

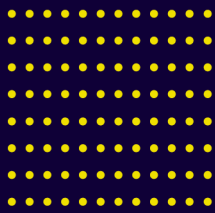


KRYON™

Installation & Upgrade Guide

Kryon Process Discovery

V.21.3



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Introduction

PURPOSE

This document is the User Manual of the Process Discovery Console. It is intended to provide all the necessary information to use this software to discover processes in your organization.

SCOPE

This guide covers the Process Discovery console configuration end-to-end.

INTENDED AUDIENCE

This guide is intended for business analysts in-charge of process discovery and process mapping.

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What is Kryon Process Discovery™?

Kryon Process Discovery is an automated, data-driven AI technology which finds, maps and documents existing businesses tasks in near real-time. The **Discovery Robot** working silently on employee's computers records every activity the employee does throughout his workday.

By examining the digital footprint left by users, a detailed representation of the business process is automatically created. The data is then analyzed to recommend and create process models, called wizards.

Business analysts can then use the **Kryon Process Discovery Console** to develop these wizards and export them to **Kryon RPA Studio** to be fine-tuned and tested by RPA developers and automated.

System Architecture 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. The raw data collected by the **Discovery Robot** is comprised of:

1. A screenshot for each user action; *and*
2. Detailed metadata corresponding to each screenshot, including –
 - Application name
 - User name
 - Event type (e.g., mouse wheel, left mouse click)
 - Mouse position (e.g., x:933, y:637)
 - Time stamp

The System Admin defines the desktop and web applications that are monitored by the **Discovery Robots**.

Discovery Server

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

- **Image Analysis** – extraction of relevant information from every screen shot
- **Image Clustering** – identification of repeated actions
- **Discovery** – Identifying highly repeated processes and calculating statistical information on duration, actions, applications, etc.
- Output of process and variant data to the **Process Library**

The **Discovery Server** includes **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 immediately encrypted and transferred to the application databases and remains on the client machine for a short time.

Process Discovery User Management Tool

Kryon Process Discovery User Management Tool grants user access to the Process Library (**Keycloak Service**).

Process Discovery Console

A browser-based application providing an overview of discovered processes selected and saved by the Business-Analyst (you), with the ability to drill down into all the underlying details.

Using the Process Discovery Console you can:

1. Set and configure the collected data:
 - Manage Teams and user access
 - Define applications for discovery
 - Manage the recorded data
 - Manage the **Discovery Robots** and their licenses
2. Discover the best candidate processes for automation
3. Select and add the desired processes to the **Process Library** for further analysis and for mapping
4. Generate processes files for automation (used in **Kryon Studio**) and supporting documents.

The Process Discovery Console can be accessed using the Chrome or Edge web browsers from any machine with access to the **Discovery Server**.

About Automation and Integration

Integration with RPA studio

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

The integration between the **Process Library** 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.

Installation Overview

The major steps in installing Kryon Process Discovery are:

1. [Installing the Kryon Process Discovery Server](#)
2. [Installing Discovery Robots](#) on employee workstations

Installation Package Contents

1. Kryon Process Discovery Server installation files

- `PDServer64BitSetup.exe.json` - Kryon Process Discovery Server Installation configuration file. See [Discovery Server Installation Configuration File](#)
- `PDServer64BitSetup.exe` - Kryon Process Discovery Server installation executable file
- `[License file name].llk` - The license file. it may come with the installation package; in which case you can install it when you install the server. Otherwise you can install it later, when it is available

2. Discovery Robot Installation File

- `DiscoveryRobotSetup.exe`

3. Kryon Process Discovery Documentation

- Kryon Installation Guide (this manual)
- Kryon Process Discovery User Guide
- Security Overview
- System Architecture
- Release Notes

Both **Kryon Process Discovery Server** and **Discovery Robot** Installation packages install additional Windows components and software to the server machine. See [Installed Components & Software](#)

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 30GB, recommended 150GB (Local hard disk <i>only</i>)
OS	Windows Server 2016 or higher
Database	Server installation installs MariaDB 10.4.7 or you can connect to a preexisting dedicated Windows version database server (MariaDB 10.3.7 or higher / MySQL 8.0.11 or higher)
Supported browser for accessing Process Library	Chrome v69 or higher, Edge v69
Network bandwidth	500 MB/day per active Discovery Robot client ~15 KB/s per active Discovery Robot client ~1.2 MB average packet size (10 user actions per packet)

*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 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

Item	Requirement
Processor	i3 / 2 cores minimum i5 / 4 cores recommended
Supported workstations	<ol style="list-style-type: none"> 1. Windows desktops 2. Remotely managed workstations, like: <ul style="list-style-type: none"> • Remote client machines of a terminal server running Microsoft Terminal 2016 and up • Cloud desktops running Amazon WorkSpaces client application
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"> • Chrome v69 or higher • Edge v17 or higher • Internet Explorer v11 or higher • Mozilla Firefox 63
Supported languages for multi-language keyboard recording	<p><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, Russian, Italian, Hebrew</i></p>

Installing the Kryon Process Discovery Server

The following sections describe steps to install **Discovery Server** and databases on a single server. For guidelines for a silent installation, refer to [Silent Installation of Discovery Server](#).

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Discovery Server Installation Steps

Follow these steps to install the **Discovery Server**:

Step 1: Verify Server Requirements

Ensure that the Server meets the required [hardware and software specifications](#).

Step 2: Open Network Ports

1. The following **default external ports** are opened automatically in the Windows Firewall during the **Discovery Server** installation process. These ports are intended for an installation that *does not* use SSL/TLS (see below for SSL/TLS ports). Open them in your hardware firewall prior to installing the server

Default Port (Not using TLS)	Port Used by	Port Used for
80	NGINX	Communication between the Discovery Robots and Console users with the Discovery Server

If you *will* be using SSL/TLS , open the following ports in your hardware firewall prior to installing the server.

NOTE: Only SSL/TLS v1.2 is supported.

Default Port	Port Used by	Port Used for
443	NGINX	Communication between the Discovery Robots and Console users with the Discovery Server

2. (optional) You can override the default port setting if you want. At this time, make sure the ports you choose to use are open in the hardware firewall. Be sure to write down the port numbers you use; later you will need to configure them in the installation settings.
3. (optional) The following *default backend ports* are used in the **Discovery Server**. We recommend **NOT** to open them in the firewall. They are customizable, if required:

Default Port	Port Used for
5058	Communication between the Discovery Server and the

Default Port	Port Used for
	User Management Tool
5001-5008	Communication between the Discovery Server and the Discovery Console
51000-51030	Communication between the Discovery Server and the Discovery Console

Step 3: (optional) Kryon Process Discovery Database Engine

The **Discovery Server** installation package automatically installs MariaDB 10.4.7.

You can opt to connect to a preexisting MySQL 8.0.11 (or higher) or MariaDB 10.3.7 (or higher), if you have one, later in this installation procedure.

If you want to manually install MySQL or MariaDB, you should do so now.

OPTIONAL STEPS:

- [Manually Installing the Database Engines](#)

Step 4: (optional) Update RabbitMQ Permissions

The **Discovery Server** installation package automatically installs RabbitMQ Server.

You can opt to connect to a preexisting RabbitMQ installation, if you have one, later in this installation procedure.

OPTIONAL STEPS:

- If you want to connect to a preexisting RabbitMQ installation from a **Discovery Server** installation, you may need to add permissions to the admin RabbitMQ user at this time. To do so, follow the steps in [Add permissions to admin RabbitMQ user for preexisting RabbitMQ version](#).

Step 5: Copy Installation Files to Local Folder

1. Download the Kryon Process Discovery [Server installation file](#), `PDServer64BitSetup.exe`, to a local folder on the Server.
2. If you have received your Kryon Process Discovery license file from your contact at Kryon or the Kryon distribution partner, download it also.

If you don't have a license now, you can install it **after Discovery Server** installation is completed. See [Step 10: \(optional\) Install Kryon Process Discovery License After Installation](#).

Step 6: Run Kryon Process Discovery Server Setup Wizard

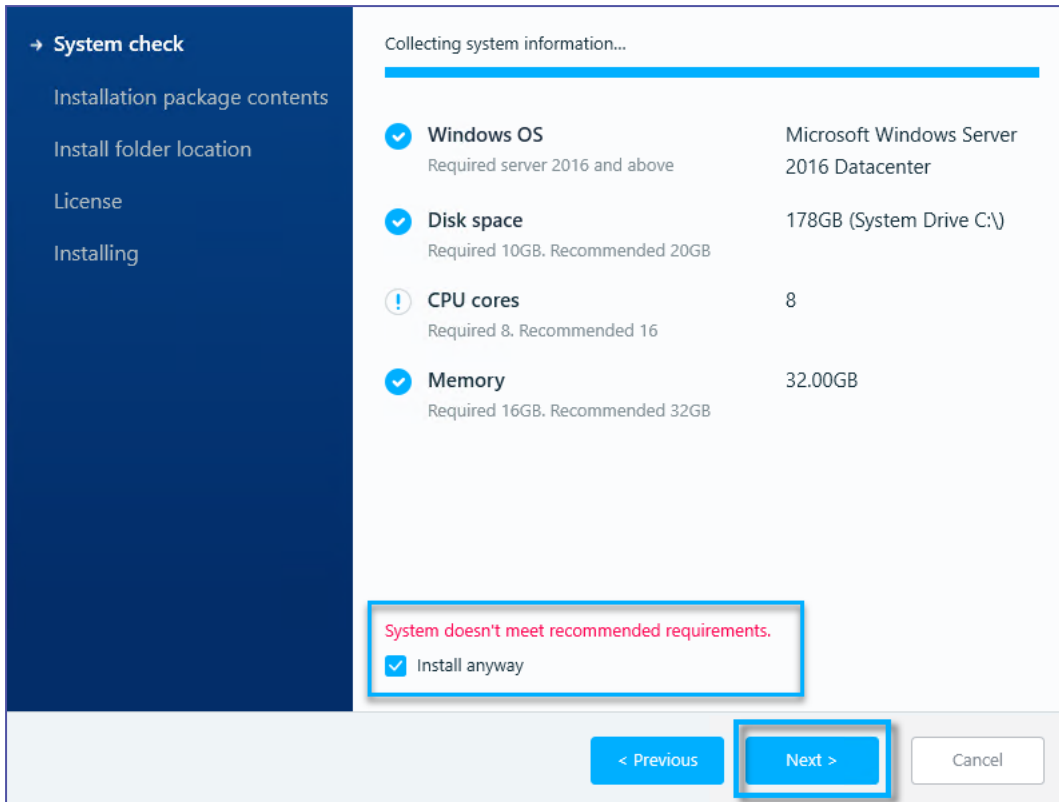
1. Go to the folder where you copied the installation package on the local drive and double click the installation executable file, `PDServer64BitSetup.exe`, to open the **Kryon Process Discovery Server Setup Wizard**.
2. Click **Start**. The Setup Wizard begins.



System check

The **Setup Wizard** collects system information from the server to verify compliance with system requirements.

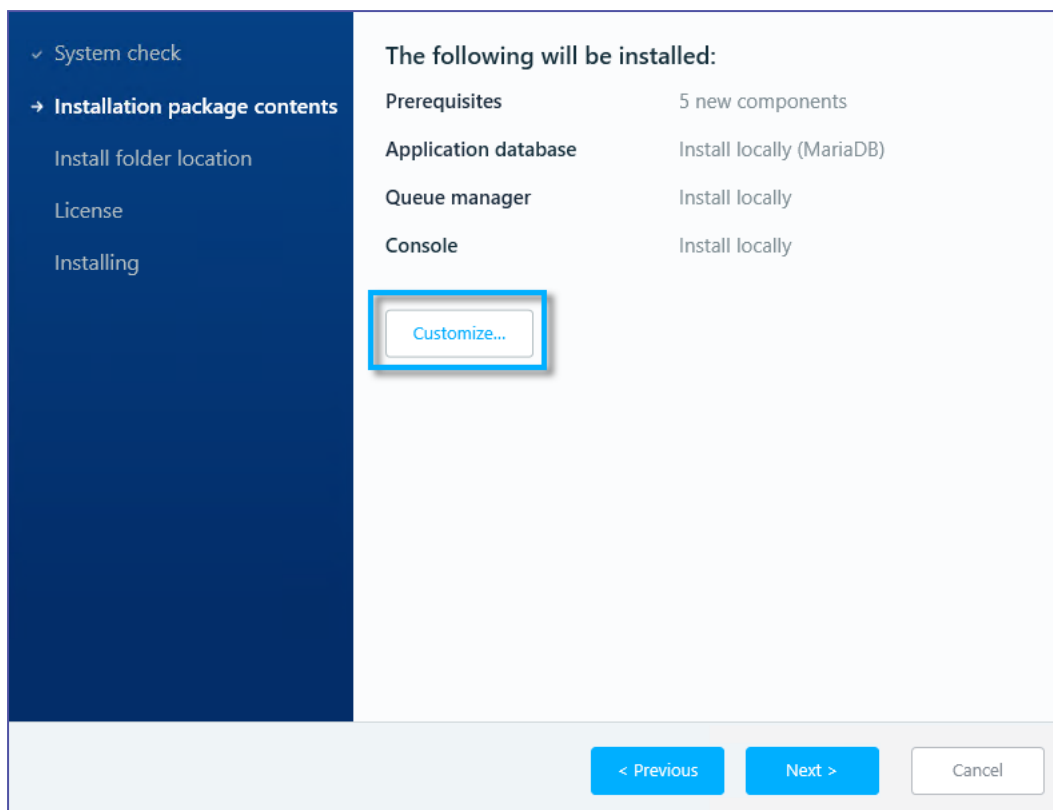
If the system does not meet minimum requirements, the wizard automatically cancels installation



- If your machine doesn't meet recommended system requirements, but *does meet minimum requirements*, select **Install anyways** to continue the **Setup Wizard**
- Click **Next**

Step 7: Installation Package Contents

Default installation package contents are displayed.

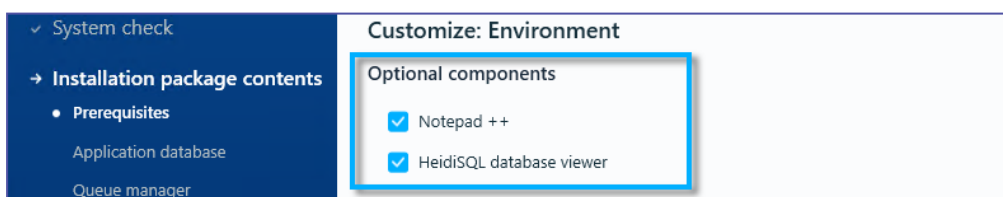


- **TO ACCEPT THE DEFAULT VALUES, CLICK NEXT AND SKIP TO [STEP 8: SET INSTALL FOLDER LOCATION](#); OTHERWISE, CLICK CUSTOMIZE AND FOLLOW THE STEPS BELOW:**

Customize prerequisites

Mandatory components cannot be customized, however, you will probably want to install Notepad++ and the HeidiSQL Database viewer, if not already installed.

1. Select the optional components you want to install



2. Click **Next**

Customize application database

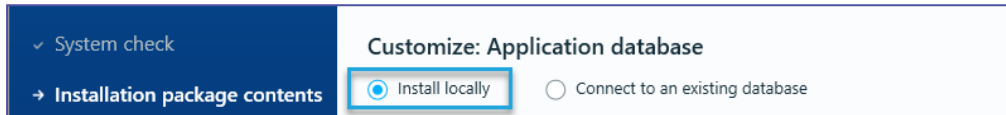
If you want to configure the MariaDB database engine that's automatically installed as part of the installation package, you can use this window to:

- Override the default port 3306
- Provide strong passwords for the two users created: root and pdbdev (the default for both is `Kryon2020!`)

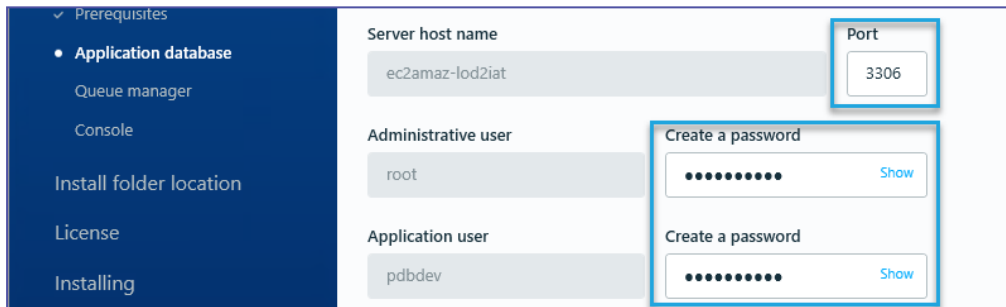
Or, you can use this window to connect to a pre-installed database engine.

To configure the automatically installed the application database engine:

1. Select **Install locally**



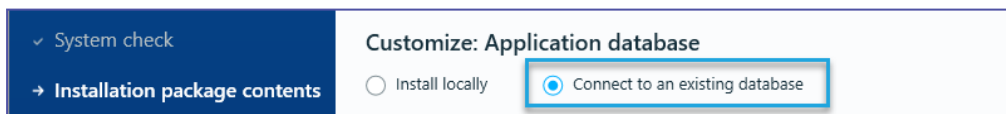
2. Leave the default port 3306 unchanged or enter another port number
3. Provide strong passwords for both the `Root` and `Pdbdev` usernames



4. Click **Next**

To connect to a pre-installed application database:

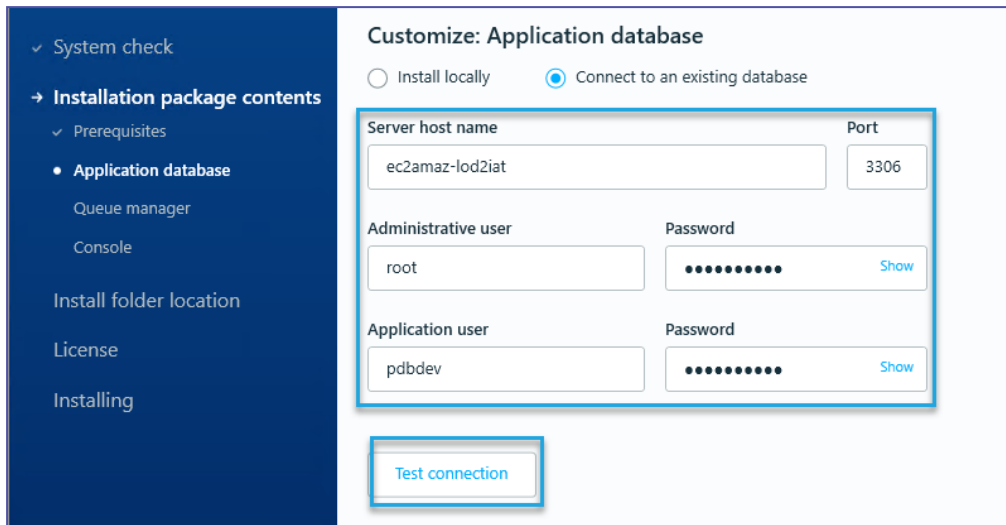
1. Select **Connect to an existing database**



2. Enter the pre-installed Server Host Name
3. Enter the port number of the existing database
4. Enter the user names and passwords for both the Administrative and applications users

Note: The Administrative user needs full permissions to create schema and

tables.



5. Click **Test Connection** to verify that your server connection is working
6. Click **Next**

Customize queue manager

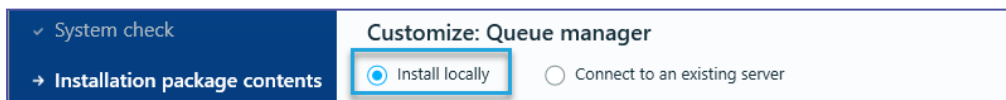
If you want to configure the queue manager (RabbitMQ server) that's automatically installed as part of the installation package, you can use this window to:

- Override the default port 5672.
- Provide a strong password for the admin user (the default is Kryon2020!)

Or, you can use this window to connect to a preexisting RabbitMQ installation

To automatically install the queue manager:

1. On the Customize Queue Manager window, select **Install locally**



2. Leave the default port 5672 unchanged or type in your own port number (for SSL/TLS change port to 5671)
3. Provide a strong **password** for the admin user name

System check
 Installation package contents
 Prerequisites
 Application database
 Queue manager
 Console
 Install folder location

RabbitMQ server host name: ec2amaz-lod2iat
 Port: 5672
 Username: admin
 Create a password: [masked] Show

4. Click **Next**

To connect to a preexisting queue manager instance:

1. On the Customize Queue Manager window, select **Connect to an existing database**

System check
 Installation package contents

Customize: Queue manager
 Install locally Connect to an existing server

2. Type in the **port** number of the preexisting RabbitMQ server
3. Enter the **RabbitMQ Server Host Name**
4. Enter the **admin username** and provide a strong **password**
5. Click **Test Connection** to verify that your server connection is working

Prerequisites
 Application database
 Queue manager
 Console
 Install folder location
 License
 Installing

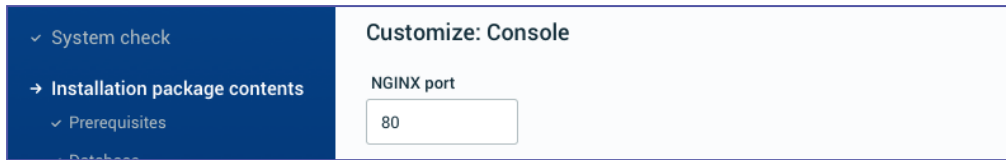
RabbitMQ server host name: ec2amaz-lod2iat
 Port: 5672
 Username: admin
 Password: [masked] Show

Test connection

6. Click **Next**

Customize Console

1. Leave the default port 80 unchanged or type in your own port number (to work with SSL/TLS use port 443)

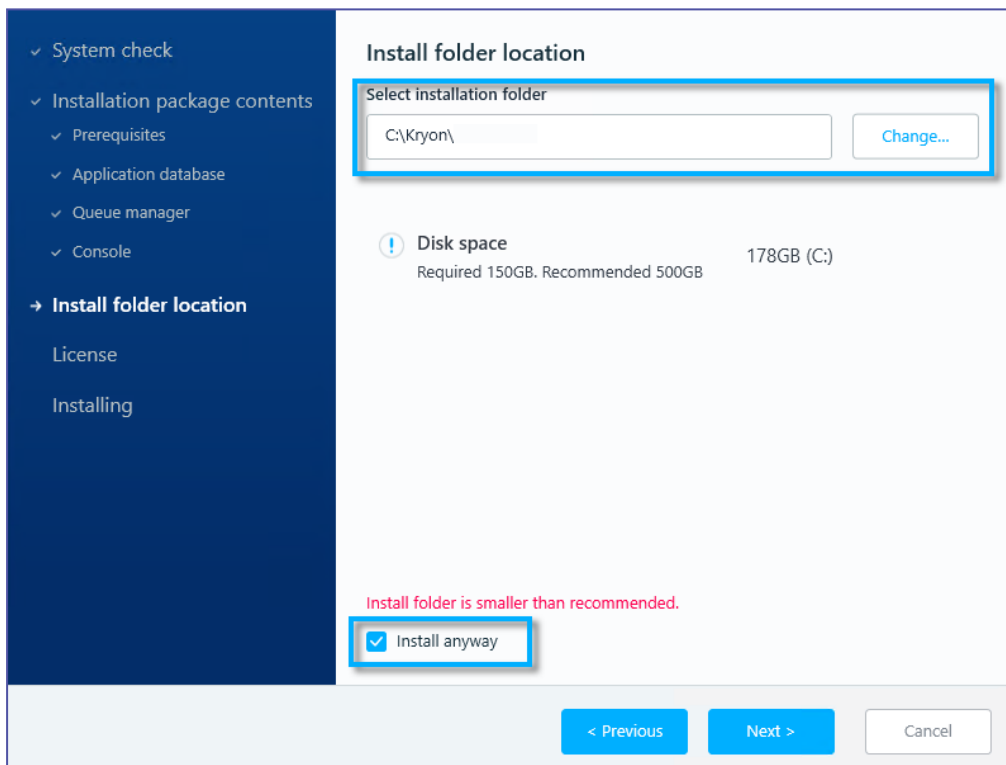


Click **Next**

Step 8: Set Install Folder Location

By default the InstallFolder location is {local fixed drive with the most free space}:\Kryon\.

1. If you want to select a different Install folder location than the default, Click **Change** and select the new location.
2. If the selected folder doesn't meet recommended disk space, but does meet minimum requirements, you can continue the **Setup Wizard** by selecting **Install anyways**



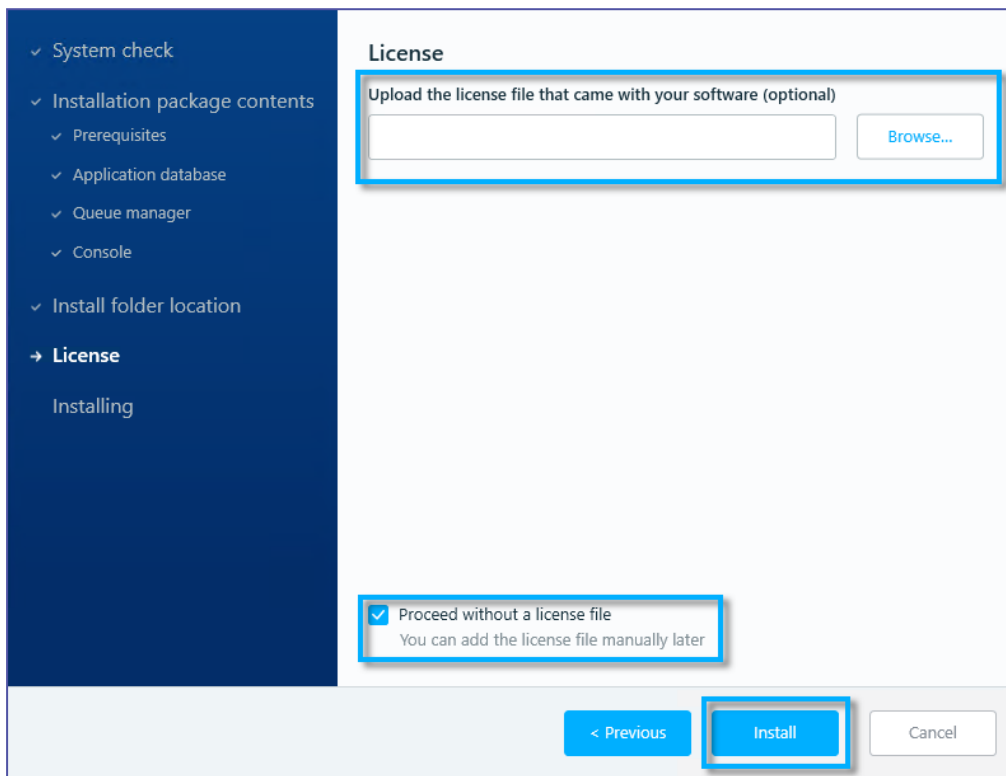
3. Click **Next**

Step 9: Add License

If you have received your Kryon Process Discovery license file from your contact at Kryon or the Kryon distribution partner, and you downloaded it to the server in [Step 5: Copy Installation Files to Local Folder](#), you can install it now.

If you don't have your license yet, no worries! You can follow the steps in [Step 10: \(optional\) Install Kryon Process Discovery License After Installation](#), when you have your license.

1. If you have already downloaded a license file you can upload it now. Click **Browse** and select the file; or
Select **Proceed without a license file**.



2. Click **Install**. During installation, the wizard provides status updates so that you can monitor the installation progress as setup continues.

When the wizard finishes, the Discovery Server is installed, but there are still a few more steps you need to do on the Server before you're done:

Next Steps

- [Step 10: \(optional\) Install Kryon Process Discovery License After Installation](#)
- [Step 11: Configuring TLS Discovery Server](#)
- [Step 12: Verify Installation](#)

Step 10: (optional) Install Kryon Process Discovery License After Installation

Follow these steps to set up your **Process Discovery** license (if you did not do so previously during installation):

1. Copy the license file you received to the Install Folder you set in [step 7](#)
2. From the **Windows Services** app or the **Windows Task Manager > Services** tab:
 - Restart the **Kryon Server - Process Discovery Service**
 - Check the **Status** column of the **Kryon Server - Process Discovery Service** to ensure that it shows **Running**



NOTE

If you have not yet received your license file, check with your contact at Kryon or the Kryon distribution partner with whom your organization is working.

Step 11: Configuring TLS Discovery Server

(optional) If you will be using SSL/TLS to secure communication between the **Discovery Robots** and the **Discovery Server**, you should configure it now.

NOTE: Only SSL/TLS v1.2 is supported.

OPTIONAL STEPS:

- [Configuring SSL/TLS on the Server](#)

Step 12: Verify Installation

Verify the **Discovery Server** installation by checking that you can connect to the following components:



NOTE

If you're connecting remotely to the **Discovery Server** or if you defined the server's FQDN when you installed it, enter the FQDN of the server instead of `localhost` in the URLs in the following steps:

1. Connect to RabbitMQ Management Plugin

From a web browser on the Discovery Server, enter the following URL:

```
http://{FQDN of Server}:15672
```

Log in to RabbitMQ using the username `admin` and the default password `Kryon2020!`

2. Connect to Process Discovery Console:

a. From a web browser on the Discovery Server, enter the following URL:
`localhost/console`

b. Login with the following username and password:

Username: `Pdconsole`

Default temporary password: `Pd123456!` (if you changed the password in step 4, use the new password you created)

3. Connect to SEQ:

From a web browser on the Discovery Server, enter the following URL:

`http://localhost/seq`

4. Connect to Process Discovery User Management Tool:

a. Open an incognito window in Chrome

Enter the following URL:

`localhost/auth/admin/kryon/console/#/realms/kryon`

b. Login with the following username and password:

Username: `authadmin`

Default temporary password: `Kryon123!` (you may be asked to change the password. If you do, be sure to write it down)

If you have connected successfully to the above, you're done installing the server!


Next Steps

Install the [Discovery Robots](#)

Troubleshooting Discovery Server Installation - Logs

The **Discovery Server** installer records detailed logs of the entire installation process, including all components. These logs can be a useful resource for troubleshooting.

TO LOCATE THE LOGS:

1. Right-click the **Windows Start** button 
2. Select **Run**
3. Type %temp%, then hit <ENTER>
4. A Windows Explorer window opens to the logged-in user's %temp%\ folder
 - If you are logged into a local machine, the logs are in this folder
 - If you connected remotely, the logs are located one directory level up

The bundle setup log is in the relevant Temp folder and its name is `PDServer64BitSetup_{execution timestamp}.log`.

Installing Discovery Robots

Discovery Robots run silently in your employees' machines, collecting data on how they utilize business applications to perform their daily tasks.

The following sections describe steps to install **Discovery Robots** in employee workstations. There are two options for installing **Discovery Robots** on the employee machines:

- [Silent Installation of Discovery Robots](#) ; or,
- [UI Setup Wizard of Discovery Robots](#)

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Before Installing a Discovery Robot

1. Before you start installing Discovery Robots, your organization should provide you with a list of client workstation(s) where (missing or bad snippet) will be installed .
2. Ensure that each client workstation meets the required [hardware and software specifications](#)
3. Have available the **Discovery Robots** installation package file – `DiscoveryRobotSetup.exe`
4. Have available the **PDDR.keys** file from the **Discovery Server**

The keys file is generated as part of the **Discovery Server** installation process. You can find it on the **Discovery Server** in `{InstallFolder}\PDServer\Support`

5. Make a note of the Fully Qualified Domain Name (FQDN) of the **Discovery Server**



TIP

How to find out your server's FQDN

- a. Click the Windows **Start** button and enter `cmd` into the text box. Hit <Enter> to open your Windows command line utility
- b. Type `ipconfig` and hit <Enter>. This displays the IP address for your Windows server. Use this IP address to view the fully qualified domain name of the server
- c. Type `ping -a IP` where IP is the IP address for the computer. Hit <Enter>. The "-a" switch returns the domain name of your server

6. Lastly, you should receive from your organization the specific configuration requirements for each **Discovery Robot**. You will need these requirements handy when you configure the robots after they are installed.

Silent Installation of Discovery Robots

This section describes procedures for a silent installation of the **Discovery Robots**. See [UI Setup Wizard of Discovery Robots](#) to install using the UI Setup Wizard.

When you run a silent install of the **Discovery Robots**, you can simply execute the installation file `DiscoveryRobotSetup.exe`; or you can choose to:

1. Run the installation file with a START /WAIT command that let's you see the exit codes of the installation when it completes; or
2. Include installation parameters in the command line; or
3. Both

If you choose to add parameters in the command line, Silent mode installation supports the inclusion of the following installation parameters:

Parameter Name	Default Value (if unspecified/left blank)	Description
InstallFolder	<code>C:\Program Files\PDDR</code>	Folder in which the Discovery Robot files will be installed
AddToStartup	<code>true</code>	Determines whether the Discovery Robot will run automatically each time a user of the machine logs in to Windows
messagesBrokerHost	<code>localhost</code>	{Discovery Server IP address or FQDN (Fully Qualified Domain Name)} of the Discovery Server <ul style="list-style-type: none">• Must be changed from the default value either as an installation parameter or by changing the value in the Discovery Robot configuration

Parameter Name	Default Value (if unspecified/left blank)	Description
		file (after installation)
stealthMode	false	Determines whether the robot's icon will appear in the Windows taskbar: <ul style="list-style-type: none"> • false = icon will appear in the taskbar • true = icon will not appear in the taskbar (robot will be invisible to user)
persistRecords	false	Determines whether a copy of the robot's will be maintained on the robot (in addition to syncing to the server). Setting this parameter to true is recommended for debugging purposes only.
StartRobot	true	Launches the Discovery Robot after installation
CaptureScreenshots	true	Determines whether screenshots are collected when recording. Setting this parameter to false allows recording in a 'metadata only' mode, which is collecting the data of application usage and work-patterns without capturing screenshots.

TO RUN THE DISCOVERY ROBOT INSTALLATION PACKAGE SILENTLY:

1. Access the command prompt and run **as an administrator**
2. Change directory to the location of where you copied the installation files by typing in:


```
CD {Folder location}
```

 For example, `CD C:\FolderName\`
3. Hit <ENTER>
4. Based on your installation preferences:
 - a. To simply run the installation file, type in: `DiscoveryRobotSetup.exe -silent`
 - b. To see the exit codes of the installation when it completes, type in: `START /WAIT DiscoveryRobotSetup.exe -silent`
 - c. To specify parameters to either of option a or b above: add the parameters to the command line. The command line would look like this when parameters are specified:
 - When using START /WAIT:


```
START /WAIT DiscoveryRobotSetup.exe [Parameter1=Value1  
Parameter2=Value2 Parameter3=Value3] -silent
```
 - When not using START /WAIT:


```
DiscoveryRobotSetup.exe [Parameter1=Value1  
Parameter2=Value2 Parameter3=Value3] -silent
```

NOTE

Parameters must be specified using exact [parameter names](#). For example, `DiscoveryRobotSetup.exe /Silent InstallFolder="C:\The folder\The Company\The PDDR"`

6. During installation the system may restart one or more times. Following restart, Discovery Robot installation will resume right where it left off.
7. You can view an exit code following installation when you install using a START /WAIT command, as explained above:
 - Immediately after installation completes, run the **ECHO** command with the **%errorlevel%** parameter, by typing in the command line: `ECHO %errorlevel%`.

The exit codes are shown in the command line as follows:

 - 0 = success
 - 1602 = user canceled
 - 1641, 3010 = success, but must reboot to finish install
7. Continue by configuring the [Discovery Server address and additional Discovery Robot settings](#) as required.
8. When done configuring **Discovery Robot** settings, restart the robot
 - a. Right-click the robot's tray icon, and select **Quit**
 - b. Run `{MainRobotFolder}/pddr.exe` to start the robot



NOTE

The {MainRobotFolder} is the folder in which the files were installed:

- By default, this folder is `C:\Program Files\PDDR`
- If you specified a different location during installation, the `{MainRobotFolder}` is the folder you specified

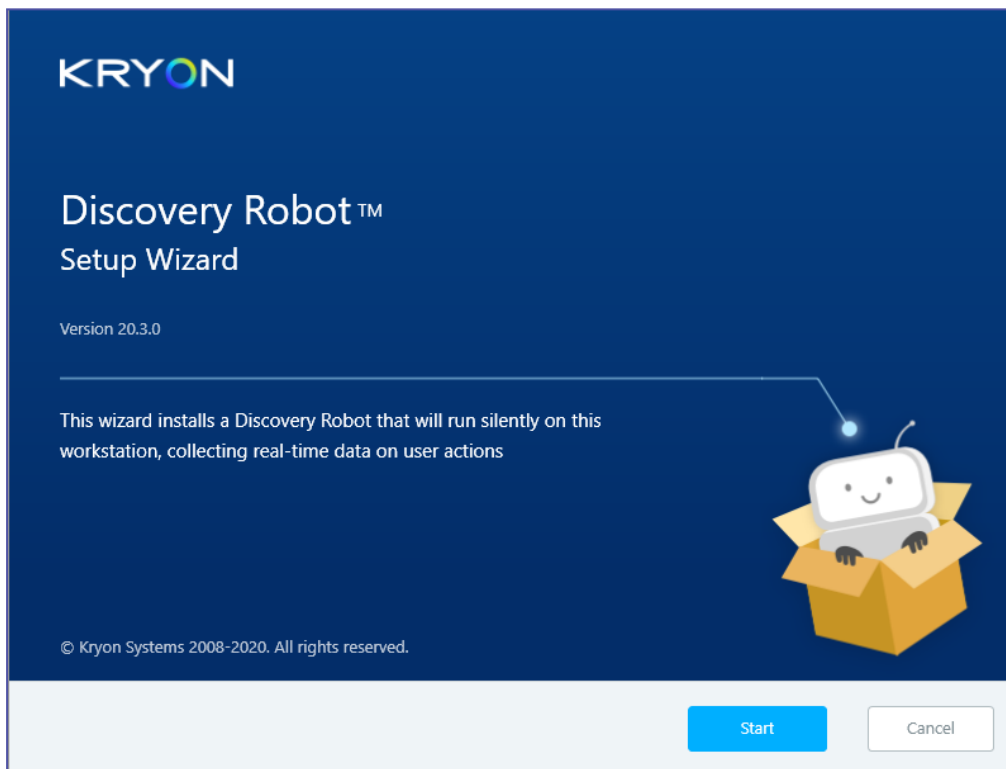
UI Setup Wizard of Discovery Robots

Follow these steps to install a **Discovery Robot** in UI mode. For instructions for a silent install, see Silent Installation of Robots.

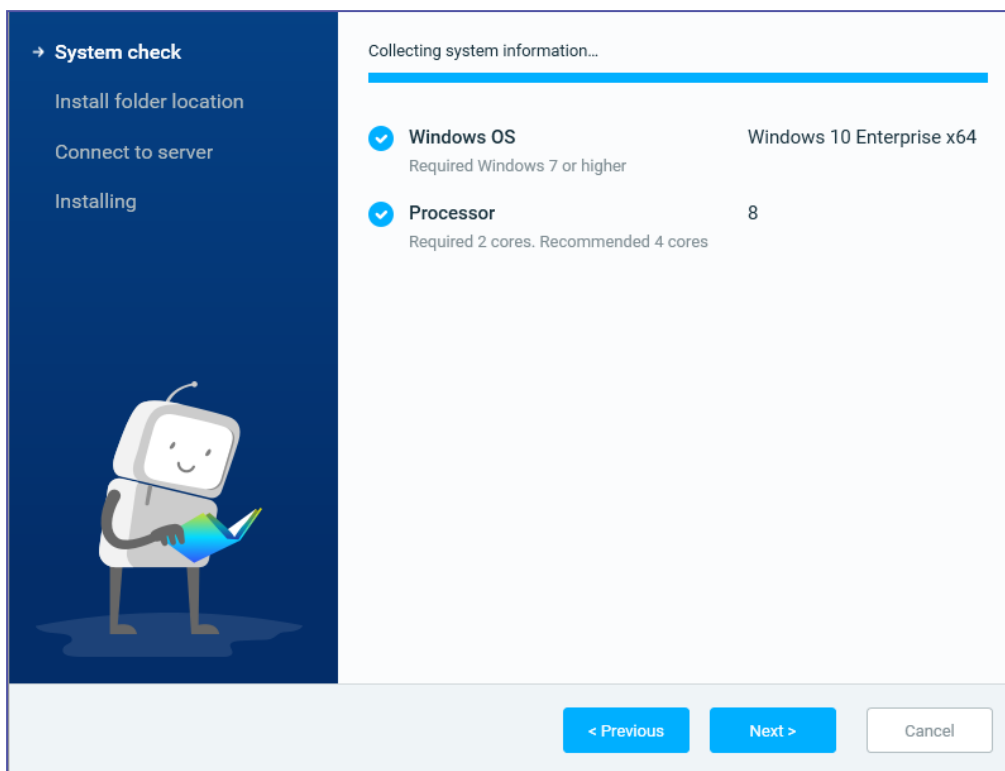
TO INSTALL A DISCOVERY ROBOT ON EACH CLIENT MACHINE:

1. Copy the installation file **DiscoveryRobotSetup.exe** and the **PDDR.keys** file to the same folder on the employee machine.

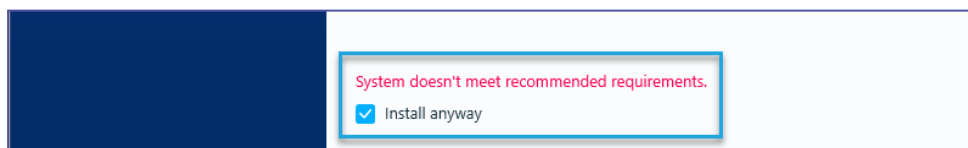
(The keys file is generated as part of the **Discovery Server** installation process. You can find it on the **Discovery Server** at `{InstallFolder}\PDServer\Support`).
2. Right-click the file `DiscoveryRobotSetup.exe`, and select **Run as administrator**
3. The Kryon **Discovery Robot** Installation welcome screen opens:



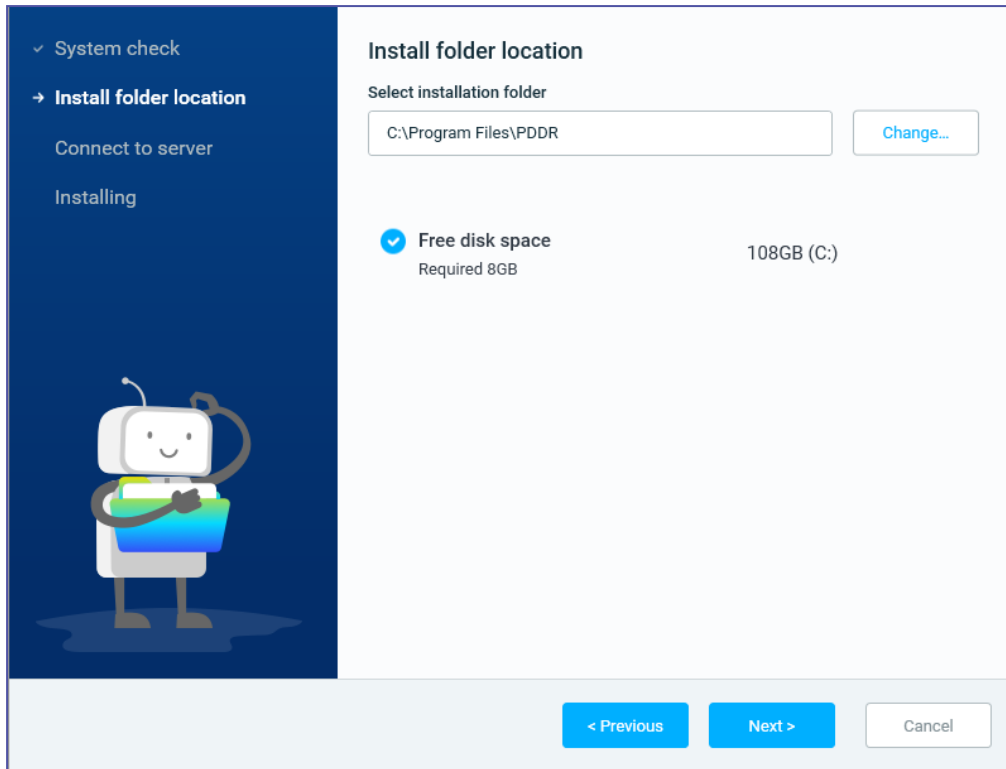
- Click the **Start** button. The System Check screen opens.



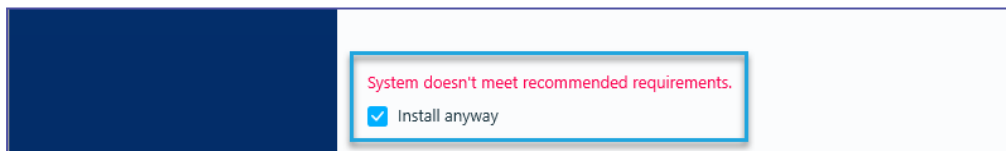
- The **System Check** collects system information to verify compliance with system requirements.
 - If the system does not meet minimum requirements, the wizard automatically cancels installation.
 - If your machine doesn't meet recommended system requirements, but *does meet minimum requirements*, you can continue the **Setup Wizard** by selecting **Install anyway**.



- Click **Next**. The Installation Folder screen opens.
- By default, the **Discovery Robot** files are installed on the client workstation in `C:\Program Files\PDDR`. If you want to change the installation folder location, click **Change** and select another location.



8. If your machine doesn't meet recommended free disk space, but does meet *minimum requirements*, you can continue with the selected install folder location by selecting **Install anyway**



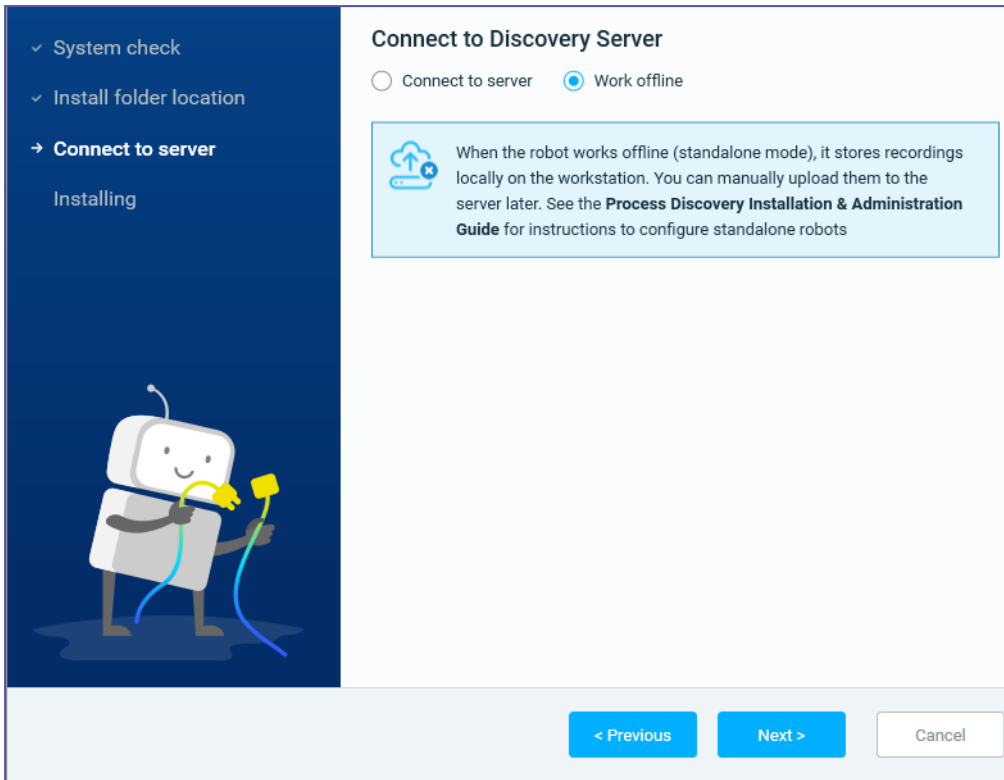
9. Click the **next** button. Installation begins

10. Here you have two (2) options, to **Connect to server** or to **Work offline**.

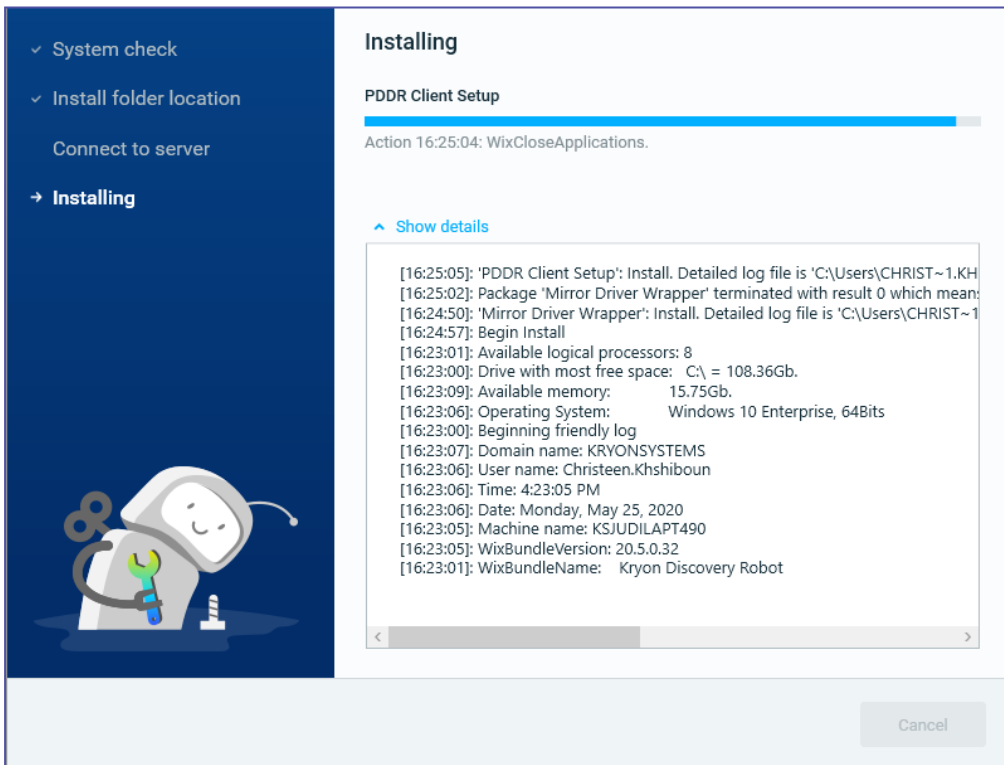
Connect to server: Configure a connection to a dedicated Process Discovery server by entering the server IP address or FQDN (Fully Qualified Domain Name). You can also browse the **PDDR.keys** file and upload it.

Work offline: Configure the **Discovery Robot** to work in a standalone mode (offline from the server). For additional configuration and administration of

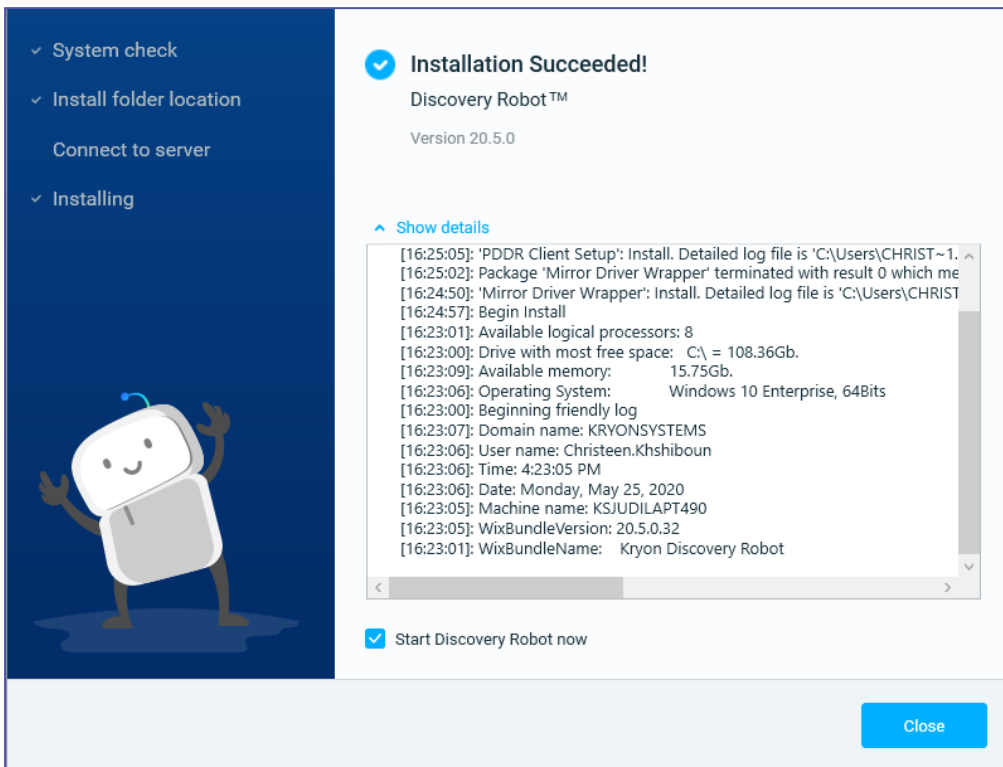
standalone robots, see the *Standalone Discovery Robots* in the User Guide.



11. The computer may restart one or more times during installation. Following restart, **Discovery Robot** installation will resume right where it left off.



12. When installation is complete, the Success message appears:



13. Continue by configuring the [Discovery Server address and additional Discovery Robot settings](#) as required.

14. When done configuring **Discovery Robot** settings, restart the robot

- a. Right-click the robot's tray icon, and select **Quit**
- b. Run `{MainRobotFolder}/pddr.exe` to start the robot

NOTE

The {MainRobotFolder} is the folder in which the files were installed

- By default, this folder is `C:\Program Files\PDDR`
- If you specified a different location during installation, the `{MainRobotFolder}` is the folder you specified

Configuring Discovery Robots

The basic Discovery Robot settings are configured upon installation through the installation wizard. Once **Discovery Robots** are installed on the employee workstation, you can apply additional Discovery Robot configurations by editing the [Discovery Robot Configuration File](#). You should receive from your organization the specific configuration requirements for each **Discovery Robot**.

Discovery Robot Configuration File

You can locate and edit the Discovery Robot settings in the Discovery Robot Configuration File.

The Discovery Robot Configuration file name and location depends on the following:

Before the first run of Process Discovery Robot:

`${InstallationFolder}/PDDR/pddr.appsettings_template.config`

(The usual path is: C:\Program Files\PDDR)

After the first run of Process Discovery Robot:

`%localappdata%/Kryon/ActionsRecorder/config/pddr.appsettings.config`

Parameter	Description/change
<code><add key="messagesBrokerHost" value=" FQDN /IP Address"/></code>	<p>Sets the address of the Discovery Server</p> <pre><add key="messagesBrokerHost" value="{Discovery Server IP address or FQDN (Fully Qualified Domain Name)}"/></pre> <ul style="list-style-type: none"> MUST be changed from the default value of <code>localhost</code>
<code><add key="messagesBrokerPort" value="port#"/></code>	<p>Sets the port number of the Process Discovery server. You can edit and change the port number. The default port number is 5672.</p>
<code><add key="stealthMode" value="false"/></code>	<p>To hide Discovery Robot's tray icon on the machine's end-user(s), change the key value to <code>"true"</code>.</p>
<code><add key="persistRecords"</code>	<p>By default, recordings by Discovery Robots</p>

Parameter	Description/change
<pre>value="false"/></pre>	<p>are not maintained on the employee workstation once they have been uploaded to the Discovery Server.</p> <p>To maintain the recordings on the workstation after uploading to the Discovery Server, for debugging purposes, change the key value to "true".</p>
<pre><add key="HashUserName" value="false"/></pre>	<p>By default, the user name is visible in the Discovery Robot's data.</p> <p>To comply with privacy regulations (such as the GDPR) and/or company-issued privacy and security policies, you can hash the user name from all recorded/transmitted data by setting the option to hash (i.e., encrypt) the user name.</p> <p>To hash the username, change the key value to "true".</p>
<pre><add key="standaloneMode" value="false"/></pre>	<p>In standalone mode, the Discovery Robot records user actions while they remain disconnected from the Discovery Server</p> <ul style="list-style-type: none"> • false = the Discovery Robot is not in standalone mode • true = the Discovery Robot is in standalone mode <p>Default Value false</p> <p>For additional configuration of standalone robots, see the section Standalone Discovery Robots in <i>Process Discovery User Guide</i>.</p>
<pre><add key="applicationsConfigPath" value="."/></pre>	<p>Used when standaloneMode is set to True</p> <ul style="list-style-type: none"> • Sets the path to the local

Parameter	Description/change
	<p>Applications for Discovery configuration (<code>blwl.json</code>) file that defines which applications are recorded</p> <ul style="list-style-type: none"> • <code>."</code> indicates same folder Discovery Robot's exe file <p>Default Value <code>."</code></p>
<pre><add key="offlineRecordsStoreLimit" value=2000/></pre>	<p>Used when <code>standaloneMode</code> is set to <code>True</code></p> <ul style="list-style-type: none"> • Defines the maximum number of records to save locally <p>Default Value <code>2000</code></p>
<pre><add key="EmulatorCommandMaxLength" value="5"/></pre>	<p>Due to PII and GDPR regulations, all input fields of emulator applications are automatically masked.</p> <p>You can set to unmask up to a configurable number of characters, so they can be interpreted as actions. The available range is 1 to 10.</p> <p>Default Value <code>5</code></p>
<pre><add key="CaptureScreenshots" value="true"/></pre>	<p>By default, the parameter is set to capture screenshots when recording sessions (<code>"true"</code>).</p> <p>To record work-patterns and collect metadata without capturing screenshots, change the key value to <code>"false"</code>.</p>
<pre><add key="UnicodeHookingProvider" value="false"/></pre>	<p>Sets which hooking provider to use for recording keyboard strokes. Unicode capabilities enable support for multiple language keyboards.</p> <ul style="list-style-type: none"> • <code>false</code> = Use a legacy provider that supports only ASCII


Parameter	Description/change
	<ul style="list-style-type: none"> • true = Use a provider that supports both ASCII and Unicode (for multiple language keyboards) <p>Default Value false</p>
<ul style="list-style-type: none"> • <code><add key="TlsEnabled" value="false"/></code> • <code><add key="TlsServer" value=""/></code> • <code><add key="TlsPort" value="5671"/></code> 	<p>To configure SSL/TLS on Discovery Robots, edit the keys as detailed below:</p> <ul style="list-style-type: none"> • <code>y="TlsEnabled" value="true"/></code> • <code><add key="TlsServer" value="{certificate_server_name}"/></code> <ul style="list-style-type: none"> ◦ {certificate_server_name} must be the name exactly as specified on the server certificate file. • <code><add key="TlsPort" value="{ssl_listeners_port}"/></code> <ul style="list-style-type: none"> ◦ Change this key only if you are using a port other 5671 for SSL/TLS communications. ◦ This should be the same port as you set for <code>ssl_listeners</code> (in the <code>rabbitmq.config</code> file) when configuring the Discovery Server. <p>NOTE: Only SSL/TLS v1.2 is supported.</p>
<p><code><add key="CaptureMethod" value="MIRROR_DRIVER"/></code> (default)</p> <p>Other value option:</p> <p>"DESKTOP_DUPLICATION"</p> <p>"GDI"</p>	<p>The 'CaptureMethod' parameters sets the PDDR capturing method. By default, the capturing method is set to "MIRROR_DRIVER". However, you might need to change the value to "DESKTOP_DUPLICATION" in the following specific case:</p> <p>When working via RDP (accessing a</p>

Parameter	Description/change
	<p>remote desktop from your local server) on a remote machine with PDDR and Windows 10 installed.</p> <p>Once you change the key value and save your changes, make sure to restart the PD service.</p> <p>In case there is a failure in Mirror driver / desktop duplication - the fallback is GD.</p>

Discovery Robot Installation Logs

The **Discovery Robot** installer records detailed logs of the entire installation process. These logs can be a useful resource for troubleshooting.

To locate the logs:

1. Right-click the **Windows Start** button 
2. Select **Run**
3. Type %temp%, then hit <ENTER>

A Windows Explorer window opens to the logged-in user's Temp folder, where you can find the logs (look for files with names that start DiscoveryRobotSetup)

Upgrading to V. 21.3

About

The procedure described below aims to provide you with all the needed steps to perform an upgrade without losing the recorded sessions of the users.

The procedure described below is applicable when upgrading from Process Discovery version **19.5 or later** to V. 21.3.

Overview

Step 1: Back-up

Step 2: Uninstall the existing Process Discovery

Step 3: Delete the Keycloak server

Step 4: Delete the database schemes

Step 5: Install Process Discovery V. 21.3

Note: All clients must be upgraded to the latest version as well (21.3)

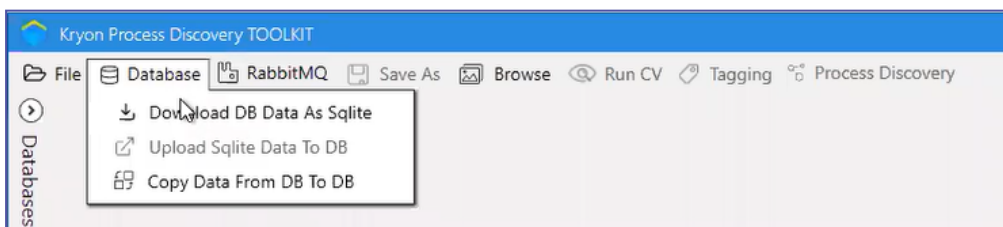
Step 6: Post-installation configuration

Steps

Step 1: Back-up

Recordings backup

- a. Navigate to the Toolkit folder and open the Toolkit application.
- b. From the toolbar, click **Database**.



- c. In the **Download DB Data As Sqlite** dialog, select a **Tenant** and click **Download All** or select specific recording to download.

Download DB Data As Sqlite

Tenant Name N/A

Download DB Data As Sqlite Data Kind

Local Remote

User Name

Password

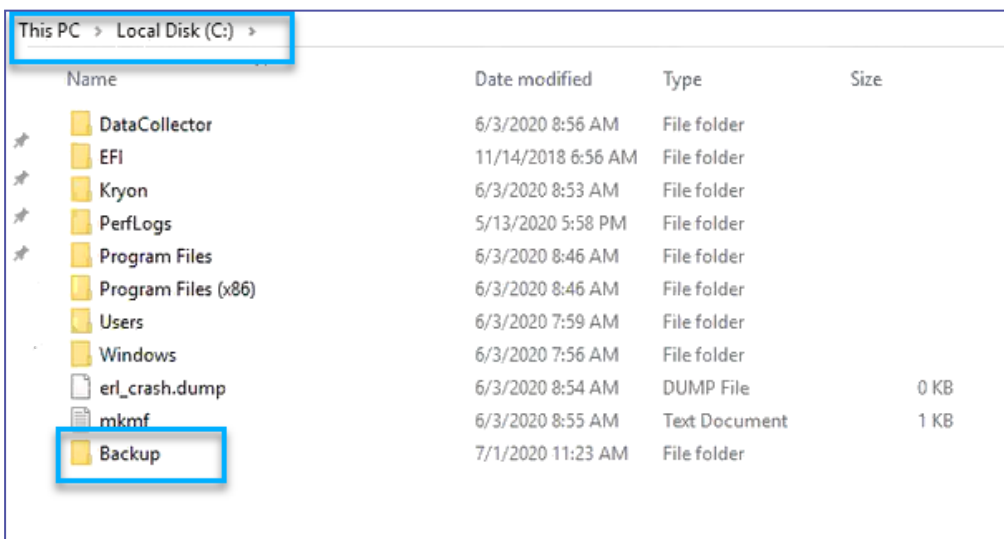
Port

The downloaded recordings are automatically saved under **Toolkit folder > db > RawData**.

Important: Make sure to repeat the procedure for each Tenant (if relevant).

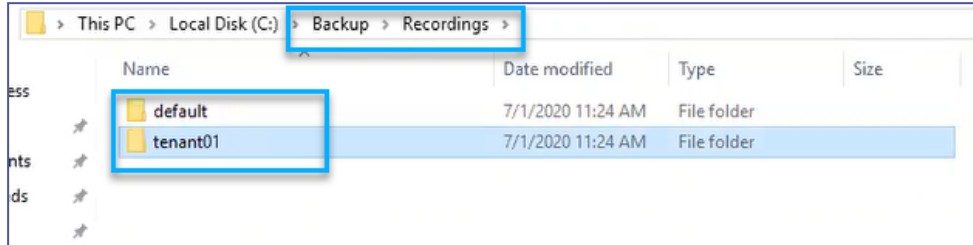
- d. Create a new **Backup** folder directly under your default local drive (e.g., **C:** drive).

Important: The newly created backup folder **MUST** be out of the Kryon folders.



Open the **Backup** folder and:

- Create a sub-folder and name it **Recordings**
- In the **Recordings** folder, create a sub-folder for each Team

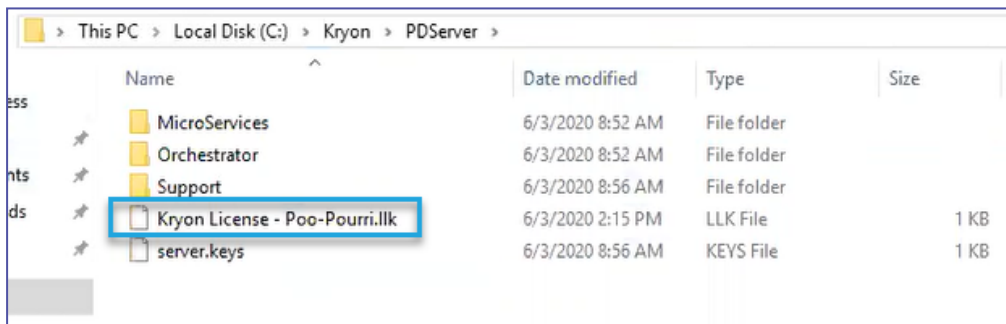


- e. Move the downloaded recordings from the **RawData** folder to the relevant Team folder in the **Backup** folder.

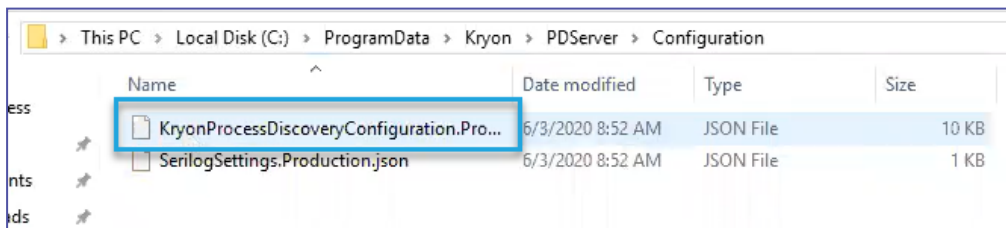
Licenses, configuration, and application definition back-up

Copy-paste the following files directly to the **Backup** folder.

- Kryon License file (found in the **PDServer** folder):



- Kryon Configuration file (found in **PDServer > Configuration**):



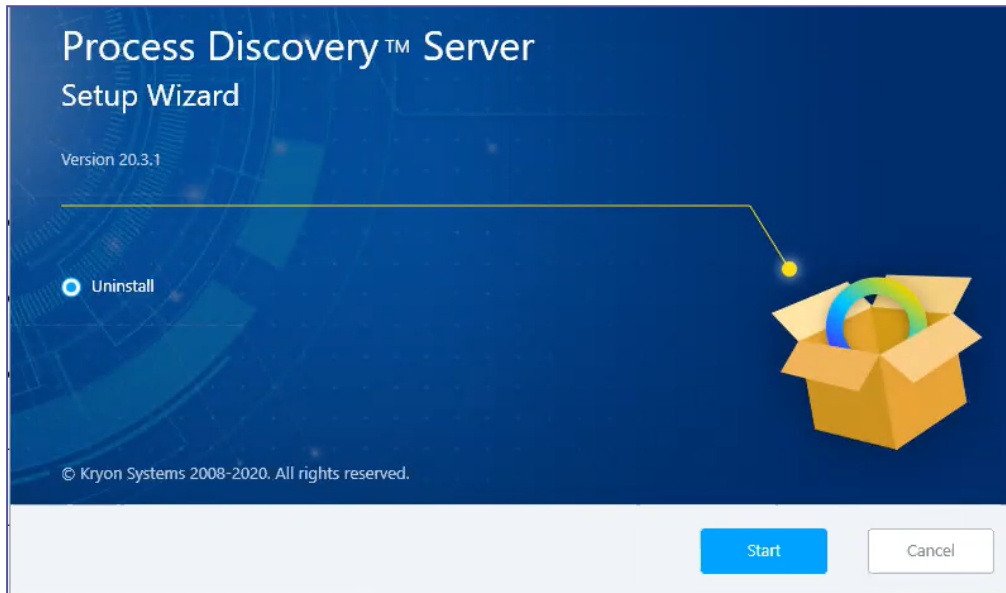
Backup the application definitions of *all your Teams*:

- Go to **Settings > Applications**.
- Click **Download application list**.
- Rename the downloaded .json file to "ApplicationsList.json" and save it to your **Backup** folder.

Step 2: Uninstall the existing Process Discovery

Uninstall the currently installed Process Discovery version like you would normally do.

- a. Navigate to **Add or remove programs** > select **Kryon Process Discovery Server** > click **Uninstall**
- b. Click **Start** to uninstall. Let the wizard run until completion.



Step 3: Delete the Keycloak server

This step is relevant *only* when upgrading from Process Discovery version 20.1 or later.

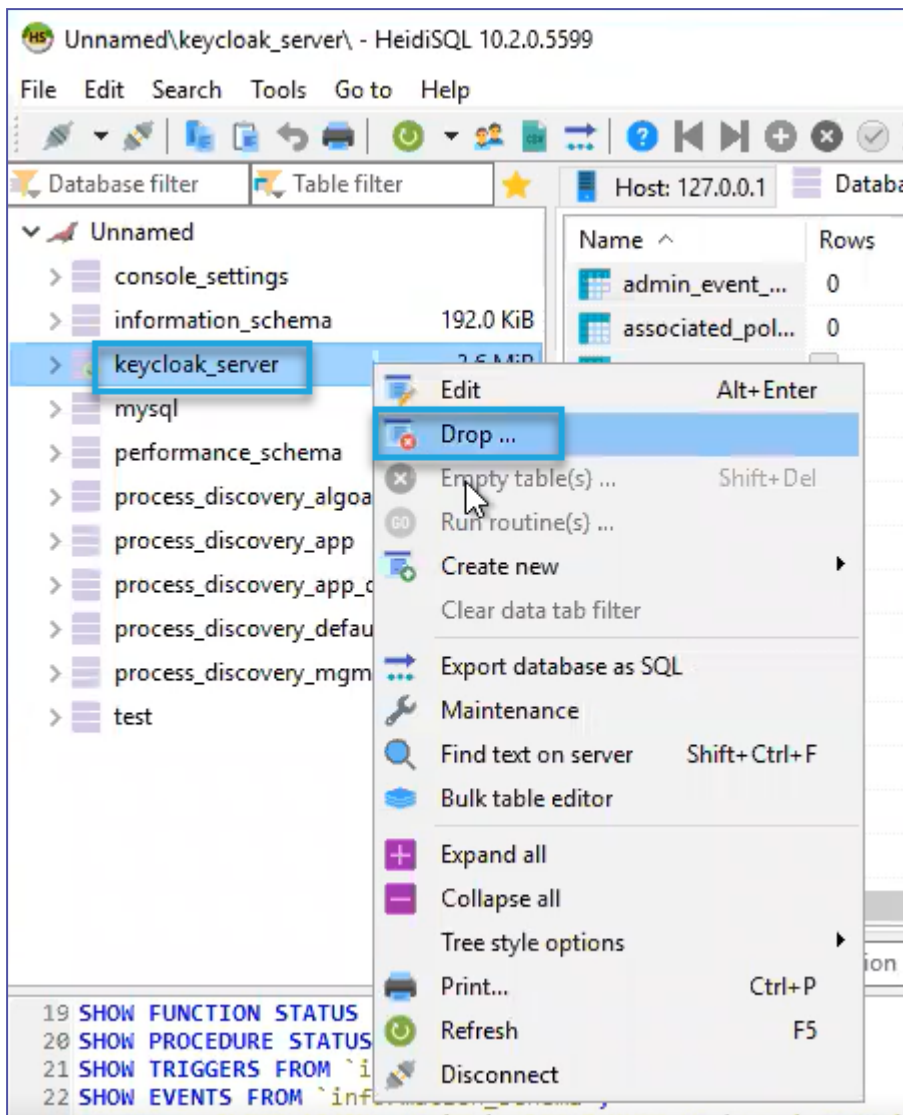


NOTE

The following action deletes the Process Discovery users from Keycloak. The users in Keycloak cannot be backed-up and exported to the latest Process Discovery version (V. 21.3) since the users and login algorithm have been changed and upgraded in version 20.6. You need to re-create the users manually in Process Discovery V. 21.3.


- a. Open **HeidiSQL**
- b. Right-click **keycloak_server**

c. Click **Drop**



Step 4: Delete the database schemes

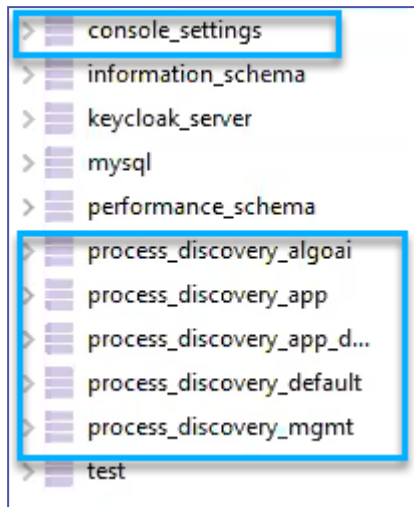
NOTE



Due to the new changes in the algorithm, you need to re-create the database when upgrading to Process Discovery V. 21.3.

- a. Open **HeidiSQL**
- b. Right-click the e following schemes and then click **Drop**:
 - console_settings

- Any schema that starts **process_discovery[...]**



Step 5: Install Process Discovery V. 21.3

Install Process Discovery 20.6 like instructed in the installation section in this guide. When prompted, make sure to select your **existing and backed-up license file** and **RabbitMQ**.

See [Installing the Kryon Process Discovery Server](#).

Step 6: Post-installation configuration

Teams configuration

Re-create your Teams by following the procedure under **Managing Teams** (*Process Discovery Console User Guide*).

Recorded sessions import

Import the backed-up recorded-sessions you created in Step 1 by following the procedure under **Importing recorded sessions data** .

Console users configuration

Re-create your console users by following the procedure under **Creating Discovery Console Users** (*Process Discovery User Guide*).

Applications definition configuration

Re-create your applications definition by:

- a. Open the back-up file "ApplicationList" using a text editor (e.g. Notepad).
- b. Refer to the applications definition in the file to re-create the applications in the Process Discovery Console by following the procedure under **Managing Applications** (*Process Discovery Console User Guide*).

Silent Installation of Discovery Server

This section describes procedures for a silent installation of the **Discovery Server**:

In this Chapter:

Discovery Server Silent Installation Steps	54
Step 1: (optional) Change Default Install Folder Location	54
Step 2: (optional) Kryon Process Discovery Database Engine	54
Step 3: (optional) Update RabbitMQ Permissions	55
Step 4: Open Network Ports	56
Step 5: Copy Installation Files to Local Folder	57
Step 6: Run the Discovery Server Installation Package	57
Step 7: (optional) Change External Ports After Installing the Server	58
Step 8: (optional) Install Kryon Process Discovery License after Installing the Server ...	60
Step 9: Verify Installation	61

Discovery Server Silent Installation Steps

Follow these steps to do a silent install of the **Discovery Server**:

Step 1: (optional) Change Default Install Folder Location

The format for the location of the **Discovery Server** install folder is `{local drive}:\{InstallFolder}`.

By default the **InstallFolder** location is `{local drive with the most free space}:\Kryon`.

If you choose to change the location of **InstallFolder**:

- It should be targeted to a local folder on a drive with more than 500GB of free disk space
- The `InstallFolder` can't be the root folder of a drive (for example, `C:\` is not allowed)
- The `InstallFolder` folder name can't include spaces (for example, `C:\Install Folder\` is not allowed)
- The `InstallFolder` folder path cannot be longer than 19 characters (20 if a backslash is added at the end)

To change the install folder location:

1. Open the Kryon Process Discovery Server Installation configuration file, `PDServer64BitSetup.exe.json`, with a text editor
2. Enter the value for **InstallFolder** parameter between the corresponding double-quotes, for example:

```
"InstallFolder": "C:\\NewFolder"
```

Note: The syntax for specifying folder and file locations in JSON uses a double backslash in each location in which Windows syntax would use a single backslash, for example: `C:\\ProgramFiles\\MariaDB\\`

3. Save the JSON file

Step 2: (optional) Kryon Process Discovery Database Engine

Databases are installed on the **Discovery Server** to collect, analyze, and work with the data received from the robots. Kryon Process Discovery uses four application databases to work its magic:

Database	Database engine
PD application database #1 (data segregated by Team)	MariaDB 10.3.7 (or higher) or MySQL 8.0.11 (or higher)
PD application database #2 (data aggregated for all Teams)	
Process Library database	
User Management platform database	

The **Discovery Server** installation package automatically installs the MariaDB 10.4.7 database engine

If you prefer, you can manually install the database engines yourself, or connect to an already existing MariaDB 10.3.7 (or higher) or MySQL 8.0.11 (or higher)

Installation creates the following default users for the databases:

Database	Default User Names	Default User Password
MariaDB	root	Kryon2020!
	pdbdev	Kryon2020!

OPTIONAL STEPS:

- [Configuring a Preexisting Database Engine Installation](#)
- [Manually Installing the Database Engines](#) to manually install MySQL 8.0.11 (or higher) or MariaDB (10.3.7 or higher)

Step 3: (optional) Update RabbitMQ Permissions

The **Discovery Server** installation package automatically installs RabbitMQ Server.

You can opt to connect to a preexisting RabbitMQ installation, if you have one, later in this installation procedure.

If you want to connect to a preexisting RabbitMQ installation, you may need to add permissions to admin RabbitMQ user at this time. To do so, follow the steps in [Add permissions to admin RabbitMQ user for preexisting RabbitMQ version](#).

Step 4: Open Network Ports

- The following **default external ports** are opened automatically in the Windows Firewall during the **Discovery Server** installation process. These ports are intended for an installation that *does not* use TLS (see below for SSL/TLS ports). Open them in your hardware firewall prior to installing the server

Default Port (Not using TLS)	Port Used by	Port Used for
5672	Queue Manager (RabbitMQ)	Communication between the Discovery Robots and the Discovery Server
80	Console (NGINX)	Communication between the Discovery Console and the Discovery Server

If you *will* be using TLS, open the following ports in your hardware firewall prior to installing the server.

NOTE: Only SSL/TLS v1.2 is supported.

Default Port (Not using TLS)	Port Used by	Port Used for
5671	Queue Manager (RabbitMQ)	Communication between the Discovery Robots and the Discovery Server
443	Console (NGINX)	Communication between the Discovery Console and the Discovery Server

- You can override the default port setting if you want. At this time, make sure the ports you choose are open in the hardware firewall. After installation you will configure the ports in the server configuration file. Be sure to write down the port numbers you use; you will need them!

(optional) The following *default backend ports* are used in the **Discovery Server**. We recommend *NOT* to open them in the firewall. They are customizable, if required:

Default Port	Port Used for
5058	Communication between the Discovery Server and the User Management Tool

Default Port	Port Used for
5001-5004	Communication between the Discovery Server and the Discovery Console
3306	Internal port for database communications

If you want to customize backend port settings, see:

- [Alternative to ports 5001-5004](#)
- [Alternative to port 5058](#)
- [Alternative to port 3306](#)

Step 5: Copy Installation Files to Local Folder

1. Download the [Kryon Process Discovery Server installation files](#) to a local folder on the Server. *Do not* copy these files to the Install Folder location.
 - PDServer64BitSetup.exe
 - PDServer64BitSetup.exe.json
2. If you have received your Kryon Process Discovery license file (.llk) from your contact at Kryon or the Kryon distribution partner, you can at this point prepare it to be installed automatically at the time of Kryon Process Discovery Server installation. If you wish to install it *after* Discovery Server installation, copy the file to the same folder in which PDServer64BitSetup.exe is located

Step 6: Run the Discovery Server Installation Package

1. Access the command prompt and run **as an administrator**
2. Change directory to the location of where you copied the installation files by typing in:

```
CD {Folder location}
```

For example, CD C:\FolderName\
3. Hit <ENTER>
4. Type in:

```
START /WAIT PDServer64BitSetup.exe -silent
```
5. Hit <ENTER>

6. The installation can take up to 20 minutes, depending on the Server processor power. If needed, the system restarts automatically to complete the install

To verify the discovery server installation

- If the system doesn't require a restart, to verify the installation, immediately after the process completes, run the **ECHO** command with the **%errorlevel%** parameter, by typing: `ECHO %errorlevel%`. The exit codes are shown in the command line.

The exit codes are as follows:

- 0 = success
- 1 = reboot required
- 8 = incompatible machine
- 16 = database failure
- 32 = bad target folder
- 64 = incompatible target drive
- 256 = success with warnings
- 1024 = property value failure
- 2048 = package failure

or

After a system restart during installation, you can verify the installation by viewing the [Troubleshooting Discovery Server Installation - Logs](#).



NOTE


If you wish to install it **after** Kryon Process Discovery Server installation, follow the steps in [Step 10: \(optional\) Install Kryon Process Discovery License After Installation](#) once installation is complete.

Step 7: (optional) Change External Ports After Installing the Server

To use a another port instead of 5672, follow these instructions:

Edit the rabbitmq.config file:

For Communication Between Discovery Robots & Discovery Server

1. Right-click the **Windows Start** button 
2. Select **Run**
3. Type `%appdata%/RabbitMQ`, then hit <ENTER>
4. From the window that opens, open the `rabbitmq.config` file with a text editor
5. Change the value of `tcp_listeners` from 5672 to the port number you are using

```
%% -*- mode: erlang -*-
[
  {rabbit, [
    tcp_listeners, [5672]},
  ]
}
].
```

Edit Process Discovery configuration files:

Change to the Process Discovery configuration files as follows:

1. With a text editor, open each of the configuration files listed below, and change the value of the specified key from 5672 to the port number you are using.
 - a. In `C:\ProgramData\Kryon\PDServer\Configuration\`, open the file `KryonProcessDiscoveryConfigurationProduction.json` with a text editor and edit the following keys as detailed below.

Change the value of `MessageBrokersPort` from 5672 to the port number you are using
 - b. In `{MainPDFolder}\Orchestrator\Config\`, open the file `production.json` with a text editor and edit the following keys as detailed below.

Change the value of `Port` from 5672 to the port number you are using

Keep in mind, you need to configure each **Discovery Robot** configuration file with the new port when you install the **Discovery Robots**. See [Configuring Discovery Robots](#)

Step 8: (optional) Install Kryon Process Discovery License after Installing the Server

Follow these steps to set up your Process Discovery license (if you did not do so previously during installation):

1. Copy the license file you received to the [Install Folder](#)
2. From the **Windows Services** app or the **Windows Task Manager > Services** tab:
 - Restart the **Kryon Server -Process Discovery Service**
 - Check the **Status** column of the **Kryon Server -Process DiscoveryService** to ensure that it shows `Running`



NOTE

If you have not yet received your license file, check with your contact at Kryon or the Kryon distribution partner with whom your organization is working.

Step 9: Verify Installation

Verify the **Discovery Server** installation by checking that you can connect to the following components:



NOTE

If you're connecting remotely to the **Discovery Server** or if you defined the server's FQDN when you installed it, enter the FQDN of the server instead of `localhost` in the URLs in the following steps:

1. Connect to RabbitMQ

Log in to RabbitMQ using the user name `admin` and the default password `Kryon2020!`.

2. Connect to Process Discovery Console:

- a. From a web browser on the Discovery Server, enter the following URL:

`localhost/console`

- b. Login with the following username and password:

Username: `Pdconsole`

Default temporary password: `Pd123456!` (if you changed the password in step 4, use the new password you created)

3. Connect to SEQ:

From a web browser on the Discovery Server, enter the following URL:

`http://localhost/seq`

4. Connect to Process Discovery User Management Tool:

- a. Open an incognito window in Chrome

Enter the following URL:

`localhost/auth/admin/kryon/console/#/realms/kryon`

- b. Login with the following username and password:

Username: `authadmin`

Default temporary password: `Kryon123!` (you may be asked to change the password. If you do, be sure to write it down)

If you have connected successfully to the above, you're done installing the server!

Next Steps

Install the [Discovery Robots](#)

APPENDIX A: Additional Configuration Options

If any of the following scenarios apply to your installation, follow the steps in the relevant topic(s):

In this Chapter:

Manually Installing the Database Engines	63
MariaDB – Manual installation	64
MySQL - Manual installation	69
Configuring a Preexisting Database Engine Installation	76
Configuring the Event Log File Structure	78

Manually Installing the Database Engines

← [to return to regular installation instructions](#)

← [to return to silent installation instructions](#)

Databases are installed on the **Discovery Server** to collect, analyze, and work with the data received from the robots. Kryon Process Discovery uses four application databases managed by one or the other database engine:

Database	Database engine
PD application database #1 (data segregated by Team)	MariaDB 10.3.7 (or higher) or MySQL 8.0.11 (or higher)
PD application database #2 (data aggregated for all Teams)	
Process Library database	
User Management platform database	

You can choose manually install MariaDB 10.3.7 (or higher) or MySQL 8.0.11 (or higher). Each of these options is covered in a separate section below:

- [MariaDB – Manual installation](#)
- [MySQL - Manual installation](#)

MariaDB – Manual installation



NOTE

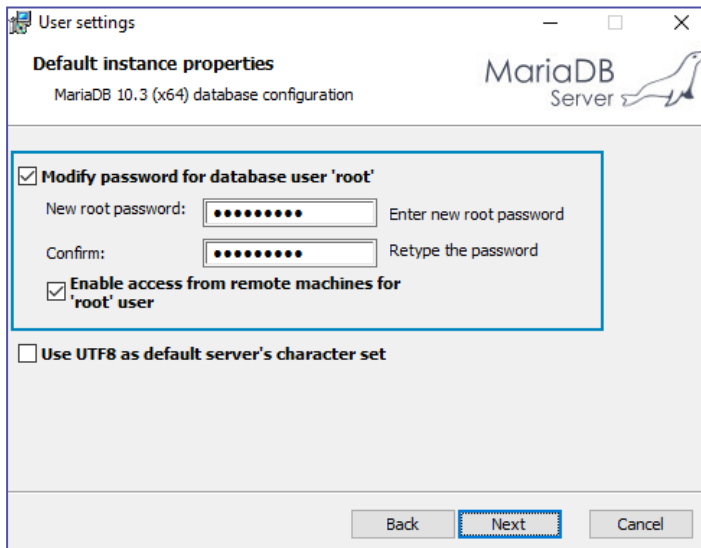
The Administrative user needs full permissions to create schema and tables.

Kryon Process Discovery supports the *Windows version* of MariaDB 10.3.7 (or higher). If you are installing MariaDB manually, you can download the software from here: <https://downloads.mariadb.org/>.

You should use the default options for each screen in the MariaDB installation wizard, with the following important exceptions:

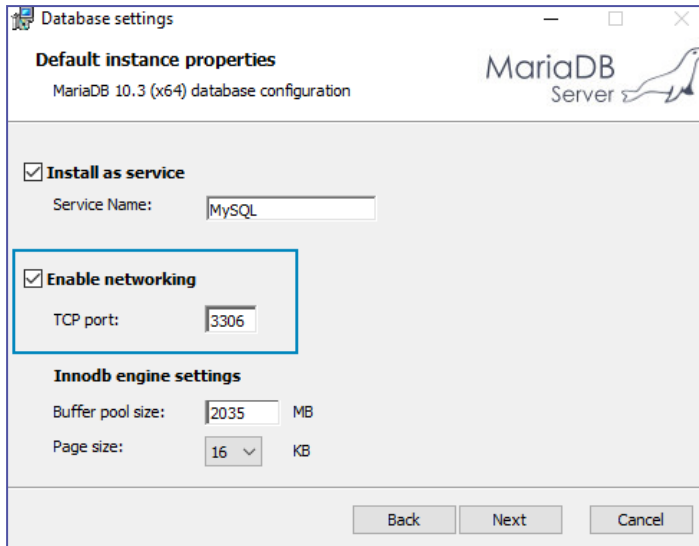
Root password

1. Select the option to modify the root password, and enter and make note of the changed password
 - If you want the Kryon Process Discovery Server installation package to use the default password value, enter `KRYON2020!` as the password
 - If you choose to use a different password here, *be sure to make note of it.*
2. Be sure to select the option to **enable access from remote machines for 'root' user**



TCP port

1. You can choose to change the default TCP port – **3306**– if you wish. But if you do so, *be sure to make note of it.*



2. Complete the installation using the default options for each screen in the MariaDB installation wizard.
3. If you are doing a regular installation, you're done! For a silent installation, continue on.

Configure the database configuration file (recommended)

1. Open the database configuration file `my.ini` and set the following parameter values to improve database performance:

```
long_query_time=1
max_connections=200
table_open_cache=1000
tmp_table_size=64M
thread_cache_size=200
key_buffer_size=128M
innodb_flush_log_at_trx_commit=1
innodb_log_buffer_size=16M
innodb_buffer_pool_size=8G
innodb_log_file_size=1000M
innodb_thread_concurrency=8
innodb_buffer_pool_instances=8
innodb_open_files=2000
innodb_stats_on_metadata=OFF
innodb_checksum_algorithm=crc32
back_log=200
max_allowed_packet=1G
table_definition_cache=500
character_set_server=utf8mb4
collation_server=utf8mb4_unicode_ci
```

2. Save the file
3. Restart the database service

Update the installation configuration file (for silent installation)

For a silent installation, change the following values in the JSON file provided with the installation package, **PDServer64BitSetup.exe.json**:

1. Open the JSON file provided with the installation package, **PDServer64BitSetup.exe.json** with a text editor

2. Edit the MariaDB `root` password : change the value of the `DB_ROOT_PASSWORD` parameter with the password you gave for the `root` above
3. Installation creates an additional application user, `Pdbdev` with default password `Kryon2020!`. If you want to change this user name and password:
(optional) Edit the value of the `DB_USER_NAME` with your preferred user name and edit the value of the `DB_USER_PASSWORD` parameter with a new password
4. Save the JSON file. You're done!

MySQL - Manual installation

If you choose to use MySQL for the application databases, it must always be manually installed prior to Discovery Server installation.

Kryon Process Discovery supports the *Windows version* of MySQL 8.0.11 (or higher). (Note that later versions are *NOT* supported.) You can download the software from here: <https://downloads.mysql.com/archives/get/file/mysql-installer-community-8.0.11.0.msi>.



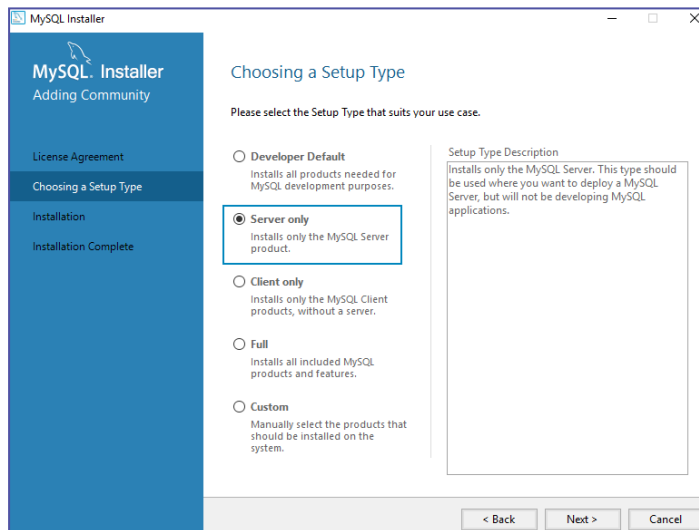
NOTE

The Administrative user needs full permissions to create schema and tables.

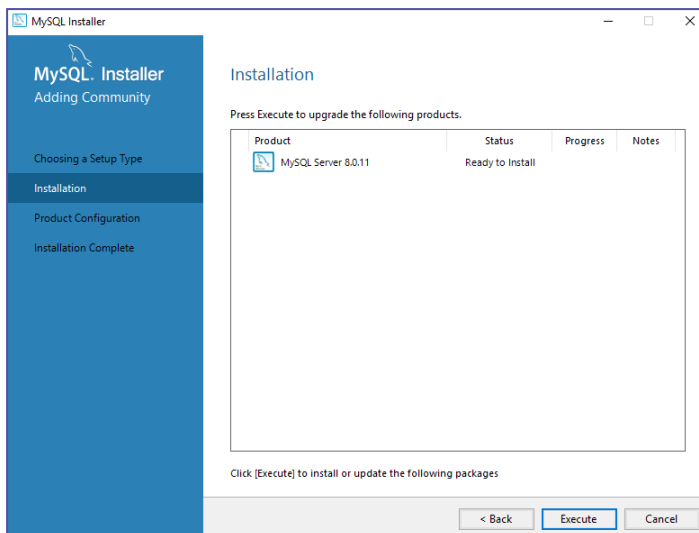
Run the installation package, and install with the following options:

Choosing a setup type

1. Select **Server only**, then click the **Next >** button



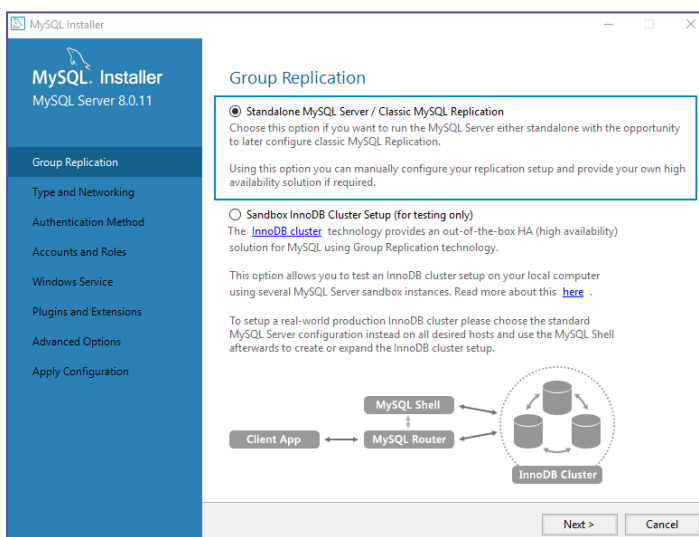
2. On the next screen, click the **Execute** button, and the package will be installed



3. You will then be prompted to configure the package

Group replication

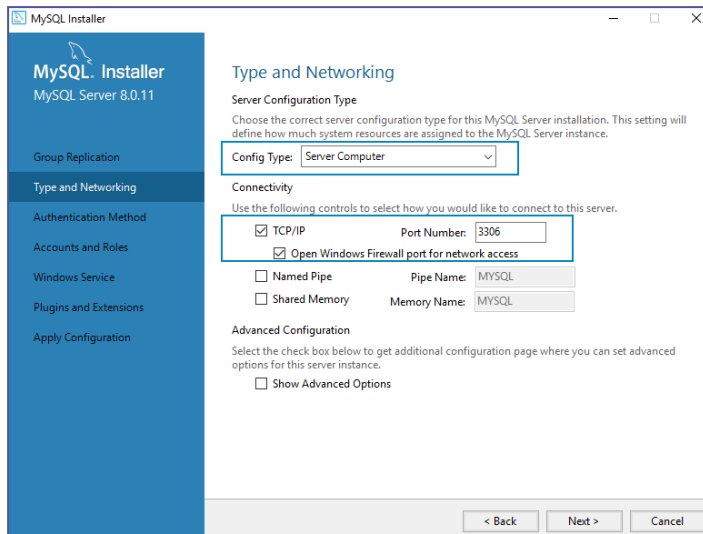
- Select **Standalone MySQL Server / Classic MySQL Replication**



Type and networking

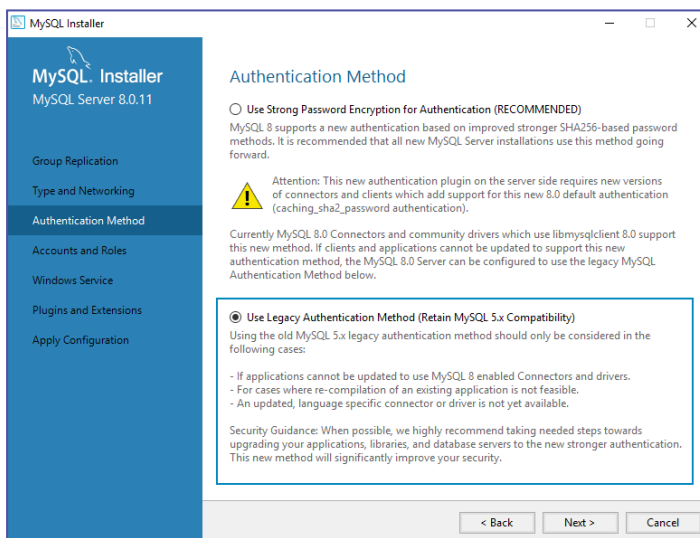
1. From the **Config Type** dropdown list, select **Server Computer**
2. In the **Connectivity** section:
 - Select the option for **TCP/IP**
 - Select the option to **Open Windows Firewall port for network access**
 - **Port Number:** You can choose to change the default Port Number– **3306**– if you wish. But if you do so, **be sure to make note of it**. You will need to

specify it as an [installation parameter](#) during **Discovery Server** installation.

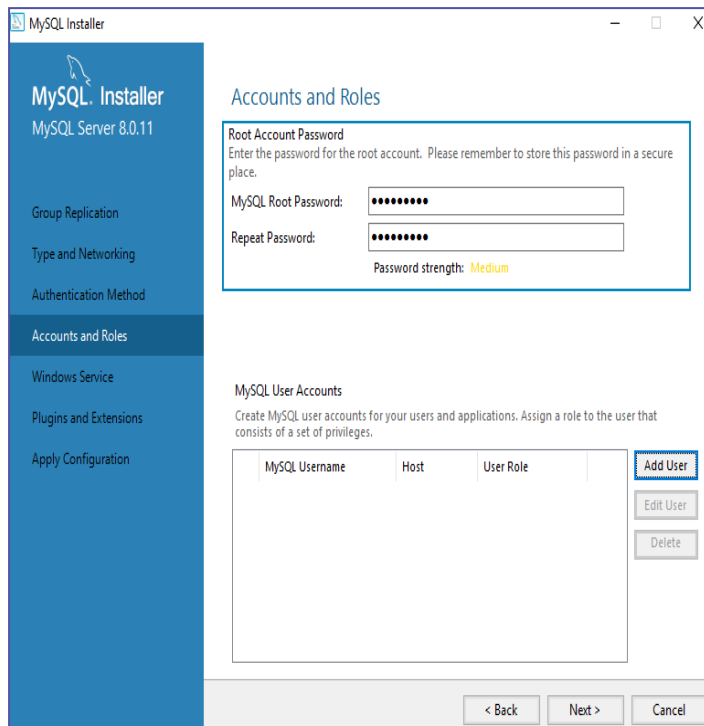


Authentication method

- Select **Use Legacy Authentication Method (Retain MySQL 5.x Compatibility)**

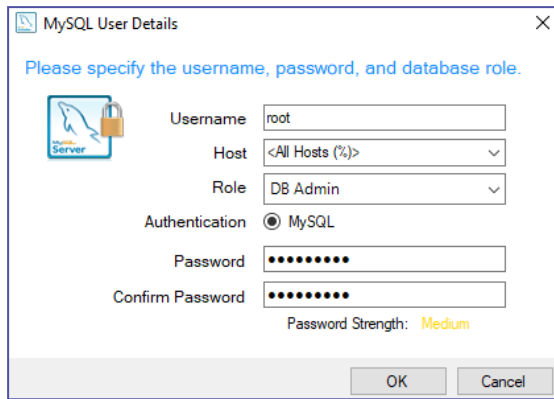


Accounts and roles

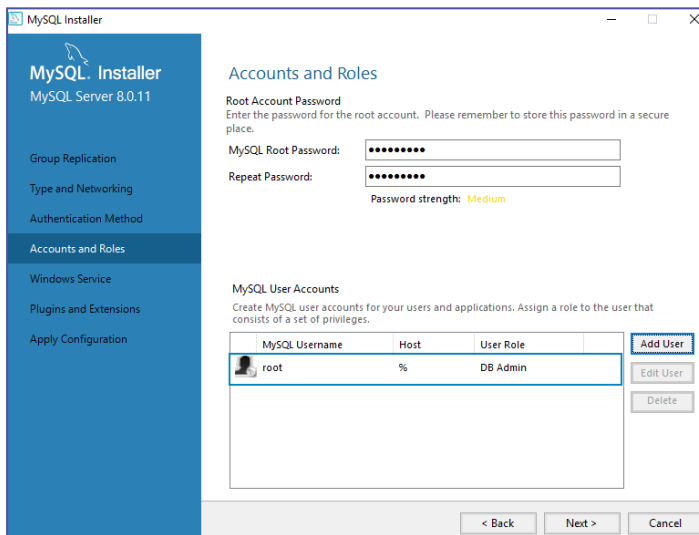


1. In the **Root Account Password** section, enter and make note of the changed password
 - If you want the Discovery Server installation package to use the default password value, enter `Kryon2020!` as the password
 - If you choose to use a different password here, *be sure to make note of it.* You will need to specify it as an [installation parameter](#) during **Discovery Server** installation.
2. In the **MySQL User Accounts** section, click the **Add User** button, and create a user with the following properties:
 - **Username:** root
 - **Host:** <All Hosts (%)>
 - **Role:** DB Admin
 - **Authentication:** MySQL

- **Password:** same password as you entered in [step 1](#) above



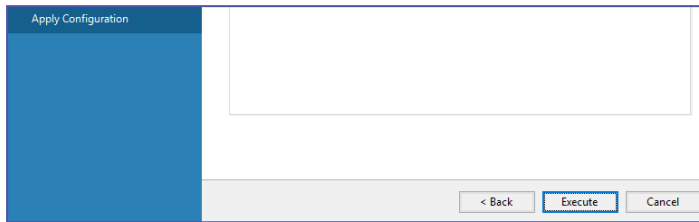
3. Then click the **OK** button to return to the **Accounts and Roles** screen, which should look like this after the user has been created:



4. Repeat steps 2 - 3, creating an additional user `pdbdev`

Apply configuration

- At the end of the configuration process, you will be prompted to apply the configuration. Click the **Execute** button, and you're done installing MySQL!



Configure the database configuration file

- Open the database configuration file `my.ini`, and add the following line:

```
# Set default time zone
default-time-zone = '+00:00'
```

`default-time-zone='timezone'` where 'timezone' represents the UTC time zone of the server, for example, `default-time-zone='+00:00'` (the format 'system' is not supported)

- We recommend the following settings to improve database performance. Set the following parameter values in `my.ini`:

```
long_query_time=1
max_connections=200
table_open_cache=1000
tmp_table_size=64M
thread_cache_size=200
key_buffer_size=128M
innodb_flush_log_at_trx_commit=1
innodb_log_buffer_size=16M
innodb_buffer_pool_size=8G
innodb_log_file_size=1000M
innodb_thread_concurrency=8
innodb_buffer_pool_instances=8
innodb_open_files=2000
innodb_stats_on_metadata=OFF
```

```
innodb_checksum_algorithm=crc32  
back_log=200  
max_allowed_packet=1G  
table_definition_cache=500  
character_set_server=utf8mb4  
collation_server=utf8mb4_unicode_ci
```

3. Save the file
4. Restart the database service

Configuring a Preexisting Database Engine Installation

← [to return to silent installation instructions](#)

Kryon Process Discovery supports using a dedicated **Windows version** of MariaDB 10.3.7 (or higher) and MySQL 8.0.11 (or higher). If you already have MariaDB or MySQL installed on your server, follow the steps below to configure database installation.

Preexisting database engine configurations must always be done prior to Discovery Server installation.

Configure the database configuration file

1. For MySQL, open the database configuration file `my.ini`, and add the following line:

```
# Set default time zone
default-time-zone = '+00:00'
```

`default-time-zone='timezone'` where 'timezone' represents the UTC time zone of the server, for example, `default-time-zone='+00:00'` (the format 'system' is not supported)

2. For both MySQL and MariaDB, we recommend the following settings to improve database performance. Set the following parameter values in `my.ini`:

```
long_query_time=1
max_connections=200
table_open_cache=1000
tmp_table_size=64M
thread_cache_size=200
key_buffer_size=128M
innodb_flush_log_at_trx_commit=1
innodb_log_buffer_size=16M
innodb_buffer_pool_size=8G
innodb_log_file_size=1000M
innodb_thread_concurrency=8
innodb_buffer_pool_instances=8
```

```
innodb_open_files=2000
innodb_stats_on_metadata=OFF
innodb_checksum_algorithm=crc32
back_log=200
max_allowed_packet=1G
table_definition_cache=500
character_set_server=utf8mb4
collation_server=utf8mb4_unicode_ci
```

3. Save the file
4. Restart the database service

Configure the discovery server json configuration file parameters

See [here](#) for a full explanation of Discovery Server JSON configuration file parameters.

1. Open the JSON file provided with the installation package, **PDServer64BitSetup.exe.json** with a text editor
2. Enter the values for your existing database engine (between the double-quotes that correspond to the parameters below):

```
"DB_SERVICE_NAME": "your service name"
```

```
"DB_SERVER": "your DB server"
```

```
"DB_PORT": "your DB port"
```

```
"DB_ROOT_NAME": "DB root user name"
```

```
"DB_ROOT_PASSWORD": "DB root user password"
```

```
"DB_USER_NAME": "DB user name"
```

```
"DB_USER_PASSWORD": "DB user password"
```

3. Save the JSON file

Configuring the Event Log File Structure

You can combine **Kryon Process Discovery** with Process Mining techniques by downloading an Event Log (in csv format) to apply to an external process mining tool.

By default, the Event Log's file structure uses comma-separated values. Some process mining tools require semicolon delimiters instead.

You can configure the Event Log file structure to use semicolon delimiters, as follows:

1. Go to [Installation Folder]/Kryon/PD Server/Micro Services/Kryon.DocManager/ and open the file **appsetting.Production.json**.
2. Change the value of the `UseCsvSemicolonDelimiter` parameter from `false` to **true**.

APPENDIX B: Technical Data

The following sections include additional technical data.

In this Chapter:

Discovery Robots and Application Monitoring	80
Browsing Recorded Sessions Data	82
Installed Components & Software	84
Discovery Server Installation Configuration File	85
Configuring Discovery Robots	92
Standalone Discovery Robots	97
Image Masking	100
Accessing Logs	102
Managing Recorded Sessions via Admin CLI	105

Discovery Robots and Application Monitoring

Discovery Robots run silently on your employees' machines, collecting data on how they utilize business applications to perform their daily tasks. On the Applications tab of the Process Discovery Console, you can define which applications the Discovery Robots should monitor and which to ignore. You can choose either one of three approaches:

- **Option 1:** Define the list of the only applications you want the Discovery Robot to monitor (**Recommended**)
- **Option 2:** Define a list of application to exclude
- **Option 3:** Set the robot to record and monitor all applications



BEST PRACTICE

Applications to include:

What is the best approach to defining the applications to include in the recorded sessions?

Day 1 of recordings: Set applications to exclude. Application that you know you don't want. At the end of the day, review the day's output.

Day 2 of recordings: Set the applications to include based on the first day's results.

Regardless of the approach you choose, there are two kinds of application types you can monitor:

- **Desktop applications** – for example, Outlook. Included in this category are *terminal emulators*, applications that allow remote access to a legacy text terminal
- **Web applications** – a URL like `video.google.co.uk`



NOTE

Recording keystrokes from different languages

Discovery Robots can record keystrokes from a number of keyboard languages, including:

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, Russian, Italian, Hebrew

Remote Desktop Workstations

When the discovery robots are installed on RDP client workstations, application filtering is not done on recordings from the remote computer.

Terminal emulators

Supported character-sets include: Latin, Cyrillic, and Hebrew.

Supported screen backgrounds: any color but white

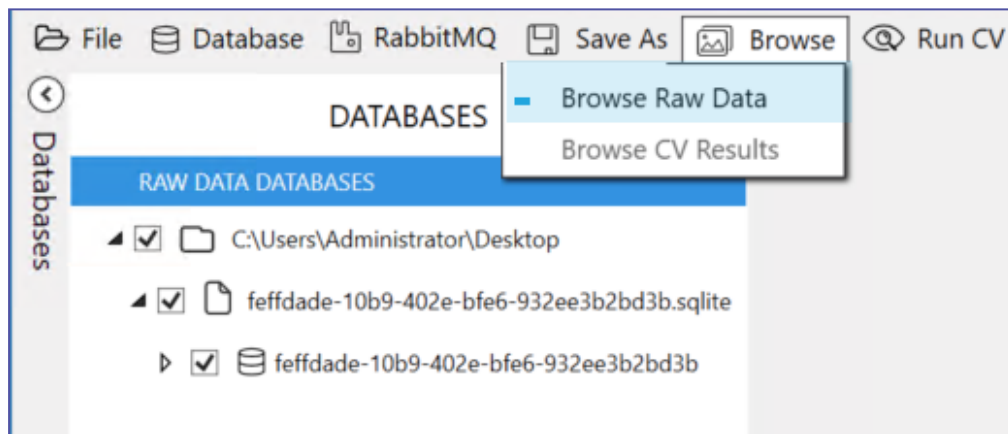
- I got here while configuring, take me back to [Defining Applications to Record](#) -

Browsing Recorded Sessions Data

Another useful feature of the Toolkit is that you can use it to browse the raw data of the Recorded Sessions, review the full recordings or monitor the PD process. The Browse feature allows you to view all data captured during the session, from beginning to end, both images and metadata.

Browsing recorded sessions:

1. Open the Kryon Process Discovery Toolkit, **Toolkit.exe**, located in {InstallFolder}\PDServer\Support\Toolkit.
2. Download all or only selected recording as explained in [Exporting Recorded Sessions](#).
3. You can only check one recording at a time - make sure only one item is checked in the Databases list on the right pane. From the menu, select **Browse> Browse Raw Data**.



4. You can scroll through the images by clicking the < and > buttons or using the

keyboard right or left arrow.

The screenshot shows the Freshdesk interface. At the top, there is a navigation bar with a 'Mark Browser' toggle, 'Current User Action', a page indicator '1 / 2063' with left and right arrow buttons, and an 'In-Memory Range 1 - 100'. To the right are 'Save', 'Run CV', and 'Close' buttons.

The main area displays a list of tickets. The table has columns for Contact, Subject, State, Group / Agent, Priority, and Status. The first row shows a ticket for 'Matt Rogers' with subject 'Vintage table lamp - Out of stock? #1', state 'Overdue', group 'Escalation', priority 'Low', and status 'Open'. Other tickets include 'Rachal Doe', 'James Dean', 'Phileas Fogg', 'Clarice Boone', 'Matt Rogers', and 'Anne Richard'.

On the right side, a detailed view of a ticket is shown, displaying technical data:

- UserActionIndex: 3
- UserActionID: 19
- ApplicationType: Web (0)
- IsEmulator: False
- ProcessName: chrome
- ApplicationIdentifier: EMPTY
- Time: 1/22/2019 9:06 AM
- UserName: Itay.Bri
- EventType: MOUSE_LEFT_CLICK (14)
- KeyStrokeType: SingleKey (1)
- Combinations: EMPTY
- Resolution:
 - Height: 768
 - Width: 1366
 - X: 0
 - Y: 0
- ScreenDpi: 96
- DpiAwareMode: True
- MouseCursorType: NOT_DETECTED
- MousePositionOnScreen:
 - X: 410
 - Y: 554
- BrowserType: Chrome (2)
- URL: https://vevo22.freshdesk.com/
- BrowserClientRectangle:
 - Height: 654
 - Width: 1358
 - X: 8
 - Y: 74
- WindowRectangleLeft: 0
- WindowRectangleTop: 0
- WindowSizeHeight: 728
- WindowSizeWidth: 1366
- Padded: False
- RobotVersion: EMPTY

Installed Components & Software

Discovery server

The following software is automatically installed on the **Discovery Server** by the Kryon 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 Kryon Process Discovery Admin)
- Seq (centralized logging component)

The following software can be optionally installed by the Kryon 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)

Third party components

Third party software provided as part of or with the Licensed Product is solely governed by its respective license terms as set forth in:

<https://public.kryon.io/#PD-Versions/21.3/Documents/>

Discovery Server Installation Configuration File

Configuration of the **Discovery Server** installation is done by editing the JSON file provided with the installation package, `PDServer64BitSetup.exe.json`.

To edit the JSON file:

1. Open the JSON file with a text editor
2. Enter the value for the relevant parameter between the corresponding double-quotes, for example:

```
"TENANTS_DB_USER_PASSWORD": "pdpasword1234!",
```

Note: The syntax for specifying folder and file locations in JSON uses a double backslash in each location in which Windows syntax would use a single backslash, for example:

```
C:\\Program Files\\MariaDB\\
```

3. Save the JSON file

The following is a full explanation of **Discovery Server** JSON configuration file parameters:

Parameter Name	Description
INSTALLFOLDER	<p>Folder in which the core Discovery Server files will be installed</p> <p>The format for the location of the (missing or bad snippet) install folder is <code>{local drive}:\{InstallFolder}</code>.</p> <ul style="list-style-type: none"> • The InstallFolder should be targeted to a local folder on a drive with more than 500GB of free disk space <p>The <code>InstallFolder</code> can't be the root folder of a drive (for example, <code>C:\</code> is not allowed)</p> <p>The <code>{InstallFolder}</code> folder name can't include spaces (for example, <code>.C:\Install Folder</code> is not allowed)</p> <p>The <code>InstallFolder</code> folder path cannot be</p>

Parameter Name	Description
	<p>longer than 19 characters (20 if a backslash is added at the end)</p> <p>Default value: {Local fixed drive with the most free space}:\Kryon</p>
ENABLE_TLS_IN_REGISTRY	<p>If set to <code>True</code>, installation will modify the registry of the machine on which the Discovery Server is installed to:</p> <ul style="list-style-type: none"> • enable SSL/TLS 1.2; and • disable earlier versions of SSL/TLS and SSL <p>Must be set to <code>True</code> if you will be deploying SSL/TLS Configuration</p> <p>Default value: <code>True</code></p>
LOCAL_MARIADB_USE	<p>When set to <code>True</code>:</p> <ul style="list-style-type: none"> • If there is no preexisting instance of MariaDB installed on the local machine, the Kryon Process Discovery Server installation package will automatically install MariaDB • If there is a preexisting instance of MariaDB on the local machine (and the installation package is able to connect to it using the values specified in the <code>DB_ROOT_NAME</code>, <code>DB_ROOT_PASSWORD</code>, <code>DB_PORT</code>, and <code>DB_SERVICE_NAME</code> parameters), the Kryon Process Discovery Server installation package will create Kryon Process Discovery application database #1 and Kryon Process Discovery application database #2 within it <p>Default value: <code>True</code></p>
DB_INSTALLDIR	<p>The database install directory</p> <p>Default value: <code>C:\Kryon\MariaDB</code></p>
DB_SERVICE_NAME	<p>Used when LOCAL_MARIA_DB_USE is set to <code>True</code></p>

Parameter Name	Description
	<p>The name of the MariaDB Windows service</p> <ul style="list-style-type: none"> If there is no preexisting instance of MariaDB, the installation package will configure MariaDB to use this service name If there is a preexisting instance of MariaDB, the installation package will attempt to connect to it using this service name (should match the service name configured for this instance) <p>Default value: <code>MariaDB</code></p>
DB_SERVER	<p>Discovery Server IP address or FQDN (Fully Qualified Domain Name) of the machine on which the database is installed</p> <ul style="list-style-type: none"> Do not change the default value if the database is installed on the same machine as the Discovery Server Must be changed from the default value if the database is installed on a remote machine <p>Default value: <code><local machine name></code></p>
DB_PORT	<p>The network port by which the Discovery Server will access the database</p> <p>Default value: <code>3306</code></p>
DB_ROOT_NAME	<p>The user that accesses the database as a superuser (e.g., for creating database schema, etc.)</p> <p>Default value: <code>root</code></p>
DB_ROOT_PASSWORD	<p>The password used to access the database as a superuser (e.g., for creating database schema, etc.)</p> <ul style="list-style-type: none"> Must match the root password created during database instance installation

Parameter Name	Description
	Default value: Krypton2020!
DB_USER_NAME	The user of Discovery Server that accesses the database as a regular user Default value: pdbdev
DB_USER_PASSWORD	The password used by the Discovery Server to access the database as a regular user Default value: Krypton2020!
PD_DEFAULT_TENANT_ID	ID of the default Krypton Process Discovery Team <ul style="list-style-type: none"> • If you wish to change the default Team ID, you must do so here (i.e., it cannot be changed post-installation) • You can add additional Teams here by separating the Team IDs with commas (e.g.: default,tenant2,tenant3) • Team ID: can be 3 to 42 characters - use only lower-case letters and numbers (no spaces or special characters allowed) • Additional Teams can also be added at any time after installation. For additional information, see Managing Teams. Default value: default
LOCAL_RABBITMQ_USE	When set to True: <ul style="list-style-type: none"> • If there is no preexisting instance of RABBITMQ installed on the local machine, the Krypton Process Discovery Server installation package will automatically it • If there is a preexisting instance of RABBITMQ on the local machine, the Krypton Process Discovery Server installation package will create the Process Library database and authentication platform database schema within it

Parameter Name	Description
	Default value: True
MESSAGES_BROKER_HOST	<p>The FQDN (Fully Qualified Domain Name, i.e., DNS name) of the machine on which RabbitMQ Server will be installed</p> <ul style="list-style-type: none"> Recommended: Leave empty so that the package will be installed on the local machine <p>Default value: localhost</p>
MESSAGES_BROKER_PORT	<p>The network port for communication between the Discovery Robots and RabbitMQ Server</p> <ul style="list-style-type: none"> Recommended: Leave the default value of 5672 when not using TLS, or change to 5671 when using TLS. This will minimize configuration changes required post-installation. <p>Default value: 5672</p>
RABBITMQ_ADMIN_NAME	<p>Used when LOCAL_RABBITMQ_USE is set to True</p> <ul style="list-style-type: none"> The installation package creates a regular user account <p>Default value: admin</p>
RABBITMQ_ADMIN_PASSWORD	<p>The password used to access RabbitMQ Server</p> <p>Default value: Kryon2020!</p>
DOC_MANAGER_PORT	<p>The internal port for communication between the Discovery Server and the Document Manager</p> <p>Default value: 50007</p>
PDSEVERER_PORT	<p>The PD Admin (formerly <i>Orchestrator</i>) port</p> <p>Default value: 8788</p>
AB_APPLICATION_SERVER	<p>The FQDN (Fully Qualified Domain Name, i.e., DNS name) of the User Management Tool platform</p>

Parameter Name	Description
	application server <ul style="list-style-type: none"> Recommended: Leave empty so that the application server will be set to local machine If not left empty, should match the value of CX_APPLICATION_SERVER Default value:
AB_CONSOLE_PORT	Recommended: Do not change from default value Default value: 5058
AB_KEYCLOAK_AUTHADMIN_PASSWORD	The default password for authadmin user of Keycloak Default value: Kryon123!
AB_SERVICE_LOGON_USER	The user name and password that will be used to access the authentication platform Windows service
AB_SERVICE_LOGON_PASSWORD	
CX_APPLICATION_SERVER	The FQDN (Fully Qualified Domain Name, i.e., DNS name) of the Process Library application server <ul style="list-style-type: none"> Recommended: Leave empty so that the application server will be set to local machine If not left empty, should match the value of AB_APPLICATION_SERVER
CX_PORT_AUTH	Network ports for used communication between Process Library and its backend APIs Default value: CX_PORT_AUTH 5002 Default value: CX_PORT_GATEWAY 5001 Default value: CX_PORT_DISCOVERY 5004 Default value: CX_PORT_SETTINGS 5003
CX_PORT_GATEWAY	
CX_PORT_DISCOVERY	
CX_PORT_SETTINGS	

Parameter Name	Description
PORT_NGINX	Default value: PORT_NGINX 80
INSTALL_NPP	if set to <code>True</code> , Notepad++ source code editor is installed <ul style="list-style-type: none"> • If Notepad++ already is installed on the server, a new instance is not installed Default value: <code>True</code>

Configuring Discovery Robots

The basic Discovery Robot settings are configured upon installation through the installation wizard. Once **Discovery Robots** are installed on the employee workstation, you can apply additional Discovery Robot configurations by editing the [Discovery Robot Configuration File](#). You should receive from your organization the specific configuration requirements for each **Discovery Robot**.

Discovery Robot Configuration File

You can locate and edit the Discovery Robot settings in the Discovery Robot Configuration File.

The Discovery Robot Configuration file name and location depends on the following:

Before the first run of Process Discovery Robot:

```
 ${InstallationFolder}/PDDR/pddr.appsettings_template.config
```

(The usual path is: C:\Program Files\PDDR)

After the first run of Process Discovery Robot:

```
 %localappdata%/Kryon/ActionsRecorder/config/pddr.appsettings.config
```

Parameter	Description/change
<pre><add key="messagesBrokerHost" value=" FQDN /IP Address"/></pre>	<p>Sets the address of the Discovery Server</p> <pre><add key="messagesBrokerHost" value="{{Discovery Server IP address or FQDN (Fully Qualified Domain Name)}}"/></pre> <ul style="list-style-type: none"> MUST be changed from the default value of localhost
<pre><add key="messagesBrokerPort" value="port#"/></pre>	<p>Sets the port number of the Process Discovery server. You can edit and change the port number. The default port number is 5672.</p>
<pre><add key="stealthMode" value="false"/></pre>	<p>To hide Discovery Robot's tray icon on the machine's end-user(s), change the key value to "true".</p>
<pre><add key="persistRecords"</pre>	<p>By default, recordings by Discovery Robots</p>

Parameter	Description/change
<pre>value="false"/></pre>	<p>are not maintained on the employee workstation once they have been uploaded to the Discovery Server.</p> <p>To maintain the recordings on the workstation after uploading to the Discovery Server, for debugging purposes, change the key value to "true".</p>
<pre><add key="HashUserName" value="false"/></pre>	<p>By default, the user name is visible in the Discovery Robot's data.</p> <p>To comply with privacy regulations (such as the GDPR) and/or company-issued privacy and security policies, you can hash the user name from all recorded/transmitted data by setting the option to hash (i.e., encrypt) the user name.</p> <p>To hash the username, change the key value to "true".</p>
<pre><add key="standaloneMode" value="false"/></pre>	<p>In standalone mode, the Discovery Robot records user actions while they remain disconnected from the Discovery Server</p> <ul style="list-style-type: none"> • false = the Discovery Robot is not in standalone mode • true = the Discovery Robot is in standalone mode <p>Default Value false</p> <p>For additional configuration of standalone robots, see the section Standalone Discovery Robots in <i>Process Discovery User Guide</i>.</p>
<pre><add key="applicationsConfigPath" value="."/></pre>	<p>Used when standaloneMode is set to True</p> <ul style="list-style-type: none"> • Sets the path to the local

Parameter	Description/change
	<p>Applications for Discovery configuration (<code>blwl.json</code>) file that defines which applications are recorded</p> <ul style="list-style-type: none"> • "." indicates same folder Discovery Robot's exe file <p>Default Value "."</p>
<pre><add key="offlineRecordsStoreLimit" value=2000/></pre>	<p>Used when <code>standaloneMode</code> is set to <code>True</code></p> <ul style="list-style-type: none"> • Defines the maximum number of records to save locally <p>Default Value 2000</p>
<pre><add key="EmulatorCommandMaxLength" value="5"/></pre>	<p>Due to PII and GDPR regulations, all input fields of emulator applications are automatically masked.</p> <p>You can set to unmask up to a configurable number of characters, so they can be interpreted as actions. The available range is 1 to 10.</p> <p>Default Value 5</p>
<pre><add key="CaptureScreenshots" value="true"/></pre>	<p>By default, the parameter is set to capture screenshots when recording sessions (<code>"true"</code>).</p> <p>To record work-patterns and collect metadata without capturing screenshots, change the key value to <code>"false"</code>.</p>
<pre><add key="UnicodeHookingProvider" value="false"/></pre>	<p>Sets which hooking provider to use for recording keyboard strokes. Unicode capabilities enable support for multiple language keyboards.</p> <ul style="list-style-type: none"> • <code>false</code> = Use a legacy provider that supports only ASCII

Parameter	Description/change
	<ul style="list-style-type: none"> • true = Use a provider that supports both ASCII and Unicode (for multiple language keyboards) <p>Default Value false</p>
<ul style="list-style-type: none"> • <code><add key="TlsEnabled" value="false"/></code> • <code><add key="TlsServer" value=""/></code> • <code><add key="TlsPort" value="5671"/></code> 	<p>To configure SSL/TLS on Discovery Robots, edit the keys as detailed below:</p> <ul style="list-style-type: none"> • <code>y="TlsEnabled" value="true"/></code> • <code><add key="TlsServer" value="{certificate_server_name}"/></code> <ul style="list-style-type: none"> ◦ {certificate_server_name} must be the name exactly as specified on the server certificate file. • <code><add key="TlsPort" value="{ssl_listeners_port}"/></code> <ul style="list-style-type: none"> ◦ Change this key only if you are using a port other 5671 for SSL/TLS communications. ◦ This should be the same port as you set for <code>ssl_listeners</code> (in the <code>rabbitmq.config</code> file) when configuring the Discovery Server. <p>NOTE: Only SSL/TLS v1.2 is supported.</p>
<p><code><add key="CaptureMethod" value="MIRROR_DRIVER"/></code> (default)</p> <p>Other value option:</p> <p>"DESKTOP_DUPLICATION"</p> <p>"GDI"</p>	<p>The 'CaptureMethod' parameters sets the PDDR capturing method. By default, the capturing method is set to "MIRROR_DRIVER". However, you might need to change the value to "DESKTOP_DUPLICATION" in the following specific case:</p> <p>When working via RDP (accessing a</p>

Parameter	Description/change
	<p>remote desktop from your local server) on a remote machine with PDDR and Windows 10 installed.</p> <p>Once you change the key value and save your changes, make sure to restart the PD service.</p> <p>In case there is a failure in Mirror driver / desktop duplication - the fallback is GD.</p>

Standalone Discovery Robots

A **Discovery Robot** in standalone mode works offline from the server. The major things to keep in mind if you want to use a standalone robot are:

- The **Discovery Robot** doesn't upload recordings to the server. They are stored on the user workstation.
- The default number of actions that are recorded and stored on the employee workstation is 2000 recorded actions. When the limit is reached, the **Discovery Robot** stops recording (You can configure the limit by editing the `offlineRecordsStoreLimit` parameter in the `pddr.appsettings.config`, explained below)
- Since the **Discovery Robot** isn't connected to the **Discovery Server**, it uses its own local configuration file (`b1w1.JSON`) to define which applications it records
- You can find recorded data saved on the employee workstation in `%Localappdata%\Kryon\ActionsRecorder\db`

Steps for setting up a standalone Robot

1. Open the file `%LOCALAPPDATA%\Kryon\ActionsRecorder\config/pddr.appsettings.config` with a text editor and edit the keys as explained:
 - a. In `pddr.appsettings.config`, change the value of the following keys, and save:

change:

```
<add key="standaloneMode" value="false"/>
```

to:

```
<add key="standaloneMode" value="true"/>
```
 - b. The `offlineRecordsStoreLimit` parameter defines the number of actions that are recorded and stored on the local device. The default is 2000 recorded actions.

To change the recording limit:

In `pddr.appsettings.config`, change the value of the following keys, and save:

change:

```
<add key="offlineRecordsStoreLimit" value="2000"/>
```

to:

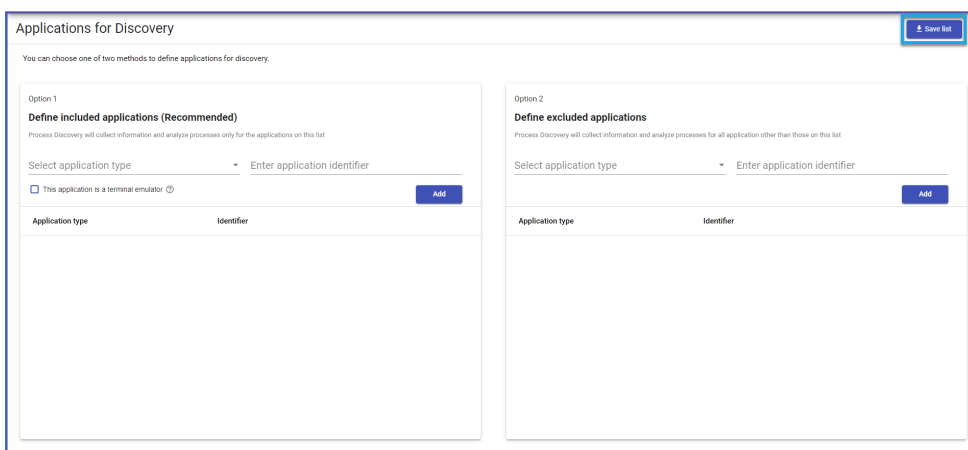
```
<add key="offlineRecordsStoreLimit" value="[new value]"/>
```

2. Create and download a copy of the configuration file (b1w1.JSON) from the Discovery Server:

- a. Access Kryon Process Discovery Console > **Settings** page
- b. Click the **Applications** tab

The Applications for Discovery screen opens

- c. Define applications for discovery in the list of either option 1 or 2 (we recommend option 1), as explained in [Discovery Robots and Application Monitoring](#)
- d. Click the **Save List** button to download the b1w1.JSON file



- e. Save b1w1.JSON in the folder location as defined in the applicationsConfigPath parameter in pddr.appsettings.config. The default location is the same folder as pddr.appsettings.config.

To change the path:

In pddr.appsettings.config, change the value of the following keys, and save:

change:

```
<add key="applicationsConfigPath" value="."/>
```

to:

```
<add key="applicationsConfigPath" value="[new path]"/>
```

Note: The syntax for specifying folder and file locations in JSON uses a double backslash in each location in which Windows syntax would use a

single backslash, for example:

```
C:\\Program Files\\YourFolder\\
```

Image Masking

Hide potentially sensitive recorded information collected by Process Discovery.

When masking is enabled, every screen capture displayed on the Console goes through the masking mechanism that:

1. Analyzes all the text on the recorded screen
2. Identifies potentially sensitive information
3. Blurs out the target text

Enabling Image-Masking

You can enable image-masking [before installing](#) Process Discovery v20.11 (recommended), or [after installation](#).

Option 1: Pre-Installation

Before you run the Process Discovery installation, perform the following:

1. Open the `Kryon_PDServer64BitSetup.exe.json` file.
2. Add the masking parameter:
`"INSTALL_MASKING": "true"`
3. Make sure to save the changes
4. Run the installation as usual
5. After deploying and running Process Discovery, you can [verify the Image-Masking installation](#).

Option 2: Post-Installation

1. **Installing the Required Components:**
 - a. Open the file `%ProgramData%\Kryon\installer-assets\config\prod\scripts\config.prod.properties.json` to edit.
 - b. Change the `"INSTALL_MASKING"` parameter to `"true"`.
 - c. Change the parameters `INSTALL_MONGODB` and `INSTALL_TESSERACT` to `True`.
 - d. Save the changes.
 - e. Open CMD as administrator and run:

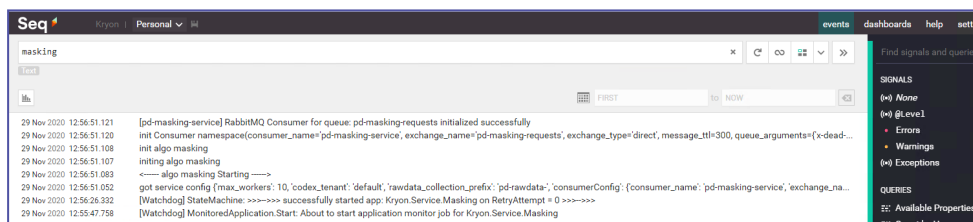
```
C:\Kryon\installer-assets\config\prod\scripts
powershell .\configureAll.ps1 -h C:\Kryon -configDir "C:\Kryon\config" -
n prod -servicesDir "C:\Kryon\PDServer\MicroServices" -utilsDir
"C:\Kryon\PDServer\Support"
```

2. Running Image-Masking through WatchDog:

- a. Open the file "%ProgramData%\Kryon\PDServer\Configuration\KryonProcessDiscoveryConfiguration.Production.json" to edit.
- b. Search for the `Kryon.Service.Masking` section and change the `Enabled` parameter value to `True`.
- c. Save the changes.
- d. Restart the "Kryon Server - Process Discovery Service" windows service.

3. Verifying Image-Masking Installation:

- a. Open Seq and search for masking log messages
<http://localhost/seq/#/events?filter=masking>



- b. Test the Masking API at Verify by calling <http://localhost:50200/pd-masking/v1/isalive>

4. Enabling Image-Masking:

- a. Open the file "%ProgramData%\Kryon\config\prod\services\kryon-raw-fetcher-svc-default.json" to edit.
- b. Change the masking parameter to `true`
- c. Save the changes.
- d. Restart the "Kryon Server - Process Discovery Service" windows service.

Accessing Logs

The following sections describe:

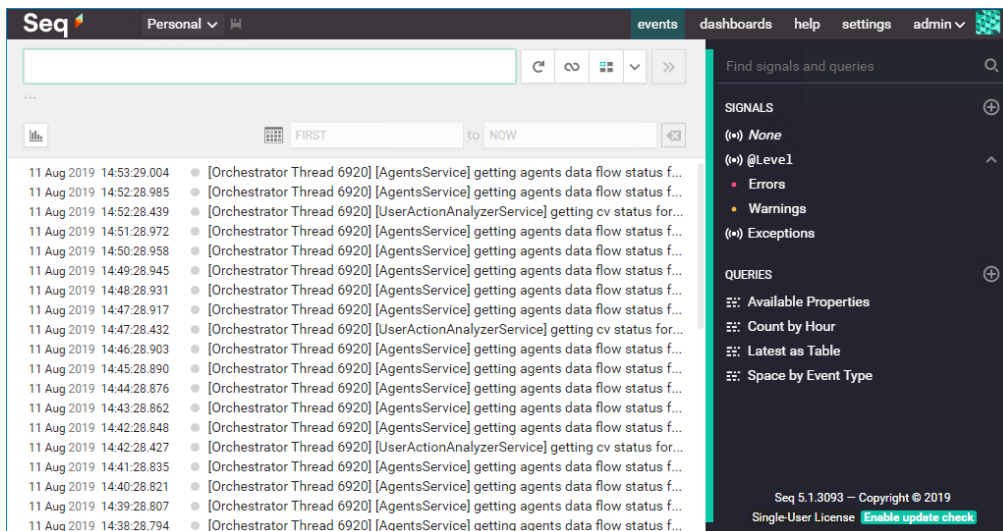
- [Accessing Discovery Server Logs](#)
- [Accessing Discovery Robot Logs](#)

Accessing Discovery Server Logs

As you work with Kryon Process Discovery, you will likely find it helpful to view the **Discovery Server** logs. To do so:

1. From a web browser with access to the **Discovery Server**, enter the following URL:
`http://{Discovery Server IP address or FQDN (Fully Qualified Domain Name)}/seq`

The Seq page opens, displaying the logs:



For more information about using Seq, see the Kryon Seq Tutorial at <https://kryonsystems.force.com/KryoNet/s/article/Seq-Tutorial>.

Accessing Discovery Robot Logs

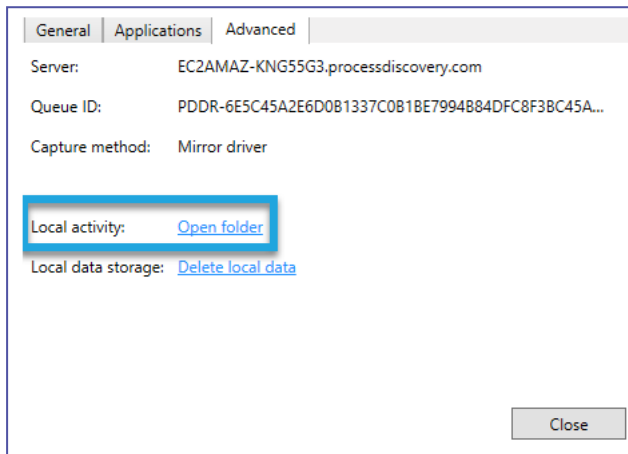
You can view **Discovery Robot** log files on the employee workstation, or you can download them directly to the **Discovery Server** without having to manage them from the client machines.

There are two log files:

- pddr.log contains debug and information level logs
- pddr-Error.log contains error logs

To view discovery robot log files on the employee workstation

1. Right-click the robot's tray icon, and select **Kryon Process Discovery Options**.
2. From the Advanced Tab, click **Open Folder**



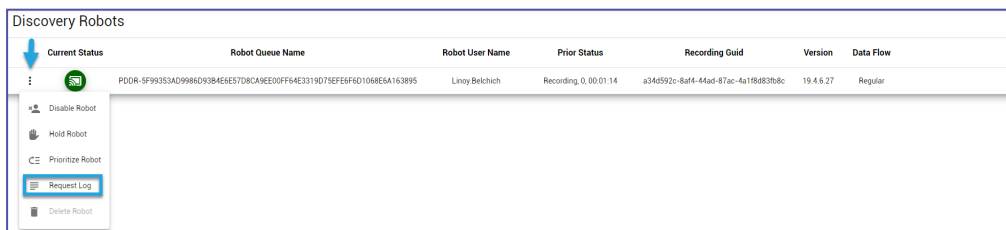
The Logs folder opens containing both the pddr.log and pddr-Error.log files

To download robot log files to the discovery server

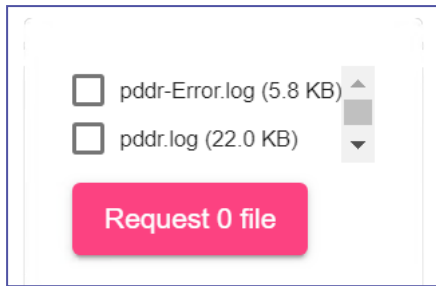
1. Access Kryon Process Discovery Admin
2. Click on **Robots**
3. The Discovery Robots screen opens:

Current Status	Robot Queue Name	Robot User Name	Prior Status	Recording Guid	Version	Data Flow
🟢	PDDR-9F99353AD9986D9384E6E57D8CA9EE0FF64E3319075EF6F6D1068E6A163895	Linoy Belchich	Recording, 0, 00:23:40	a34d592c-8af4-44ad-87ac-4a1f8d83fb8c	19.4.6.27	Regular

4. Click the More (⋮) icon at the left of the robot's row and select **Request Log**



5. Select the file(s) you want to upload and click **Request [#] File(s)**



6. The logs are downloaded to the **Discovery Server's** Download folder


Managing Recorded Sessions via Admin CLI

Exporting/Importing recorded session is executed per Team ('tenant') only.

To perform an export/import, you need to get the ID of the relevant Team first:

Getting the Team (Tenant) ID

1. From the Process Discovery Console, go to **Settings**
2. Click **Teams**
3. Copy the **Team ID**

Teams			
+ Add new team			
-	Team ID	Team name	Team GUID ID
	myawesometeam	My Awesome Team	4f3ef7d0-9239-11eb-aaaf-d34046df93f2
	default	default	499faa00-9233-11eb-aaaf-d34046df93f2

Exporting recorded sessions data

1. Open CMD
2. Run and set the below:

```
cd C:\Kryon\PDServer\Support\kryon-admin-cli
set CONFIG_DIR=C:\Kryon\config
set NODE_ENV=prod
set KRYON_ENC_CFG=C:\Kryon\config\prod\general\kryon-decrypt.json
set NODE_PATH=C:\Kryon\PDServer\MicroServices\node_modules
```

3. Run 'node bin\cli.js' with the following parameters:
 - For `--tenant`, update the relevant Team ID ([tenant ID](#))
 - For `--path`, update the uploaded raw data location in the machine
 - Update your machine FQDN in both locations

EXAMPLE:

```
node bin\cli.js --tenant=b5bf5cf0-915f-11eb-8dcc-8b77d90a1433 --
provider=rawData --command=uploadRawDataToGW --
path=C:\Users\Administrator\Desktop\data --authHost=kryon-pd-
83266.processdiscovery.com --robotsGwHost=kryon-pd-
83266.processdiscovery.com --
vaultAuthPath=C:\Kryon\PDServer\Support\pddr.keys
```

Importing recorded sessions data

1. Open CMD
2. Run and set the below:

```
cd C:\Kryon\PDServer\Support\kryon-admin-cli
set CONFIG_DIR=C:\Kryon\config
set NODE_ENV=prod
set KRYON_ENC_CFG=C:\Kryon\config\prod\general\kryon-decrypt.json
set NODE_PATH=C:\Kryon\PDServer\MicroServices\node_modules
```

3. Run 'node bin\sli.js' with the following parameters:
 - For --tenant, update the relevant Team ID (tenant ID)
 - For --path, update the location to which you want to save the downloaded data

EXAMPLE:

```
node bin\cli.js --tenant=86b6a8e0-67a3-11eb-a999-23eb75c380fb --
provider=rawData --command=downloadRawData --dbProviderName=mongodb --
path='C:/Temp'
```