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Contents

Two Worlds into One: AB Suite and the Cloud

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

Enterprises like yours are embarking on digital transformation journeys in order to address emerging business challenges, reach new markets, and deliver exceptional value to internal and external stakeholders alike.

Inevitably, many clients tell us they're leveraging the cloud as a key, strategic element in their push toward digital transformation. That's because cloud infrastructures:

- Provide **pay-as-you-go** or **consumption-based** pricing models. This means there's no need to purchase and manage an infrastructure that you may not use to its fullest. Rather, you simply pay for additional resources only when they're needed.
- Make resources both **scalable** and **elastic**. This way, you're free to increase or decrease resources as demand for a particular service fluctuates.
- Enable you to **run the latest and greatest tools**. The cloud eliminates the burden of managing software patches, setting up new hardware, implementing upgrades, and many other mundane IT management tasks. It all happens automatically, so you're always running your business with the most up-to-date tools.

Although the cloud has become commonplace today, one fact about it remains: There is no one-size-fits-all cloud strategy. Every organization needs to adopt a version of the cloud that's relevant to their business and IT needs. Fortunately, as an Agile Business Suite (AB Suite®) client, you have a number of ways to bring the development environment into the cloud.

Below, we'll detail a few tactics to consider as you embark on your cloud journey. >>

AB Suite Developer in the Cloud

AB Suite Developer can be hosted in Microsoft® Azure®. As an Azure VM, AB Suite Developer gives you the flexibility of virtualization without the requirement to buy and maintain any physical hardware.

During testing and development, you can take advantage of a pre-configured image – a template that guides the creation of the VM – giving you a quick and easy way to create different operating system and application configurations. Your test and development personnel can then easily delete these VMs when they're no longer needed.

Source Control and DevOps in the Cloud

AB Suite release 7.0 includes support for Azure DevOps Services, a cloud-based service that offers source control, build, and deploy capabilities. Meanwhile, Azure Repos – free, private Git repositories – supports Team Foundation Version Control (TFVC), which can also be used for AB Suite model code source control.

When using Azure DevOps Services, you can deploy AB Suite Developer on either a local or Azure VM. Your developers can use Azure Pipelines – a cloud service that automatically builds, test, and makes code available to others – to build and deploy their AB Suite applications.

Building or deploying an AB Suite application with Azure Pipelines requires at least one agent. Each pipeline agent hosts a build agent, and each requires a full install of AB Suite Developer and Microsoft SQL Server® software. The build agent can be installed on a local machine or an Azure VM.

The steps for using Azure DevOps Services are similar to Team Foundation Server, save for the way you create a Team Project and build definitions. For detailed steps on setting up Azure DevOps Services with AB Suite, please refer to the How to Set up Azure DevOps Services with AB Suite document.

And to see details about supported versions of Microsoft Visual Studio® and SQL Server with Azure DevOps Services, please check the AB Suite 7.0 Software Qualification and Support Matrix.

Integration Through Web Services

When it comes to connecting cloud-based and AB Suite applications, the key technique is to encapsulate the AB Suite application's data and functions, then make them available as Web Services. Once this is done, you can integrate them with cloud-based applications.

With the AB Suite WebAppSupport Web Service Import Wizard, you can easily create an AB Suite class that encapsulates the Web Service functionality. AB Suite Business Integrator software offers another means of combining and exchanging data. With a set of powerful tools that enable your applications to interface and interact with external cloud systems and services, you're able to quickly and seamlessly integrate your AB Suite applications with Web Services and a variety of cloud-based applications.

We encourage you to explore the above use cases as you progress your cloud and digital transformation journey. And should you need any help along the way, please feel to reach out to us ABSuite@Unisys.com or email me directly at Thangathen.Ponnusamy@Unisys.com.

A Digital Revolution with AB Suite

By Alan Hood, Principal Consultant, Unisys

When it comes to end-user interfaces, we can no longer say "one size fits all" – if indeed, we ever could.

Your users will no longer settle for a terminal emulator or simple desktop interface into your applications. Rather, they expect anywhere, anytime access to their transactions and data – on their preferred device and in a format they choose.

That's why many Agile Business Suite clients have opted to explore digital transformation initiatives.

Digital transformation is more than the act of putting a simple web or mobile interface in front of your applications. It implies a deeper level of integration with newer user interfaces, newer APIs, and newer devices.

It can even mean simultaneously providing multiple connection points and interfaces – all from the same AB Suite application.

Say, for instance, you're in the financial services industry. You might have one user who wants to access their bank account using a mobile phone, while another wants to apply for a mortgage over the web. Meanwhile, an investor may want the ability to track several accounts using a cloud-based dashboard.

If you're in the insurance business, your policy holders could expect to have the ability to include photos from their mobile phones when submitting a claim.

Or if you're an online retailer, shoppers may be looking for real-time GPS tracking, so they can monitor the location of a delivery vehicle and know precisely when their packages will be delivered.

Have it Your Way

Your AB Suite applications represent a vital part of your organization. But in order to participate in this digital revolution, you'll need to develop new APIs, expand the access you provide to your transactions and data, and pull in data from external systems.

Over time, AB Suite has provided the latest in client and interfacing technologies. And it continues to evolve to support your ever-changing needs.

For example, with AB Suite, you have for years had the ability to present your transactions as sophisticated .NET or Java based web forms and mobile apps.

You can define your AB Suite application as an OLTP Server, and individual Ispecs as services. You're able to automatically generate the SOAP and XML interfaces your clients need to call these business services.

But it doesn't stop there.

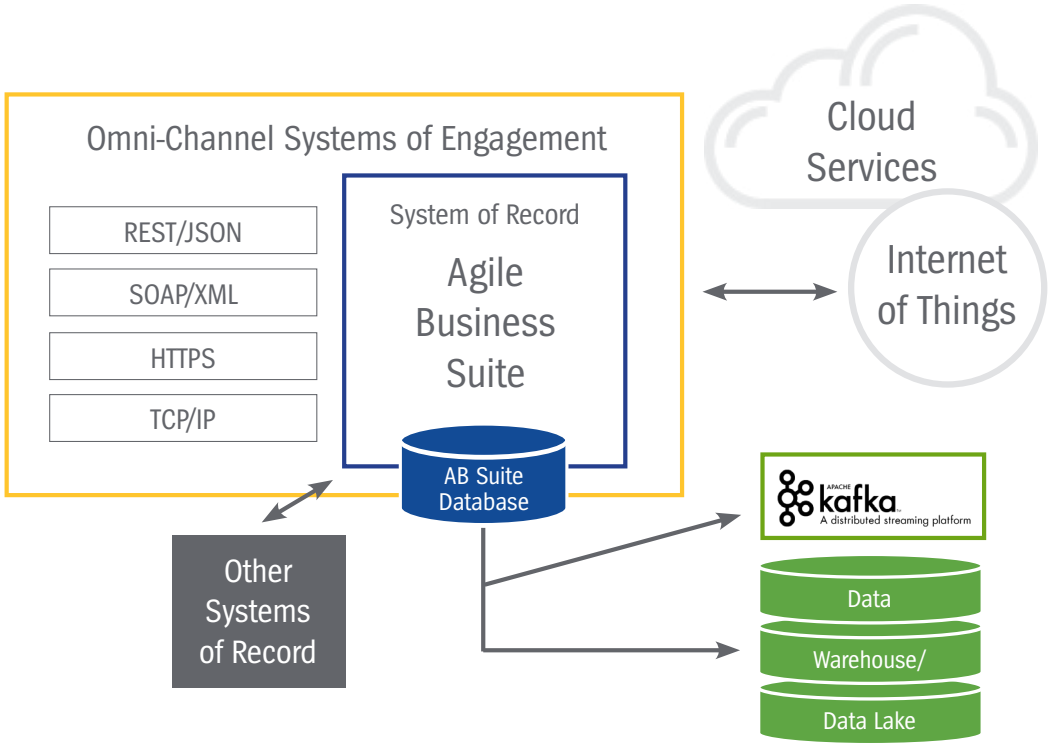
You can also import SOAP definitions from other applications, then call them directly from your AB Suite business logic. In short, AB Suite can be both a client and a server for standards-conforming Open DTP transactions.

Combined with other Unisys products, like ClearPath Forward® ePortal, the Application Integration Services (AIS) product, and Java Resource Adaptors, your AB Suite applications can easily interact with the Systems of Engagement – mobile and web apps, point-of-sale systems, smart clients, and others – that present those modern, ever-changing technologies and devices your customers demand.

You can expose transactions as REST and JSON interfaces, as well as call out to other REST services. You can even mix and match different types of interfaces, devices, and client types within the same application. >>

Plus, you can send data to, and receive it from, the ever-growing data sources that are part of the Internet of Things (IoT), including monitors and relays, industrial equipment, household appliances, and more.

Just consider this example: A fleet management system based in AB Suite interacts with the on-board systems installed on delivery trucks through a small IoT device connected to the vehicle's diagnostic port. The system monitors each vehicle's status, and when scheduled maintenance is needed or a critical fault is imminent, the application notifies the driver via a mobile app.



How are You Digitally Transforming?

It seems like just about every week we hear about new apps, changing requirements, and clever ways companies have satisfied their users' needs.

So how is digital transformation affecting your organization? Do you find that your users are asking for more access to core applications and data, in different forms and on different devices? Are they expecting to use cloud resources? Native mobile apps? Are you seeing a need to interact with other systems, partners, or agencies far differently than you have before?

The good news is, AB Suite clients are extremely innovative, and the solution provides plenty of opportunities to use this creativity to answer emerging demands and competitive pressures. And even if they haven't done exactly what you're looking for, chances are good we've learned something working with clients that could be adapted to your needs.

If you're interested in learning how to jump-start your digital transformation efforts, or would like to share an innovative project you completed with AB Suite, please reach out to us at ABSuite@unisys.com. We'd love to hear from you.

Engineering Corner:
Advanced Security Features in AB Suite 7.0

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

When building Agile Business Suite release 7.0, we made sure to enhance the solution's already high levels of security with new features designed to combat and defend against many of the day's most dangerous cybersecurity threats.

To that end, AB Suite 7.0 comes standard with the new, advanced security features described below. Together, they form the core of the most protected, most secure AB Suite release to date.

Secure RATL

With AB Suite 7.0 for ClearPath® MCP, you're able to encrypt connections between your Client and Host RATL servers using the TLS 1.2 protocol, creating a secure data packet transfer for your transactions.

To set up this feature, there are a few one-time MCP encryption steps you'll need to execute. You'll start by creating a Certificate Request via Security Center, processing the request through a certificate authority, creating a .P7B certificate file, and, finally, storing the certificate file in Security Center as a Trusted Key. This certificate must then be shared with the Client, so it can be imported into the respective Windows Trusted Store.

To enable RATL TLS, you'll need to update the Host *SYSTEM/CCF/PARAMS file to include the Secured Port and associated Service details. Naturally, you'll need to restart the Custom Connect Facility (CCF) after updating its Params file. For additional detail about these steps, please refer to the Agile Business Suite Installation and Configuration Guide.

To establish the Client connection, you'll need to change the Host URL to indicate the TLS Service and TLS port. For example, you'll need to use something along the lines of "x-ratltls:MCPHOST1:2449" instead of the standard "x-ratl:MCPHOST1:2448," where "ratltls" and "ratl" correspond to the Service names defined in the Host *SYSTEM/CCF/PARAMS file.

Complete these steps, and you'll be able to use Secure RATL with the peace of mind that you're protecting all in-transit data packets against unwanted viewing and interpretation.

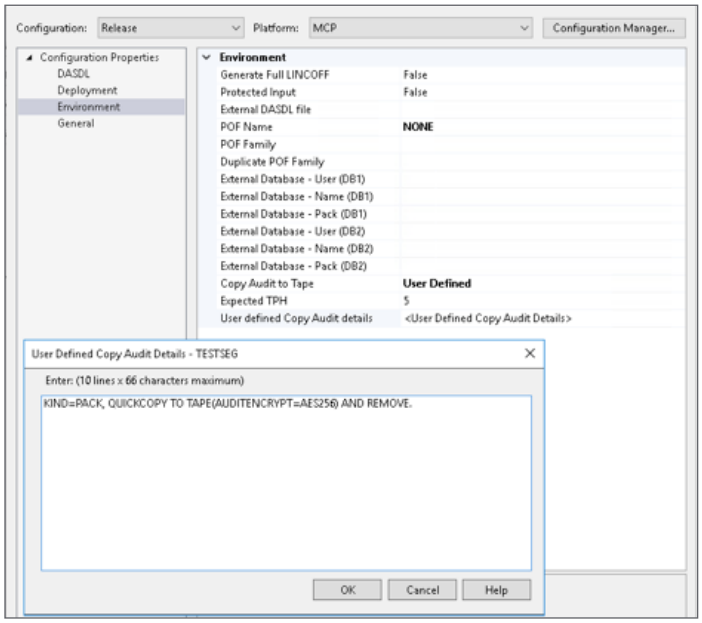
Secure DMSII Auditing

In AB Suite 7.0 for ClearPath MCP, you can prevent unauthorized access to your database update histories by encrypting the DMSII Audit Trail.

By using the QUICKCOPY command in the "User defined Copy Audit Trail Details" configuration property, you can explicitly designate whether or not encryption occurs. When requesting encryption in a QUICKCOPY operation, you're free to select TDES, AES256, or AESGCM algorithms. Just be sure to note that encryption is disabled by default.

To enable this encryption, you'll need to include "User Defined" in the "Copy Audit to Tape" property value, and then include the requisite syntax in the "User Defined CopyAudit Details" configuration property. >>

For example: “KIND=PACK, QUICKCOPY TO TAPE(AUDITENCRYPT=AES256) AND REMOVE.”



Additional information about this feature can be found in the Enterprise Database Server Data and Structure Definition Language (DASDL) Programming Reference Manual and Enterprise Database Server for ClearPath MCP Utilities and Operations Guide.

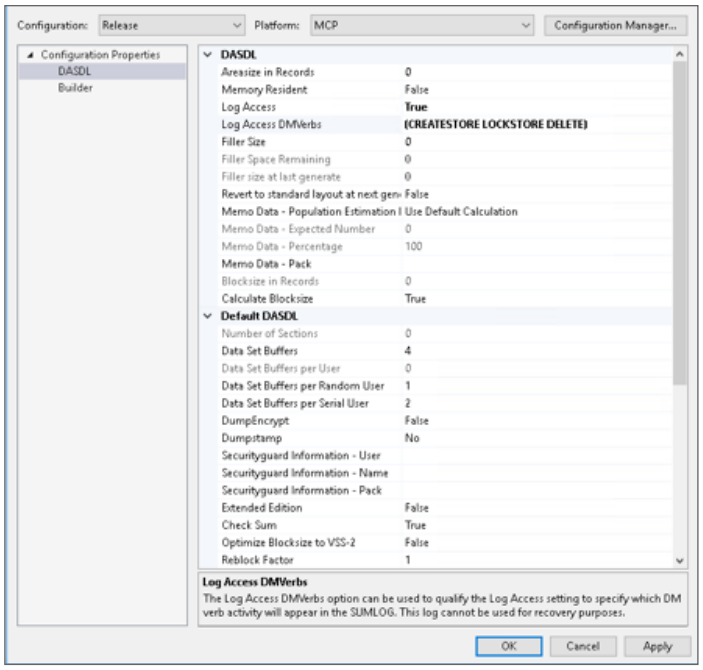
Granular Logging

In AB Suite 6.1, you could take advantage of a basic LOGACCESS capability that provided reporting – via the System Sumlog – for all DMSII operations against specific DMSII datasets.

With AB Suite 7.0, we’ve refined the LOGACCESS feature by including support for the associated LOGACCESSDMVERBS feature. This allows you to specify which DM verbs will log information in the Sumlog for a specific structure. For example, you could specify just “LOCK,” “FIND,” “LOCKSTORE,” and “CREATESTORE.” The default value is “ALL.”

A full list of DMVerbs is available in the Enterprise Database Server Data and Structure Definition Language (DASDL) Programming Reference Manual.

For auditing purposes, it’s likely that only updates – adds, changes, or deletions – to data records in specific datasets need to be logged. You can do this by including “CREATESTORE,” “LOCKSTORE,” and “DELETE” in the “Log Access DMVerbs” Class configuration property. Note that the “Log Access” Class configuration property must be set to “TRUE.”



This provides a more clinical approach to logging specific DMSII operations against selected application DMSII datasets.

To learn more about these features – as well as the other ways AB Suite 7.0 helps to secure your applications and the organization they support – please refer to the Agile Business Suite Developer User Guide and Enterprise Database Server Data and Structure Definition Language (DASDL) Programming Reference Manual.

Creating Microservices Around Your AB Suite Application

In response to the changes and challenges introduced by an increasingly digital world, many Agile Business Suite clients tell us they're eager to leverage the business logic in their applications as the foundation of a microservices architecture.

The goal is to allow other components in the digital architecture – such as an Enterprise Service Bus, online banking system, or mobile app – to re-use the AB Suite application's functionality when providing new services to different channels.

When it comes to helping your team work towards this goal, you can count on ClearPath Forward ePortal to help simplify much of this process.

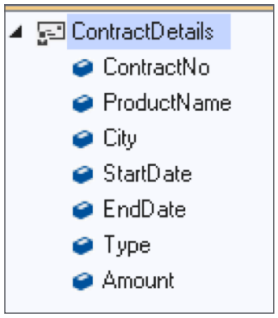
Making Microservices Happen

Thanks to its strong integration with AB Suite in both the ClearPath MCP and Microsoft Windows® environments, you can quickly – and in many cases, automatically – build services around your Ispecs with ePortal.

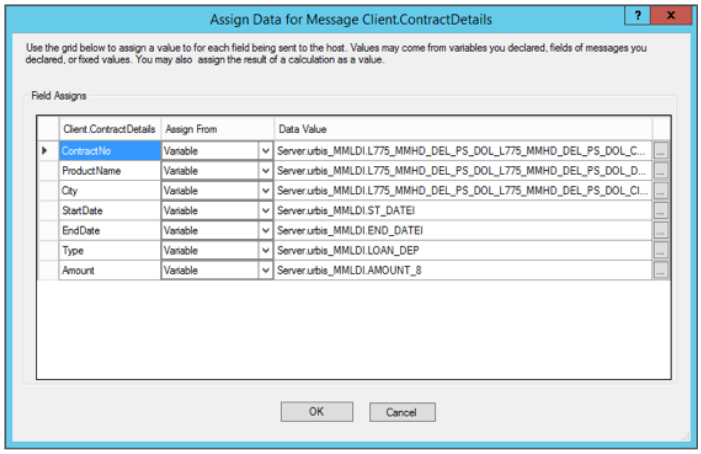
For instance, ePortal will automatically create a standard Microsoft WebAPI solution around select Ispecs and then use JSON messaging to expose those Ispecs as RESTful services. You can choose existing – ideally stateless – Ispecs or develop new ones to implement the specific services you need.

Meanwhile, Ispecs that maintain some form of state information can be exposed using the solution's Orchestration feature, which enables you to define the sequence in which Ispecs will be called to implement a particular service. You can also define new services that expose a subset of the fields within the Ispec, such as "Create," "Inquire," "Update," and "Delete" services.

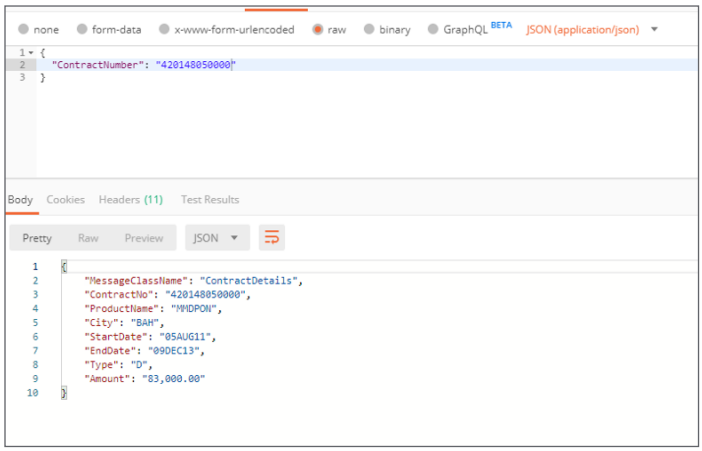
The example below shows how you can use ePortal to define a new service that accepts a contract number and returns summary details of that contract. The request definition message is simply the required contract number, while the definition of the response message is shown below.



Using the built-in data mapping features in ePortal, you can easily map the fields in this new message to the appropriate Ispec fields. >>

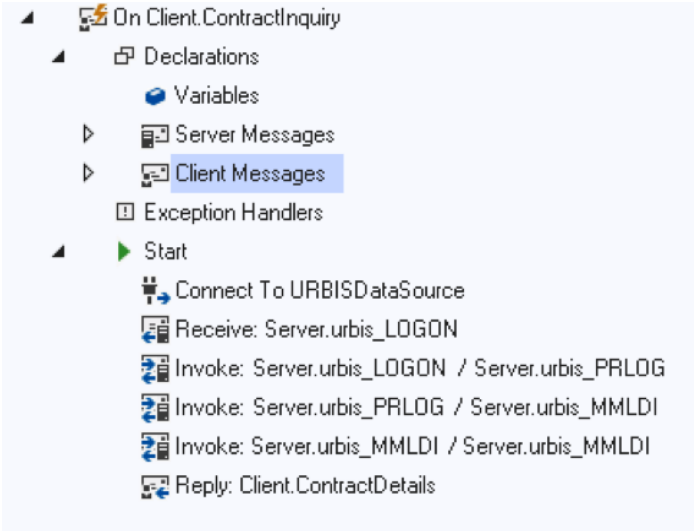


Then, ePortal will automatically generate all the Model-View-Controller (MVC) code required to implement this service as a standard Microsoft WebAPI. You'll be able to test the service using the automatically created Swagger interface or any other RESTful API testing tools, such as PostMan.



In addition, you can create a service that gathers data by either calling multiple Ispecs or navigating through a sequence of Ispecs to reach the one containing the required data. This process once again takes advantage of the Orchestration feature.

As detailed in the following example, the Orchestration feature instructs ePortal to navigate through a sequence of Ispecs – "LOGON" and "PRLOG" – to reach the Ispec that will actually implement the service. Since you can define these sequences using native Orchestration design artifacts, there's typically no need to write any custom C# or Vb.Net code.



You're free to further extend the completed service using custom C# code that implements specific logging or security features as necessary. Once completed, you can automatically deploy the service to a number of web servers within the ePortal environment.

To learn more about microservices in the AB Suite environment, please contact your Unisys sales representative or email Thangathen.Ponnusamy@Unisys.com.

Cloning and Transferring MCP Runtime Systems

By Andy Wardle, Senior Architect, Unisys

Both Enterprise Application Environment (EAE) and Agile Business Suite include utilities that allow generated MCP Runtime systems to be used as a source when creating copy systems (cloning) and updating existing systems (transferring).

These utilities – the System Management Utility (SMU) and Runtime Transfer Utility (RTU), respectively – are summarized below.

For more on the SMU and RTU, be sure to check out the documentation included in the Runtime for ClearPath MCP Administration Guide.

SMU

With the SMU, you're able to take an existing MCP Runtime system and clone it as a new Runtime system. And you can do so while changing some or all of the following properties:

- Usercode
- System Name
- Database Name
- COMS Window Name
- Pack Locations

Note that the SMU is a screen-based utility that requires you to manually input parameters before initiating the cloning process.

RTU

Using the RTU, you can update an existing MCP Runtime system, known as the "target," with the code generated for another "source" Runtime system, allowing you to deploy tested code bases into production environments and refresh test environments without generation.

While the RTU does include the option to transfer both the code base and associated database, the code is typically the only thing transferred. You can provide properties of the source system using an RTU parameter file – created by a Developer extract file in EAE or Builder in AB Suite. Meanwhile, the target system's properties can be supplied manually or included in the same RTU parameter file.

Like the SMU, the RTU is a screen-based utility that requires you to manually input the parameters before creating a runtime transfer deployment package. Once created, you can deploy the package whenever you wish. Just keep in mind that you'll need to provide additional manual inputs if the RTU parameter file doesn't contain the relevant properties of the target system.

Is There a Batch Option?

The simple answer, from a product perspective, is "no."

But after some client requests, we've developed two custom utilities to provide this capability:

- SMU Batch Controller
- RTU Batch Controller

These utilities – which work with both EAE and AB Suite – take the basic set of parameter values you manually input into the standard utilities, run the standard utility as a subsidiary task, and pass the parameter values as and when required. This way, you can run these utilities from a WFL job containing the actual parameter values. >>

Here's an example of a WFL job to run the SMU Batch Controller:

```
  Run OBJECT/SMU/CONTROLLER
    ("(AW)AWSAMPLE ON AW "                    % Old System Location
   & "AW2 "                                   % New Usercode
   & "AW2SAMP "                               % New System Name
   & "AW2SAMPDB "                             % New Database Name
   & "AW2SAMP "                               % New Window Name
   & "TEMP "                                  % New Default Pack
   & "TEMP "                                  % New Database Pack
   & "TEMP "                                  % New Audit Pack
   & "TEMP "                                  % New Extract Pack
   & "TEMP "                                  % New Log Pack
   & "IGNORE "                                % New Scratch Pool
   & "ABS61 "                                 % Software Usercode
   & "ABS");                                  % Software Pack
    SW1 = TRUE;                               % Write Log File?
END JOB;
```

Although we initially developed these utilities to support our associates during client engagements, we're open to the possibility of you using them in your own organization.

If you're interested in taking advantage of these custom capabilities – or would like any more information about them and the SMU or RTU – please contact your Unisys sales representative or reach out to me directly at andy.wardle@unisys.com.

Tech Preview Recap:
ClearPath OS 2200 and AB Suite

Big things are happening in the ClearPath OS 2200 development world.

On December 20, 2019, we completed the initial technical preview of Agile Business Suite release 8.0.

This preview centered on using AB Suite to build a model that targets a runtime environment on an OS 2200 host.

During the preview, participants were able to define their models, set up the configuration properties for the OS 2200 platform, and Build and Deploy to an OS 2200 AB Suite Runtime system. This provided participants with an end-to-end experience.

As such, they could define an Ispec, noting its character presentation, attributes (data items), logic, and persistence (database structures). And they could run their OS 2200 AB Suite application using a terminal emulator.

While participants weren't able to add elements like Reports, Insertables, and Frames, and could only take advantage of limited number of supported LDL logic commands, we do plan to expand the available functionality in subsequent previews.

Note, however, that we did include a couple of demonstration models that use the supported element types and logic as part of this preview. Participants were able to import this model, generate it to the OS 2200 environment, and run it on the OS 2200 host via a terminal emulator.

The model included a number of Ispecs with a variety of functionality:

- A simple menu Ispec
- A calculator Ispec that took input numbers and performed arithmetic operations in the logic
- A "contacts" Ispec that demonstrated the use of the MAINT field actions to add, change, and inquire database records
- A "quiz" Ispec that demonstrated the use of input and output fields, as well as select logic commands

A heart-felt "thank you" to everyone who participated in this initial tech preview. We hope you thought it offered a really solid taste of what you can expect when a full version of AB Suite is available in the OS 2200 environment.

We're well underway planning the second AB Suite 8.0 tech preview for early 2020. If you'd like to learn more about it, or are interested in participating, please email ABSuite@Unisys.com or Thangathen.Ponnusamy@Unisys.com.

Info Center

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

- **How To:** Use Debugger as a Normal User **(NEW)**
- **How To:** Process XML in AB Suite **(NEW)**
- **How To:** Upgrade Models Under Source Control from AB Suite 4.0/5.0 to AB Suite 6.1 **(NEW)**
- **How To:** Upgrade Models Under Source Control from AB Suite 5.0 to AB Suite 6.1/7.0 **(NEW)**
- **How To:** Set Transaction Isolation Level in Windows Runtime **(NEW)**
- **How To:** Use MULTI in Windows Runtime **(NEW)**
- **How To:** Use Non-Phased SQL in Windows Runtime **(NEW)**
- **How To:** Use Registry Keys with Windows Runtime **(NEW)**
- **How To:** Set up Azure DevOps Services with AB Suite **(NEW)**
- **Support Documentation:** AB Suite 7.0 Software Qualification and Support Matrix **(Updated)**
- **Support Documentation:** AB Suite 6.1 Software Qualification and Support Matrix **(Updated)**

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

In addition, there are several pieces of thought leadership available on the AB Suite homepage:

- Why Agile Business Suite Should Be Your Development Environment
- AB Suite in the Application Lifecycle
- Agile Development with Agile Business Suite
- Unisys Agile Business Suite: Capitalize on Change, Don't React to It

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

To stay up to date on the latest happenings in the ClearPath Forward world, please subscribe to the ClearPath Forward Connection newsletter – and give the December 2019 issue a read.

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

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