



WHITE PAPER

ComTec
Information Systems





Robotic Process Automation (RPA)

UI Interface

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RPA, otherwise known as Robotic Process Automation, is a technology used to automate a wide range of business processes that significantly increases the speed and accuracy of repetitive error-prone tasks. The purpose of this paper is to describe the various ways RPA is implemented at the UI level to automate existing applications.

Below are the four RPA methods for automating applications:

-  Element / Object ID Automation
-  Co-ordinates (Screen Resolution) Automation
-  Image Recognition Automation
-  Keystroke Automation



Element / Object ID Automation

Element Automation is UI level automation applicable for Web applications and is the most reliable and accurate of all existing methods. It is a process in which data from any website is read and captured using Element IDs and Tags. This can be performed on any given website irrespective of the content or the number of words present. Any activity done manually onto a web source can be automated without any human/manual intervention using this method. It can be used to extract any required information from the web page, and downloaded and stored into another automated data entry process, network folder, or any system as required. The overall concept is to inspect the required web page and get the anticipated value from any object on a particular page. Once a value is grasped it can be stored for later use.

Object ID Automation is applicable for desktop applications and is just as reliable and accurate as Element Automation. It is a process in which data from any desktop application is read and captured using Object ID's. It can be performed on any given desktop application irrespective of the content or the number of words present. Integration is possible with enterprise applications such as SAP and Mainframe applications. Any activity done manually with the application can be automated without any human/manual intervention using this method.



Co-ordinates (Screen Resolution) Automation

Co-ordinates Automation is not quite as reliable and accurate as element/object automation. If no Object/Element procedure is in place, then this type of screen-based automation can be used. This method tracks user behavior at X and Y coordinates, which basically means that the technology records screen position information for the items displayed on the screen when recording. We can use this method when the applications are installed in secured environments like Citrix and VDI. It uses the coordinates to navigate to particular points on the screen to automate the task.

The set of numbers directly under the Screen Position lists the position of the mouse relative to the computer screen. When the mouse is moved, the numbers change in relation to the mouse cursor position. The number to the left is the X coordinate, or how many pixels the cursor is from the left edge of the screen. The number on the right is the Y coordinate, or how many pixels the cursor is from the top edge of the screen.

There are tools which display the cursor's pointer's X and Y coordinates relative to the whole screen or the active window. This is useful if mouse clicks are to be included in macro scripts.

Screen-based automation is useful in situations when UI automation does not work, such as virtual machine environments, where element ID/selectors cannot be found by using normal methods.



Image Recognition Automation

Image and Text Automation features RPA activities that simulate keyboard and mouse input, such as clicking, hovering, typing, text recognition and OCR activities that use screen-scraping to identify UI elements, and image recognition activities that work directly with images to identify the UI elements. Specialized wizards for Screen Scraping and Citrix recording automatically generate the activities required for each process.

Image and Text automation is useful in situations when UI automation does not work, such as virtual machine environments, where selectors cannot be found by using normal methods



Keystroke Automation

The Keystroke Automation method is useful in situations when UI automation does not work and a standard format is not available to do image automation. An example would be virtual machine environments, where selectors cannot be found and web page formats are changing frequently.

This method emulates a person typing on the keyboard or pressing a combination of keys. You specify the text or key combination which may include several key combinations, each on a separate line. You can use the following words to specify predefined key combinations: Alt, Back, Ctrl, Delete, Down, End, Enter, Esc, Home, Insert, Left, Page Up, Page Down, Right, Shift, Space, Tab, Up, F1 - F12. Insert '+' or '-' between the keys.