



Agile Business Suite

Runtime for Windows Software Release Announcement

Release 9.0

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Section 1

Product Overview

Delivering features and functionality that increase productivity and efficiency of the developers, Agile Business Suite (AB Suite®) enables low code development, supports agile development corporate strategies, and extracts more value out of IT investments. AB Suite helps in delivering mission critical business applications.

AB Suite software enables enterprises to deliver superior solutions in today's demanding timeframes. Such systems require scalability, reliability, and manageability unseen in less capable systems.

Over the course of more than twenty years, Unisys has demonstrated its superiority in building complete large-scale, reliable systems. AB Suite is the next generation of development tools from Unisys; it incorporates new component-based concepts that make it an ideal tool for building composite applications.

What does AB Suite Include?

AB Suite Developer is integrated within the Visual Studio® Integrated Development Environment (IDE) framework. It offers a familiar development environment, intuitive interfaces, and integrated testing features. AB Suite 9.0 Runtime for Windows continues to provide a secure, enterprise grade runtime environment with TF Build DevOps integration support and XML handling capabilities while supporting the new AB Suite 9.0 modes of development.

AB Suite includes:

- AB Suite Developer
- AB Suite Client Tools
- AB Suite Runtime for the Windows® Operating System
- AB Suite Runtime for the ClearPath® MCP Operating System
- AB Suite Runtime for the ClearPath® OS 2200 Operating System

Developer

Targeted for both new and existing AB Suite developers, AB Suite Developer requires minimal orientation for people familiar with Visual Studio.

After your model is upgraded, you can take advantage of significant opportunities to enhance your application, including UML application modeling, and OO concepts that can improve the maintainability of your application. The OO concepts and its high developer's productivity makes AB Suite Developer an ideal tool for C# developers to take the next step towards developing large enterprise mission critical applications for Windows® Runtime, ClearPath® MCP and ClearPath® OS 2200 environments.

Building an Application

Once your application model is developed using AB Suite Developer, you can build and deploy it to a runtime server using the Builder capability.

Builder produces a fully running system on a server running the AB Suite Runtime from the Developer model, including client application and database layers. For the 9.0 release, systems can be generated for the ClearPath® MCP Operating System, ClearPath® OS 2200 Operating System, and the .NET framework on Windows.

Once built for the .NET Framework, a deployment package (MSI) is created. Subject to user permissions on the runtime server, applications can be deployed, installed, and executed.

In AB Suite 9.0, Builder can be integrated with Team Foundation Build, to provide a streamlined and automated build and configuration process for common DevOps scenarios.

AB Suite Client Tools

Client Tools is a suite of software tools that can be used to create a variety of client applications based on the ispecs defined in the AB Suite model. These applications can range from desktop clients to web-based applications viewed in a browser or mobile device, as well as Web services for external access from other applications.

The suite of tools includes:

- Component Enabler

Provides access to systems from a variety of application types and interfaces:

- Java applications
- Microsoft .NET Framework applications
- Component Object Model (COM) interfaces
- Scripting languages

- ASP.NET Web Form Generator

Used to generate ASP.NET Web Forms which supersede the traditional Active Server Pages, and run in the Microsoft .NET Framework. The ASP.Net Web Forms are deployed to an IIS Server and also provide a Browser Client interface for the AB Suite application.

The generated ASP.NET Web Form client applications include support for AJAX (Asynchronous Javascript and XML), which delivers an enhanced user experience by eliminating the typical Browser refresh between transactions.

- ASP.NET Web Service Generator

The ASP.NET Web Service Generator generates the interface to allow external applications to invoke Specs as Web Services, using XML messages over an HTTP connection. The ASP.NET Web Services are deployed to an IIS Web Server.

- Client Generators for Microsoft Visual Basic .NET

This generator is used to generate Visual Basic .NET client applications based on the Graphical User Interface (GUI) forms created in Developer.

The Visual Basic.NET client application provides a standalone .NET based Windows Form interface to the AB Suite Runtime application that is based on the Microsoft .NET Windows Forms technology.

- Generator Customization Kit

This optional product is used to change the Generator source code to produce a customized generator. You will be able to modify the ASP Generator, the ASP.NET Generator, the ASP.NET Web Services Generator and the Visual Basic.NET Generator.

- Presentation Client

The Presentation Client is a Java based Component Enabler runtime client application that can be used to display the Graphical User Interface (GUI) forms created in Developer.

- Business Integrator

In conjunction with the Web Services Generator, allows you to extend existing AB Suite applications, or build new applications that integrate with non-AB Suite systems, providing support for business process integration.

- Client Framework

The Client Framework installation option found on the Client Tools CD installs various client-side development and runtime components of the Client Framework. It installs the Windows Presentation Foundation (WPF) Client Container, several NuGet packages for the Client Framework connectivity and WPF development as well as a Visual Studio extension that provides Model-View-Controller (MVC) Scaffolding capabilities.

AB Suite Runtime

AB Suite enables optimum, flexible, and rapid development of runtime solutions by supporting deployment of both its own components and those developed with other tools, together with the capability of multiple platform deployment.

Web Services support makes it possible to integrate applications with the suppliers of users, distributors, and partners. With Web Services, transactions are defined as self-describing services that can interact with other foreign applications to speed up everyday business-to-business processes.

In this release of AB Suite, runtime is targeted at the Microsoft Windows® environment using the .NET Framework, the ClearPath® MCP Operating System, ClearPath® OS 2200 Operating System.

AB Suite Runtime for Windows

Applications generated for the AB Suite Runtime for Windows are .NET Framework Enterprise Services applications. Thus, presenting a standardized interface that can be used by both the supplied protocol adapter services and by customized programs written in languages such as, C# and Visual Basic .NET.

AB Suite Runtime for Windows maintains support for a three-tiered configuration with client, application and database layers, all deployable in a single action.

Web Services and external interface support make it possible to integrate generated applications with the suppliers of users, distributors, and partners. If the user decides to adopt a Services-Oriented Architecture (SOA), AB Suite is the perfect tool.

Because of the need to support different protocols and transport layers, there are a number of protocol adapters available. Following is a list of the available protocol adapters:

- **SOAP over HTTP (Web Services)**

Simple Object Access Protocol (SOAP) is a protocol that has a predominant role in XML development and Web Services.

- **SOAP over MSMQ**

This protocol adapter provides SOAP over Microsoft Message Queuing (MSMQ).

- **HUB**

HUB is a proprietary protocol that allows AB Suite systems to communicate with each other.

- **NOF/OFF/USER/GLI**

These are proprietary protocols used in AB Suite applications.

- **RATL over TCP/IP**

A protocol used by Component Enabler.

- **RATLTLS over TCP/IP**

A secure RATL protocol that is used to exchange the secure data between the client and server.

- **RATL over MSMQ**

A feature of Component Enabler.

Protocol adapters are defined as Windows services, which appear in the Services accessed from the Control Panel. Because of their nature, protocol adapters can be started and stopped independently of the rest of the system and exist independent of the application.

The Runtime installation also includes an Administration Tool through which you can manage your system, reports, and database.

Section 2

Hardware and Software Requirements

Hardware Requirements

The following table shows the minimum hardware requirements for Runtime for Windows:

Hardware	Runtime
Processor	4 core, 2 GHz
Memory	8 GB RAM
Disk space	200 GB
Monitor	LCD
Paging file	300 MB
Operating System	64-bit client Operating System

Note: Check with your database or other vendors for the disk space of dependent software. Your disk space allocation on the Windows Operating System server for Runtime should be based on the following approximate allocation of disk space:

- 245 to 250 MB AB Suite Developer software
- 45 to 50 MB AB Suite Runtime software
- 20 to 50 GB Visual Studio 2019 software minimum installation
- 6 GB SQL Server 2019 software minimum installation
- Actual disk space requirements for SQL Server database files will depend on database use. (Remember to allow space for the databases to expand if needed.)

Software Requirements

The following table shows the software requirements for Runtime for the Windows Operating System:

Hardware and Software Requirements

Required Item	Comments
<ul style="list-style-type: none"> • Windows Server 2019 Datacenter Edition (LTSC) v1809 • Windows Server 2022 Datacenter Edition (latest update) 	<p>Windows 10 is not supported in the AB Suite Windows Runtime production environment, but can be used for testing purposes. You require latest updates for testing.</p> <p>Other Windows Operating System editions, such as Home or Server Core Editions are not supported and might not work with AB Suite 9.0 Runtime for Windows.</p> <p>AB Suite 9.0 currently supports 64-bit Windows Server 2019 (LTSC versions) only. It does not support 32-bit Windows. Windows Server Semi-Annual Channel versions, such as version 1803, and 1809 are not currently supported.</p> <p>AB Suite 9.0 also supports Windows Server 2022 Datacenter Edition.</p> <p>Refer to the <i>Agile Business Suite Installation and Configuration Guide</i> for more information.</p>
<p>Qualified for .NET Framework 4.8</p>	<p>This is a requirement for all features.</p> <p>.NET Framework 4.8 is required for AB Suite Runtime for Windows.</p>
<p>Internet Information Services</p>	<p>The version of IIS depends on the operating system that you are using. Refer to your Microsoft information for the appropriate version.</p> <p>This requirement is only needed for certain features.</p>
<p>Message Queuing</p>	<p>This is required for certain features only such as, SoapQueue and RATLQueue.</p>
<ul style="list-style-type: none"> • SQL Server Enterprise Edition 2019 or • SQL Server Standard Edition 2019 	<p>AB Suite 9.0 Runtime for Windows currently supports Enterprise and Standard Edition of SQL Server 2019 only. You require the latest updates for testing.</p>
<p>Microsoft Visual C++ Redistributable for Visual Studio 2019</p>	<p>This requirement is a must for installing AB Suite 9.0 for Window Runtime on a Windows server. You can install the runtime without Developer or Visual Studio 2019. However, the Runtime is dependent on Visual Studio 2019 runtime libraries, which are freely available.</p> <p>You can download these libraries from:</p> <p>https://support.microsoft.com/en-in/help/2977003/the-latest-supported-visual-c-downloads</p> <p>Note: <i>x86 redistributables are still required on an x64 bit machine. You should install these Visual Studio 2019 runtime components before installing the GCA.</i></p> <p>Visual C++ for Visual Studio 2019 is also required as some parts of AB Suite 9.0 Runtime for Windows are built using Visual C++.</p>

Hardware and Software Requirements

Required Item	Comments
Visual Studio 2019 Professional	Supported by the earlier-mentioned Windows Operating Systems.
Microsoft OLE DB Driver for SQL Server	This is a requirement for all the Runtime features. AB Suite uses the TLS 1.2 features that come with the new Microsoft OLE DB Driver for the SQL Server to provide better security during Windows Runtime and Debugger sessions.

Section 3

Upgrade Process

Applications created in AB Suite 2.0 or later release can be directly imported to AB Suite Release 9.0.

Upgrading AB Suite

Before upgrading to AB Suite from any previous release, you need to:

- Inform Unisys about your upgrade plans and also share the completed migration qualification checklist. For this either contact your local representative or reach us at ABSuite@unisys.com.
- Back up your system and data.
- Ensure your environment meets the hardware and software requirements for this release.
- Install AB Suite Developer if you want to upgrade the development environment.
- Install AB Suite Runtime

Section 4

Release Functionality

AB Suite 9.0 contains the following new features:

SQL Always On

- Admin tool implementation of **SQL Always ON Server Registration** page to connect to SQL Always ON High availability group.

A new database server registration is implemented to use the runtime database high availability feature. With the **SQL Always ON Server Registration** page, the user can use Availability Group Listener name in-place of SQL database server name to create a server alias node. All the databases created under this node will be joined to Availability Group mapped to availability group listener name used while registering the server alias. All other operations like attach, detach, and delete are also supported.

A new property page for server alias is also implemented, where you can check the SQL Server version, AG Listener name, Authentication mode along with current Primary Replica name.

A new availability group page for SQL Server always on availability group is implemented, where you can check the Group name, Primary Replica, and Secondary Replicas list from the page.

- Ability to capture user id and password for connecting to the database to use SQL authentication, instead of Windows authentication.

With the existing Database Server Registration option, Windows authentication is used to connect to SQL server. Now with **SQL Always ON Server Registration** page, you have an option to use SQL authentication also. SQL Administrator's login name and password must be provided while registering the server alias to use SQL authentication.

By default, Windows authentication is used but if server registration is created with SQL authentication, all the database connections will use SQL authentication mode only.

- Ability to set **MultiSubnetFailover** in connection string, which is needed in Failover operation.

AB Suite applications deployed using runtime database created under SQL Always On server registration support **MultiSubnetFailover**. It uses the connection string with "MultiSubnetFailover=true" for all online system operations and report execution. This helps to avoid intermittent timeouts, disconnections, and longer downtime in case of Failover to different subnets.

- Ability to Sync Database Schema User password details in all Secondary replicas in Availability Group.

For AB Suite application deployed in runtime database created under SQL Always ON Server Registration page, schema logins are created only under the primary node. To sync schema logins on other secondary nodes in Availability Replicas, a new option **Sync Schema Login to Secondary Replicas** is introduced for runtime database node in Admin tool. On Syncing the schema logins to other secondary replicas, even on Failover, AB Suite system is up and running without any interruption.

- Command line support for SQL Always ON features

The command line utility ConfigureDatabase is extended to support the SQL Always On features. You can perform the following tasks from command line to use SQL Always On features.

- Create a SQL Always On Server registration
 - o With Windows Authentication
 - o With SQL Server Authentication
- Create, Delete, Attach and Detach Database from SQL Always On Server Registration
- View the following details about SQL Always On Alias:
 - o Availability Group name
 - o AG Listener name
 - o Authentication mode
 - o Primary Replica
 - o List of Secondary Replicas
- Failover to one of the connected secondary replicas
- Configure SQL Admin details for SQL Always On Alias registered with SQL authentication

- Ability to do Failover from Admin tool

You can perform Failover from database server registration property availability group page. This page shows all replicas in the list, if the status is connected, then you can select the secondary replica and try to do failover.

Note: *If the status of secondary replica is disconnected, then the Failover button is disabled.*

- Password reset option for SQL Authentication user in Admin tool

If you have created a SQL Always On alias with SQL authentication and later want to update the SQL Admin user details to be used for SQL authentication, a new option is introduced to reconfigure SQL Admin user details for Always On aliases with SQL authentication.

- Handle stop system after DB Failover

After Failover from one SQL server node to another node, you can perform Stop system operation from Admin tool successfully for AB Suite application deployed in runtime database created under SQL Always ON Server Registration page.

- Delete system should delete schema logins on all secondary replicas

When you delete an application from the runtime database, admin tool deletes all the related schema logins on both primary and secondary replicas to make the database logins consistent.

- SQL Authentication mode for regular windows server registration page

A new feature is added for regular windows server registration page, where you can create server registration with SQL Server Authentication. SQL Administrator's login name and password must be provided while registering the server alias to use SQL authentication. SQL Admin credentials are validated before creating server registration. By default, the Windows authentication is used but if server registration is created with SQL authentication, all the database connections will use SQL authentication mode only.

24 x 7 Application High Availability

- Ability to enable or disable application High Availability (HA) in Admin tool

A new configuration page for application High Availability is added for database node in Admin tool. You can enable or disable the high availability feature from the configure HA page. Using this feature, you can control the DB Reorg and other deployment processes for a distributed environment where the same database is used by multiple runtime applications in different servers.

- Ability to perform non database specific changes when application is running

When the same AB Suite application is running in multiple runtime servers, you can bring down one of the runtime servers and perform non database specific changes only and build the AB Suite model, without interrupting the AB Suite system running on other running servers. If **Enable HA** check box is enabled in **High Availability Configuration** page and you attempt to perform DB Reorg operation, then an error message appears during the build.

- DB Reorg to create schema logins in all replicas.

When you create schema logins for AB Suite application during deployment, DBReorg creates schema logins in all replicas, both in primary and secondary. No need to replicate logins manually from Admin tool anymore.

- Ability to persist HA settings in database so that other runtime server participating should be aware of it.

High Availability parameter must be configured from database node before deploying an application.

Once an application is deployed, the HA configuration is persisted into dbo.SysStatus table of runtime database with High Availability value set from Admin tool and SystemStatus value as "1" (for Installed or Deployed). This value can be read from other runtime servers to validate new deployment for High Availability.

After deploying the system, HA configuration is greyed out and is made configurable again only when the system is deleted.

To deploy the same application (using same database) on other runtime server, the HA value should be configured to match with HA value of already deployed application. The deployment fails and proper error message is prompted if HA configuration does not match with existing deployment.

When the system is already deployed with High Availability and the new deployment does not enable it, an error message appears.

Similarly, when the system is already deployed without High Availability and the new deployment enable HA, an error message appears.

Hence, with this implementation, you can deploy the same application on multiple runtime servers only when all have same HA configuration.

- Enabling Application HA using Configuredatabase.exe

When you create a database using in Admin tool, you have the option to set configure Application HA. This function is implemented in the Configuredatabase.exe command line utility. A new optional parameter \HA is introduced to create and attach database operations to enable Application HA.

- Ability to tune the network traffic to runtime servers in NLB cluster

Using Windows Network Load Balancer (NLB), you can add and delete new AB Suite runtime servers dynamically. The steps to configure the NLB (Network Load Balancer) to achieve high availability of a system during an upgrade are tested and documented. Use of the Drainstop option in NLB is a way to gracefully bring down a server and let NLB route all new sessions to other servers, so that you can then upgrade the server, while the other servers continue to run.

Ability to scale out horizontally

- Ability to use Machine Name instead of Machine ID

This helps in resolving conflict in Machine ID if an application is deployed in multiple runtime servers. If you clone the runtime servers it is not mandatory to change Machine ID, if Machine Name option is enabled in Admin tool.

MachineID in NGRuntime.xml is stored as combination of Machine Name and Machine ID. For example - machinename(1). This is suitable when GLB.UNIQUE is not used in the AB Suite application. Because, the value in the brackets is retrieved and used internally for generating GLB.UNIQUE which is unique Id generated by AB Suite and it gets incremented for every transaction and can be used in LDL logic.

If GLB.UNIQUE is used in the AB Suite application, you can enable **Use Machine Name** check box and change the value in **Machine ID** box.

- Auto generate machine ID in Admin tool

Auto generate machine ID option is provided in Admin tool to automatically generate the unique Machine ID value for all the application instances on the different application servers (VMs) that would all connect to the same (single) runtime database in distributed environment.

This option eliminates the need to manually set the machine ID for distributed servers.

It also helps in resolving Machine ID conflict if same application deployed in multiple runtime servers. If you clone the runtime servers, it is not mandatory to set Machine ID.

- Ability to set user defined DB Schema password rather than random generated password during deployment

A new feature is introduced to provide user defined database schema password during deployment. This option is available for all the deployment tools for AB Suite such as Visual Studio build, MSBuild.exe, Runtime Transfer and DeployPackage.exe. By default, the existing functionality to use random generated password still exists and you can choose to use the custom schema password.

This feature helps in distributed setup where the application is deployed on multiple hosts which use same runtime database and same DB schema. By providing custom password while deploying the application on all the nodes, you can avoid manual intervention to change the password from Admin tool on all the nodes after deployment.

Suppress sysadmin privileges for AB Suite Administrator

Sysadmin is the highest privilege level in SQL Server. Providing users with the highest privilege level just for AB Suite is not a desirable requirement for many clients. This feature provides the ability to remove sysadmin privilege and grant specific privileges like create table, alter session, create view, and so on. for the administrative users instead.

Section 5

Restrictions and Known Limitations

This section describes the restrictions and limitations that apply to AB Suite Release 9.0 Runtime for Windows.

Known Limitations

- **Catastrophic failure during DbReorg**

It is observed that sometimes during DbReorg a random failure with message, "Catastrophic failure Exception from HRESULT: 0x8000FFFF (E_UNEXPECTED)", is thrown. 0x8000FFFF error code is returned during DBSchmeaXML validation. This is due to Microsoft Known issue with KB945701. If this error is observed then the following registry update is recommended:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Internet Explorer\Main\FeatureControl
\FEATURE_IGNORE_ZONES_INITIALIZATION_FAILURE_KB945701]
"w3wp.exe"=dword:00000001
"DBReorgEXE.exe"=dword:00000001
"msiexec.exe"=dword:00000001
[HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Microsoft\Internet Explorer\Main
\FeatureControl\FEATURE_IGNORE_ZONES_INITIALIZATION_FAILURE_KB945701]
"w3wp.exe"=dword:00000001
"DBReorgEXE.exe"=dword:00000001
"msiexec.exe"=dword:00000001
```

- **Runtime system does not work if we use named pipes while registering runtime database server**

While registering a new database server in the AdminTool, if you have specified named pipe to connect to SQL Server, you will not be able to configure the runtime system or do any runtime operations.

As a workaround to this problem, you can split the pipe name into two and specify the first part in server machine name and rest of the string in instance name.

Example: For default instance of SQL Server the pipe name should be np:\<<MachineName>>pipe\sql\query1. In order for this to work with AB Suite, break it as follows; np:\<<MachineName>>pipe and sql\query1. Now specify "np:\<<MachineName>>\pipe" in "Server machine" and "sql\query1" in "Instance name".

- **Resource Generator Failures during build**

When generating reports on a machine with fast processors and using multiple build threads, you may encounter the following error message in a pop-up dialog box:

"Microsoft .NET Framework Resource Generator has stopped working."

If you dismiss this message, the build will continue successfully – the failed build task will be retried and is usually successful. You can suppress this pop-up dialog box completely by setting the WER registry setting to “DontShowUI”, to disable the Windows Error Reporting UI. You can find the details of this registry setting in the following MSDN article: [https://msdn.microsoft.com/en-us/library/windows/desktop/bb513638\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/windows/desktop/bb513638(v=vs.85).aspx).

In this case, the Resource Generator errors may still occur, but the failed task will be automatically retried and the build will continue with no further user interaction and will complete successfully.

- **Deprecated LDL+ Commands**

The AtEnd() built-in method behavior cannot be efficiently implemented for all datasets due to complexities of its look-ahead nature. When AtEnd() is removed, an alternative mechanism to determine when end-of-file is reached while reading an extract file will be provided.

- **Multi-thread Build Failures**

There are some known issues with performing multi-thread builds that may result in a build operation failing with structured exception errors. These are observed occasionally with some models in certain environments. If you experience structured exception errors in multi-thread builds, you may perform a single-thread build as a workaround. In Visual Studio, under **Tools>Options>System Modeler>Builder** set **Number of Build Threads** to “1”.

- **Recommended Procedure for User Profile Service Configuration**

The default behavior of the User Profile service can lead to problems for the AB Suite Windows Runtime system running on a server. This is due to the user registry setting being prematurely unloaded by the operating system, resulting in

- The AB Suite Windows Runtime system becoming unresponsive.
- The Windows Application event log displaying the following error:
“0x800703fa : Illegal operation attempted on a registry key that has been marked for deletion”

The solution is to enable the following User Profile setting:

- Do not forcefully unload the user registry at user logoff to modify the User Profile setting, perform the following:

Prerequisites:

- o From Component Services, shut down all the running AB Suite COM+ processes.
- o From Services, stop all the AB Suite services.
- o Ensure that there are no processes running under AB Suite Application User or Application Administrative User.

1. Open the Local Group Policy Editor.
You can open the Local Group Policy Editor through Run.
- Start Run using Windows+R, type gpedit.msc, and click **OK**.
2. In the left pane, expand **Computer Configuration**, expand **Administrative Templates**, expand **System**, and then select **User Profiles**.
The User Profiles appear in the right pane.
3. Under Setting, select **Do not forcefully unload the users registry at user logoff**.
4. Click **policy setting** to edit the User Profile.
The Do not forcefully unload the users registry at user logoff window appears.
5. Select **Enabled** and click **OK**.
6. Restart the Runtime server.

Note: The procedure to configure User Profile service applies to Windows 10, Windows Server 2019, and Windows Server 2022.

- **Deployment and Runtime Transfer operations from one Azure VM to another Azure VM**

Deployment and Runtime Transfer operations from one Azure VM to another Azure VM hosting AB Suite Runtime for Windows are not currently supported.

As a workaround before deploying, copy the generated MSI files for the system and the reports to the AB Suite Runtime environment using the Runtime Transfer feature running on the Runtime environment VM.

- **DNS cannot automatically detect available IP address**

Availability group listener can have more than one IP address when database replica nodes are in different subnet, you must ensure to use available IP address only as DNS cannot automatically detect available IP address.

Restrictions

- **Encrypt RATL connection between client tools and Windows Runtime**

- Secure connection is available for Windows RATL TCP/IP only. It does not apply to other protocols example MSMQ, SOAP, HUB.
- Windows Secure RATL is available for Standard and Advance modes only.
- TLS 1.2 and TLS 1.3 levels are supported.
- TLS 1.3 is only supported on Windows 11 and Windows Server 2022.
- For RATL TLS, use the valid certificate with subject name. AB Suite does not allow you to use the certificate if the subject name of the certificate is empty.

- **Data Migration tool in SQL Server 2019**

The installation of SQL Server 2019 does not install the SSIS feature (SQL Server Integration Service) that is used by the AB Suite Data Migration Tool. SSIS is an add-on

Restrictions and Known Limitations

package available along with the SQL Server Installation package that must be explicitly chosen during the installation of SQL Server.

- **Application Administrative User in SQL Server 2019**

The installation of SQL Server 2019 does not add the BUILTINAdministrators group as a sysadmin by default. This affects the creation of the Runtime databases via Runtime Administration Tool.

This problem can be worked around by one of the following steps:

1. Specify the BUILTINAdministrators group in the “Database Engine Configuration” dialog box during the installation of the SQL Server 2019.
2. Add Application Administrative User as sysadmin in SQL Server 2019. This must be done for each Instance of SQL Server 2019.

- **Calling Segment Methods**

User-defined methods defined in Segment cannot be accessed in a client session, if the respective Segment type library file is not registered.

- **RuntimeAPI RunReport does not return after report finishes**

Any external application calling the Runtime APIs must be built as a “x64” bit application. Otherwise a “Class not registered” error appears when the external application calls the Runtime API.

- **Building AB Suite model for Windows platform**

Please enable 8dot3Name Windows feature for the disk drive used for Builder Cache and Builder Output. This is to avoid errors during cabinet creation.

- **DB Migrate Utility**

DB Migrate utility must always be run as Administrator, or else it does not work correctly due to missing privileges and it does not log any information into DB Migrate log file.

- **Availability Group**

The following are the limitations for the Availability group:

- Availability group name length can be maximum of 128 chars.
- Availability replica Fully Qualified Domain Name (FQDN) length can be maximum 255 chars.
- One Availability group can have 1 primary replica and up to 8 secondary replicas.

Section 6

Support

Unisys Support Online

Unisys brings together powerful hardware and software, multi-language support, and technical professionals to deliver 24-hour global service. All Unisys support services are fully integrated to provide you with real-time access to the critical information you need.

Unisys Support Center puts a wealth of technical information regarding hardware and software product support services at your fingertips. Unisys technical specialists provide updated symptom and solution information, including frequently asked questions.

Unisys Support Online is available 24 hours a day, 7 days a week.

Visit the Unisys Support Center at <https://www.support.unisys.com/common/epa/home.aspx> for more information.

Unisys Support Center allows you to:

- Search technical databases for information on a problem.
- Download Interim Correction (IC) files containing fixes.
- Track the progress of software updates and fixes.
- Participate in support forums.
- Access instructional information in Customer Technical Bulletins.
- Log and track support requests.

Contacting the Unisys Support Center

Support for your ClearPath server is provided by your Unisys Support Center.

To initiate a support request, do either of the following:

- Submit a request online through the Unisys Support Portal at <https://login.unisyssupport.unisys.com>. After you log on, click the Unisys Support Portal tile to access the Unisys Support Portal. Use the portal to Create, View, and Update incidents.
- Contact the Unisys Call Reception Center (CRC). Access the Unisys Support website at <https://www.unisys.com/about-us/support>. The site provides links to various types of support.

Unisys Client Support Center

The Unisys Client Support Center (CSC) is your information resource for problems that cannot be resolved through Unisys Support Online or your site administrator. Your site administrator can place a support request electronically.

The Electronic Support Request interface allows you to pose technical questions, discuss technical issues, and escalate design concerns with the experts at the Unisys Client Support Center.

When logging an Electronic Support Request, you will be asked to specify the:

- Hardware model number
- Operating environment
- Software product and level code

The software product and level code for AB Suite Runtime Release 9.0 is; AGILE-BUS-SUITE-NET-9.0.

Direct Telephone Support

Unisys also offers direct telephone support. If you are located within the continental United States or Canada, you can call one of the following toll-free numbers during the times indicated in your service agreement:

- United States 800-328-0440 (prompt 4)
- Canada (English) 800-387-6181
- Canada (French) 800-361-8097

Customers outside the continental United States or Canada can visit the Unisys Support website at <https://www.unisys.com/about-us/support/phone-support> to find country wise contact information or contact the local Unisys representative for support.

Software Support Services

Unisys Client Support Centers offer Software Support Services, a full complement of technical services to help clients with cost effective, fast-cycle support.

If you are located in the United States call Unisys directly on 800-328-0440 (prompt 4), or contact your local Unisys representative.

Section 7

Product Information

Documentation

Visit the Unisys Product Support website at <https://www.support.unisys.com> for the latest version of the Unisys AB Suite 9.0 Information Center.

AB Suite product documentation located under the Application Development category of the Unisys Product Support site:

<https://www.support.unisys.com/common/epa/DocumentationLibraries.aspx> provides technical product information on all software, including:

- AB Suite Developer
- AB Suite Runtime for the ClearPath® OS 2200 Operating System
- AB Suite Runtime for the ClearPath® MCP Operating System
- AB Suite Runtime for the Windows
- AB Suite Client Tools

Section 8

Ordering Procedure

AB Suite Runtime Product Packaging

When you purchase an AB Suite Runtime for the Windows Release 9.0 license, you will receive:

- AB Suite Runtime for the Windows Release 9.0 Installer
- The right to use the client interfaces provided by the AB Suite Client Tools Release 9.0

Ordering AB Suite

Contact your Unisys client executive, or an authorized Unisys Value Added Reseller, requesting this new release. After confirming entitlement for this release for your organization, they will submit the necessary software update order. The software will be posted on the Unisys software download site and your authorized contact will be informed of access details to download the software.

Licensing Options

AB Suite Runtime can be licensed for a specific number of concurrent users (User-based licensing) or for an unlimited number of users (Performance-based licensing).

Usage Level

There are two options to choose:

- User-based licensing allows a specific number of concurrent users to access any number of AB Suite applications on the Software Processing Unit for which the Runtime software is licensed.

User-based AB Suite Runtime is configured by selecting the initial 8-user Runtime style and then adding as many of the one-user License Only Runtime style as required to reach the license count desired. Eight users is the minimum configuration that can be licensed.

Note: *The required number of Runtime licenses is equal to the maximum number of concurrent users that could be actively using it at any one time. You are required to notify Unisys when additional users added to order additional user licenses.*

- Performance-based licensing allows an unlimited number of users to access any number of AB Suite applications on the Software Processing Unit for which the Runtime software is licensed.

Performance-based AB Suite Runtime for the Windows Operating System release 9.0 is configured by selecting the style that corresponds to the number of cores in the Software Processing Unit for which the Runtime software is licensed.

Note: *You are required to notify Unisys when additional cores are added to the hardware configuration executing Runtime. Runtime must be licensed for the maximum number of cores that will execute it.*

License Styles

Depending on your current licensing situation, different license styles are available:

- **New licenses**

New licenses are for users who need initial licenses for AB Suite Runtime or for current users who require additional licenses.

- **Upgrade licenses**

Upgrade styles are available for customers who have a license for AB Suite Runtime for Windows 2.x, 3.x, 4.x, 5.x, 6.x, 7.x, or 8.x and a maintenance agreement but don't have a Select Software Update Subscription for it.

- **Select Software Update (SSU) Subscription licenses**

SSU Subscriptions provide 'no additional charge' updates to future releases for an annual or fixed period subscription fee.

Customers with a SSU Subscription and valid maintenance agreement do not pay an upgrade fee when upgrading to a new chargeable release level. SSU Subscription coverage must be continuous from the original software shipment date.

SSU Subscriptions are available for new licenses as well as for update and upgrade licenses, and are ordered using the relevant SSU Subscription style ID.

Note: *SSU Subscriptions can be purchased only when ordering a new, update or upgrade license, or at the renewal for an existing subscription license.*

Software Update Order to Receive AB Suite 9.0 Release

Customers who have valid license, continuous subscription and maintenance coverage for AB Suite Windows Runtime are entitled to the same number of AB Suite Windows Runtime 9.0 software update licenses at no additional charge.

Contact your Unisys client executive, or an authorized Unisys Value Added Reseller, requesting this new release. After confirming entitlement for this release for your organization, they will submit the necessary software update order.

