stored in a public folder (also known as a **freedoc**) on an Exchange server, a **HTTP 403 (Forbidden)** response is served.

Workaround

Microsoft® recommends that you use controlled access folders when access to **freedocs** is required. See Microsoft Knowledge Base article [KB834743](#).

Errors when copying files and folders onto Microsoft® SharePoint® portal server

When copying folders into a Microsoft® SharePoint® server (by dragging a folder over the explorer view) files that have illegal characters will cause an error message of the form **An error occurred copying some or all of the selected files**. The files will not have been placed onto the SharePoint server.

A folder with illegal characters will trigger a similar, but more detailed message:

Unable to create a folder named <Name of folder>. Please enter a different name.

This is likely to happen when a published site contains Knowledge Centres within its structure (probably via the **Copy into Publication** option).

Workaround

Ensure that all files and folders to be copied do not have illegal characters in their names, including:

`/ \ : * ? " < > | # <TAB> { } % ~ &`

An Activated link to a file that is stored in the published site is not relative

If a Knowledge Centre is published to the same path as the Mood® web publication, Knowledge Activation should recognize this and create associated Activation links with relative addresses (of the general form `.././kc/file.ext`).

This detection fails when illegal characters are used in the Knowledge Centre's publishing path. These illegal characters prevent the comparison of paths working. This is because the illegal characters in the path will be replaced with hexadecimal numbers.

Workaround

Ensure no illegal characters are used in Knowledge Centre publishing paths when it is important that the Activated file is accessed by a relative link. Illegal characters include:

`% / # ? * ! <SPACE>`

In general, all punctuation and whitespace, except minus and underscore, should be avoided in Knowledge Centre paths.

Changing Activator appears to lose properties from current Activation

If the Activator for a current Activation is changed, for example from a Word Document Activator to a Text File Activator, the properties that were used in the original Activation are not carried through to the new Activator. Clicking **OK** at this point, with no properties set, will then remove the Activation. Clicking **Cancel**, however, will reset the Activator and properties to their values prior to changing Activator.

Workaround

None. This is expected behaviour. Activators are not guaranteed to have compatible properties from one to another, so previous properties cannot be safely reused after changing Activator.

Administrator can't open read-only repository (or repository using read-only driver)

If the Administrator repository user opens a repository, Knowledge Activation will attempt to add a version stamp to the repository. This will fail, as the repository cannot be written to, and the following error will appear:

The database has reported a problem. If the problem re-occurs try re-starting Mood. Otherwise, contact the Administrator of this repository.

Non-administrator users will not encounter this error.

This only affects repositories which are set to read-only (or the driver used to access them is set to read-only using Repository Manager), and which have never been opened by the Administrator user with a previous version of Knowledge Activation installed.

Workaround

Before opening a repository for the first time ensure that the repository is not read-only, open the repository, close it again, then reset its read-only attributes.

First open of upgraded repositories may take a long time

After upgrading, it may take a long time to open the repository. Knowledge Activation needs to update Activations in the repository to the latest format.

The time this operation takes is linked to the repository size, the number of activations, the speed of the computer, and the speed of the network connection (if any).

Workaround

None. This is expected behaviour.

Activated links are broken after partial merge

After partial merge (Business Architect->File->Import), imported Activation links are broken because the Knowledge Centre the resources link to is not present.

This will only happen if the receiving repository does not already contain the same Knowledge Centre definition (with identical identifier).

Workaround

Ensure the receiving repository has the Knowledge Centre definition. This is best achieved through the working practice of partially merging satellite repositories into a master repository where the Knowledge Centre is initially defined. Satellite repositories should initially be created from the master using full integration once all Knowledge Centre definitions have been created.

Multiple select in the explorer bar

Several elements can be selected together in the MooD Business Architect explorer bar. If the pop-up menu is displayed while several elements are selected, then there is an activation option. Clicking this option will only activate the element that was selected last.

Workaround

Do not use multiple select to activate several elements at once.

Microsoft Visio® Business Integration Activator

Matrix and Measure properties not supported

Matrix and Measure properties are not included in the output as there is no place in Visio to represent these properties. Formatted text, Reference, Inputs and Outputs and Simple type properties are included as custom properties of the Visio shape.

Incorrect shape size

Some Visio shapes may not be the correct size. Models from some repositories upgraded from older versions may not display the shapes in the document output at the right size.

Workaround

This can be worked around by resizing the elements in Business Architect.

Incorrect shape orientation

Some Visio shapes may not be oriented correctly. Any element that has been rotated in Business Architect will not be shown rotated in the output document.

Workaround

There is no known work around for this apart from not rotating elements.

Shape style

The style of the element in Business Architect may not match the style of the Visio shape, including the type of shape, and the line, text or fill style. This is the main reason for the three different types of export, each export tries to set the style of the Visio shape using a different method. It is then up to the user to select how they want the output shape to be formatted, by selecting the appropriate export activator.

On import, if the Visio shape was based on a stencil, then a style is created or matched to in the style gallery based on this stencil. This style can then be edited so all elements representing Visio shapes from the same stencil can have the same properties. The style may then be used to match back to the original stencil to recreate the shape in an export using a style master document.

Microsoft® Project Synchronization Activator

The export activator is not intended for creating new MPP files from existing project data

It is designed to create MPP files for data that is original to Mood.

If you do export data brought in from Project, some information will be missing from the new file. For example, the project start date in the original project is not copied into your new file. Similarly, calendar and shift information will be missing, which may affect the duration and start dates of tasks.

Synchronization Activator Technologies

Localhost isn't recognized when configuring Manage Connections

You may be unable to communicate with SQL Server when specifying *localhost* in the Manage Connections dialogs.

Workaround

Try using the machine name MACHINENAME or 127.0.0.1 (adding the \instancename if required), or use SQL Server Configuration Manager to enable named pipes as a connection protocol.

Selecting Ranges In Excel - general

As of Mood 16.057, the Excel Range selector interface, which enables the user to specify the cell ranges and headers from Microsoft Excel spreadsheets, has been modified to use an internal engine in preference to Microsoft Excel's Interop API. This should provide a faster start-up time and prevent Excel.exe appearing in your list of running tasks.

However, if you encounter problems using the internal engine, it is possible to instruct Business Architect to use Excel first, in preference to the internal engine.

This instruction is specified in a Windows Registry Key value which may exist in the Current User or Local Machine sections of the registry. (Using the Regedit application)

Under

```
Computer\HKEY_CURRENT_USER\Software\Mood International\Business Developer\16.0
```

```
Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Mood International\Business Developer\16.0
```

Create a sub key called `ExcelSelector`

Within the key create a string value called `TryUseExcel`

Modify the Data of this value to say `On` to use Excel, or `Off` to not use Excel. (Off is the default).

The Current User key, if it exists, will take precedence over the Local Machine key.

If you do not have permission to use RegEdit, you can copy all the following text and save as a .reg file.

```
Windows Registry Editor Version 5.00
```

```
[HKEY_CURRENT_USER\Software\MooD International\Business Developer\16.0\ExcelSelector]
```

```
"TryUseExcel"="On"
```

Then, open a command prompt and assuming your file is called useExcel.reg located in c:\temp

```
Reg.exe import c:\temp\exceluse.reg
```

Using Synchronizations with Microsoft Access 2010 .accdb format files

If the Excel Import does not recognize the **.accdb** file format, you need to install the Microsoft Access Database Engine 2010 32 bit Redistributable from this location:

<http://www.microsoft.com/en-gb/download/details.aspx?id=13255>

If you have a 64 bit version of Office installed, you need to run this installer from the command line using the /passive option ([see here](#)):

```
AccessDatabaseEngine.exe /passive
```

Saving Synchronization Activations creates temporary assemblies in the TEMP folder

Synchronization activators use Microsoft .NET Framework® XmlSerialization to save serialization activations. The use of XmlSerialization creates and executes assemblies in the **TEMP** folder. If a policy has been set which prevents execution of assemblies in the **TEMP** folder, saving synchronization activations will fail and the following error will be shown:



Workaround

To change this location modify **MooD.exe.config** in your MooD installation folder and add the **system.xml.serialization** section as below (note the double \\ when specifying folder paths):

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
<system.xml.serialization>
<xmlSerializer tempFilesLocation="c:\\tempfolder"/>
</system.xml.serialization>
</configuration>
```

Excel imports may unexpectedly clear fields or create empty measures

Excel formats that include either hierarchies or metric grids may clear fields or create empty measures unexpectedly. This occurs when either a hierarchy has been compressed (Fig a) or a metric grid has missing entries (Fig b).

	A	B	C	D
1	Continent	Country	City	Value
2	Europe	England	London	10,000

Fig a Compressed Hierarchy

	A	B	C	D
1	Name		2006	2007
2	London	Sales	15	20
3		Return	20	30
4	York	Sales	9	12

Fig b Missing Metric Values

It is not always obvious that fields on the record description may not actually be specified within the source data. Those which are undefined will be cleared within Mood. In the above examples (Fig a) the Value field for Europe and England will be cleared, in (Fig b) the Return 2006 & Return 2007 fields for York will be cleared.

Workaround (Hierarchy)

Specify all the data explicitly, where each row represents a single hierarchical element with a defined value. Alternatively run 2 separate imports, the 1st importing a hierarchy, the 2nd importing values for elements, skipping elements if necessary by excluding them from the source data.

Workaround (Metric)

Ensure all the metric values are specified explicitly, or run individual imports for each measure, skipping elements if necessary by excluding them from the source data.

Imported themes not visible

If an import is used to add new themes to a repository, the new themes are not visible in Mood Business Architect until it is restarted. This is because the list of themes is not refreshed in Mood Business Architect.

Workaround

Close then reopen the repository. The newly created themes will then be visible.

XML exports may take a long time to complete

Using an Activator that exports data from the repository may take a long time to complete. The time the export operation takes is linked to the size of the repository, not the size of the tree being exported. Export Activators create an XML representation of the entire repository before transforming this into the desired format, so larger repositories will take longer to perform exports.

Workaround

None, this is expected behaviour.

XMI® Business Integration Activator

Rational Rose XMI not imported into Mood

If a UML Model in Rational Rose has been exported into XMI using version 1.3.4 or above of the Unisys XML Tools for Rational Rose, then the XMI will not be imported into Mood Business Architect. This is due to the fact that the targeted version of the Unisys XML Tools is 1.3.2.

Workaround

Use version 1.3.2 of the Unisys XML Tools for Rational Rose to export UML models into XMI.

Business Integration Engine

Business Integration Engine Requirements

Business Integration Engine requires that Mood is installed beforehand and also requires a specific Server Licence. The Licence must be installed via Repository Manager as **Administrator** and then applied to **All Users**.

When installing the Business Integration Engine, the background service will automatically start before you have the opportunity to install a licence. Thus, after you have configured a valid licence you may need to restart the **Business Integration Engine 16** service in the *Windows Services* applet.

Business Integration Engine and Active Enterprise do not support licence server based licensing

Business Integration Engine and Active Enterprise do not support licence server based licensing. To correctly license these services you should request a node locked licence from Mood Support. This is by design.

MooD Licence Server

MooD Licence Server Requirements

The MooD Licence Server requires that MooD is installed beforehand and also requires a specific Server Licence. The Licence must be installed via Repository Manager as **Administrator** and then applied to **All Users**.

When installing the Licence Server, the background service will automatically start before you have the opportunity to install a licence. Thus, after you have configured a valid licence you *may* need to restart the **MooD Licence Server** service in the Windows *Services* applet.

MooD SSIS Execution Synchronizer usage and guidance

The MooD (SQL Server) *SSIS Execution Synchronizer* can be used to execute SSIS packages on local or remote SQL Server Integration Services instances.

Some actions may be necessary when building the environment to enable SSIS synchronizers to access the SSIS packages. The nature of these actions differs according to the version of the SSIS instance and whether the target SSIS instance is on the same machine as MooD, or on a remote machine.

The steps necessary to enable the synchronizer to access the SSIS package will differ according to the version of the SSIS instance and whether the instance is installed on the local or a remote server.

Execute SSIS packages on SSIS 2008 R2 on local machine

Prerequisites on local machine:

- MooD
- SQL Server 2008 R2 with “Integration Services” and “Client Tools Connectivity”

In the SSIS Execution synchronizer, use the ‘local’ SSIS Connection.

Execute SSIS packages on SSIS 2012 on local machine

Prerequisites on local machine:

- MooD
- SQL Server 2012 with “Integration Services” and “Client Tools Connectivity”
- Install the MoodSSISExecution service for SQLServer 2012 as detailed below.

In the MooD Repository, from the **Synchronizers** library, create a new SSIS Connection to the local machine (as though it were a remote machine). Provide the server details for the local machine and specify the port on which the MoodSSISExecution service is listening.

Execute SSIS package on SSIS 2008 R2 on remote machine

Prerequisites on local machine:

- Mood

Prerequisites on remote machine:

- SQL Server 2008 or 2008 R2 with “Integration Services” and “Client Tools Connectivity”
- Install the MoodSSISExecution service for SQLServer 2008 R2 as detailed below.

In the Mood Repository, from the **Synchronizers** library, create a new SSIS Connection to the remote machine. Provide the server details for the remote machine and specify the port on which the MoodSSISExecution service is listening.

Execute SSIS package on SSIS 2012 on remote machine

Prerequisites on local machine:

- Mood

Prerequisites on remote machine:

- SQL Server 2012 with “Integration Services” and “Client Tools Connectivity”
- Install the MoodSSISExecution service for SQLServer 2012 as detailed below.

In the Mood Repository, from the **Synchronizers** library, create a new SSIS Connection to the remote machine. Provide the server details for the remote machine and specify the port on which the MoodSSISExecution service is listening.

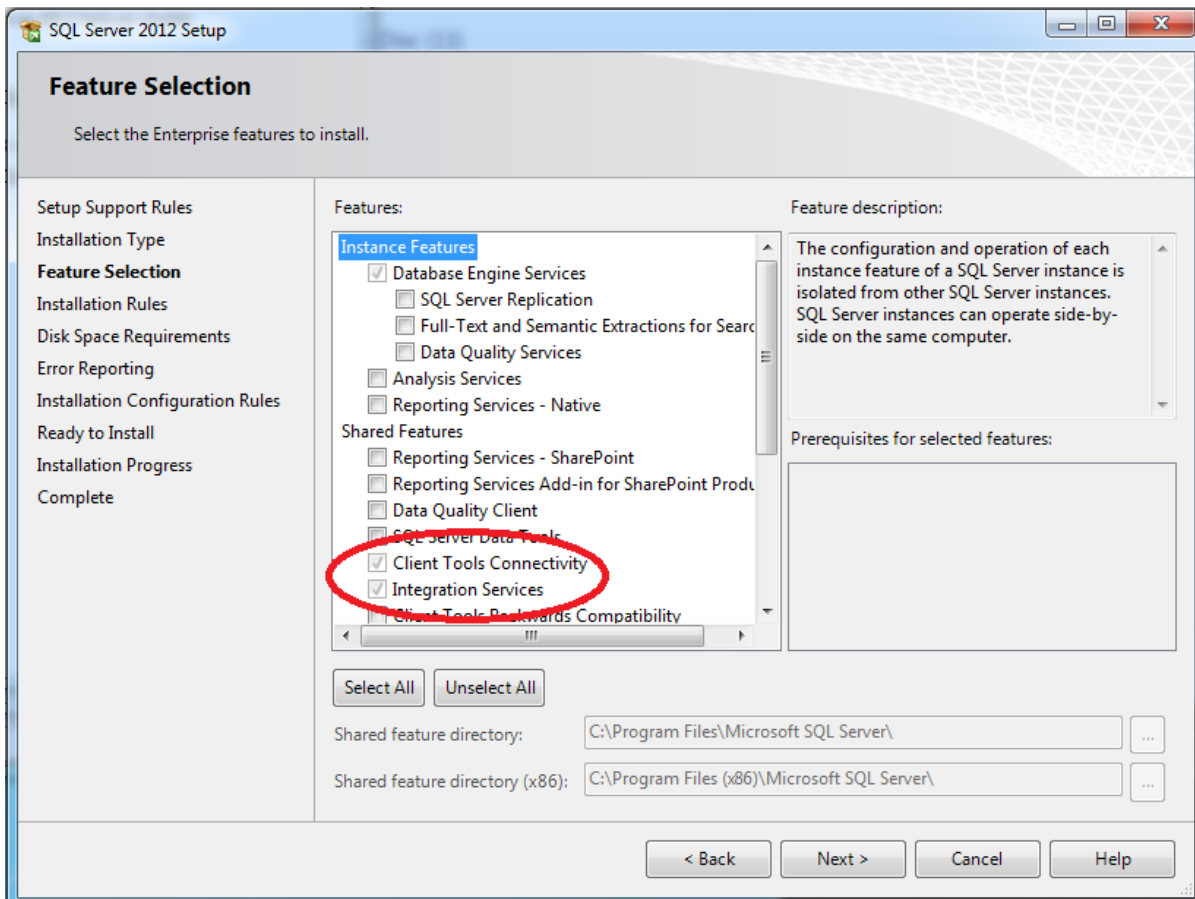
Execute SSIS package on SSIS 2014 or above

Instructions as per SSIS 2012.

SQL 2016 must be version 13.0.4199.0 (SP1) or above.

Installing SQL Server “Integration Services” and “Client Tools Connectivity”

The “Integration Service” and “Client Tools Connectivity” features can be installed from SQL Server installation media.



Installing MoodSSIS Execution service

The Mood SSIS Execution service must have access to the Microsoft.SQLServer.ManagedDTS.dll assembly and any dependencies. By installing the SQL Server “Client Tools Connectivity” these assemblies will be installed to the Global Assembly Cache and hence be available to the service on the machine. It should be installed on the SQL Server machine, and enables the BIE Engine to communicate to the SQL/SSIS server wherever it may be.

If the “Client Tools Connectivity” features have just been installed, the machine may need to be restarted to ensure these assemblies are available.

Delete the MoodSSISExecution.exe.config file

If the MoodSSISExecution service has already been installed, uninstall it prior to deleting the config file.

Locate the MoodSSISExecution.exe.config file in an installed version of Mood 16. On a default installation, it can be found in the following location:

C:\Program Files (x86)\Mood\16\Business Activation\MoodSSISExecution.exe.config

Delete this file.

Install MoodSSISExecution service

On the machine on which the SSIS packages will be run, open a command prompt as administrator.

In the command prompt navigate to the folder which contains the MoodSSISExecution.exe file

```
cd "C:\Program Files (x86)\MooD\16\Business Activation"
```

And execute the MoodSSISExecution with appropriate flags

i.e. For SQLServer 2008

```
MooDSSISExecution /install 2008
```

This will install the MoodSSISExecution service which will listen on port 50016 by default.

It will also create a new version of the MoodSSISExecution.exe.config file. This file is required for operation of the service.

Changing the MoodSSISExecution service port

The default port for the SSIS execution service is 50017, being the same as the default port for BIE.

If it is necessary to install the service on a machine which must also run an instance of BIE, it will be necessary to change the port on which the MoodSSISExecution service is listening.

This can be done by modifying the config file after the service has been imported.

Stop the MoodSSISExecution service (if running).

In the directory in which the MoodSSISExecution.exe was installed, a file named MoodSSISExecution.exe.config will have been created.

Open MoodSSISExecution.exe.config in an xml or text editor add or change the appSettings section as follows:

```
<configuration>
...
<appSettings>
    <add key="port" value="<yourPortValue>" />
</appSettings>
...
</configuration>
```

In the same directory create a copy of the MoodSSISExecution.exe.config file and rename it to be SSISExecution.exe.config

Restart the MoodSSISExecution service.

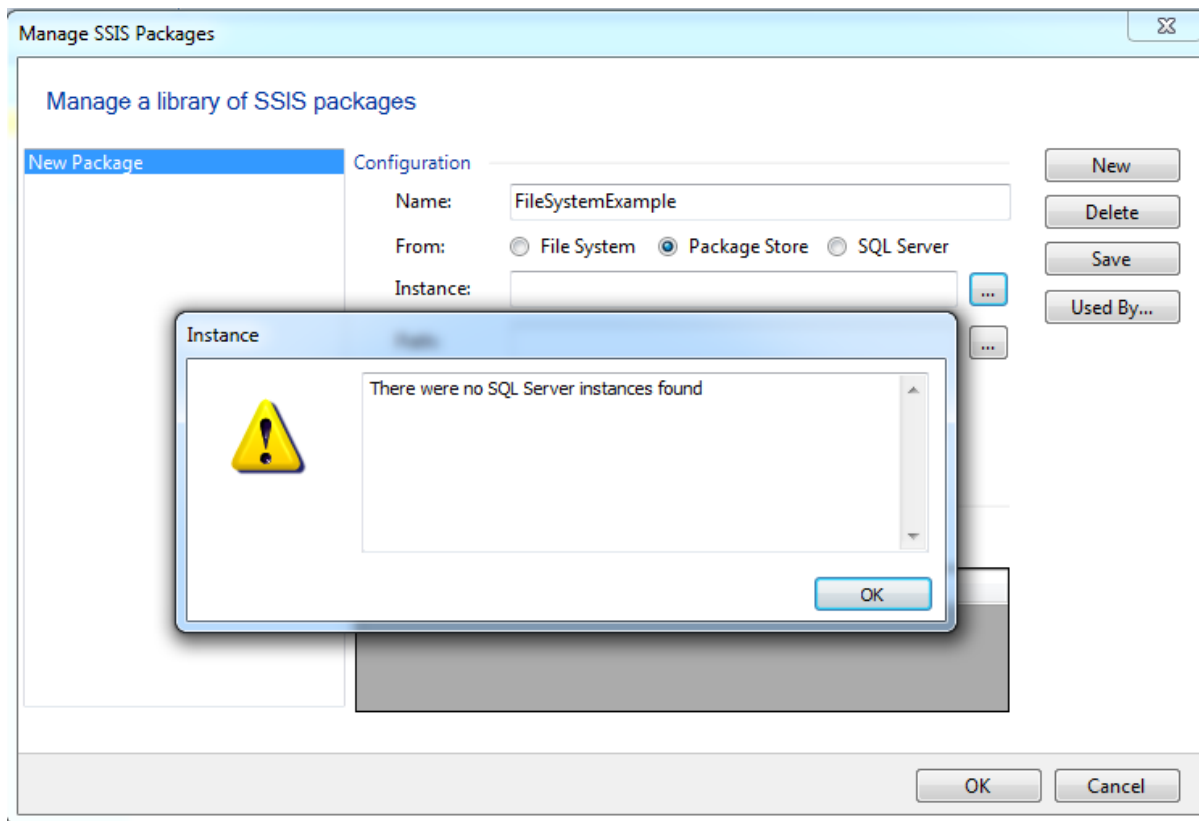
Uninstalling the MoodSSISExecution service

To uninstall the MoodSSISExecution service, locate the MoodSSISExecution.exe file from which the service was installed. Run the executable and the service will be uninstalled.

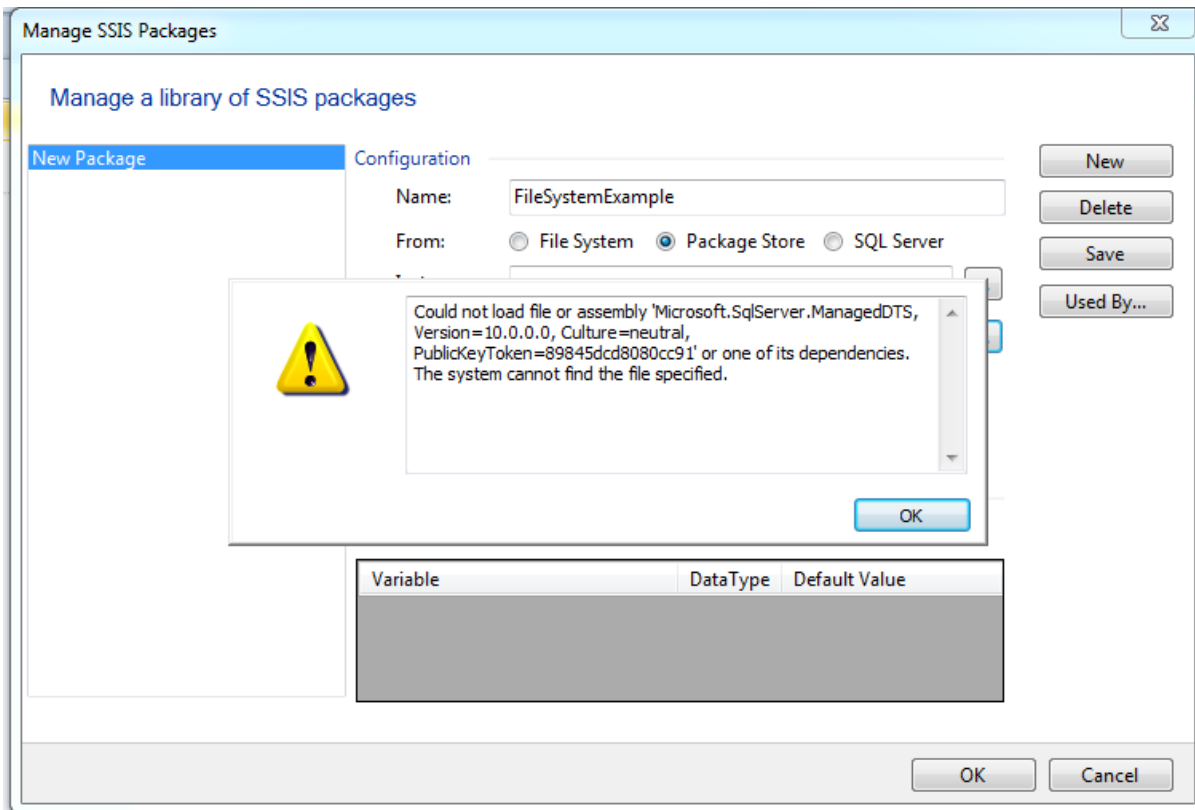
Known issues with SSIS Package configuration on Mood

When the machine which is hosting Mood does not have SQL Server connectivity tools installed, the following behaviours can be encountered when configuring SSIS packages in the 'Manage SSIS Packages' dialog:

'No SQL Server instances found' message when using '...' button to help search for SSIS instances:



Exception when trying to inspect instance for available packages:



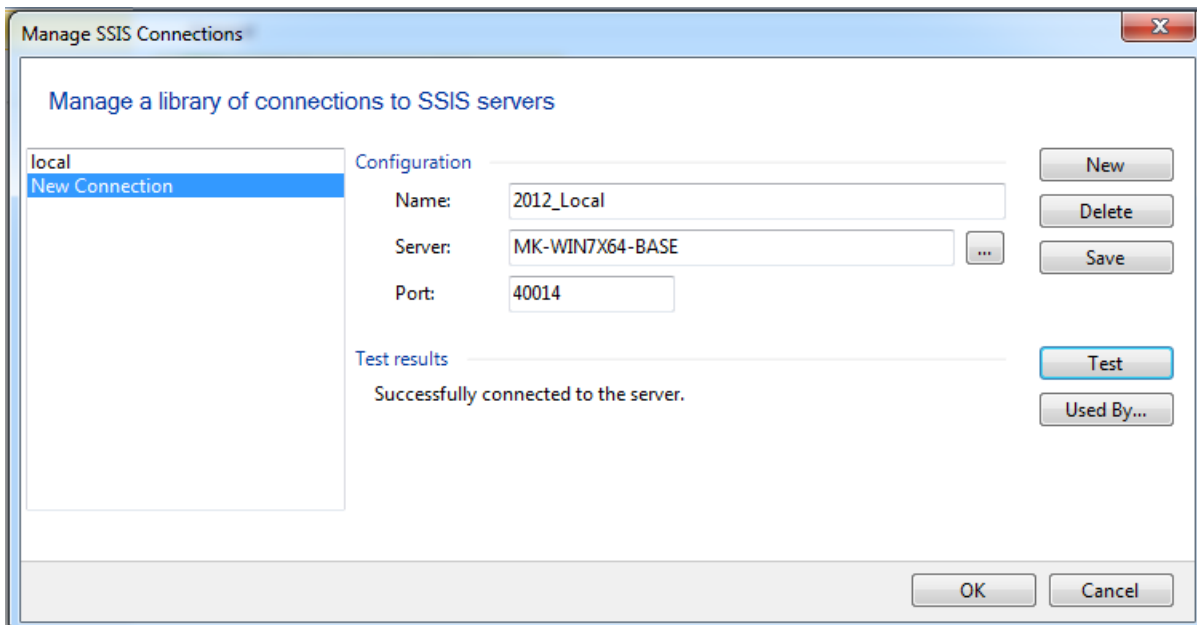
Both behaviours are due to Mood expecting to find the SQL Server connectivity tools which are not available on the server. The values for both fields may be entered manually.

Screenshots from configuration of SSIS Connection and SSIS Package on Mood

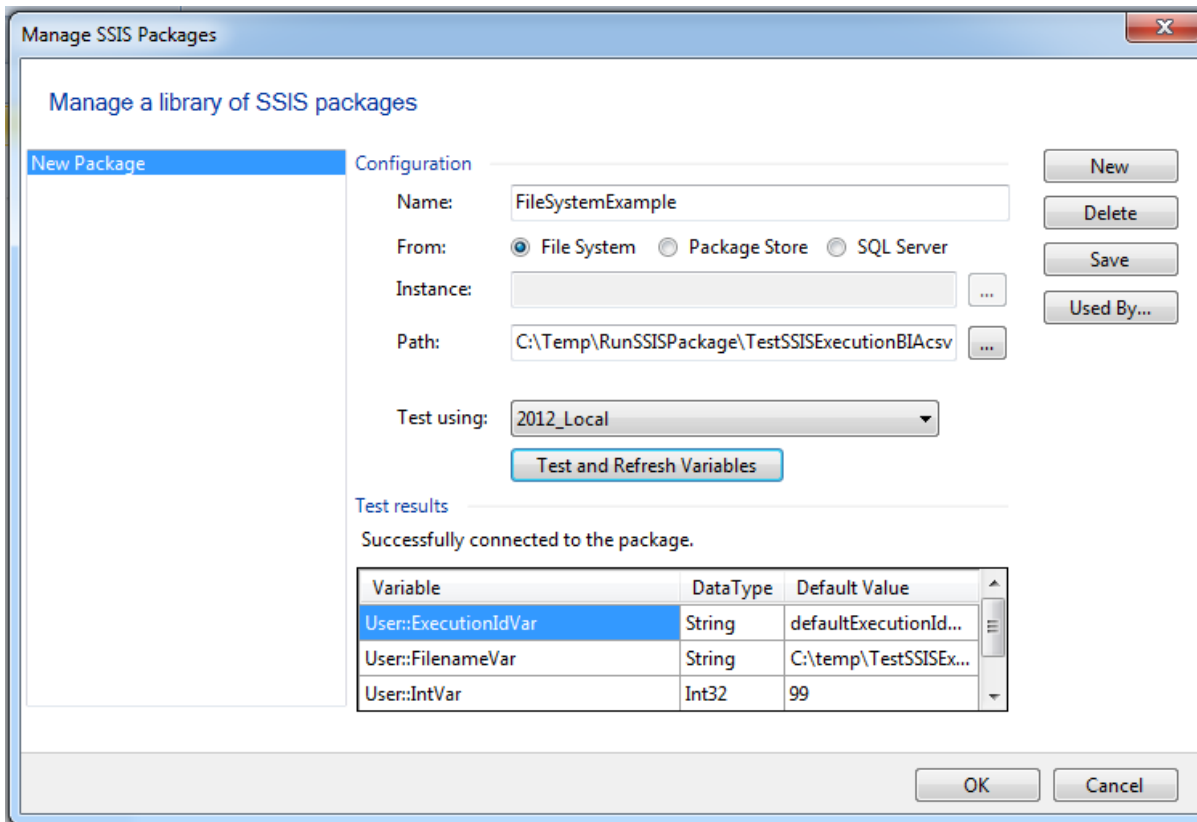
The following screenshots are taken from a sample deployment against SQLServer 2012 on the local machine.

Manage SSIS Connections:

Note the non-default port setting.



Manage SSIS Packages:



System Requirements

NOTE: We no longer specify specific sub-builds of operating systems or dependent products. Modern security principles dictate your programs and system should be up to date. Unfortunately, if issues arise due to the age of the dependent system used, we will not be able to support them.

We endeavour to ensure the most major release of Mood functions on the newest versions of these tools, but we cannot guarantee that versions not listed here will work with old versions of Mood.

Below are the client requirements for Business Architect. See the [next page](#) for the server requirements for the Web presentation layer.

Please note, if you are performing expensive database queries, or generating large reports or manipulating high resolution graphics – specifications need to account for this with appropriate and available RAM, CPU, GPU and Hard drive capacity. If using virtualization, use these specifications as a rough guide for initial sizing, and re-provision as demand grows.

Minimum Client requirements for Business Architect

Minimum requirements for Mood:

- Processor: 2 cores 2GHz CPU 32 or 64 bit
- Memory: 1GB free RAM, after the operating system has loaded
- Display: 1024x768x16bit colour depth or greater
- Hard disk: 2GB free for installation
- Connection to a Microsoft SQL Server database, and an appropriate SQL Server driver (see later)

Microsoft Operating Systems supported (64bit only):

- Windows 10,11
- Windows Server 2016,2019,2022

Browsers supported:

- Microsoft Edge, Google Chrome

Additional components installed when required:

- Microsoft .Net 4.8
- Microsoft Core XML 6 Services SP2
- Microsoft ODBC 18 Driver for SQL Server
- Microsoft Visual C++ 2015-2019 Redistributable

Typical Server requirements for the Presentation Layer (Active Publisher, Business Integration Engine)

Typical hardware (assuming one average sized Mood Repository with 50 users, and no other major services/apps contending for resources, and SQL Server not on the same machine):

Typical requirements:

- 12 Cores, 3GHz CPU
- 12 GB RAM
- 2GB free hard disk space for installation
- 10GB free hard disk space for operational working.
- Microsoft Windows Server® 2019 64bit
- 1 gigabit Network card
- Connection to a Microsoft SQL Server database, and an appropriate SQL Server driver (see later)

Microsoft Operating systems supported (64 bit only):

- Windows Server 2016 or above

Note: Virtual machines configured to use a *Dynamic Memory* technique may cause performance problems due to premature cache-pruning.

Typical Server requirements for the Database Layer

For ultimate security and flexibility, production databases are often housed on a different machine to the Web Server, and thus the latency between web server and database needs to be low, and storage subsystems configured appropriately for the workloads required. Each repository requires careful capacity consideration for data imports, daily usage, log file storage and growth.

Versions of SQL Server

- Microsoft SQL Server 2016 SP1+
- SQL Express *with Advanced Services* can be used for smaller deployments but be aware of their limitations, and be sure to include the Full Text Indexing service.
- Full Text Indexing must be installed (see below for more information)
- Operating systems as per the Presentation Layer, constrained by SQL Server's requirements.
- Tips:
 - Have 1 TempDB per core (can be set up during installation or afterwards)
 - Ensure all TempDBs have an identical initial size and fixed growth factors. (Rather than percentage based).
 - Enable TCP/IP protocols in SQL Configuration manager for the server if you use different machines for SQL and presentation layer.
 - Enable the Named Pipes protocol if using 'localhost' in connections.
 - If you do not need point-in-time recovery, consider changing database recovery models to 'Simple', and taking regular backups yourself. 'Full' recovery model is disk intensive.
 - Develop on the same version of SQL Server as your live environment.

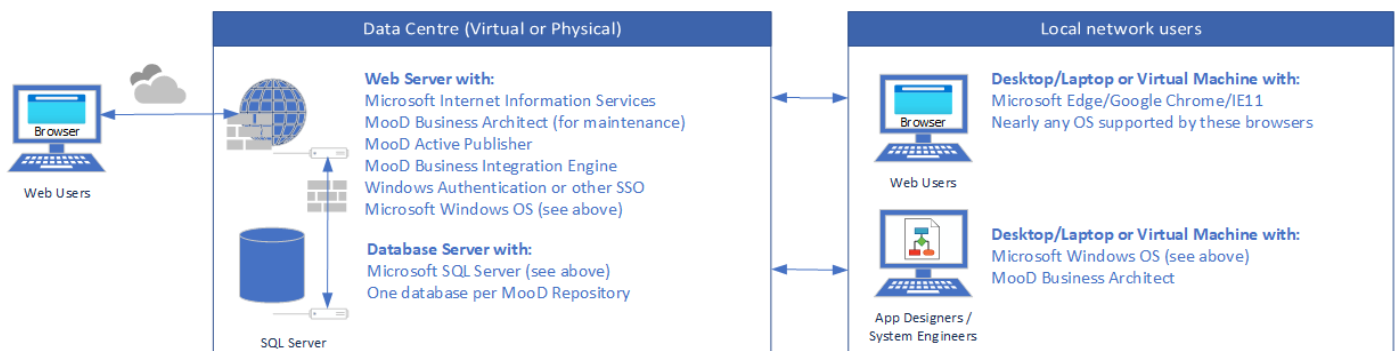
Typical Hardware (increase or decrease based on analysis of queries and user loads)

- 4 cores (3.06GHz processors).
- 16 GB RAM.
- 1 gigabit LAN card
- At least 3500 Read I/O per second, 1000 Write I/O per second, measured by Microsoft [DskSpd](#).
- Note: In comparison, 50k read and 15k write I/O per second is not uncommon for a modern laptop & Solid State Drive.
- Latency between the Web Server and the Database needs to be low, and storage subsystems configured appropriately for the workloads required.

MooD has been verified with the following drivers. These drivers will need to be installed onto any environment hosting Business Architect or Active Enterprise. See information on [how to configure the preferred ODBC Driver](#).

- Microsoft ODBC Driver 18 for SQL Server (default/recommended)
- Microsoft ODBC Driver 17 for SQL Server
- Microsoft ODBC Driver 13 for SQL Server
- Microsoft SQL Server Native Client 11.0

Typical Topology



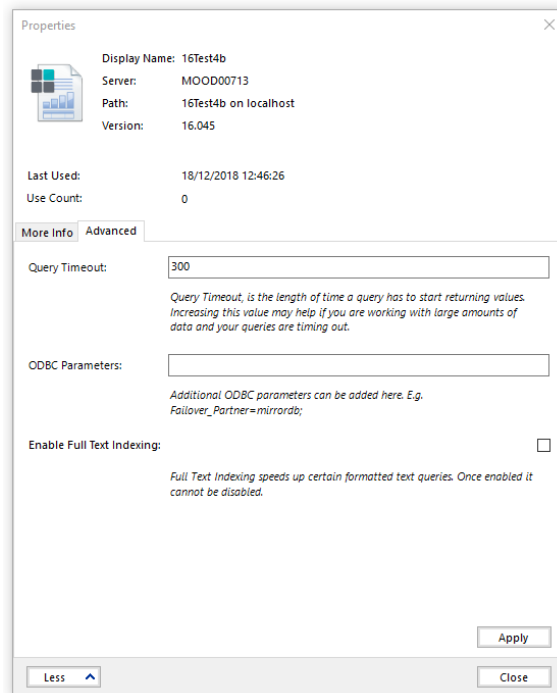
This diagram does not show the multiple further options available with different SQL Server versions, nor does it show the connectivity you may require between internal data sources.

Full Text Indexing and SQL Server

To improve performance for certain MooD Queries which search through Formatted text field values, full text indexing (FTI) services should be installed when SQL Server is installed.

If you are using queries with Formatted text fields and your server is not enabled for FTI, MooD Business Architect will warn you via the Welcome Screen, MooD Repository Manager will warn you in the Advanced Properties page, and when visiting the Active Enterprise page *status.aspx*.

Our support team has put together [this article](#) (account required) to guide you through the process of installing and enabling FTI after installation. In addition, if services are installed but the feature is not enabled in the Mood Repository, Mood Repository manager can enable FTI from the Advanced properties dialog:



Configuring different ODBC Drivers

By default, Mood will attempt to install the ODBC Driver 18 for SQL Server if not already present. Mood has been rigorously tested to ensure compatibility using this driver. However, depending on your client operating system and database server, you may need to change the driver being used. See the tables in [this Microsoft Article](#) to understand the differences in driver versions.

The ODBCPreferences.xml file, installed with the product, specifies the order in which to search for drivers. Users can edit or comment out drivers they do not want to use. Users are unable to change this on a per-repository basis currently. If the first driver doesn't exist Mood will attempt the second, third etc, until it succeeds, or completely fails to find a driver.

For Synchronizers which use alternative database connections:

- ODBC/SQL Server connections will automatically use the preferred driver in ODBCPreferences.xml
- DSN based Connections will use the driver specified in the DSN section of the odbcad (32bit) control panel applet.
- Connection String connections – will use the driver specified in the connection string.

Thus, if you require a specific driver, either use the ODBC Connection or the Connection String syntax.

Due to breaking changes in ODBC 18 to the default security settings, the ODBCPreferences.xml file now supports specifying a set of default ODBC parameters for each driver. These are implicitly added to the repository connection string, and can be overridden both in the Server Properties and Repository Properties in Repository Manager.

When a repository is opened

- Internal Mood defaults are added (i.e. the driver, server and database, authentication).
- Any default parameters from ODBCPreferences.xml are combined and override the above
- extra ODBC parameters from the server settings combine and override the above
- extra ODBC parameters from the repository settings combine and override the above

This mechanism allows for great flexibility and ease of maintenance. For instance –

- you enable encryption and certificate trust settings for all repository connections at once for a server by specifying options in the server connection string.
- You could specify a different ODBC driver for a particular server or repository if there was a critical issue which only occurred in a specific configuration.

It should be best practice if ever required, to add ODBC settings at the server level, and only if absolutely necessary add extra settings at the repository level. Although it is possible, it is **not** recommended to override the username (uid), password (pwd), database or server ODBC parameters. Especially the password, because these extra parameters are visible in plain text, and any repository manager user may see these. However, in a closed server environment, this may be ok.

For debugging purposes, if you need to see the full connection string (passwords are redacted) use Microsoft’s DebugView tool, and monitor the output when opening Business Architect.

Default Ports used by Mood products

The ports which are used throughout Mood’s products are as follows:

Product/use	Port	Override by
Business Integration Engine	50017	Config.xml in the Business Integration Engine folder or via the initial installer. (Ensure the configuration in Active Enterprise settings via Business Architect matches).
Licence Server	50117	Via Repository Manager (on client and server).
Repository Manager Server	50217	Config.xml in the main Mood program folder.
Repository Manager Client	50317	
SSIS Execution Service	50017	MoodSSISExecution.exe.config
SQL Server	1433+	SQL Configuration Manager

		See Configure the Windows Firewall to allow SQL Server access - SQL Server Microsoft Learn
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Repository Manager ports may not require explicit firewall exceptions as they perform communication locally, rather than cross-machine.

Further Information and Contact Details

MooD has a UK based technical support team. The contact details are:

Email: MooDSupport@caci.co.uk

Telephone: +44 (0) 1904 717 316

Web: <http://www.moodsoftware.co.uk>

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