Agile Business Suite

Runtime for ClearPath MCP Operating System 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 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 includes:

- AB Suite Developer
- AB Suite Client Tools
- AB Suite Runtime for the ClearPath® MCP Operating System
- AB Suite Runtime for the ClearPath® OS 2200 Operating System
- AB Suite Runtime for the Windows® 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 further 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 ClearPath MCP, OS 2200 environments, and Windows Runtime.

Building An Application

Once your application model has been 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 database repository, 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, subject to user permissions on the runtime server, applications can be deployed, installed and executed.

AB Suite Client Tools

Client Tools is a suite of software tools used to support Web services or provide a wide choice of end-user interfaces to AB Suite applications.

The suite of tools includes:

- Component Enabler (CE)

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

  - Microsoft .NET Framework applications
  - Component Object Model (COM) interfaces
  - Scripting languages
  - Active Server Page (ASP) Generators

    Used to generate Active Server Page forms, based on the Graphical User Interface (GUI) forms created in Developer. The ASP Forms are deployed to an IIS Server and offer a Browser Client Interface to the AB Suite application.

- 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 Ispecs 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, based on the Microsoft .NET Windows Forms technology.

- ClearPath ePortal Generator

  The ClearPath ePortal generator facilitates the integration of AB Suite applications with ClearPath ePortal. The generated Ispec XML definition files from AB Suite model are imported into a ClearPath ePortal solution. Using the ClearPath ePortal Developer plug-in to Microsoft Visual Studio allows the capture of application interface definitions which are used to create Web browser applications, mobile applications, or Web services.

  ClearPath ePortal supports different types of Presentation projects including ASP.NET Web Forms, ASP.NET Web Services, WCF Services, Restful Services and Mobile presentations.

- Generator Customization Kit

  This optional product is used to change the Generator source code to produce a customized generator. For the 9.0 release of AB Suite, users 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

  Java based Component Enabler runtime client application that can be used to display the Graphical User Interface (GUI) forms created in Developer either on a desktop or in a browser.

- 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.

Runtime for the ClearPath MCP Operating System

Key Features

The AB Suite Runtime for MCP provides a mechanism to invoke external components residing in another AB Suite application or other applications using MCP supported component framework.

Remote Access Server

The Remote Access Server (RAS) supports the ability for Component Enabler to access public methods defined for a generated AB Suite system.

Web Services

The AB Suite Runtime for MCP provides a Web Services interface to expose the functionality of business segment components through Component Enabler.

In addition, it supports XML data transfer as an optional user interface packet. This may require some proprietary middleware.

For outgoing calls to Web Services, the AB Suite Runtime for MCP provides the means to invoke a Web Service from your application by using WebAppSupport libraries on the MCP host. The WebAppSupport wizard within AB Suite Developer allows you to create a class that encapsulates the Web Service functionality ready for use by your Reports and Ispecs.

Coroutine invocation

The AB Suite Runtime for MCP allows an AB Suite application to call an AB Suite defined coroutine, which invokes that logic and, upon completion of the subroutine, returns to the invoking logic.

Transaction Processing Framework

AB Suite MCP Runtime supports most of the new component and object oriented capabilities as defined in AB Suite Developer.

Class Inheritance

Provides the capability to identify and differentiate each no–stereotyped and Ispec class within the same hierarchy.

Stereotype Classes

Provides a mechanism to identify the stereotype classes that are allowed to invoke the Segment cycle processing. This also applies to classes that inherit from stereotypes.

Non–Stereotyped Classes

Provides a mechanism to identify those vanilla classes that do not have the Segment cycle behavior.

IsInner Property

Supports the IsInner property.

Public Segment Methods and Shutdown

The AB Suite Runtime for MCP does not provide the capability to determine if there are any active users of public methods of an AB Suite system before the system is shutdown. This new condition does not affect the existing criteria used to determine the shutdown of the system.

It does not record in the LINCLOG whenever the public Segment method is called externally.

DBINTERFACE Library

The DBInterface library supports multiple cursors which correspond to the different instances of the same persistent Class objects.

Scalability

The AB Suite Runtime for MCP continues to support the scaling of an AB Suite application to the limits of the MCP platform architecture.

ACCESS.EXTERNAL command

The AB Suite Runtime for MCP continues to support the ACCESS.EXTERNAL command, for accessing up to two other databases.

Multiple EventSets

The Runtime Subsystem supports Multiple EventSets. The default EventSet is called EVENT. It characteristics of the EVENT table are:

- The dataset for the EVENT eventset is called EVENT.
- The dataset for the EVENT eventset is called EVENT.
- The data items in the EVENT and EVNTSEVNTS datasets are not prefixed by the EventSet name.

Even if you have not specified any EventSet, the Runtime Subsystem Builder function will generate the default EventSet.

EventSets that are not the default EventSet have the following characteristics:

- The dataset for a non-default EventSet is called by a 5 character name, <EventSetID>, identifying the EventSet.
- The dataset for memodata of a non-default eventset is called <EventSetID><EventSetID>.
- The data items in the datasets for non-default EventSets are prefixed by the EventSet name.

Report Framework

The Report Framework allows non-ROC reports to be called externally by a non AB Suite program.

The Report Framework has been enhanced to use only one instance of the DBInterface library.

The Report Framework provides support for generated reports to direct output to Enterprise Output Manager (previously called DEPCON). Such reports output a text file with control headers that specify the print attributes from a given Report.

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.

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

Section 2
Hardware and Software Requirements

Hardware Requirements

The following hardware is necessary to use AB Suite 9.0 Runtime for the ClearPath® MCP based software:

- MCP based mainframe, with a minimum of 50 Megabytes of memory. AB Suite 9.0 is compatible with all MCP based platforms that are currently supported by Unisys.
- Unisys T27 emulators and WebEnabler
- Line printer (optional)

Disk space must support the minimum disk requirements shown in the following table (based on release 9.0 configured with default settings and using a secondary audit file).

Files	Sectors	Description
NGEN30/=	217000	Skeleton files and general utilities common to all applications
Other Files	18000	Other database files and COMS Configuration File
Total	1061000	

In addition, the following table shows the requirements needed on DISK. These files are shared by all end users on the host.

Files	Sectors	Description
NGEN30/=	32000	Shared files and programs
Other Files	250	EXAMINER and LINCXSUPPORT files

As disk and memory requirements vary, contact your Unisys representative or Customer Support Center for planning assistance.

Software Requirements

This subsection lists the required and the optional software for AB Suite 9.0 Runtime for ClearPath® MCP operations. Install the software according to the instructions included in the documentation for each item.

General Software Requirements

AB Suite 9.0 Runtime for ClearPath® MCP supports System Software Release 60.0, 62.0, and 63.0. The following list shows the software required for the runtime:

- COBOL85 (Note that COBOL74 cannot be used.)
- DMSII and DMSII XE

DMSII XE requires Extended Edition. If you will be using Extended Edition features, you must have a license for Extended Edition.

- DMS/INQUIRY (optional)
- ERGO (optional)
- SYSTEM/CANDE
- SYSTEM/BINDER
- COMS
- DMALGOL
- Multi Lingual System (MLS)
- NEWP compiler
- For interfacing to the ADDS Dictionary, ADDS software must be installed.

MCP Releases supported by this Release

Release	Qualification
MCP 20 (SSR 62.0)	Qualified
MCP 19 (SSR 60.0)	Supported
MCP 21 (SSR 63.0)	Supported

Network Software Requirements

To support cross-host transactions, networking capability is required.

If you do not require cross-host communications, then local port capability is provided by LPPSUPPORT.

If you require cross-host communications, BNA V2, TCP, or OSI are required.

If you require interhost system services (for example, file transfers), you must also install Distributed System Services (DSS). You need to install this software if you are going to use AB Suite Builder or the Remote Subroutine Server.

If you require AB Suite Debugger to call subroutines on the host, you must install the Remote Subroutine Server (also known as LRSS) in addition to DSS.

If you intend to use Enterprise Output Manager for Report printing, then you will need to install and configure the Enterprise Output Manager software for MCP based hosts. This will enable MCP based applications to direct print output to the Enterprise Output Manager PC Server when the default output device is set to DP. Refer to the *Enterprise Output Manager documentation* for more information on installing and configuring Enterprise Output Manager on an MCP based host.

Other Software Release Compatibility

The following software release compatibility is required:

- Developer

  AB Suite Release 9.0 supports Case Interchange File (LCIF) interchange with Enterprise Application Developer release 3.3 and AB Suite 2.0, 3.0, 4.0, 5.0, 6.1, 7.0, 8.0, and 9.0.

- Enterprise Output Manager Software

  AB Suite Release 9.0 supports all supported version of Enterprise Output Manager.

- ePortal Software

  AB Suite Release 9.0 supports ePortal 11.0.

Section 3
Upgrade Process

Applications created in AB Suite 2.0, 3.0, 4.0, 5.0, 6.1, 7.0, or 8.0 release can be directly imported to AB Suite 9.0.

Because of the development environment interface changes, your model will look substantially different when upgraded. When a model is loaded from an existing LCIF file, its elements are automatically mapped to the new constructs. However, the basic structure of your model will remain the same.

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.
- Complete the migration qualification checklist and share it with Unisys.
- 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.

- **LEVEL5 code files is discontinued in AB Suite 9.0**

  AB Suite 9.0 MCP Runtime does not support LEVEL5 code files.

  To use AB Suite 9.0 MCP Runtime, you must set the COMPILERTARGET option on your MCP server to LEVEL6.

- **High Availability of the System during the first application build after an IC upgrade of the MCP Environment**

  To improve application availability during the first deployment after an AB Suite IC upgrade, the MCP Runtime deployment process is enhanced to limit the number of times when an active application must be disabled for the duration of the first system deployment after an IC upgrade.

  For most IC upgrades, the application can remain active during the first deployment after the IC upgrade. After installing an IC for MCP Runtime (and the associated Developer release), you can leave your application active while you do the next system build.

  However, you must continue to use the Rebuild option with the first deployment of the system and reports after an IC upgrade, and you must deploy all reports. This ensures code consistency across the application.

  There are occasions when it is necessary to have the system disabled for the duration of the first deployment, or to restart the system after the first deployment. The conditions that require the system to be disabled for the first deployment, or to be restarted after the first deployment, are described below.

  - *LINCSUPPORT*

    If there is a change to LINCSUPPORT, the system must be disabled for the duration of the first deployment. This prevents duplicate LINCSSUPPORT libraries in the mix for the application, which causes the system to hang. When the system is deployed, the user is informed by a prompt that the system must be disabled before the deployment can continue. The use will disable the system and respond to the prompt to resume the deployment.

  - *ENVIRONMENT, LSS, and COMS_LINC_TP*

    The application may be active during the first deployment after the IC upgrade. If there is a change to ENVIRONMENT, LSS, or COMSP_LINC_TP, the system must be restarted after the deployment. This activates the newly installed code files for these libraries. Messages in the Build Log (for builds from Developer) or the SUMLOG (for deployments by Runtime Transfer) will inform the user of the need

to restart the system. However, it is advisable to restart the system following the completion of the first deployment after each IC upgrade.

- *LOGIC*

  If there is a change to LOGIC, the first system deployment after installing the IC must be a build with the Rebuild option. Having some code libraries with the old LOGIC and some code libraries with the new LOGIC may result in runtime issues. Messages in the Build Log (for builds from Developer) or the SUMLOG (for deployments by Runtime Transfer) will inform the user of the need to deploy the system with the Rebuild option in a subsequent build. However, it is advisable to deploy the system with the Rebuild option after each IC upgrade to avoid a subsequent build.

- *REPORT_INFO*

  If there is a change to REPORT_INFO, the first report deployment after installing the IC must include all reports. (If it is not possible to do all reports in one deployment, do the critical online reports first, then the batch reports.) Messages in the Build Log (for builds from Developer) or the SUMLOG (for deployments by Runtime Transfer) will inform the user of the need to deploy the reports with the Rebuild option in a subsequent build. However, it is advisable to deploy all reports with the Rebuild option after each IC upgrade to avoid a subsequent build.

- **RATL will retry a failed logon after receiving Error 25 for a Logon attempt**

  To deal with a confusing logon situation, which is due to a timing issue that occurs on some MCP servers that use Locum for password aging, RATL for MCP Runtime responds to Error 25 for a first time LOGON attempt by retrying the logon for up to two more attempts. There is a 0.02 second delay between each LOGON attempt unless the delay is altered.

  The timing issue is due to Locum firstly forcing the user to change an expired password when they try to logon through RATL, and secondly failing to complete the password update before RATL submits the LOGON request. In such a scenario, the LOGON returns Error 25 (password changed illegally), which is confusing to the user because they have just changed the password through RATL.

  When RATL detects that a logon attempt has returned Error 25, after a password change, it retries the logon for up to two more attempts. There is a 0.02 second delay between each attempt.

- **APPL_BLD command 'COLLECT' can be used for collecting diagnostic material after a runtime failure**

  A new command is added to the APPL_BLD server for collecting diagnostic material after a runtime failure. The new command is called 'COLLECT'. To action the command, enter the following from the MARC action field:

  ```
  NA APPL_BLD_<id> COLLECT <n>
  ```

  <id> is the APPL_BLD identifier. '80' is the default identifier.

  <n> is the index number of the system for which you are collecting diagnostics information.

  For example:

```
NA APPL_BLD_80 COLLECT 1
```

Using the COLLECT command will cause the following files to be collected.

```
DESCRIPTION/<db>
<db>/CONTROL
<sys>/GENDEFS/=
<sys>/SOURCE_FILE/=
<sys>/DG_FILEINFO/=
<sys>/DG_WORK/=
<sys>/WORK/GENDEFS/=
<sys>/SOURCE/DMS
<sys>/DASDL/=
<sys>/CODE_FILE/=
<sys>/CODE_LIBRARY/=
```

- **MCP Runtime install job prompts for LINCLOG MASKING**

  A prompt is added to the NGENxx/WFL/RUNTIME job to check whether LINCLOG masking is required.

  If you respond with NO, the LINCLOG masking feature is disabled for all systems deployed from the installed Runtime.

  If you respond with YES, the LINCLOG masking feature is enabled for all systems deployed from the installed Runtime.

- **Behavioral change for applications that use multiple languages**

  For applications that use multiple languages, there are some behavioral changes to segment attributes with initial values.

  When a secondary language is in use, the correct translation is used for a segment attribute with a translated initial value.

  When referenced by an assignment statement in logic for the first time, a segment attribute with an initial value is initialized to its initial value. This aligns the behavior of the assignment statement with the Move statement.

- **Increase on the Number of Extract files and Shadow reports that can participate in Critical Point recovery**

  The limit has increased for the number of Extract files that can participate in Critical Point recovery. Up to 98 extract files can participate in Critical Point recovery.

  The limit has increased for the number of OutputStream files (Shadow reports) that can participate in Critical Point recovery. Up to 98 OutputStream files can participate in Critical Point recovery.

- **Support for Arrays of Groups**

  MCP Runtime supports an array of groups. The following syntax is supported.

```
GroupA[2].NumberAttribute :=  2 * 4
NumVar := GroupB[5].NumberAttribute
```

The following table describes the types of members that are supported for groups and arrays of groups in MCP Runtime.

Group (on the right) Group Member Type (below)	Group Multiplicity = 1	Group Multiplicity > 1	Attribute Multiplicity = 1 Template = Group	Attribute Multiplicity > 1 Template = Group	Attribute Multiplicity = 1 Template = Group Multiplicity>1
Primitive Multiplicity = 1	Yes	Yes	Yes	Yes	Yes
Attribute Multiplicity = 1 Template = Primitive	Yes	Yes	Yes	Yes	Yes
Primitive Multiplicity > 1	Yes	No	Yes	No	No
Attribute Multiplicity > 1 Template = Primitive	Yes	No	Yes	No	No
Attribute Template = Array Type	Yes	No	Yes	No	No
Group Multiplicity = 1	Yes	Yes*	Yes	Yes*	Yes*
Attribute Multiplicity = 1 Template = Group	Yes	Yes*	Yes	Yes*	Yes*
Group Multiplicity > 1	Yes	No	Yes	No	No
Attribute Multiplicity > 1 Template = Group	Yes	No	Yes	No	No

Note:

- Yes - combination is supported.
- No - combination is not supported.
- **Group Member Type** refers to the member type of the Group or the Group used as the template of an attribute.
- * Members of this subgroup, and other subgroups, are limited to a multiplicity of 1.

- **New Invalid Index behavior for Arrays**

  In this release, MCP Runtime introduces a new invalid index behavior for some types of arrays.

  The points below describe the new behavior.

  - When an invalid index is used with a source array in an expression, the value from the first element of the array is retrieved and GLB.STATUS is set to "*****".
  - When an invalid index is used with the destination array in an expression, the operation is not executed and GLB.STATUS is set to "*****".

  This behavior applies to these arrays.

  - An attribute for which the Template property is set to an Array type.
  - Array of groups.
  - An attribute whose multiplicity is greater than 1 and is a member of a group whose multiplicity is 1.

  If you convert a primitive attribute with multiplicity greater than 1 to an attribute that uses an Array type as the template, be aware that the invalid index behavior will change. There are significant runtime performance improvements from converting a primitive attribute with multiplicity greater than 1 to an attribute that uses an Array type as the template.

- **Support for Arrays of Classes**

  MCP Runtime supports an array of classes.

  The following list contains examples of the syntax that is supported. This list is not exhaustive.

```
MyVend[2].Method1()
MyVend[2].Send()
MyVend[2] := Vend
Vend := MyVend[2]
MyVend[1].PostAdd2 := MyAddress2
MyAddress2 := MyVend[1].PostAdd2
MyVend[4].Initialize()
Method3(MyVend)
Determine Actual MyVend[2]
```

- **New segment built-in attribute: Glb.COMSWindow**

Glb.COMSWindow is a read-only built-in segment attribute that is set to the MCP application's COMS Window name.

The Glb.COMSWindow built-in segment attribute is not supported on applications deployed to Windows or OS 2200.

Properties

Length = 17

Primitive = String

- **New report configuration property: Duplicate DB record is Non Fatal**

  The 'Duplicate DB record is Non Fatal' report configuration property is used to specify whether a report continues running after it attempts to create a duplicate database record.

  - When 'Duplicate DB record is Non Fatal' is True for a report, the report will continue running after it attempts to create a duplicate database record.
  - When 'Duplicate DB record is Non Fatal' is False for a report, the report will abort after it attempts to create a duplicate database record.

  The values of 'Duplicate DB record is Non Fatal' are:

  - False (default value)
  - True

Section 5
Restrictions and Known Limitations

This section describes the restrictions and limitations that apply to AB Suite Release 9.0 Runtime for the ClearPath® MCP Operating System.

- Left Aligned Numeric Attributes

  This release contains a regression with respect to left aligned numeric attributes that are displayed on screens for fixed presentation. The problem causes prefilled data in the field to be right justified, instead of left justified. As a consequence, the value will not be accepted as valid and the error message "<field> - NOT NUMERIC" is displayed.

  Workaround: Remove all leading spaces in the field before transmitting or entering a left justified value.

- Group Arrays

  Arrays of Arrays are not supported.

  - A group with multiplicity greater than 1 must not have subgroups with a multiplicity of greater than 1 at any level.
  - A group with multiplicity greater than 1 and its subgroups must not include a member that is a primitive with multiplicity greater than 1.

- Class Arrays
  - Do not create arrays of classes in your model if any of the configurations have the *Use Data Invocation* segment configuration property set to True. This is not supported.
  - If the template of an attribute is a class and attribute's multiplicity is greater than 1, the members of the class cannot include an attribute with a multiplicity that is greater than 1 and use a class as the template.
  - A class with the following stereotypes may not have a multiplicity of greater than 1.
    - None (no stereotype)
    - Ispec
    - CopyIspec
    - Event
    - CopyEvent
  - An instance of a class whose stereotype is Ispec, Event, or None (no stereotype) must not have a multiplicity of greater than 1 if it meets any of the following conditions.

  - **The StoreIfPresent attribute on a persistent attribute is set to True**.

    Class arrays will not support classes with memo data.

  - **The direction on any parameter of the class instance's methods is In**.

    Class arrays will only support class method parameters with direction Out or InOut.

  - **The class instance is polymorphic**.

    Class arrays will not support polymorphism.

- An instance of a class whose stereotype is CopyIspec or CopyEvent must not be greater than 1. This is not supported yet.

- Error while accessing MCP Runtime applications from CE

  An error may occur during a transaction if the MCP Runtime application is being accessed from any CE (Component Enabler) client. It occurs when the application is built with a language other than the default language. The CE client may not be able to download the correct locale for application language, because RATL is unable to find the language for the application.

- Context of GLB Items

  The GLB items are not invalidated by AB Suite when they are used out of context. While the use of GLB items out of context is permitted, there is no guarantee that the GLB item that is used out of context will contain any meaningful or reliable value. The following lists identify context sensitive GLB items.

  Ispec Only context GLB items:

  GLB.ACTIONKEY, GLB.BALANCE, GLB.INPUTDATA, GLB.MAXCOPY, GLB.ORIGINISPEC, GLB.PREVISPEC, GLB.REQUEST, GLB.WORK, GLB.SOURCE, GLB.COPY, GLB.EXAMKEY, GLB.GUI, GLB.ORIGINPTN, GLB.ORIGINXNID, GLB.PRIORITY, GLB.SELFXNID, GLB.STALANG, GLB.SUBSYS, GLB.UNIQUE, GLB.USERCODE, GLB.WORK, GLB.YYMMDD

  Report Only context GLB items:

  GLB.ALTUSER, GLB.ASCPRTHOST, GLB.CHANGE, GLB.CLOSE, GLB.DLRECOVER, GLB.EXTEXT, GLB.FILEINFO, GLB.INITFULLSTN, GLB.INITSTN, GLB.MATCH, GLB.MIXNO, GLB.RECOVER, GLB.REPGENDATE, GLB.REPGENTIME, GLB.REPLANG, GLB.REPNAME, GLB.REPVERSION, GLB.SECONDARY, GLB.TASK, GLB.TPGROUP, GLB.TRANSTATE, GLB.BACKUP, GLB.DEVICE, GLB.FORMDEPTH, GLB.FORMID, GLB.LINECOUNT, GLB.LINEUP, GLB.LINEUPNAME, GLB.NUMCOPIES, GLB.PAGECOUNT, GLB.PARAMFLAG, GLB.PITCH, GLB.PRINTBANNER, GLB.PRINTHOST, GLB.PRTPARAM, GLB.SAVEDAYS, GLB.SHADOW, GLB.TITLE, GLB.USER

- Restrictions on Transferring HDBA capability with Runtime Transfer

  There are a number of restrictions on Transferring HDBA capability with Runtime Transfer. Some exist to help prevent HDBA capability from being transferred to the production system while others exist because the method of transfer does not allow for the transfer of HDBA capability. The restrictions are:

- Transfer of HDBA capability is not allowed if the HDBA property settings for the Build and Configure configurations do not match.
- Transfer of HDBA capability is not allowed for transfers where the database libraries are compiled on the source host, such as Compile Free Configure.
- Transfer of HDBA capability is only allowed for Configure configurations. It is not allowed for RDB configurations.
- Support for the transfer of HDBA capability is provided for transfers using Configure configurations only. Support is not provided for manual configurations.

- Files as Method Parameters

  MCP Runtime supports files as method parameters. These restrictions apply:

  - The file that is passed from the calling method to the called method via a parameter must be of the same type as the method parameter. This can be achieved by declaring a file under the segment (in a dictionary folder), or under a class, then create attributes, variables or parameters that will template to that file, in whichever class, ispec, report or method that will use that file type.
  - File types that are to be used with files owned by methods or used as parameters cannot have class instances, or frames, as members.
  - The filestate of the file owned by a method will be initialized at the beginning. The file that is owned by a method should include logic to ensure that the file is closed before control is returned to the method's caller, or the runtime cycle completes (if the file is used in ispec built-in methods).
  - If a file is going to be passed to an external library method as a parameter, the file must be opened, used with the class or frame matching the record layout that will be used by the external library method, and closed before the external library method is called. This declares the record size of the file.

  The behavior of a file used in the online may be unpredictable if these rules are not adhered to.

  Only reports will automatically close open files, and remove temporary files, upon termination.

  Files used in the online must be managed manually. Files left open in the online will close upon termination of the system.

- Report Methods

  AB Suite MCP Runtime supports a report Main method, a report user method and a frame Main method only. Frame user methods are not supported.

- Restrictions on Enabling Report Deployment for Report Subfolders

  When there are nested Report folders, MCP TargetBuilder will prompt the following warning message for all reports in the report subfolders for which report deployment has been enabled:

<Reports subfolder>.<Report> already used to generate <Reports folder>.<Report> Please specify alternate or generate as name

  - All reports declared within the report folder hierarchy are generated with the original name.
  - If a report is included in a report subfolder, for which the Deployable and Deploy

Reports configuration properties have been set to True, and the GenerateAs name for the report has been updated, the report will be generated with its original name and the GenerateAs name.

- If a report is included in a report subfolder, for which the Deployable and Deploy Reports configuration properties have been set to True, and the GenerateAs name for the report has not been updated, a conflict warning will be issued during the build.

This behavior is intended. The behavior allows users to have one copy of a report, but be able to generate two copies of it, with different names.

- Issues with GLB.WORK

  When you upgrade from an earlier AB Suite release (prior to AB Suite 9.0), the GLB-DIALOGINFO data set may reorganize. As of AB Suite 9.0, the space reserved for Global Work Size and the space occupied by persistent segment attributes will be kept separate.

  For those upgrading from an earlier AB Suite release (prior to AB Suite 9.0), check the following conditions to see whether there might be a change in behavior to your application:

  1. The application has CopyFrom ispecs (CopyIspec or CopyEvent classes).
  2. The CopyFrom ispecs use persistent segment attributes in the Prepare or Edit methods.
  3. The registry setting CopyFromRestoreGlbwork was used in the build server for the previous AB Suite release.

  If the first two conditions from the list above have been met, you must test your CopyFrom ispecs to ensure that they behave as expected.

  If the third condition is met, the behaviour of the CopyFrom ispec is unlikely to change. If the third condition is not met or there is any uncertainty about it, it is essential that you check for a change in behavior.

  If a CopyFrom ispec is not behaving as you would expect, you should determine whether the change in behavior is due to the usage of segment attributes in the Prepare and Edit methods of the ispec. If it is, determine whether you want your segment attributes to have the value they hold at the beginning of the validate phase to be restored at the beginning of the update phase, or not. If you want the former, continue to use persistent segment attributes. If you want the latter, include new attributes in the non-persistent segment group that is moved to and from GLB.WORK and use the new attributes instead of the persistent segment attributes. You will have to include logic to move the non-persistent segment group to and from GLB.WORK.

  Note: *GLB.WORK is not restored at the beginning of the update phase of the CopyFrom cycle.*

- COBOL Compiler Limits

  The maximum number of declared files in COBOL85 is about 241. For AB Suite applications, this means that the total number of extract files, shadow reports, and internal files that a report can have is less than 242. It is recommended that you do not

allow the number of extract files and shadow reports to exceed 200 in a report. The number of extract files owned by an <<ispec>> class or vanilla class should not exceed 200.

- Removing Source Files and Code Files

  It is recommended that you do not remove the source files, work files and code files from the runtime system. These are used to facilitate partial builds. If any of these are removed, you must use the REBUILD option to build your system at the next generate.

> **Caution**
>
> Never remove source files that correspond to the files in the <sys>/DONT_REMOVE/= directory.

- ALGOL and COBOL reserved words

  Do not use ALGOL and COBOL reserved words in Alternate Names, especially for classes that inherit from glb.file (extract files). The Alternate name may be used "as is" and could cause syntax errors during deployment, if the name is an ALGOL or COBOL reserved word.

- Folder Name Lengths

  Folder name lengths are limited to 28 bytes.

- Public methods called from external applications

  Reports or other external applications will be able to call Public methods in the system. However, the system (LSS) will need to be up and running to allow this to happen. This is necessary as the Public Methods may invoke operations (for example, run/wakeup a report, start a WFL) that require LSS to participate.

  The number of public methods that can be exposed by an AB Suite application on MCP is 120. If there are more than 120 public methods, the export library will fail to build.

- ADHOC

  ADHOC is discontinued.

- ROC

  Due to the limitations in the MCP Runtime ROC subsystem, the names of OutputStream files (shadow reports) are limited to two (2) characters. You must enter a name of not more than two characters. If the name is longer than two characters, it will be truncated.

  For ROC systems that use the MCP configuration property 'ROC uses database', it is necessary for the 'ROC uses database' property on the segment to be set to True, before it is set to True on any report. This is necessary for the system and report to be generated with the code required for the report to run.

If 'System uses ROC' is reset on the segment, but the report has 'ROC uses database' set, the report is generated as a non-ROC report.

If 'ROC uses database' is reset on the segment, but the report has 'ROC uses database' set, the report is generated so that it uses flat files.

Sample messages:

Warning: <3> SIL2.RA has 'ROC Uses database' option set but Segment's 'ROC Uses database' is reset.

Warning: <3> SIL2.RA has 'ROC Uses database' option set but Segment's 'System Uses ROC' is reset.

- Extract files

  Due to name limitations in COBOL85, Extract file names are limited to 4 characters. You may enter a name longer than four characters, but you must enter an Alternate name of not more than four characters. If the Alternate name is longer than four characters, it will be truncated.

  Recursion on a user method is unlimited, in theory. OO principles would have each recursion as a separate instance of the method. For extract files, this would mean a separate instance of an extract file for each recursion. This is impractical in an environment that requires each file to be explicitly declared in the source file. As such, there will only be one instance of an extract file used in the recursion of a method. This applies to both online and report calls to methods.

  For performance reasons, the MCP Runtime does not provide recovery of extract files used by the online. To retain the data in open extract files that have been updated during a transaction, users are advised to explicitly close the extract files at the end of the transaction. In reports, full recovery of up to 26 extract files is provided for.

  Extract files can only be passed by reference, not by value. When setting up extract files as parameters to methods, use direction I/O or Out.

- New Development with Extract Files

  Due to architectural limitations in the MCP Runtime, it is recommended that you follow these guidelines when you create a new extract file:

  - Limit the extract file element name to 4 characters or less. For example, AA, BB, CFIL, DFIL.
  - Avoid names that are reserved words in COBOL. For example, TEXT and NEXT.
  - Do not use an Alternate Name with your extract file. Following these guidelines are essential for ensuring the correct behavior of the Match verb.

  It is recommended that you consider changing existing extract files to meet these guidelines before commencing the new development work on them, particularly if the MATCH verb is used with any of them.

  With respect to the MATCH verb, GLB.MATCH holds the name of the extract file. For MCP Runtime, the extract file name (assuming that the Alternate Name is blank) is the one used by the MCP TargetBuilder to create the extract file's name in the generated COBOL (or the first 4 bytes, if the extract file name exceeds 4 bytes).

So, any value compared with GLB.MATCH or any value assigned to GLB.MATCH must be an extract file name used by MCP TargetBuilder. If you are not sure what value to use, use the extract file element name and ensure that the extract file name follows the guidelines described above.

- Method Recursion

  For MCP, method recursion is limited by the maximum stacksize value. The exact number of consecutive recursive method calls supported by AB Suite Runtime for ClearPath MCP depends on the size of the method and the number of internal variables allocated. When the stack limit is exceeded, the task will be terminated with an R-DS (Resource DiScontinue) by the operating system.

- External Class Parameters

  AB Suite Runtime for ClearPath MCP supports the following data types for external classes (MCP Libraries).

  - Boolean
  - Real
  - Integer
  - EBCDIC array Multi dimension EBCDIC arrays are passed as single dimension EBCDIC arrays whose size is item length x multiplicity. Where the array is defined as numeric, its contents will be held as packed decimal.

- Inbuilt Methods

  Count() and Total() inbuilt methods cannot be called on an extract file opened in write mode. If Count() or Total() is called on an extract file opened in write mode, then this may lead to a runtime error. The user must close the file or make sure the file is in read mode before calling these methods.

- Multiplicity

  MCP will only support a maximum of 255 instances of any persistent class. There is no specific limit for non-persistent classes.

- Multiple Runtime installations on the same MCP host

  Although it is possible to install more than one MCP Runtime on the same MCP host, each Runtime must be installed under separate usercodes. Refer to the Notes about Installation section in the ABS_MCP_RT_Readme.htm for more information.

- Build fails with syntax error: INFLEXIBLE COMPILER LIMIT EXCEEDED

  When an ispec, report or method contains more than 1800 Detach commands, the build will fail with this error:

  ERROR: 311 : INFLEXIBLE COMPILER LIMIT EXCEEDED

  This problem is the result of an update to the generated COBOL for the Detach verb.

  The solution to the problem has two parts:

  - An update to the COBOL85 compiler for MCP 60 and 62 to increase the structure limit.
  - A modification to MCP Runtime to adjust the areasize and blocksize of the runtime code files to use the new compiler limit.

When the update to the COBOL85 compiler becomes available, Engineering will implement the change to MCP Runtime in a future AB Suite 9.0 IC.

Section 6
Support

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 Center 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 Online 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

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 for MCP Operating System Release 9.0 is; AGILE-BUS-SUITE-MCP-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

Downloading Documentation

Visit the Unisys Product Support Website at http://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® MCP Operating System
- AB Suite Runtime for the ClearPath® OS 2200 Operating System
- AB Suite Runtime for the Windows® Operating System
- AB Suite Client Tools

Section 8
Ordering Procedure

AB Suite Runtime Product Packaging

When you purchase an AB Suite Runtime for the ClearPath® MCP Operating System Release 9.0 license, you will receive:

- AB Suite Runtime for the ClearPath® MCP Operating System 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 from:

- 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 for the ClearPath® MCP Operating System 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 should 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 ClearPath® MCP Operating System Release 9.0 is configured by selecting the style that corresponds to the Performance Group (also referred to as the Software Group) of the Software Processing Unit for which the Runtime software is licensed.

  Note: *You are required to notify Unisys when the performance level of the hardware configuration executing Runtime is upgraded. Runtime must be licensed for the Performance Group assigned to the ClearPath MCP system that will execute it.*

License Styles

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

- New licenses
- Upgrade licenses
- Select Software Update (SSU) Subscription licenses

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 MCP 2.0, 3.0, 4.0, 5.0, 6.1, 7.0 or 8.0 and a maintenance agreement but don't have a SSU Subscription for it.

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 of AB Suite. 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 MCP Runtime are entitled to the same number of AB Suite MCP 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.

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