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MCP

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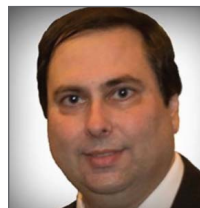
### Resources

We provide a wide array of materials to help you stay up to date on everything that's happening in the ClearPath Forward world.



## Evolving the Enterprise Architecture

*By Steve Koss, Distinguished Engineer and Global Team Lead, Product Services and Solutions, Unisys*



“Business as usual” is changing fast.

With more systems, more points of interaction, and more pressure to integrate everything into a seamless, efficient whole, many ClearPath Forward® clients find themselves exploring digital transformation initiatives.

But what does it take to transition digital transformation from the conceptual to the practical? What steps are needed to connect everything that needs connecting, limit the strain on these connections, and start seeing a real return on your digital transformation efforts?

As the System of Record sitting at the heart of your business and IT operations, the ClearPath Forward environment is already helping to facilitate many of the connections that will be commonplace as your digital transformation initiative progresses. And with a number of industry-standard interfaces and tools already built into the environment, you'll be well equipped to build on and add to these connections as your needs and strategies evolve.

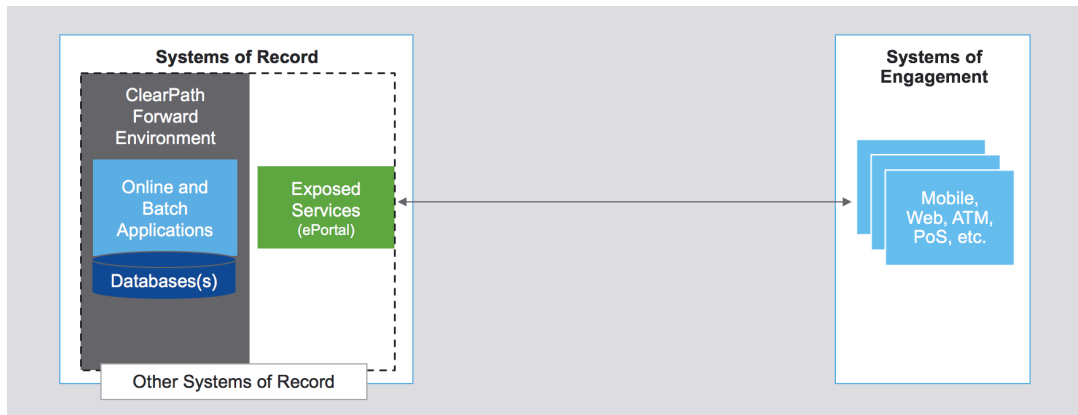
To see how, let's examine the ways the ClearPath Forward environment interacts with Systems of Engagement, Systems of Integration, and Systems of Reference.

### Systems of Engagement

In this common scenario, mobile devices, web apps, point-of-sale systems, and such – collectively referred to as Systems of Engagement – need to access and interact with the transactional data residing on a ClearPath Forward system.

These interactions were historically facilitated by purpose-built interfaces, such as one designed to give a mobile app access to a specific set of ClearPath Forward data. But because these interfaces didn't utilize a common or open standard, they had to be rewritten every time a new System of Engagement was introduced. >>

Since that time, many standards have been developed – including web services, microservices, and message queueing – eliminating the need for heavily customized, special-purpose interfaces.

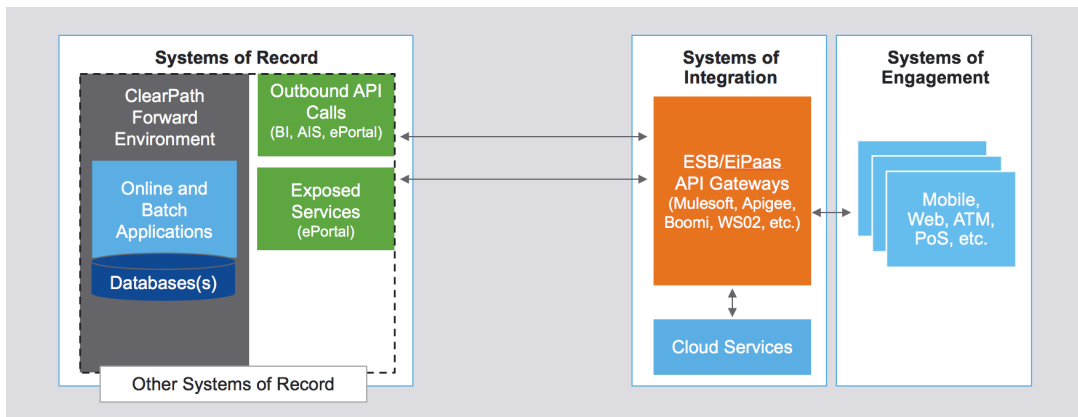


And, fortunately, you’re free to build and call to these standards in the ClearPath Forward environment. We often call these “exposed services” – or anything that’s exposed by the ClearPath Forward system to be called by a System of Engagement. With the help of these exposed services, it’s much easier to interact with Systems of Engagement.

## Systems of Integration

As more Systems of Engagement are added, and the interactions between them and your ClearPath Forward system mature, the need for better control over transactions becomes crucial.

For many, this means implementing a hub that can monitor and prioritize traffic, control quality of service, and manage conversions. That’s where Systems of Integration come into play.

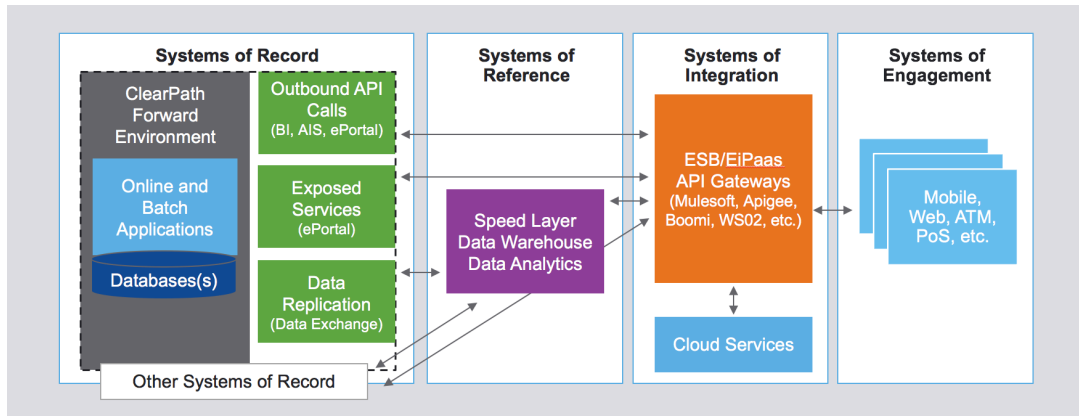


Systems of Integration usually take on a few forms: a traditional Enterprise Service Bus (ESB), a cloud-based Enterprise Integration Platform as a Service (EiPaaS) system, or an API gateway. The ESB and API gateway often work in conjunction to manage digital interactions between Systems of Record and Systems of Engagement, often by calling out to external cloud services.

You can even call out to these cloud services directly from your ClearPath Forward system using capabilities in Business Integrator (BI), the Application Integration Services (AIS) product, and ClearPath Forward ePortal. >>

## Systems of Reference

While Systems of Integration certainly play an important role in managing and monitoring traffic – as well as simplifying things like confirming a credit card transaction is legitimate – the sheer amount of activity flowing through them has the potential to overburden systems and increase costs.



That’s why many clients have opted to implement Systems of Reference. Often referred to as a “speed layer,” a System of Reference exists to provide a near-real-time replica of commonly accessed data from the System of Record. Essentially, you’re eliminating the need to repeatedly go back to the System of Record, cutting a step out of the process and accelerating the transaction as a result.

Plus, because Systems of Reference are able to pull together data from disparate sources, and run queries against this data, they’re incredibly valuable from a big data perspective.

You can rely on the Unisys Data Exchange product to propagate select data from your ClearPath Forward system to your System of Reference, making it easy to provide what’s needed to quickly complete transactions and support analytics efforts.

## Your Choice, Your Architecture

This vision of a next-generation enterprise architecture – one in which Systems of Record, Systems of Engagement, Systems of Integration, and Systems of Reference all work closely as a cohesive whole – represents an idealized state of sorts.

We recognize it’s a place not every ClearPath Forward client will move to immediately, nor will they put every piece in place exactly as described above. But it does further illustrate a defining characteristic of the ClearPath Forward environment: choice.

However you choose to envision and execute your digital transformation strategy, you can rest assured knowing the ClearPath Forward environment will provide the resources, connections, and flexibility you need to effectively support your journey.



## Microservices Integration Added to ClearPath Forward ePortal 10.0

An increased need for collaboration, changing business and regulatory dynamics, and emerging demands from digital natives have combined to evolve the idea of what an enterprise architecture can – and should – be. In response, many IT departments are exploring and adopting microservices deployments.

But why? What makes a microservices architecture ideally suited to deliver on changing business and IT demands?

In a microservices deployment, you're able to break code into small chunks that perform specific business services. Because these services are decoupled, it's easier to build, alter, and scale applications, increasing agility while limiting the strain on your resources. Replacing and upgrading services as business needs change becomes simpler, as well.

This approach lends itself well to agile development practices – and lets developers function with greater autonomy – increasing the speed with which you can bring fresh capabilities to market.

Plus, because microservices focus on a single, specific business capability, you'll be better equipped to understand which are bringing the most value to your organization.

The best news of all? Thanks to a few key updates we've added to ClearPath Forward ePortal 10.0, you're now able to easily integrate ClearPath® MCP and ClearPath OS 2200 applications into a microservices deployment.

### Outbound Web Service Communication

Using the Outbound Web Service Communication feature, you're able to make external REST service calls directly from your MCP or OS 2200 COBOL programs.

In ePortal Developer, you now have a way to import an OpenAPI Specification, which defines the interface to an external RESTful Web Service. Once you have this definition, you'll be able to generate a complete pipeline for calling that service from your application at runtime. You can even generate COBOL record definitions and quickly integrate them into your application, so it's easier to make these service calls from your ClearPath Forward system.

By doing this, you'll be able to easily integrate external microservices with the business logic residing in your ClearPath application.

### Inbound REST Services

A key area in ePortal that is undergoing continuous improvement is the ability to expose ClearPath application transactions as RESTful Services. In conjunction with improvements made by Microsoft® to their open-source .NET Core offering, ePortal 10.0 gives you greater flexibility when defining RESTful Services. For instance, you can now control the way a Service operation should be called, what type of data it consumes and produces, how that data is transferred in the request and response, and much more. >>



## But That's Not All...

In addition to these exciting microservices-enabling features, ePortal 10.0 offers the following new and updated capabilities:

- **Enhanced ePortal Manager web site:** The ePortal Manager web site's user interface has been updated to take advantage of current technologies, and also includes improvements in such areas as role management, authorization, and user feedback on long-running processes.
- **Enterprise compatibility:** New networking capabilities in ePortal Software Edition support domain-based services like DNS and DHCP, making it easier to integrate it into your environment.
- **Publishing technology:** You can now take advantage of standard Microsoft publishing technology when deploying your ePortal applications. Using the Microsoft Visual Studio® "Publish" option, you can stage an ePortal presentation project to your ClearPath Forward system, copy the presentation project files to appliances on the system, and use ePortal Manager to deploy the application to an ePortal Web Cluster.
- **External load balancing:** With this update, you're free to use your preferred load balancer in your ePortal environment.
- **Xamarin client technology:** Xamarin Forms mobile development technology is now supported in ePortal, augmenting the solution's current responsive design capabilities and giving you the freedom to choose between two industry-popular development paradigms.
- **SSL configuration for AB Suite:** A new configuration option in ePortal 10.0 allows you to establish an SSL connection for Agile Business Suite (AB Suite®), so you can maintain compatibility with security enhancements made to the RATL protocol and encrypt data between your ePortal application and AB Suite environment.
- **Visual Studio 2019 qualification:** ePortal 10.0 is qualified with Visual Studio 2019, allowing you to utilize the development environment's newest capabilities in ePortal Developer.
- **OS 2200 XPC-L cluster support:** By enabling ePortal 10.0 to participate in eXtended Processing Complex Lock (XPC-L) clusters, your applications can take advantage of a multi-host clustering environment that delivers extensive horizontal growth, capacity, and non-stop availability.
- **Connection Pooling enhancements:** This feature extends the current Connection Pooling support for AB Suite and Enterprise Application Environment (EAE) applications by providing scope for custom-pooled objects on an application-by-application basis.
- **Support for Windows Server 2019:** ePortal Software Edition supports Microsoft Windows Server® 2019 and all of the release's new features and capabilities.
- **Information Center:** With ePortal 10.0, you get access to the all-new ePortal Information Center – a comprehensive, one-stop shop for all ePortal documentation and related assets.
- **Orchestration enhancements:** The Orchestration feature has received the following updates:
  - **Message assignment:** Allows you to specify from which message to apply the automatic assigns in the "Assign Data for Message" dialog box.
  - **External process parameters:** Adds local variables, calculation, and literal parameters to external processes.
  - **Initial value property:** Enables you to set an initial value for ePortal orchestration variables.

*If you'd like to learn more about how ClearPath Forward ePortal 10.0 can benefit your business – or have questions about utilizing the solution to support microservices – please contact your Unisys sales representative. And for additional information, please visit our web site to see all the value ePortal can bring to [MCP](#) and [OS 2200](#) environments.*



## A Major New Step: ClearPath MCP Platinum is Available

Things have been quite busy in the ClearPath MCP world.

2019 has seen a number of updates, releases, and advances incorporated into the environment, making it richer, more secure, and better equipped to help you differentiate your business.

For instance, we updated the ClearPath Forward Libra product line with several new systems. It all started with the introduction of the [ClearPath Forward Libra 8500 systems](#) – the most cutting-edge and powerful models we’ve released to date. The [Libra 4500 and 6500 systems](#) followed a few months later, adding new mid-range and high-end capabilities to the family.

Moreover, with the release of [ClearPath MCP 19.0](#), you’re able to utilize a secure, contemporary, fully featured operating environment to drive a variety of business and IT strategies.

While doing all of this, we sharpened our [emphasis on choice, freedom, and flexibility](#), so you have more ways – and more places – to put the environment to use. And nowhere are our efforts to prioritize choice more evident than in the ClearPath MCP Software Series.

From the very start, the ClearPath MCP Software Series has been designed to push the boundaries of what’s possible with a ClearPath Forward system.

Whether it’s integrated application development, modernization, and maintenance, or a range of full production environments, you can use the Software Series to actively redefine how you operate, go to market, and support internal and external stakeholders.

And with freedom of choice as a guiding principle, we’re thrilled to announce the latest addition to the ClearPath MCP Software Series.

That’s right: ClearPath MCP Platinum has arrived!

### True, High-End Power

MCP Platinum represents the next major step in the evolution of the ClearPath MCP Software Series. With it, you’ll have access to a software-based MCP implementation that delivers high-end production capacity on par with ClearPath Forward Libra 6000 systems.

And as with all ClearPath MCP Software Series deliverables, you can run MCP Platinum on your choice of compatible Intel® hardware or VMware® and Microsoft Hyper-V® hypervisor platforms. So not only will you have the flexibility to pick where MCP Platinum resides, you’ll take advantage of new ways to use hardware you may already have in your data center.

Plus, MCP Platinum offers you the flexibility to utilize a licensing model that best fits your organization’s specific business objectives and performance requirements.

With the product’s consumption-based pricing, you can leverage an industry-standard private cloud pricing model that makes costs predictable, helps you avoid over-provisioning, and makes additional processing power available as business and IT needs dictate.

Or, you can opt for a more traditional capacity-based model that’s great for supporting consistent workload demands, while still offering the agility to tap into additional performance when you need to accommodate sudden spikes in demand. >>

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Plus, MCP Platinum is part of the ClearPath Software Series 3.0 release. So as you take advantage of all the solution has to offer, you'll also benefit from several advances we've built into the Software Series firmware:

- Support for MCP Disk Encryption on hypervisors
- Active Directory support
- Security enhancements, including Kerberos authentication, SSL/TLS, and AppLocker Whitelisting

*For more information about ClearPath MCP Platinum, please [visit us online](#) or contact your Unisys sales representative.*

## Speed, Simplicity, Security: Agile Business Suite 7.0

Tighter security. An emphasis on ease of use. Greater flexibility and productivity. Support for modern development technologies.

The new capabilities we've built into Agile Business Suite release 7.0 enrich the solution's unique model-driven development environment, giving you new ways to design, develop, generate, and maintain mission-critical applications. And because these capabilities help you define your applications at a high level of abstraction, you'll improve productivity and overall coordination between IT and the business.

This way, you'll have a number of ways to create and deliver innovative capabilities that help to differentiate your organization – while empowering it capitalize on fast-changing market dynamics.

Take a look for yourself:

- **Data Encryption:** With [this new feature](#), you can secure the data within your Enterprise Database Server for ClearPath MCP (DMSII) database through two distinct approaches: data masking and data encryption.
- **RATL over TLS 1.2:** By extending support for RATL over TLS 1.2 between AB Suite Component Enabler and the ClearPath MCP Runtime host, you'll be able to send data between client and server over a protected channel, greatly enhancing security.
- **Product Feature Modes:** With this intuitive update, you're free to use AB Suite in a way that best fits your unique needs. AB Suite 7.0 includes two specific Product Feature Modes:
  - **Standard Mode**, which offers a simplified way to develop applications in Visual Studio using terminology, capabilities, and functionality that will be immediately familiar to EAE developers.

- **Advanced Mode**, which includes advanced Object-Oriented features – such as inheritance, encapsulation, and polymorphism – as well as the XML Framework.
- **ExportAs:** Using this new capability, you can export changes from a higher release and import them into lower release – say, from AB Suite 7.0 to AB Suite 6.1 – enabling critical changes to flow from the current release into your production environment, while still allowing sufficient time to test the application before upgrading production.
- **Debugger enhancements:** With the features added to the Visual Studio debugger – such as the read-eval-print “Immediate” window – you'll improve overall developer efficiency and simplify debugging. Beyond these functional additions, you can take advantage of performance improvements that accelerate the startup and runtime of debug sessions, helping you increase turn around speed.
- **Contemporary software support:** With AB Suite 7.0, you'll be able to take advantage of native support for the market's newest and most contemporary development technologies, including Microsoft Visual Studio 2017, Microsoft Team Foundation Server 2018, and Microsoft Windows® 10.

No matter if you're an EAE client moving to AB Suite, or an AB Suite shop that's upgrading to latest version, there's sure to be something in release 7.0 that will help you and your development team work better – and faster – together.

*To learn more about AB Suite 7.0, please [visit our web site](#), [check out the AB Suite 7.0 announcement webinar](#), or give [this newsletter article](#) a read.*





## Simplifying Application Discovery with Hatha Systems Knowledge Refinery

Your applications don't just run your business – they are your business.

But while the business rules and business processes contained within your applications have steadily evolved alongside your business and IT strategies, the same can't always be said for their supporting documentation.

So in order to simplify the process of adding features, performing maintenance, and onboarding new team members, it's imperative that you do everything you can to enable development staff to understand your applications and how they contribute to your organization's success.

That's why many clients have prioritized application discovery efforts. The high-level goal of an application discovery project is to uncover and understand application functionality, so you're better equipped to:

- Extend, evolve, and integrate your applications
- Identify application dependencies and interfaces
- Clean up dead and duplicate code, as well as other anomalies
- Discover code that doesn't meet your standards
- Gain the insight needed to develop better, more comprehensive test cases
- Find the logic necessary to expose parts of the application as a service
- Gain greater control over the development process

But here's the catch: It took you years to build your applications, and they're not going to give up their secrets easily.

Application discovery requires the right tooling to be successful.

### Introducing Hatha Systems Knowledge Refinery

Developed by our partner Hatha Systems®, [Hatha Systems Knowledge Refinery](#)® (Hatha KR) is a platform and set of tools designed to assist your application analysis efforts.

Using Hatha KR, you can parse source files – such as COBOL, ALGOL, C programs, database schema (DASDL or OS2200 DDLs), and WFL or ECL – place the code into a standards-based Knowledge Discovery Model, and make the results available for further examination.

As you parse your programs and build your Knowledge Discovery Model, you'll be able to take advantage of the following core capabilities:

- **Navigation:** Parsing programs breaks them down into composite and elementary items showing application and data flow. From this point, you can easily see all declarations and paragraphs. Clicking a paragraph displays entry and exit flow as an outline or as statement details. Data flow is provided in a similar way, as well. Plus, you can find which variables update other variables, making it easy to determine the impact of a change throughout the application.
- **Program flow:** You're also able to analyze program flow. You can see flow as execution moves forward through the program or view it in reverse. Additionally, you'll have access to charts showing paragraph flow or flow through the entire program.
- **Query language:** You'll be able to utilize a number of out-of-the-box queries, all of which can be used to analyze code and determine whether it meets your standards. You're free to write your own queries either from scratch or by using one of the built-in queries as a starting point, too. >>

- **Business rules and documentation:** With Hatha KR, you can provide terms that are likely to be used in a business rule and ask the platform to deliver a list of “candidate” rules. You can then review the list to determine which are actual business rules, mark the rules, and place the code in a container. Once this is done, you’re free to add documentation to the identified business rules.

Aside from these key features, you can use Hatha KR to find duplicated code at varying levels of sensitivity. You can produce a matrix of source dependencies, or view reports and metrics on languages, lines of code, complexity, range use, and many other topics. And you can easily obtain information detailing the impact of any proposed change to your applications.

## We’re Here to Help

Hatha KR is a powerful platform – and one that may require some getting used to before you can fully take advantage of all it has to offer.

To streamline your adoption of Hatha KR, we offer a number of services that can help you get started or even offload some of the effort to our team:

- **Proof of Concept:** We’ll analyze an application of your choice and note such items as program metrics, dead code, duplicated code, code anomalies, and service discovery.
- **Compliance scanning:** You can work with us to scan your code base to ensure it upholds your corporate standards, using either custom or out-of-the-box queries.
- **Application documentation:** We’ll perform a comprehensive analysis of your application in order to document it, understand inter- and intra-dependencies, and extract rules.
- **Application health check:** You’ll be able to identify and clean up dead, duplicate, and anomalous code.
- **Data dictionary creation:** We’ll extract and analyze data elements then consolidate them into a data dictionary.

These are just a handful of Hatha KR services our team offers. We’re also happy to customize a service engagement to your organization’s specific needs.

*To learn more about Hatha KR and the services we offer around it, please contact your Unisys sales representative to request a demonstration.*

## The Unisys ClearPath Visual IDE 4.0 is Now Available

Exciting news for all you ClearPath MCP developers out there: There's a new release of the Unisys ClearPath Visual IDE on its way.

With the arrival of the ClearPath Visual IDE 4.0, you'll have new ways to quickly design, develop, and deliver both native ClearPath MCP and distributed applications. You'll reduce the costs associated with developing these applications, as well. And because this release continues to leverage the familiarity of the Microsoft Visual Studio environment, you'll shorten the time it takes your newest team members to become productive ClearPath developers.

So, what's new and noteworthy in the Visual IDE 4.0? Below are some of the release's standout new features:

- **Save as to host:** Using this feature, your developers can rename the file they're currently working on and save a copy to the host. Any unsaved changes will be copied to the new file, while the original file remains unchanged.
- **Patch Mode:** With Patch Mode – a new capability that allows you to work directly on the host patch file – developers can specify a patch file location and save any changes directly to the file at the indicated location.
- **Navigate to changes:** Your users are now able to navigate to Previous, Next Changed, and Patched lines in the editor, making it easier to locate changed lines.
- **Editor layout:** The editor has been enhanced to give you the freedom to change the position of file components – such as Sequence Number, text area, Mark ID, and Hidden Column – using two methods: File Order and Sequence Number to the Left.
- **Copy Sequence Number, Mark ID, and Hidden Column values:** You can now copy the value of a Sequence Number, Mark ID, or Hidden Column in the editor and save it to the clipboard for future use.
- **Preserve Mark ID:** With the Visual IDE 4.0, you'll be able to copy text from one file and paste it into another while retaining any copied Mark ID content. Note that this feature works only for content copied within the Visual IDE editor.
- **Comment/uncomment selections:** You now have the ability to add or remove comment characters from selected lines in the editor.
- **Renew vicinity:** Using the Renew Menu, you can revert changed text to its original form in specific regions of the editor.
- **BEGIN/END highlighting:** Placing your cursor on a BEGIN or END keyword will automatically highlight the corresponding END or BEGIN keyword, helping you easily spot where a current block starts and stops.
- **Find all assignments:** With this new feature, you'll be able to view instances where the value of an identifier has changed and see the lines impacted by these changes.
- **Visual Studio 2019 qualification:** The Visual IDE 4.0 adds support for Visual Studio 2019 and drops support for Visual Studio 2015. Visual Studio 2017 and 2019 are the only supported versions currently.

*To learn more about the features included in the ClearPath Visual IDE 4.0, or to view configuration, compatibility, and licensing requirements, please [visit our web site](#). And if you need assistance putting any of these new features to use in your organization, please contact your Unisys sales representative.*



## Resources

The list below contains quick links that will help you stay up to date on all things ClearPath Forward.

- [ClearPath Forward homepage](#)
- [ClearPath Forward Services homepage](#)
- [Agile Business Suite homepage](#)
- [Business Information Server \(BIS\) homepage](#)
- [ClearPath Forward & Innovation Blog](#)
- [ClearPath Forward How-To Videos on YouTube](#)
- [ClearPath Forward Dorado/OS 2200 webinars](#)
- [ClearPath Forward Libra/MCP webinars](#)
- [Video Playlist: ClearPath OS 2200 Software Release 17.0 Technical Update \(\*\*29 Videos\*\*\)](#)
- [Video playlist: ClearPath OS 2200 Release 18.0 Technical Update \(\*\*27 Videos\*\*\)](#)
- [Video Playlist: ClearPath MCP Software Release 18.0 Technical Update \(\*\*21 Videos\*\*\)](#)
- [Newsletter: ClearPath Forward Connection June 2019](#)
- [Newsletter: Developing Agility July 2019](#)

The latest:

- [Video Playlist: Facetime with Andy \(\*\*NEW\*\*\)](#)
- [Brochure: Unisys ClearPath Forward® Systems: The Heart of Your Digital Business](#)
- [Brochure: From Today to Tomorrow: Using the Unisys ClearPath Forward® Environment to Drive Your Ongoing Digital Business Evolution](#)
- [Brochure: Two Complete Environments: The Unisys ClearPath Forward® Integrated Stacks](#)