FactoryTalk Edge Manager User Manual

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Rockwell Automation

Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

IMPORTANT Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.

SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.

BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

Table of Contents

Read Me First 3
Audience 4
Related Documents 4
Conventions 4

Chapter 1 Getting Started 5
Getting Started 6
Login to FactoryTalk Edge Manager 6
Dashboard 7
Top Navigation Panel 7
Left Navigation Panel 8

Chapter 2 Edge Node Management 11
Onboard a Device 12
Manage Edge Node 15
Activate Edge Node 15
Deactivate Edge Node 16
Delete Edge Node 18
Offboard Edge Node 19
Prepare Poweroff 20
Reboot 21
Update Edge Operating System (Edge OS) Image 22

Chapter 3 Marketplace 25
Import Edge Application 26
Add Data Store 28

Add Edge App Image 31
Create Your Application 32
Container 32
Virtual Machine 40
Module 49
Deploy Edge App 53

Chapter 4 Administration & Maintenance 59
Manage Enterprise 60
Update Enterprise 60
Manage Project 61
Update Project 61
Delete Project 62
Manage Roles 64
Create Role 64
Update Role 65
Delete Role 67
Manage Users 68
Create User 68
Update User 69
Delete User 69

Read Me First

In this chapter:

- Audience 4
- Related Documents 4
- Conventions 4

Audience

This document is intended for the audience who will be utilizing the FactoryTalk Edge Manager platform for initializing or starting to work on the FactoryTalk Edge Manager and FactoryTalk Edge Gateway platform.

Related Documents

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
ASEM 6300B Box PCs and 6300T Box Thin Clients – Installation Instructions, Publication 6300B-in001	Provide details on how to install ASEM 6300B Box PC or 6300T Box Thin Client.
FactoryTalk Hub User Guide	Provide guidelines for using FT Hub Application.
FactoryTalk Edge Gateway User Guide	Provide guidelines for using FactoryTalk Edge Gateway.

Conventions

The following conventions are followed in this document:

- Text, labels and icon names that appear in the user interface appear in square brackets. For example: On the Left Navigation panel, select [Edge Nodes].
- The URLs and links appear in Blue text. For example: https://helpdesk.cloud.rockwellautomation.com
- Placeholder text for variable values appears in angle brackets. For example: The "*User: <username> has been deleted.*" message displays.
- The toast messages that are displayed on the User Interface appear in italic text and in quotation. For example: The "*Import request for requested Edge Apps was successfully submitted.*" message displays.

Chapter 1

Getting Started

In this chapter:

- Getting Started 6

Getting Started

FactoryTalk® Edge Manager is a software as a service (SaaS) solution that is hosted in the cloud and accessible through FactoryTalk Hub™, with detailed access control privilege management built in and single sign-on to other Rockwell Automation SaaS products. IT/OT admins can manage each edge deployment on pre-certified ASEM™ 6300B edge computers.

Login to FactoryTalk Edge Manager

Perform the following steps to login to the FactoryTalk Edge Manager:

1. Login to the FactoryTalk Hub (https://home.cloud.rockwellautomation.com) using your Rockwell Credentials.

NOTE: Ensure that you have access and logged into FactoryTalk Hub along with allocating entitlement(s) for FactoryTalk Edge Manager. This will be required for the onboarding process. Please see the following FactoryTalk Hub manual for more instructions: https://helpdesk.cloud.rockwellautomation.com/

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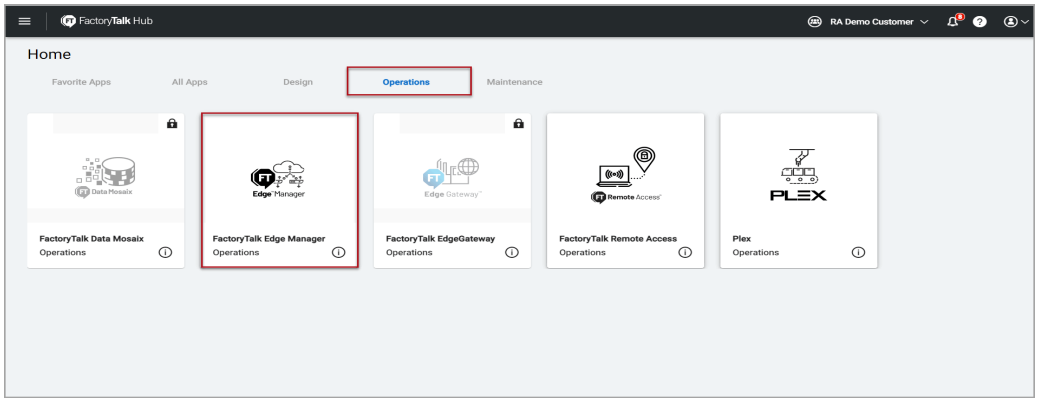
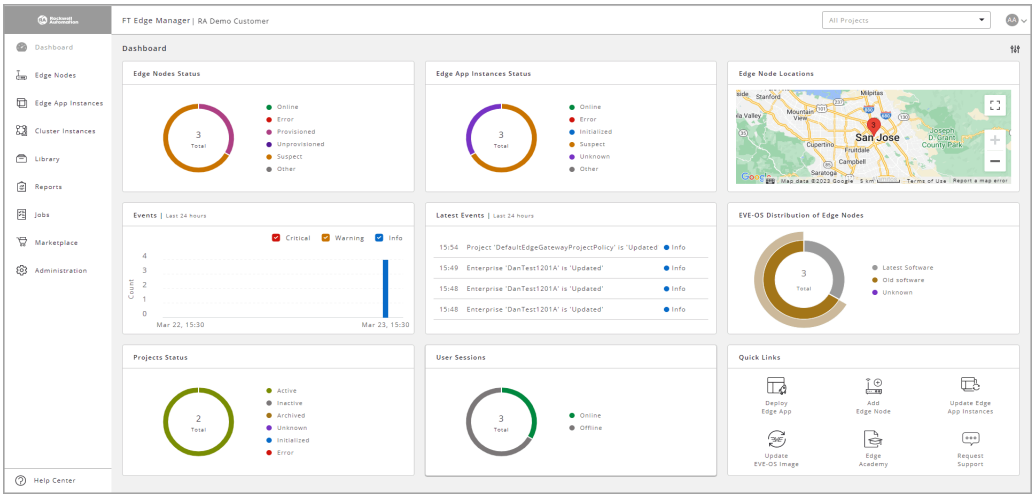
2. Under the Operations Hub tab, click the FactoryTalk Edge Manager tile.

Figure 1-1: Login



The FactoryTalk Edge Manager home page displays.

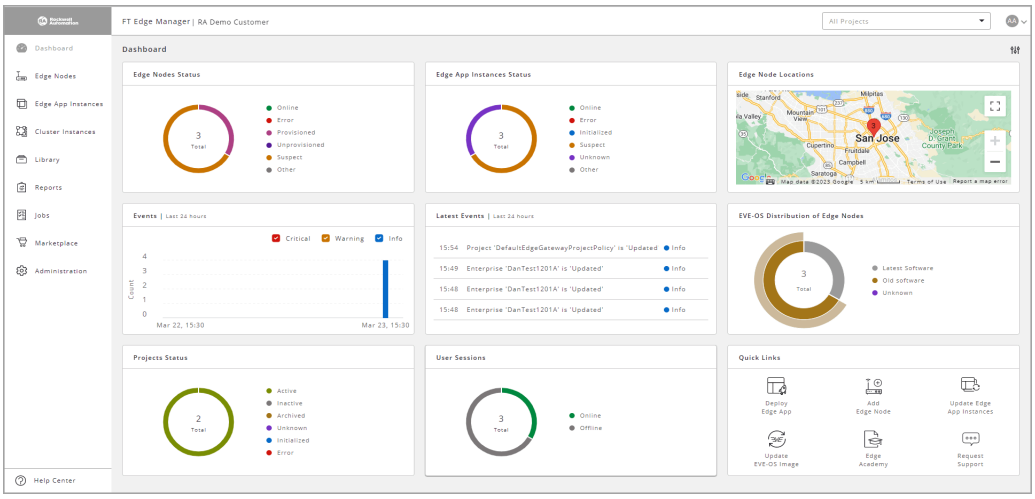
Figure 1-2: Home Page



Dashboard

This is the default landing page for all users and displays a default set of customizable dashboard widgets such as Edge Node Status, Edge App Instance Status, Edge Node Location, Events, Recommended Actions and other system information.

Figure 1-3: Dashboard

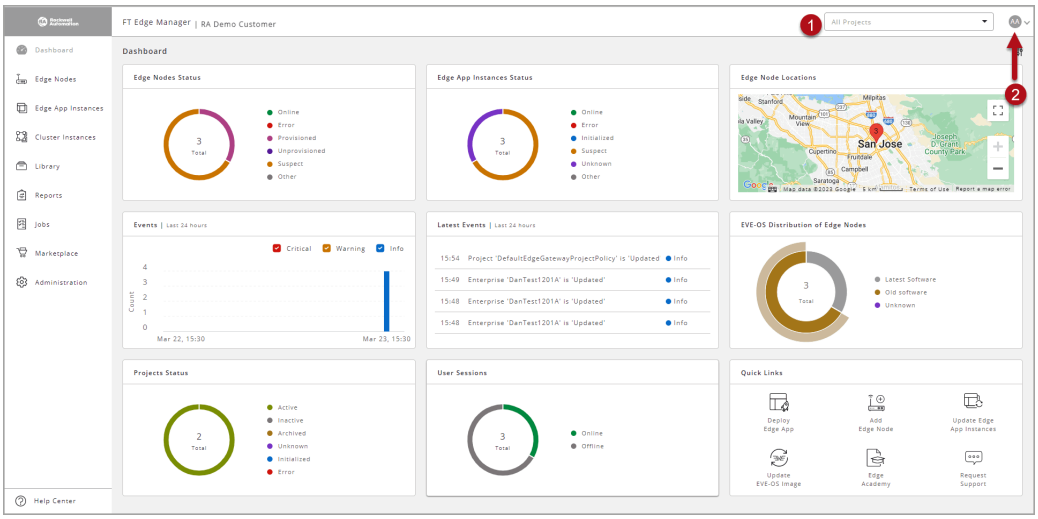


Top Navigation Panel

The Top Navigation Panel includes the following options:

1. **Projects Drop-down**: You can either select “All Projects” or any particular 'Project' using the drop-down list. When a particular project is selected, all the objects related to the chosen project get filtered.
2. **Profile**: To view and edit user profile and properties.

Figure 1-4: Top Navigation Panel



Left Navigation Panel

You can expand or collapse the Left Navigation Panel using the [›] icon.

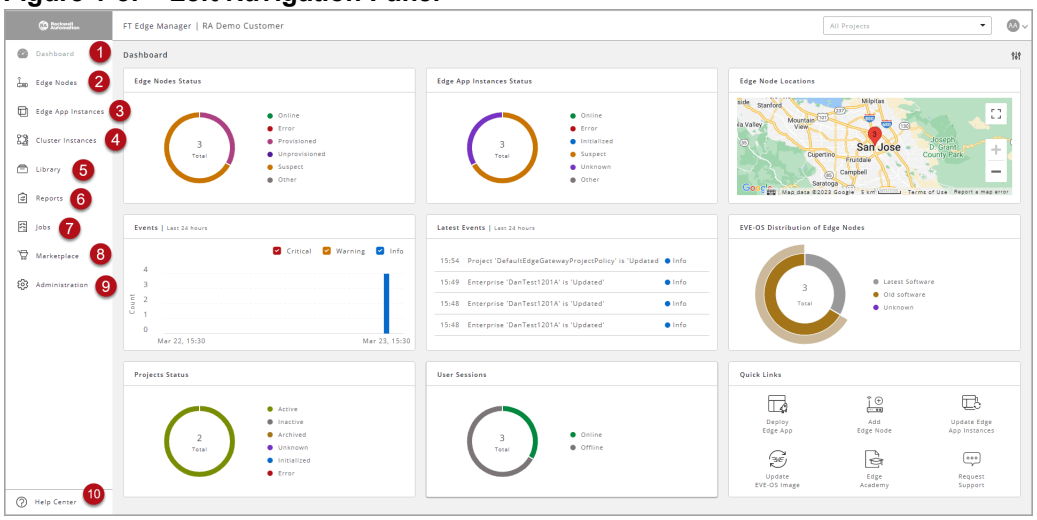
The Left Navigation Panel includes the following options:

1. **Dashboard**: Displays a default set of customizable dashboard widgets such as status of edge nodes, location of edge devices, Events, important alerts, recommended actions and other system information.
2. **Edge Nodes:** Displays the summary and list of edge nodes (devices) available in your enterprise. You can browse them by projects and status, etc. When you select an Edge Node from the list, a temporary tab (icon) gets created on the left navigation panel and displays the detailed view of the selected Edge Node.
3. **Edge App Instances**: DisplaEdge Operating System (Edge OS) ys the list of all the “Edge App Instances” in your enterprise. It also can be filtered based on your needs.
4. **Cluster Instances**: Displays theEdge Operating System (Edge OS) list of all the Cluster Instances in your enterprise.
5. **Library**: Displays your enterprise's other asset's list view. Assets like Networks, Network instances, Data Stores, Edge Operating System (Edge OS) Images, App Images, Volume Instances, etc.
6. **Reports**: Displays an interactive way to filter and view different statistics of your assets. You can find Events, Utilization reports, and Network data flow here.
7. **Jobs**: Displays all the Jobs that are generated while performing any function, like Installation or Updation of Edge Operating System (Edge OS) and many more such events. The bulk tasks like Bulk App deployment, or Bulk Edge Operating System (Edge OS) update, create a single Job that consists of

multiple 'Tasks.' The jobs are always sorted based on the 'latest on the top' principle.

8. **Marketplace**: Displays all supported Edge Apps and Models in your enterprise. Also includes options to import Global applications into the private marketplace along with ability to create apps in the private marketplace.
9. **Administration**: To access the administrative functions like management of Enterprise parameters, Projects, Users, Roles, and Permissions, etc. The administration section displays the assets you have access to based on your roles and permissions.
10. **Help Center**: To access FT Edge Manager Help & Support.

Figure 1-5: Left Navigation Panel



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Chapter 2

Edge Node Management

In this chapter:

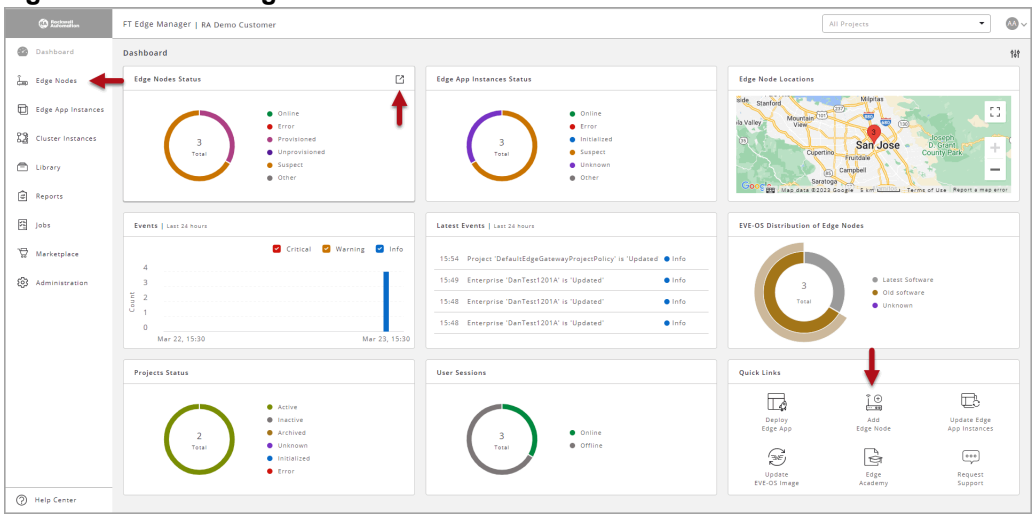
- Onboard a Device 12
- Manage Edge Node 15

Onboard a Device

Perform the following steps to Onboard a Device:

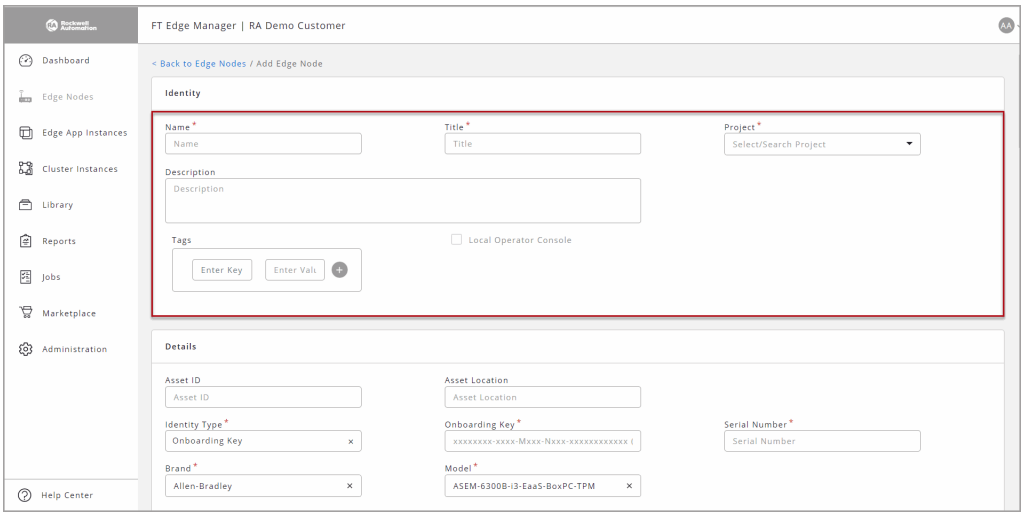
1. Navigate to [Add Edge Node] window by any one of the following method:
   - On the Dashboard, expand the Edge Note Status tile and then click the [+] icon.
   - On the Quick links tile, click [Add Edge Node].
   - On the Left Navigation panel, click [Edge Nodes] and then click the [+] icon.

Figure 2-1: Add Edge Node



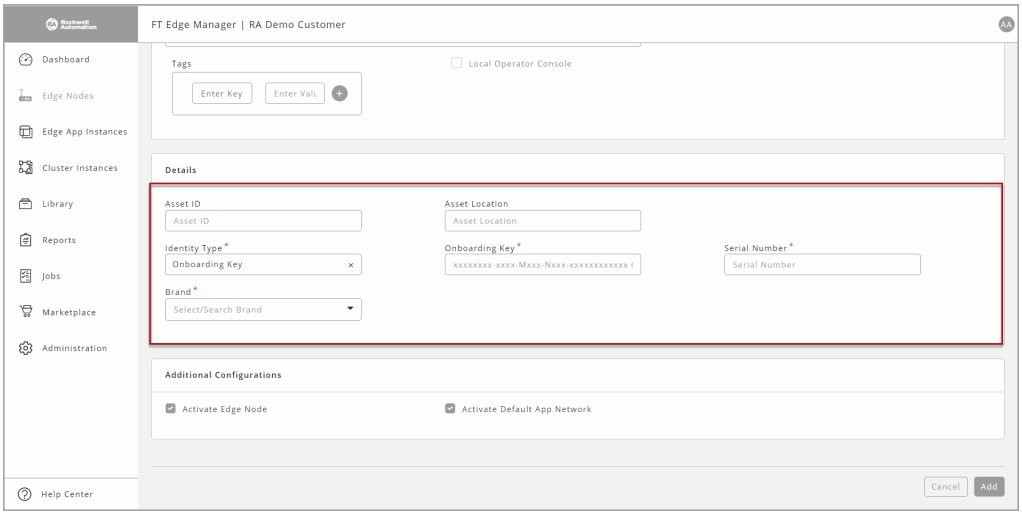
2. Provide the following details in the Identity section:
   - **Name**: Provide a unique name. This cannot be changed.
   - **Title**: Provide a title. This can be changed.
   - **Project**: Select the Project from drop-down list.
   - **Description**: A detailed explanation about the Edge Node.

Figure 2-2: Identity



3. Provide the following details in the Details section:
   - **Asset ID**: Unique identifier in your inventory.
   - **Asset Location**: Provide location of the device.
   - **Identity Type**: Select [Onboarding Key] from the drop-down list.
   - **Onboarding Key**: Provide the Onboarding Key printed on the box and on the device label as "ONBOARDING KEY".
   - **Serial Number**: Provide the Onboarding Serial Numberprinted on the box and on the device label as “ONBOARDING SN”.
   - **Brand**: Select [Allen-Bradley] from the drop-down list.
   - **Model**: Select the ASEM Model that you have purchased.

Figure 2-3: Details



4. Provide the Port Mappings details or use defaults.

- **Interface Usage**: Enter [Management].
- **Network**: Select [Default-ipv4-dhcp] from drop-down list.

5. Ensure that the ‘Activate Edge Node’ and the ‘Activate Default App Network’ checkboxes are selected.

IMPORTANT: If the 'Activate Edge Node' checkbox is not selected and you click [Add], the admin state of the onboarded Edge Node will be unregistered until you activate the Edge Node from the Edge Node detailed view screen.

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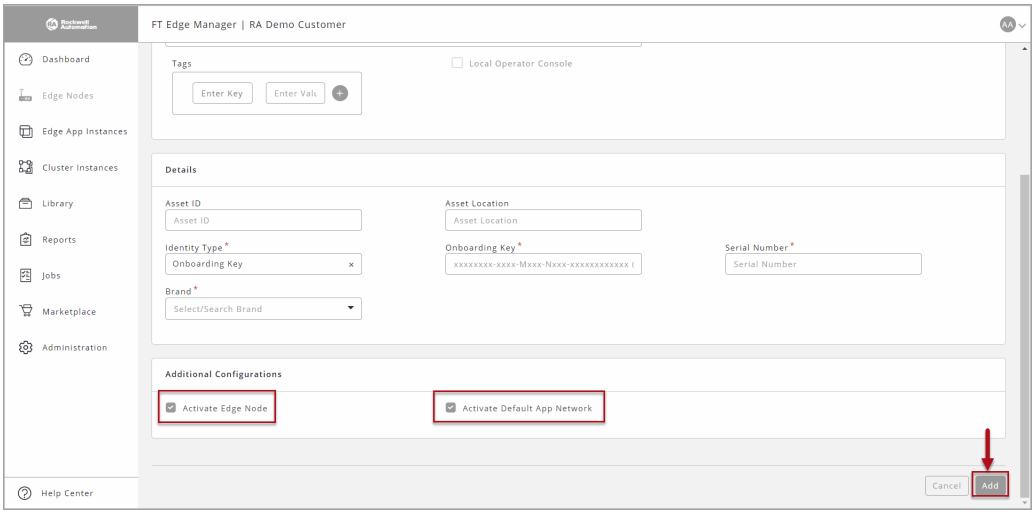
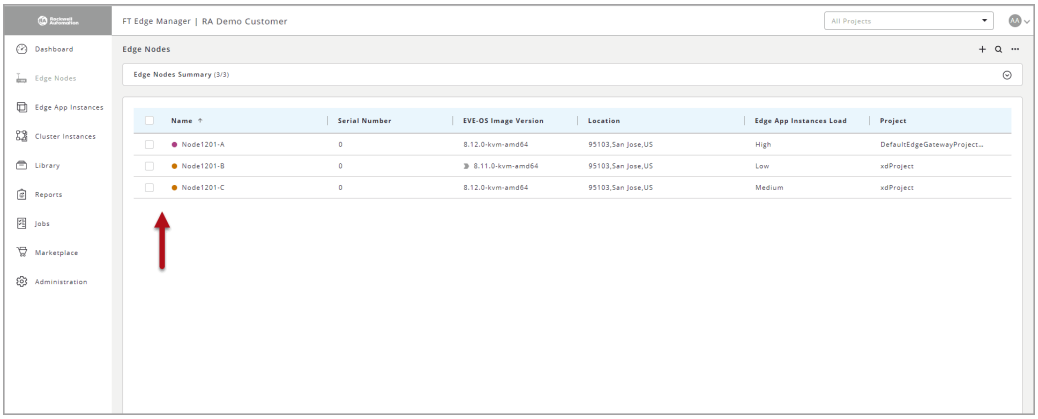
6. Click [Add] to add the Edge Node.

Figure 2-4: Add Edge Node



The newly added Edge Node appears in the list view.

Figure 2-5: Added Edge Node



The colored dot indicates the Run State to the left of the Edge Node name. The colored dots with the state is as represented in the table:

Legends	Description
Online	The Edge Application Instance is working fine.
Error	The Edge Application Instance is stopped.
Initialized	EVE has received the configuration details of the Edge Application Instance and the process is in progress.
Suspect	If the FT Edge does not hear from the Edge Application Instance or EVE for 3 minutes, it puts the instance in this state.
Unknown	When FT Edge creates metadata of the instance or when EVE reports an invalid state.
Other	Could be any reason other than the ones described in this table.

Manage Edge Node

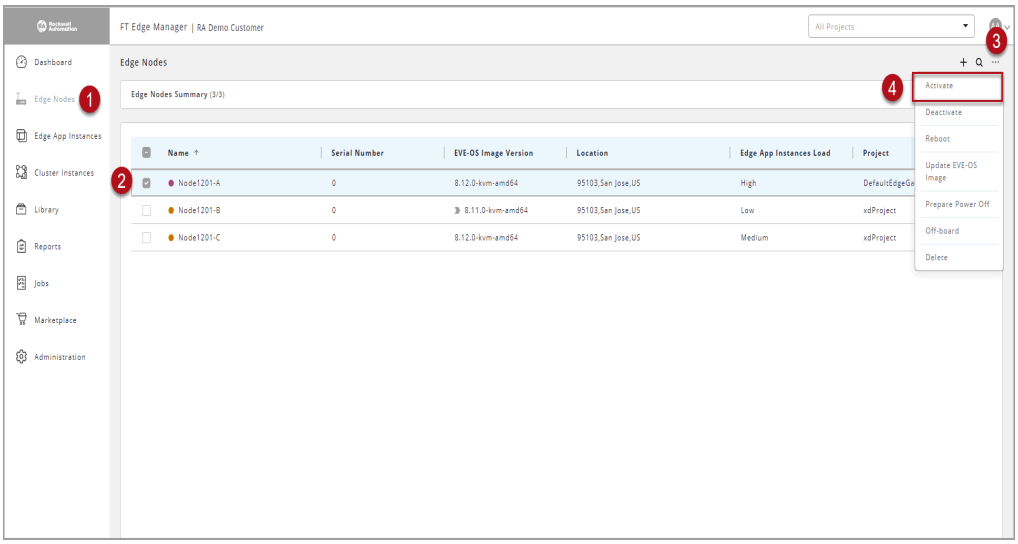
Activate Edge Node

Activating the edge node(s) shows Admin Status as ‘Registered’ and eventually turns the Run state to ‘Online’.

Perform the following steps to Activate the Edge Node(s):

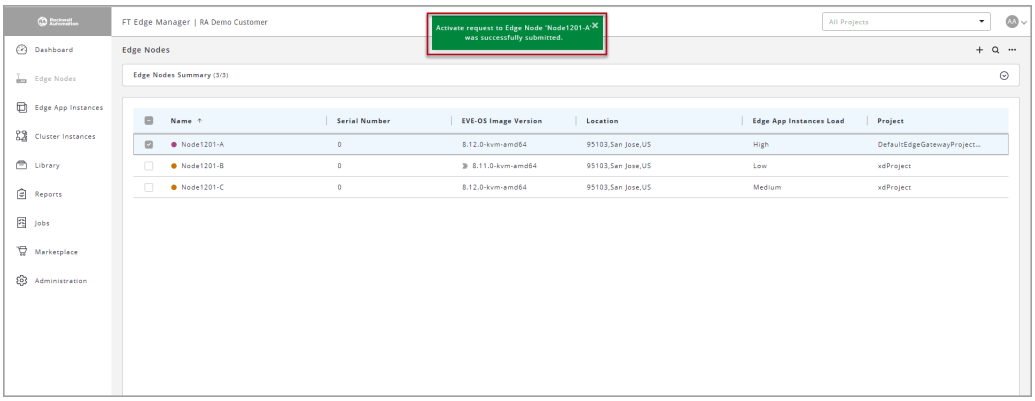
1. Click [Edge Nodes] on the left navigation panel, the Edge Nodes list view displays.
2. Select the checkboxes of the Edge Node(s) that you want to activate.
3. Click the [···] icon on the top right corner and click [Activate].

Figure 2-6: Activate Edge Node



A success message displays as shown below:

Figure 2-7: Activated Edge Node

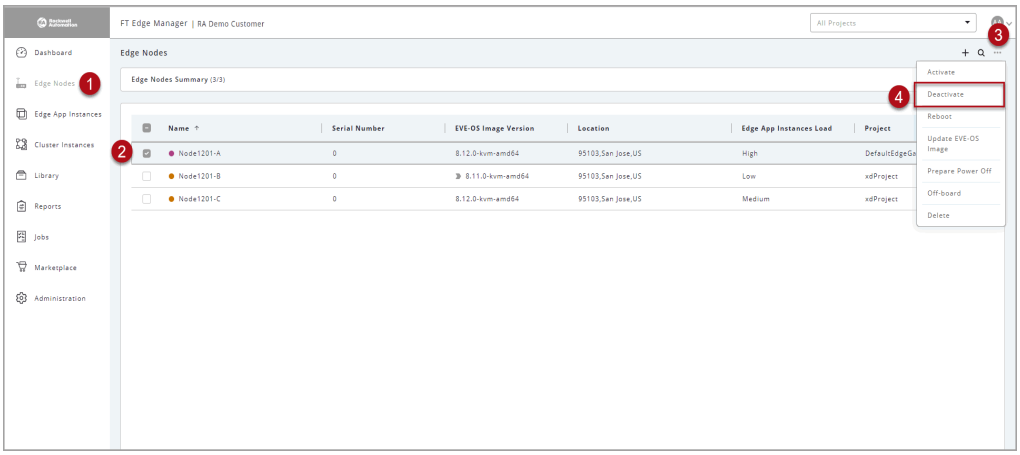


Deactivate Edge Node

Perform the following steps to Deactivate the Edge Node(s):

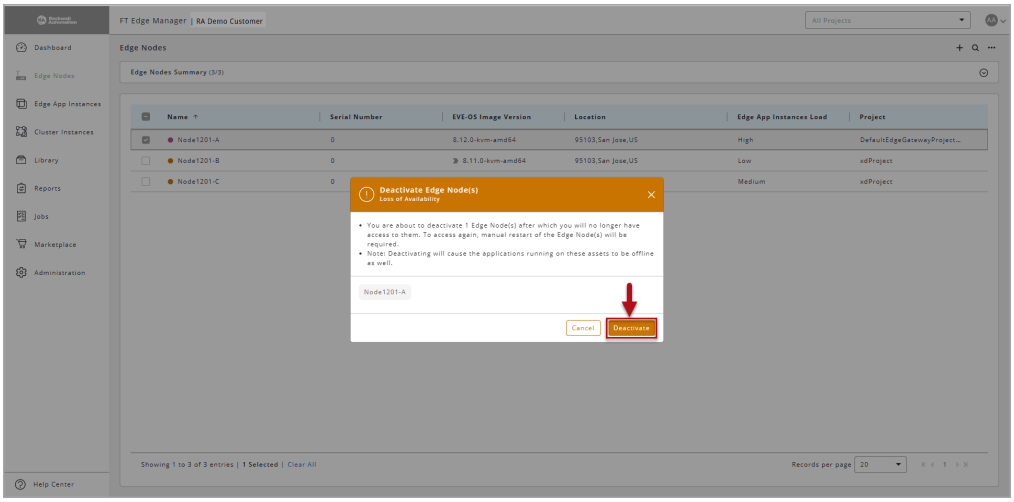
1. Click [Edge Nodes] on the left navigation panel, the Edge Nodes list view displays.
2. Select the checkboxes of the Edge Node(s) that you want to Deactivate.
3. Click the [•••] icon on the top right corner and click [Deactivate].

Figure 2-8: Deactivate Edge Node



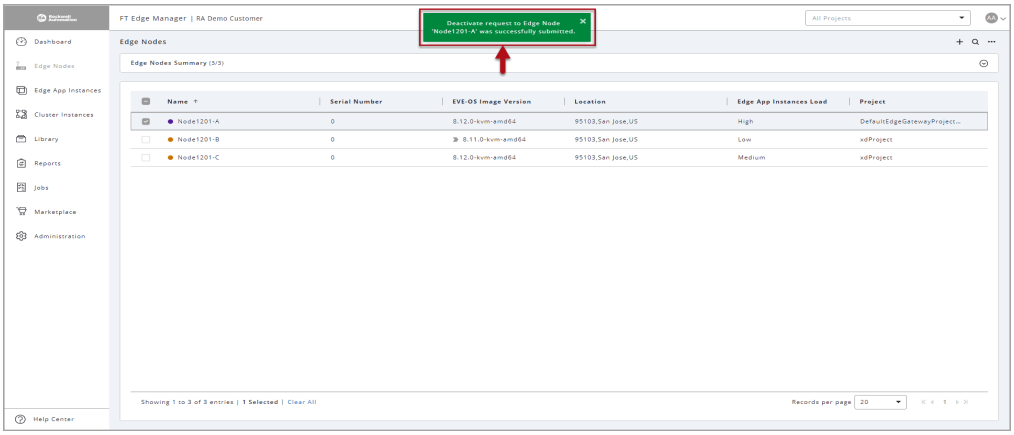
4. The ‘Deactivate Edge Node(s)’ dialog displays, click [Deactivate].

Figure 2-9: Deactivate Edge Node



A success message displays as shown below:

Figure 2-10: Confirm Deactivate



NOTE: The Deactivated the edge node(s) shows Admin Status as ‘Inactive’ and Run state as ‘Unprovisioned’.

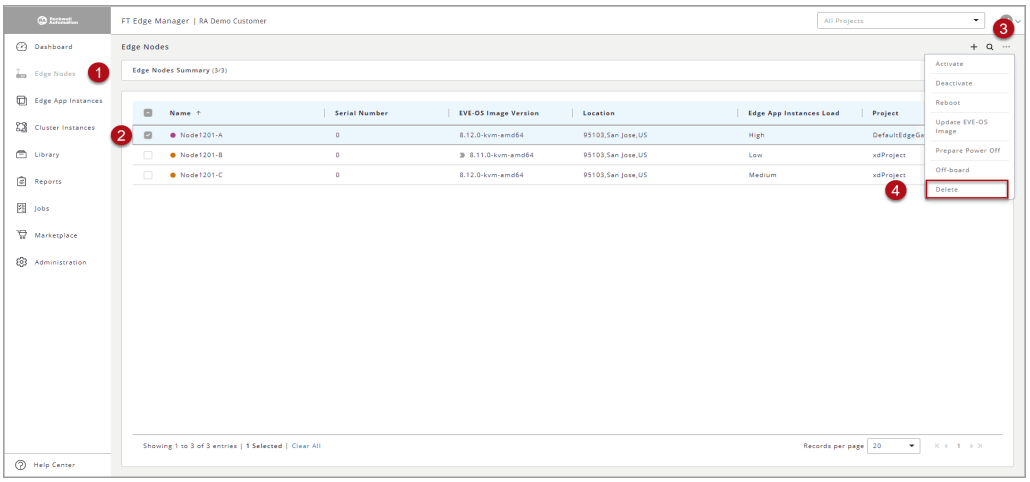
Delete Edge Node

The 'Delete' operation removes the edge node(s).

Perform the following steps to Delete the Edge Node(s):

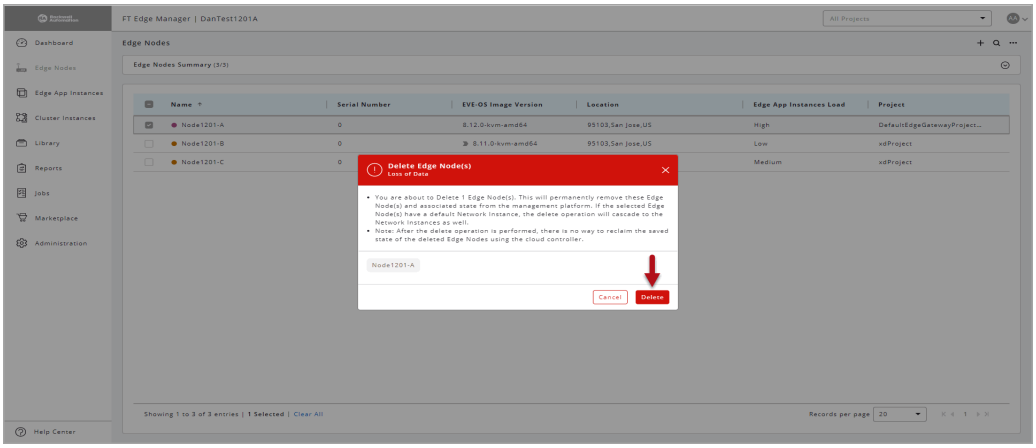
1. Click [Edge Nodes] on the left navigation panel, the Edge Nodes list view displays.
2. Select the checkboxes of the Edge Node(s) that you want to Delete.
3. Click the [•••] icon on the top right corner and click [Delete].

Figure 2-11: Delete Edge Node



4. The ‘Delete Edge Node(s)’ dialog displays, click [Delete].

Figure 2-12: Delete Edge Node



A success message displays and the selected edge nodes are deleted.

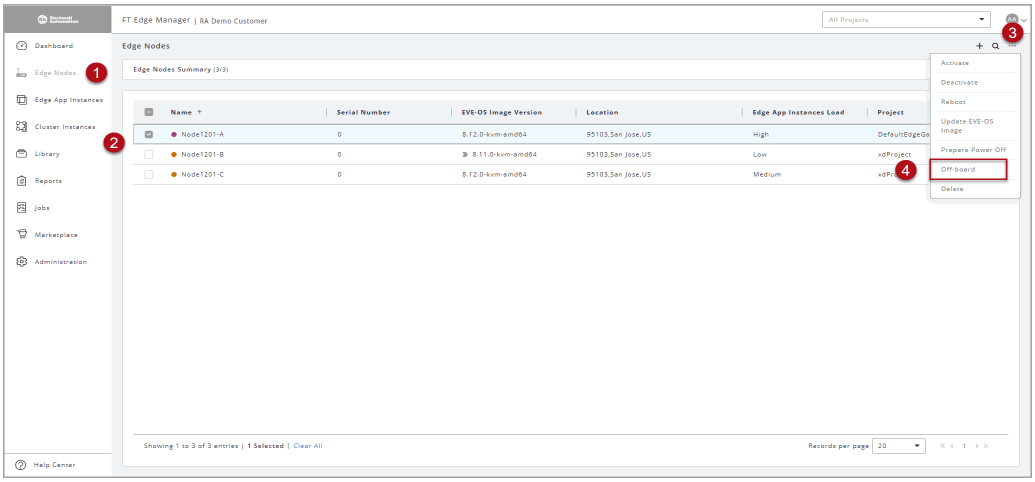
Offboard Edge Node

Offboard option enables you to migrate the edge nodes across the enterprise retaining the volume instance(s) intact.

Perform the following steps to Offboard the Edge Node(s):

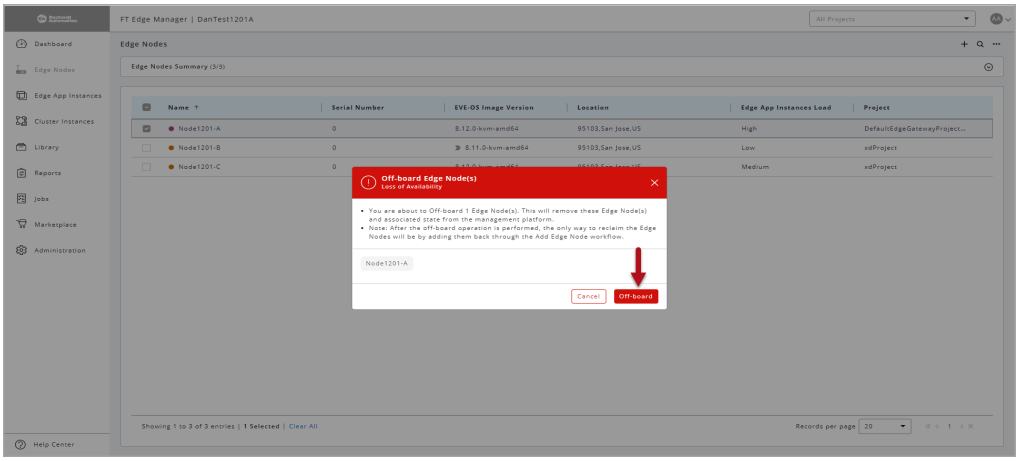
1. Click [Edge Nodes] on the left navigation panel, the Edge Nodes list view displays.
2. Select the checkboxes of the Edge Node(s) that you want to Offboard.
3. Click the [•••] icon on the top right corner and click [Offboard].

Figure 2-13: Offboard Edge Node



4. The ‘Offboard Edge Nodes’ dialog displays, click [Offboard].

Figure 2-14: Confirm Offboard



A success message displays and the selected edge nodes are offboarded.

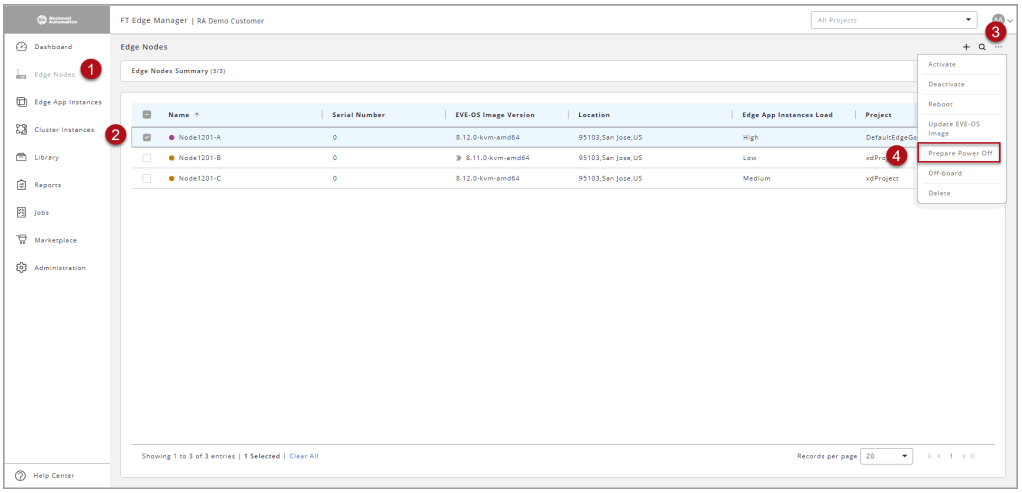
Prepare Poweroff

This feature is useful when you need to gracefully shut down the set of applications running on Edge Operating System (Edge OS).

Perform the following steps to Prepare Poweroff of Edge Node(s):

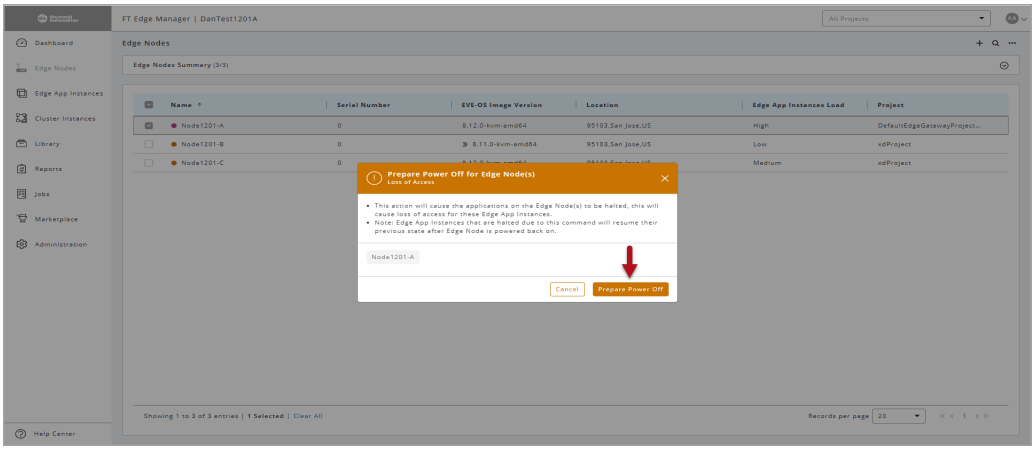
1. Click [Edge Nodes] on the left navigation panel, the Edge Nodes list view displays.
2. Select the checkboxes of the Edge Node(s) that you want to Power Off.
3. Click the [•••] icon on the top right corner and click [Prepare Poweroff].

Figure 2-15: Poweroff Edge Node



4. The ‘Prepare Poweroff for Edge Node(s)’ dialog displays, click [Prepare Poweroff].

Figure 2-16: Confirm Offboard



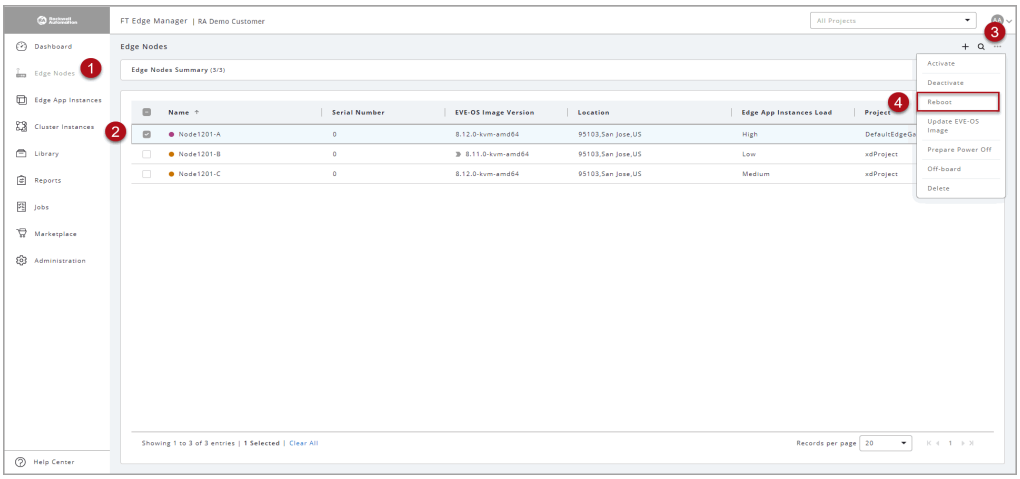
A success message displays and the selected edge nodes are powered off.

Reboot

Perform the following steps to Reboot the Edge Node(s):

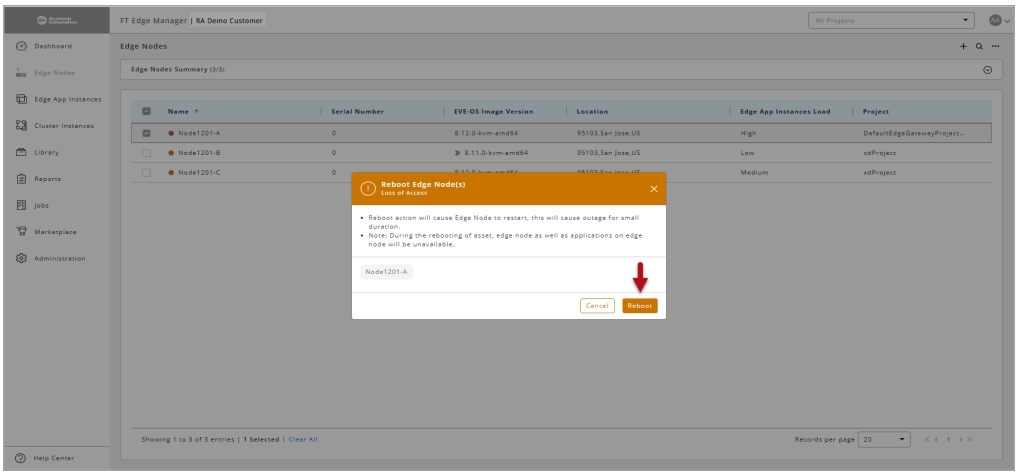
1. Click [Edge Nodes] on the left navigation panel, the Edge Nodes list view displays.
2. Select the checkboxes of the Edge Node(s) that you want to Reboot.
3. Click the [•••] icon on the top right corner and click [Reboot].

Figure 2-17: Reboot Edge Node



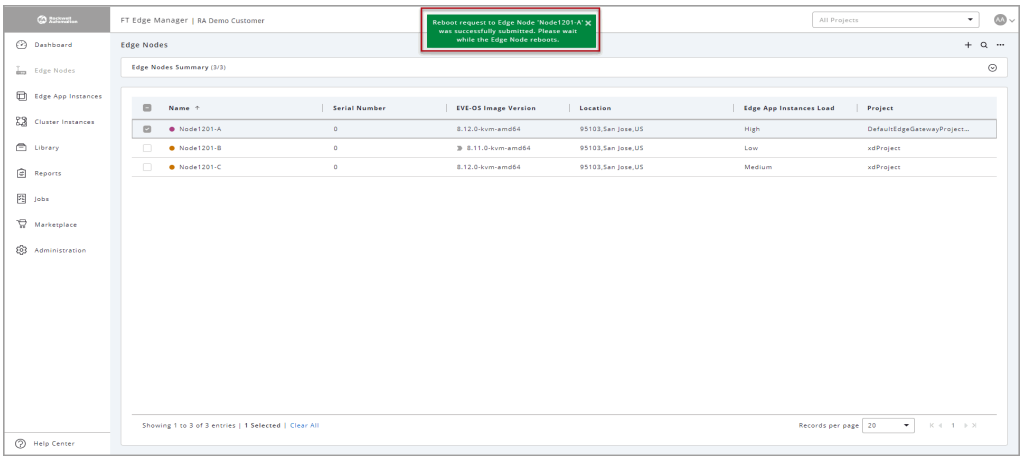
4. The ‘Reboot Edge Node(s)’ dialog displays, click [Reboot].

Figure 2-18: Confirm Reboot



A success message displays as shown below:

Figure 2-19: Confirm Reboot



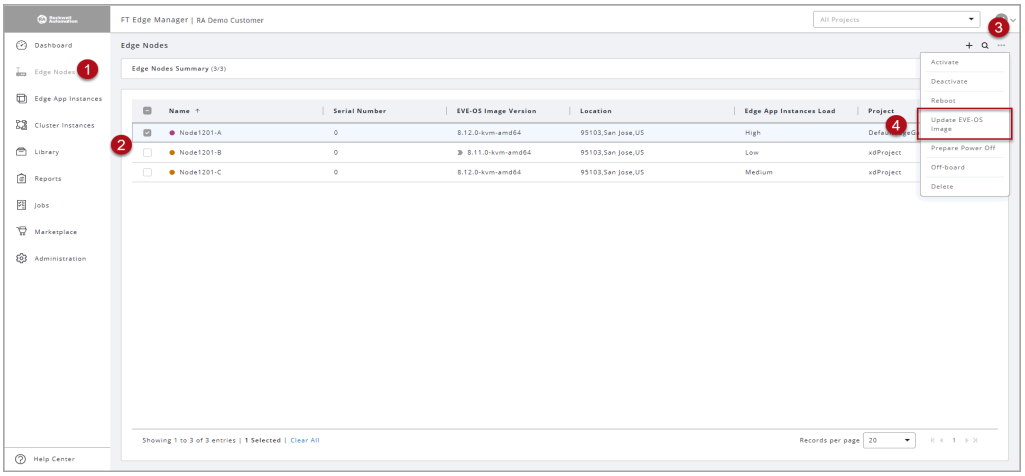
Update Edge Operating System (Edge OS) Image

NOTE: The [»] icon against the edge node indicates that a particular edge node runs the latest version in the edge node list view and you need not to update the latest version of the Edge Operating System (Edge OS).

Perform the following steps to Update Edge Operating System (Edge OS) Image on Edge Node(s):

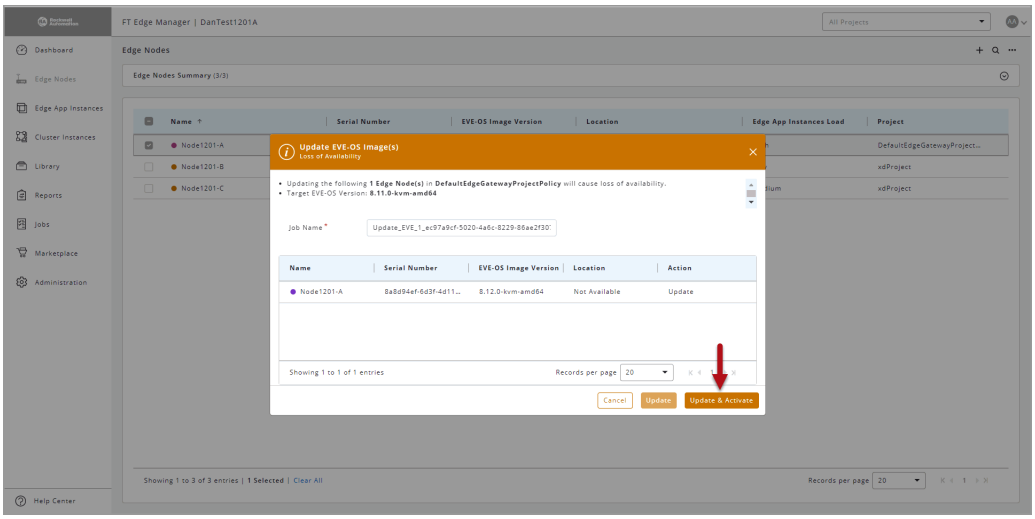
1. Click [Edge Nodes] on the left navigation panel, the Edge Nodes list view displays.
2. Select the checkboxes of the Edge Node(s) that you want to update.
3. Click the [•••] icon on the top right corner and click [Update EVE-OS Image].

Figure 2-20: Update EVE Image



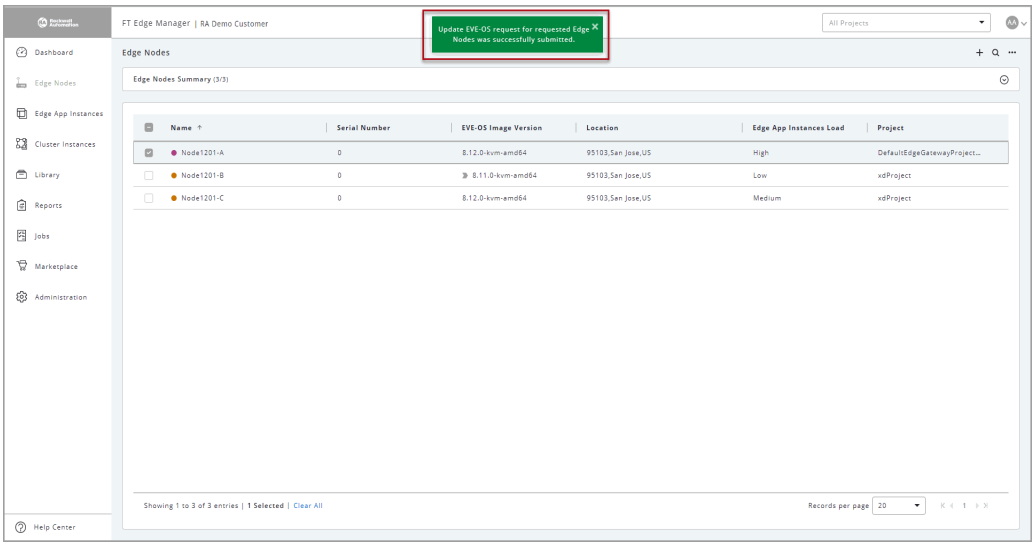
4. The 'Update EVE Image' dialog displays, click [Update & Activate].

Figure 2-21: Confirm Update



A success message displays as shown below:

Figure 2-22: EVE Image Updated



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Chapter 3

Marketplace

In this chapter:

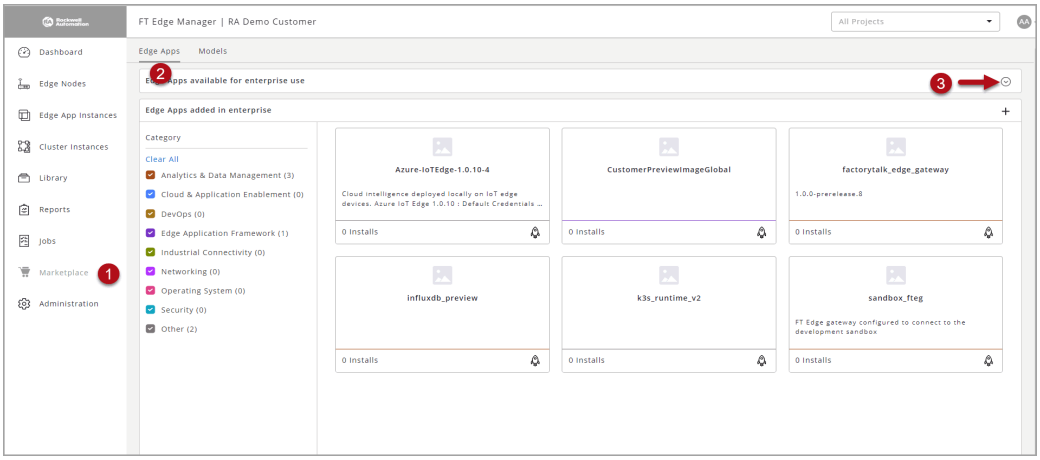
- Import Edge Application 26
- Add Data Store 28
- Add Edge App Image 31
- Create Your Application 32
- Deploy Edge App 53

Import Edge Application

Perform the following steps to Import an Edge Application:

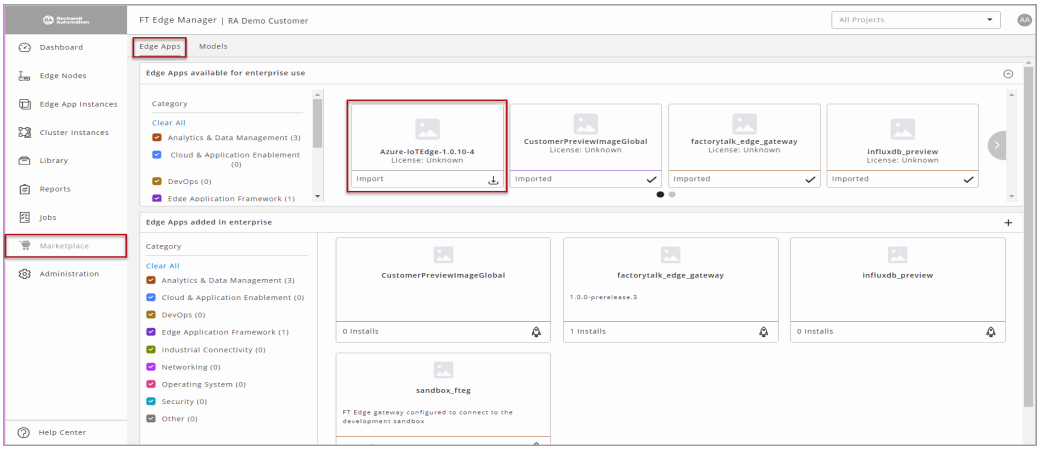
1. On the left navigation panel, select [Marketplace].
2. Go the Edge Apps tab, click on the expand [⌄] icon to view the Edge Apps available for enterprise use.

Figure 3-1: View Apps



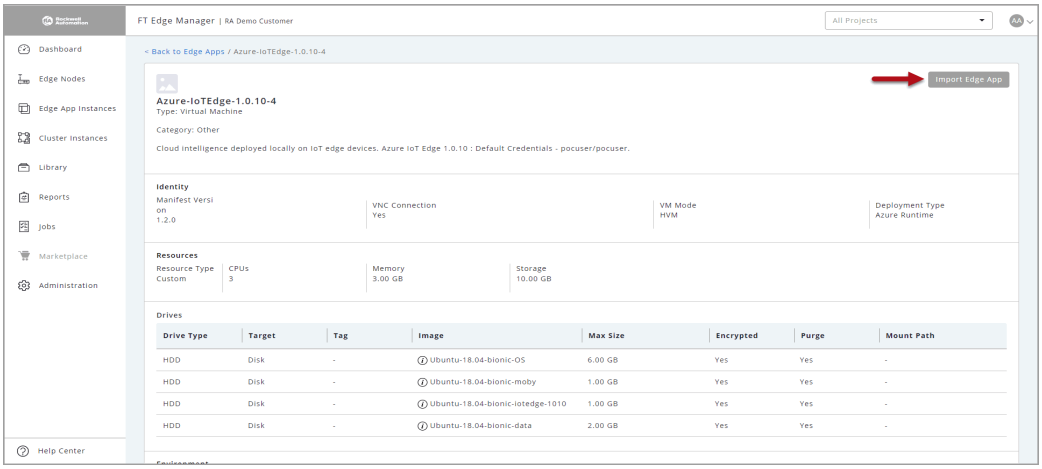
3. You can filter out the type of edge applications using the category filter and use the [›] icon to see the next applications.
4. Each application tile has two types of icons on the right top corner:
   - A tick [✓] icon indicates that the particular application is already imported to your enterprise.
   - An arrow [⭳] icon indicates that this application is not yet imported to your enterprise.
5. Click on the App tile you want to import. A detailed view of that edge application displays.

Figure 3-2: Select App



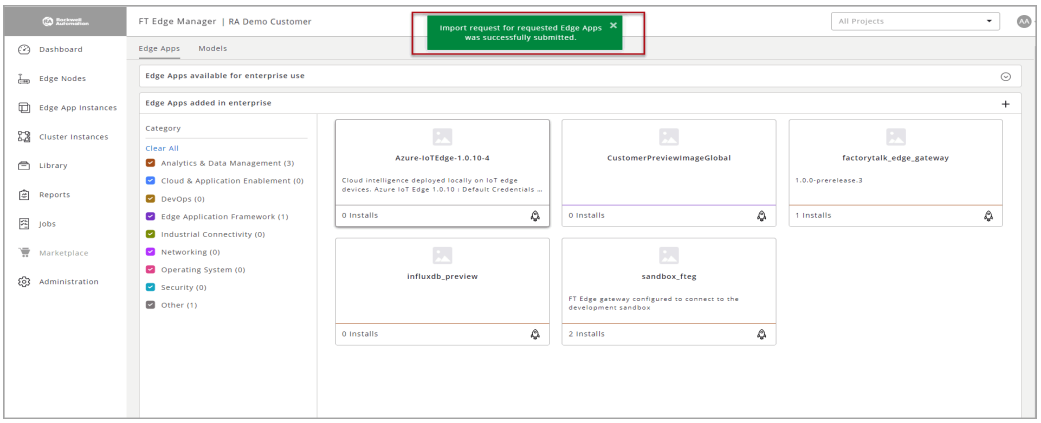
6. Click [Import Edge App].

Figure 3-3: Import App



The "*Import request for requested Edge Apps was successfully submitted.*" message displays and app is imported to private marketplace.

Figure 3-4: Import App



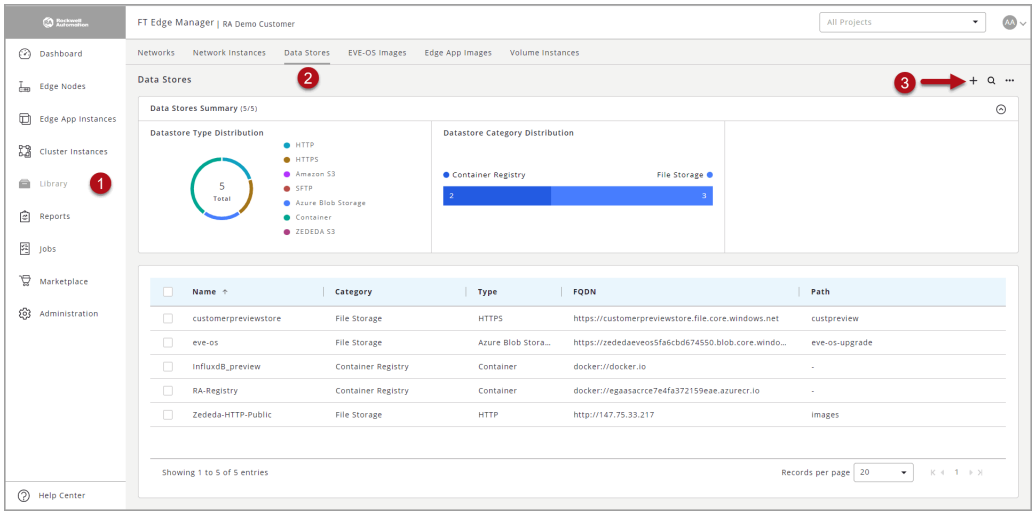
Add Data Store

Data Store captures the location where you want the device to get the binary application images. It can be hosted anywhere (e.g., AWS, Azure, or native servers running HTTPS/SFTP, Containers).

Perform the following steps to add Data Store:

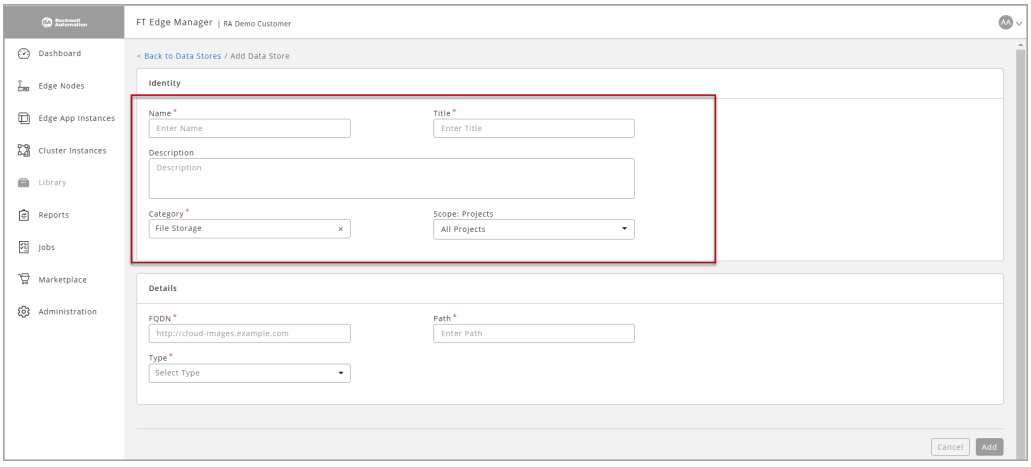
1. Click [Library] on the left navigation panel, go to the Data Stores tab and then click the [+] icon.

Figure 3-5: Data Stores



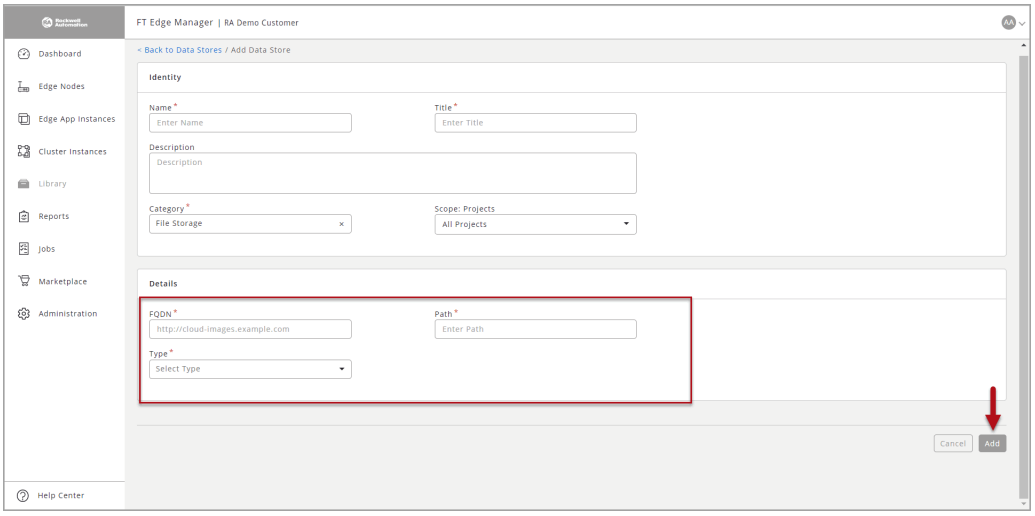
2. Provide the following details in the Identity section:
   - **Name**: Provide a unique name. This cannot be changed.
   - **Title**: This is user-defined and can be changed.
   - **Description**: Provide a explanation about Data Store.
   - **Category**: Select [File Storage] or [Container Registry].
   - **Scope: Projects:** Select the appropriate project from the drop-down list.

Figure 3-6: Identity Section



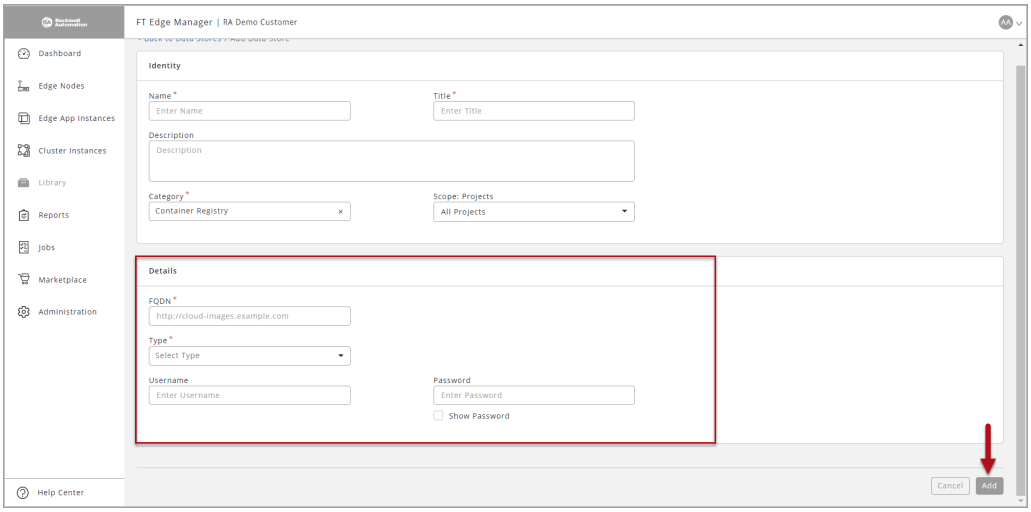
3. If you have selected the Category as [File Storage] in the Identity section, provide the following details in the Details section and the click [Add].
   - **FQDN**: Provide complete domain name for a specific computer, or host, on the internet. If you select SFTP as the 'Type' of Datastore, FQDN must be of '<IP>:<Port>' format. For example, 192.168.25.101:22 or 192.168.16.11:23456.
   - **Path**: Provide the path of the application image.
   - **Type**: Select one of the types from the drop-down list:
     - **HTTP**–Unsecured connection.
     - **HTTPS**–Secured connection. You can upload one or more certificates.
     - **Amazon S3**–You have to provide other details mentioned below.
     - **SFTP**–You have to provide other details mentioned below.
     - **Azure Blob Storage**–You must provide other details mentioned below.
   - **Username**: Provide the username. Applicable only when [SFTP] is selected as [Type].
   - **Password**: Provide the password. Applicable only when [SFTP] is selected as [Type].
   - **Region**: Provide the region. Applicable only when [Amazon S3] is selected as [Type].
   - **Access Key Id**: Provide the access key id. Applicably when either [Amazon S3] or [Azure Blob Storage] are selected as [Type].
   - **Secret Access Key**: Provide the access key id. Applicably when either [Amazon S3] or [Azure Blob Storage] are selected as [Type].

Figure 3-7: File Storage



4. If you have selected the Category as [Container Registry] in the Identity section, provide the following details in the Details section and the click [Add].
   - Category: Select [Container Registry].
   - Projects: Select the appropriate project from the drop-down list.
   - FQDN: The complete domain name for a specific computer, or host, on the internet.
     - For the docker registry, FQDN is docker://docker.io
     - For the Azure container registry, FQDN is zedcontrolapiteststore.azurecr.io,
     - For the Google container registry, FQDN is docker://gcr.io
     - For the GitHub container registry, FQDN is docker://ghcr.io
   - Type: Select [Container].
   - Username: Provide the username and password for the Azure container registry are different than regular docker hub credentials. You need to get them from the access keys.
   - Password: Provide the password.

Figure 3-8: Container Registry



5. A success message displays and the new Data Store is added in the Data Store list.

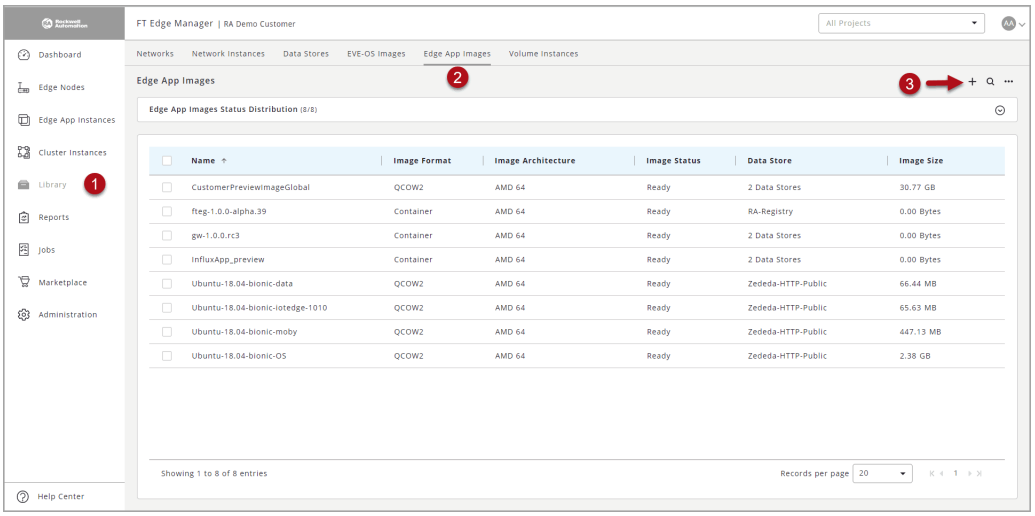
Add Edge App Image

An Application Image is binary data stored in one of the Data Stores along with its meta-data such as size, format, architecture, etc.

Perform the following steps to add Edge App Image:

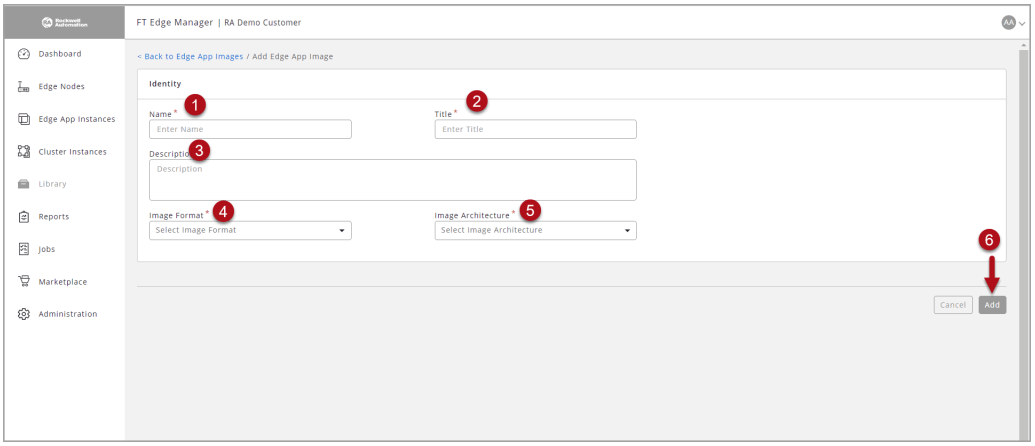
1. Click [Library] on the left navigation panel, go to the [Edge App Images] tab and then click the [+] icon.

Figure 3-9: Add Edge App Image



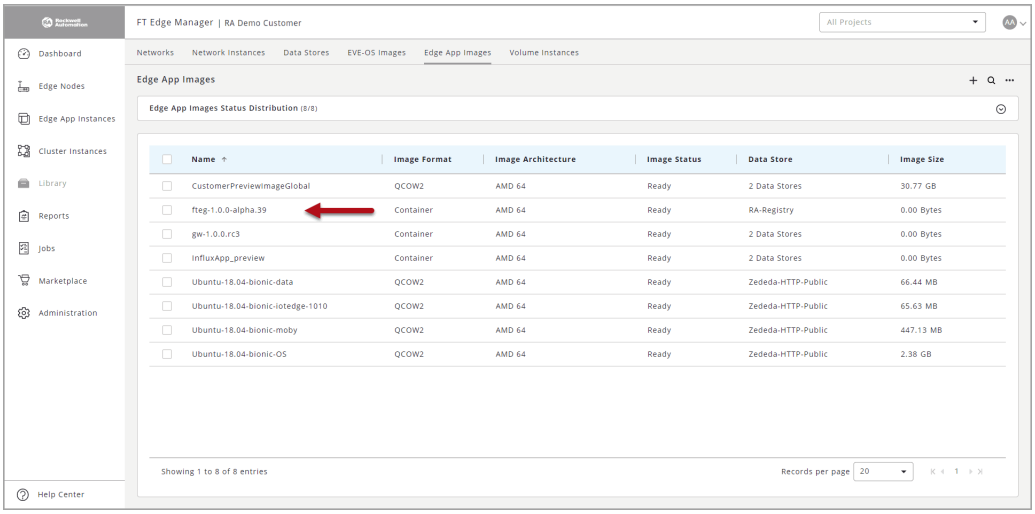
2. Provide the following details in the Identity section and click [Add].
   - **Name**: Provide a unique name.
   - **Title**: Provide a unique title. This can be changed.
   - **Description**: Provide a detailed explanation about application image.
   - **Image Format**: Select the Image format from the drop-down list.
   - **Image Architecture**: Select the Image Architecture from the drop-down list.

Figure 3-10: Identity Section



3. A success message displays and the Edge App Image is added to the Edge App Images list.

Figure 3-11: Edge App Image List



Create Your Application

You can create three types of Edge Apps on FT Edge Maneger.

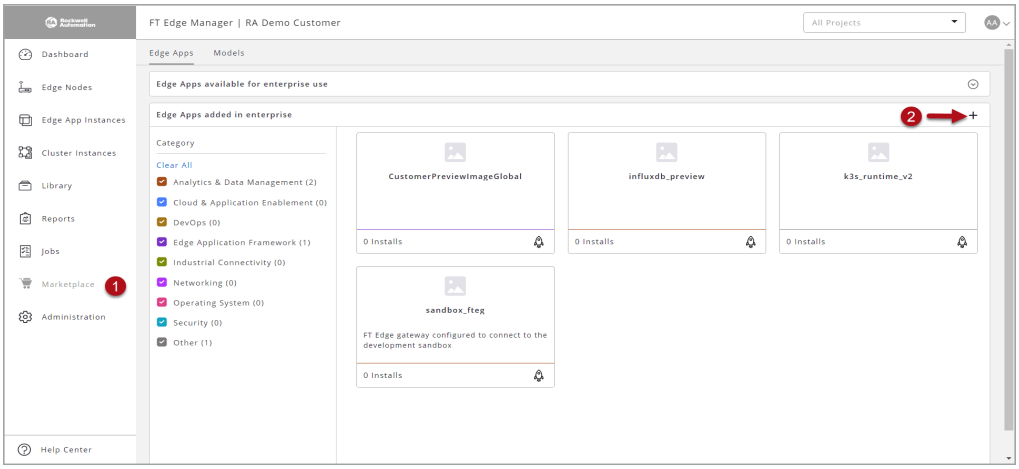
- Container
- Virtual Machine
- Modules

Container

Perform the following steps to create a Container type Edge Application:

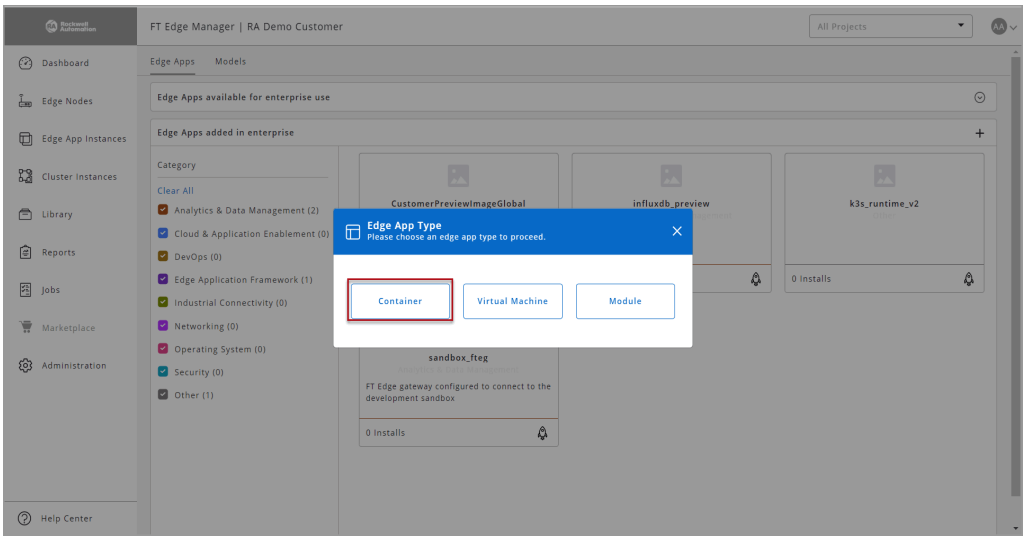
1. Click [Marketplace] on the left navigation panel and Click the Add [+] icon.

Figure 3-12: Add App



2. The Edge App Type dialog displays, click [Container].

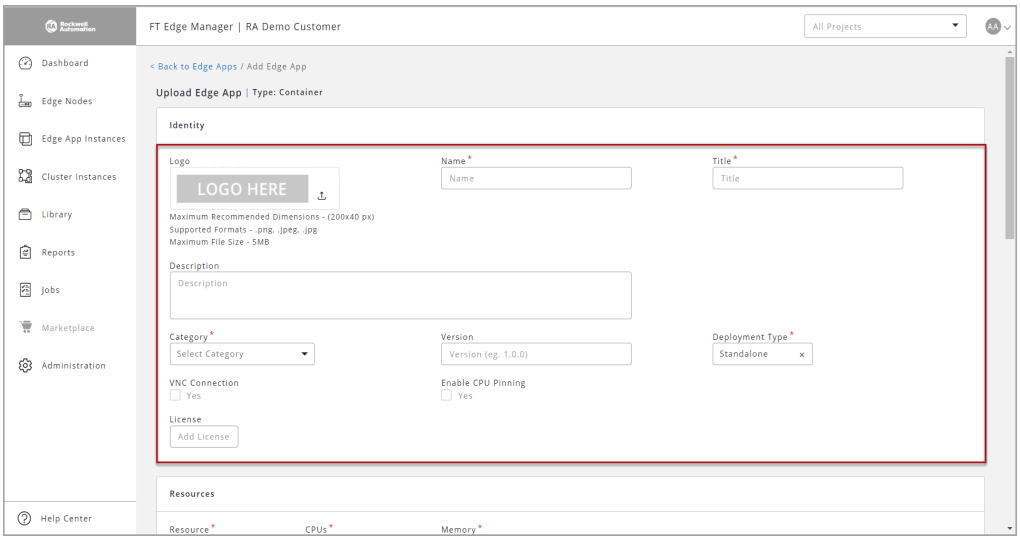
Figure 3-13: Select Edge App Type



3. Provide the following details in the Identity section:

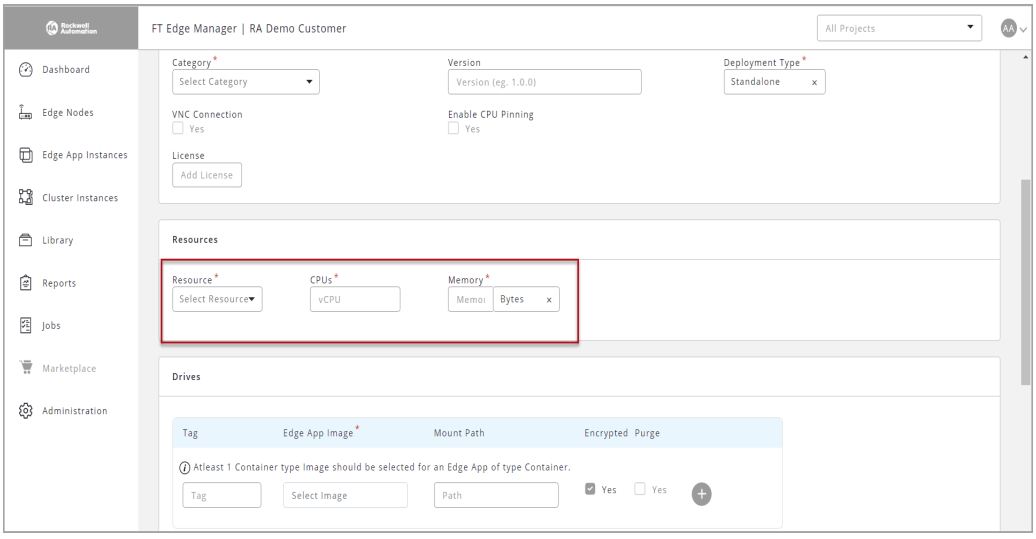
- **Logo**: You can upload the logo as per the suggested recommendations and formats.
- **Name**: Provide a unique name. This cannot be changed.
- **Title**: Provide a unique title. This can be changed.
- **Description**: Provide a detailed explanation about the edge application.
- **Category**: Classification of the edge application can be one of Cloud Gateway, End Application, Infrastructure, Network Gateway, Operating System, Runtime, or Others.
- **Version**: Provide the version for your edge application.
- **Deployment Type**: Choose the deployment type from the drop-down list.
- **License**: Choose from a list of commonly used licenses by developers to release their work or provide a custom license by way of pointing to an existing location or uploading a file.
- **VNC Connection**: This option should be enabled if you want to allow end-users of the edge application to access the instance directly through a VNC connection (users will have to be in the same network as the edge node). Alternately if enabled, the edge application Instance can be accessed through a Remote Console connection from within the FactoryTalk Edge Manager.

Figure 3-14: Identity Section



4. Provide the following details in the Resources section:
   - **Resource**: Provide the resource requirements.
   - **CPU:** Provide the number of virtual CPUs required by the edge application.
   - **Memory:** Provide the virtual memory requirements of the edge application.

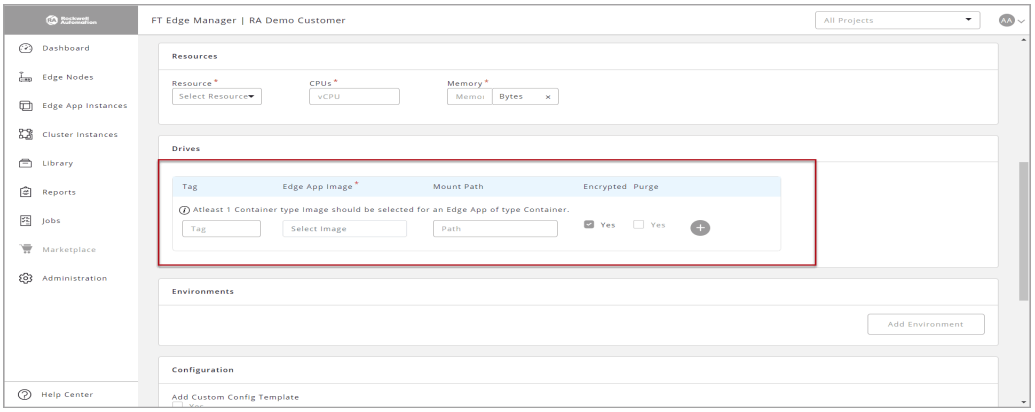
Figure 3-15: Resources Section



5. Provide the following details in the Drives section:
   - **Scope Projects:** Select the Project from the drop-down list.
   - **App Image:** Select an existing App Image that is already registered with FT Edge by way of uploading the actual file or uplinking to an existing location.

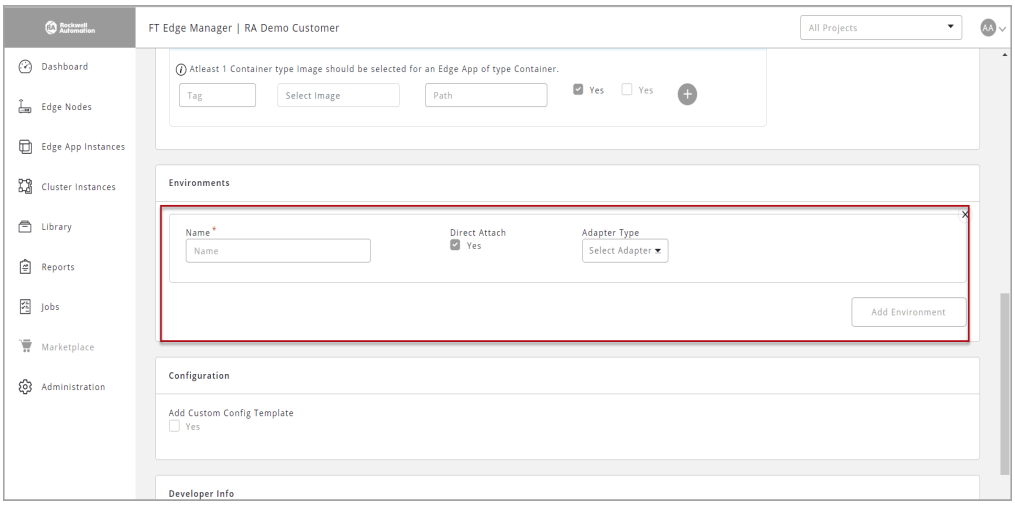
- **Tag:** This is an optional identifier used to choose preferred volume instances for deployments.
- **Mount Path:** The mount path provided in the application manifest is mounted on that directory and also created under the '/eve/volumes/uuid' path inside the application instance. Generally, the mount path is not provided for the root disc. it is specified for the data disc. If a path is specified, the volume gets mounted on that path inside the application instance. All volumes are created inside the 'persist/vault/' directory or 'persist/clear/' directory and the mount points specified by the user in the application specify where the user needs the volume inside the instance.
- **Encrypted:** Select the checkbox to encrypt the data and store under the 'persist/vault/' path and/or the path provided. Note that Edge Operating System (Edge OS) supports per folder encryption.
- **Purge:** Purge is a method of discarding accumulated information. An application bundle has a root disc and may have multiple volumes. Generally, only the root disc is purged, when the data needs to be preserved and not discarded. If the purge checkbox is checked, the next time when user purges their application instance, the root disc is purged along with the specified volumes.

Figure 3-16: Drives Section



6. Provide the following details in the Environments section:
   - **Name:** Provide name of the environment.
   - **Direct Attach:** Select the checkbox, if you want to use the hardware resource directly.

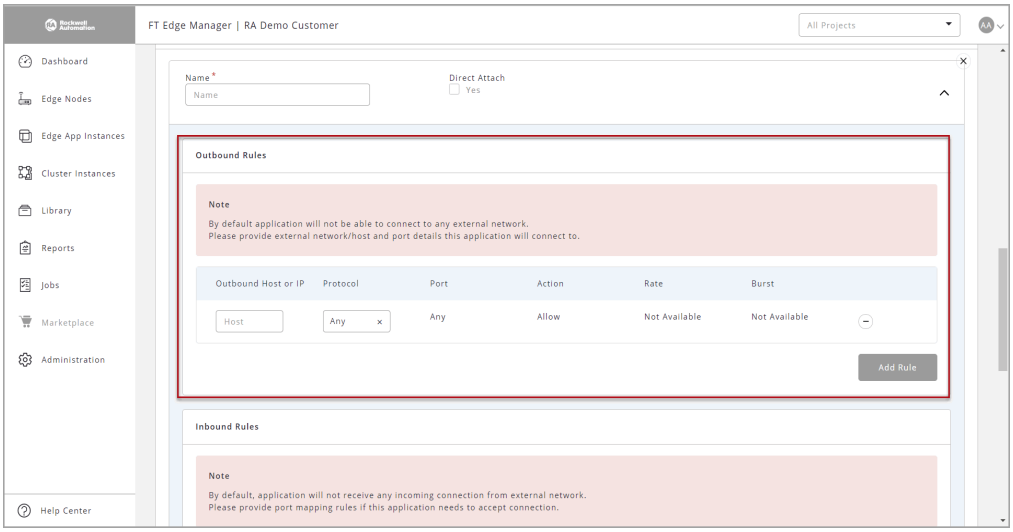
Figure 3-17: Environments Section



NOTE: Skip Steps 8 and 9, if you have selected Direct Attach checkbox.

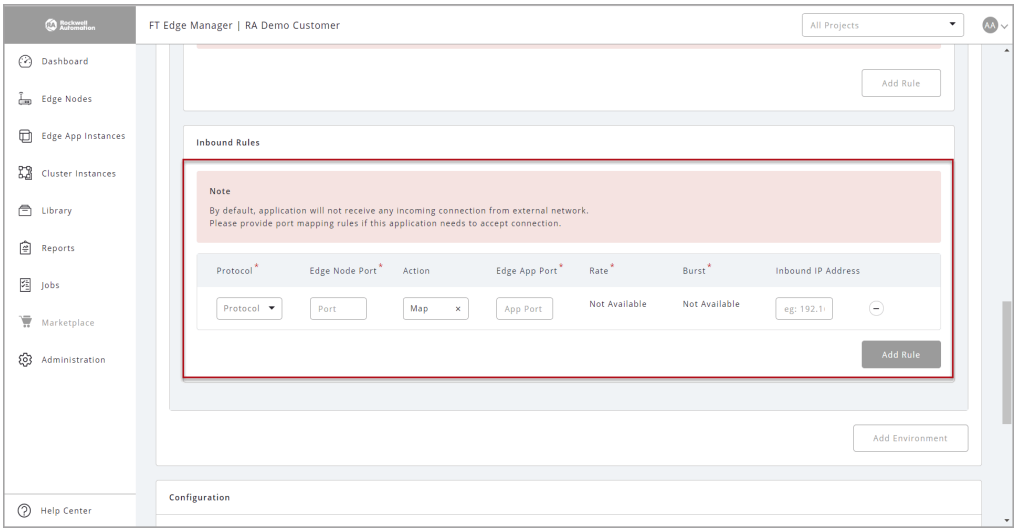
7. Provide the following details in the Outbound Rules section:
   - **Outbound Host or IP:** Provide hostname or valid IP Address.
   - **Protocol:** Select [Any], [TCP], or [UDP] from the drop-down list.
   - **Port:** Provide the port details or select from the drop-down list.
   - **Action:** Select [Allow] or [Limit].
   - **Rate:** If you have selected the Action as [Limit], then provide the Rate value.
   - **Burst:** If you have selected the Action as [Limit], then provide the Burst value.

Figure 3-18: Outbound Rules Section



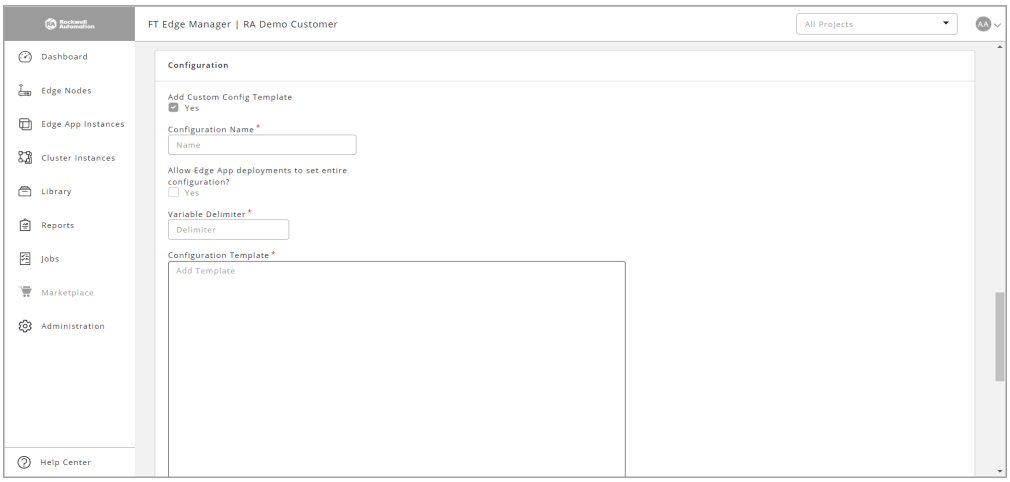
8. Provide the following details in the Inbound Rules section:
   - **Protocol:** Select [TCP] or [UDP] from the drop-down list.
   - **Edge Node Port:** Select [Any] from the drop-down list or provide customized value.
   - **Action:** Select [Map] or [Limit] from the drop-down list.
   - **Edge App Port:** If you have selected Action as [Map] then provide the application port number.
   - **Rate:** If you have selected the Action as [Limit] then provide the Rate value.
   - **Burst:** If you have selected the Action as [Limit], then provide the Burst value.
   - **Inbound IP Address**: Provide a valid IP address.

Figure 3-19: Inbound Rules Section



9. If you want to add a custom configuration template, select the [Add Custom Config Template] checkbox and provide the following details:
   - **Configuration Name:** Provide an alphanumeric name.
   - **Allow Edge App Instances to override entire config:** Select accordingly.
   - **Allow Storage Resize:** Select accordingly.
   - **Variable Delimiter:** Provide a sequence of characters that helps identify variables in the template.
   - **Configuration Template:** Paste the configuration template in the box.

Figure 3-20: Configuration Section

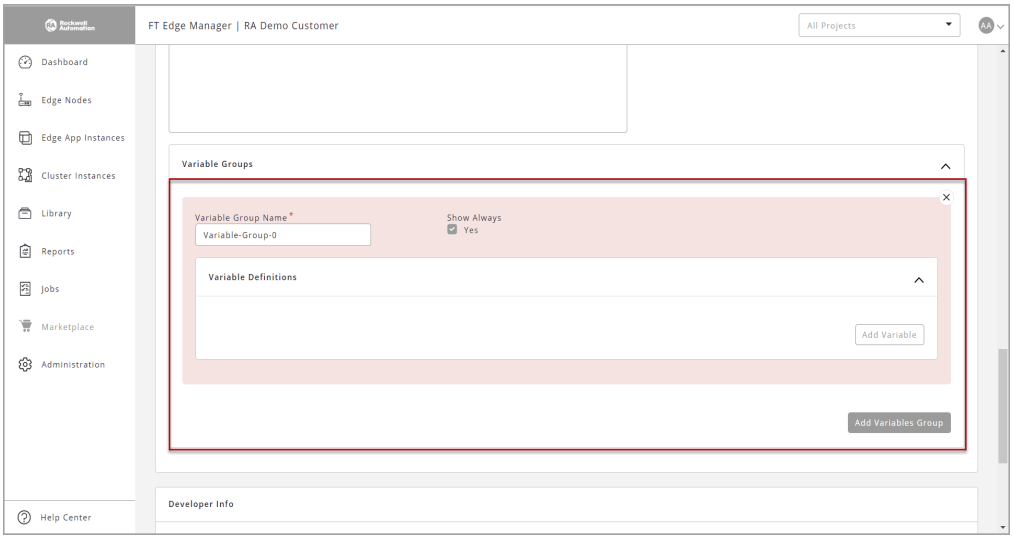


10. Provide the following details in the Variables Group section:

- **Variable Group Name:** Provide a suitable name for the variable group.
- **Show Always:** This checkbox is checked by default.
- **Show If:** This parameter needs to have details of the rendering group variables accordingly.

NOTE: You can uncheck the [Show Always] checkbox to see the 'Show If' parameter being displayed. You can then select the variable along with the operator and appropriate value.

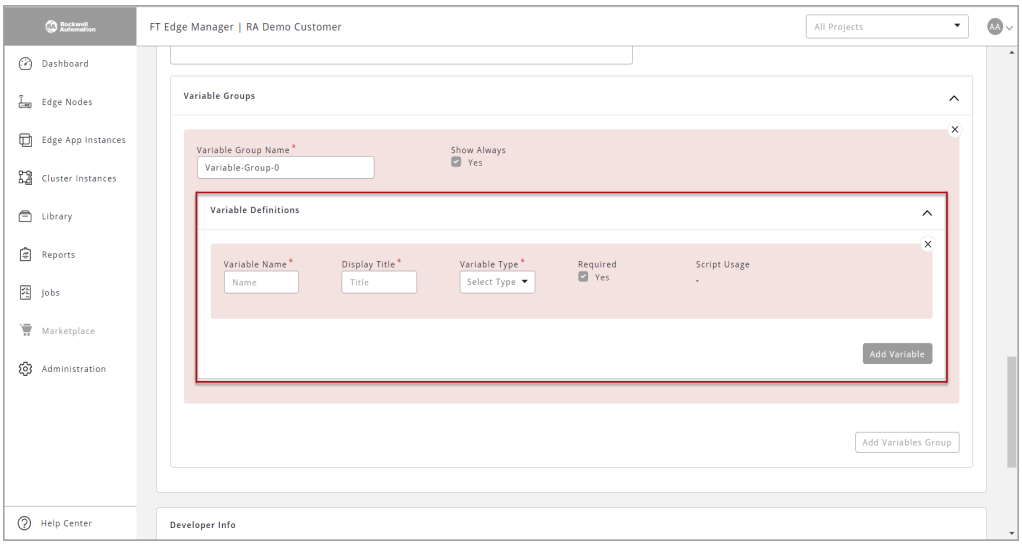
Figure 3-21: Variables Section



11. To add a custom variable, click [Add Variable] and provide the following details:

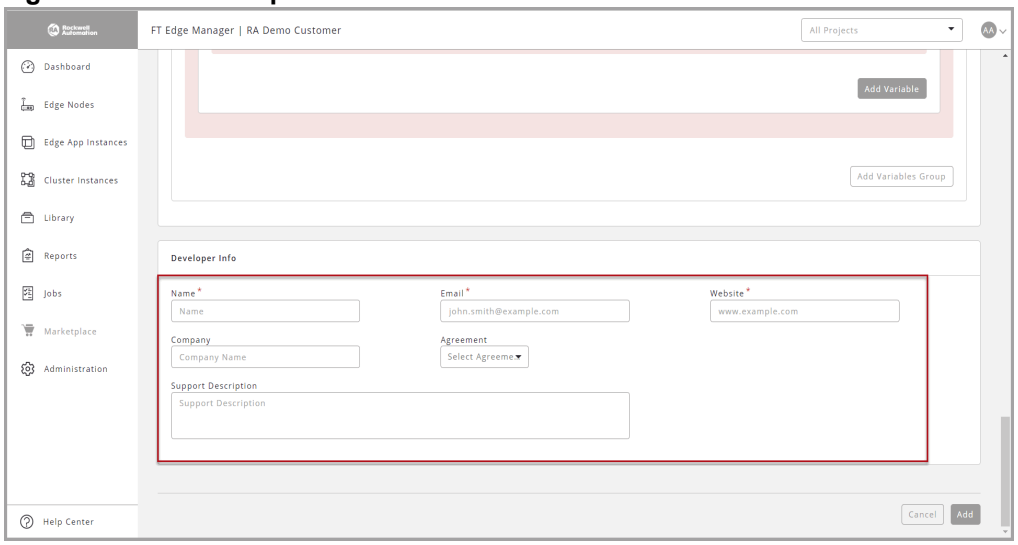
- **Variable Name:** Provide a suitable name for the variable group.
- **Display Title**: Provide the title you want to be displayed.
- **Variable Type**: Select a Variable Type from the drop-down list.

Figure 3-22: Add Variable



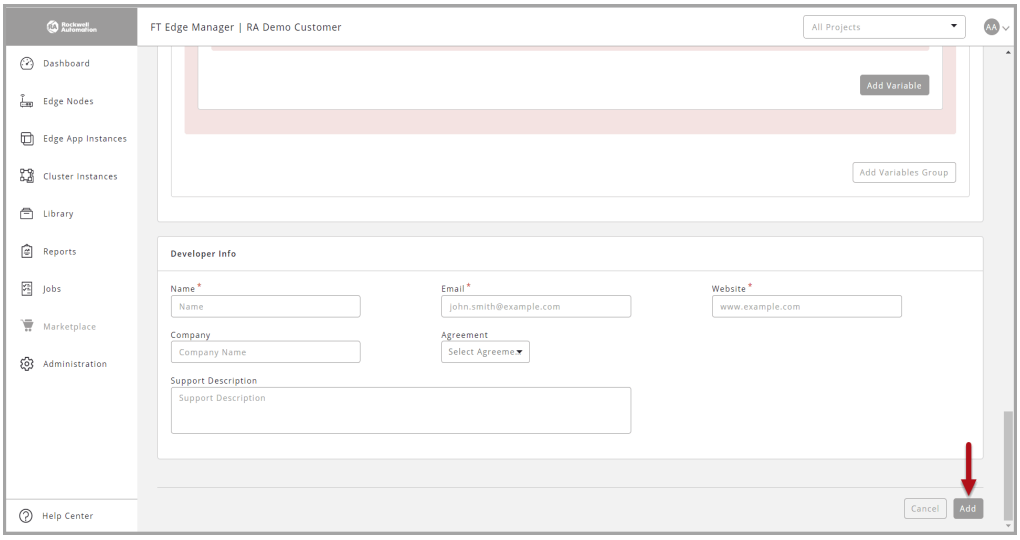
12. Provide the following details in the Developer Info section:
    - **Name**: Provide the Developer name.
    - **Email:** Provide Developer email**.**
    - **Website**: Provide Developer website.
    - **Agreement**: The developer can share specific agreements with services offered or standards complied.
    - **Developer Description**: Details about the developer like the different types of development work carried out etc.
    - **Support Description**: Specific instructions or contact details for support.

Figure 3-23: Developer Info



13. Click [Add].

Figure 3-24: Add



14. After the edge application is added, it appears on the Marketplace screen.

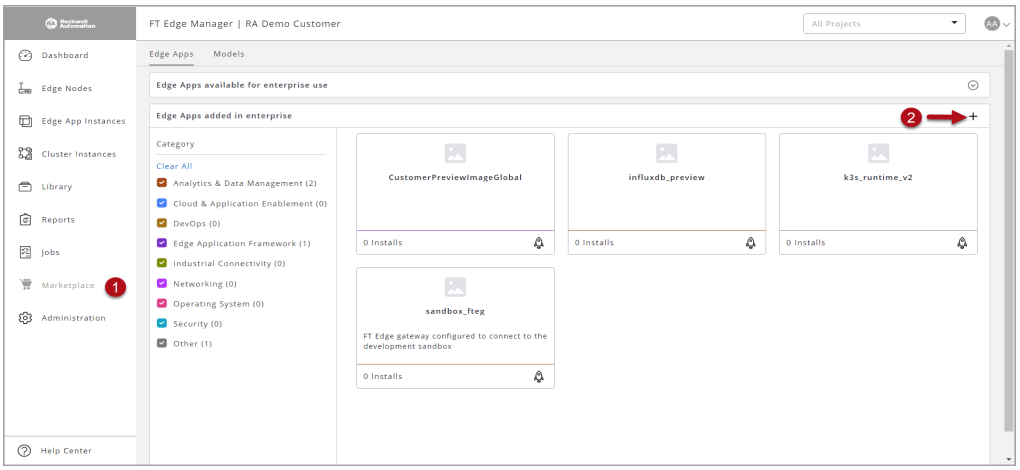
Virtual Machine

Perform the following steps to create a Virtual Machine (VM) type Edge Application:

1. Click [Marketplace] on the left navigation panel.

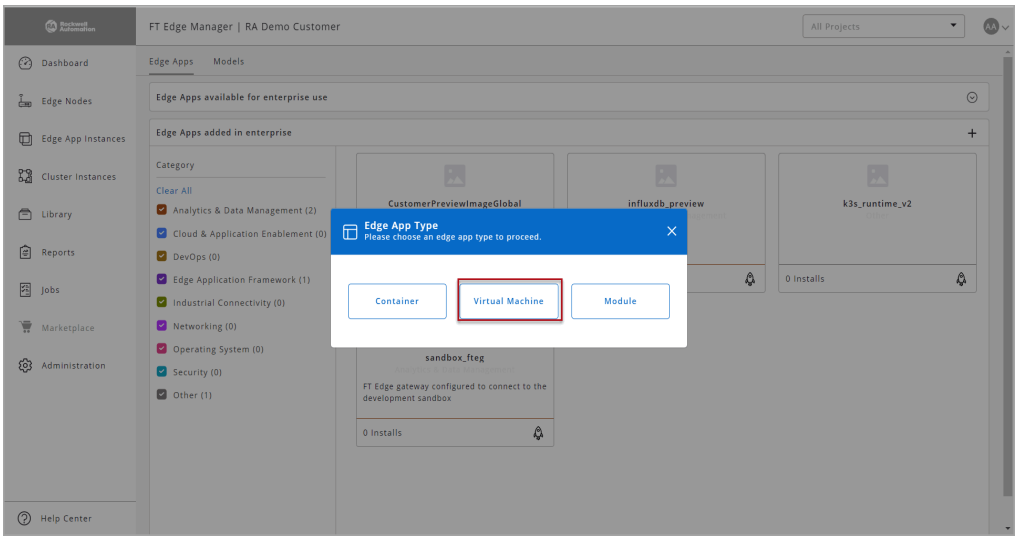
2. Click the Add [+] icon on the top right corner.

Figure 3-25: Add App



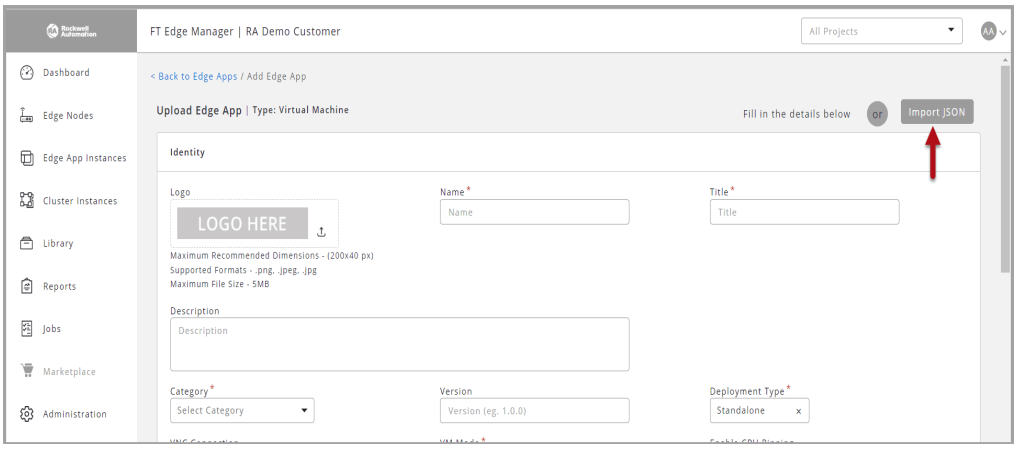
3. The Edge App Type dialog, click [Virtual Machine].

Figure 3-26: Virtual Machine Type



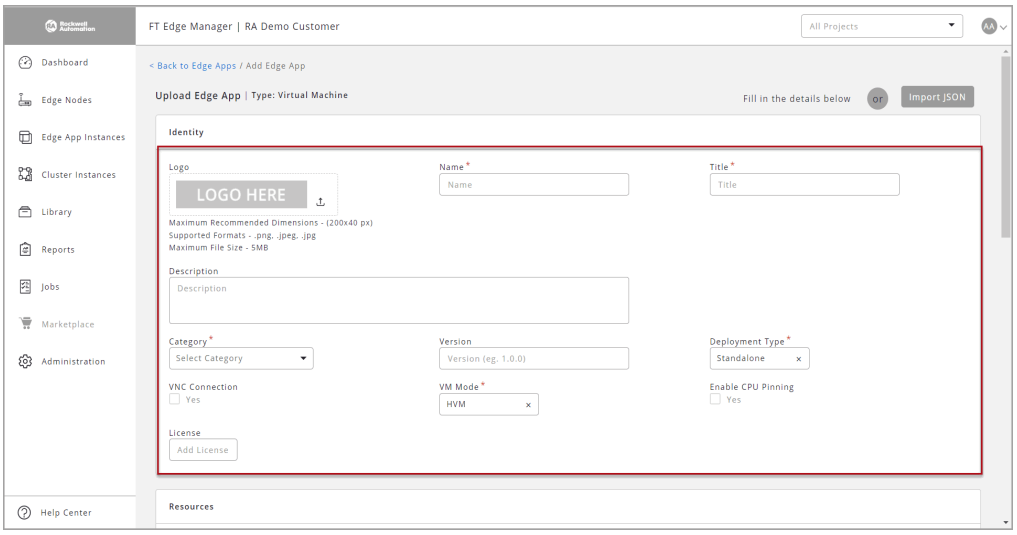
IMPORTANT: You can click [Import JSON] to import the parameters.

Figure 3-27: Import JSON



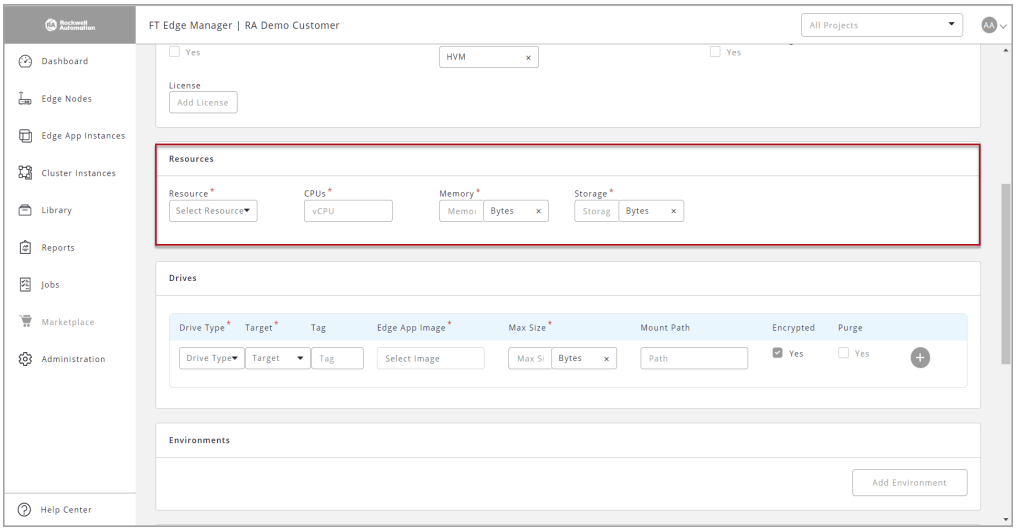
4. Provide the following details in the Identity section:
   - **Logo**: You can upload the logo as per the suggested recommendations and formats.
   - **Name**: Provide a unique name. This cannot be changed.
   - **Title**: Provide a unique title. This can be changed.
   - **Description**: Provide a detailed explanation about the edge application.
   - **Category**: Classification of the edge application can be one of Cloud Gateway, End Application, Infrastructure, Network Gateway, Operating System, Runtime, or Others.
   - **Version**: Provide the version for your edge application.
   - **Deployment Type**: Choose the deployment type from the drop-down list.
   - **License**: Choose from a list of commonly used licenses by developers to release their work or provide a custom license by way of pointing to an existing location or uploading a file.
   - **VNC Connection**: This option should be enabled if you want to allow end-users of the edge application to access the instance directly through a VNC connection (users will have to be in the same network as the edge node). Alternately if enabled, the edge application Instance can be accessed through a Remote Console connection from within the UI.
   - **VM Mode**: Select one of the supported virtualization modes from the drop-down list.

Figure 3-28: Identity Section



5. Provide the following details in the Resources section:
   - **Resource**: Provide the resource requirements.
   - **CPU:** Provide the number of virtual CPU's required by the edge application.
   - **Memory:** Provide the virtual memory requirements of the edge application.
   - **Storage:** Provide the virtual storage requirements of the edge application.

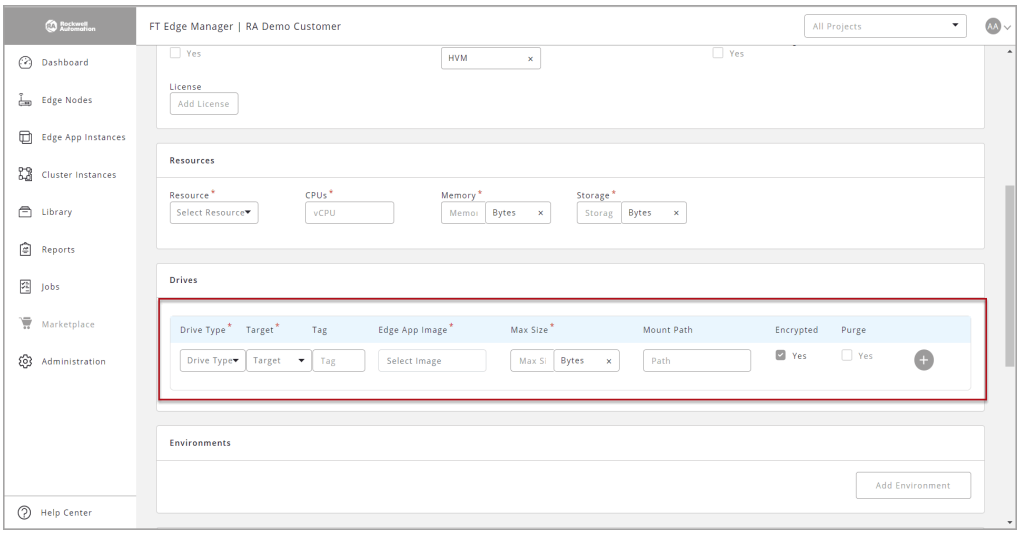
Figure 3-29: Resources Section



6. Provide the following details in the Drives section:
   - **Scope Projects:** Select the Project from the drop-down list.
   - **Drive Type:** Select the type of drive from the drop-down list.

- **Target:** Select the target usage from the drop-down list.
- **App Image:** Select an existing App Image that is already registered with FT Edge by way of uploading the actual file or uplinking to an existing location.
- **Tag:** This is an optional identifier used to choose preferred volume instances for deployments. Volume tags can contain alphabets, numbers, and special characters only.
- **Mount Path:** The mount path provided in the application manifest is mounted on that directory and also created under the '/eve/volumes/uuid' path inside the application instance. Generally, the mount path is not provided for the root disc. it is specified for the data disc. If a path is specified, the volume gets mounted on that path inside the application instance. All volumes are created inside the 'persist/vault/' directory or 'persist/clear/' directory and the mount points specified by the user in the application specify where the user needs the volume inside the instance.
- **Encrypted:** Select the checkbox to encrypt the data and store under the 'persist/vault/' path and/or the path provided. Note that Edge Operating System (Edge OS) supports per folder encryption.
- **Purge:** Purge is a method of discarding accumulated information. An application bundle has a root disc and may have multiple volumes. Generally, only the root disc is purged, when the data needs to be preserved and not discarded. If the purge checkbox is checked, the next time when user purges their application instance, the root disc is purged along with the specified volumes.

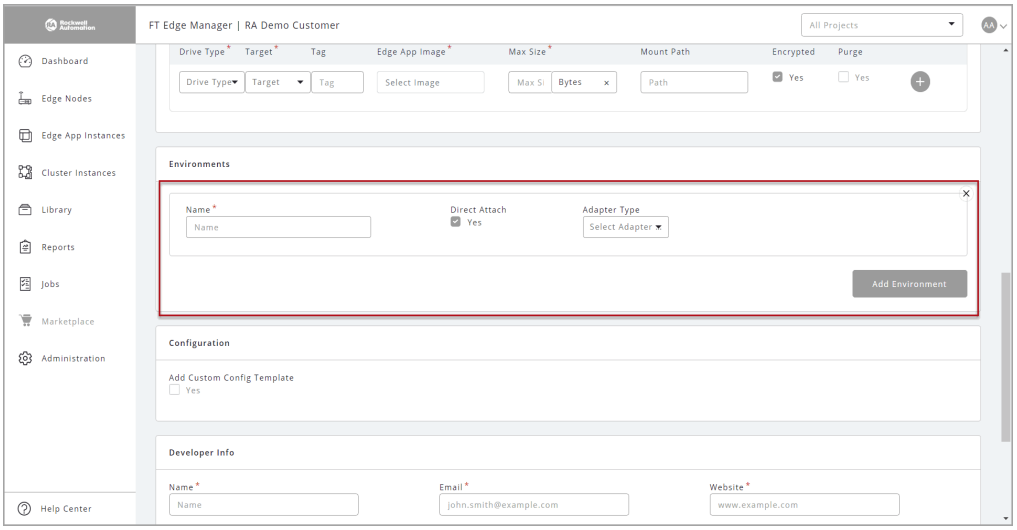
Figure 3-30: Drives Section



7. Provide the following details in the Environments section:
   - **Name:** Provide name of the environment.

- **Direct Attach:** Select the checkbox, if you want to use the hardware resource directly.
- **Adapter Type:** Select the Adapter Type from the drop-down list.

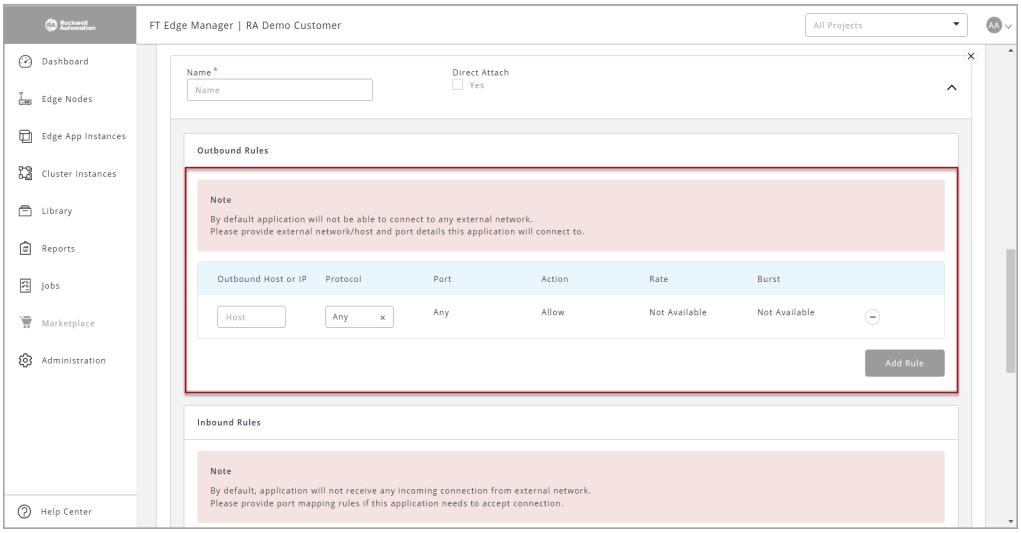
Figure 3-31: Environments Section



NOTE: Skip Steps 8 and 9, if you have selected the Direct Attach checkbox.

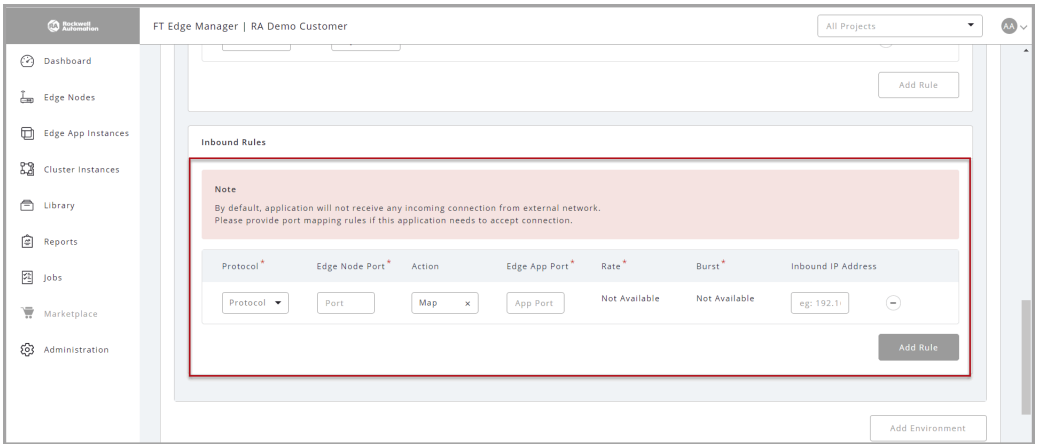
8. Provide the following details in the Outbound Rules section:
   - **Outbound Host or IP:** Provide hostname or valid IP Address.
   - **Protocol:** Select [Any], [TCP], or [UDP] from the drop-down list.
   - **Port:** Provide the port details or select from the drop-down list.
   - **Action:** Select [Allow] or [Limit].
   - **Rate:** If you have selected the Action as [Limit], then provide the Rate value.
   - **Burst:** If you have selected the Action as [Limit], then provide the Burst value.

Figure 3-32: Outbound Rules Section



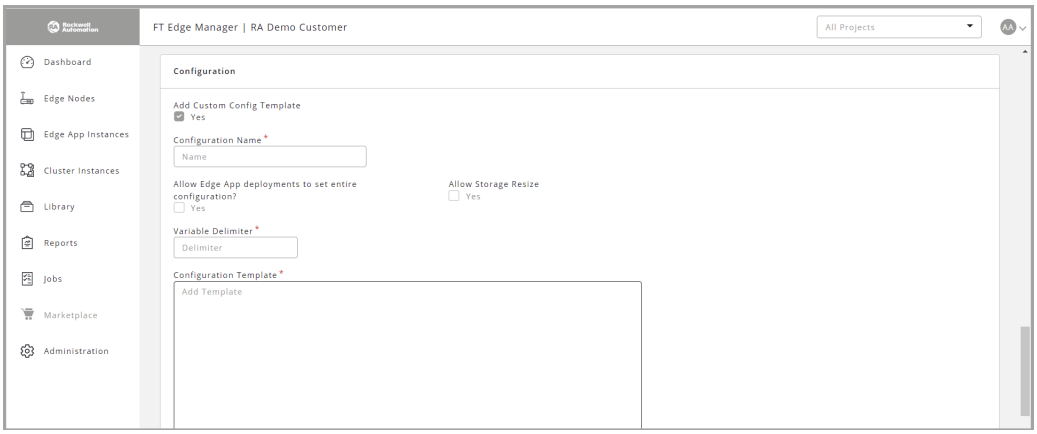
9. Provide the following details in the Inbound Rules section:
   - **Protocol:** Select [TCP] or [UDP] from the drop-down list.
   - **Edge Node Port:** Select [Any] from the drop-down list or provide customized value.
   - **Action:** Select [Map] or [Limit] from the drop-down list.
   - **Edge App Port:** If you have selected Action as [Map] then provide the application port number.
   - **Rate:** If you have selected the Action as [Limit] then provide the Rate value.
   - **Burst:** If you have selected the Action as [Limit], then provide the Burst value.
   - **Inbound IP Address**: Provide a valid IP address.

Figure 3-33: Inbound Rules Section



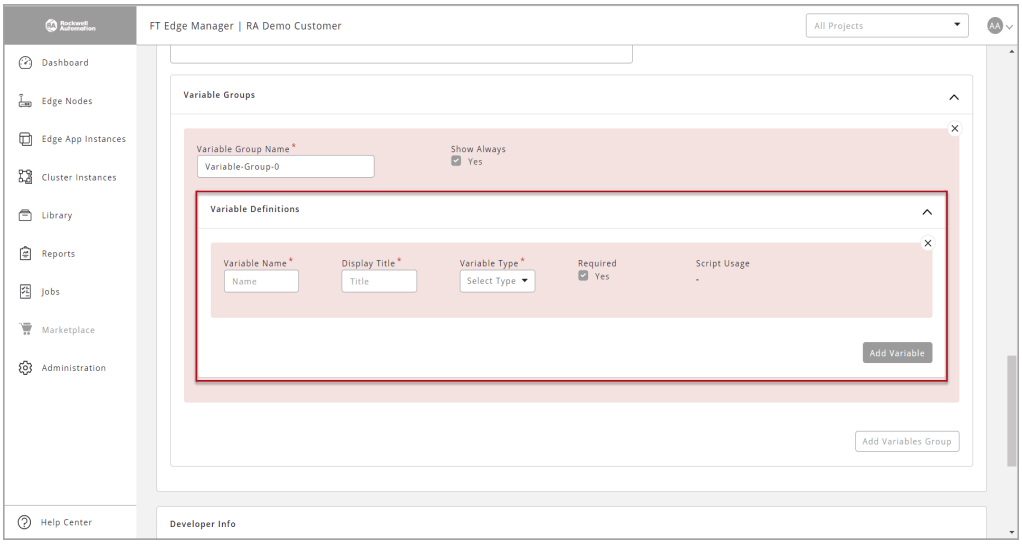
10. If you want to add a custom configuration template, select the [Add Custom Config Template] checkbox and provide the following details:
    - **Configuration Name:** Provide an alphanumeric name.
    - **Allow Edge App Instances to override entire config:** Select accordingly.
    - **Allow Storage Resize:** Select accordingly.
    - **Variable Delimiter:** Provide a sequence of characters that helps identify variables in the template.
    - **Configuration Template:** Paste the configuration template in the box.

Figure 3-34: Configuration Section



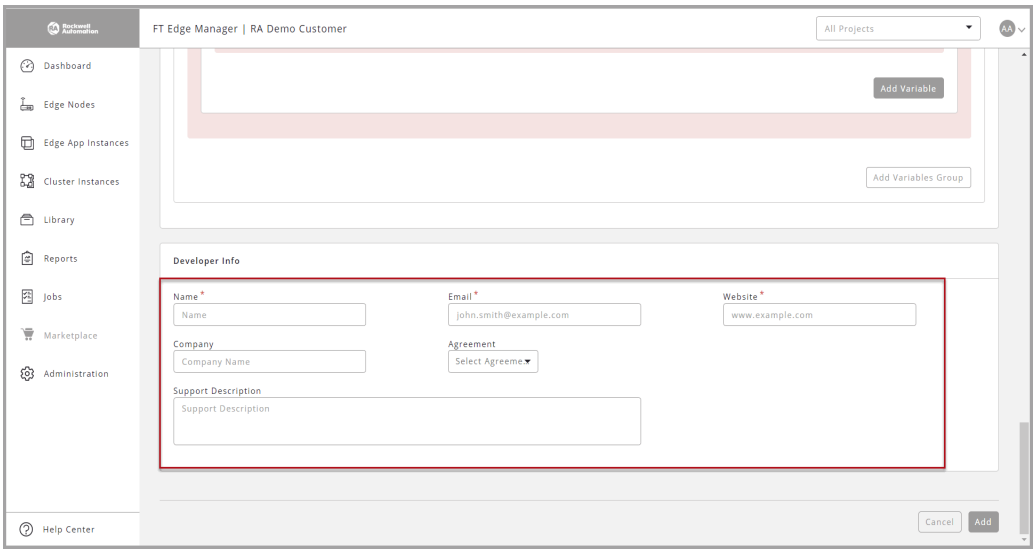
11. Provide the following details in the Variables Group section:
    - **Variable Group Name:** Provide a suitable name for the variable group.
    - **Show Always:** This checkbox is checked by default.
    - **Show If:** This parameter needs to have details of the rendering group variables accordingly.

Figure 3-35: Add Variable



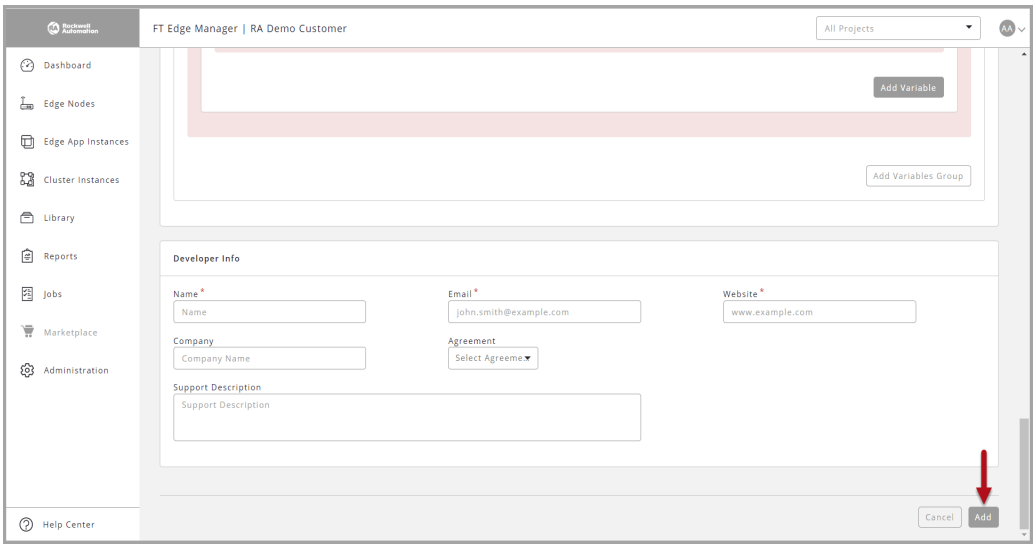
12. Provide the following details in the Developer Info section:
    - **Name**: Provide the Developer name.
    - **Email:** Provide Developer email**.**
    - **Website**: Provide Developer website.
    - **Agreement**: The developer can share specific agreements with services offered or standards complied.
    - **Developer Description**: Details about the developer like the different types of development work carried out etc.
    - **Support Description**: Specific instructions or contact details for support.

Figure 3-36: Developer Info



13. Click [Add].

Figure 3-37: Add



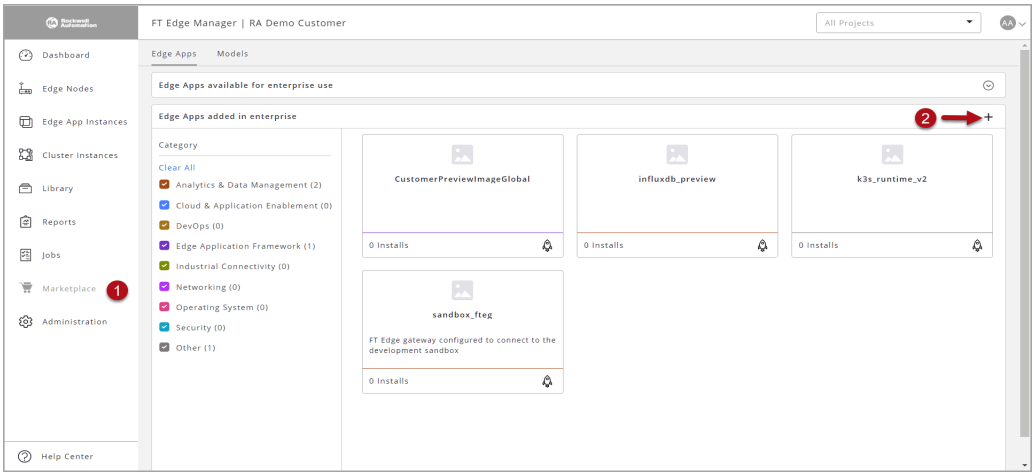
14. After the edge application is added, it appears on the Marketplace screen.

Module

Perform the following steps to create a Module type Edge Application:

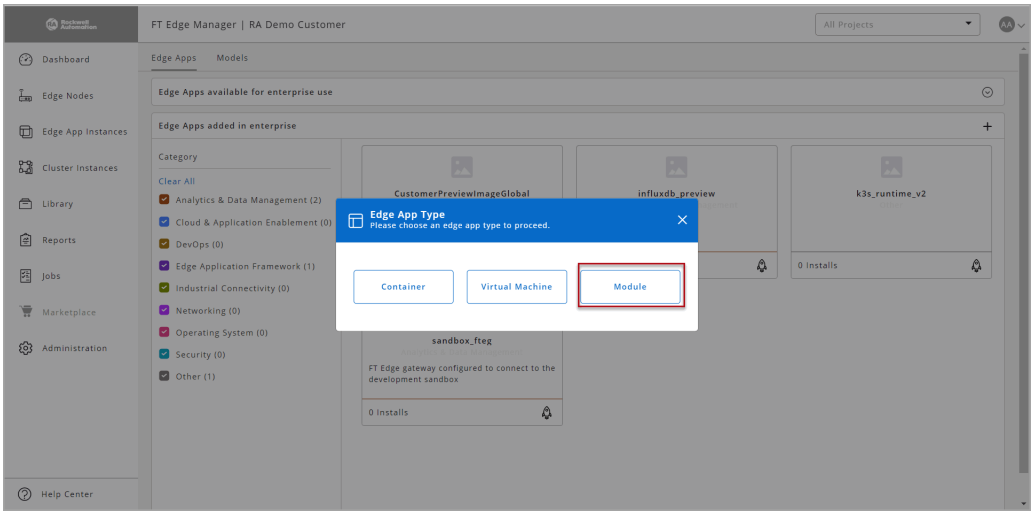
1. Click [Marketplace] on the left navigation panel.
2. Click the Add [+] icon on the top right corner.

Figure 3-38: Add App



3. The Edge App Type dialog, click [Module].

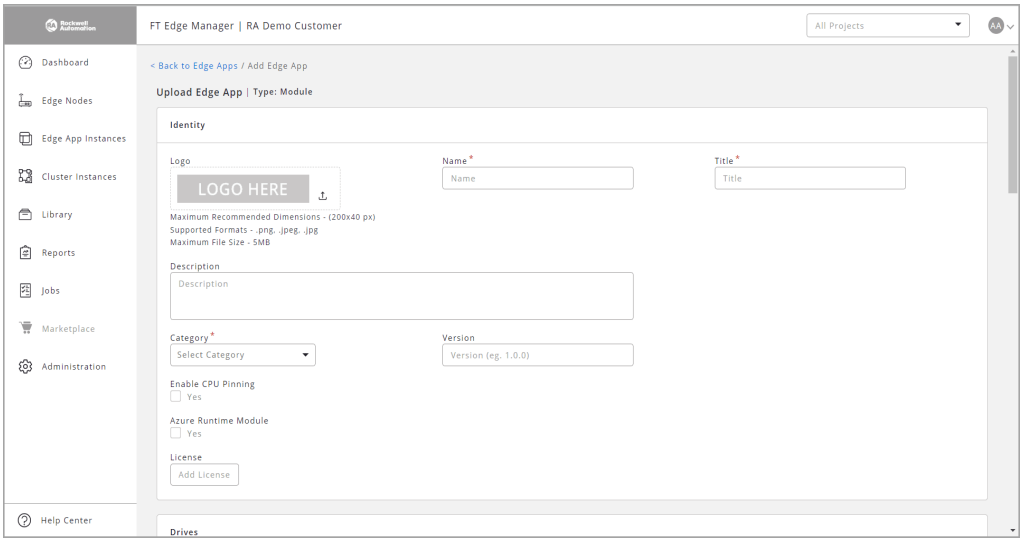
Figure 3-39: ModuleType



4. Provide the following details in the Identity section:
   - **Logo**: You can upload the logo as per the suggested recommendations and formats.
   - **Name**: Provide a unique name. This cannot be changed.
   - **Title**: Provide a unique title. This can be changed.

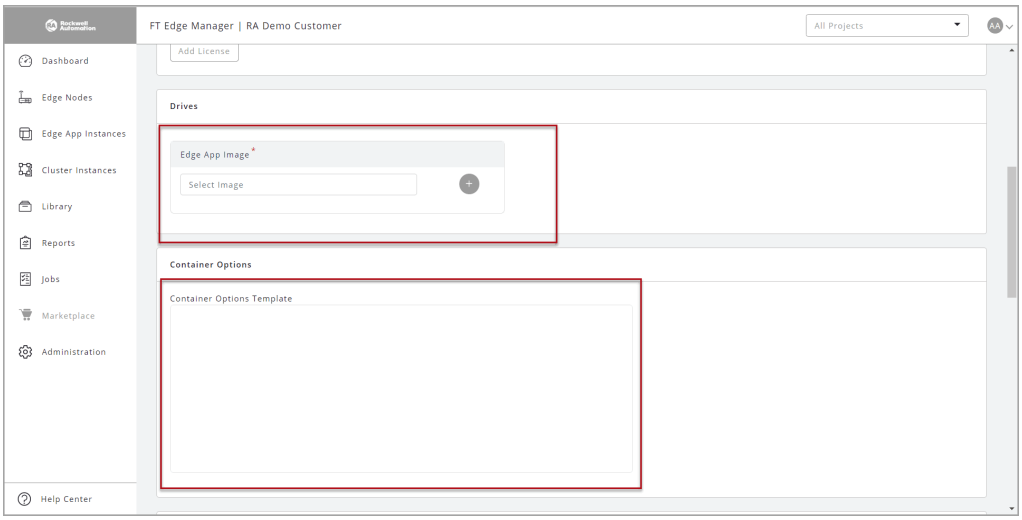
- **Description**: Provide a detailed explanation about the edge application.
- **Category**: Classification of the edge application can be one of Cloud Gateway, End Application, Infrastructure, Network Gateway, Operating System, Runtime, or Others.
- **Version**: Provide the version for your edge application.
- **License**: Choose from a list of commonly used licenses by developers to release their work or provide a custom license by way of pointing to an existing location or uploading a file.

Figure 3-40: Identity Section



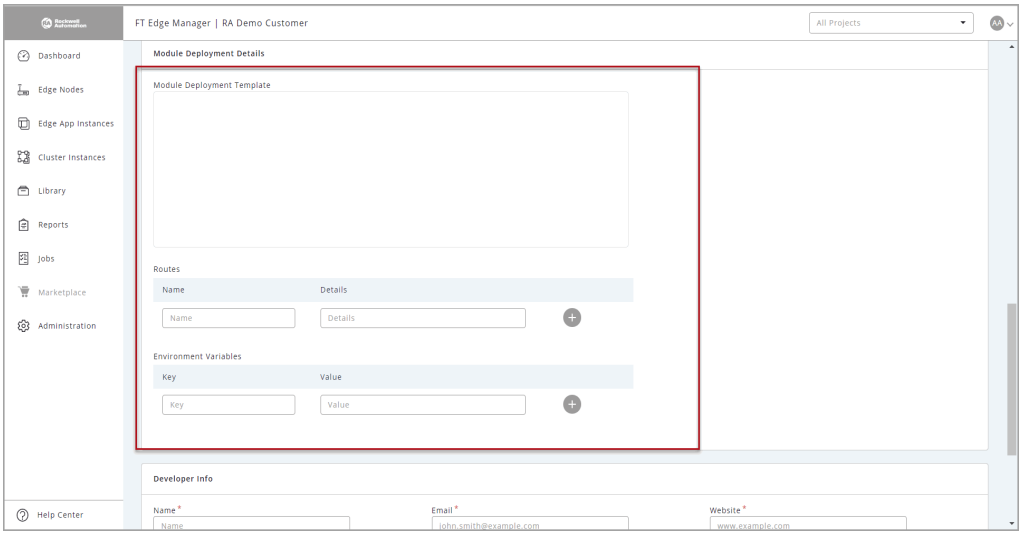
5. Provide the following details in the Drives and Container Options section:
   - **App Image**: Select an existing App Image that is already registered with FT Edge by way of uploading the actual file or uplinking to an existing location.
   - **Container Options**: This option enables you to configure the module containers at runtime and also expand your control over the modules and allow for tasks like allowing or restricting the module's access to the host device's resources or configuring networking.

Figure 3-41: Drives Section



6. Provide the following details in the Module Deployment Details section:
   - **Module Deployment Template**:
   - **Routes:** Provide the Name and details of the route.
   - **Environment Variables**: This provides supplemental information to a module to facilitate the configuration process.

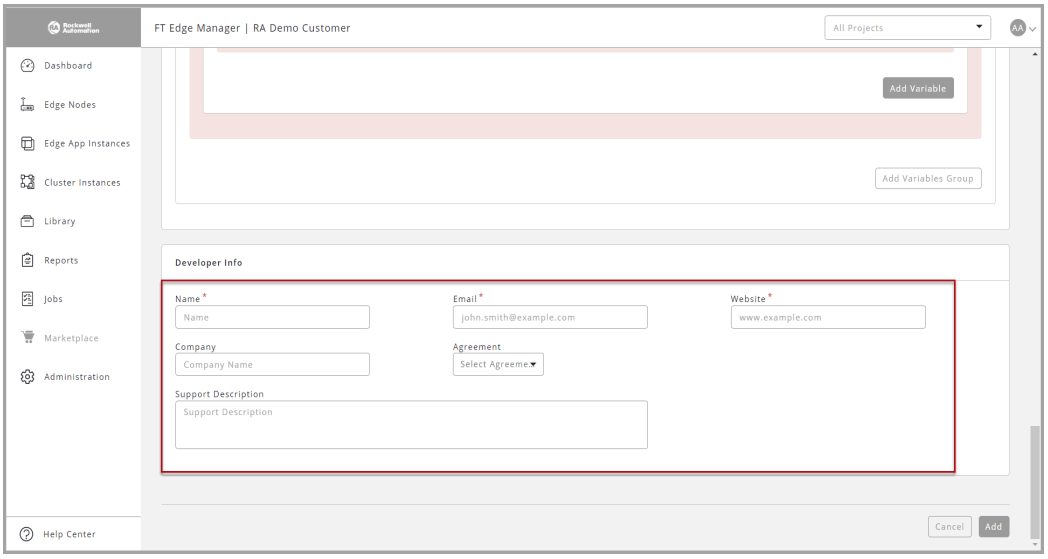
Figure 3-42: Module Deployment Details



7. Provide the following details in the Developer Info section:
   - **Name**: Provide the Developer name.
   - **Email:** Provide Developer email**.**
   - **Website**: Provide Developer website.
   - **Agreement**: The developer can share specific agreements with services offered or standards complied.

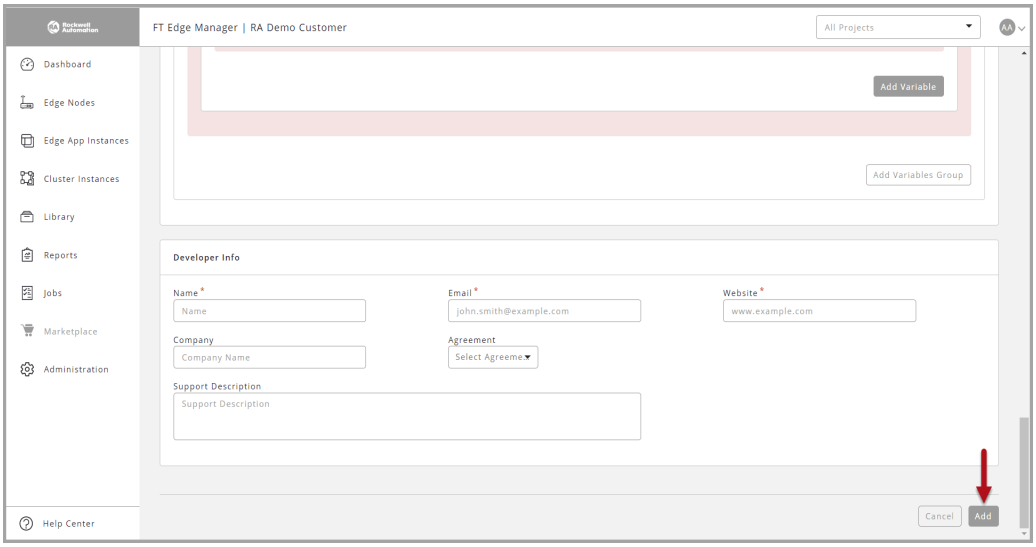
- **Developer Description**: Details about the developer like the different types of development work carried out etc.
- **Support Description**: Specific instructions or contact details for support.

Figure 3-43: Developer Info



8. Click [Add].

Figure 3-44: Add

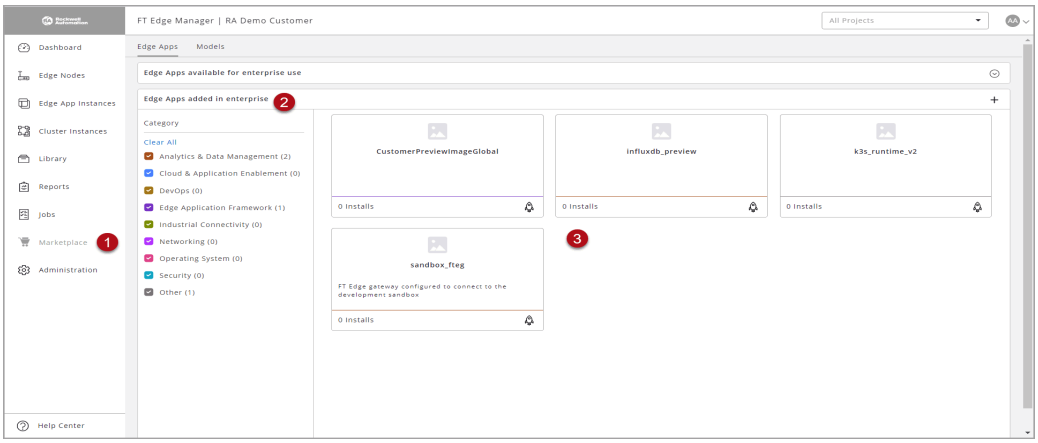


9. After the edge application is added, it appears on the Marketplace screen.

Deploy Edge App

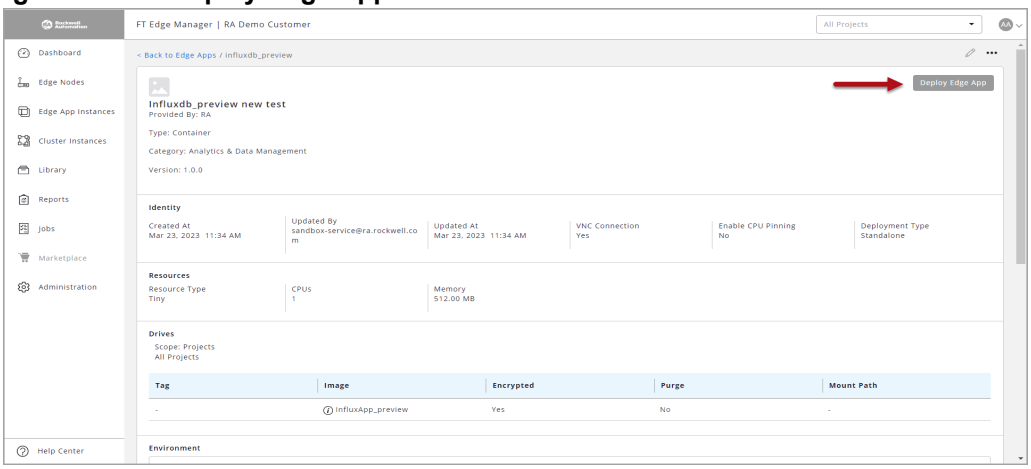
1. Go to the Edge Apps added in enterprise section (Private Marketplace) and click the app tile you want to deploy.

Figure 3-45: Select Edge App



2. Review the fields and click 'Deploy Edge App' to deploy the application.

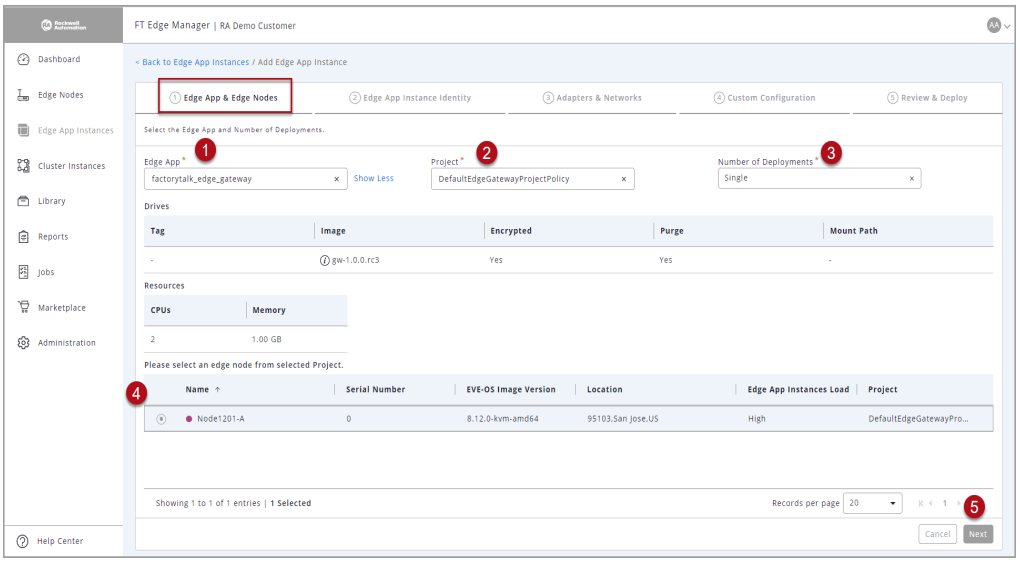
Figure 3-46: Deploy Edge App



3. The Add Edge App Instance page displays. On the Edge App & Edge Nodes tab, provide the following details and click Next.
   - **Edge App**: Select the Edge App from the drop-down list.
   - **Project**: Select the Project from the drop-down list.
   - **Number of Deployments**: Select [Single] for single deployment or [Multiple] for multiple deployment.
   - **Please select an edge node from selected Project**: Select the appropriate Edge Node(s).

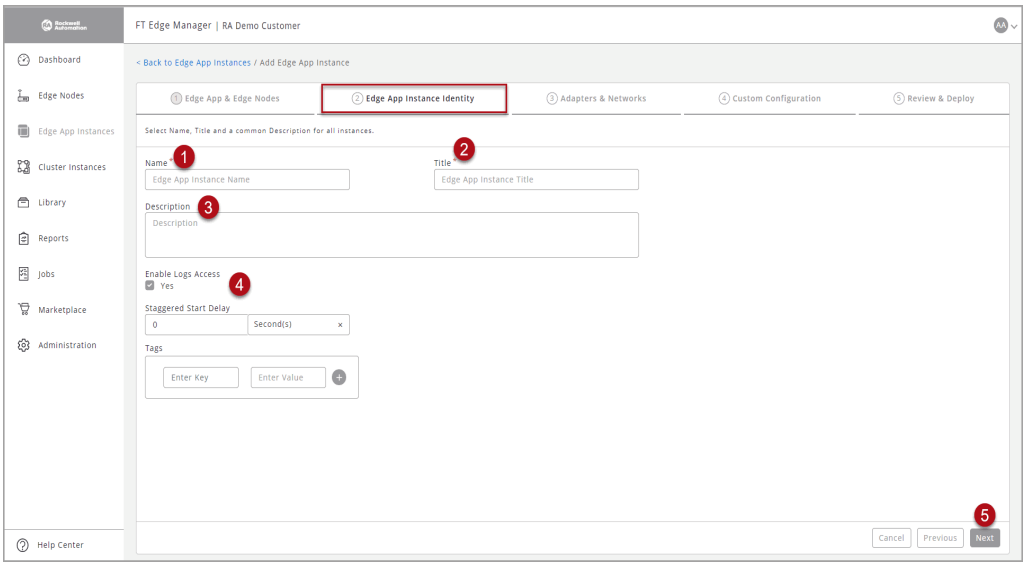
NOTE: The Edge Nodes will be filtered based on the selected Project.

Figure 3-47: Edge App Instance Details



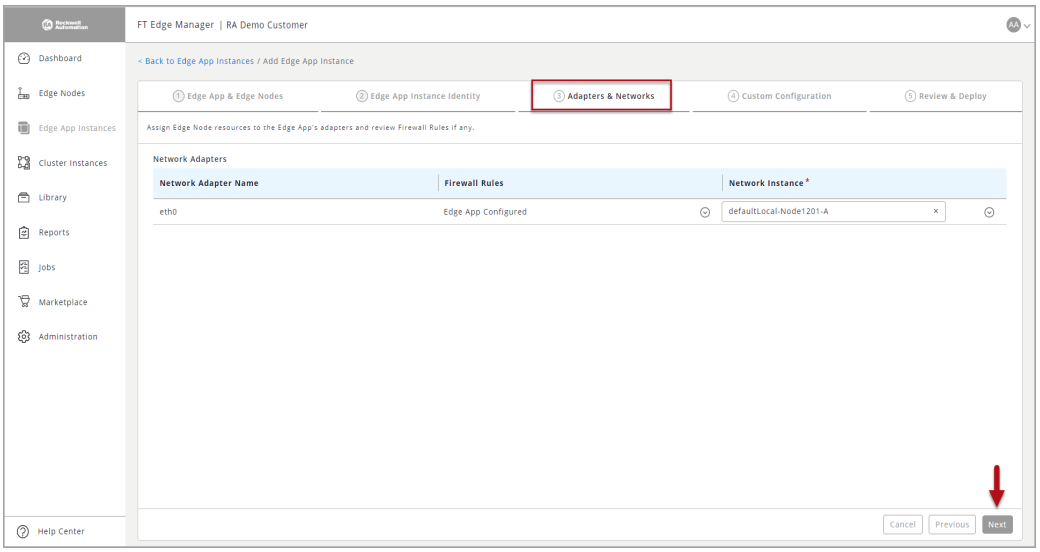
4. On the Edge App Instance Identity tab, provide the following details and click [Next].
   - **Name**: Provide a unique Name. This cannot be changed.
   - **Title**: Provide a title. This can be changed.
   - **Description**: Provide a detailed explanation about Edge App Instance.
   - **Enable Logs Access:** Check the box to enable logs access.
   - **Staggered Start Delay**: You can introduce a delay between the time Edge Operating System (Edge OS) is ready to process application instance configurations and the time the application is actually started.
   - **Tags**: Enter the key and value as required.

Figure 3-48: Details



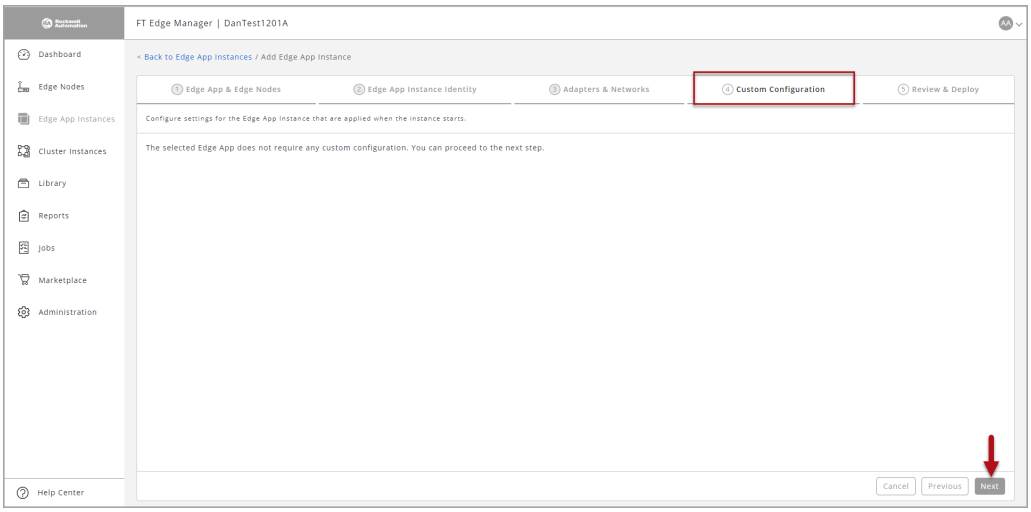
5. On the Adapter & Networks tab, provide the following details and click [Next].
   - Select the Network Instance from the drop-down list.
   - Select the IO Adapter bundle from the drop-down list.

Figure 3-49: Adapter & Networks



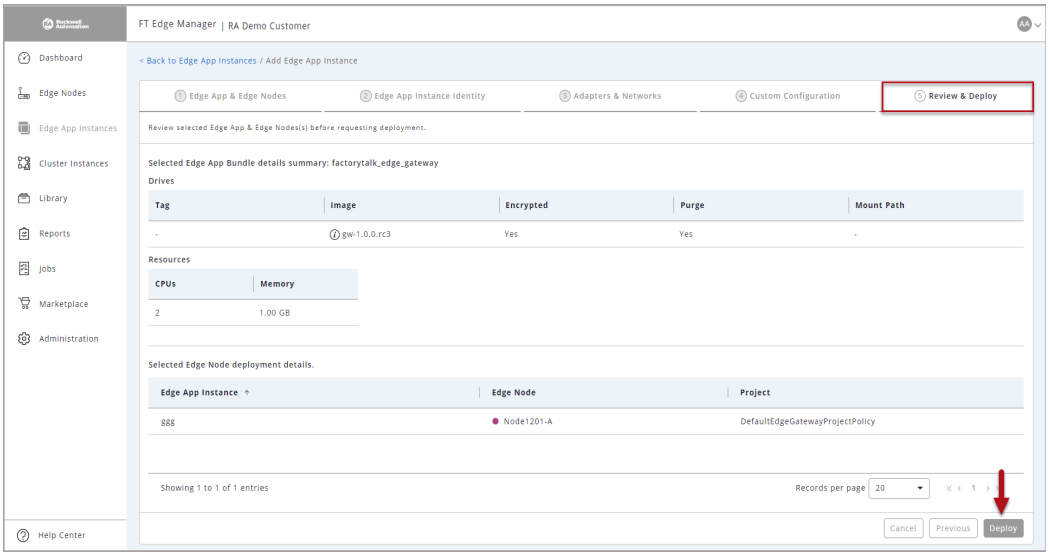
NOTE: The fields for custom configuration appears only if the application allows any custom configuration else "*The selected Edge App does not require any custom configuration. You can proceed to next step*" message displays. Click [Next].

Figure 3-50: Custom Configuration 2



6. On the Review & Deploy tab, review all the selected options and click [Deploy].

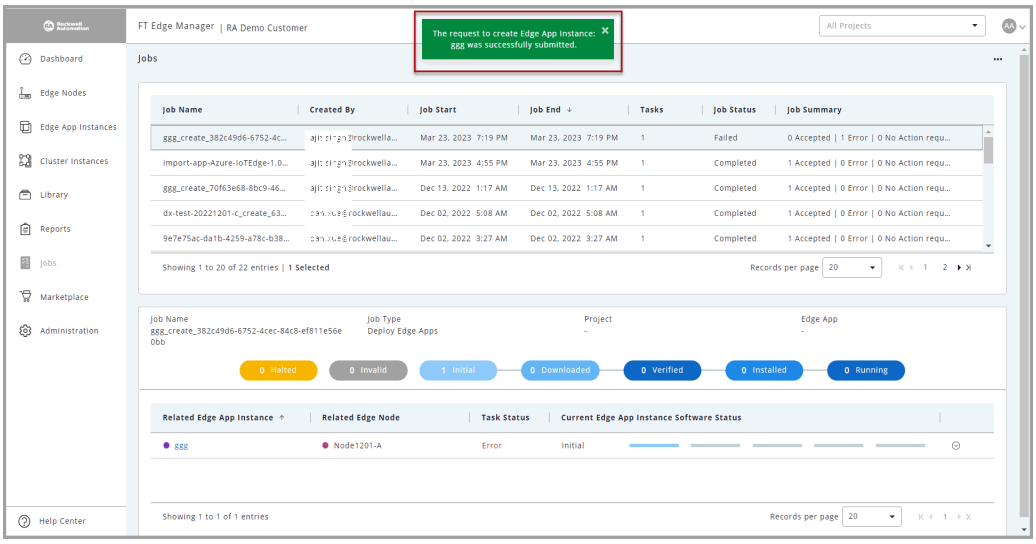
Figure 3-51: Review & Deploy



NOTE: You can click [Previous] to return to the previous tabs and edit or update the details.

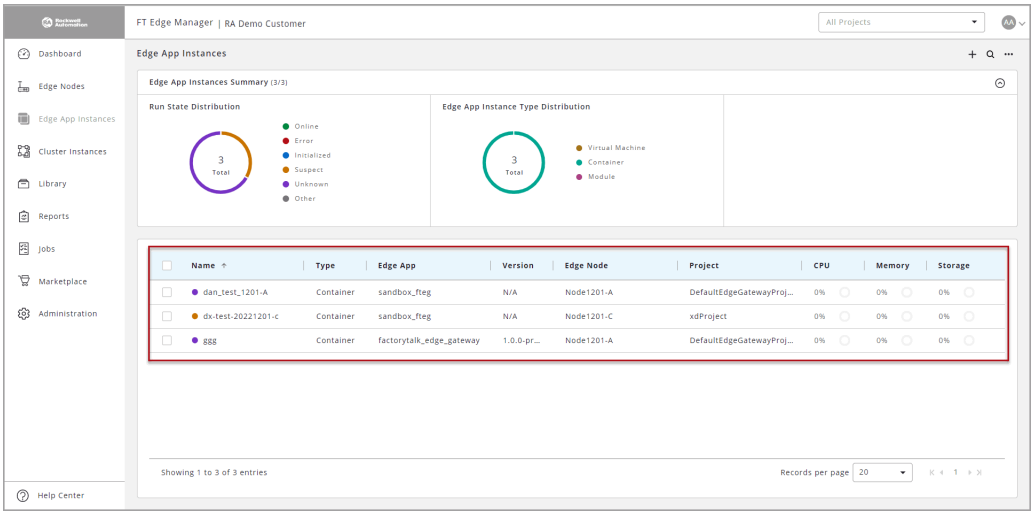
7. The newly added Edge App appears in the list view and a toast message displays the status of deployment as shown in following image.

Figure 3-52: Review & Deploy



NOTE: The Edge App Instances are sorted by their names. The colored dot indicates the Run State of the Edge Application.

Figure 3-53: Review & Deploy cont.



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Chapter 4

Administration & Maintenance

In this chapter:

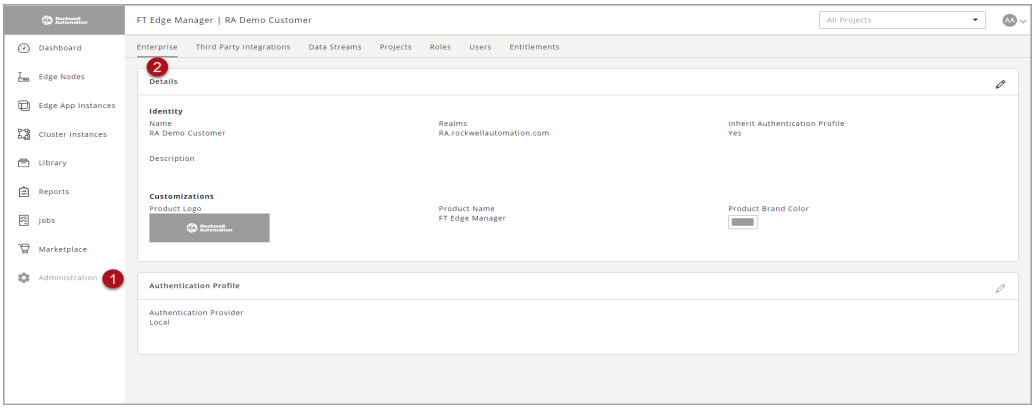
- **Manage Enterprise 60**
- **Manage Project 61**
- **Manage Roles 64**
- **Manage Users 68**

Manage Enterprise

Perform the following steps to view the Enterprise details:

1. On the left panel, click [Administration], the Enterprise details displays under the Enterprise tab.

Figure 4-1: Enterprise Details



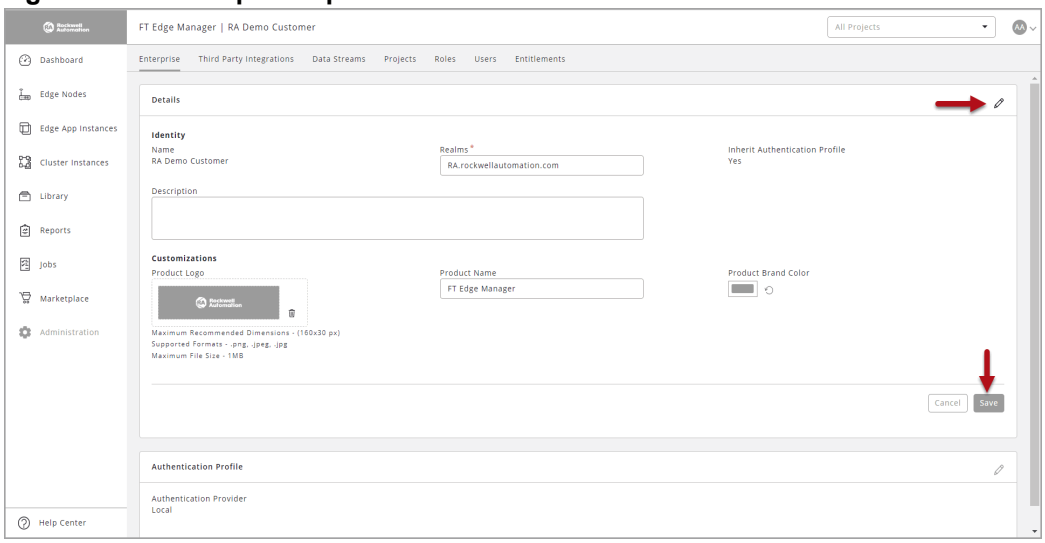
Update Enterprise

NOTE: Only admin users can update the Enterprise details.

Perform the following steps to update the Enterprise details:

1. On the left panel, click [Administration], the Enterprise details displays.
2. Click the Edit [✎] icon on the particular section that you want to edit or update.
3. Update the editable fields and click [Save].

Figure 4-2: Enterprise Update

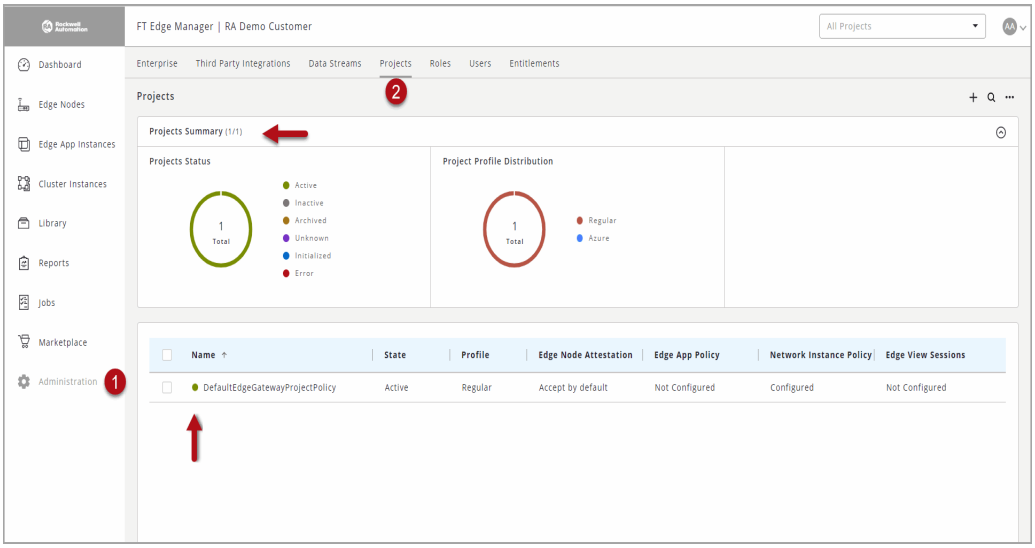


Manage Project

Perform the following steps to view the Project details:

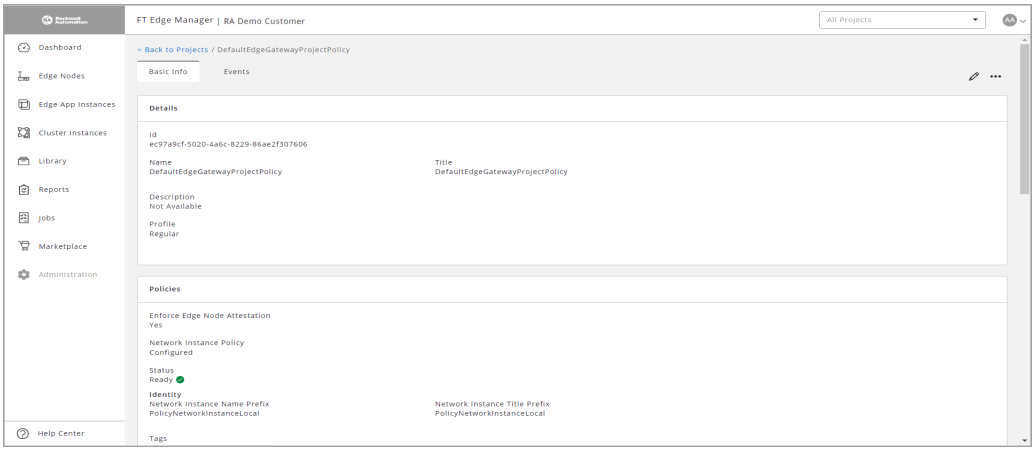
1. On the left panel, click [Administration].
2. Click the Project tab. The Project Summary and Project list displays.

Figure 4-3: Projects



3. Select the Project from the list to view the details of the selected project.

Figure 4-4: Enterprise Update

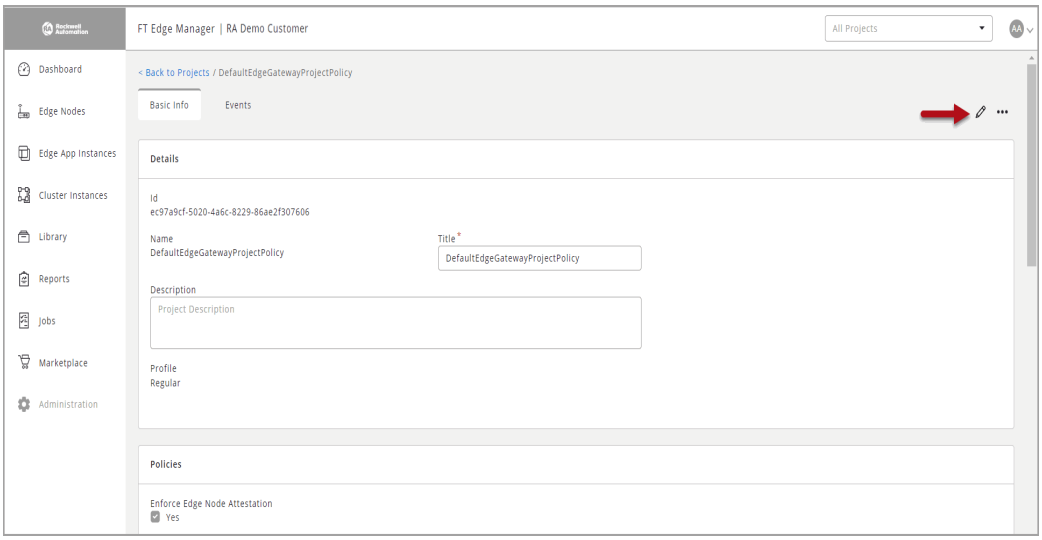


Update Project

Perform the following steps to view the Project details:

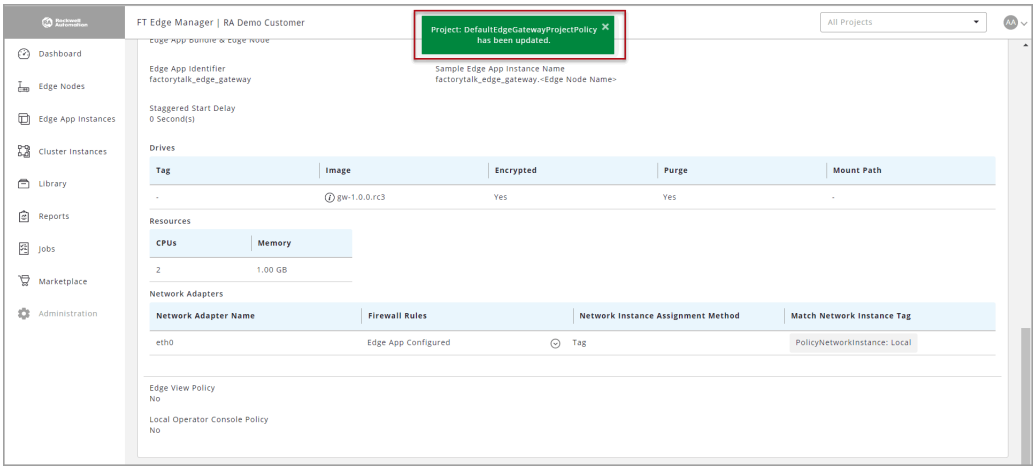
1. Click the Edit [✎] icon on the particular tab that you want to edit or update.
2. Update the editable fields on the Info and Events tabs and then click [Save].

Figure 4-5: Project Update



The "*Project: <Project name> has been updated.*" message displays.

Figure 4-6: Project Updated



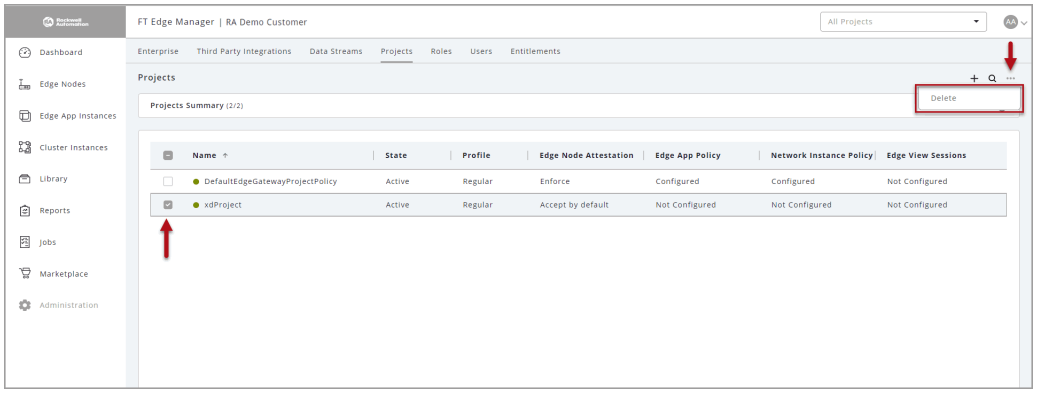
Delete Project

NOTE: You can delete the Project in both list view and detail view.

Perform the following steps to delete the Project:

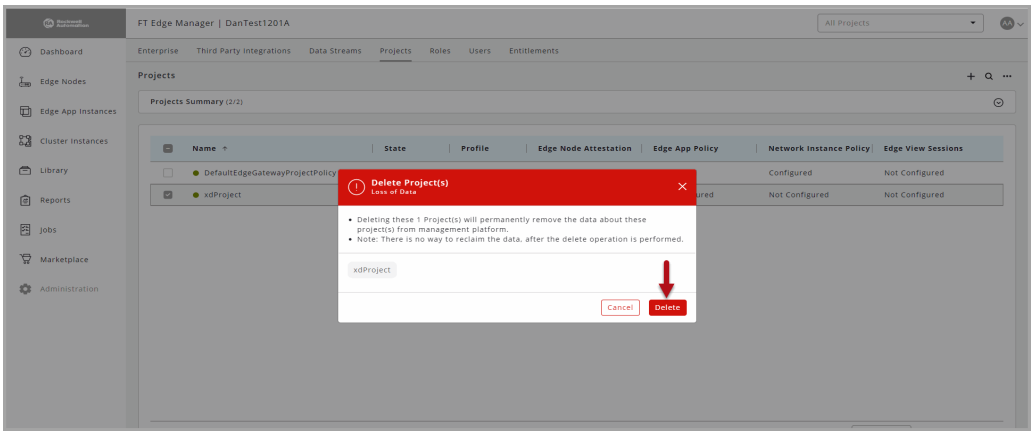
1. Select the checkboxes of the Project(s) that you want to delete.
2. Click the [···] icon on the top right corner and click [Delete].

Figure 4-7: Delete Project



3. The ‘Delete Project(s)’ dialog displays, click [Delete].

Figure 4-8: Confirm Delete Project



4. The “*Project(s) are deleted successfully*” message displays and the Project is deleted from the list.

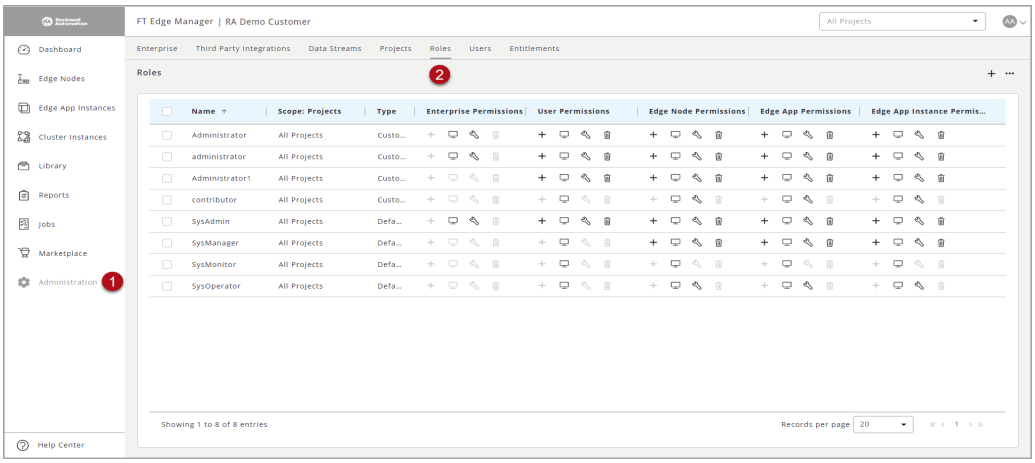
Manage Roles

A Role is an access privilege that can be assigned to Users. A role can be defined across activities such as Create, Monitor, Operate, and Remove (CRUD activities). The permissions are then applied to various objects such as Edge Node, Edge Applications, Users, and Enterprises.

Perform the following steps to view the Roles:

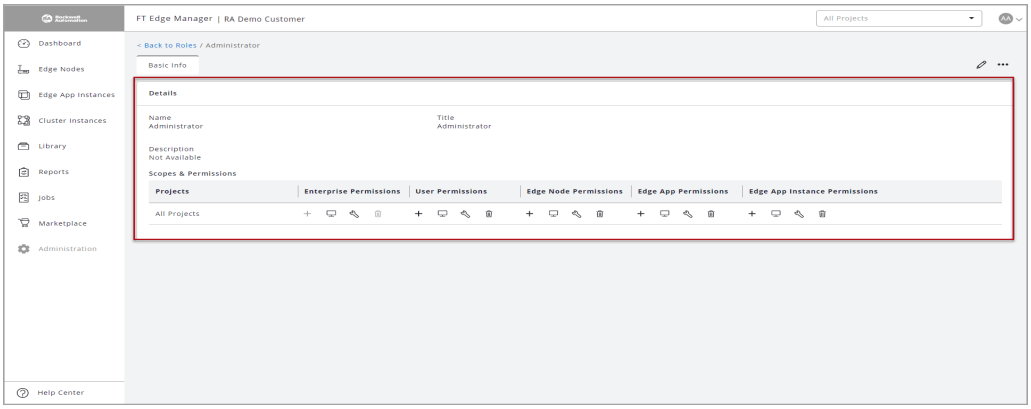
1. Click the Administration [⚙] icon on the top right corner.
2. Select the Roles tab, the list of the Roles displays.

Figure 4-9: Roles



3. Select the Role from the list to see the details of the selected role.

Figure 4-10: Roles Details

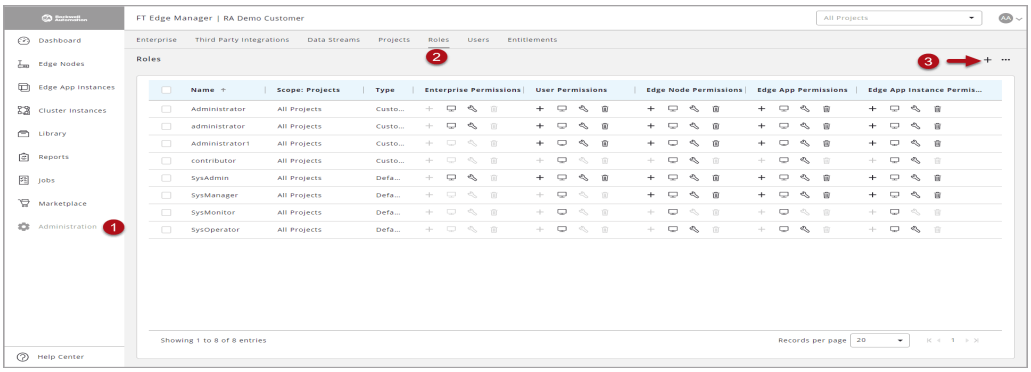


Create Role

Perform the following steps to create a Role:

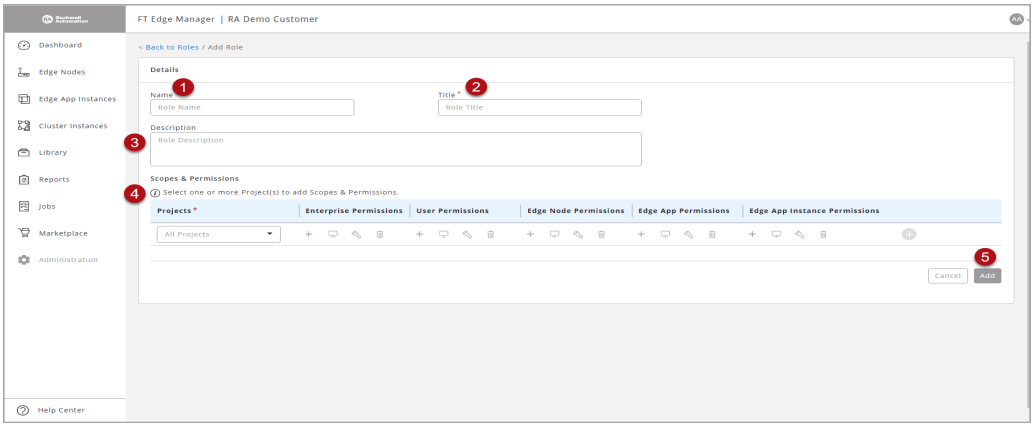
1. Click [Administration] on the left panel.
2. Click the Roles tab and then click the Add [+] icon on the top right corner.

Figure 4-11: Create Role



3. Provide the input field values such as 'Name', 'Title', and 'Description.
4. Select the 'Projects' to which this particular role has to be given access, along with the 'Permissions Template.'
5. Click [Add].

Figure 4-12: Add Permissions



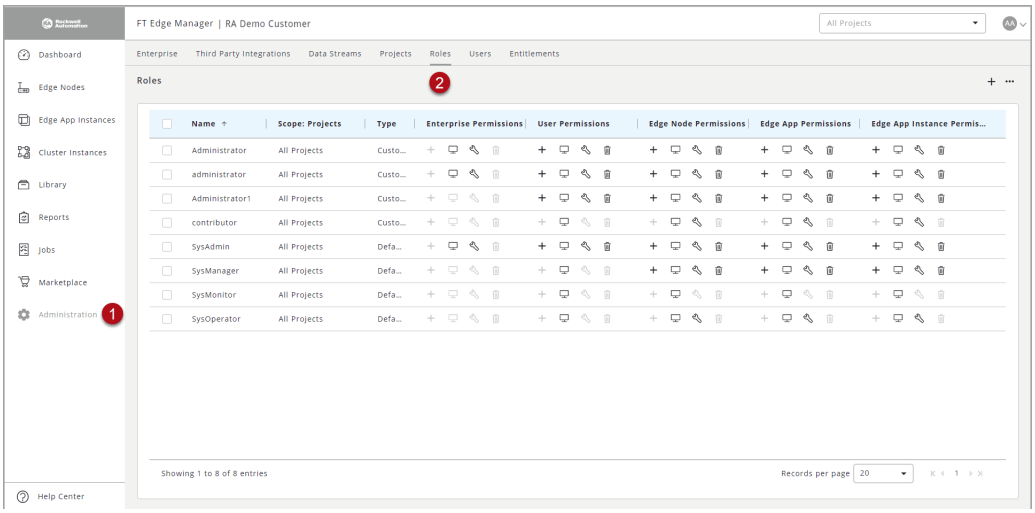
6. The "*Role has been added*" message displays and new role is added to the list.

Update Role

Perform the following steps to update the Role:

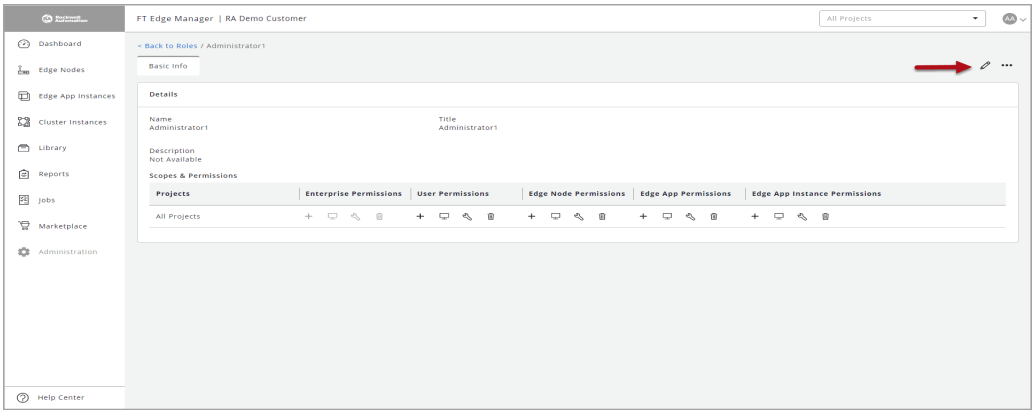
1. Click [Administration] on the left panel.
2. Select the Roles tab, the list of the Roles displays.

Figure 4-13: Roles list



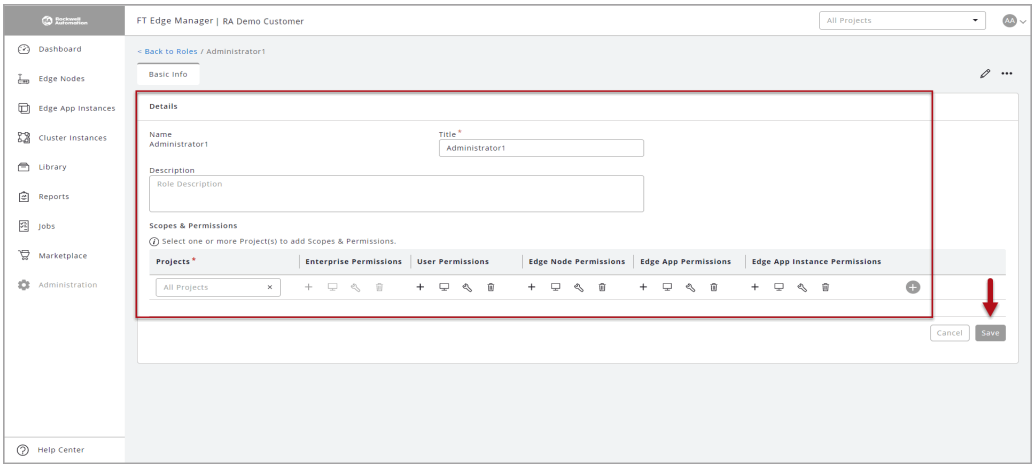
3. Select the Role from the list that you want to update and click the Edit [ ] icon.

Figure 4-14: Roles list



4. Update the editable fields and click [Save].

Figure 4-15: Update Role



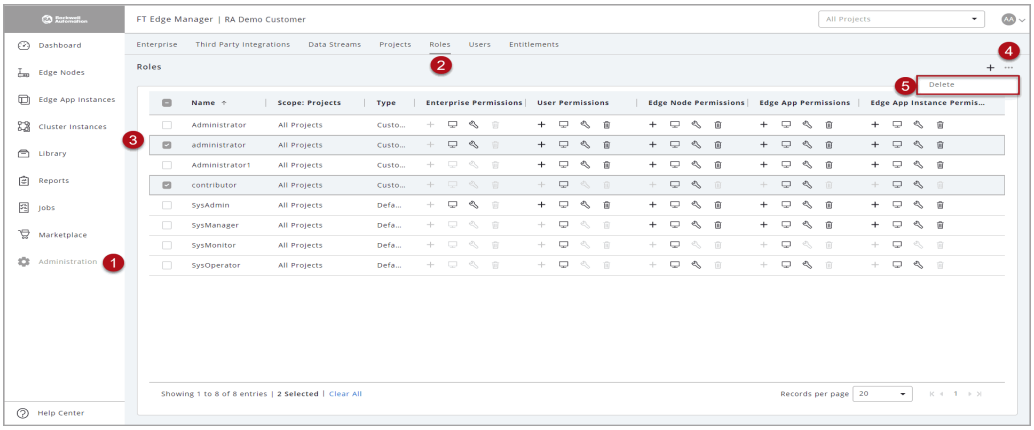
Delete Role

NOTE: You can delete the Roles in both list and detail view.

Perform the following steps to update the Role:

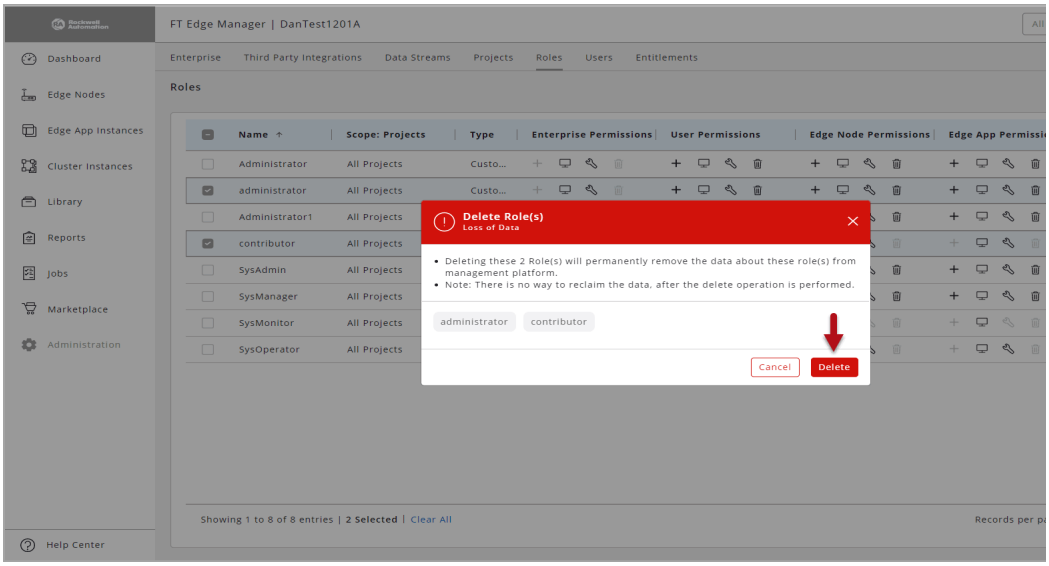
1. Click [Administration] on the left navigation panel.
2. Select the Roles tab, the list of the Roles displays.
3. Select the checkboxes of the Role(s) in the list which you want to delete.
4. Click the [•••] icon on the top right corner and click [Delete].

Figure 4-16: Delete Role



5. The ‘Delete Role(s)’ dialog displays, click [Delete].

Figure 4-17: Confirm Delete



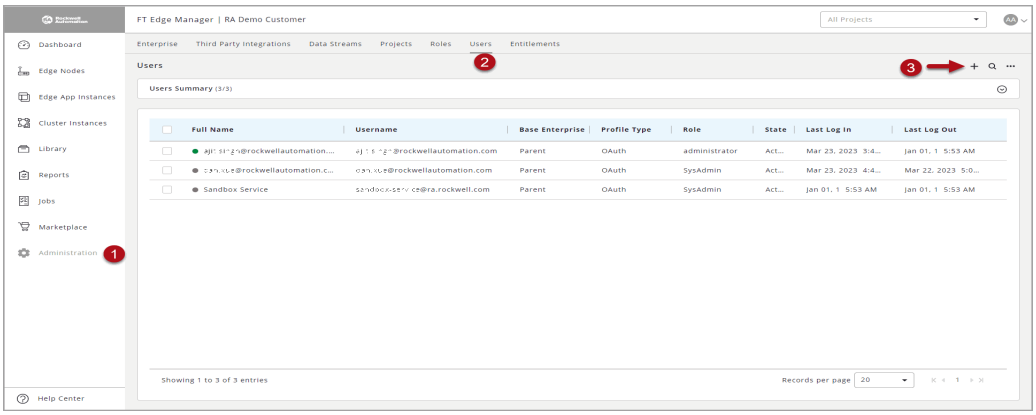
Manage Users

Create User

Perform the following steps to create an User:

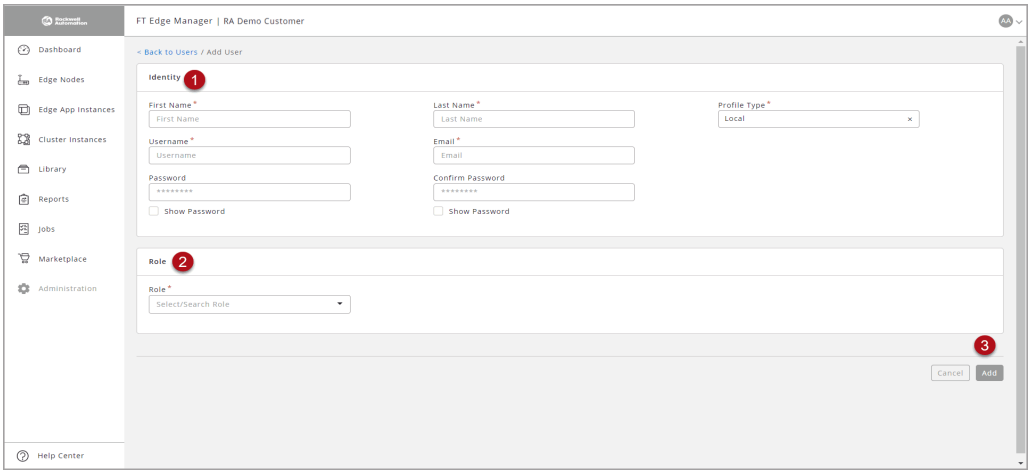
1. Click the Administration [⚙] icon on the top right corner and select the Users tab.
2. Click the Add [+] icon.

Figure 4-18: Add User



3. In the Identity section, provide the user-specific details.
4. Select the Role you want to assign to the user from the drop-down list.
5. Click [Add].

Figure 4-19: Add User



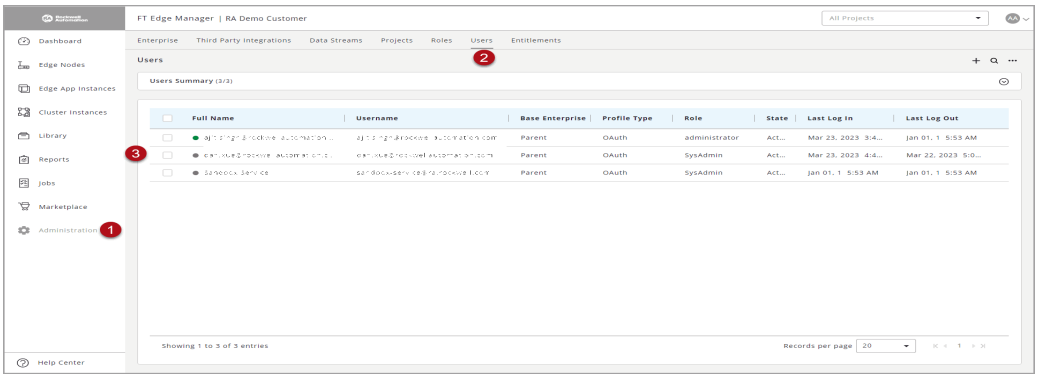
6. The "*User has been added*" message displays and User gets added to the users list.
7. You can click on any of the users in the list view to view the details of that user.

Update User

Perform the following steps to update user details:

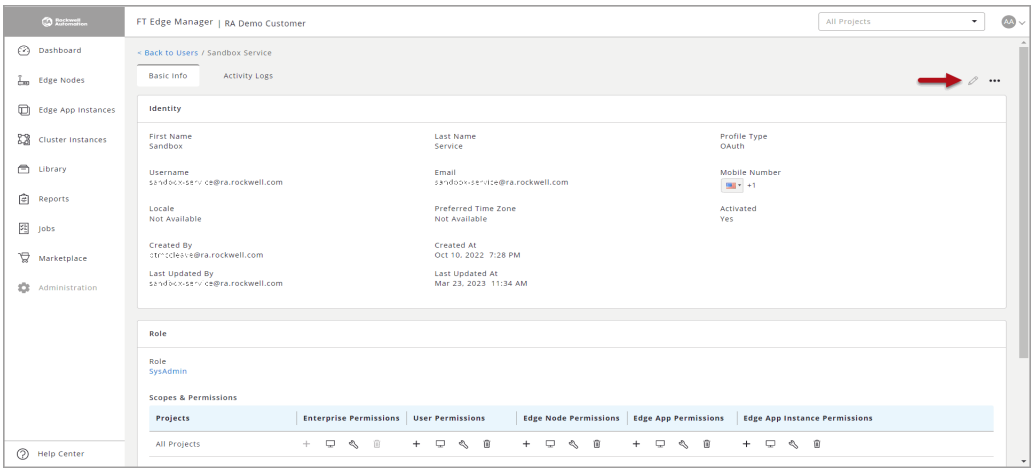
1. Click [Administration] on the left navigation panel and go to the Users tab and then select the User from the user list.

Figure 4-20: Update User



2. Click the Edit [ ] icon, update the editable fields and click [Submit].

Figure 4-21: Edit User Details



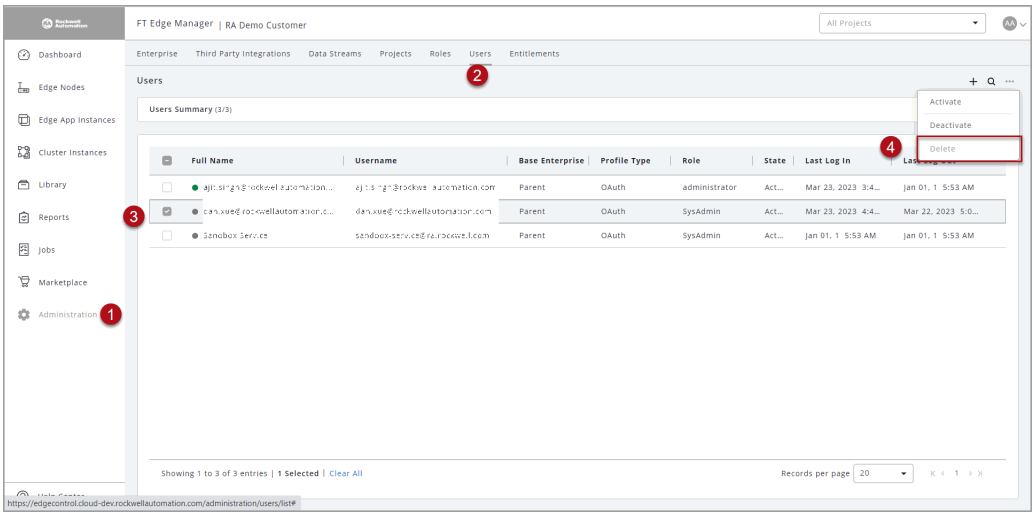
The "*User :<username> has been updated.*" message displays.

Delete User

Perform the following steps to delete an user:

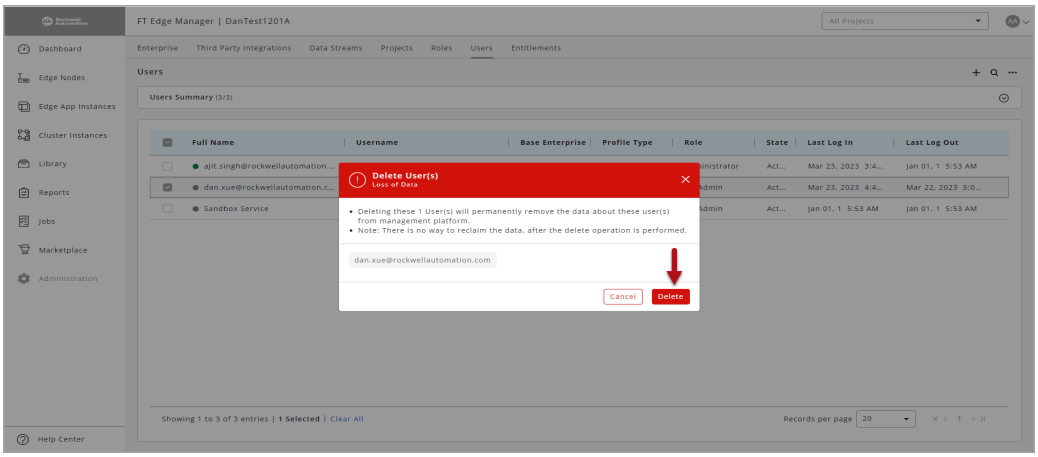
1. Click [Administration] on the left navigation panel and go to the Users tab.
2. Select the User from the user list that you want to delete.
3. Click the [•••] icon and click [Delete].

Figure 4-22: Delete User



4. The ‘Delete User(s)’ dialog displays, select [Delete].

Figure 4-23: Delete User



5. The “*User: <username> has been deleted.*” message displays.

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