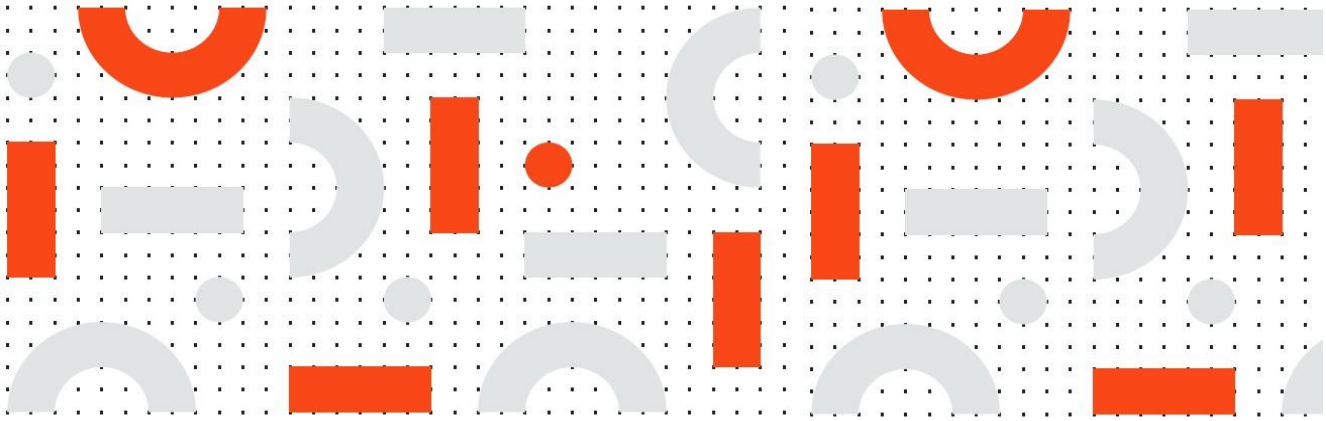

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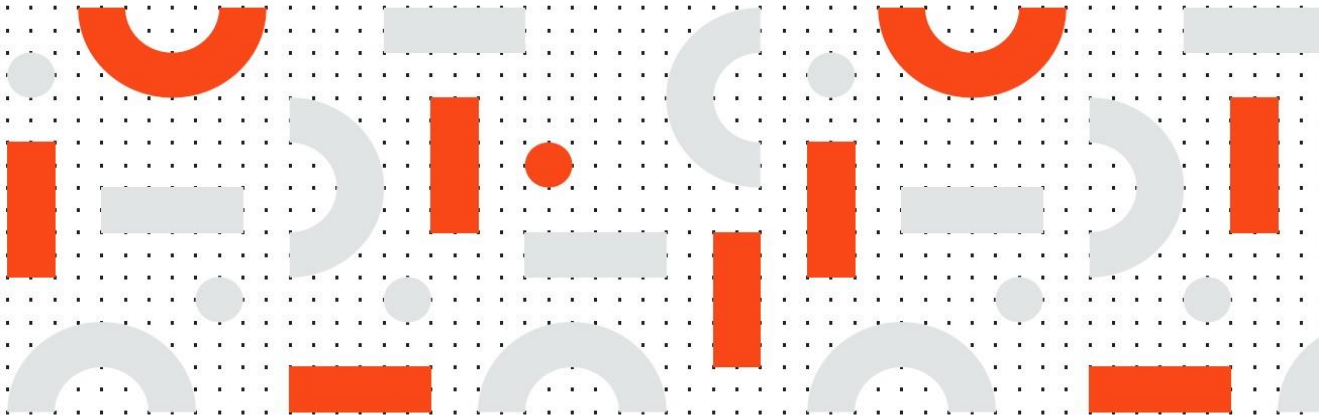
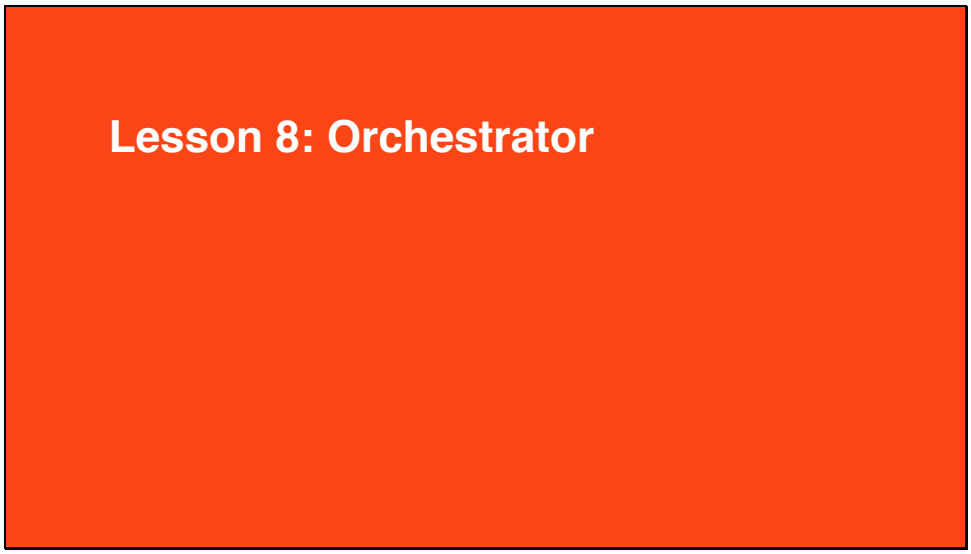
# RPA Design & Development V2.0

## Student Manual

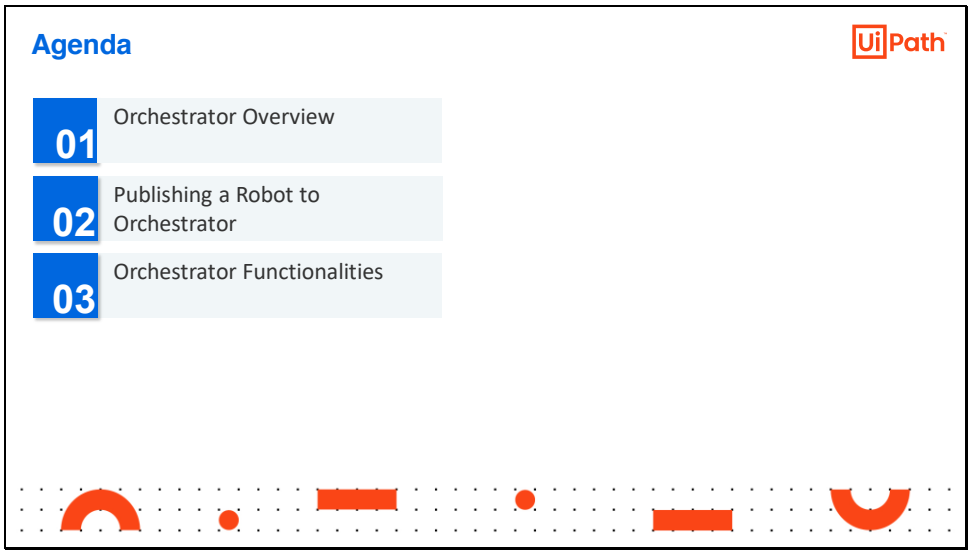


UiPath™ Learning Partner


Welcome to 'RPA Design and Development Course'.

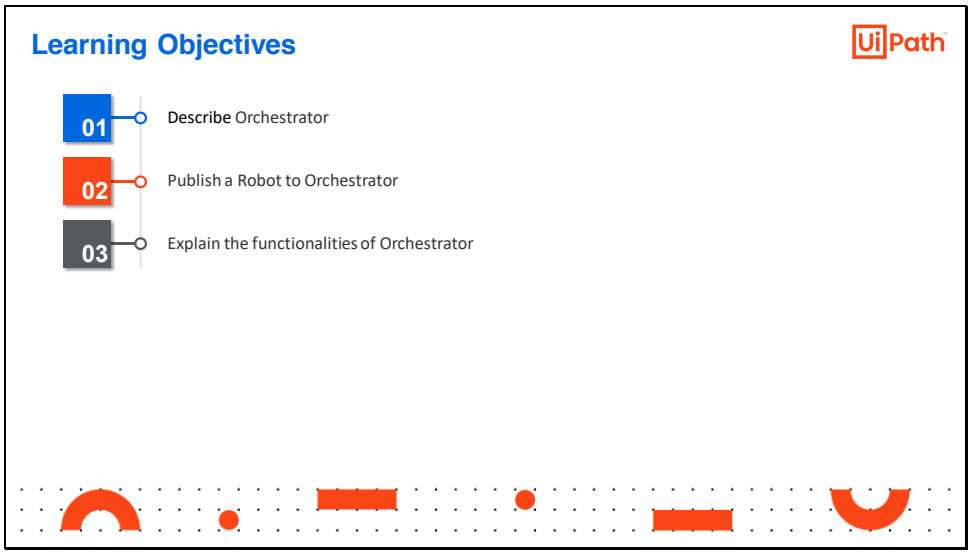



The last lesson of this course is Orchestrator.



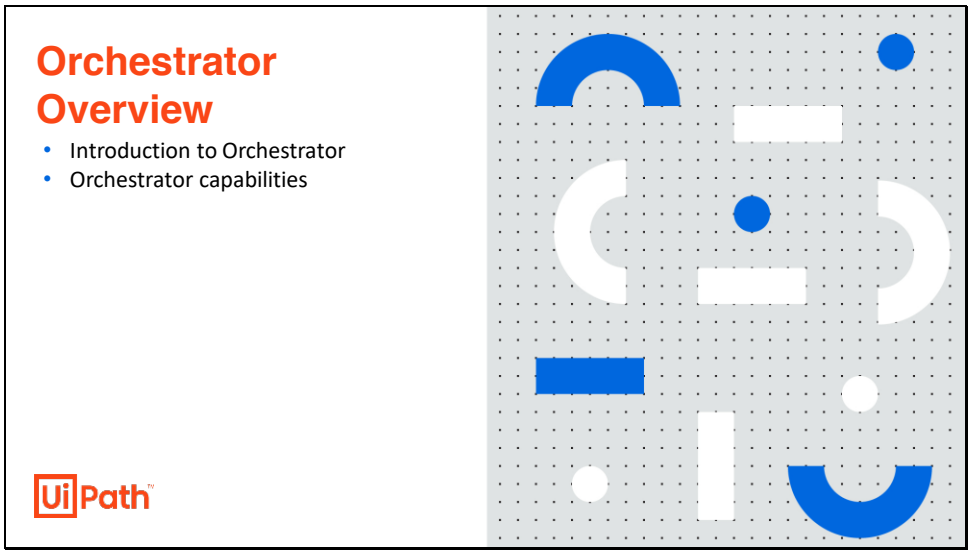

The agenda of this lesson is:

- Orchestrator Overview
- Publishing a Robot to Orchestrator
- Orchestrator Functionalities

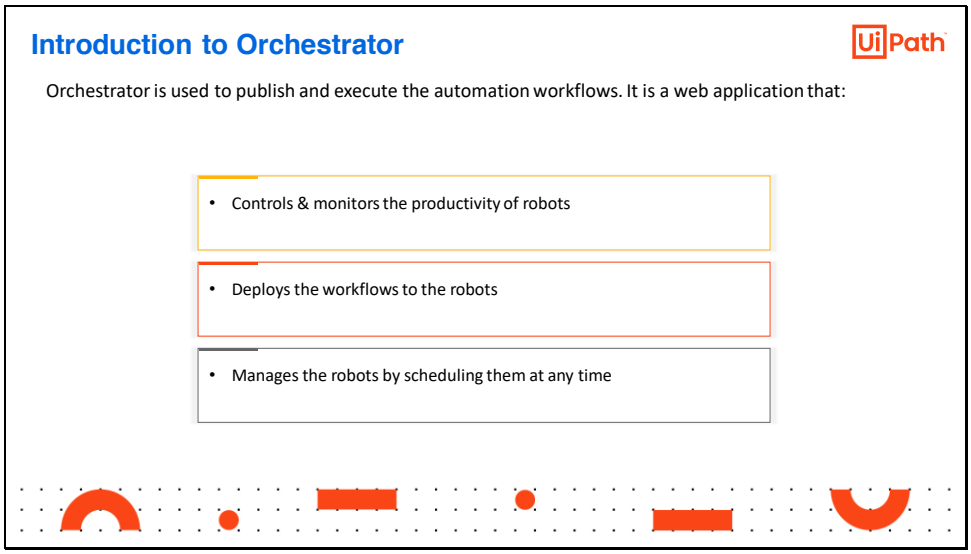



By the end of this lesson, you will be able to:

- Describe Orchestrator
- Publish a Robot to Orchestrator
- Explain the functionalities of Orchestrator



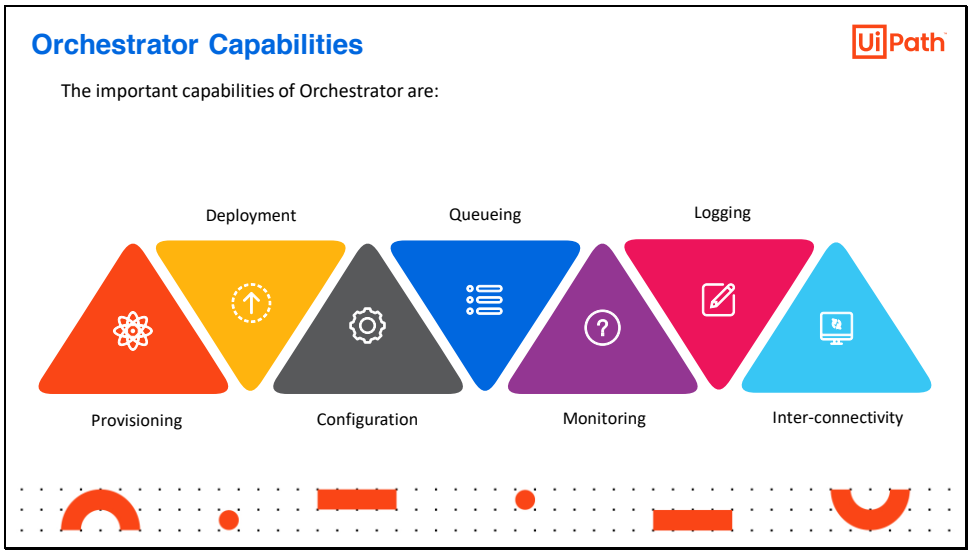

This section gives an overview of Orchestrator which was briefly discussed in Lesson 2 of this course.




Orchestrator is UiPath's component through which the automation workflows are published, assigned to robots and executed. It is a web application that enables the management of robots, activity packages, data to be processed, execution schedules, and other assets.

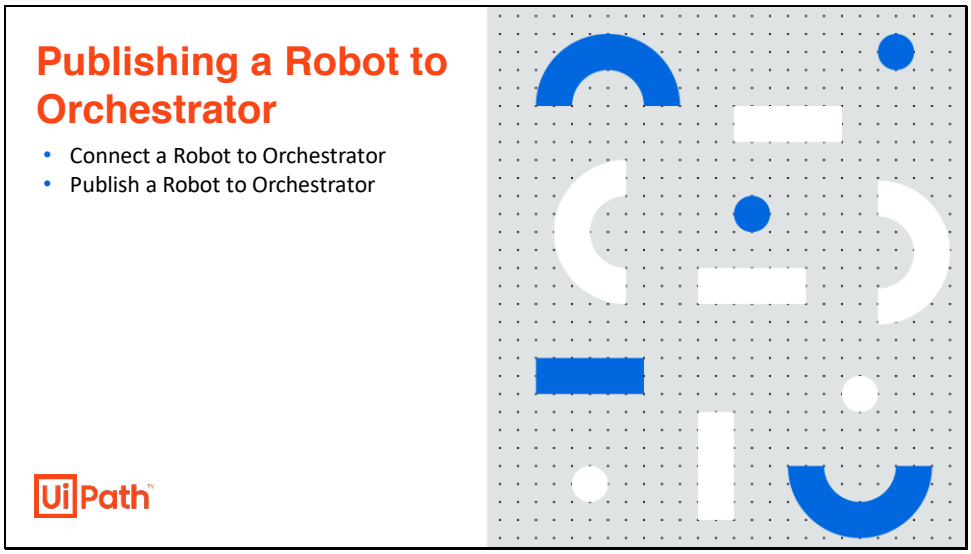
To recall, the Orchestrator:

- Controls and monitors the productivity of robots
- Deploys the workflows to the robots
- Manages the robots by scheduling them at any time

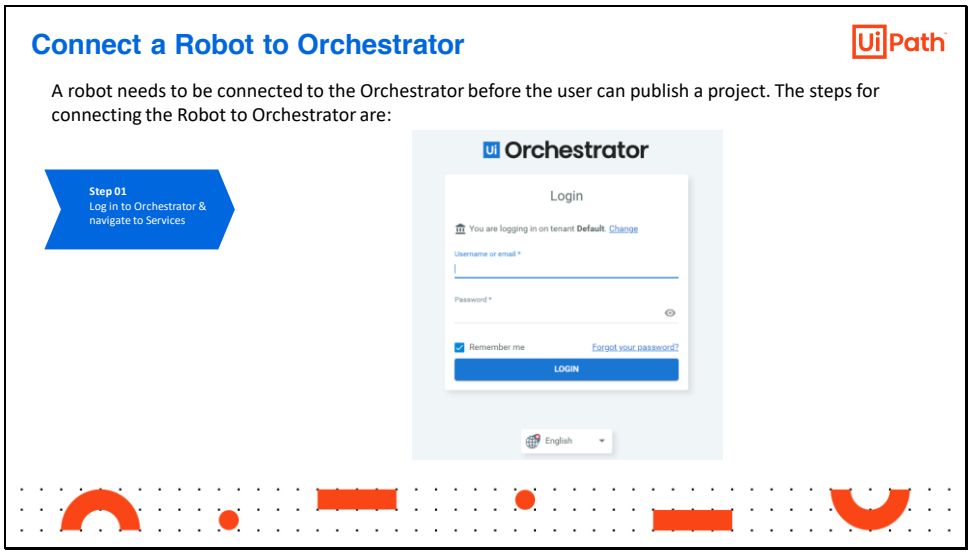



The Orchestrator is used to perform several functions related to automation workflows. Some of the important capabilities of Orchestrator are:

- **Provisioning**: Creates and maintains the connection between Robots and web application
- **Deployment**: Assures the correct delivery of the package versions to the assigned Robots for execution
- **Configuration**: Maintains and delivers Robot environments and processes configuration
- **Queueing**: Stores transactions and ensures their automatic distribution across Robots
- **Monitoring:** Keeps track of Robot identification data and maintains user permissions
- **Logging**: Stores and indexes the logs to an SQL database and/or Elasticsearch (depending on your architecture and configuration)
- **Inter-connectivity**: Acts as the centralized point of communication for third party solutions or applications




This section explains how to connect and publish a robot to Orchestrator.

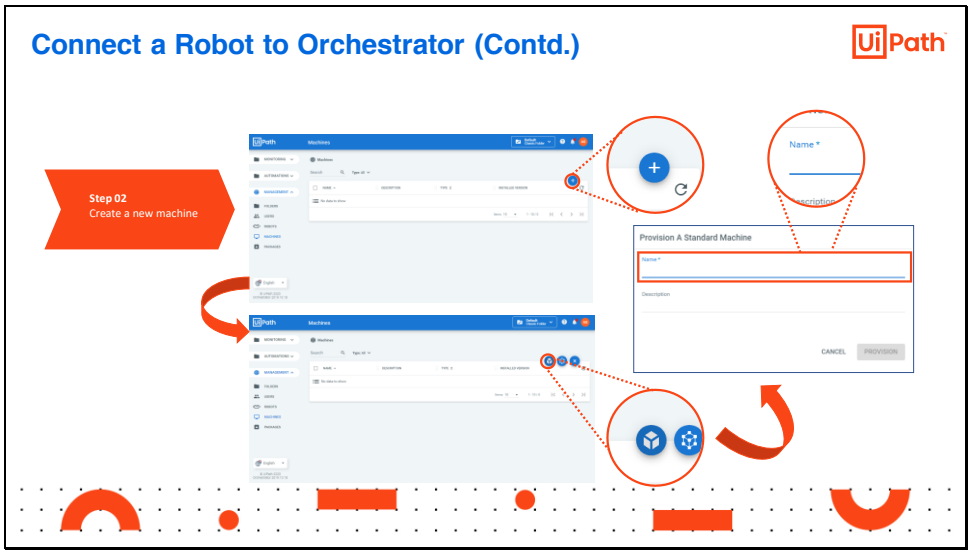



A robot needs to be connected to the Orchestrator before the user can publish a project.

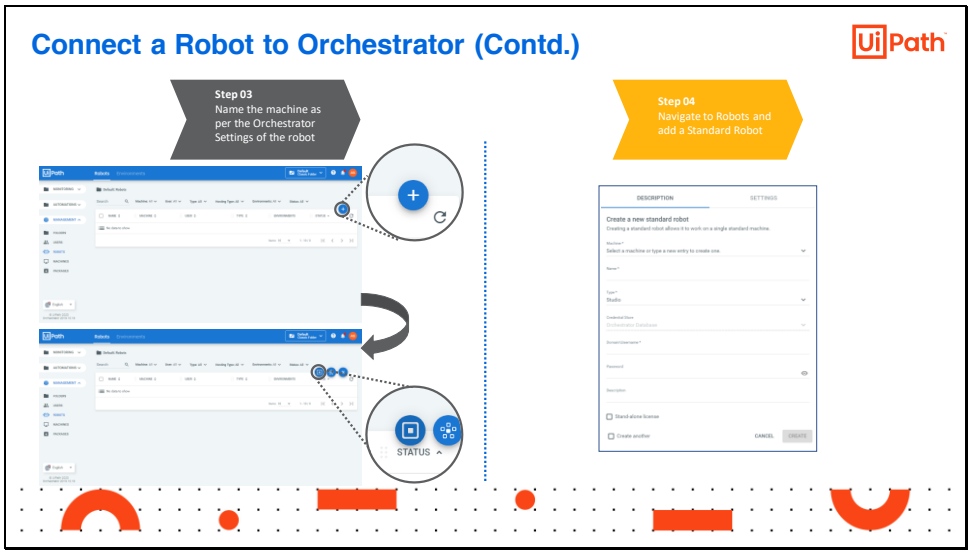
For this, create a new machine in Orchestrator (for the computer with Studio), create a standard robot in Orchestrator and pair it with the newly created machine.

Steps for connecting the Robot to Orchestrator:

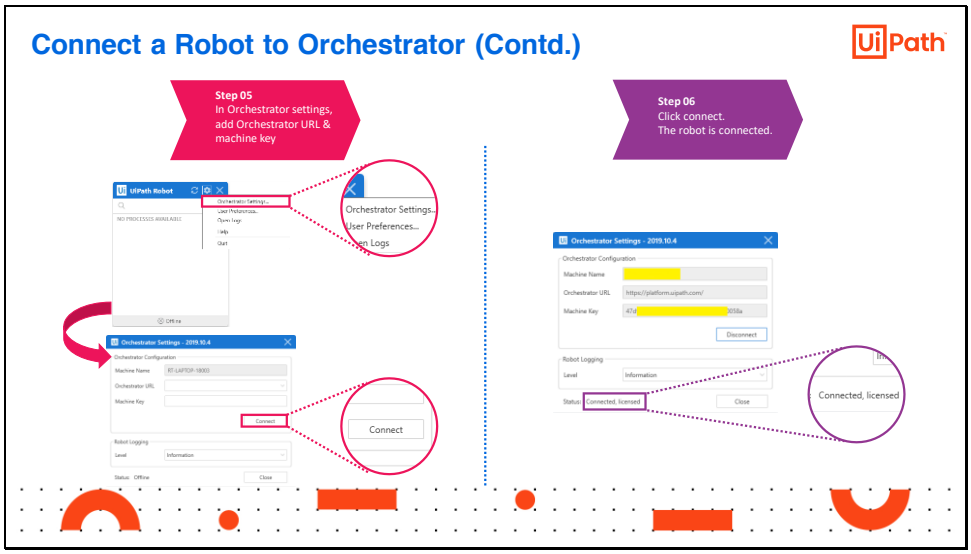
1. **Log in to Orchestrator** at platform.uipath.com, navigate to **Services** from the menu on the left and click on your service.




2. Navigate to **Machines** from the menu on the left and **create** a new machine.

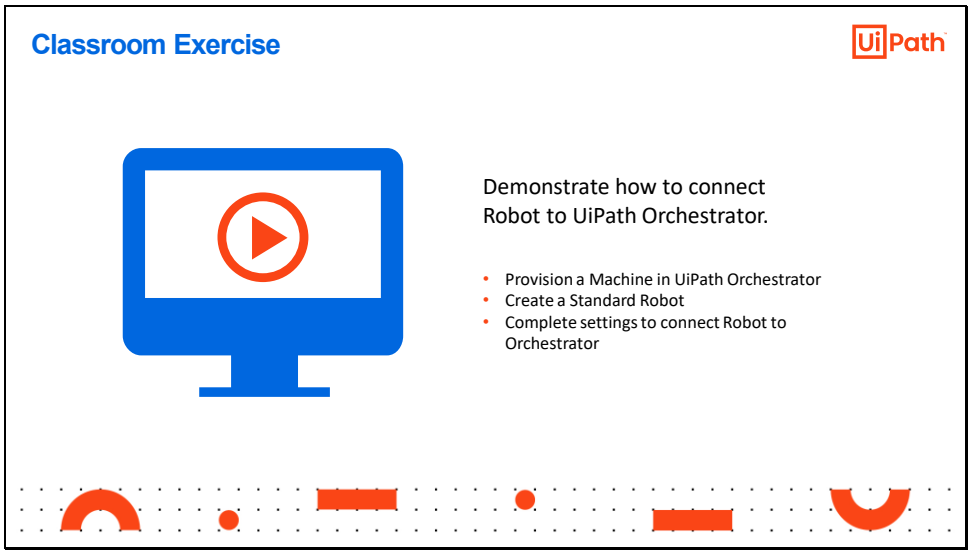



3. Specify the name of the machine as per the **Orchestrator settings** of the robot in the system tray.
4. Navigate to **Robots** from the menu on the left, click on the '**+**' and select **Standard robot**. Choose the **machine created earlier,** give it a **name** and add the **domain\username**.




5. Open the **Orchestrator settings** of the robot in the tray, add the **Orchestrator URL** and the machine key copied from the machine provisioned in **Orchestrator**.
6. Click on connect button and **Check** if robot is connected and licensed.

Next step is to publish the robot.




Demonstrate how to connect Robot to UiPath Orchestrator.

- Open UiPath Orchestrator, and navigate to Machines tab.
- Hover over the floating plus icon on the right to get two options to choose from - Machines Template and Standard Machine.
- Click on the Standard Machine icon to provision a standard machine.
- Enter machine name and a short description about the machine and click Provision button. You can see that a new machine has been created.
- Navigate to the Robots tab from the left panel.
- Hover over the floating plus icon on the right to get two options - Floating Robot and Standard Robot.
- Click on the Standard Robot.
- In the popup window, fill all the details.
- Choose the name of the machine you created.
- Enter name of the robot. Also, enter domain or username and the password.
- Check the Stand-alone license box and click Create button.

    - **Outcome:** A new robot is created, but the status of the robot shows disconnected.

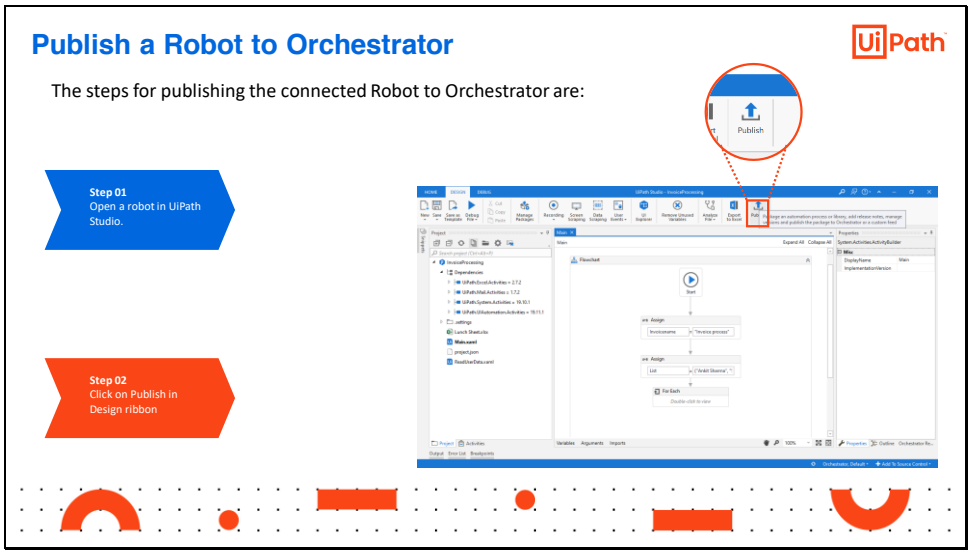
- Go to the Machines tab from the left panel.
- Click the vertical ellipsis icon and select Edit icon from the menu.
- From the popup menu, click on the copy icon on the top right.

- Click Allow access from the popup window asking for clipboard access. It will store the Machine Key in your clipboard.
- Click Cancel to exit the window.
- Minimize the browser, and double click the UiPath Robot.
- From the popup icon, left click the gear icon, and select Orchestrator Settings from the menu.
- In the Orchestrator Settings popup box, click on the Orchestrator URL box and choose the Orchestrator URL.
- In the Machine Key box enter the key you just copied and click Connect button. It will connect the robot with the Orchestrator.

    - **Outcome:** The status shows Connected in the bottom left of the window.

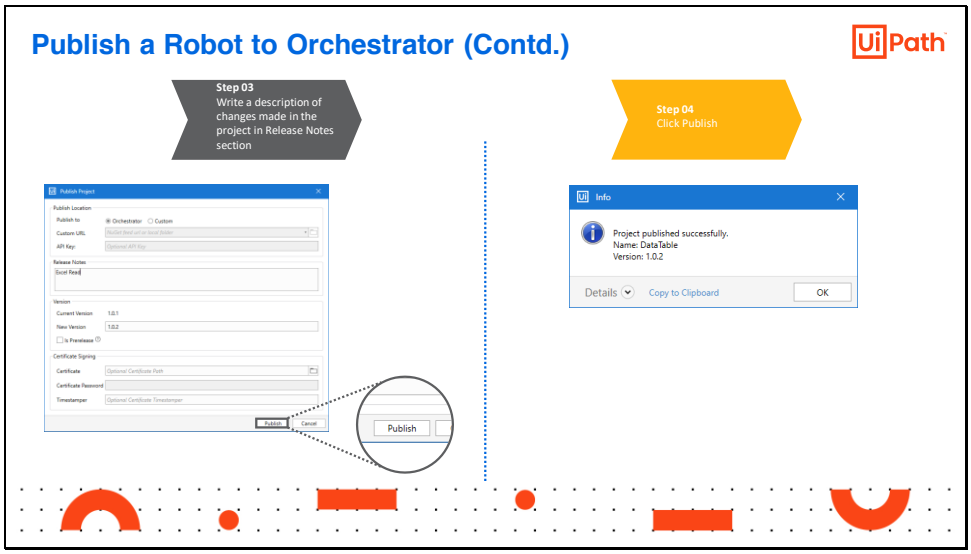
- Go to the Robots tab from the left panel in the Orchestrator.

    - **Outcome:** A green icon started to show in Type column, and the status changed to Available from Disconnected.



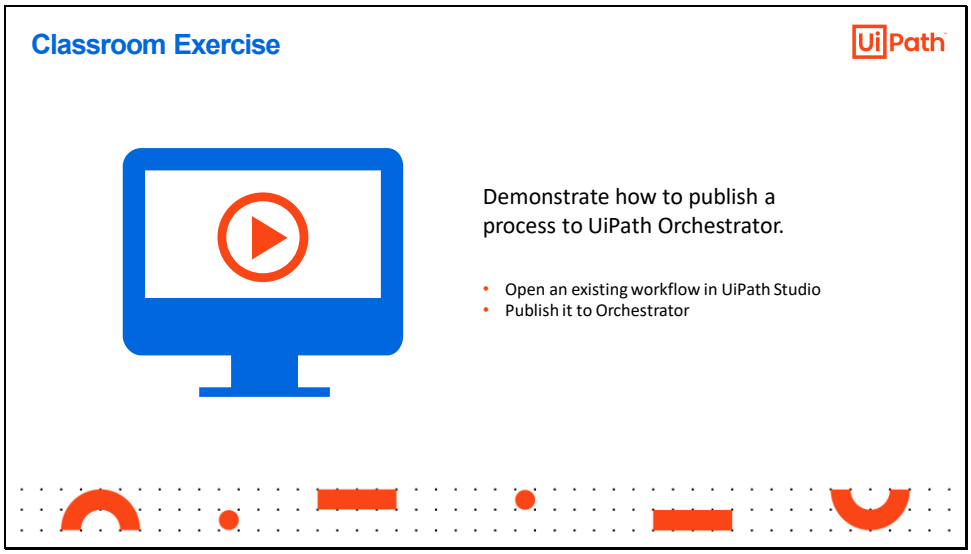

Steps for publishing a robot to Orchestrator:

1. Open an existing robot in UiPath Studio.
2. Click **Publish** button in the **Design** ribbon tab. It displays the **Publish Project** window.




3. In the **Release Notes** section, write a short description of any changes made in the project.
4. Click **Publish**.

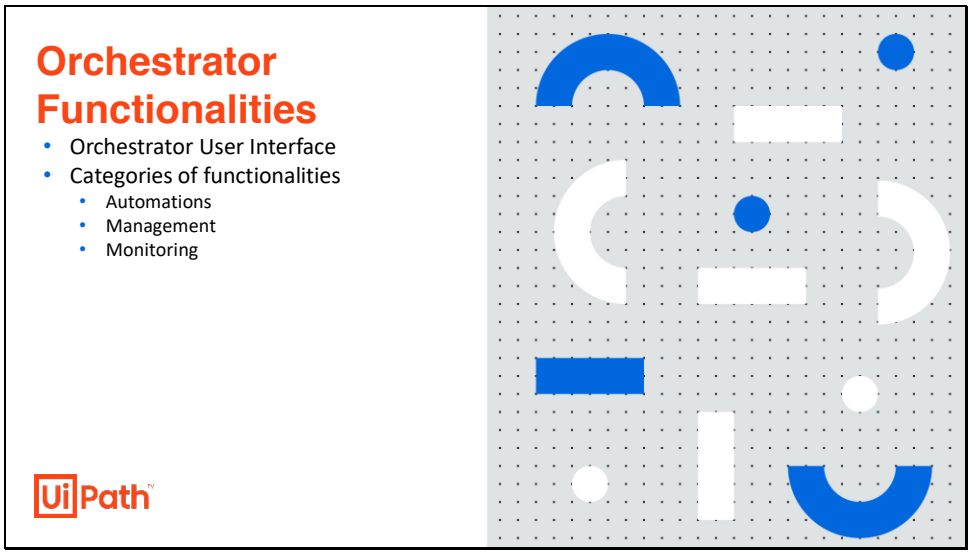
When the project is published successfully, the **Info** dialog box displays **"Project Updated Successfully"**. The Orchestrator is updated accordingly as the name of the project and its version name are sent to Orchestrator.



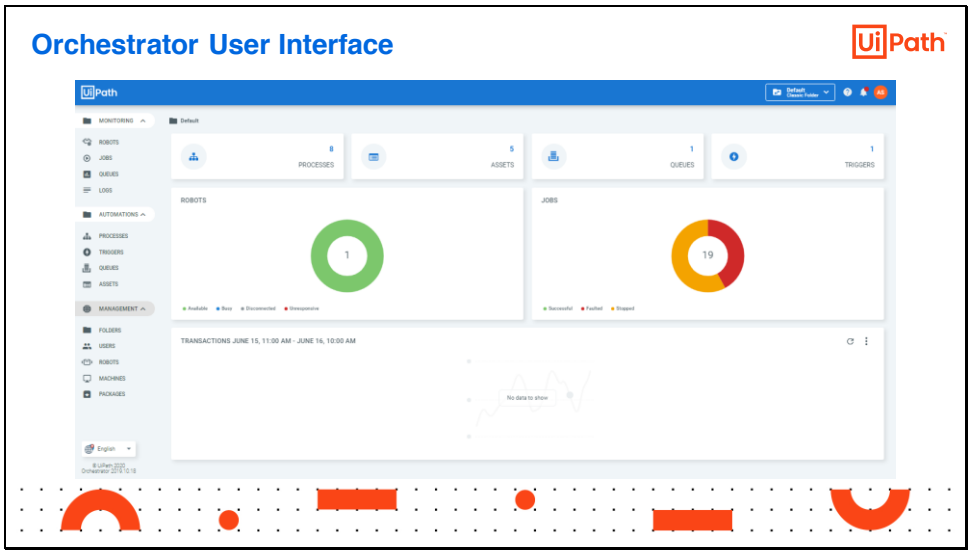

Demonstrate how to publish a process to UiPath Orchestrator.

- Go to UiPath Studio, and from the Design ribbon click the Publish button.
- In the *Publish Project* pop up window, make sure that the Orchestrator is selected in the *Publish to* area.
- Add notes about the process in the Release Notes text box.
- In the New Version text area, insert the version number.
- Click Publish.

**Outcome:** This will publish project to Orchestrator.




This section explains the Orchestrator User Interface and functionalities in detail.



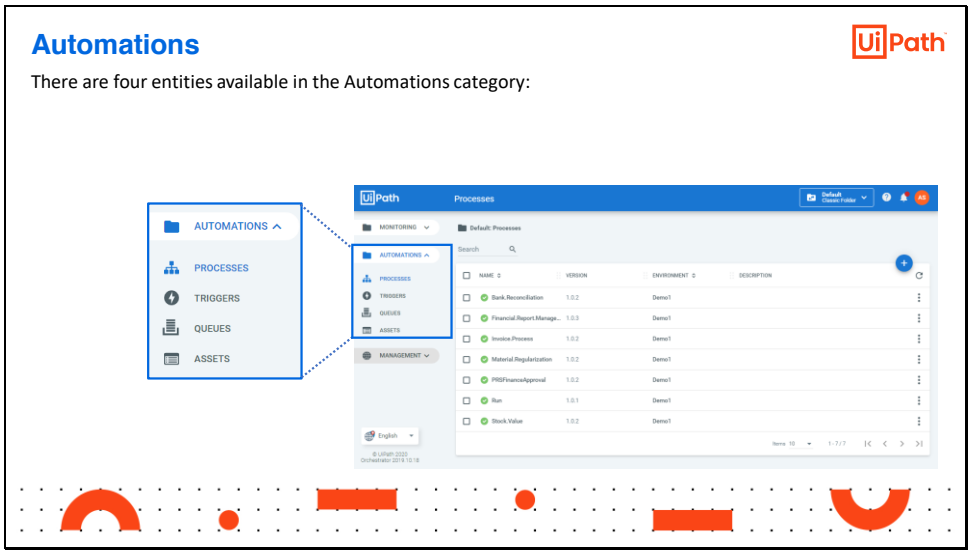

Orchestrator's home page can be accessed by clicking the UiPath logo. The dashboard displays charts illustrating the usage information for several components of the Orchestrator. Multiple menus are available in the Orchestrator for easier access to its functionalities.

- Through the User Menu, the user can access general options such as My Profile, Settings, License, Audit, Log Out, etc.
- Alerts button displays notifications for robots, queue items, triggers, jobs, processes, and tasks.
- Help button opens the Orchestrator documentation in a new tab.
- Folder Selection Menu to change the active folder.
- Language Selector allows the user to select/change the language.

The functionalities of the Orchestrator are grouped into three categories in the interface:

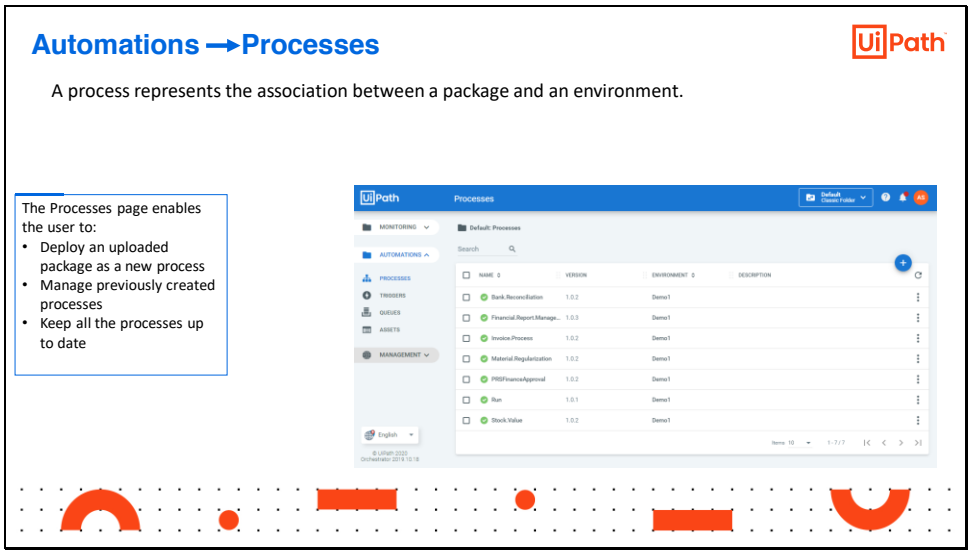
- Automations
- Management
- Monitoring

These are discussed in detail in the subsequent slides.




There are four entities available in the Automations category:

1. Processes: Folder view of the distribution of package versions to Robot environments
2. Triggers: Time or event triggers for job execution
3. Queues and Transactions: Work queues used to distribute work items to robots with real-time monitoring of each queue item
4. Assets: Shared variables or configurations that can be invoked in the design processes by developers and used in processes




**Processes:**

- In a classic folder, a process represents the association between a package and an environment. When a package is linked to an environment, it becomes available for all the Robot machines in that environment.
- In a modern folder, a process represents the package version linked to a particular folder. When a new process is deployed, it becomes available for all the users that have access to that folder.

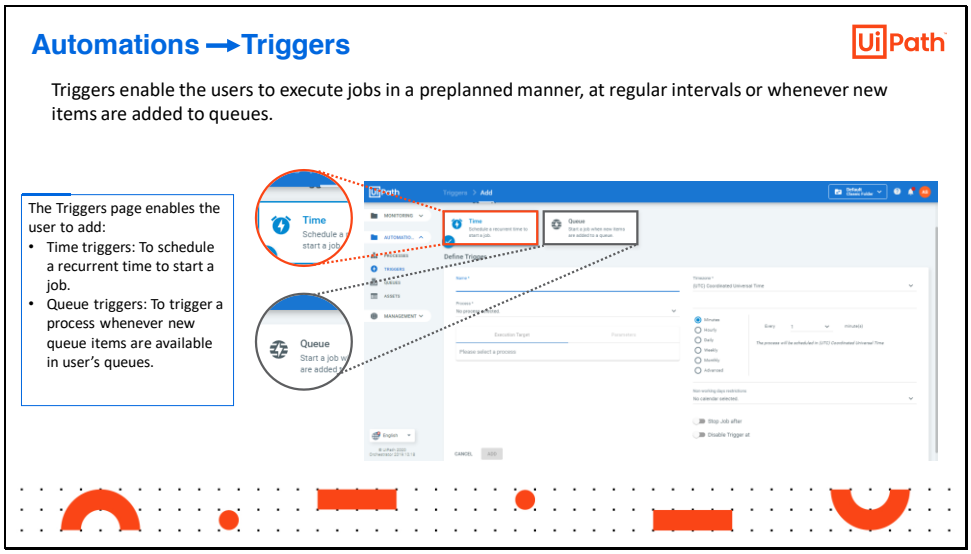
The Processes page enables the user to:

- Deploy an uploaded package as a new process
- Manage previously created processes
- Keep all the processes up to date with the most recent package versions

This helps in distributing packages across all users and robots in the organization. When a new version of a package is available in Orchestrator, it is indicated next to the corresponding process.

The user can may update processes to the latest available version either individually (using View Processes window) or in bulk (by selecting multiple processes and clicking the global Use Latest button).

Refer https://docs.uipath.com/orchestrator/v2019/docs/field-descriptions-processes for field description of the Processes page.



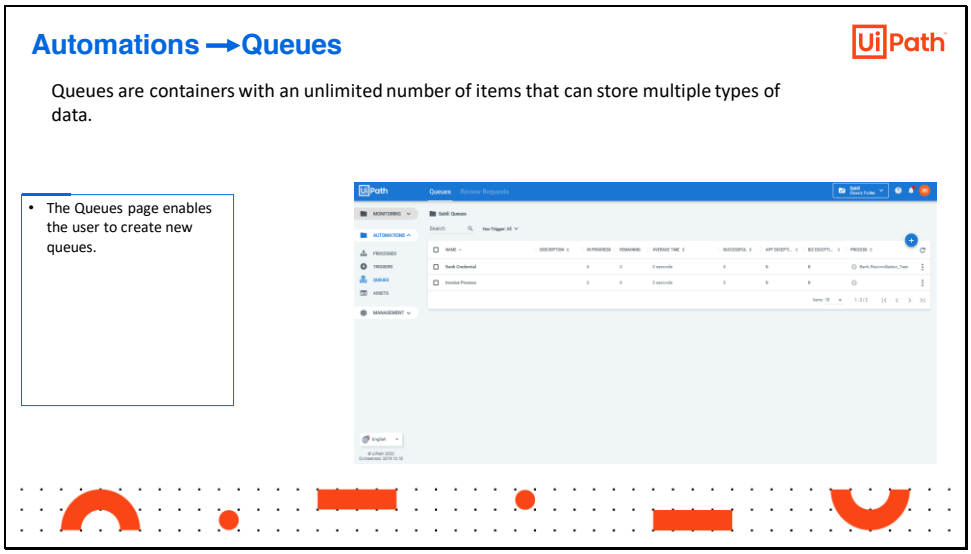

Triggers enable the users to execute jobs in a preplanned manner, at regular intervals (Time triggers) or whenever new items are added to queues (Queue triggers).

- Time triggers: To schedule a recurrent time to start a job.
- Queue triggers: To trigger a process whenever new queue items are available in user's queues. The trigger runs in the environment associated with the selected process.

These triggers can be added from the Triggers page by clicking Add and selecting the Trigger Type (Time or Queue).

Disabling a Trigger: To automatically disable a schedule at a specific date and time in the future, enable the Disable Schedule at option when creating a new schedule or editing an existing one.

Refer https://docs.uipath.com/orchestrator/v2019/docs/field-descriptions-triggers for field description of the Triggers page.



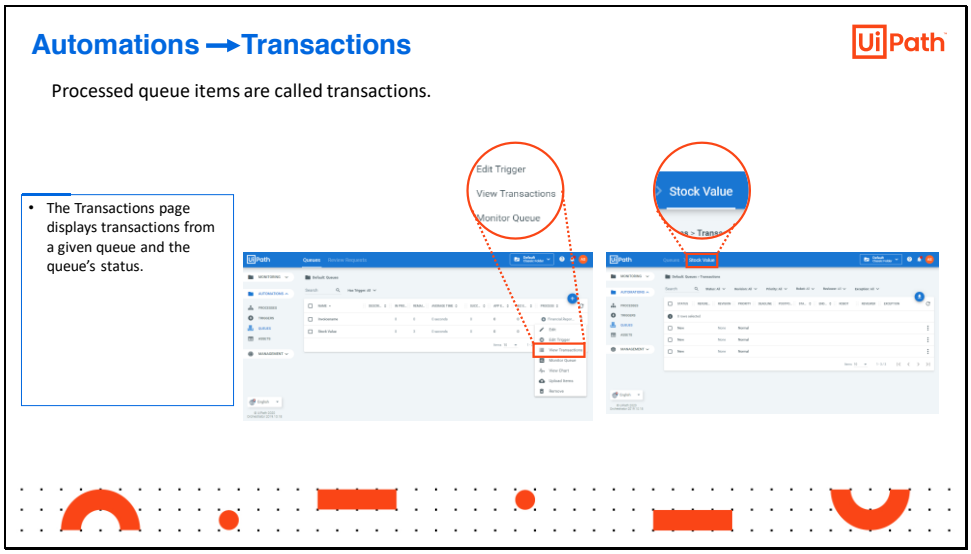

Queues are containers that can hold an unlimited number of items. Queue items can store multiple types of data, such as invoice information or customer details. Queues allow the distribution of items individually to robots for processing them and monitoring their status based on the process outcomes.

In Orchestrator, newly created queues are empty by default and the user can populate them with items by using the upload functionality in Orchestrator, or Studio activities.

The Queues page enables the user to create new queues. It displays:

- Previously created queues
- Charts with the transaction status progress over time
- Average execution time
- Total number of successful transactions, etc.

Refer https://docs.uipath.com/orchestrator/v2019/docs/field-descriptions-queues for field description of the Queues page.



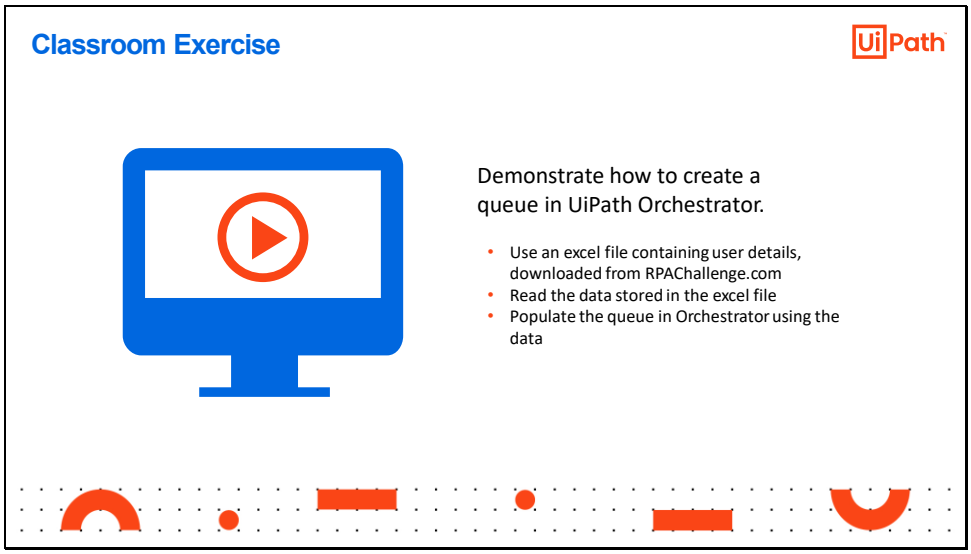

Processed queue items are called transactions. Transactions for any queue can be viewed by selecting the ellipsis icon next to that queue and clicking on View Transactions.

The Transactions page displays:

- Transactions from a given queue
- Queue's status
- The dates when queues should be processed
- Robot that processed the queues
- Type of exception thrown or assigned reference

The user can search for a specific transaction or a group of transactions, according to a custom reference (added through the Reference property of the Add Queue Item and Add Transaction Item activities). The Transaction Details window (under Specific Data) displays the information stored in queue items.

Refer https://docs.uipath.com/orchestrator/v2019/docs/field-descriptions-transactions for field description of the Transactions page.

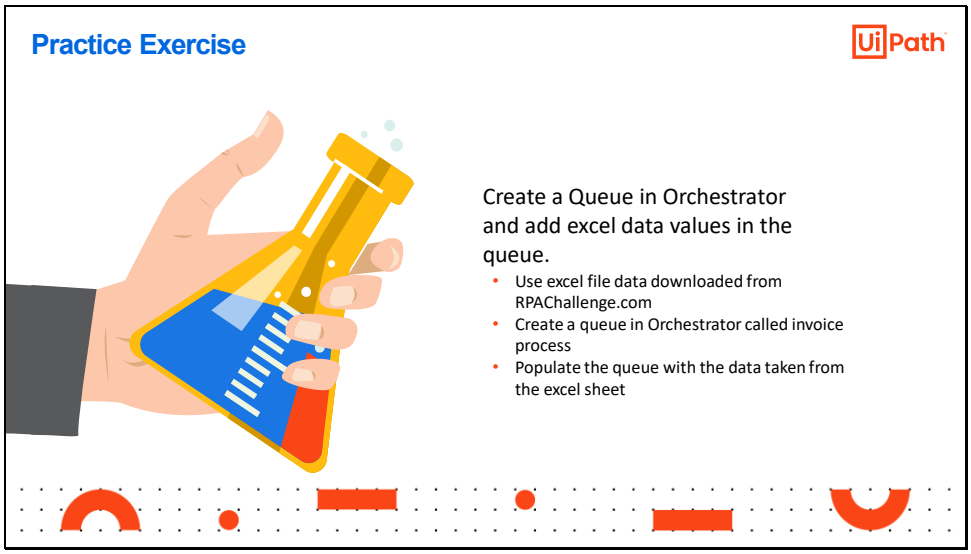



Demonstrate how to create a queue in UiPath Orchestrator.

- Use excel file downloaded from RPAChallenge.com.
- Go to the UiPath Orchestrator and open the Queues tab. Click the floating plus icon, and in the form enter the name of the queue, say Invoice Process. Now click Add button at the bottom of the form.
- Go to UiPath Studio and drag and drop a Flowchart activity in the designer panel.
- Drag and drop an Assign activity below the start node. In the first text box of the Assign activity, press **Control plus K** and enter **QueueName**. In the adjacent box, enter "Invoice Process".
- Drag and drop a Read Range activity below the Assign activity. Click the ellipsis icon of the Read Range activity and select the excel file containing the data to be populated. Click Open button to close the file explorer window. Also, empty the box containing the Range value.
- Drag and drop a For Each activity below the Read Range activity. In the Properties panel of the Read Range activity, press Control plus K and enter a new data table variable called **ItemsDT**.
- Enter itemsDT in the second input box of For Each Row activity.
- Now, drag and drop Add Queue item activity in the Body section of the For Each activity. In the Properties panel of the Add Queue item activity, enter QueueName in the QueueName property. Click the ellipsis icon of ItemInformation property and in the popup window, enter argument details.

- In the first row enter **first_name** in the Name column. In the Value column, enter the expression: **row("First_Name").ToString**.
- In the second row enter **last_name** in the Name column. In the Value column, enter the expression: **row.item**("**Last_Name"**).**ToString**.
- In the third row enter **company_name** in the Name column. In the Value column, enter the expression: **row**("**Company_Name"**).**ToString**.
- In the fourth row enter **role** in the Name column. In the Value column, enter the expression: **row("Role").ToString**.
- In the fifth row enter **phone_number** in the Name column. In the Value column, enter the expression: **row.item("Phone_Number").ToString**.
- Click Ok.
- Drag and drop Get Row Item activity and insert above Add Queue Item activity. In the text box, enter row. In the Properties panel of the Get Row Item, enter **"Address"** in the column name property. In the Output property, press control plus k and enter **Arg_Address**.
- Drag and drop another Get Row Item activity and insert below Get Row Item activity. In the text box, enter row. In the Properties panel of the Get Row Item, enter **"Email"** in the column name property. In the Output property, press control plus k and enter **Arg_Email**.
- Now, go to the Properties panel of Add Queue item and click ellipsis icon of Item Information property to open the argument window.
- In the sixth row enter **email** in the Name column. In the Value column, enter **arg_email**.
- In the seventh row enter **address** in the Name column. In the Value column, enter **arg_address**.
- Click Run file to run the workflow.
- Go to the UiPath Orchestrator and click refresh button in queue tab.
- Click the vertical ellipsis icon and select view transactions from the menu.
    - **Outcome:** The data has populated.

23. Click vertical ellipsis icon of the first row item and click view details from the menu. The popup window shows the details such as name, email, address and others.

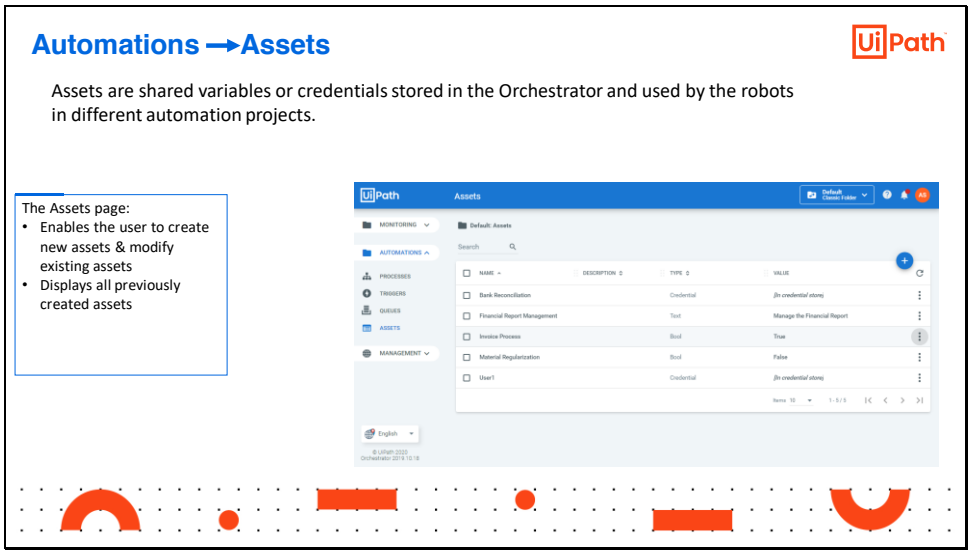



Create a Queue in Orchestrator and add excel data values in the queue.

- Use excel file data downloaded from RPAChallenge.com.
- Create a queue in Orchestrator called invoice process.
- Populate the queue with the data taken from the excel sheet.

**Algorithm**

- START.
- Create a queue named Invoice Process in UiPath Orchestrator.
- Set **Unique Reference** and **Auto Retry** to **No**.
- Create a new process in UiPath Studio.
- Use an Assign activity within flowchart activity. Enter variable **invoicename** and text "Invoice process" respective boxes.
- Use Read Range activity to read the data of excel.
- Use For Each Row activity to iterate through each row item.
- Use Get Row item activity with For Each activity to get each row item.
- Use Add Queue Item activity to insert excel data in Orchestrator.
- STOP.




Assets are shared variables or credentials stored in the Orchestrator and used by the robots in different automation projects. They can store specific information and act as a data repository that the robots can access when running processes.

The Assets page enables the user to create new assets. It also displays all previously created assets and the user can edit or delete them. The Get Asset and Get Credential activities in Studio request information from Orchestrator about a specific asset through AssetName.

Refer https://docs.uipath.com/orchestrator/v2019/docs/field-descriptions-assets for field description of the Assets page.

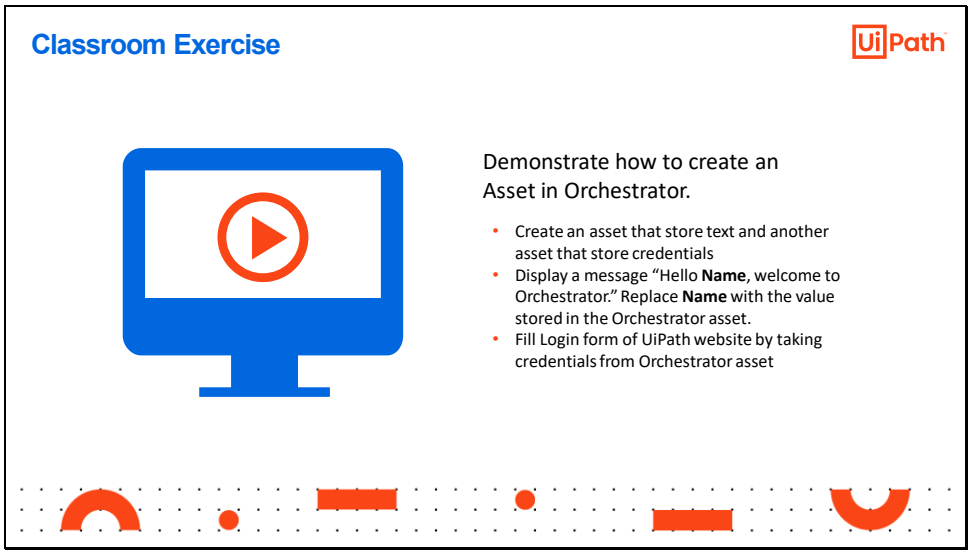
Types of assets:

- Text: Equivalent of String
- Bool: Supports True or False values
- Integer: Stores only whole numbers
- Credential: Contains usernames and passwords that the Robot requires to execute particular processes, such as login details for SAP or SalesForce.

The asset can be created in a classic or modern folder and the value assigned to the asset depends upon the folder.

- In a classic folder, an asset can have either or both of the following value types:
  - Global Value: the default value received by every Robot, unless a specific value is assigned to a Robot.

    - Value Per Robot: a value received only by the specified Robot. If Global Value is disabled, at least one Robot value must be provided.
- In a modern folder, an asset is assigned only a global value, applicable for all Robots in that folder.




Demonstrate how to create an Asset in Orchestrator.

**Part 1 of 2: How to use Text type assets.**

- Open UiPath Orchestrator in a browser.
- Go to UiPath Studio.
    - Use a small workflow that workflow to display a message already created.
    - The text in the message box should contain a string variable called **name**.
- Go to the Variables panel, and enter a default value for name, say Jack.
- Run the workflow
    - **Outcome:** A message box is displayed with the text that was stored in the Message Box activity. The variable name is replaced with its value Jack.

Sometimes it happens that the values that entered in the workflow may change later. Here, it is possible that the name Jack can change to some other name when the project go live. In order to resolve this problem, use assets in UiPath Orchestrator.

- In the Uipath Orchestrator, go to Assets tab in the left panel, and click the floating plus icon on the right.
- In the Create Asset window, enter an asset name, say UserName.

- In the Type option, choose Text.
- In the Text section, enter the name of the user, say Matthew.
- Click Create button on the bottom right of the window.

    - **Outcome:** You can see that a new asset called UserName is created.

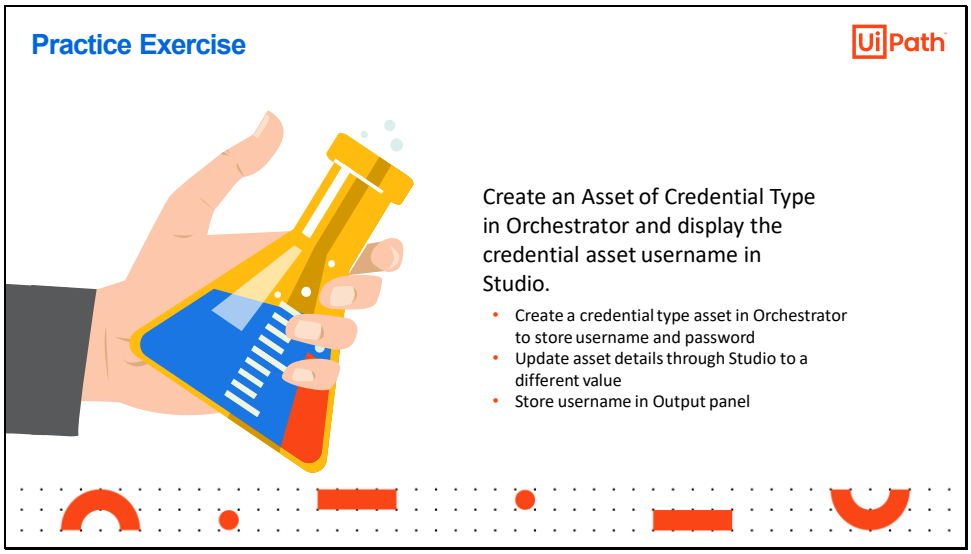
- Go to the UiPath studio, and drag and drop a Get Asset activity above the Message Box activity.
- In the Properties panel of the Get Asset activity, enter UserName as the AssetName property in double quotes. In the Value property, enter **name**.
- Go to the Variables panel, and delete the default variable value.
- Click *Run file* to run the workflow

    - **Outcome:** A message box shows the message wherein the variable name is replaced with Matthew. Click Ok to go back to the UiPath Studio.

**Part 2 of 2: How to use Credential type assets.**

- Use an already created sample workflow.
    - This workflow enters email and password in the login window of UiPath website.
    - There are two Type Into activities. One is for email address and another is for password.
    - Email and password is entered in the Login form on UiPath website
- Go to the UiPath Orchestrator, and in the Assets tab, click the floating plus icon.
- In the Create Asset window, enter an asset name, say Credentials_User.
- In the Type option, choose Credential.
    - Two new fields are displayed – username and password.
    - In the Username field enter the email address of the user.
    - In the Password field enter the password of the user.
    - Now click Create button on the bottom right of the window.
    - **Outcome:** You can see that a new asset called Credentials_User is created.
- Now, drag and drop the activity above the Attach window activity. In the Properties panel of the Get Credential activity, enter Credentials underscore User in double quotes in the Asset Name property. In the Username property press **Control plus K** and enter **UserName1**, and in the Password property, press **Control plus K** enter **Password**.
- In the text area of the first Type Into activity, enter **User Name 1**.
- Type Into activity is not a secure method to enter passwords. So, delete the second Type Into activity. You will replace this activity with Type Secure Text activity, which is a secure method to enter passwords.
- Drag and drop Type Secure Text activity below the first Type Into activity. Click "Indicate element inside window" and indicate the password field of the login form.
- In the Properties panel of the Type Secure Text activity, enter Password in the Secure Text property.
- Now, run the workflow.

- **Outcome:** You can see that the email and password is entered in the login form.

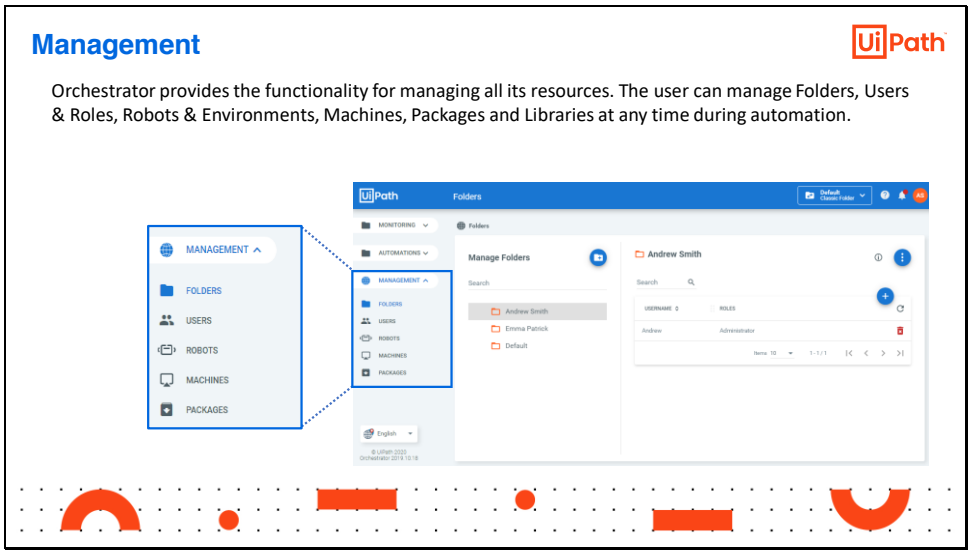



Create an Asset of Credential Type in Orchestrator and display the credential asset username in Studio.

- Create a credential type asset in Orchestrator to store username and password
- Update asset details through Studio to a different value
- Store username in Output panel

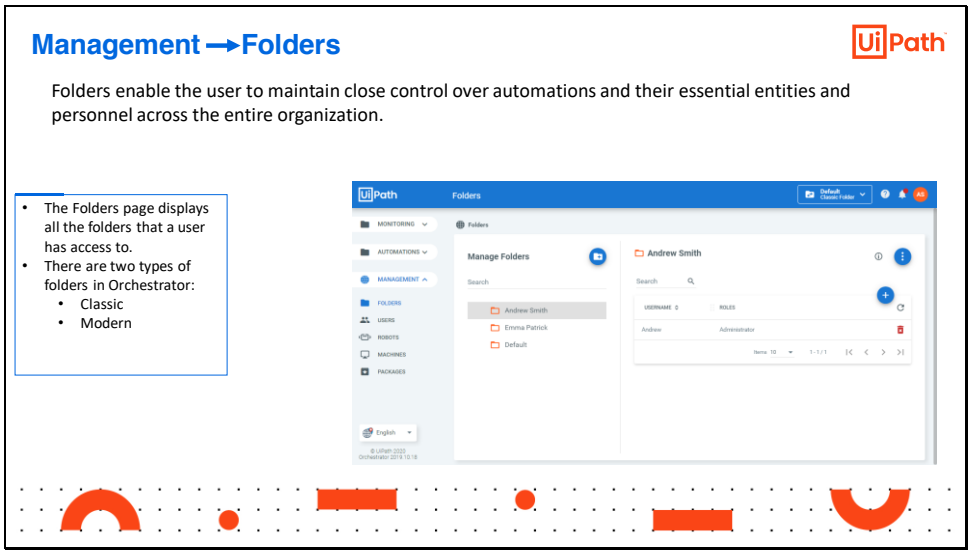
**Algorithm**

- START
- Create an asset in UiPath Orchestrator called **Userdetail.**
- Select the type of asset as **Credentials**
- Enter the value of the asset: **Amanda** in Username, and **Amanda@123** in Password
- Create a new process in UiPath studio and use a **Message box** activity to display text **"Hello"**
- Use **Get Credential** activity below the message box and set its asset name to **Userdetail**. Enter **Pass** and **username** in Password and Username property.
- Use **Set Credential** activity below the Get Credential activity and set its credential name to **Userdetail,** Password to **Rojar@456,** and Username to **Rojar** in properties panel.
- Use **Get Credential** activity below the Set Credential and set its AssetName property to **Userdetail,** Password property to **pass,** and Username property to **username**
- Use **Write line** activity below the **Get Credential** activity and write the text in the text box: **username.ToString**
- STOP




Orchestrator provides the functionality for managing all its resources. The user can manage Folders, User & Roles, Robots & Environments, Machines, Packages and Libraries at any time during automation. There are five entities available in the Management category:

1. Folders: Organizational management and resource allocation. Maintain fine-grained control over automations and their intrinsic entities, and personnel across the entire organization
2. Users and Roles: Users and permissions management
3. Robots and Environments: Software robots that automate rule-based processes in the same manner humans do, and their deployment groupings
4. Machines: Machine entities which enable the user to provision the Robots
5. Packages and Libraries: Business process definition packages published by developers, and libraries of grouped packages upload for sharing and reuse




Folders enable the user to maintain close control over automations and their essential entities and personnel across the entire organization. The Folders page displays all the folders that a user has access to. The user requires permissions to create new folders, edit existing folders and the assigned users, and delete folders.

There are two types of folders in Orchestrator: Classic and Modern. Each folder type has different Orchestrator resources that reside within each specific folder.

- Classic folders:
  - Enabled by default
  - Contain provisioned Robots and Environments, with all users having the role(s) assigned them at the tenant level.
  - For each new tenant, a classic folder (named Default) is created. The user can create as many additional classic folders as needed.
  - Contain the entities: Monitoring, Robots, Environments, Processes, Jobs, Triggers, Queues and Assets

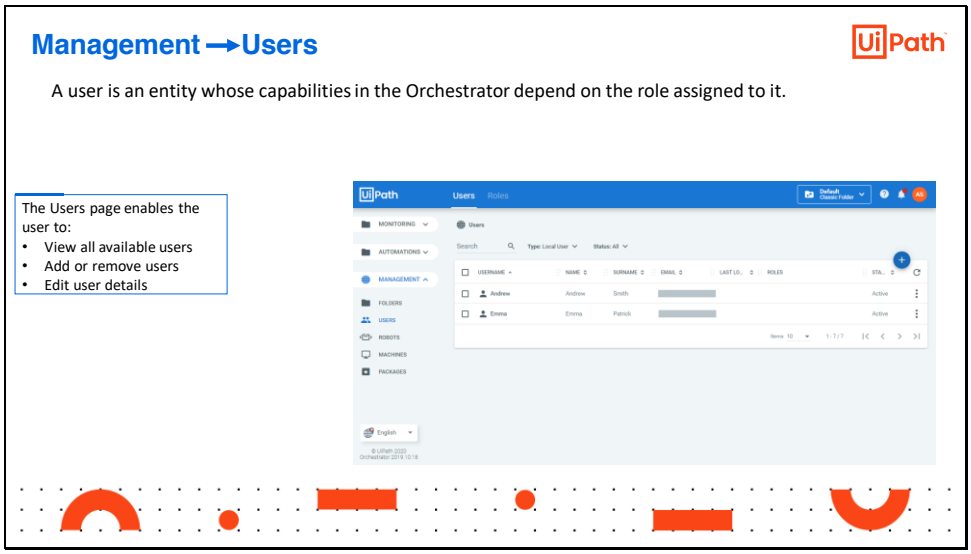
- Modern folders:
  - Enabled by the Host or Tenant administrator
  - Have Users assigned to them and with Robots automatically provisioned as any user with robot access connects.
  - Support a hierarchical structure with up to six subfolders under each first level folder (as opposed to classic folders where each is a separate, flat structure).

- Contain the entities: Monitoring, Processes, Jobs, Queues and Assets

In addition to these entities, there are global resources that are created at tenant level and are available across all folders of either type:

- Users
- Roles
- Machines
- Packages
- Libraries

Refer https://docs.uipath.com/orchestrator/v2019.0.0/docs/managing-folders to know how to manage folders.



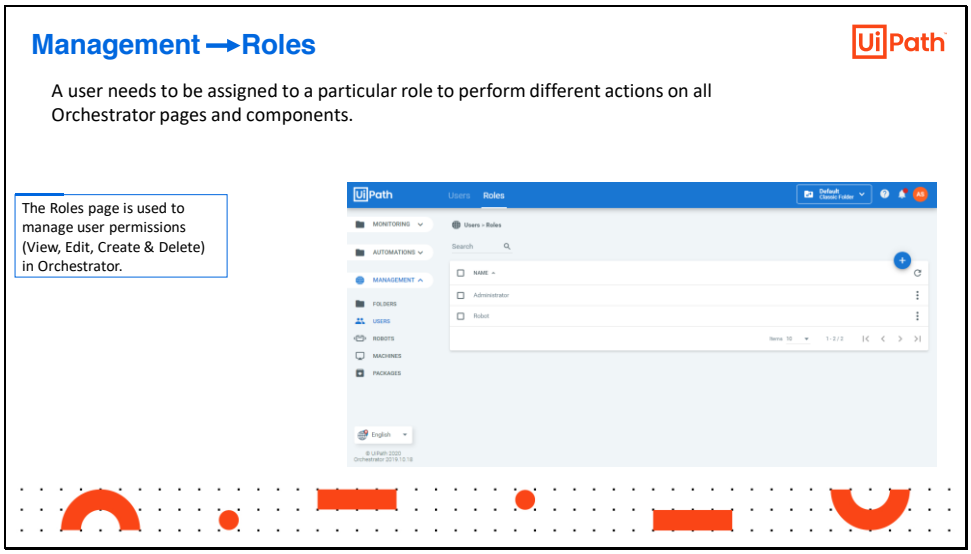

A user is an entity whose capabilities in the Orchestrator depend on the access rights (as per the role) assigned to it.

The Users page enables the user to:

- View all available users
- Add or remove users
- Edit user details

There are four types of Users: Local User, Directory User, Directory Group and Robot User. Users can be created locally in Orchestrator (Local Users) or they can be created and managed in an external directory (Directory Users). Orchestrator has one predefined user (admin) which cannot be deleted.

Refer https://docs.uipath.com/orchestrator/v2019/docs/managing-users to know how to manage users.



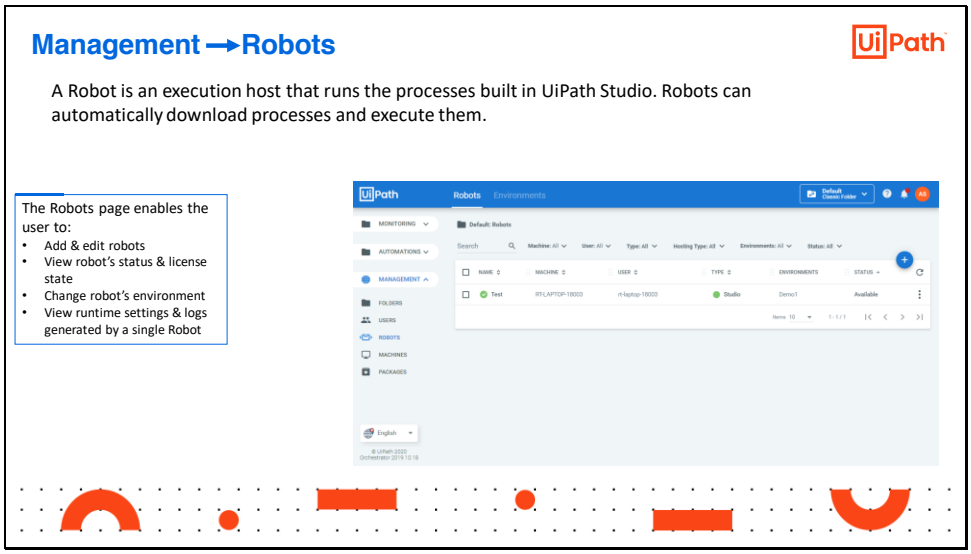

A user's view of Orchestrator is dependent on the role(s) assigned to him. A user needs to be assigned to a particular role to gain the permissions granted by that role. As per the role assigned, the user can manage View, Edit, Create and Delete permissions on all Orchestrator pages and components. Multiple roles can be assigned to a specific user.

The Roles page is used to manage user permissions in Orchestrator. The user can access this page by clicking the Roles tab in the Users page.

By default, there are two types of roles in Orchestrator:

- Administrator: A user with all tenant level permissions granted. This is the default role granted to the admin user of each tenant and cannot be edited.
- Robot: All permission required for the execution of processes in Classic folders.

Refer https://docs.uipath.com/orchestrator/v2019/docs/managing-roles to know how to manage roles.



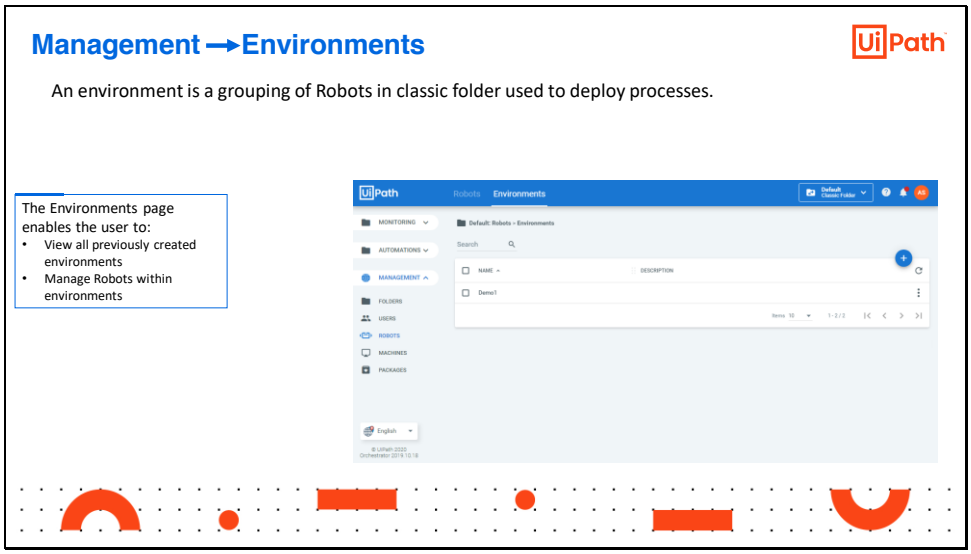

A Robot is an execution host that runs the processes built in UiPath Studio. Once instructed, it can execute any process in multiple steps and move files, copy and paste data into any folder. Robots can automatically download processes and execute them under custom settings.

The Robots page enables the user to

- Add robots
- Edit robots
- View robot's status
- View robot's license state (green or orange depending on whether it had acquired a license or not)
- Change the environment a robot is assigned to
- Display the runtime settings
- Display the logs generated by a single Robot

The Robots can be authenticated either by using Username/Password Credentials or by using SmartCard Authentication.

Refer https://docs.uipath.com/orchestrator/v2019/docs/managing-robots to know how to manage robots.



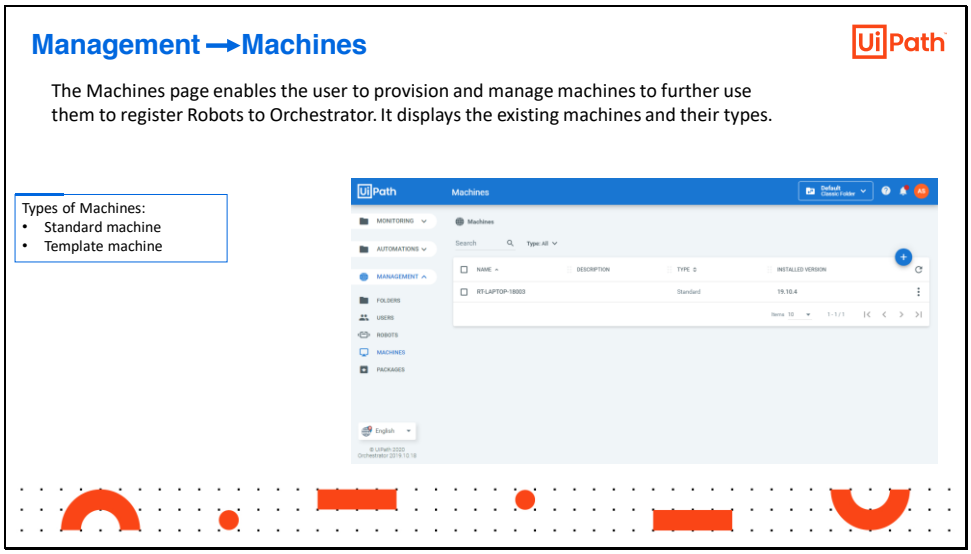

An environment is a grouping of Robots in classic folder that is used to deploy processes. Multiple Robots on the same machine are grouped in the same environment. This enables the user to execute the same package on multiple Robots simultaneously.

The Environments page:

- Displays all previously created environments
- Enables the user to manage Robots within environments

The page can be accessed from the Environments tab in the Robots page.

Refer https://docs.uipath.com/orchestrator/v2019/docs/managing-environments to know how to manage environments.




The Machines page enables the user to provision and manage machines to further use them to register Robots to Orchestrator. It displays the existing machines and their types.

The user can create his own machine on the Machines page. There are two types of Machines:

- Standard Machine: Used when the name of the machine on which the user wants to define Robots remains same each time he connects to it.
    - The user defines the machine once, and then he can connect it to any number of Robots in the Robots page.
    - The Robot connects to the Orchestrator using the machine name - machine key - username combination.
- Template Machine: Used when the name of the machine on which the user wants to define Robots changes every time he connects to it.
    - The user defines the machine once, and then he can connect it to any number of Attended Floating Robots using a unique Active Directory username.
    - The Robot connects to the Orchestrator using the machine key and username combination.

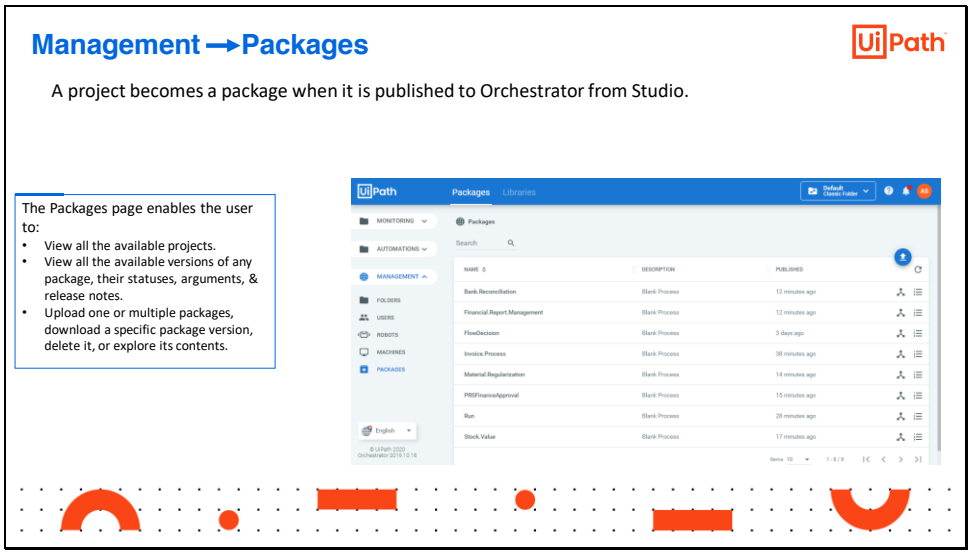
In order to be able to perform various operations on the Machines page, a user needs to be granted permission to

- View: Viewing a machine or any machine-related detail
- Edit: Editing a machine
- Create: Creating a machine

- Delete: Deleting a machine

The Machines page also displays the versions of user's Robots on the Installed Versions column.

Refer https://docs.uipath.com/orchestrator/v2019/docs/field-descriptions-machines for field description of the Machines page.




A project becomes a package when it is published to Orchestrator from Studio. Packages represent a global resource as they are available across all folders (classic or modern).

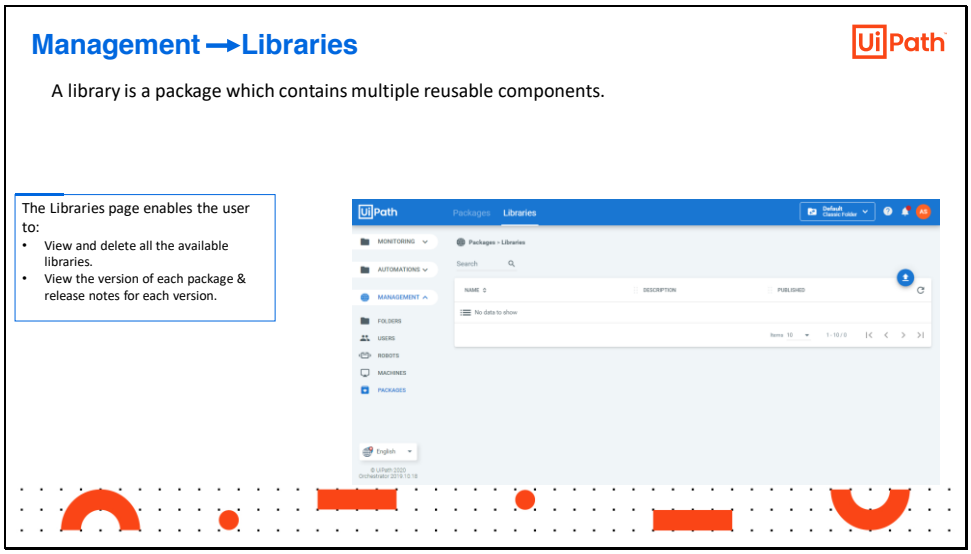
The Packages page enables the user to:

- View all the projects published from UiPath Studio along with the manually uploaded projects.
- View all the available versions of any package, their statuses, arguments, and release notes.
- Upload one or multiple packages, download a specific package version, delete it, or explore its contents.

The user can access this page by clicking Packages tab in the Processes page. The user needs permissions to View, Edit, Create and Delete packages to perform the corresponding actions on the Packages page.

A package version can have active or inactive status (depending on whether it is currently deployed to a process or a modern folder or not).

Refer https://docs.uipath.com/orchestrator/v2019/docs/managing-packages to know how to manage packages.



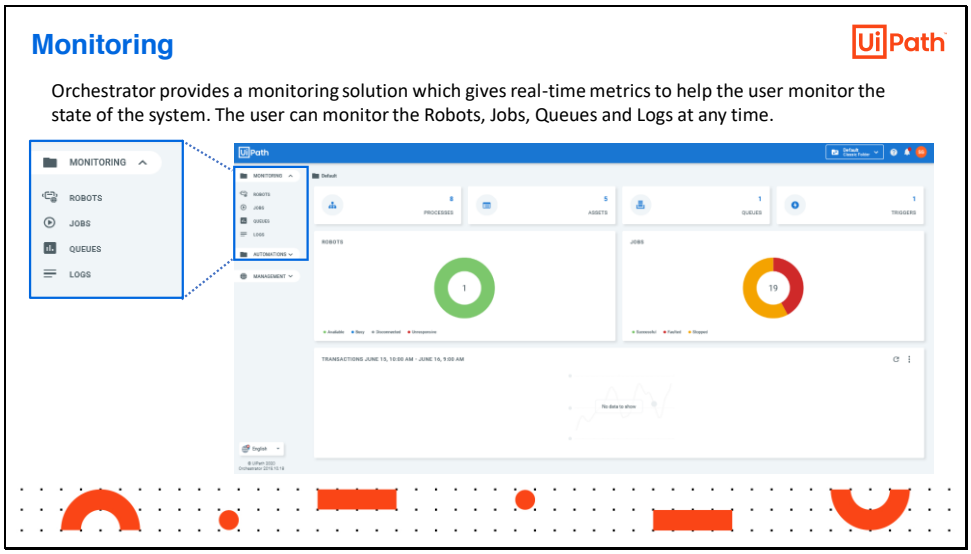

A library is a package which contains multiple reusable components. In Orchestrator, the Libraries page is the centralized location where all libraries are stored for further sharing and reusability.

The Libraries page enables the user to:

- View and delete all the libraries published from UiPath Studio along with the manually uploaded libraries.
- View the version of each package and release notes for each version.

The user can access this page by clicking Libraries tab in the Packages page. The user needs permissions to View and Create libraries to perform the corresponding actions on the Libraries page.

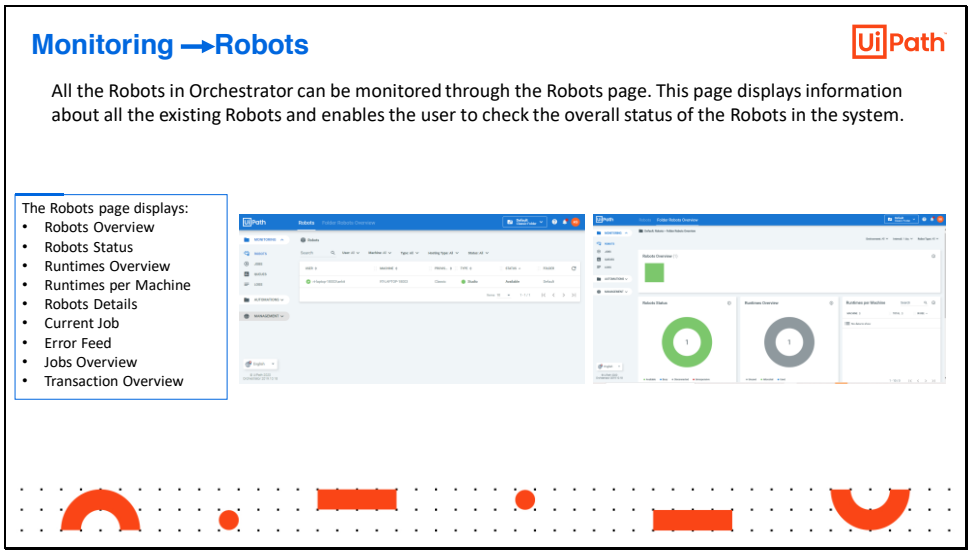
Refer https://docs.uipath.com/orchestrator/v2019/docs/managing-libraries to know how to manage libraries.




Orchestrator provides a monitoring solution which gives real-time metrics to help the user monitor the state of the system. The user can monitor the Robots, Jobs, Queues and Logs at any time.

There are four entities available in the Monitoring category:
1. Robots: The global and folder overview of the robots and activity
2. Jobs: Execution instances of processes assigned to robots
3. Queues: Overview of queues and transactions statuses
4. Logs: Overview of all robot logs

There are two views available for each component (depending on the level of detail required):
- General View: Displays monitoring information concerning all the resources of the selected type
- Individual View: Displays monitoring information concerning one specific resource of the selected type




All the Robots in Orchestrator can be monitored through the Robots page. This page displays information about all the existing Robots and enables the user to check the overall status of the Robots in the system. This allows the user to assess if there are any problems that could impact the entire system.

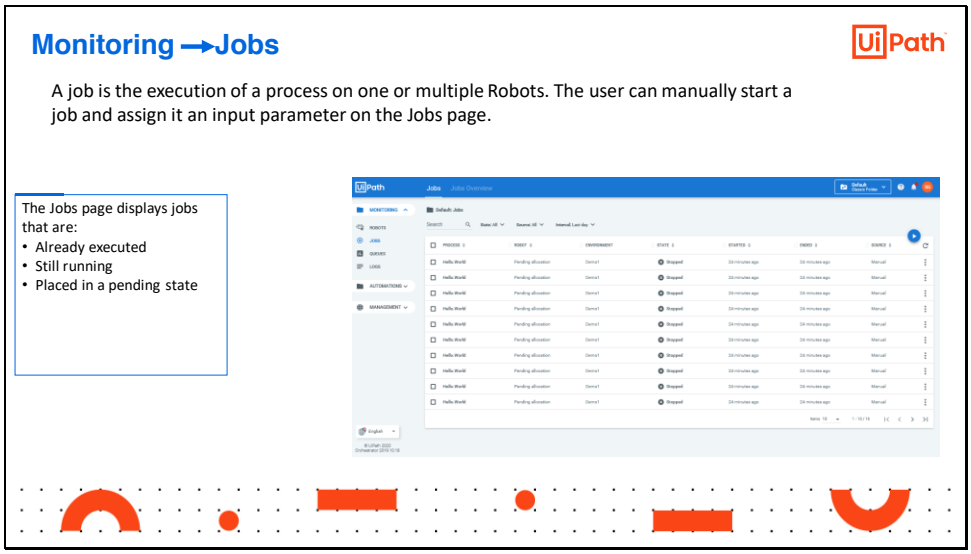
The Robots page displays:

- Robots Overview
- Robots Status
- Runtimes Overview
- Runtimes per Machine
- Robots Details
- Current Job, Error Feed, Jobs Overview, Transaction Overview (for any individual robot)

In Robots Overview, each color block represents a specific Robot. When the user hovers over a block, it displays the name of the corresponding Robot. As the status changes, the chart gets updated and the color changes accordingly.

Robot statuses are represented with colors and tooltips as Green (Available), Blue (Busy), Grey (Disconnected) and Red (Unresponsive).

Refer https://docs.uipath.com/orchestrator/v2019/docs/folder-overview for more information.

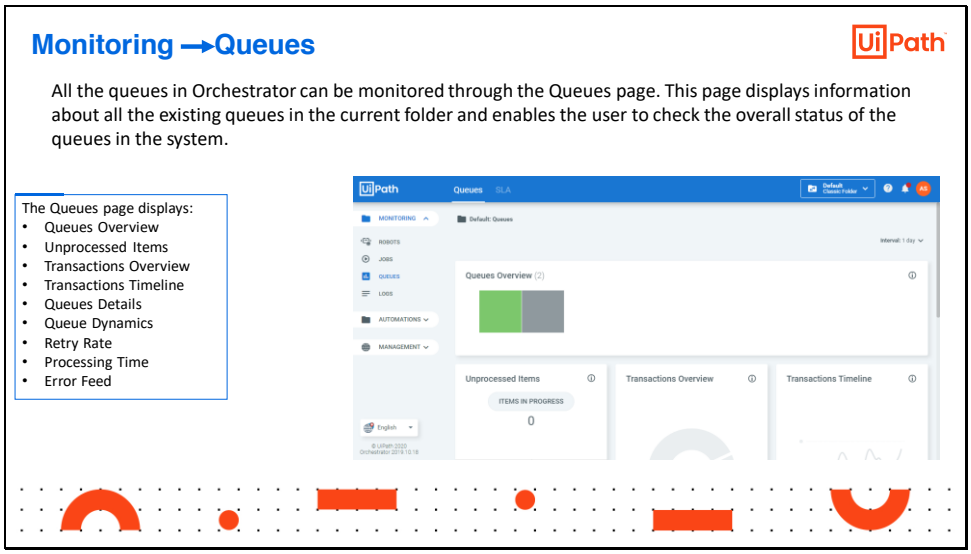



A job is the execution of a process on one or multiple Robots. After creating a process, the next step is to execute it by creating a job.

The Jobs page displays jobs that are:
- Already executed
- Still running
- Placed in a pending state

On the Jobs page, the user can manually start a job, assign it an input parameter (if configured) or display its output parameter. The user may also Stop or Kill a job, and display the logs generated by it. A job that has already reached a final state can be restarted (with its original settings or after modification).

Refer https://docs.uipath.com/orchestrator/v2019/docs/managing-jobs to know how to manage jobs.



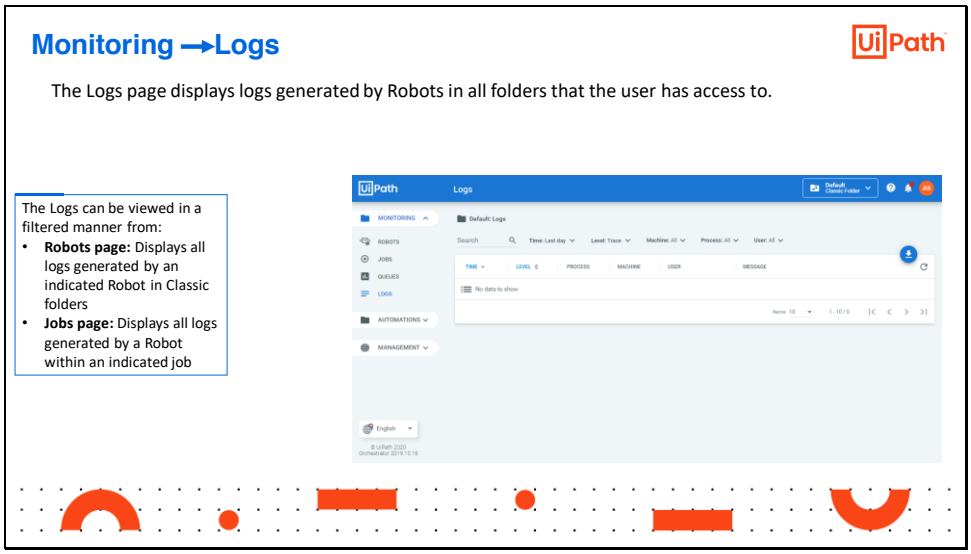

All the queues in Orchestrator can be monitored through the Queues page. This page displays information about all the existing queues in the current folder and enables the user to check the overall status of the queues in the system. This allows the user to assess if there are any problems that could impact the entire system. To monitor a queue, the user requires View permissions on Queues and on Monitoring.

The Queues page displays:
- Queues Overview
- Unprocessed Items
- Transactions Overview
- Transactions Timeline
- Queues Details
- Queue Dynamics, Retry Rate, Processing Time, Error Feed (for any individual queue)

In Queues Overview, each color block represents a specific queue. When the user hovers over a block, it displays the name of the corresponding queue and its containing folder. As a queue's state changes, the chart gets updated and the block color changes accordingly.

The various scenarios are represented with colored blocks and tooltips as follows:
- Grey: No changes detected
- Green: Processing with no issues
- Orange: Queue items soon overdue
- Red: Queue items processing failed with application exceptions; Queue items overdue

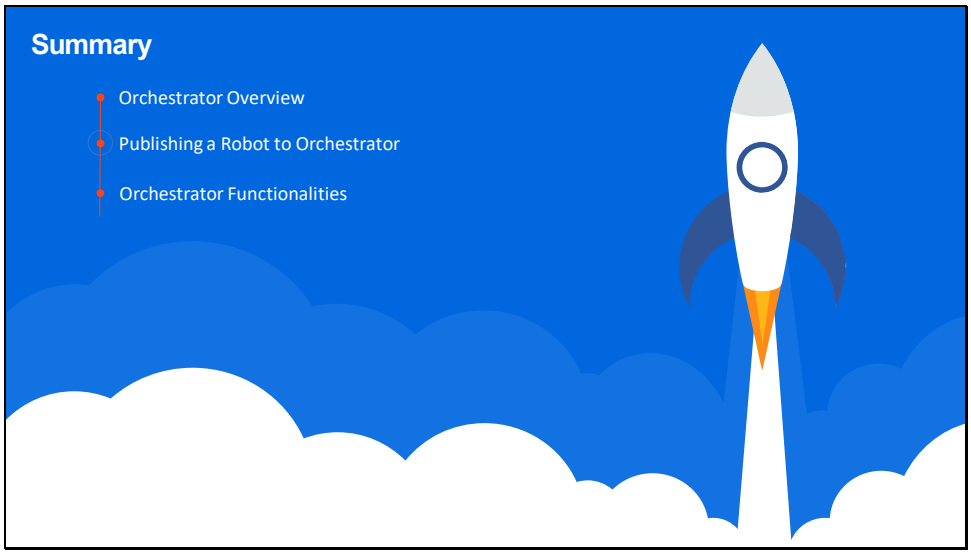
Refer https://docs.uipath.com/orchestrator/v2019/docs/queues for more information.




The Logs page displays logs generated by Robots in all folders that the user has access to.

- The Logs can be viewed in a filtered manner from:
    - Robots page: Displays all logs generated by an indicated Robot in Classic folders
    - Jobs page: Displays all logs generated by a Robot within an indicated job
- The user needs to have View permission on Logs to have access to the Logs page.
- If Orchestrator is unavailable, logs are stored in a local database within the available disk space, until the connection is restored. When the connection is restored, the logs are sent in batches in the order they had been generated.
- Logging Levels: Messages are logged on several levels: Trace, Debug, Info, Warm, Error and Fatal.
- The user can export all logs to a .csv file, by clicking the Export button.

Refer: https://docs.uipath.com/orchestrator/v2019/docs/field-descriptions-logs
for field description of the Logs page.




To summarize, this lesson explained:

- Orchestrator Overview
- Publishing a Robot to Orchestrator
- Orchestrator Functionalities