

Arius 2019a

Release Notes and
Installation Instructions



IT TAKES VISION



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1. Release notes

RELEASE 2019A ADDS THE FOLLOWING NEW CAPABILITIES:

1. 64-bit architecture

While 32-bit programs can only access 4 GB of memory, even when running in a 64-bit operating system, 64-bit applications can take advantage of much more memory. This upgraded architecture allows Arius to more efficiently handle files with larger triangles and multiple segments.

Note that this 64-bit version of Arius will continue to work with the 32-bit version of Excel; VBA and macros developed to allow Arius to share data with your 32-bit Excel should continue to work with this new Arius version.

2. Stochastic Model Compilation

The Arius Stochastic system now offers the ability to combine stochastic results from multiple projects and model types into one stochastic distribution. These combinations have two forms:

- weighting results across models (e.g. ODP Bootstrap vs Mack) or projects in a similar fashion to the ODP Summary, or
- combining results, taking into account the effects of correlation among the various results, to get a bottom-line view of your stochastic results across multiple Arius projects.

To use this capability you will first set MODEL OPTIONS | SAVE RESULTS TO FILE to **All Incrementals, by Iteration** before running your selected stochastic models on the individual reserving segments. You will then use these output CSV files (found under the Documents\Milliman\Arius\Sim_Results folder) along with the new **Compilation** tools (🔧 on the ribbon) to create a new compilation file which aggregates your selected results into one combined distribution.

3. Canadian Regulatory Reporting

The Arius Deterministic system now offers special regulatory reports to assist Canadian companies with reporting requirements related to the provisions for adverse deviation (PfADs). These new tables utilize existing loss, ALAE, and salvage/subrogation results and patterns, along with new user inputs for the three margins for adverse deviation (i.e., Interest Rate, Claim Development, and Reinsurance), to derive new summary reports showing results before and after the application of the PfADs.

- When you create a new Arius project these PfAD tables will be in the **Deterministic** node of the navigation pane under **Special Regulatory**.
- To update an existing Arius file with these new tables, open the **Collection Library** to the node labeled DETERMINISTIC | SPECIAL REGULATORY | CANADIAN (PFAD). You can simply drag this folder or collection into the left pane of your project and immediately begin taking advantage of these new tables.

Note: In order for these tables to populate, you need to have values in all supporting arrays. For example, if you are not performing an ALAE or Salvage & Subrogation analysis, you can easily enter zeros in these arrays using the DEFAULTS | DATA feature from the **Home** ribbon.

IN ADDITION TO THE NEW FEATURES NOTED ABOVE, THIS RELEASE ALSO FIXES A FEW ISSUES REPORTED BY OUR USERS.

- We fixed a potential circular reference in the Tail Factor Analysis tool that could cause the system to freeze when using default selections that were tied to resulting curve fits together with the automatic update option.
- We corrected a potential crash that could occur while copying and pasting across multiple Arius projects.
- We fixed a potential crash that could occur in Arius 3.1 when opening certain Arius files that came from ReservePro files with data across multiple layers.
- MODIFY STRUCTURE | COMPRESS ROWS no longer results in unexpected behavior in formula driven assumption tables.
- Column headings on Trended Expected tables needed minor changes to the text (calculations themselves were correct).
- The Stochastic loss ratio tables now correctly refer to the Ultimate Premium array as opposed to the Earned Premium array.
- Stochastic residual graph labels now always reflect the appropriate exposure period type.
- Excluding an entire row of residuals no longer causes refresh issues on the stochastic residual graphs.
- We fixed a potential error situation that could occur in Over-Dispersed Poisson (ODP) stochastic paid loss diagnostics when the incurred loss triangle consisted of a single diagonal.
- ODP time horizon models that are “shifted” to a user’s input now calculate the shift amount using the ultimate unpaid rather than the time horizon unpaid.
- ODP stochastic diagnostics now exclude the prior row when calculating hat matrix adjustments to the residuals (whenever a prior row has been defined in **Project Settings**).

FILE COMPATABILITY

This system will open and work with data files from your current and previous versions of Arius.

Any data files created, edited, or saved in this version 2019a system *will not work with earlier versions of Arius*, and they cannot be shared with others on your team who do not have this new 64-bit version.

NEW TABS

You will find two new tabs on the Arius desktop, **Data** and **Enterprise**. These connect Arius with additional software solutions in the Arius family.

Data provides access to the Triangles on Demand solution. This system retains data at any level of detail, even down to the individual claim level. It can use that data to create Arius files at any level of aggregation, essentially in real time, supporting both routine and ad hoc reviews, and delivering them directly to your desktop, ready for analysis.

Enterprise connects Arius to the Arius Enterprise solution. This is a complete, end-to-end reserve analysis solution, combining:

- company-wide databases of all appropriate analysis data;
- Microsoft Azure cloud-based architecture to support users in multiple locations or departments, typically more efficiently, reliably, and at a lower cost than on-premises implementations;
- tools for automating large parts of the analysis process;
- project management, for monitoring the status of all ongoing reviews;
- governance controls, including logging and journaling, user management, and commercial-grade security; and
- reporting and data visualization data and tools.

Functions on both of these tabs are only active if your company licenses Triangles on Demand or Arius Enterprise. You can learn more about both solutions at www.actuarialsoftware.com.



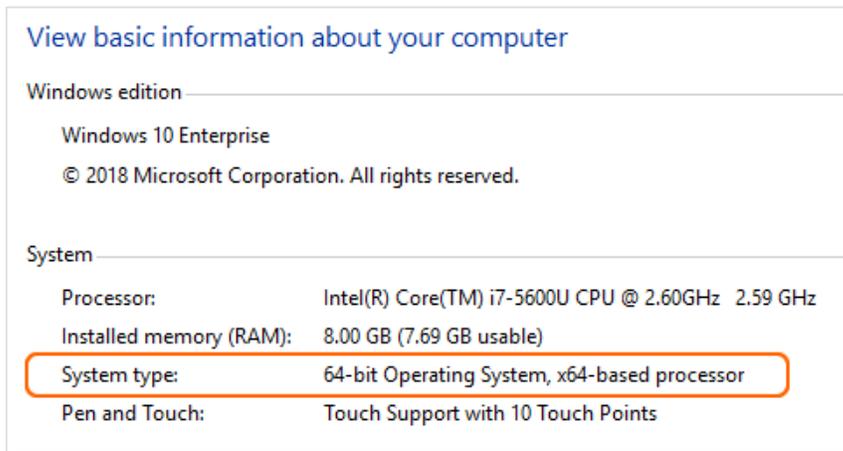
2. Installation requirements

System requirements for the basic Arius system are as follows:

- Minimum operating system: Microsoft Windows 7 + SP1 or newer
- Minimum hard disk space: 3.5 GB
- Minimum RAM: 1024 MB, though 2048 MB or more is recommended
- Related tools: Microsoft Office 2007 or newer (Arius does not support Microsoft Office XP). Arius and its API support both 32-bit (Arius v3.2 and prior) and 64-bit (Arius v2019a or later) versions of Microsoft Office. Arius requires the Microsoft .NET Framework 4.7.2 or newer and Microsoft Visual C++ 2017 Redistributable (x64). (Many Windows installations may already have this; you can confirm it at CONTROL PANEL | PROGRAMS AND FEATURES.)
- An Internet connection for license authentication

In addition, this new system requires a 64-bit operating system. This can be Windows 7, 8, or 10, as long as it's the 64-bit version of any of those. To check your system:

- Select **Start**, type **Control Panel** and press **ENTER**.
- Click to open **System**. You should see something similar to the window below.



3. Installation instructions

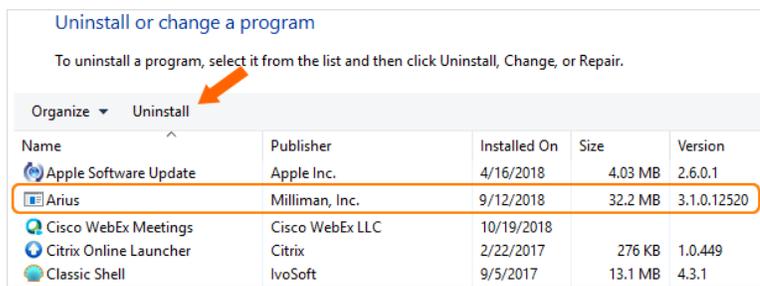
Note: Administrator privileges are required to perform this installation.

In almost all cases, this will be a multi-step installation process. You will:

- **Uninstall any previous version** of Arius software using Control Panel.
- **Run the install program** for the new Arius software, which will likely first require an install of the Matlab runtime.
- **Rerun the installer** for the new Arius software, which will install Arius.

1. First, uninstall previous versions of Arius (3.2.1 or prior).

- Select **Start**, type **Control Panel** and press **ENTER**.
- Click to open **Programs and Features**. A list of the applications on your computer is displayed.
- Select Arius in the list and select **Uninstall**.



2. Make sure any open Excel workbooks are closed before beginning the Arius installation process.
3. Click the **Download** link and **Save** (do not Open) AriusSetup_v2019a.zip onto your computer.
4. Locate the downloaded file and unzip it to **Extract** (do not Run) AriusSetup_v2019a.exe.
5. After it is extracted, right-click on the EXE file and select Run as Administrator. Most users will first need to install a newer copy of the MATLAB runtime system. When prompted to run the Matlab installation, select **Yes** to download the runtime files. The system downloads the MATLAB Installer from the MATLAB site, and you can then follow the instructions to install the runtime.
6. You will then re-run the AriusSetup_v2019a.exe install. **Right-click on AriusSetup_v2019a.exe and select Run as Administrator.**
 - You may also see the system installing the Microsoft Visual C++ 2017 Redistributable (x64) library. This is required for Arius 2019a, and if it is not present on your computer, the install routine will install it from the Microsoft downloads server.

Arius also requires that the Microsoft .NET Framework version 4.7.2 is installed with your operating system. This will already be the case for most users. However, if the installation routine detects that this is necessary, your IT team may need to download this from Microsoft and install it.

4. Additional information

After installation, the application is listed as Arius in your START|ALL PROGRAMS listing.

The system installs with three sample project files. They can be found at:

C:\Users\<yourname>\Documents\Milliman\Arius\DemoFiles or perhaps displayed as
Libraries\Documents\Milliman\Arius\DemoFiles

- Arius_Sample.apj – Sample data with 5 segments, a mix of short-, medium-, and longer-tailed lines of business. This is intended to give you a sense of the system's capabilities and a sampling of how the models can be set up with different assumptions for different lines. Note that all of the segments don't necessarily work with all of the models (much like in the real world...).
- ODP_Mack_Hayne.apj – Sample data with 3 segments, showing a detailed implementation of all three families of stochastic models fully parameterized.
- Hayne_Paper.apj – Contains the data used in Dr. Roger Hayne's paper on Maximum Likelihood Estimator approaches, *A Flexible Framework for Stochastic Reserving Models*.

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