

# Developing AGILITY July 2019



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## **New Major Release: AB Suite 7.0 is Here!**



*By Thangathen Ponnusamy, Global Product Manager – Agile Business Suite and Enterprise Application Environment, Unisys*

Big news: Agile Business Suite (AB Suite®) release 7.0 has arrived!

We're extremely excited about this release. As with every major release, we set out to build a balanced set of capabilities

that considers emerging market trends, incorporates New Feature Suggestions from clients, and furthers our strategy to outfit AB Suite in ways that help you win and differentiate yourself in the marketplace.

With noteworthy advances across the following key areas, AB Suite 7.0 reflects this ongoing commitment by bringing significant value to Enterprise Application Environment (EAE) and AB Suite clients alike.

### **Tighter Security**

At a time when hacking and data breaches have become so commonplace as to be almost expected, cybersecurity continues to dominate both the headlines and the regulatory agenda. At Unisys, we think about security constantly. It's a part of – and driving force behind – everything we do.

So when it comes to AB Suite 7.0, we continue to enhance security at every possible turn. For instance, using the new Data Encryption feature, you can secure the data within your Enterprise Database Server for ClearPath MCP (DMSII) database through two distinct approaches: data masking and data encryption. For a deeper dive into this important new feature, please read the [Engineering Corner article](#) later in this issue.

Secure communication is important in a wide variety of transactions, particularly when it comes to communications that include personally identifiable information (PII), financial data, and other sensitive details. >>



RATL over TLS 1.2 is now supported between AB Suite Component Enabler – via all of its Client styles – and the ClearPath® MCP Runtime host, enabling you to enhance security by sending data between client and server over a protected channel.

Other new security features in AB Suite 7.0 include support for Sensitive Data file attributes with enhanced security for deleted persistent data, an Audit Encrypt option that encrypts and compresses the audit trail as files are copied to tape, and Log Access Verbs Extension for granular logging of one or more VERBS for auditing purposes.

## Ease of Use

No matter if you're an EAE client moving to AB Suite, or an AB Suite shop that's upgrading to latest version, ease of use is a crucial concern. The new Product Feature Modes in AB Suite 7.0 prioritize simplicity by letting you use the software in a way that fits your needs.

With Standard Mode, you'll have a streamlined, productive means of developing applications in Microsoft® Visual Studio® using terminology, capabilities, and functionality that will be immediately familiar to developers used to working in EAE. Many of the advanced Object-Oriented features of AB Suite are either hidden or simplified in this mode, making for an easier transition from EAE to AB Suite.

As the name implies, Advanced Mode includes several advanced Object-Oriented features – such as inheritance and advanced polymorphic features – as well as the XML Framework. If you're using AB Suite 6.1 Classic or the XML Framework, you'll be upgraded to AB Suite 7.0 Advanced mode. If you start out with AB Suite 7.0 in Standard Mode, you're free to convert to Advanced Mode as needed.

## Greater Flexibility

Previous AB Suite releases supported the ability to export application changes from a higher Interim Correction to a lower one so long as they were within the same major release.

But with the new ExportAs feature in AB Suite 7.0, you're now able to export changes from a higher release and import them into lower release – from AB Suite 7.0 to AB Suite 6.1, for instance. This way, you can upgrade

your development environment to AB Suite 7.0 while keeping your production environment on release 6.1. That will enable critical changes to flow from the current release into your production environment, while still allowing sufficient time to test the application before upgrading production to AB Suite 7.0.

## Productivity Enhancements

AB Suite 7.0 introduces a number of Debugger enhancements designed to help boost your team's productivity.

For instance, when you initiate a debug session, the Auto Configure feature will populate relevant configuration properties with their default values, which you can then modify later as your needs dictate. This improves productivity while making it easier to quickly get started with Debugger.

Additionally, Debugger cycles – such as the Online and Report cycles – are now automatically initiated depending on the element selected in the Class View. Several enhancements that improve Debugger performance have been made as well.

## Contemporary Software Support

When you upgrade to AB Suite 7.0, you'll be able to take advantage of native support for the market's newest and most contemporary development technologies.

To that end, AB Suite 7.0 Developer includes support for Microsoft Visual Studio 2017, Microsoft Team Foundation Server 2018, and Microsoft Windows® 10. And the AB Suite 7.0 Runtime for ClearPath MCP is available on ClearPath MCP release 17.0 and 18.0, while the AB Suite 7.0 Runtime for Windows is supported on Microsoft Windows Server® 2019.

For details about all supported software, specific editions, and more, please read the AB Suite 7.0 Qualification and Support Matrix.

## We Couldn't Have Done it Without You

A sincere thank you to all who participated in the AB Suite 7.0 beta test. The release is better and richer because of your time and input.

Be sure to visit the [AB Suite homepage](#) for details about AB Suite 7.0.



## Engineering Corner: DMSII Data Encryption

By Howard Bell, Architect – EAE/AB Suite MCP Runtime and Debugger, Unisys



The ability to encrypt persistent attributes in Enterprise Database Server for ClearPath MCP (DMSII) is now supported in Agile Business Suite 7.0.

Using the new Data Encryption product, you're able to secure the data in these attributes – and elsewhere within your DMSII database – through two distinct approaches: data masking and data encryption.

Just be sure to note that although it's possible to use data masking and data encryption in the same database, DMSII does not allow both in the same data set. Only one form of security may be used in a data set.

AB Suite 7.0 includes two unique model properties to support data masking and data encryption within the DMSII database:

- **Secure Technique:** A class model property used to specify whether the secured persistent attributes in the class will be encrypted or masked.
- **IsSecure:** An attribute model property that specifies if the attribute will be secured. In order to secure an attribute within a class, you must set the IsSecure property on the attribute to "True."

Below, you'll find details on how to use the Data Encryption product's data masking and data encryption capabilities, along with the model properties described above, to secure your persistent attributes.

### Data Masking

To secure the data of a persistent attribute with data masking, you'll first need to set the Secure Technique property on the class owning the persistent attribute to

"DataMasking." Then, set the IsSecure property on the attribute to "True."

Be aware that these settings will not take effect until the Obfuscate Level configuration property is set to a value greater than zero. The Obfuscate Level instructs DMSII to select the methodology for masking data content on a scale of zero to three:

- **0:** Suppresses all data masking within the database. This is the default level.
- **1:** Instructs the entire database to use the same methodology for masking data.
- **2:** Tells each structure within the database to use a different method to scramble the data.
- **3:** Specifies that each record in the structure use its own means of masking data.

Note that Obfuscate Level 3 is only allowed on structures where the Extended Edition property is set to "True" on all "ispec," "copyispec," "event," "cotypevent," and vanilla classes with persistent attributes.

Also, when using MCP Runtime Transfer, you must set the Obfuscate Level to the same value for the source and target configurations.

### Data Encryption

When using data encryption to secure persistent attributes, start by setting the Secure Technique property on the class owning the persistent attribute to "DataEncryption," and the IsSecure property to "True."

These settings will only be active once you set the Data Encryption Type configuration property to either the "AESGCM" or "AESHMAC" algorithm. >>

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Using data encryption requires that you enable an encryption key for the database. DMSII takes care of this automatically after you specify an encryption algorithm by setting the Data Encryption Key Set segment configuration to “True” and creating a key during the next system build. Please note that you’ll need to manually back up your encryption key in the Security Center. If you change the encryption key set option, or the first generate with data encryption enabled takes place, a full database backup is required to ensure recoverability following any sort of failure.

Enabling data encryption will trigger a database reorganization during the next deployment. For performance reasons, DMSII puts encrypted data items together at the end of the data set record, after the non-encrypted items and any DBFILLER, if present.

AB Suite has adopted this ordering because it reads the whole database record, not individual fields, so the mapping as shown in the DASDL must match the physical data set layout. If you have programs outside of AB suite that also access the encrypted data set in this manner, you will need to consider the revised data item order.

*Please note that Data Encryption is an optional, separately priced product for DMSII databases that requires DMSII IC DMSII-059.1A.3 or higher. Please contact your Unisys sales representative for additional information. And before using the capabilities within the Data Encryption product, we encourage you to read the [Enterprise Database Server for ClearPath MCP Data and Structure Definition Language \(DASDL\) Programming Reference Manual](#) for further details and guidance.*



## Baltic Technology Group: Experiences from the AB Suite 7.0 Beta Test

With the release of Agile Business Suite 7.0 upon us, we thought it would be interesting to see how the efforts of one of our key beta testers helped to shape the software you see today. To that end, read on to learn what long-time AB Suite user Baltic Technology Group (BTG) experienced during their time testing AB Suite 7.0.

BTG's participation in beta testing dates back to 1999, when the company's specialists joined the team at the Australia Center for Unisys Software (ACUS) to assist with the testing of EAE 3.2.

Since that time 20 years ago, BTG has field tested numerous EAE releases and participated in the beta tests for all AB Suite releases.

The BTG team for the AB Suite 7.0 beta test was managed by a senior EAE/AB Suite consultant and included an EAE/AB Suite system administrator and three AB Suite developers. The team participated in the Beta 2 test in February of 2018, as well as the Beta 4 test in October of the same year.

BTG followed a three-stage plan during their beta tests:

1. Create the test environment and install the new version of AB Suite
2. Load, build, deploy, and test model files of varying sizes
3. Develop the Sample and Andablo Chocsys training systems

Here's what they experienced...

### Creating the Test Environment

BTG installed AB Suite 7.0 on a virtual machine running Microsoft Windows 10 Professional Enterprise (x64), Microsoft SQL Server® 2017 Enterprise Edition, and Microsoft Visual Studio 2017. The team did not encounter any substantial problems during this stage. And, they found the updated AB Suite Qualification Matrix to be a helpful reference during this initial test stage.

### Loading, Building, Deploying, and Testing

During the second stage, BTG loaded, built, and deployed two medium and two large system models:

- AA: medium model, approximately 100 MB (.mdl), with 404 Specs and 561 Reports
- BB: medium model, approximately 200 MB (.mdl)
- CC: large model, approximately 560 MB (.mdl), with 1,500 Specs and 1,025 Reports
- DD: large model, approximately 600 MB (.mdl)

Overall, the team didn't run into any serious problems during this portion of the testing. They did face one issue related to the Template property replacing the Inherits that was addressed with some assistance from the Unisys engineering team.

### Developing the Sample System

Three of BTG's AB Suite programmers developed the standard Sample and Andablo Chocsys training systems, giving them an opportunity to compare results and re-test certain functionality multiple times. Their focus keyed on testing ASP.NET Web Forms, ASP.NET Web Services, VB.NET Win Forms, and the Agile Business Suite Client Framework. >>

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As a result of this intensive effort, the team opened one improvement suggestion with the Unisys engineering team, who promptly provided a useful workaround until the fixes were implemented.

## Lasting Impressions

BTG reports seeing several noteworthy improvements to the solution throughout the AB Suite 7.0 beta tests.

They were particularly impressed by the following new AB Suite 7.0 features:

- AB Suite Product Feature Modes (Standard, Advanced, User Experience)
- The ability to define extract files using the new “File” stereotype
- Improvements to Debugger performance
- The Template property that replaces the Inherits

The BTG team tells us they’re very much looking forward to introducing AB Suite 7.0 to their university students in the upcoming fall semester. And they’re already signing up for the next beta test!

*We greatly appreciate the BTG team taking the time to thoroughly test AB Suite 7.0 and share their experiences with our readers. Thanks again!*



# Simplifying Data Transfers Between AB Suite (or EAE) Databases

By Gary J. Taylor, System Architect, Unisys



Regardless of whether you're using Agile Business Suite or EAE, it's likely that a time will come when you need to copy data from one database to another.

For instance, maybe you need to transfer data residing on the same host or across host platforms, like from a ClearPath MCP Runtime database into an AB Suite SQL Server debugger database. Or perhaps you have an EAE on UNIX® database in Oracle and need to move that data to AB Suite and SQL Server.

Unless you're staying on the same platform and the source and target are identical, it may be difficult and time consuming to copy the data – especially if you have to deal with potentially hundreds of separate tables.

## A Simpler Solution

To help you manage situations like these, we developed the AB Suite SSIS Generator, a utility designed to simplify the process of moving data between most EAE and AB Suite platforms. Note that this tool doesn't actually transfer the data. Instead, it automates the creation of SQL Server Integration Services (SSIS) packages that can then be used to transfer the data.

SSIS is a standard feature of Microsoft SQL Server. It provides capabilities for moving, transforming, and manipulating data from virtually any source to any other destination – SQL Server or not. For example, you could use SSIS to move data from an Excel spreadsheet to an Oracle database table.

To use SSIS, you build “packages” that define what you want SSIS to do. Using SQL Data Tools – a graphical design tool that functions as a Visual Studio plug-in – you can quickly design a package that takes data from a source, applies transformations to it, and sends that data its destination. This would be suitable if you wanted to extract MCP data and load it into an AB Suite Debugger database in SQL Server.

The trouble is, this process can become quite laborious if you have to build and maintain packages to manage hundreds of tables. To address this, Microsoft has provided APIs that allow you to programmatically build these packages. Additional APIs facilitate the creation of custom components that further extend the capabilities of SSIS, such as by creating adaptors for a particular data source that isn't supplied as standard. >>

The AB Suite SSIS Generator utilizes these APIs when creating SSIS packages via a simple interface – shown above – that allows you to define where the source and destination data is located. Because the utility understands the naming conventions of the both the source and destination data, it can automatically map the data, while coping with the different naming conventions and cases used to define tables and columns. It will also address things like “X” columns due to reserved words in EAE on UNIX and Microsoft Windows, regardless of if the target database has the “X” columns.

### A Flexible Tool

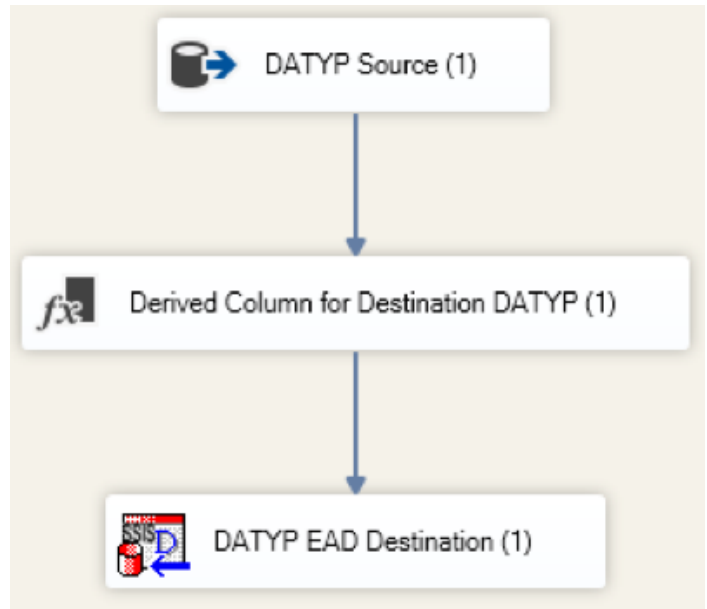
The following table details all of the possible source and target destinations that can be used by the utility, with any combination of source and target allowed.

Source Data Types	Target Data Destinations
SQL Server (EAE or AB Suite)	SQL Server (AB Suite), can optionally be in EBCDIC format if required for Debugger
MCP (EAE or AB Suite)	MCP (EAE or AB Suite)
EAE Developer test	EAE Developer Test
Oracle (EAE)	Flat files
OS 2200 (EAE)	

For sources or destinations that SSIS does not natively support, such as EAE Developer Test, custom adaptors have been built to provide that functionality, as have capabilities that convert the data to EBCDIC for use with AB Suite Debugger databases.

The utility takes a list of tables via a text file as input, allowing you to define which tables need transferring. This list can be created manually or generated from an AB Suite Debugger or Runtime environment, depending on your needs.

The packages the utility builds are optimized for maximum performance wherever possible. For example, when targeting SQL Server, indexes are automatically disabled before the transfer and then re-enabled at the end. These packages are also standard SSIS packages, allowing them to be viewed or manipulated using SQL Data Tools, as shown in the following diagram:



The utility only builds one package per table. You then have to run the packages to actually move the data. You can do this manually via SSIS or automate the process using a VB Script that runs multiple packages concurrently, starts another package as soon as the prior one completes, and even retries any failed packages in the event of a network error.

A number of clients worldwide have used the utility to move their data for migration purposes or to populate Debugger databases. The largest database we moved consisted of 500-plus tables and 4.5TB of data, or over a billion rows. But many other sites use the utility to move just a few GB every day, so it is both powerful and flexible.

*The AB Suite SSIS Generator was primarily developed to support our associates during client engagements. However, we feel that it has matured to the point that we're open to the possibility of you using it in your own organization. If you're interested, please contact your local Unisys sales representative or reach out to me directly at [gary.j.taylor@unisys.com](mailto:gary.j.taylor@unisys.com).*





# Calling ClearPath Call Out Services from AB Suite Using Application Integration Services

With the ClearPath Application Integration Services (AIS) product, you can take advantage of APIs that enable applications running in one operating environment to access resources, such as files or other applications, in a different operating environment.

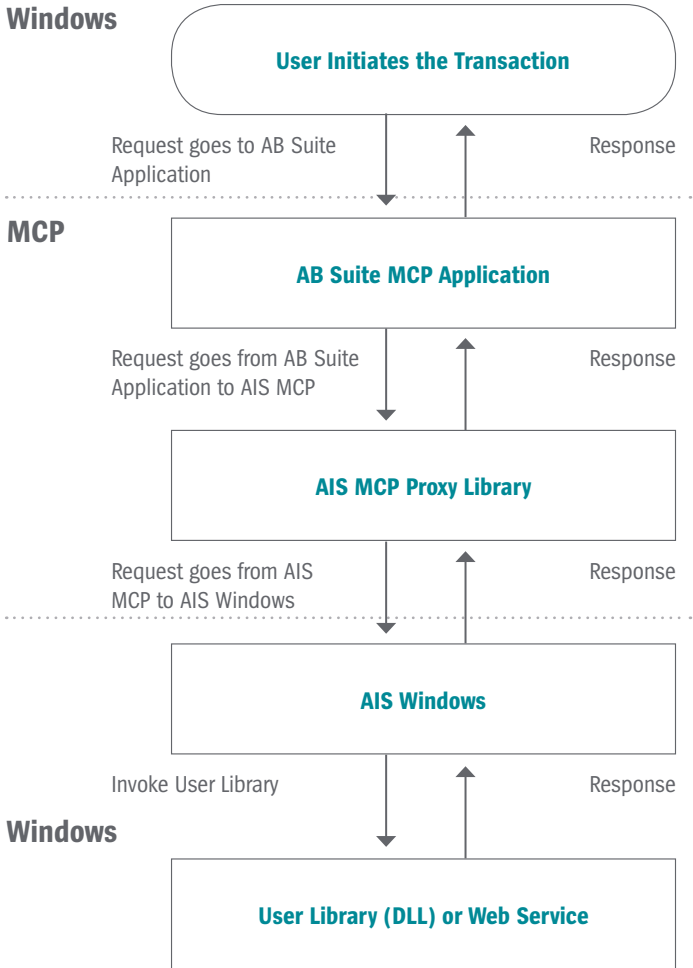
For example, using AIS, a Microsoft Windows application can access COMS transactions or read ClearPath MCP files. Or, AIS can enable a ClearPath MCP application to call out to an external web service residing in the Windows environment.

No matter how you use AIS, you'll be able to reduce the amount of code your developers have to design, write, and test.

This focus on simplicity is particularly apparent in the product's ClearPath Call Out Services feature. With the help of this feature, your programmers can extend existing ClearPath applications with newer capabilities – without having to move the applications to another platform.

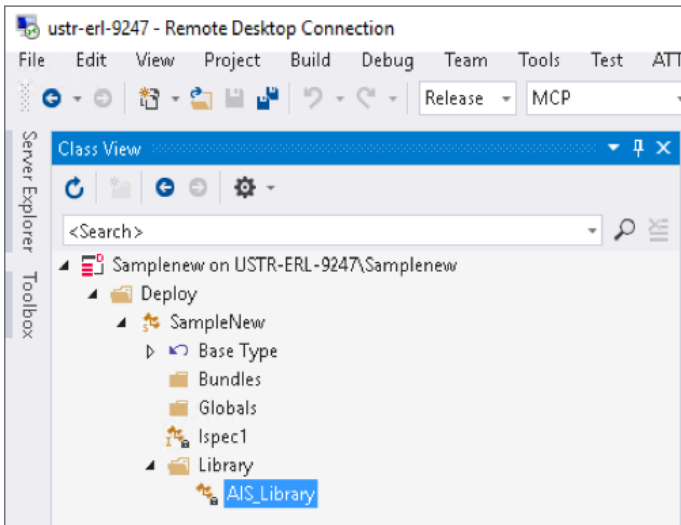
Your programmers can do this through a familiar programming paradigm that maps a web service or .NET DLL call into something that looks like a procedure call. So as far as the ClearPath program is concerned, it's making a routine call into an external library. Behind the scenes, meanwhile, the infrastructure we provide calls into a .NET DLL that can switch between a ClearPath friendly format and whatever is required by other applications and responses from a web service.

As shown below, the ClearPath Call Out Services workflow begins when you submit a transaction to the AB Suite application. The transaction processing function then calls the MCP proxy library, which in turn calls out to Windows. The call is processed in the Windows environment – in this case by a .Net DLL – and the result is returned to the AB Suite application. >>

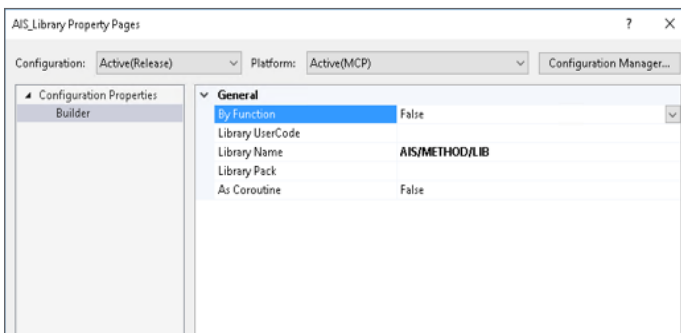


When calling out from your AB Suite application to the MCP Library that will in turn call out to a web service or DLL, keep the following steps in mind:

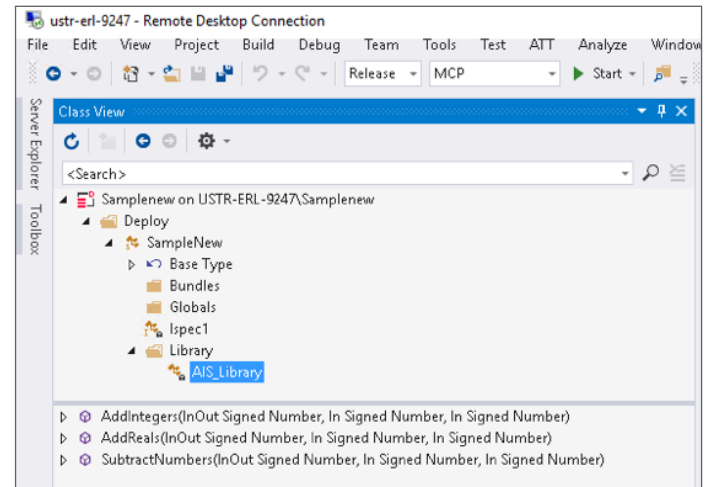
1. Define the library as a class with “IsExternal” set to “true.” In the example below, the “AIS\_Library” class is created in the Library folder.



2. In the Property Pages of the “AIS\_Library” class, enter the data in the “Library Name,” “ByFunction,” “Library Usercode,” and “Library Pack” (assuming it’s different from the Application Default pack) fields as shown below.



3. Define all method signatures exported from the AIS/METHOD/LIB that will be invoked by the AB Suite application under the above Class. In this example there are three methods defined in the “AIS\_Library” class: “AddInteger,” “AddReals,” and “SubtractNumbers,” so we add the signatures of these methods under the external “AIS\_Library” class.



4. Run the AIS “LibGen” utility in Windows to generate the files required by the MCP environment – the MCP proxy library source and associated files – based on the web service or DLL that will be invoked from the AB Suite application.
5. After compiling the MCP proxy library source on the MCP host, the ClearPath Call Out Services feature is ready for use in AB Suite. Additionally, once you’ve completed steps one through three as described above, you’re free to write the necessary LDL+ logic to invoke the methods. For example, using the definitions noted above, the LDL+ logic to invoke the “AddInteger” method would be: “AIS\_Library.AddIntegers(IntResult, Integer1, Integer2),” where “IntResult,” “Integer1,” and “Integer2” are the number variables/attributes declared in your application Model.

*For further details about AIS, including software pre-requisites, please refer to the [ClearPath Application Integration Services Release 4.1 Server Installation and Programming Guide for Call Out Services](#).*



## Info Center

New additions to our libraries of How To documents, white papers, and other useful information include:

- **Support Documentation:** AB Suite 7.0 Software Qualification and Support Matrix **(NEW)**
- **How To:** How to Use RTU in Agile Business Suite MCP Runtime **(NEW)**
- **Whitepaper:** Object Pooling with Client Tools Feature Pack and AB Suite **(NEW)**
- **Support Documentation:** AB Suite 6.1 Software Qualification and Support Matrix **(updated)**

In addition to the items noted above, we're excited to introduce the all-new Agile Business Suite Information Center. This comprehensive repository of technical information provides a high-level overview of AB Suite, its components, and underlying concepts, as well as details about the tasks you can perform using AB Suite. It also includes the essential information you'll need to get started with AB Suite.

To view these and other resources, simply go to <http://public.support.unisys.com/> and choose "Documentation" in the "Public Information" box located on the left-hand side of the screen. No special login is needed.

In addition, there are several pieces of thought leadership available on the [AB Suite homepage](#):

- [Why Agile Business Suite Should Be Your Development Environment](#)
- [AB Suite in the Application Lifecycle](#)

- [Agile Development with Agile Business Suite](#)
- [Unisys Agile Business Suite: Capitalize on Change, Don't React to It](#)

We also encourage you to view the list of available [AB Suite training courses](#). A blend of instructor-led and computer-based trainings, these great educational resources include graphics, interactivities, simulations, and demonstrations with voice-over narration.

To stay up to date on the latest happenings in the ClearPath Forward world, please [subscribe](#) to the ClearPath Forward Connection newsletter – and give the [January 2019 issue](#) a read.

And to learn about everything the ClearPath Forward Services portfolio has to offer, please visit our [web site](#) and check out our [brochure](#).