

KRYON™

BE YOUR FUTURE

System Architecture & Requirements

Kryon Process Discovery v19.1

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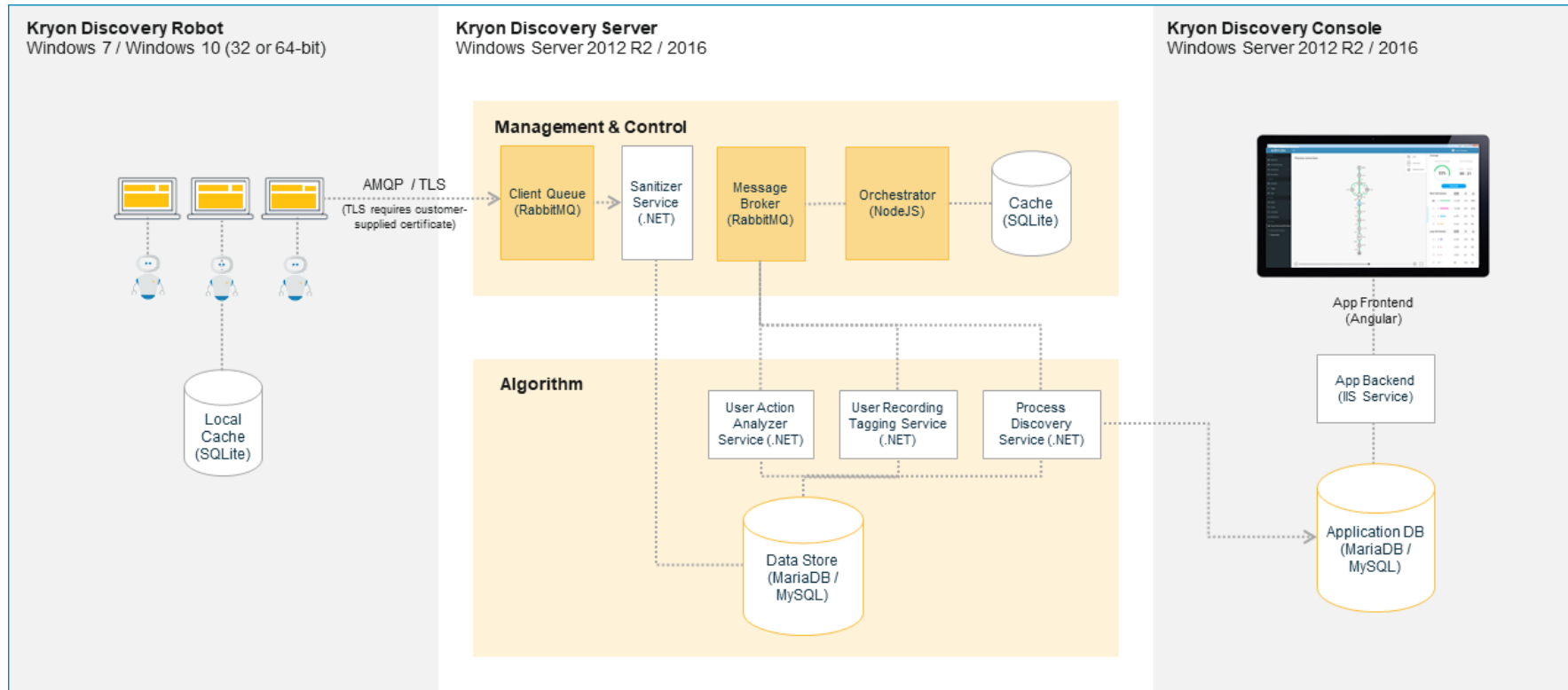
Introduction

Kryon Process Discovery is a powerful, proprietary, AI-based platform designed to identify your organization's business processes, correlate variants, and make recommendations for enhanced efficiency via automation.

The platform uses silent Discovery Robots installed on the company's computers to capture all actions that affect business outcomes. It then analyzes this data to make process improvement and automation recommendations.

The purpose of this document is to provide a high-level overview of the Kryon Process Discovery platform's system architecture and components. Unless stated otherwise, information in this document is relevant to common Process Discovery use cases.

System Architecture



Process Discovery Components

Discovery Robots

Lightweight clients installed on employee desktops that silently monitor business-related activities without impacting end-user productivity. They provide full visibility into all business activities at the application level by collecting behavioral data about every user, process, and application across the entire business unit or organization – even when the user's computer is off-network and offline. The data collected by **Discovery Robots** is sent to the **Discovery Server** for analysis.

Discovery Database

The **Discovery Database** is the database (either MariaDB or MySQL) in which all the data collected by the **Discovery Robots** is stored. The data collected by the **Discovery Robots** is transferred almost immediately to the **Discovery Database** and remains on the client machine for only very short time.

Discovery Server

The data stored in the **Discovery Database** is utilized by the **Discovery Server**, where it undergoes a complex algorithmic process, including:

- Computer vision algorithm – extraction of relevant information from every image
- Tagging algorithm – identification of each individual action on each screen and assignment of a unique tag to each, facilitating recognition and matching of repeated actions
- Process discovery (machine learning) algorithm – comparison and compilation of extracted and tagged information; mapping of processes and variants
- Automation recommendation engine – calculation of automation recommendations
- Output of process and variant data to the **Discovery Console**

Process Discovery's AI mechanism, as executed by the **Discovery Server**, gets smarter and more effective as more and more data is gathered by the **Discovery Robots**.

Discovery Console

A browser-based application providing management an overview of discovered processes, with the ability to drill down into all the underlying details. The **Discovery Console** presents real-time, visual maps of each process and all its different variations, allowing managers to visualize how each activity, application, and human interaction relates to process efficiency.

The **Discovery Console** provides a quick and convenient interface for sending processes directly to **Kryon Studio** as pre-developed automation workflows.

Studio Integration

Kryon Studio is an Integrated Development Environment (IDE) that enables easy creation and editing of simple and advanced automation workflows.

The integration between the **Discovery Console** and **Studio** allows managers to send processes directly to automation as pre-developed workflows, including workflow steps, action variations, decision points, and application data manipulations. Automation developers can then use Studio's intuitive interface and robust toolbox of available commands to make any necessary revisions.

Security

All Kryon products for deployment in Production contexts follow application security best practices including OWASP, WASC, and NIST standards, along with annual penetration tests by an external, independent security specialist.

Kryon has designed the system to ensure minimal risk to sensitive or private data:

- Process Discovery is installed on-premises, without communication to servers outside the customer organization's network, SaaS services or any other third-party servers, internal or external
- All data is saved in the **Discovery Server's** internal repository and is not transmitted or exported outside the server, automatically or manually
- Raw data is not saved over time, and no sensitive information is persisted over time
- All sensitive and private textual data is removed ("masked") from the event data. This masking procedure is irreversible, and the sensitive data cannot be retrieved
- The **Discovery Server** does not expose open APIs for retrieving data, other than to authorized discovery services
- External services and non-machine learning services, such as the **Discovery Console**, do not have access to raw data or any other sensitive data
- Kryon does not have any direct or indirect access to the customer environment, servers or data. The customer's IT administrators maintain sole control over allowing or prohibiting such access to Kryon employees
- The customer's IT administrators maintain control over which business applications to monitor through the use of a whitelist and/or blacklist
 - Only applications on the whitelist will be recorded and processed; applications on the blacklist will not be recorded and processed
 - Any applications not approved for discovery, for security or other reasons, can be excluded from the whitelist or added to the blacklist

Network Configuration

Firewall & Port Configuration

Kryon Process Discovery's port configuration and network protocols can be customized to support all common firewall requirements. The default port configuration is as follows:

- Discovery Robots outbound to Discovery Server: 5672 (or 5671 when using TLS)
- Discovery Robots inbound from Discovery Server: dynamic
- Between Discovery Console and web browser: 8080 (or 443 when using TLS) – configurable through IIS

TLS Configuration (Optional)

Process Discovery supports secured communications (using the TLS 1.2 protocol) between Discovery Robots and the Discovery Server, in accordance with customer requirements.

When installing with TLS, the customer must provide the required certificates – including the following 3 files (all in .pem format):

- ca certificate (**Example:** `ssl_options.cacertfile = /path/to/testca/cacert.pem`)
- server certificate (**Example:** `ssl_options.certfile = /path/to/server/cert.pem`)
- keyfile (**Example:** `ssl_options.keyfile = /path/to/server/key.pem`)

System Requirements

	Discovery Server	Discovery Robot	
		minimum	recommended
Machine role(s)	<ul style="list-style-type: none"> Machine learning Data processing Data storage Console 	Monitored desktop	
OS	Windows Server 2012 R2 or higher	<ul style="list-style-type: none"> Windows 10 (64- or 32-bit); or Windows 7 (64- or 32-bit) 	
Database	<ul style="list-style-type: none"> MariaDB 10.3.7 or higher; or MySQL 8.0.11 or higher 	N/A	
Software Prerequisites	.NET Framework 4.7.1 (should be installed prior to Discovery Server installation)	.NET Framework 4.7.1 (will be installed by Discovery Robot installation package if not previously installed)	
Processor (minimum) <i>(See How many cores? for details about how to verify the number of processor cores)</i>	Intel i7 or Xeon 16 cores NOTE: When a single server with 16 cores is not possible, installation on 2 servers with 8 cores each is an option. <i>Contact Kryon Support for configuration details if this is option is required.</i>	i3 2 cores	i5 4 cores
RAM (minimum)	32GB	4GB	
Free disk space	500GB SSD	50GB HDD	
Firewall	Open firewall ports: <ul style="list-style-type: none"> 5672 (or 5671 when using TLS) – customizable 8080 (or 443 when using TLS) – configurable through IIS 	N/A	

	Discovery Server	Discovery Robot	
		minimum	recommended
Network bandwidth/day	500 MB/day per active Discovery Robot client	N/A	
Network bandwidth/second	~15 KB/s per active Discovery Robot client	N/A	
Additional	<p>Supported browser for accessing Discovery Console:</p> <ul style="list-style-type: none"> • Chrome v69 or higher <p>Installation on a dedicated physical server is highly recommended. However, use of a VM server is possible when this is not an option.</p> <p>The VM should: (1) meet the specifications listed above; and (2) must have a dedicated (i.e., non-shared) CPU.</p>	<p>Supported browsers for Discovery Robot recording:</p> <ul style="list-style-type: none"> • Chrome v69 or higher • Edge v17 or higher • Internet Explorer v11 or higher 	



NOTE

How many cores?

To verify the number of processor cores are installed on a machine:

1. Open the **Windows Task Manager > Performance** tab
2. The **Logical processors** field provides the information you're looking for
 - Yes, it might seem counterintuitive, but for purposes of Process Discovery, it's the **Logical processors** field you're interested in – not the **Cores** field!

Task Manager Performance tab showing CPU details for Intel(R) Core(TM) i7-7500U CPU @ 2.70GHz.

Left sidebar resources:

- CPU: 7% 1.09 GHz
- Memory: 7.6/15.9 GB (48%)
- Disk 0 (C:): 1%
- Ethernet: Not connected
- Ethernet: Not connected
- Ethernet: Not connected
- Ethernet: S: 0 R: 0 Kbps
- Ethernet: S: 0 R: 0 Kbps

Right pane CPU details:

Intel(R) Core(TM) i7-7500U CPU @ 2.70GHz

% Utilization over 60 seconds

Utilization	Speed	Base speed:
7%	1.09 GHz	2.90 GHz

Processes	Threads	Handles	Logical processors:
308	3762	141130	4

Up time: 0:15:33:54

Other details:

- Sockets: 1
- Cores: 2
- Virtualization: Disabled
- Hyper-V support: Yes
- L1 cache: 128 KB
- L2 cache: 512 KB
- L3 cache: 4.0 MB

Buttons: Fewer details | Open Resource Monitor