



# Kryon Process Discovery

VERSION 20.3

# System Architecture & Requirements

**KRYON™**

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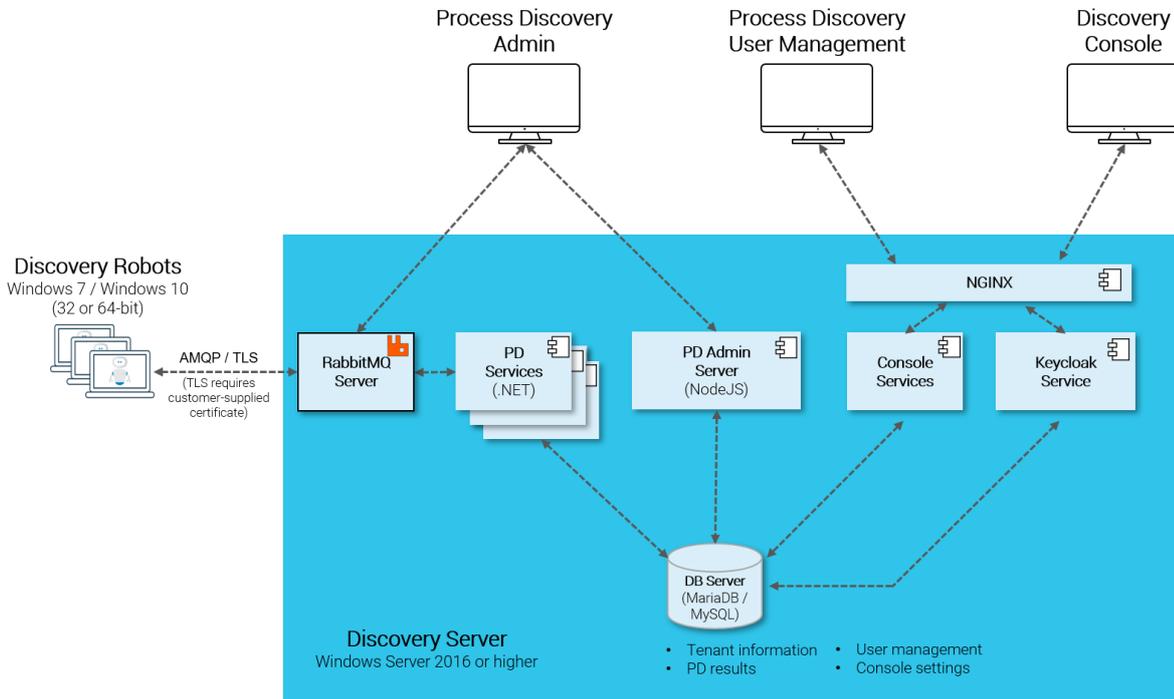
# Introduction

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** (a screen shot/metadata for each user action) is sent to the **Discovery Server** for analysis.

## DISCOVERY SERVER

The **Discovery Server** utilizes the data collected by the robots perform complex algorithmic processes, including:

- **Computer Vision** – extraction of relevant information from every screen shot
- **Action Tagging** – identification of the specific action on each screen and assignment of a unique tag to each, facilitating recognition and matching of repeated actions
- **Process Mapping** – 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**

The **Discovery Server** includes **PD Application Databases**. These are the databases (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 application databases and remains on the client machine for a short time.

Server applications include:

- **RabbitMQ Server**  
The queue manager for communications between the **Discovery Robots** and the **Discovery Server**
- **NGINX Server**  
The **Discovery Console** web server

## PROCESS DISCOVERY ADMIN

The System Administrator uses the Process Discovery Admin to:

- Manage tenants and user access to data of one or more tenants
- Set which applications the **Discovery Robots** monitor
- Manage and schedule algorithms
- Delete recorded data
- Manage **Discovery Robots**

## PROCESS DISCOVERY USER MANAGEMENT TOOL

Process Discovery User Management Tool grants user access to the Discovery Console

## DISCOVERY CONSOLE

A browser-based application providing 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 Business Analyst generates from the **Discovery Console** a Discovered Process Report of a selected process and its variants. The report is in MS Word format so the Business Analyst can annotate it to record in-depth knowledge and wizard design guidelines for the RPA developer

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

## INTEGRATION WITH RPA STUDIO

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

The integration between the **Discovery Console** and **Studio** allows managers to send processes directly to automation as pre-developed wizards, including wizards 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 process maps. This masking procedure is irreversible, and the sensitive data cannot be retrieved.
- The user name in all data recorded/transmitted by the **Discovery Robots** can be hashed. The customer can enable/disable this option on a per-robot basis according to its needs.
- The **Discovery Server** does not expose open APIs for retrieving data, other than to authorized discovery services.
- 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 lists that define applications to monitor:
  - Only applications on the Applications to Include list will be recorded and processed; applications on the Applications to Exclude list will not be recorded and processed.
  - Any applications not approved for discovery, for security or other reasons, can be excluded from the Applications to Include list or added to the Applications to Exclude list.

# 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) – configurable
- Discovery Robots inbound from Discovery Server: **dynamic**
- Database communications: **3306** and **1433** – configurable
- User Management platform: **5058** – configurable
- Discovery Console – **5001-5004** – configurable
- Document Manager – **50007**

## TLS Configuration for RabbitMQ (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

## System Requirements for Discovery Server

### HARDWARE & SOFTWARE REQUIREMENTS

Item	Requirement
Processor (minimum)	Intel i7 or Xeon / 16 core*
RAM (minimum)	32GB
Free disk space (SSD)	Minimum 150GB, recommended 500GB
OS	Windows Server 2016 or higher
Database	Server installation installs MariaDB 10.4.7 or you can connect to a preexisting dedicated <b>Windows version</b> database server ( MariaDB 10.3.7 or higher / MySQL 8.0.11 or higher)
Supported browser for accessing Discovery Console	Chrome v69 or higher, Edge v69

\*When a single server with 16 cores is not possible, installation on 2 servers with 8 cores each is an option. Contact Kryon Support for details if this is option is required.



#### TIP

##### 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 counter intuitive, but for purposes of **Process Discovery**, it's the **Logical processors** field you're interested in – not the **Cores** field!

## System Requirements for Discovery Robots

### EMPLOYEE MONITOR HARDWARE & SOFTWARE REQUIREMENTS

Item	Requirement
Processor	i3 / 2 cores minimum i5 / 4 cores recommended
Supported workstations	<ol style="list-style-type: none"> <li>1. Windows desktops</li> <li>2. Remotely managed workstations, like:                             <ul style="list-style-type: none"> <li>• Remote client machines of a terminal server running Microsoft Terminal 2016 and up</li> <li>• Cloud desktops running Amazon WorkSpaces client application</li> </ul> </li> </ol>
OS	Windows 10 (64- or 32-bit); or Windows 7 (64- or 32-bit)
Supported browsers for Discovery Robot recording	<ul style="list-style-type: none"> <li>• Chrome v69 or higher</li> <li>• Edge v17 or higher</li> <li>• Internet Explorer v11 or higher</li> <li>• Mozilla Firefox 63</li> </ul>
Supported languages for multi-language keyboard recording	<i>Albanian, Latvian, Armenian, Lithuanian, Bulgarian, Macedonian, Catalan, Norwegian, Croatian, English, Polish, Czech, Portuguese, Danish, Romanian, Dutch, Russian, Estonian, Slovak, Finnish, Slovene, French, , Spanish, German, Swedish, Greek (Modern), Turkish, Hungarian, Ukrainian, Icelandic, White Russian, Italian, Hebrew</i>

# Installed Components & Software

## DISCOVERY SERVER

The following software is automatically installed on the **Discovery Server** by the **Process Discovery** server installation package, if not previously installed:

- Microsoft .NET Framework 4.7.2
- Microsoft .NET Core 2.2 – Windows Server Hosting
- Microsoft Visual C++ 2015-2019 Redistributable (x64)
- RabbitMQ Server (the queue manager for communications between the **Discovery Robots** and the **Discovery Server**)
- Erlang OTP (the programming language on which RabbitMQ is built)
- NodeJS (JavaScript runtime used by Process Discovery Admin)
- Seq (centralized logging component)

The following software can be optionally installed by the **Process Discovery** server installation package:

- HeidiSQL (database viewer)
- Notepad++

## DISCOVERY ROBOT

The following software is automatically installed on the client machine during the **Discovery Robot** installation, if not previously installed:

- Microsoft .NET Framework 4.7.2
- Microsoft Visual C++ 2015-2019 Redistributable (x64/x86 as appropriate)