processrobot

Architecture and Security

Enterprise Robotic Process Automation 2020

ProcessRobot 2020.1

Contents

Introduction

ProcessRobot is the leading enterprise robotic process automation platform aimed at helping enterprises to dramatically reduce operational costs, increase efficiency, improve productivity and accelerate performance by automate routine operations across the entire organization, organizing structured workflows and enhancing the better data quality. Say goodbye to costly implementations and do more things in less time.

This paper describes the architecture linking each module of ProcessRobot, the way each module and component works, and the increased security built into the platform.

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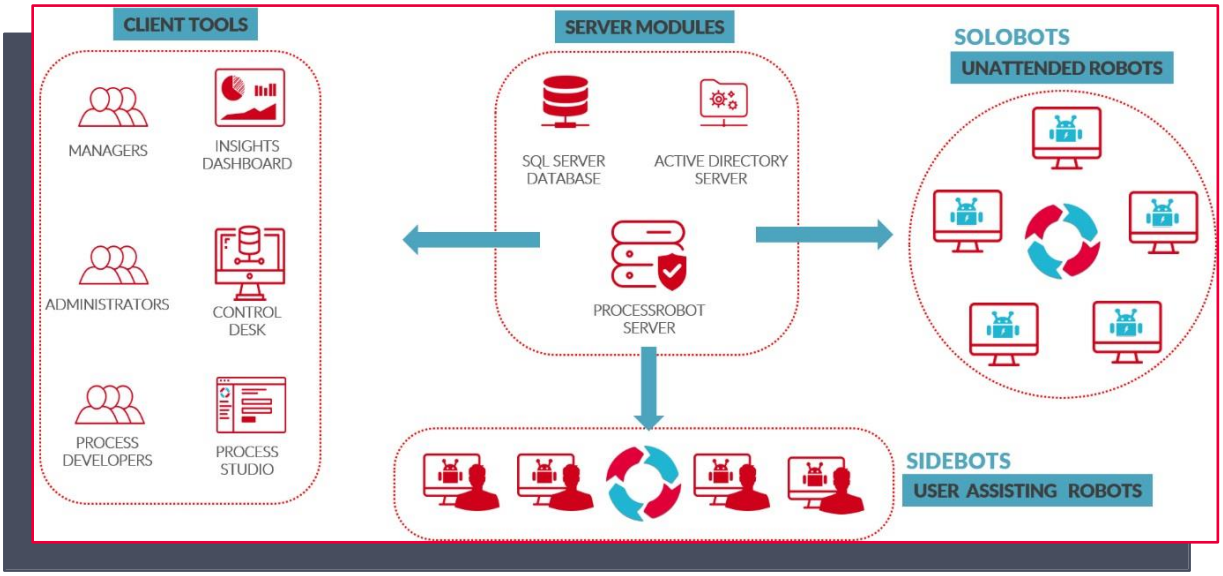
ProcessRobot

ProcessRobot will work as a new department specialized in automation within your organization. As with any department, it has a production side and a managerial (Center of Excellence) side.

The difference with a traditional department, is that the production side employs virtual employees (Robots) instead of humans, and Robots will accept and perform work from all the other departments within your organization, freeing them from repetitive work and enabling them to focus more on their core business.

ProcessRobot Architecture

Process Robot's architecture can be summarized in the following picture:



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ProcessRobot Server Modules

In order for ProcessRobot to function, it requires access to a SQL database, as well as an Active Directory.

The SQL database, holds all the data of the ProcessRobot installation such as the processes, the users, the roles etc. On the other hand, the authentication of the enterprise users is accommodated via the Active Directory.

ProcessRobot Components

ProcessRobot Server is the central hub of ProcessRobot. The Server is responsible for storing processes on the database as well as facilitation and communication with all other components

Solobots are the back office/unattended robots of ProcessRobot. They are installed on their own separate machines (usually dedicated VMs) and can log in and out using their own credentials, essentially working as independent users. They are used for automated processes that do not require human intervention (automated processes that can be scheduled or triggered to run from start to finish in unattended mode).

Sidebots, are the front office/attended robots of ProcessRobot. Technically, they are similar to Solobots, with the difference that they are installed on users' machines, designed to handle automated processes that require collaboration with a user, helping them perform everyday tasks faster and with 100% accuracy.

ProcessRobot offers different client tools (Control Desk, Process Studio and Insights Dashboard) assembled in a technical **Center of Excellence**, that fulfill different roles and enable process development as well as control over the production side.

Control Desk is used by the administrator to control every aspect of the ProcessRobot environment and automate distribution of Processes and Robot workload across the enterprise, regardless of the size of the installation.

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Users of the Control Desk can:

- review /test /evaluate and assign processes sent from developers to Production,
- start/stop processes,
- assign processes to robots, monitor robots and processes execution,
- set up the operating environment, triggers and schedules, "Checker" processes,
- establish environments,
- set up users and roles and permissions for all users, set up load balancing etc.
- access auditing, log monitoring and governance support
- add Users, Roles, Environments, Global variables, Schemes as well as Queues setting and handling.

Process Studio is the developer's client tool. It is a purely "no code required" environment, using readymade commands (called "Actions") that are the small steps of the required automation. Very intuitive, so even business users with minimal training can use it in order to automate processes easily. Process Studio is equipped with a constantly running debugger, useful for creating error-free automations, in the fastest time possible.

User Libraries feature, enable the developers to create their own sets of actions, and re-use them where necessary, cutting down complexity and repeated development.

Insights Dashboard Designer and Viewer are the tools used to create and view dashboards respectively. Utilizing drag and drop technology, Insights **Dashboard Designer** enables developers to use Pies, Charts, Lines, Grids and combinations in order to create simple or complex dashboards, that are fed data from custom KPIs from the processes. During execution of a process, the custom KPIs, each on with up to 5 dimensions, get updated, and their values are used as raw data for the Insights Dashboards.

Dashboard Viewer client tools are installed in user's machines, and the user can select and view any dashboard from a list of Dashboards available to them.

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ProcessRobot Hardware and Software Requirements

		Hardware Requirements			Software Requirements	
		CPU*	**Disk Space**	**RAM**	**Client OS**	**Server OS**
Client Tools	**Minimum**	Single - Core	4 GB	4 GB	Windows 7	Windows Server 2008 R2
	Recommended	Quad - Core	8 GB	8 GB	Windows 10	Windows Server 2016
ProcessRobot Server	**Minimum**	Dual - Core	4 GB	8 GB	Windows Server 2008 R2	
	Recommended	Quad - Core	8 GB	16 GB	Windows Server 2016	
Redis (4.0.x)	**Minimum**	Dual - Core	20 GB	4 GB	Ubuntu 16.04 (Client or Server)	
	Recommended	Quad - Core	40 GB	8 GB	**	
SQL	**Minimum**	Dual - Core	500 GB***	8 GB	Microsoft SQL Server 2012	
	Recommended	Quad - Core	1 TB***	16 GB	Microsoft SQL Server 2016 or AWS RDS or AZURE SQL	

General Notes:

* In case the process you are automating requires some resources itself, they would need to be added on top to the aforementioned. The above do not include the requirements for the Operating System. A minimum of 2,4Ghz core is required in all cases.

** Please refer to the Redis Documentation on the following link: https://redislabs.com/redis-enterprise-documentation/administering/designing-production/supported-platforms

*** Please note, that the disk space required, may increase in case there is large amount of processes, robots and logs produced.

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ProcessRobot Security Aspects

- Process Robot uses a Master key which can be set in the Control Desk > General. This key will be used to encrypt all the provided user passwords required for Solobots Autologin and the hidden values in the credentials manager.
- All the actions that contain a password, are encrypted with AES-256 bits encryption and the decryption occurs by the action itself during the execution.
- On the platform level, there is an AES-256 bit encryption for data at rest. This encryption is being used to secure any credentials stored in the Control Desk.
- Communication between the ProcessRobot server and the Robots, is secured through .Net Framework WCF TCPBinding. The aforementioned NetTCPBinding, encrypts both the layer as well as the message (AES-256) that is being transported.
- Role-based access control and user permissions based on custom roles, allows configuration of granular permissions and access control throughout the platform. For example, you can have Users of a specific role not having access to certain component parts (screenshots). Object-level access, such as security on Processes folders for limited access, is also enabled and can be configured for additional security and control.
- Process execution in secure mode (Secure Screen) where during the execution of a process the screen turns blue and the user has no visibility into the task executed.
- Execution of a process as an alternative user, where an administrator (who has elevated privileges) can initiate the process using the credentials set in the Process Properties “Credentials” tab.
- For sensitive data manipulation and use, during Development, ProcessRobot offers the Credentials Manager, where passwords and usernames can be stored encrypted on the SQL Database. Alternatively, credentials can be derived via the active directory or via command line. The passwords can be retrieved securely in order to be used in processes development.
- Also, SSO (Single Sign-On) and Kerberos Authentication is supported by the direct Active Directory integration with ProcessRobot. The above integration in conjunction with the permissions provided to each user, guarantees the security on the platform.

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- Process Robot is using Redis as a memory caching key value database and message queue broker. Redis offers the option to be password protected. Using a password, the distributed memory data of the Process Robot Servers remain secure.
- In case you are using the Web Console application, note that you may use the HTTPS protocol which reassures secure communication between the Web Browser and the Web Application.

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About Softomotive

Softomotive - the makers of WinAutomation - is one of the leading, longest-standing providers of Robotic Process Automation solutions. We Simplify Automation for over 9,000 customers worldwide, empowering anyone to automate tasks and be given the power to drive innovation.

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