

blueprism[®]



Approaches to Automate EPIC EMR with Blue Prism

1. Surface Automation
2. EPIC Thick Client
3. Blue Prism on Citrix
4. Ultima IA-Connect on Citrix

Blue Prism : Automate Any Application



Surface Automation / Region Mode

- Understand windows appearance
- Recognize drawn text
- Simulate mouse clicks
- Send keystrokes to window

Screen Scrapers get these

but miss these

Accessibility (AA & UIA) Modes

- Aggregate information from all others

HTML / Java / Mainframe Modes

- Interact with platform activity
- Connect with Java, HTML (+CSS + JavaScript), and HLL APIs within runtime environments

Windows & SAP Modes

- Interact with applications
- e.g. SAP, Excel, etc.

Method 1 : Surface Automation

Description

The Blue Prism Digital Worker (aka. BOT / Robot / Run-Time Resource) resides on a standard Virtual Desktop (or VM) and Surface Automation is utilized to navigate screens.

Most Healthcare Networks setup EPIC for access through Citrix Virtual Apps or XenDesktop. If no other options exist, Blue Prism Digital Workers can navigate Citrix client applications through Surface Automation (aka. Region Mode / Computer Vision) according to images shown on a screen. This methodology is sometimes referred to as 'screen scraping' as it uses pictorial placement of elements within an application to train Digital Workers on where to read or write data. Surface Automation encompasses a broad range of techniques including send keys, optical character recognition (OCR), object detection, and other approaches associated with Computer Vision.

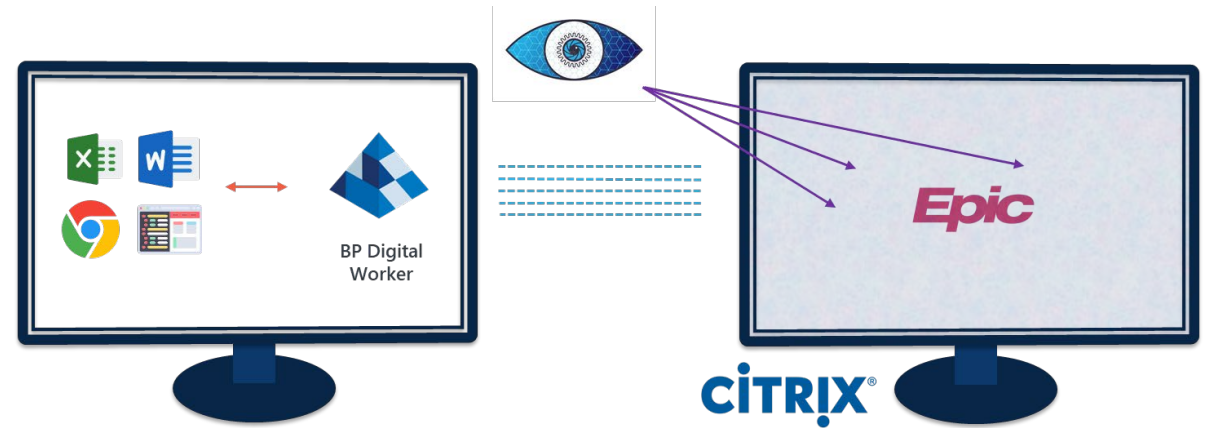
While this approach may be manageable with POCs and small-scale implementations, Surface Automation is highly discouraged by Blue Prism when any other approaches is available.

Benefits

No IT overhead. Can be utilized as a last resort to extend Blue Prism's ability to automate any target system.

Cautions

Blue Prism's application modeler automatically detects many elements within applications to create a digital fingerprint for a target field. Reducing the number of unique identifiers in any automation also decreases the accuracy of an automation. Automating against a Citrix client is like automating images under a plate of glass. While an initial identification may be based on the X/Y coordinates of a field on a screen, relying on this single identifier will result in brittle automations as user interfaces or screen resolutions change. Consequently, multiple unique identifiers should be defined when using Surface Automation to create more resilient automations. These identifiers may be additional reference coordinates, fonts, colors, or other visual reference points. Consequently, development of resilient automations when restricted to images alone requires significantly more design consideration than Blue Prism's other rapid modeling techniques.



Method 2 : EPIC Thick Client (non-Citrix)

Description

The EPIC thick client runs directly on The Blue Prism Digital Worker's (aka. BOT / Robot / Run-Time Resource) Virtual Desktop. This simplistic approach allows the EPIC UI to be automated like any typical desktop program, utilizing a combination of Blue Prism's UIA and Win32 modes.

Most Healthcare Networks setup EPIC for access through Citrix Virtual Apps or XenDesktop. This non-persistent architecture provides flexibility and hardware savings with a human workforce. However, these benefits are not realized by a Digital Workforce which should be operating 24 x 7.

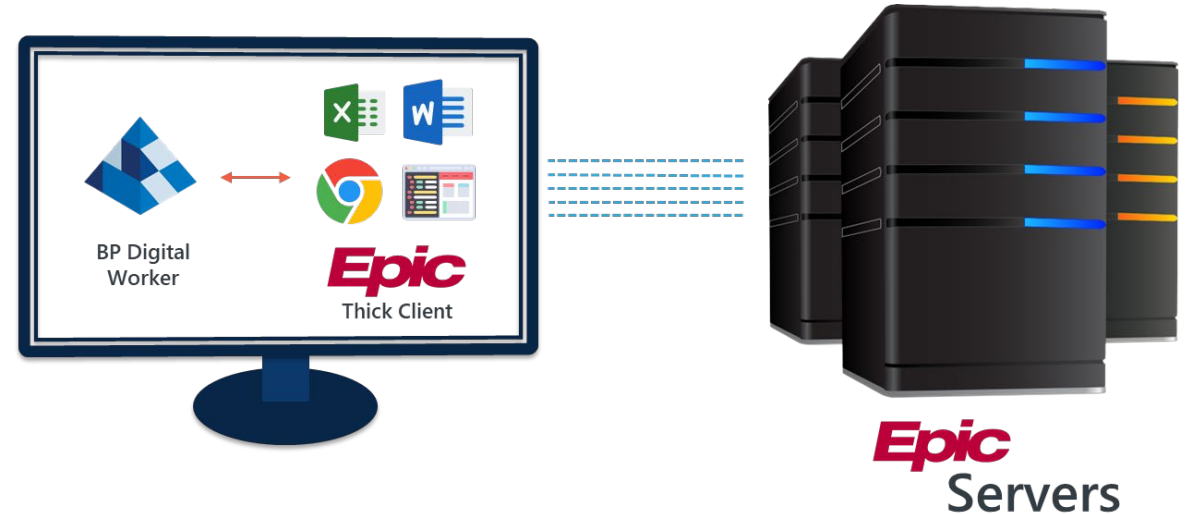
Utilization of the EPIC thick client may require IT to approve special policies for a Digital Workforce. While maintaining two approaches for EPIC access requires additional IT attention, this investment is typically minimal when compared to processing speed and automation reliability.

Benefits

The most common deployment of EPIC is client-server based, so the ability to automate from the UI client directly is an efficient and resilient method of automation when using BP Digital Workers.

Cautions

Beyond potential IT pushback mentioned above, EPIC was originally written using MUMPS. The newer EPIC UI overlay is written in Visual Basic and layered over the original programming. This layered UI can present challenges when identifying target fields for ALL RPA technologies. Latency between layers also requires meticulous use of intelligent wait stages to detect when screens are loaded and ready for interaction. Fortunately, Blue Prism's award-winning intelligent wait stages are a simple drag-and-drop tool to optimize for the variable performance of target screens.



Method 3 : Blue Prism on Citrix Virtual Apps

Description

The Blue Prism Digital Worker (aka. BOT / Robot / Run-Time Resource) is deployed on Citrix Virtual Apps or XenDesktop. Like the previous method, this approach allows the Blue Prism Digital Worker to directly interact with the EPIC client UI.

Most Citrix systems are non-persistent (built from a Gold Image) and reset back to their default state on every reboot (often every night).

Consequently, special policies need to be implemented in this method to avoid the removal of Blue Prism & modified files. Additional complications can present from this configuration related to tracking activity through the Citrix console, firewall rules, and reboot cycles.

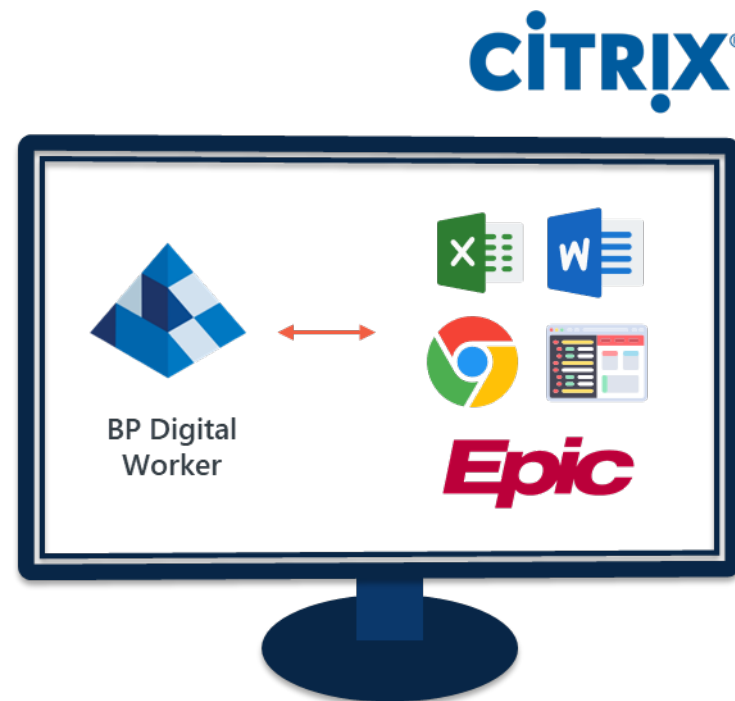
All RPA technologies face the same IT exception requirements in this configuration. Consequently, Blue Prism generally advises against this configuration without strong IT support.

Benefits

This architecture removes the need for Surface Automation by placing the Digital Worker on the “far side” of Citrix’s glass plate.

Cautions

This architecture requires the largest IT overhead of the methods in this document as a Gold Image should be created for the Blue Prism Digital Workers. If standard Virtual Desktops and Virtual Desktops within Citrix are not identical, then Visual Business Object may not be fully re-usable between Digital Workers in each architecture.



Method 4 : Ultima IA-Connect on Citrix Virtual Apps

Description

The Blue Prism Digital Worker (aka. BOT / Robot / Run-Time Resource) and Ultima IA-Connect's Director reside on a standard Virtual Desktop. Ultima IA-Connect's Agent (a 2 MB .EXE) is placed on a network share accessible to Citrix Virtual Apps or XenDesktop. Once the IA-Connect Director / Agent communication channel is established, the Blue Prism Digital Worker can natively interact EPIC to perform automation activities avoiding the need for Surface Automation or other image-based techniques.

Ultima IA-Connect is a 3rd party extension available for purchase from Ultima Labs and directly through the Blue Prism Digital Exchange. Ultima was Citrix's Worldwide Citrix Partner of the Year in 2019 and Blue Prism Regional Technology Alliance Partner of the Year in 2020.

IA-Connect allows Blue Prism developers to avoid the complexity of Surface Automation while balancing minimal IT overhead. IA-Connect delivers the following benefits:

- Requires no Citrix-side installation, no DLLs, no registry keys, no services and hence has no impact on the Citrix estate and no changes are required to the Citrix gold image / base build.
- Connects to a Citrix environment using the normal Citrix connection method (ICA) and hence acts and operates like a normal Citrix user.
- Sessions appear in the Citrix consoles and hence can be monitored by Citrix admins.
- Automatically routes to the least-busy Citrix server (following the customer's Citrix load balancing rules). If servers are marked as unavailable (e.g. patching, maintenance or reboot schedules) then this will be respected by IA-Connect.
- Operates even if the Citrix servers are in a different domain or network environment to that of Blue Prism Digital Workers and requires no additional firewall rules.

Benefits

Table & Mouse-Over style application modeling provides flexibility to overcome EPIC's maze of layered UI panels with identical names. Significantly faster process development and reduced maintenance when compared to Surface Automation & Computer Vision.

Cautions

Ultima IA Connect is an additional, albeit minimal, cost for each Blue Prism Digital Worker with a requirement to reach into Citrix (or Microsoft RDS / WVD)

