SIEMENS

Insights Hub

Operator Cockpit

System Manual

06/2025

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Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

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1 Introduction

Introduction

Overview

Operator Cockpit is one of the standard and core applications of Insights Hub, the industrial IoT platform of Siemens. You can access Operator Cockpit on the Insights Hub Launchpad. Operator Cockpit allows you to manage the applications that you want to provide on Insights Hub. You need to have a MindAccess Operator Account to access to Operator Cockpit. More information about the MindAccess Plans can be found in chapter Interaction between MindAccess Plans.

Functions

Operator Cockpit offers you a wide range of possibilities to manage and provide your applications.
Within Operator Cockpit you can:

- Accept the transfer of an application from a MindAccess Developer Account to your MindAccess Operator Account.
- Deploy the application to your productive environment and operate it.
- Get an overview of all your applications running on your MindAccess Operator Account.
- Get information on usage and traffic of your applications.
- Check the health status of all your applications.
- Receive and display notifications concerning your applications.
- Publish your own offerings on the Industrial IoT Store.
- Upload new applications to the Store and make it visible either to specific customers or to the public.
- Provision applications to new customers on the Industrial IoT Store.
- Get information on new subscriptions from the Industrial IoT Store.
- Make applications available to subscribers of a MindAccess IoT Value Plan (and their users) on the basis of an App Customer Contract between you and such subscribers.

Roles and procedure

Throughout the development process of your applications, Operator Cockpit supports you at every phase of the project. The Application Lifecycle structures and summarizes the roles and procedure.

More information about the Application Lifecycle can be found in chapter Application Lifecycle.

More information about the developing process can be found in the documentation of the Developer Cockpit.

Interaction between Insights Hub Plans 2

2.1 Interaction between MindAccess Plans

Interaction between MindAccess Plans

The Insights Hub Offering contains the following MindAccess Plans:

- MindAccess DevOps Plan
- MindAccess IoT Value Plan

MindAccess DevOps Plan

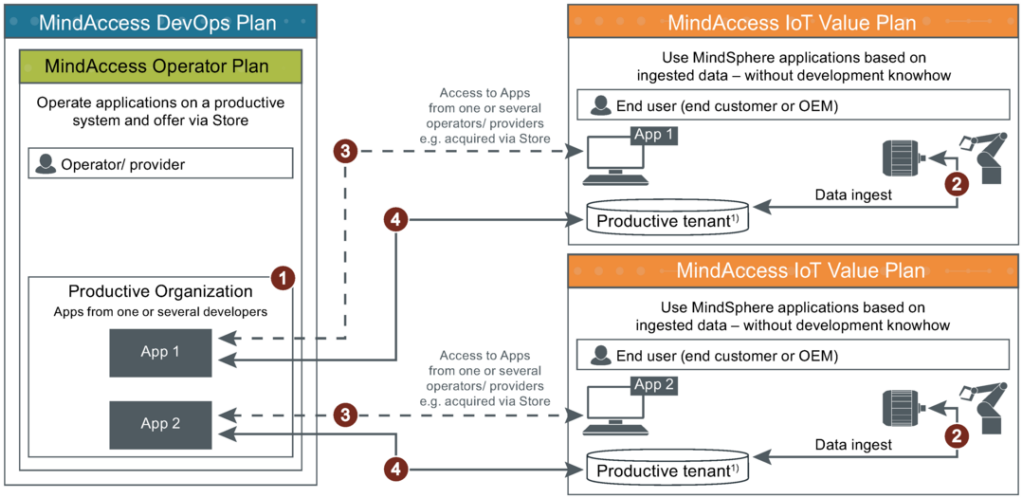
Insights Hub offers a specific MindAccess DevOps Plan. The developing process separates development from the operating business. MindAccess DevOps Plan contains Developer Plan and Operator Plan.
As an operator, you can choose to run the application on your productive system and sell it via the Industrial IoT Store. At a minimum, you will need the MindAccess Operator Plan offering to sell your application via the Industrial IoT Store.

MindAccess IoT Value Plan

Insights Hub offers the IoT Value Plan for end user or OEM without development know-how.

Interaction between MindAccess Plans

The following graphic shows the relationship and processes between the MindAccess DevOps Plan and the MindAccess IoT Value Plan:



① Operator/ provider uploads App to Store

② End user buys App in Store (and already has an IoT Value Pack)

③ Route from acquired App to tenant of end user established

④ End user uses App based on ingested data

2.2 Insights Hub Capability Packages

Insights Hub Capability Packages

The new Insights Hub offering contains the following plans:

- Essentials
- Standard
- Advanced

> The capability packages were previously categorized as Basic, Standard and Premium.

Cloud Foundry offering is not included in any of these plans and it has to be purchased separately. For more information on the new packing and pricing model, refer to the Product Sheet.

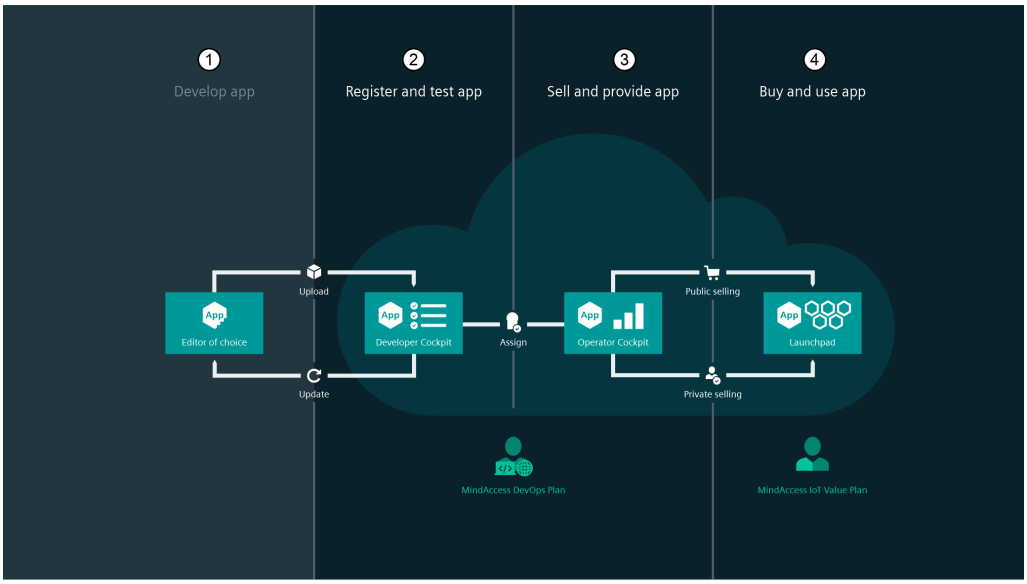
Application Lifecycle 3

Application Lifecycle

The Application Lifecycle depicts the beginning from the development of an application until the release of an application. It defines all steps and processes that can be assigned to Developer Cockpit.
The Application Lifecycle describes the correlation between the developer and the operator. Therefore, the Application Lifecycle structures the processes into the following plans:

- Developer Plan
- Operator Plan
- IoT Value Plan

The following graphic depicts the Application Lifecycle with the respective processes:



① **Develop an application:**

- The developer develops the application in the local environment

② **Register and test the application:**

- The developer implements the application in Developer Cockpit
- The developer tests the application in the Development test system
- The developer assigns the application to operators

- The developer sends the binaries of a registered application to the Application Repository

③ **Sell and provide the application:**

- The operator downloads the application from the Application Repository and then deploys the application using Cloud Foundry Command Line
- The operator deploys the application to the productive system
- The operator sets a route to the tenant
- Operator Cockpit publishes the application in Industrial IoT Store
- Operator Cockpit provisions the application in a customer Launchpad

④ **Purchase and use the application:**

- Users can make a subscription for applications from Industrial IoT Store
- Users can access the application via Launchpad

Service Limitations

Developer Cockpit has some technical limitations as per the requirements. The following table provides the information of the technical service limits:

Service	Limit per (request / tenant / 10 minutes)
You can create new application	20
You can fetch application's metadata for the tenant	200
You can update an application	100
You can "Register / De-register" an application	20
You can clone the application to create new version	10
You can get details of specific application	100
You can delete an application	20
You can get "Roles and Scopes" for an application	100

Technical service limits can be upgraded as per the requirements.

User Rights

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User Rights in "Operator Cockpit"

The user rights depend on the following user roles:

- OperatorAdmin
- TenantAdmin

- The "OperatorAdmin" role should be assigned to an operator, in order to access "Operator Cockpit" and perform all operations on the applications.
- A user having "StandardUser" role as a standalone role will neither be able to access "Operator Cockpit", nor perform any operations on the applications.

The following table gives an overview of the permissions for different user roles:

Right	Roles: TenantAdmin	Roles: OperatorAdmin
Create users	✓	
Edit permissions for users	✓	
View "Operator Cockpit" on Launchpad		✓
Access "Operator Cockpit" from Launchpad		✓
Access applications from "Apps" tab		✓
View applications in "Applications" tab in "Inbox"		✓
Download applications		✓
Deploy applications		✓
Publish applications to digital Store		✓
View all notifications		✓
Subscribe and unsubscribe from notifications		✓

Roles to access the application

A user should be assigned certain roles in order to access an application. The following are the roles that should be assigned to a user in "Settings".

- operatorAdmin: For accessing "Operator Cockpit"
- tenantAdmin: For adding or modifying the users or user roles

For more information on adding roles, refer "Settings" documentation.

User Interface "Dashboard"

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"Dashboard" user interface

The "Dashboard" gives a quick overview of the usage and traffic of the applications, subscription details and the number of applications that are deployed on the Cloud Foundry (CF).

"Dashboard" screen

The following graphic shows the "Dashboard" of Operator Cockpit:

① Main navigation with five tab-categories:

- Dashboard
- Apps
- Services
- Inbox
- User Manual
- Settings

② Dashboard quick facts

③ Dashboard charts

Symbols

Symbol	Description
	View the Dashboard.
	View the status of the applications along with the application details.
	View the services provisioned by other operators.
	- Applications: View the list of applications assigned by the developer, along with the action list that enables you to accept the applications. - Messages: View the Notifications for the applications. - Archived: View the archived notifications.
	View the User Manual for Operator Cockpit.
	View the notification Settings window.

Dashboard charts

The following graphic gives you a more detailed look at the dashboard charts of Operator Cockpit:

① App traffic diagram
② App usage diagram
③ Refreshes the pie chart
④ Opens the "My Applications" window
⑤ Productive monitoring pie chart
⑥ App traffic trend comparison diagram

Adjust Chart

You can adjust the pie chart by clicking on the productive status that is displayed next to the chart. This activates or deactivates the status and the pie chart changes accordingly.

User Interface "Information" 6

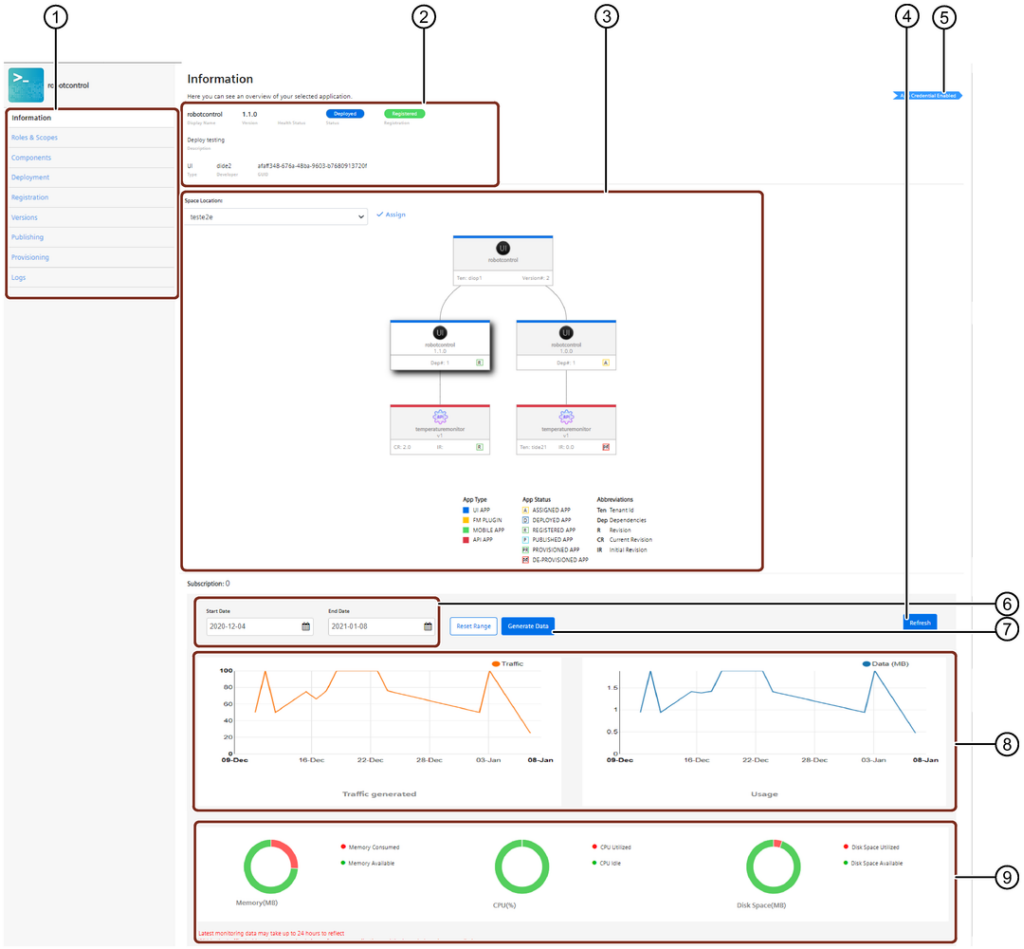
"Information" user interface

The "Information" screen provides the traffic generated and usage graphs, in addition to the application details information. For CF apps, you can also assign a space for the application by selecting the correct spacename from the "Space Location" drop down menu.

"Information" user interface

To view the application details, click on the "Apps" icon from the main navigation. Select the application type from "My Applications" window and click on any application. You will now be able to view all the details of the selected application.

If the application is hosted in CF, then the "Information" screen is as below:



① Navigation tab

② Application details

③ Dendrogram representation of the application dependency on API applications

④ Refresh the usage data

⑤ App Credential enabled label

⑥ Start Date: Select the start date from which the traffic generated and the usage of the application is to be viewed

End Date: Select the end date until when the traffic generated and the usage of the application is to be viewed

⑦ Generates the usage data and the traffic generated data for the specified time range

⑧ Traffic generated and Usage graphs

⑨ Memory, CPU and disk space utilization information

Also, note that if an application does not have any new version available, then the "Versions" tab will not be available.

If the deployed application is not in Cloud Foundry, then a warning message appears to inform you that the application needs to be pushed to Cloud Foundry to view the monitoring data.

The restrictions on selection of the "Start Date" and "End Date" is as follows:

- Minimum range: 6 days
- Maximum range: 6 months

Application and tenant status 7

7.1 Applications status

Applications status

For a better overview, each application displays a specific operating state. You can find the operating state for your applications in the "My Applications" and "Information" window. The application operating state is divided into the following sectors:

- Provisioning
- Productive (Health)

Provisioning status for CF apps

The following table shows the provisioning status of a CF application:

Color of status	Status	Description
Yellow	Assigned	Once the developer assigns an application to the operator from "Developer Cockpit", the operator can view that application in "Inbox" in the "Applications" tab. The application is accepted by the operator and a handshake initiated to the developer to grant access to that application. After the access is granted by the developer, the application status will be changed to Assigned".
Dark blue	Deployed (with a warning symbol)	The application is downloaded and deployed by following the instructions in the "Deployment" window. After this process is complete, the state of the application will be changed to "Deployed". If the application is not registered, a warning symbol appears next to the "Deployed" status.
	Deployed (without a warning symbol)	After the application is registered, the status of the application will be changed to "Deployed" state.
Light blue	Published	After the application is published in the Industrial IoT Store, the status of the application will be changed to "Published".

Provisioning status for self-hosted apps

The following table shows the provisioning status of a self-hosted application:

Color of status	Status	Description
Yellow	Assigned	The developer assigns an application to the operator from "Developer Cockpit". The operator can view this application in "Inbox" in the "Applications" tab in "Operator Cockpit". The application is accepted by the operator and a handshake initiated to the developer to grant access to that application. After the access is granted by the developer, the application status will be changed to "Assigned".
Green	Registered	After the application is registered by the operator, the status of the application changes to "Registered".
Light blue	Published	After the application is published in the Industrial IoT Store, the status of the application will be changed to "Published".

Productive (Health) for CF apps

The following table shows the productive (health) status:

Color of status	Status	Description
Green	Running	The application is running flawlessly.
Red	Crashed	The application has crashed. An error occurred inside the application that needs to be fixed.
Grey	Stopped	The application has been stopped by the operator. You can restart the application.

A warning sign appears to inform you about the following facts:

- A component is stopped but the other components are still running
- Some components have crashed For an application, a warning sign next to the "Deployment" state means that the application is deployed, but not registered.

7.2 Tenant status

Tenant status

Within the "Provisioning" screen, you can provide provisioning of your application to specific tenants.

The following table shows the tenant status for provisioning:

Color of status	Status	Description
Red	Activation Failed	The provisioning of the application to the tenant failed.
Yellow	In progress	The provisioning of the application to the tenant is in progress.
Green	Provisioned	The application is provisioned to the tenant.

Using "Inbox" 8

8.1 Receive applications from developers

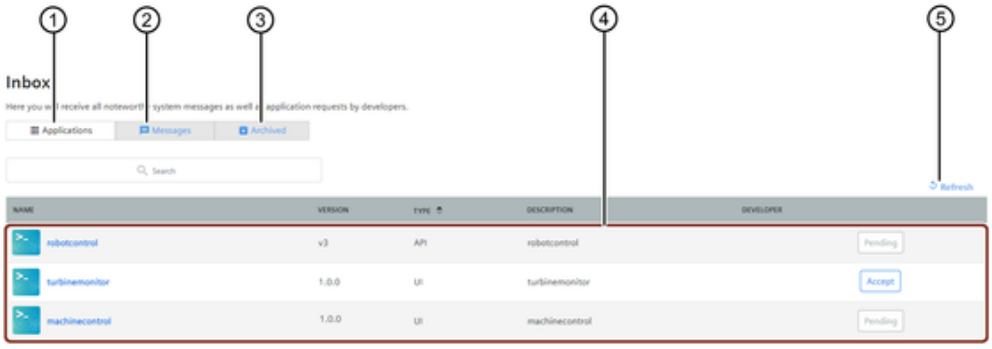
Receive applications from developers

In Operator Cockpit, you can receive applications from developers. The developer can offer the application by assigning it to an operator from Developer Cockpit. An operator can choose any of the applications listed in the "Applications" tab and register the application on the productive system.

This feature is not available for subscribers of Essentials Capability Packages.

"Inbox" user interface

The "Inbox" is a marketplace within Operator Cockpit wherein the developers can offer their applications.



① **Applications:** All the applications that are offered by the developers to an operator are displayed. An operator can choose any application from a list of available applications and accept an application from the list to use it

② **Messages:** The notifications related to subscription or event change of an application are displayed. It is also possible to archive the notifications for future use

③ **Archived:** The archived notifications are displayed

④ Received application details

⑤ Refresh button to get the latest status of the applications

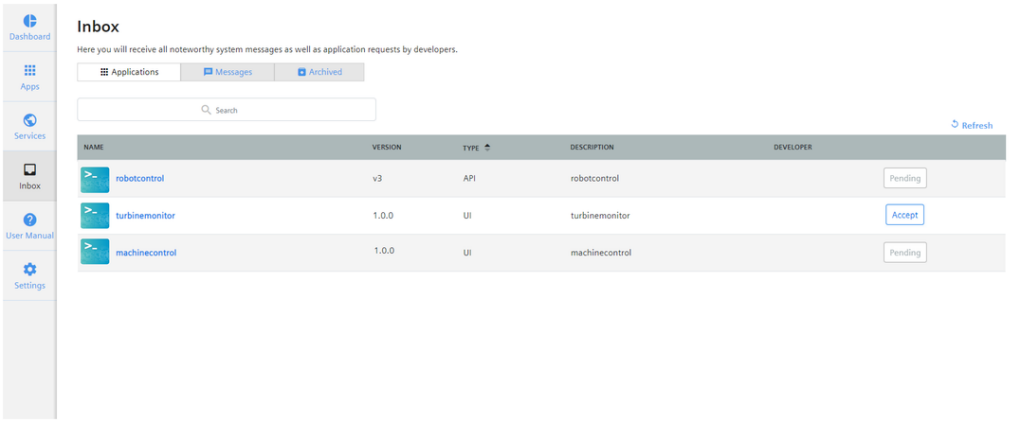
Prerequisites

- The developer has assigned the application to an operator in Developer Cockpit.
- The developer has sent the binaries of a registered application to the app repository.

Procedure

To receive an application that is assigned from the developer, proceed as follows:

1. Click on the "Inbox" icon in the main-navigation area and click the "Applications" tab.



2. Click "Accept" for the application that you choose to deploy.
The status of the application changes to "Pending". A handshake is initiated to the developer to grant access to that application. The application remains in the "Applications" window until the developer grants access to the application from "Developer Cockpit".

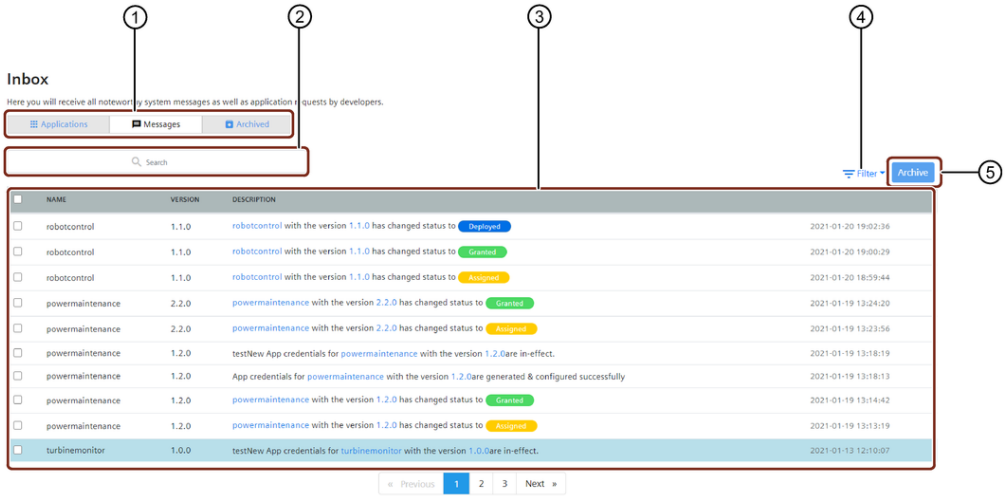
Result

Once the developer grants access, the application moves from the "Applications" tab to the "My Applications" window, with the provisioning status as "Assigned". If the application that is accepted is a UI type (Cloud Foundry or a self-hosted application), then it will be moved under the "UI Apps" tab. If it is a OI type plugin, it will be moved under "Operatiions Insight Plugin" tab in the "My Applications" window. If it is a FM type plugin, it will be moved under "Insights Hub Monitor Plugin" tab in the "My Applications" window. If it is a mobile app type, it will be moved under "Mobile Apps" tab in the "My Applications" window. If it is an API app type, it will be moved under "API Apps" tab in the "My Applications" window. The application can now be downloaded from the app repository. For more information on downloading and deploying an application, refer Download and deploy Cloud Foundry (CF) applications.

8.2 Archive and view messages

Archive and view messages

The "Messages" tab displays all the notifications related to subscription and the event change of the applications. The notifications listed under "Messages" will be automatically deleted after 30 days.



① Tabs for received applications, messages, and archived notifications

② Search field

③ Shows the application notifications

④ Opens the filter with the following filter criteria:

Events: Only the notifications related to the status change of the applications are displayed.

Subscription: Only the subscription related notifications are displayed.

All: All the notifications related to the status change and the subscriptions are displayed.

⑤ Archive button to archive the selected notifications. The archived notifications are moved to the "Archived" tab

If you want to save certain notifications for future reference, you can archive those notifications. It is also possible to export the archived notifications to your local system.

The following section describes the procedure to archive the notifications.

Procedure

To archive notifications, proceed with the following steps:

1. Click on the "Inbox" icon.

2. Under "Messages", select the notifications that you want to save for future reference, and click "Archive". These notifications are moved under the "Archived" tab.

3. To view the archived notifications, click on the "Archived" tab. Select the date range for which you want to view the notifications and click "Show Data". You can also export the archived notifications to your local system by clicking "Export to CSV" in the "Archived" tab.

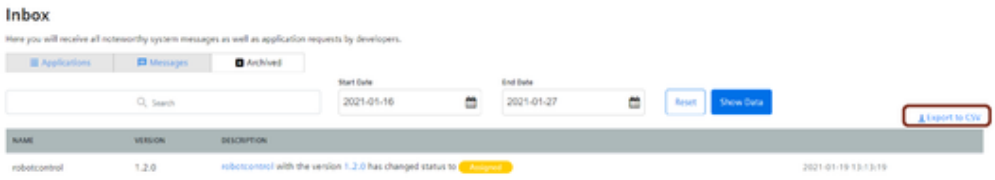
The restrictions on selection of the "Start Date" and "End Date" are as follows:

- Minimum range: 1 month
- Maximum range: 1 year

For information on subscription and unsubscription, refer "Subscribe and unsubscribe to notifications".

Result

The archived notifications are retrieved for a specified date range.



Edit or delete applications

9

9.1 User Interface "Apps"

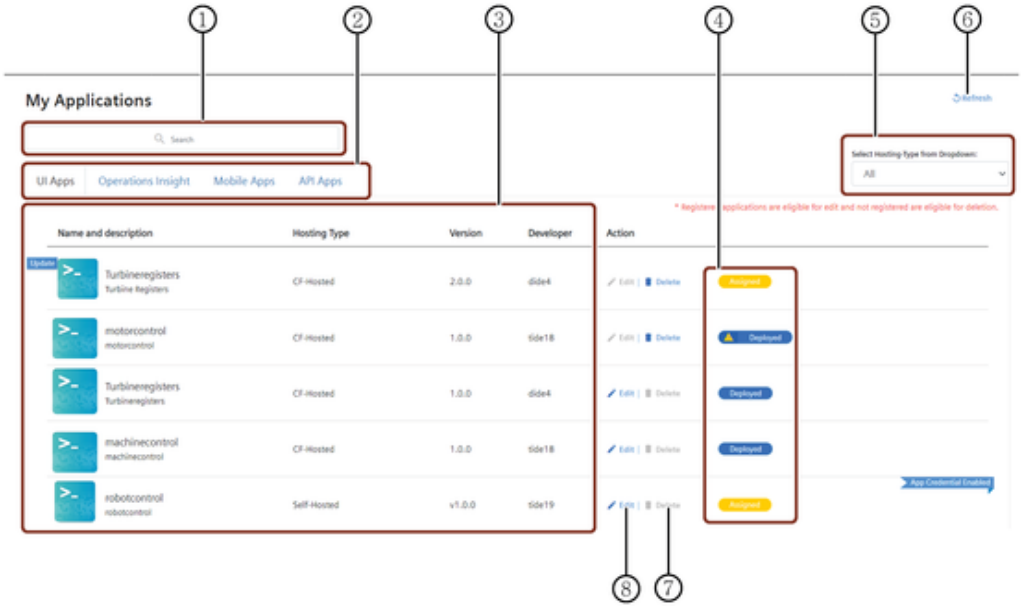
"Apps" user interface

Start screen

The "My Applications" screen, by default displays a list of all the CF and self-hosted apps on your Operator tenant. The Provisioning and Productive status of each of these applications can also be viewed. The applications can have any of the following labels:

- **New:** A new application is available or a new version of an existing application is available
- **Update:** A new version for an existing application
- **App Credential Enabled:** The application has a requirement for app credentials
- **Mendix App:** The application is a Mendix based application.

For more information on upgrading an application, refer the chapter "Upgrade or downgrade an application to a different version".
For more information on app credentials, refer the chapter "Working with app credentials".



① Tabs for UI, Insights Hub Monitor Plugin, Mobile Apps and API Apps
② Search field
③ Application information and description for CF and self-hosted apps

④ Provisioning and Health status of the application

Provisioning status: Assigned, Deployed and Published

Health status: Running and Stopped

⑤ Filter drop-down to select Hosting-Type

⑥ Refreshes the productive status of the application

⑦ Delete the application

⑧ Edit the application details

- There is no limit set on the number of applications that can be accommodated in Operator Cockpit. However, there are size restrictions for CF organization related to Operator Plan.
- The applications are listed in the listing page according to the application assignment time in the descending order.

For more information on the provisioning status of CF apps, see "Application status".

9.2 Edit applications

Edit applications

If the application is deployed and registered and the application details is required to be changed, it is possible to edit the application details from the "Registration" screen.

Prerequisite

The application has already been registered.

Edit an application

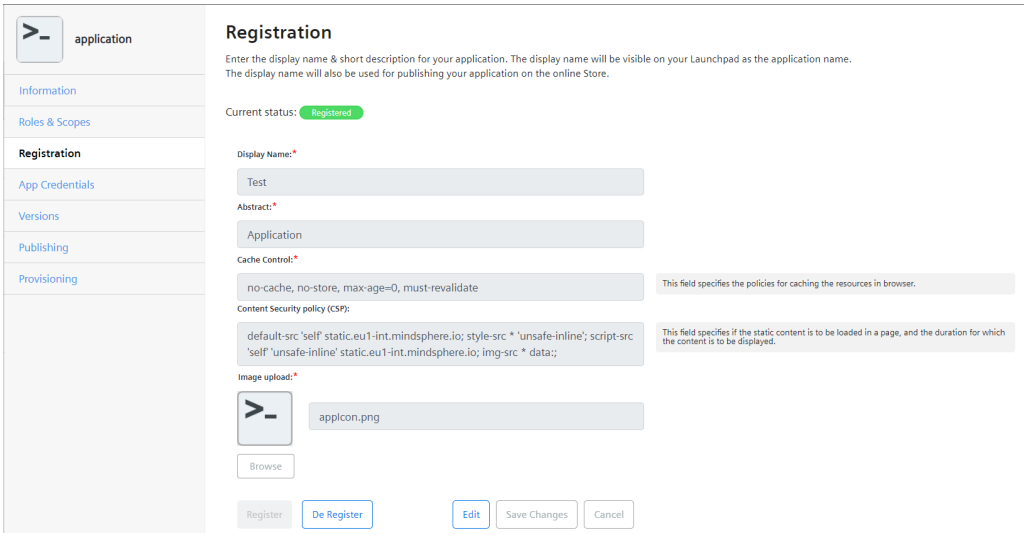
The procedure to edit CF and self-hosted applications is similar.

In order to edit the application details, proceed as follows:

1. In the "My Applications" window, choose the application that you wish to edit and click "Edit".

Only registered applications are eligible for editing.

2.On clicking the "Edit" button, you will be re-directed to the "Registration" tab. In the "Registration" window, click "Edit".



The CSP header informations can only be edited in Developer Cockpit.

3.Update the description in any or all the fields as required and click "Save Changes".

Result

The application description is modified.

9.3 Delete applications

Delete applications

Prerequisite

The application must not be registered.

Delete an application

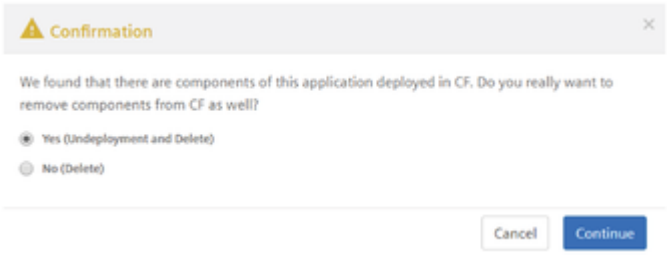
The procedure to delete CF and self-hosted application is similar.
To delete an application, proceed with the following steps:

1. Click on the "Apps" icon. In the "My Applications" window, select the application that you want to delete and click "Delete".

Only unregistered applications are eligible for deletion.

2.In the confirmation dialog, click "Continue".

For CF hosted applications, If the app is deployed and not registered ("Deployed" state with warning symbol), then you can undeploy and delete the app simultaneously. To do this, select "Yes" in the confirmation dialog and click "Continue".



Result

The application is deleted.

View "Application Credentials" 10

10.1 Introduction

Introduction

Application Credentials (app credentials) is required when an application requires interaction with APIs of other services in Insights Hub. This ensures secured interaction with the APIs. This is also useful when an application needs to perform frequent data processing on one or more subscribed tenants.
During the development phase, the developer should issue app credentials based on application version. This credentials should be provided as environment variables to the application. After the operator installs the application, credentials will be created for that application.
The following functionalities are supported:

- App credentials are autogenerated
- App credentials are valid for 365 days
- Management and storage of credentials are secured
- Only authorized users can request credentials

10.2 Working with app credentials

Working with app credentials

During the development phase, the developer can decide if the credentials are required for an application or not. If it is required, the developer should specify the type of permissions for the application in Developer Cockpit.
For more information on issuing the credentials, refer "Developer Cockpit" documentation.

View app credentials for CF apps

To view the app credentials for CF apps, proceed as follows:

1. Log in to Cloud Foundry.

2. For an application, read the App credentials data from Cloud Foundry environment variables. The credentials will be automatically set as part of registration process and will be available in the following environment variables:
`MDSP_KEY_STORE_CLIENT_ID=<Key-store id>`
`MDSP_KEY_STORE_CLIENT_SECRET=<Key-store Secret>`

3. Invoke the Key Manager and create a bearer token. For more information, refer Token Management Service.

4. Invoke the platform end points using the bearer token.

View the app credentials for self-hosted apps

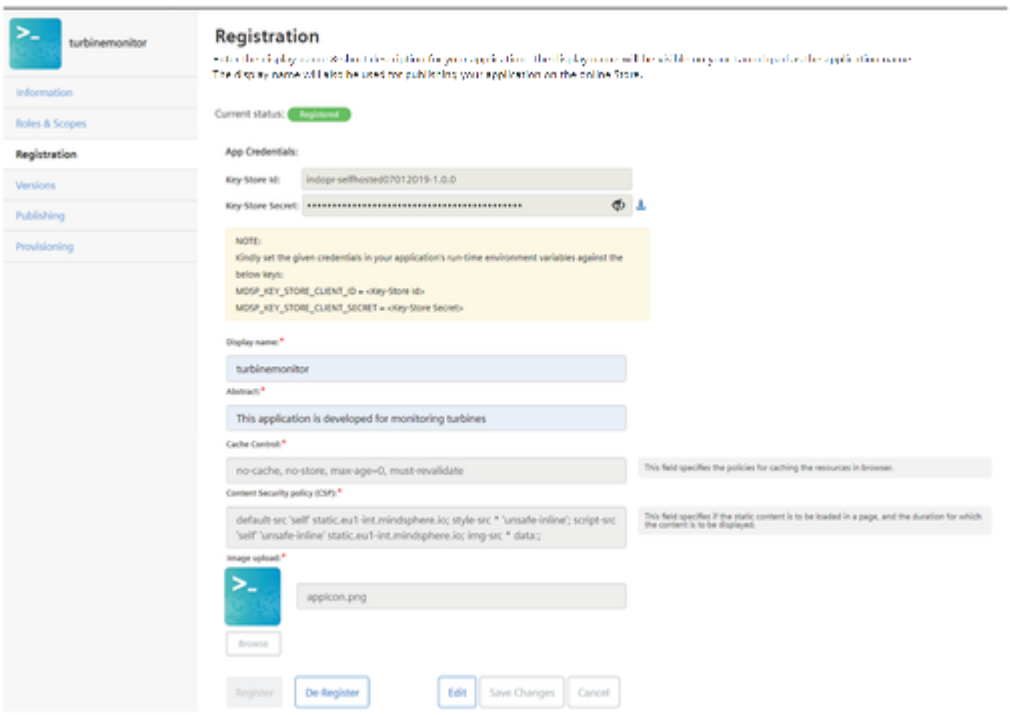
To view the credentials for a self-hosted application, proceed as follows:

1. In the "My Applications" screen, select any self-hosted application that has the "App Credentials Enabled" label. This means that the application has a requirement of app credentials.

2. If the application is not registered, select the "Registration" tab and register the application. For more information on registering a self-hosted application, refer the chapter "Register or deregister self-hosted applications".

- The credentials are displayed in the "Registration" tab only after the application is registered, and will be displayed only until the current session is active.
- The credentials will not be automatically saved in your run-time environment variables, and therefore it is required to save them in the your application run-time environment variables with the below recommended keys: `MDSP_KEY_STORE_CLIENT_ID=<Key-store id>`
  `MDSP_KEY_STORE_CLIENT_SECRET=<Key-store Secret>`
  (For more information, refer the below steps)
- It is not mandatory for all self-hosted applications to have app credentials.

3.After the registration is successful, you can view the application credentials in the "Registration" tab.
It is also possible to download the credentials for future reference.



10.3 Rotating app credentials

Rotating app credentials

The App credentials created for the applications are valid for 365 days, once the app credentials complete 365 days, they need to be rotated.

From the 358th day of the app credentials age mail notification, alert message and subscription message is sent to the operator informing to rotate the app credentials.

The age of the app credentials is displayed on the "App Credentials" tab.

Rotate app credentials for CF apps

App credentials for CF apps can be rotated either through Auto rotate or On-demand basis.

Auto rotate app credentials:

For app credentials older than 365 days, the credentials are rotated automatically.

On-demand rotation of app credentials:

1. To rotate the app credentials, click on the "Apps" icon from the main navigation. Select any CF hosted application from the "My Applications" window, that has the "App Credentials Enabled" label. This means that the application has a requirement of app credentials, click the "App Credentials" tab.

2. Click the "Generate App Credentials" button.

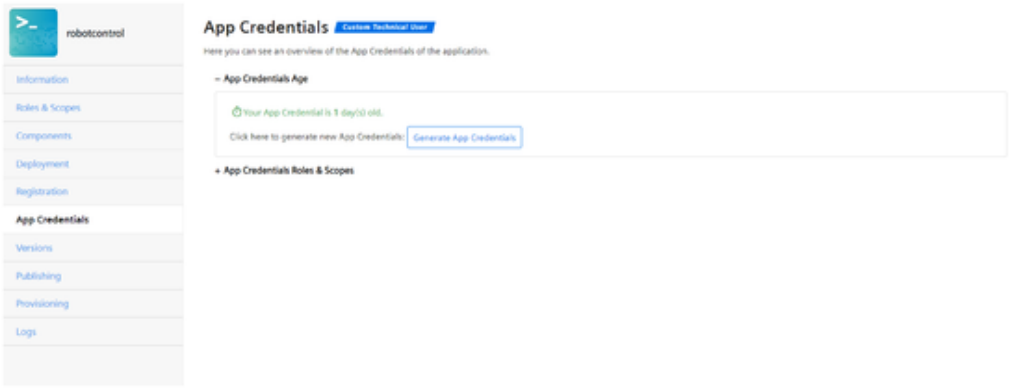
3. In the confirmation dialog, click "Continue".

Result:

On successful rotation of the app credentials, a mail notification is sent to the customer.

After successful rotation of the app credentials, the application will restart automatically (During this process, the application will not be available for the customers) to make the new credentials valid in the application run time environment.

If the application fails to restart, you need to restart the application manually.

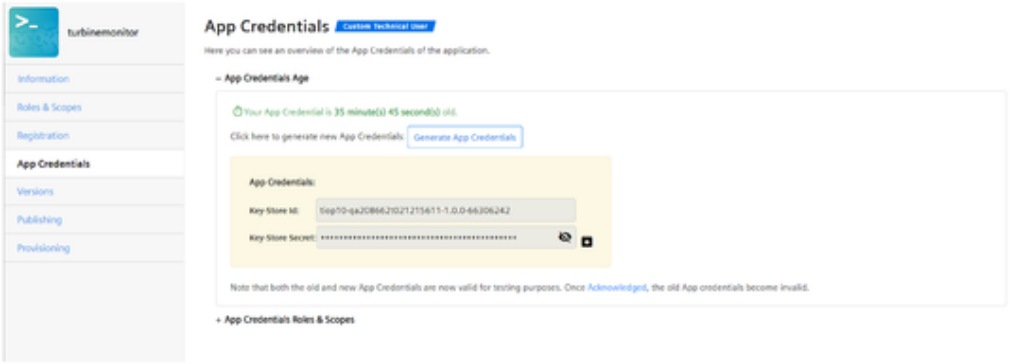


Rotate app credentials for self-hosted apps

App credentials for self-hosted apps can be rotated only through On-demand basis.
To rotate the app credentials for self-hosted apps:

1. Click on the "Apps" icon from the main navigation. Select any self-hosted application from the "My Applications" window, that has the "App Credentials Enabled" label. This means that the application has a requirement of app credentials, click the "App Credentials" tab.

2. Click the "Generate App Credentials" button.



3. In the confirmation dialog, click "Continue". The new application credentials created is displayed in the "App Credentials" tab. It is also possible to download the credentials for future reference.

4. Click the "Acknowledge" link to make the new credentials valid. Old credentials are valid until operator acknowledges the new credentials.

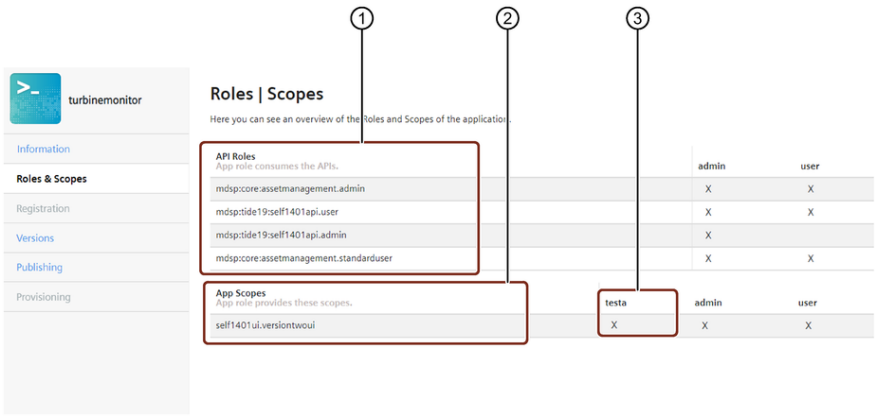
User Interface "Roles and Scopes" 11

"Roles and Scopes" user interface

The "Roles and Scopes" screen displays the roles that are assigned for a CF or a self-hosted application and the scopes of the application.

"Roles and Scopes" screen

To view the roles and scopes details for an application, click on the "Apps" icon from the main navigation. Select any application from the "My Applications" window, click the "Roles and Scopes" tab. If an application has custom roles assigned to it, then it will also be displayed in the "Roles | Scopes" screen. The custom roles for an application can be created from Developer Cockpit. For more information, refer "Developer Cockpit" documentation.
The roles and scopes for the selected application are displayed.



① API roles in use for the application
② Custom roles for the application
③ Scopes information for the application

User Interface of "Components" for CF apps 12

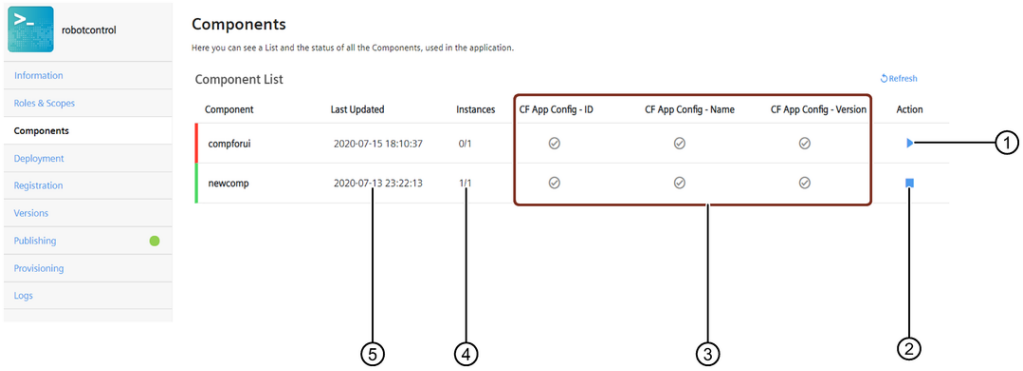
"Components" user interface for CF apps

The "Components" screen provides options for the user to start or stop the components of an application. It is also possible to view the last updated status and the environment variables for each component of an application.

To view the component details of CF applications, click on the "Apps" icon from the main navigation. Select any application from "My Applications" window and navigate to "Components" tab.

"Components" screen for CF apps

The "Components" screen displays the list of components and their status.



① Starts the selected component
② Stops the selected component
③ Environment variables of the selected component
④ Instances of the component
⑤ Last updated timestamp of the component

The green color displayed next to the component indicates the component is running, the red color displayed next to the component indicates the component is stopped.

Enable Standard UI applications 13

13.1 Download and deploy Cloud Foundry (CF) applications

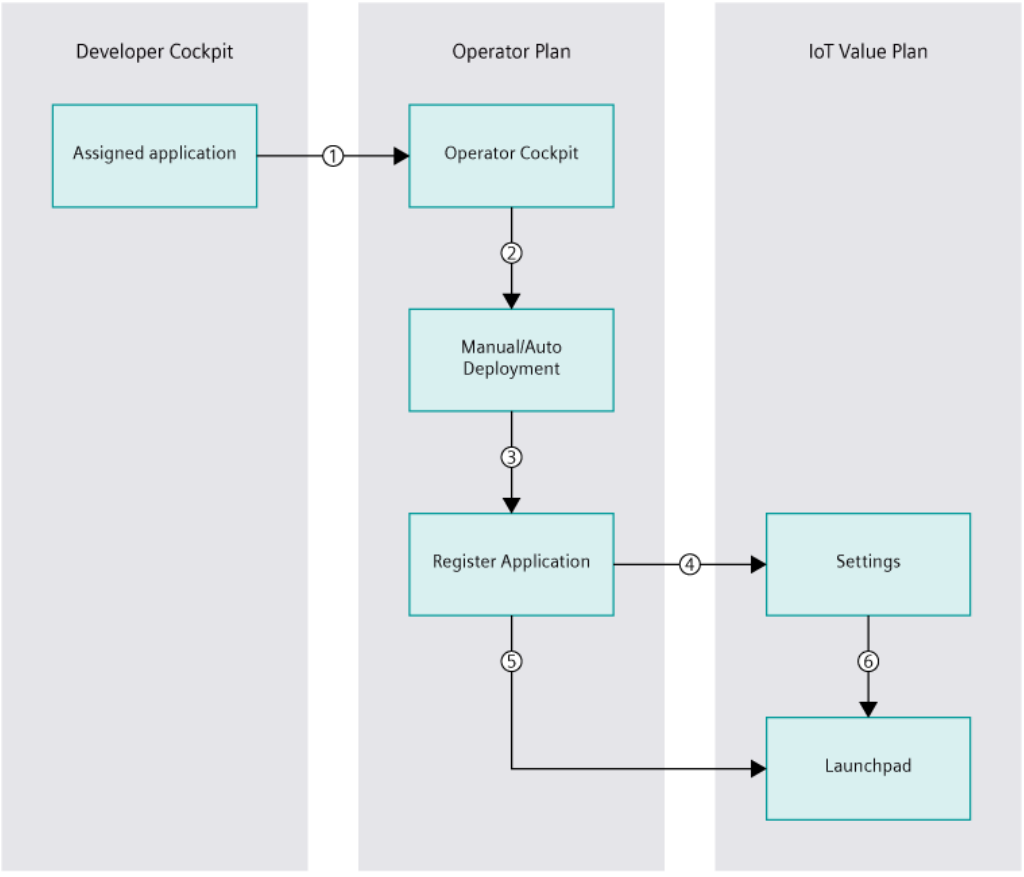
Introduction to deployment process

Overview

To allow productive use of the application, you have to deploy the application on the live system. You can start the deployment in the "Application Details" window in the "Deployment" tab. To deploy the application, you need to fulfill the following steps:

1. Start manual deployment or auto-deployment
2. Register the application
3. Add roles in Settings

The following graphic depicts the deployment process of an application:



① Operator downloads an assigned application

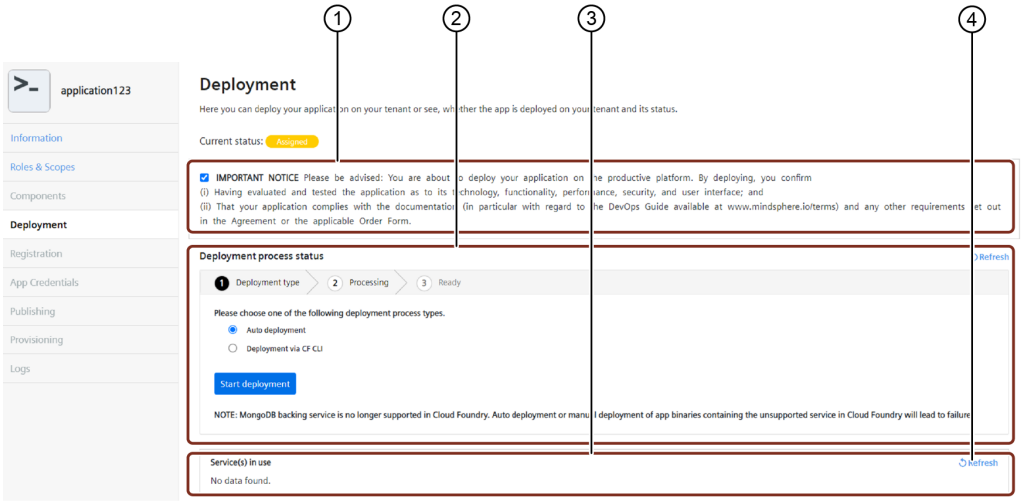
② Start manual or auto deployment
③ Register deployment in Operator Cockpit
④ Add roles in Settings
⑤ Operator can access the application via the Launchpad
⑥ Settings sets the roles for the application on the Launchpad

For more information on Deployment of applications, see "Deployment and update of Cloud Foundry applications" document.

"Deployment" user interface

The "Deployment" screen allows the user to deploy an application. The deployment can either be performed manually or automatically. In addition to this, it is also possible to view the services that are in use for that application.

To view the "Deployment" screen for an application, click on the application from the "My Applications" screen, and navigate to "Deployment" tab.



① Checkbox with important notice
② Shows the deployment options
③ Shows a description of the services in use for that application
④ Refreshes the used services

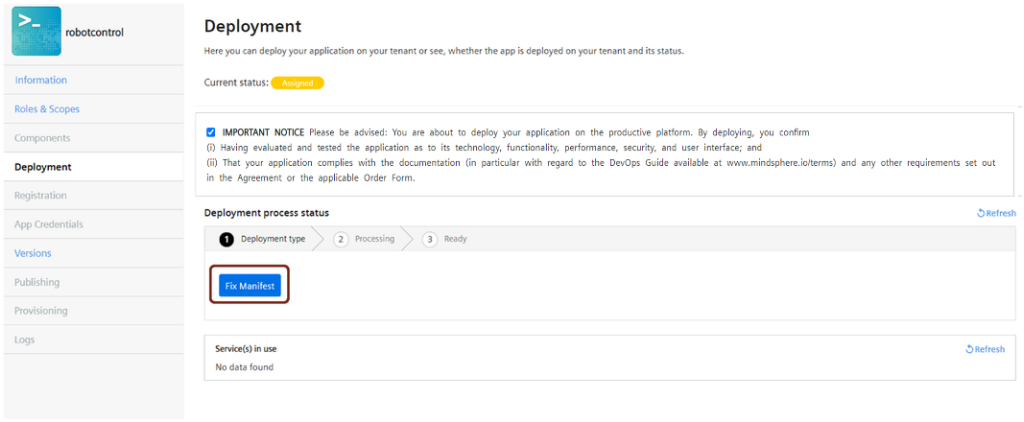
While deploying the application, tick the checkbox with the following important notice:

You are about to deploy your application on the productive platform. By deploying, you confirm:

- **Having evaluated and tested the application as to its technology, functionality, performance, security, and user interface.**
- **Your application complies with the documentation (in particular with regard to the DevOps Guide available here) and any other requirements set out in the agreement or the applicable Order Form.**

For older applications, which does not have component id in the Manifest files, fix the manifest files and redeploy the application.

To fix the Manifest files, click "Fix Manifest".



If the app binaries contain unsupported service in Cloud Foundry, deployment of such app binaries will be failed. For example, MongoDB backing service is no longer supported in Cloud Foundry, deployment of app binaries containing this backing service will be failed.

Manual deployment of an application

Example scenario

An application "robotcontrol" has been developed by a developer. This application has been assigned to the operator and needs to be deployed manually.

Prerequisite

The application has already been assigned by the operator.

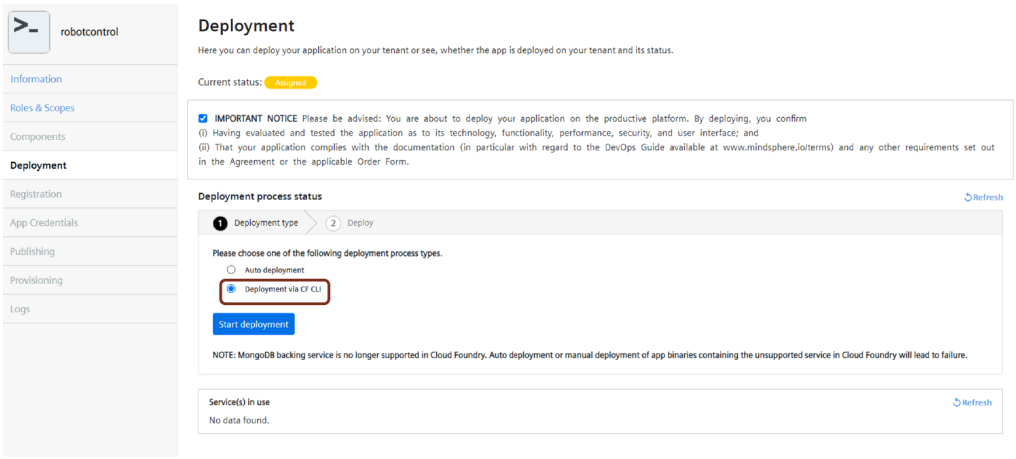
Manual deployment

In order to deploy an application manually, it is required to first download the application.
To download and deploy an assigned application, proceed as follows:

1. Click on the "Apps" icon and select an application in the "Assigned" state that you want to deploy. The "Application Details" menu opens.

2. Click on the menu button "Deployment".

3. **Choose Deployment type:** Under "Deployment type", select "Deployment via CF CLI" and click "Start deployment".



4. **Deploy the application:** Under "Deploy", follow the onscreen procedure to deploy the application manually.

A warning message will be displayed in the "Deployment" window, if the application components have not passed the validation criteria. In such a scenario, you need to re-deploy the application.

5.Click "Download Application".

6.Unzip the "Appbinary.zip" file.

"Appbinary.zip" includes the components of your CF application, which you target later using "cf push".

Ensure that Appbinary is extracted as a separate folder containing only the service components and does not include the icon or metadata files.

7.Open Cloud Foundry Command Line Interface (CF CLI).

`You can use e.g. Power Shell or Command prompt.`

It is recommended to use CF CLI version 6 to push an application manually.

8.Log in to your Cloud Foundry using the command "cf login -a https://api.cf.eu1.mindsphere.io --sso".

9.Switch to your CF Organization using the command "cf target - o organization-name".

10.Run the command "cf create-space <space-name>".

- Use the format "cf create-space <space-name>" for creating CF space for applications. If the format is not used correctly, then the further process for application deployment will be blocked. In such cases, you need to re-deploy the application with proper space names.
- It is recommended to use appname as space-name.
- If the custom name is used as a space-name, select the created space-name as Space Location in the Information tab.

11.Switch to your created space using "cf target -s space-name" command.
12.Create Services for every service from the list "cf create-service serviceName servicePlan serviceInstanceName".
13.Switch to location of the unzipped "Appbinary" folder in your CF CLI.
14.Run the following command "cf push".
For more information, refer to Deployment and update of Cloud Foundry Applications, and Developer Documentation.

Auto-deployment of an application

Example scenario

An application "robotcontrol" has been developed by a developer. This application has been assigned to the operator, and needs to be deployed automatically.

Prerequisite

The application has already been assigned by the operator.
For more information on Prerequisites, refer "Operator Cockpit" FAQs.

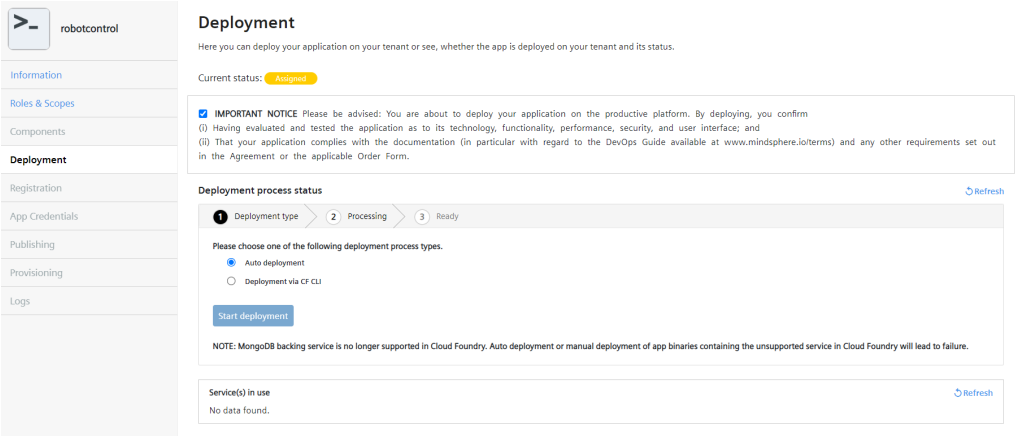
Automatic deployment

To proceed with the auto deployment, follow the procedure below:

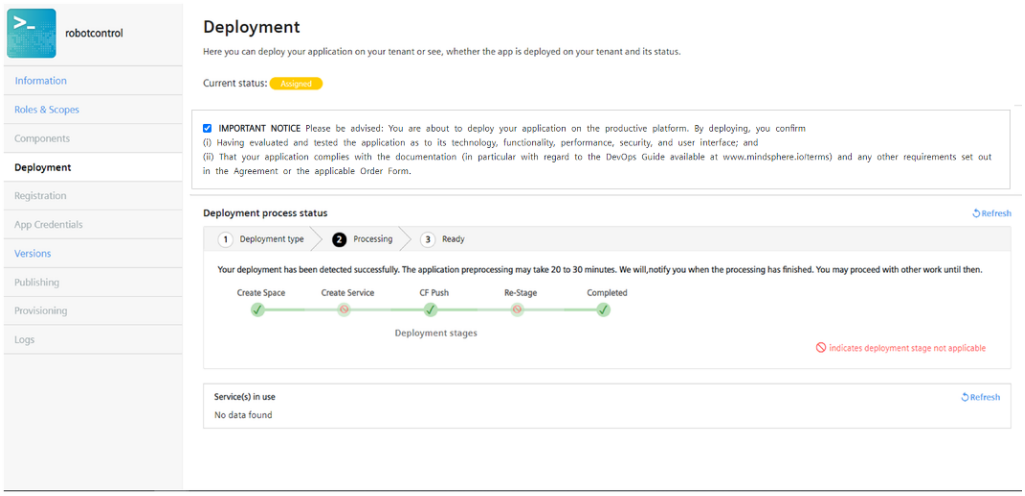
1. Click on the "Apps" icon and select an application in the "Assigned" state that you want to deploy.

2. In the "Application Details" menu, click on "Deployment".

3. **Choose Deployment type:** Under "Deployment type", select "Auto deployment" and click "Start deployment".



4. **Processing of application:** The deployment of this application will take place automatically. The status of each of the deployment steps can also be viewed.



By default, auto deployment process creates a new space with the same name as the appname irrespective of selecting the space from the space location of the Information tab.

5.**Register the application:** In order to register the application, click on "Register application" in the "Deployment" screen.
You can also register the application from "Registration" screen. For more information on registering an application, refer the chapter "Register or deregister applications".

Undeploy a CF application

Prerequisites

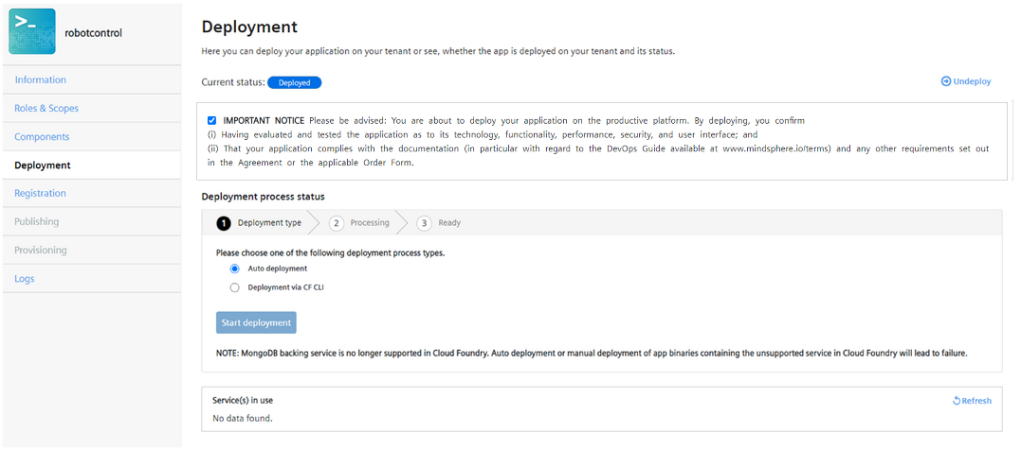
- The application is already deployed and is in the "Deployed" (with warning symbol) state
- The application is not registered and does not have any customers (not provisioned)

Undeploy a CF application

To undeploy an application, proceed with the following steps:

1. In the "My Applications" window, click on the application that you want to undeploy.

2. Click the "Deployment" tab in the side navigation and click "Undeploy".

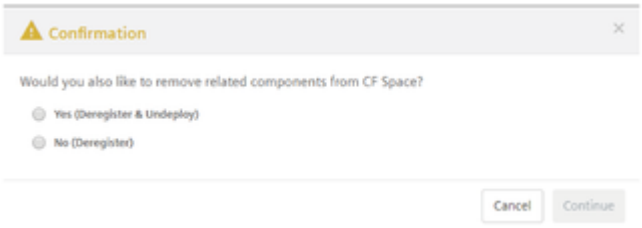


3. In the confirmation window, click "Continue" to remove the components and undeploy the application.

To undeploy an application that is registered or provisioned, proceed with the following steps:

1. Click the "Provisioning" tab, and de-provision the existing customers.

2. Click the "Registration" tab and click "De-Register". In the confirmation dialog, click "Yes" to deregister and undeploy.



Common mistakes during deployment

The following sections lists the common mistakes that might occur during deployment of an application.
For additional information, refer to FAQs.

Improper unzipping of "appbinary"

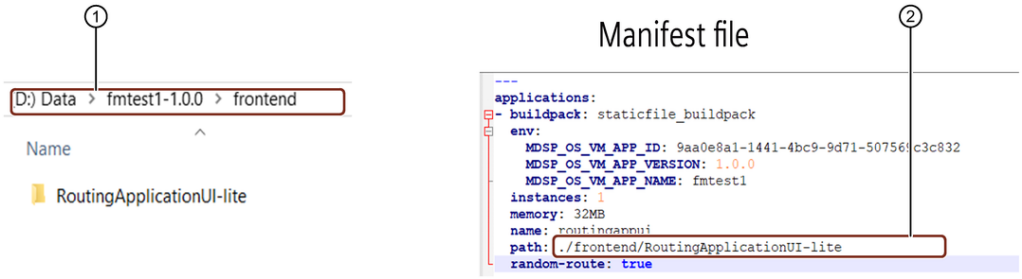
During deployment of an application, consider the following factors:

- Unzip the "appbinary.zip" file correctly
- The "path" parameter in the "manifest.yml" file should be as per the folder structure

For example, consider that the "fmtest-1.0.0.zip" file has been downloaded from Operator Cockpit. After unzipping the "fmtest-1.0.0.zip" file, the following files/folders are available:

- appbinary.zip
- manifest.yml
- metadata.json
- icon.png

Now, unzip the "appbinary.zip" file correctly. After unzipping, make sure that the "path" parameter in the "manifest.yml" file is updated to point to the correct file. For reference, see the following image:



① Folder path

② Corresponding file path defined in "manifest"

While executing the "cf push" command, the parameter "buildpack" will be automatically changed to "buildpacks" by Cloud Foundry.

Incorrect "manifest" file modifications

After unzipping "appbinary.zip", the following factors should be considered:

- The "path" parameter in "manifest.yml" should point to the correct file/files.
- Except for the corresponding files of the application, there should not be any other additional/duplicate files in the folder where the .zip file is extracted.

The following conditions should be met with respect to the parameter names in "manifest" and "metadata" files:

- "appname" parameter in "manifest" file matches with the "componentname" parameter in "metadata" file.
- "serviceInstanceName" in the "manifest" file matches with the "instancename" in "metadata" file.
- For an application, the total number of components that are defined in "manifest.yml" and "metadata.json" files should match.

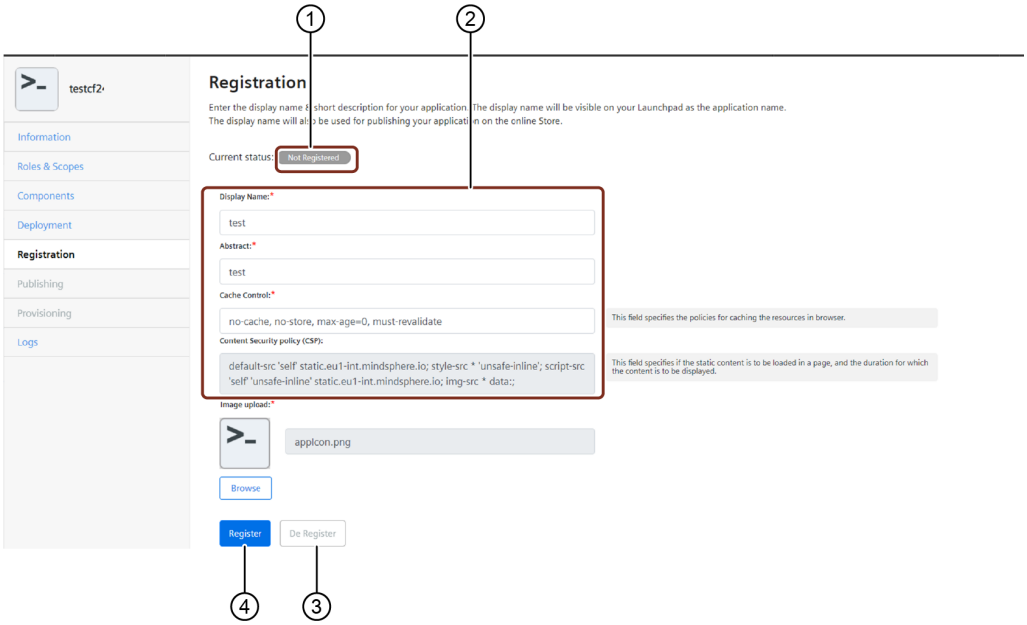
13.2 Register or deregister applications

Register or deregister CF applications

Overview

The "Registration" screen provides options for the user to register or deregister a CF application. The display name, abstract and the application icon can also be edited before registering an application.

To view the "Registration" screen for a CF application, click on any application that is in the "Deployed" state, and navigate to the "Registration" tab.



① Registration status of the application
② Application fields required for registering the application
③ Deregisters the application
④ Registers the application

Prerequisite

- The application has already been deployed.
- All the dependent API applications have been registered and provisioned.

Register a CF application

To register a CF application, proceed with the following steps:

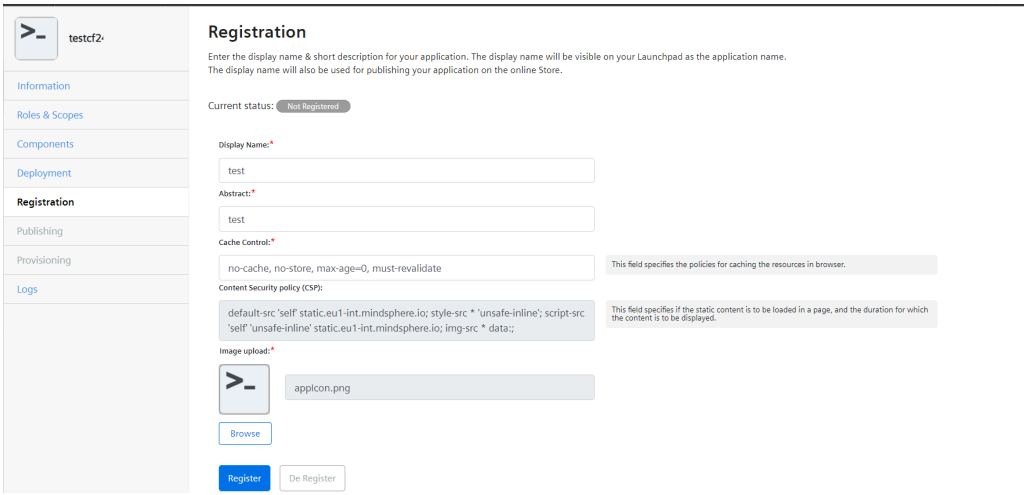
1. In the "My Applications" window, click on "UI Apps" tab. Then, click on an application that needs to be registered, that is an application in the "Deployed" state with a warning symbol.

2. Click on the "Registration" tab from the side navigation. Enter the following details:

    - Display name: The name entered in this field will be displayed in Launchpad

- Abstract: The short description of the application
- Cache control: The data displayed in this field is retrieved from Developer Cockpit, and is editable. This field specifies the policies for caching the resources in browser.
- Content Security Policy (CSP): The data displayed in this field is retrieved from Developer Cockpit and is editable. This field specifies if the static content is to be loaded in a page, and the duration for which the content is to be displayed.
- License ID: License ID of the Mendix application.
- License Key: License Key of the Mendix application

You can also change the application icon by clicking on the "Browse" button.



3. For Mendix applications: Enter the "License ID" and "License Key". 4. Click the "Register" button.

- If you are trying to register a new version of an already existing application, then you need to first deregister the existing version of that application. A warning message is displayed on the "Deployment" window for the same.
- If two apps with the same appname are assigned to the same operator tenant, and one of these apps is already registered, then you will not be able to register the other app. To register the app, you must deregister the previously registered app. Example: Two developers "DevA" and "DevB" have created apps "app1" with version 1.0.0 and "app1" with version 2.0.0 respectively and have assigned the apps to the same operator "Oper1". Consider that "app1" with version 1.0.0 is already in the registered state. Now, if you want to register "app1" 2.0.0, then you must first deregister "app1" 1.0.0.

The status of registration process can also be viewed in the "Registration" screen.

5.To access the application via Operator tenant Launchpad, add roles for the application. For more information on adding roles for the application, see the "Settings" documentation. 6.To provision the application to dedicated user, refer to the chapter "Provision CF applications". 7.To publish the application in the Industrial IoT Store, refer to the chapter "Offer applications in the Industrial IoT Store".

Deregister CF application

To deregister a CF application, proceed with the following steps:

1. In the "My Applications" window, click on the "UI Apps" tab. Then, click on an application that you want to deregister.

2. Click on the "Provisioning" tab. If there are any customers provisioned for that application, then you need to de-provision them. To de-provision, select the customer and click "Remove from customer".

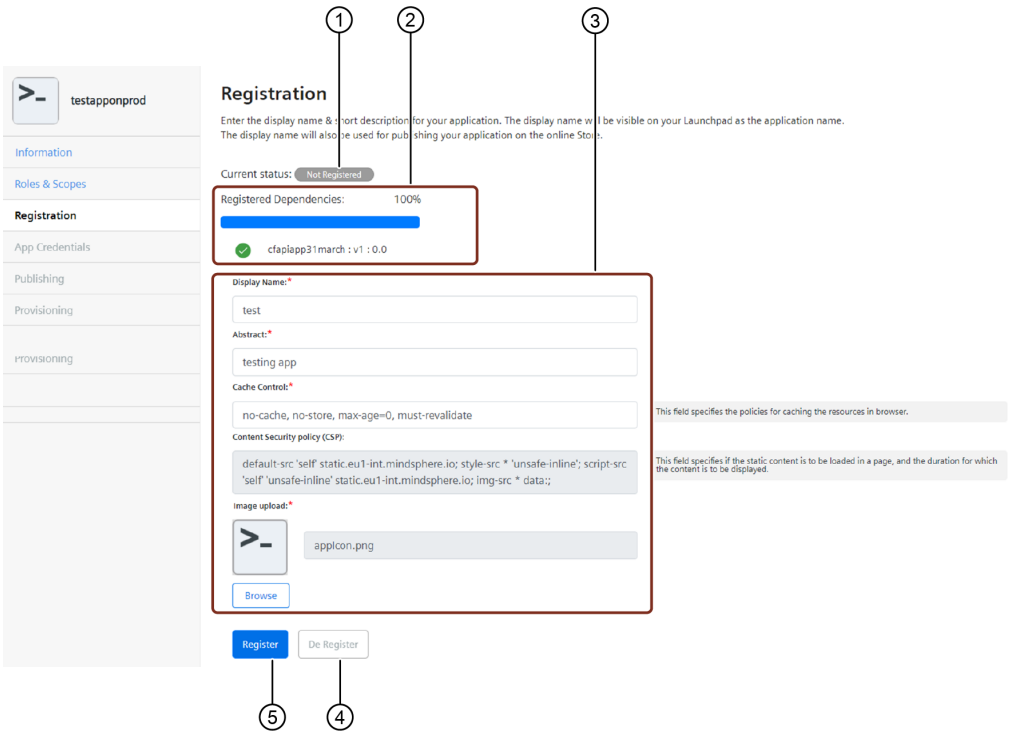
3. Click on the "Registration" tab in the side navigation and click "De-Register". The status of deregistration process can also be viewed in the screen.

4. In the confirmation dialog, click "Yes" if you wish to deregister and undeploy the application. Click "No" if you want to only deregister.

Register or deregister self-hosted applications

Overview

The "Registration" screen provides options for the user to register or deregister a self-hosted application. The display name, abstract and the application icon can also be edited before registering an application.
To view the "Registration" screen for a self-hosted application, click on "UI Apps" tab in the "My Applications" window. Click on any application that is in the "Deployed" state and navigate to the "Registration" tab.



① Registration status of the application
② Registration status of the dependent application
③ Enter the details in the application fields:
④ Deregisters the application
⑤ Registers the application

Prerequisite

- All the dependent API applications have been registered and provisioned.

Register a self-hosted application

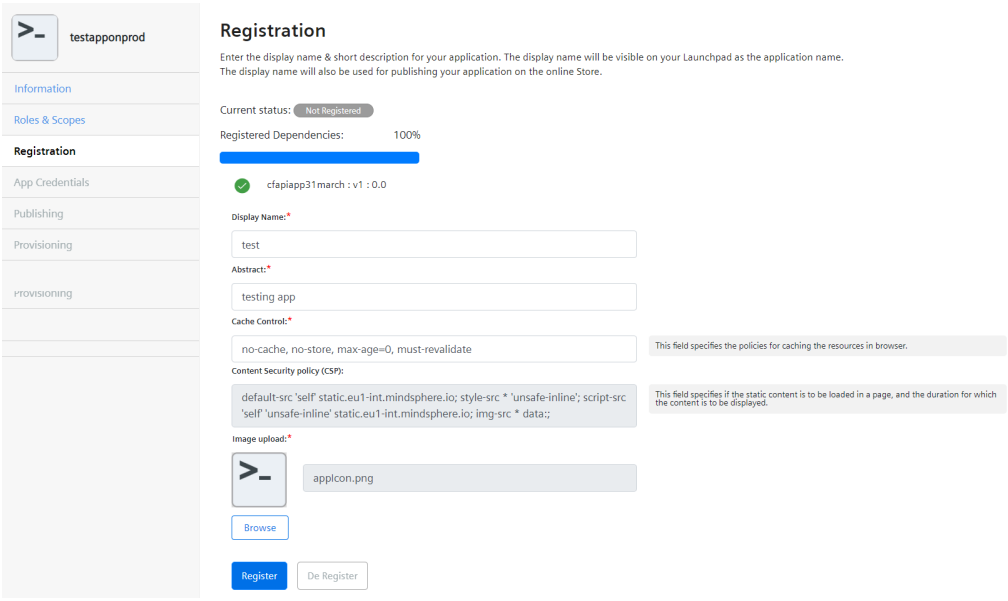
To register a self hosted application, proceed with the following steps:

1. In the "My Applications" window, click on "UI Apps" tab. Then, click on a self-hosted application that needs to be registered, that is the application in the "Deployed" state, with a warning symbol.

2. Click on the "Registration" tab from the side navigation. Enter the required descriptions for the application.

- Display name:The name entered in this field will be displayed in Launchpad
- Abstract: The short description of the application
- Cache control: The data displayed in this field is retrieved from Developer Cockpit and is editable. This field specifies the policies for caching the resources in browser.

- Content Security Policy (CSP): The data displayed in this field is retrieved from Developer Cockpit and is editable. This field specifies if the static content is to be loaded in a page, and the duration for which the content is to be displayed. You can also change the application icon by clicking on the "Browse" button.



3. For Mendix applications: Configure the "License ID" and "License Key" in the application runtime environment.

4. Click the "Register" button. The status of registration can be viewed in "Registration" screen.

5. To provision the application to dedicated user, refer to the chapter "Provisioning self-hosted applications".

6. To publish the application in the Industrial IoT Store, refer to the chapter "Offer applications in the Industrial IoT Store".

If two apps with the same appname are assigned to the same operator tenant, and one of these apps is already registered, then you will not be able to register the other app. To register the app, you must deregister the previously registered app. Example: Two developers "DevA" and "DevB" have created apps "app1" with version 1.0.0 and "app1" with version 2.0.0 respectively and have assigned the apps to the same operator "Oper1". Consider that "app1" with version 1.0.0 is already in the registered state. Now, if you want to register "app1" 2.0.0, then you must first deregister "app1" 1.0.0.

Deregister self-hosted application

To deregister a self-hosted application, proceed with the following steps:

1. In the "My Applications" window, click on the "UI Apps" tab. Then, click on any application that you want to deregister.

2. Click on the "Provisioning" tab. If there are any customers provisioned for that application, then you need to de-provision them. To de-provision, select the customer and click "Remove from customer".

3. Navigate to the "Registration" tab in the side navigation. If necessary, you can edit the application details by clicking on the "Edit" button, and then save the changes by clicking on the "Save Changes" button. If you do not want to edit the application details, you can directly proceed with the deregistration by clicking on the "De-Register" button.

You can also view the status of deregistration in the "Registration" screen.

13.3 Upgrade or downgrade an application to a different version

Introduction to minor version upgrade

The minor version upgrade feature enables the users to upgrade an application to a new version and downgrade an application to a previous version.
It is not possible to use two versions of the same application simultaneously. You can only upgrade or downgrade an application's version to its immediate next or previous version.
For example, the application "devicetest" has different versions: "devicetest1.0", "devicetest2.0", "devicetest3.0", "devicetest4.0" and "devicetest5.0".
Consider that the version in use is "devicetest3.0". You can upgrade the application only to "devicetest4.0", and downgrade the application only to "devicetest2.0".

Introduction to version upgrade

The "My Applications" screen lists all the applications that are available in your tenant. The applications are categorized as "New" and "Update" based on the following conditions:

- "New" label, if an application is newly assigned
- "Update" label, if a new version of an existing application is available

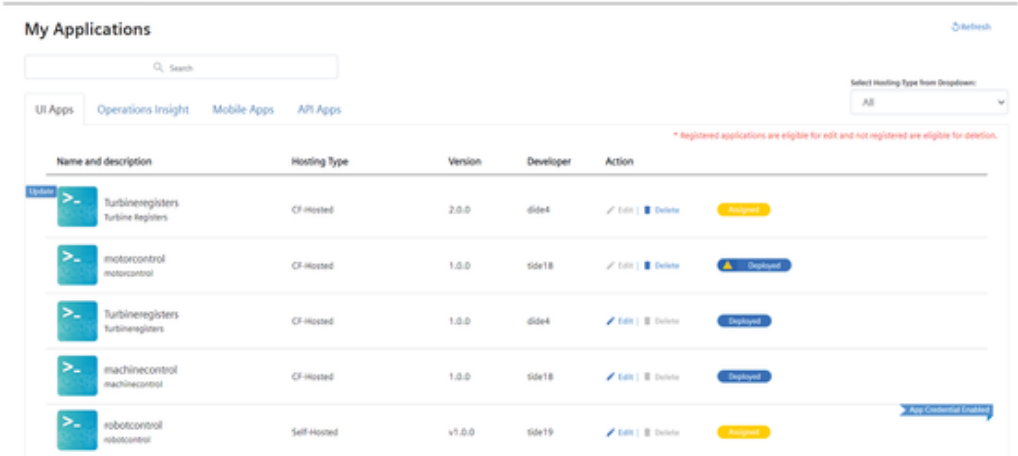
The reasons for the applications to have "New" and "Update" labels are described below with an example:

- "robotcontrol" with version "2.0.0" is available with "Update" label, since it is a new version of the existing application ("robotcontrol", version "1.0.0").
- "motormaintenance" of version "1.2.1" is available with "New" label, since this is the new application and no previous versions of the same application are available.

- "devicetest" with version "2.0.0" is available with the "New" label, since this is the new application and no previous versions of the same application are available.

It is possible to perform version upgrade and downgrade between the following application types:

Version 1.0.0	Version 2.0.0	Prerequisite
Non Mendix	Non Mendix	License configuration for the application is not required
Non Mendix	Mendix	License for the application should be configured, refer Register or deregister applications
Mendix	Non Mendix	License configuration for the application is not required
Mendix	Mendix	License for the application is already configured, refer Register or deregister applications

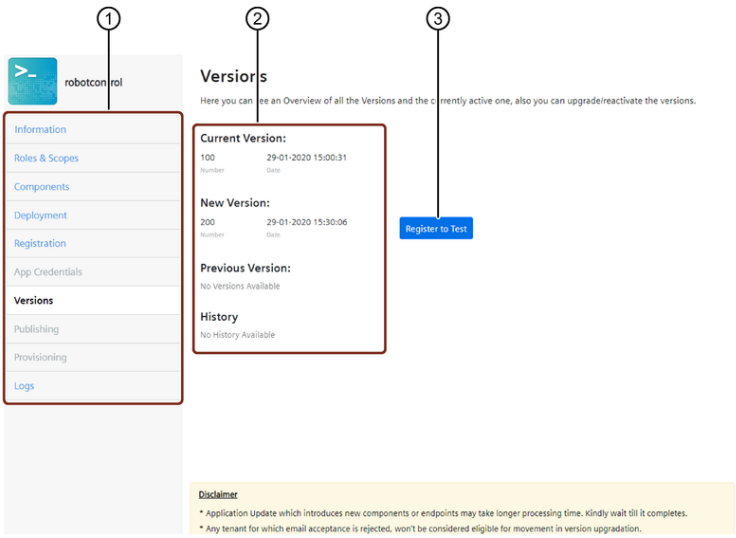


To be able to upgrade the applications successfully, consider the following:

- It is recommended to use appname as the spacename across all the versions
- Ensure the use of the same spacename across all the versions If these are not ensured, then version upgrade without downtime Upgrade a CF application (without downtime) will not be successful and data losses might occur.

"Versions" screen

The following screen is used to update an application to a new version. The screen shows all the available versions of an application and also the version that is currently in use.



① Navigation tabs

② Version information for the application

③ "Register to Test" button: Register the new version of the application and test the functionality

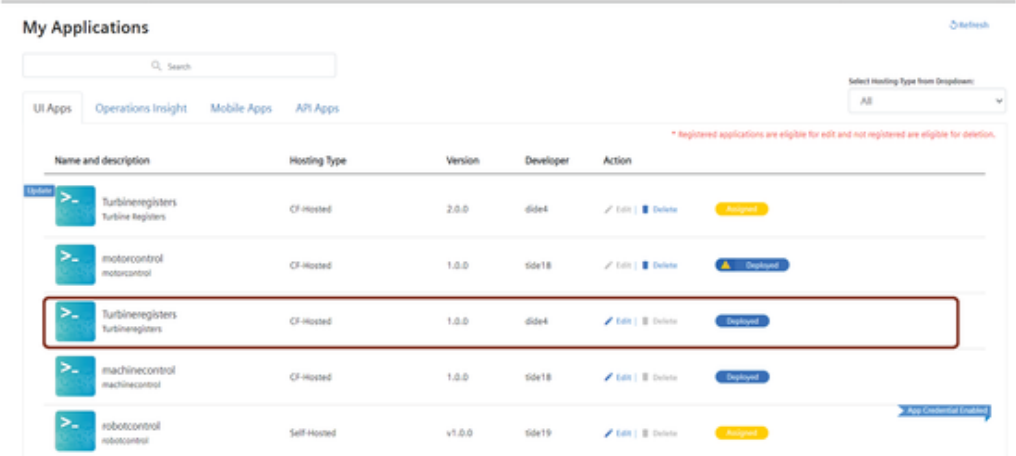
Upgrade a CF application (with downtime)

The following section describes the procedure to upgrade an application to a new version. However, this procedure involves downtime since the customers will not be able to access the application during the upgrade.

Procedure to upgrade an application (with downtime)

To upgrade an application, proceed with the following steps:

1. In the "My Applications" screen, select the application that you want to upgrade.



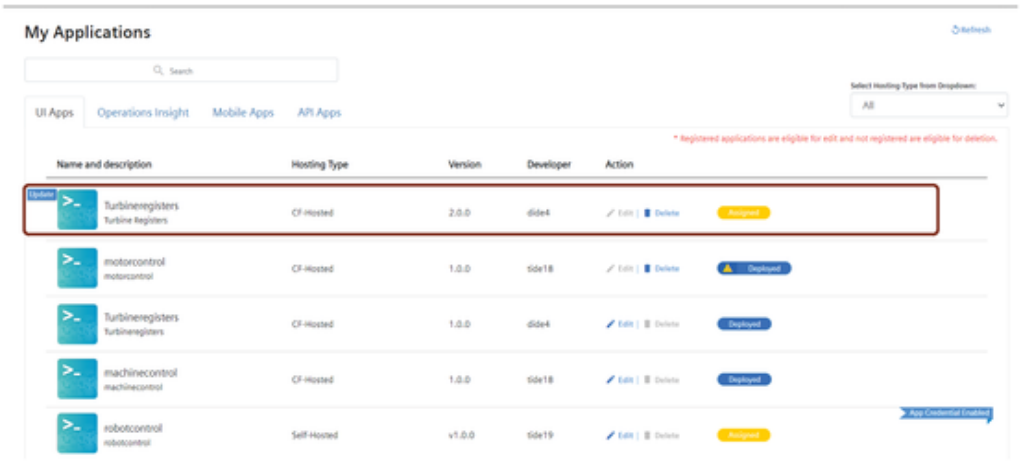
2. Click the "Provisioning" tab and remove all the customers for the old version of the application.

To remove a customer, select the customer and click "Remove from customer". In the Confirmation dialog, click "Yes".

The customer is removed from the application.

3. Click the "Registration" tab and click "De-Register". In the confirmation dialog, choose "Yes (Deregister and undeploy)" and click "Continue".
For more information on deregistering an application, refer the section "Deregister CF application" in the chapter "Register or deregister CF applications".

4. In the "My Applications" screen, select the new version of the same application that you want to upgrade.



Before deploying a new version of an application, ensure the following:

- Delete the components in the previous version of the application.
- During manual deployment, append "-green" to all the components in the new version of the application.
- Before proceeding with the downtime version upgrade, make sure that only one version of the application is deployed in Cloud Foundry during deployment.

5.Click the "Deployment" tab and proceed with manual or auto deployment. For more information on deploying a CF application, refer "Deploy CF applications".

- If more than three versions of the same application are available for your tenant and two versions of this application are in the "Deployed" state, then auto-deployment option for all the versions starting from the third version of this app will be disabled.
  In such a case, please proceed with manual deployment or contact the support team.
- If an application is deployed by using "Auto deployment" and downtime version upgrade procedure is followed to upgrade a CF application, follow the below steps:
  - For the previous version of the application, delete the components from Cloud Foundry
  - For the current version of the application, rename the component by removing -green from the component name

6.Click the "Registration" tab and register the application. For more information on registering an application, refer "Register or deregister CF applications".
The application is upgraded to the new version.
7.Click the "Provisioning" tab and add the customers who were de-provisioned in the previous version. For more information on provisioning an application, refer "Provision an application".

Upgrade a CF application (without downtime)

The procedure to upgrade an application as described in "Upgrade a CF application (with downtime)" involves downtime, since the customers will not be able to access the application during the upgrade. In order to upgrade your application without any downtime, refer the section below.

Example scenario

A user wants to upgrade the "robotcontrol" application from version 1.0.0 to version 2.0.0.

Prerequisites

- The application that is currently in use must already be deployed and registered.

Upgrade a CF application (without downtime)

The following procedure is also applicable if:

- Either one or both of the application versions have a requirement for app credentials
- The application versions have different set of roles assigned

In order to upgrade an application to a new version, proceed with the following steps:

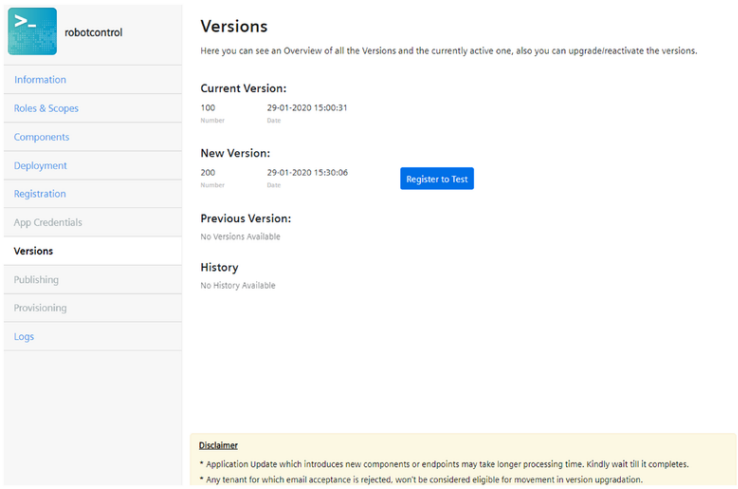
1. In the "My Applications" screen, select the new version of the application available for upgrade.

2. Click "Deployment" tab and deploy the application. For information on deploying the application, refer to the chapter Deploy or Undeploy CF applications
While upgrading an application, deploy the new version in same Space "appname" with "-green" added to the component name.

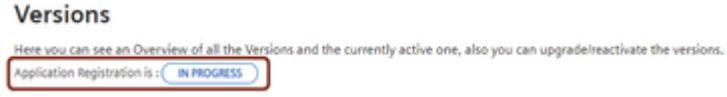
   - For automated deployment, this is done automatically
   - For manual deployment, update component names in manifest (and also routes if they are not set to random)

Once the application is deployed, ensure that the each component must have the correct environment variables in the manifest file.

3.Click the "Versions" tab and click "Register to Test".
A new version of the application needs to be tested before it is made available. Once you ensure that the application version is working fine, you can start using the new version of the application.



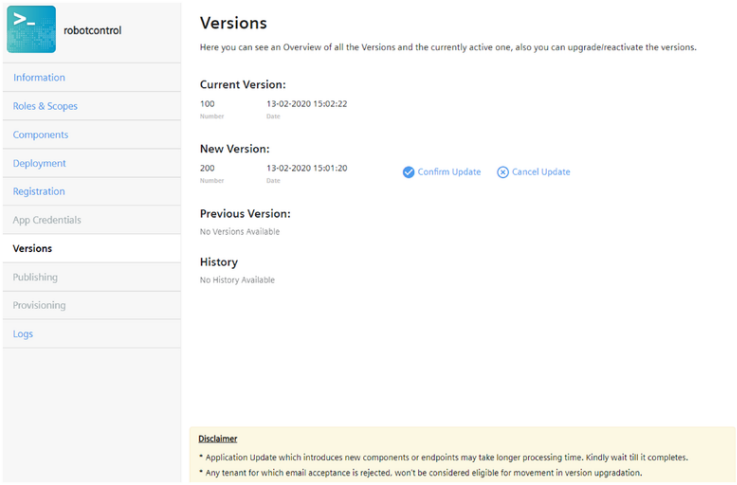
The status of the registration can also be viewed in the "Versions" screen.



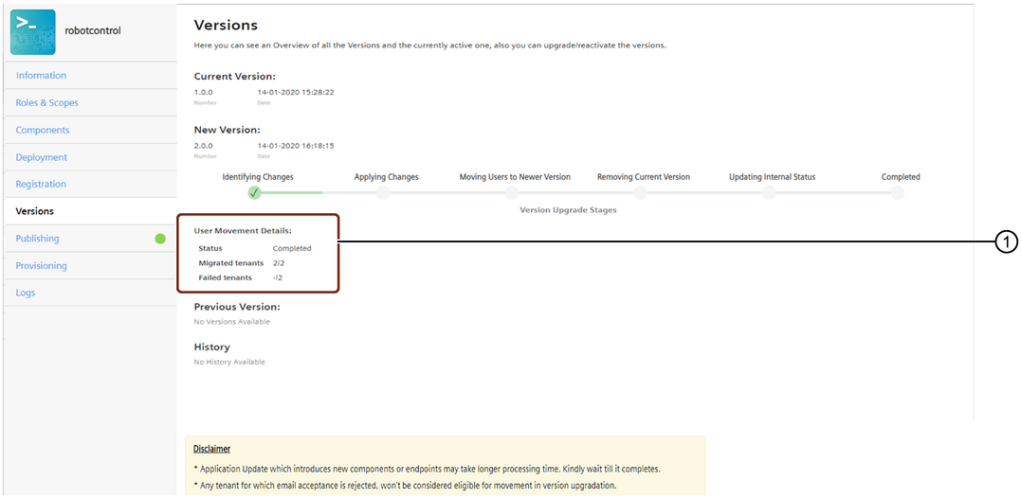
Once the application is registered for test, an application with appname(green) will be available next to the current version and can be tested on Launchpad.

4.To confirm the update, click "Confirm Update". In the confirmation dialog, click "Yes" to proceed.

If you do not wish to proceed with the upgrade, click "Cancel Update" after which you will be able to view the deregistration stages.



After confirming the update, you can view the status of each stage of the update in the "Versions" screen.



① Gives information of user movement.

After the upgrade is completed successfully, the status of the application "robotcontrol 2.0.0" is changed to "Deployed". The previously used version of the application "robotcontrol 1.0.0" is removed from Cloud Foundry and the status is changed to "Assigned".

After successful upgrade, the customers of the previous version of the application "robotcontrol 1.0.0" are automatically assigned to the new version "robotcontrol 2.0.0".

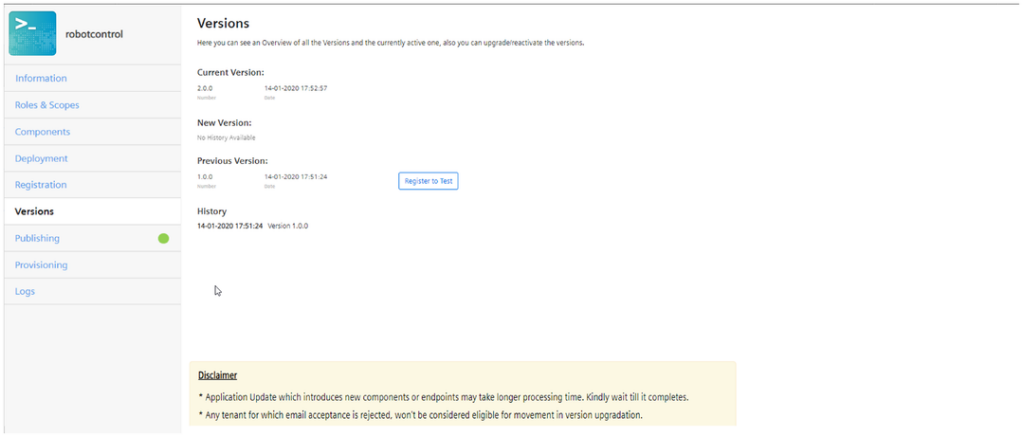
- It is only possible to use a single version for an application at a time. Two versions of the same application cannot be used simultaneously.
- It is not recommended to initiate auto-deployment for the same application in different windows simultaneously, since it might create inconsistencies in the app and it might not be usable.
- If more than three versions of the same application are available for your tenant and two versions of this application are in the "Deployed" state, then auto-deployment option for all the versions starting from the third version of this app will be disabled. In such a case, please proceed with manual deployment or contact the support team. Also, the first version of the application has to be "Deployed" and "Registered" in order to deploy the second version of the application.
- If two versions of an application have different role descriptions defined, then the role description of the second version of the application will be reflected in "Settings" only after the version upgrade process is successful.
- If either versions of an application has a requirement for app credentials, then by default the provisioning of the IoT tenants to the next version will take place automatically during version upgrade.
  However, the IoT tenants can deny this by clicking on the "Deny" button in the email received. If this button is clicked, then the previous application version will not be activated, instead the application will be inaccessible by the IoT tenant users. Also, an operator is notified about the denial of the provisioning via an email and UI notification under Events in the "Message" tab of "Inbox".

Downgrade a CF application

In order to activate the previous version of an application or to downgrade the application version, follow the steps below:

1. In the "My Applications" window, select the application for which you want to activate the previous version.

2. Click the "Versions" tab and click "Register to Test", and click "Confirm Reactivate". In the confirmation dialog, click "Yes" to proceed with the downgrade.
During the downgrade process, the status of each stage of the downgrade can also be viewed.



The application is downgraded to the previous version "robotcontrol 1.0.0".

Consider that there are three versions of an application 1.0, 2.0, and 3.0, and currently version 2.0 is in use. In order to be able to re-activate from 2.0 to the previous version 1.0, you should re-deploy the version 1.0 ((if it is in the "Assigned" state) and proceed with the re-activation).

Upgrade a self-hosted application (with downtime)

The following section describes the procedure to upgrade a self-hosted application to a new version. This process involves downtime since the application cannot be accessed during the upgrade.

Upgrade a self-hosted application (with downtime)

1. In the "My Applications" screen, click on the "UI Apps" tab and select the application that you want to upgrade.

2. Click the "Provisioning" tab and remove all the customers for the previous version of the application. To remove a customer, select the customer and click "Remove from customer".

3. Click the "Registration" tab and deregister the application. For information on deregistering an application, refer to the chapter "Register or deregister self hosted applications".

4. In the "My Applications" screen, select the new version of the same application that you want to upgrade.

5. Click the "Registration" tab and register the application.

6. Click the "Provisioning" tab and add the customers who were had de-provisioned in the previous version. For more information on provisioning, refer to the chapter "Provision an application".

Upgrade a self-hosted application (without downtime)

The following section describes the procedure to upgrade a self-hosted application to a new version. This procedure is advantageous since the users will be able to access the application even during the upgrade or downgrade process.
The following procedure is applicable even if:

- The application has a requirement for app credentials.
- The application versions have different set of roles assigned.

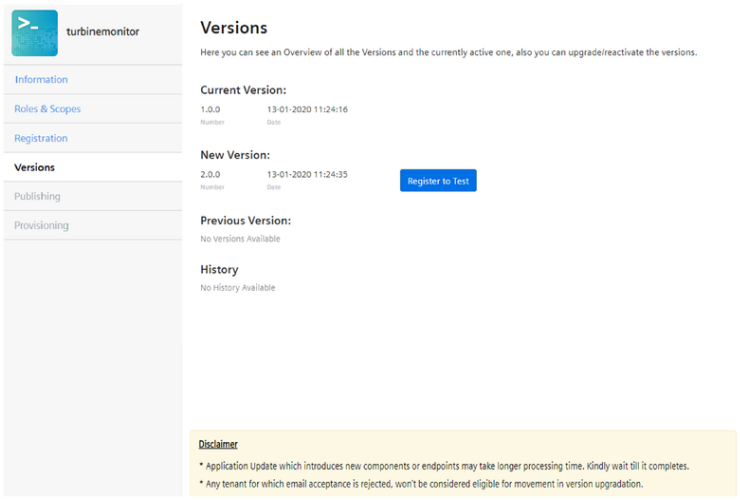
Upgrade a self-hosted application (without downtime)

- It is only possible to use a single version of an application at a time.
- If two versions of an application have different role descriptions defined, then the role description of the second version of the application will be reflected in "Settings" only after the version upgrade process is successful.

To upgrade a self-hosted application, proceed with the following steps:

1. In the "My Applications" screen, select the self-hosted application that you want to upgrade.

2. Click the "Versions" tab and click "Register to Test".



The status of the registration can also be viewed in the "Versions" screen.

3. Click "Confirm Update". In the confirmation dialog, click "Yes" to upgrade the application to the new version.

If either versions of an application has a requirement for app credentials, then by default the provisioning of the IoT tenants to the next version will take place automatically during version upgrade. However, the IoT tenants can deny this by clicking on the "Deny" button in the email received. If this button is clicked, then the previous application version will not be activated, instead the application will be inaccessible by the IoT tenant users. Also, an operator is notified about the denial of the provisioning via an email and UI notification under Events in the "Message" tab of "Inbox".

Downgrade a self-hosted application

To downgrade a self-hosted application, proceed with the following steps:

1. In the "My Applications" window, select the application for which you want to activate the previous version.

2. In the "Versions" tab, click "Register to Test" and click "Confirm Reactivate". In the confirmation dialog, click "Yes" to proceed with the downgrade.

Limitations of minor version upgrade

This section describes the current limitations of version upgrade/downgrade:

- **Service instance names:** The service instance names for each of the services should be same in the current and new version of the application.

If the service instance names are different in the new version and the existing version of an application, then the existing service instances will not be available even after zero-downtime version upgrade.
The screenshot below shows an example for a service instance name conventions:

① Service instance name for the existing version of an application
② Service instance name that should be used for the new version of the same application

- **Component names:** During manual deployment of a new version of an application, do not use the same component names as available in the existing version. This might create name conflicts and usability issues.
  In order to avoid such conflicts, while deploying a new version of an application, append -green at the end of the component name.

- **Space names:** If an application has different versions available and the versions are deployed with different space names, then version upgrade without downtime is not supported. In such

cases, make sure to use the appname as spacename during deployment.

- **User role configuration:** During version downgrade of an application, the roles not available in the higher version of an application will not be configured. In such cases, configure the user roles again.
- **Component URLs:** Route conflicts could occur in either of the following cases:
  - If an application has different components mapped with the same URLs
  - Same components mapped to different URLs
- **App roles:** If the application is upgraded with downtime, then the application roles configured in the application will be lost. In such cases, configure the user roles again.

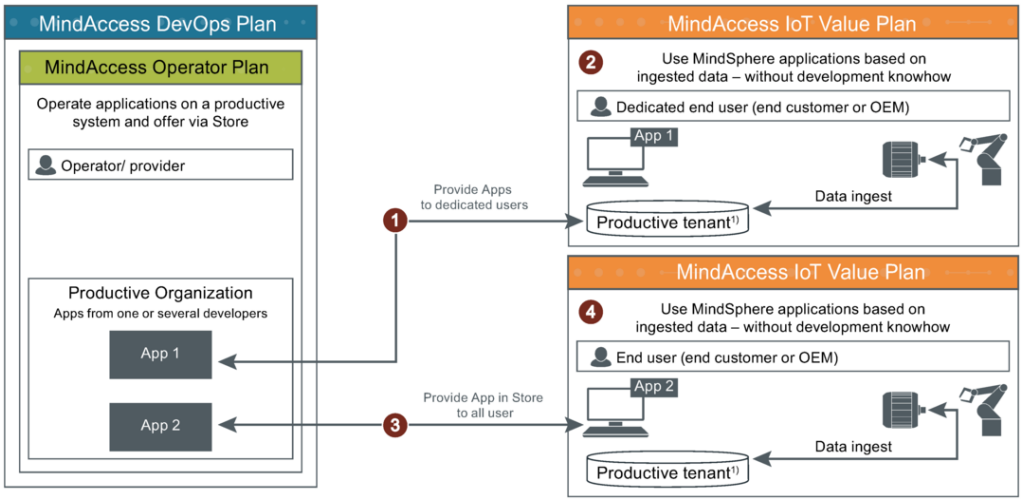
It is difficult to identify changes between two versions in case of route conflicts.
To avoid such conflicts, you should map one URL to one component.

13.4 Provision an application

Provision an application

Within Operator Cockpit, you have the opportunity to provide your application to dedicated customers of both MindAccess and Capability packages. Also, you can provide the applications to all the users via the Industrial IoT store. For more information, refer to Offer applications in the Industrial IoT Store.

The following graphic depicts the provisioning of applications to subscribers of MindAccess plans:

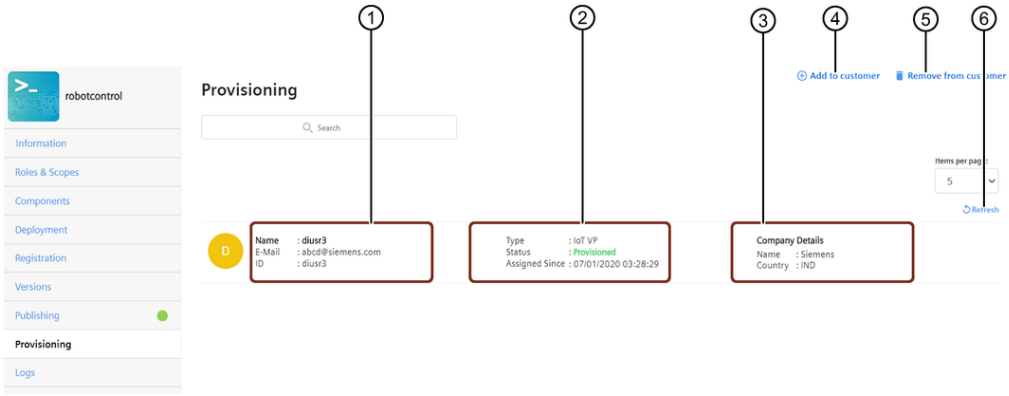


① Operator provides App to dedicated customer
② Dedicated customer can access the App via Launchpad
③ Operator provides App in Store to all the users
④ All users can buy the application via the Store

"Provisioning" user interface for CF apps

The "Provisioning" screen displays a list of tenants and their status. Using this screen, you can provision the application to the desired customers.

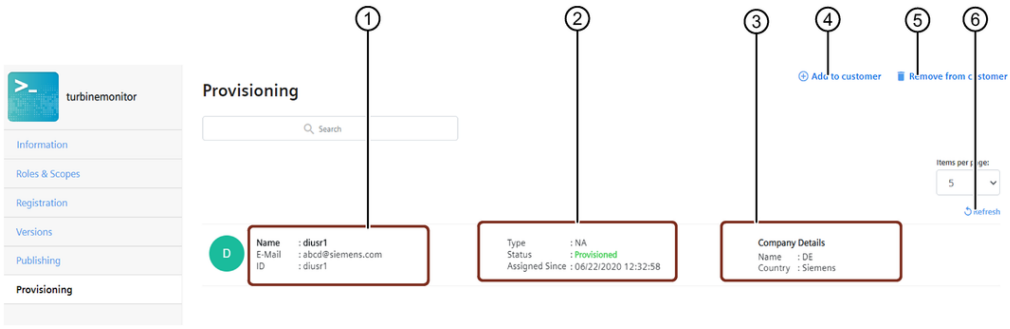
To view the "Provisioning" screen for any application, click on a CF app from the "My Applications" window and navigate to the "Provisioning" tab.



① Shows the tenant details
② Shows the provisioning details
③ Shows the company details
④ Adds a new customer
⑤ Removes the selected tenant from the "Customer List"
⑥ Refreshes the "Provisioning Status"

"Provisioning" user interface for self-hosted apps

To view the "Provisioning" screen for a self-hosted app, select any self-hosted application in the "My Applications" window and navigate to the "Provisioning" tab.



① Shows the tenant details
② Shows the provisioning details
③ Shows the company details
④ Adds a new customer
⑤ Removes the selected tenant from the "Customer List"
⑥ Refreshes the "Provisioning Status"

Procedure

To provide an application to a dedicated customer, proceed as follows:

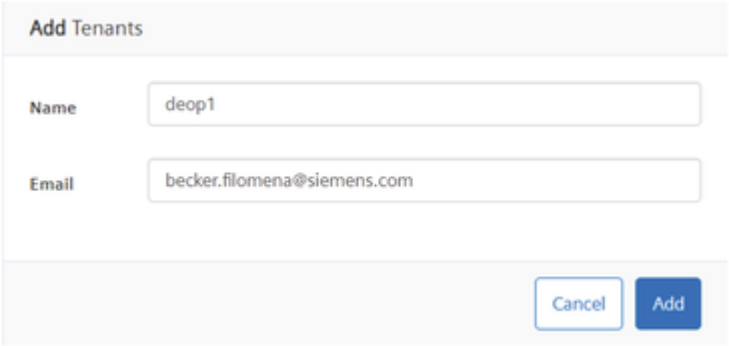
1. Click on the "Apps" icon to view your applications.

2. In the "My Applications" window, select the application that you want to provide to the customer.

3. Navigate to the "Provisioning" tab from the side navigation. To add a new tenant to the selected application, click on "Add to customer".

- The application must be registered before provisioning it to customers. If you try to provision an unregistered application, a warning message is displayed to inform you that the application should undergo the registration process.
- Operators can provision an application only to IoT, Developer, Premium and Base tenants.

4.Enter the tenant-data and click on the "Add" button.



The following table is applicable only for an application that has a requirement for app credentials

Action	Provisioning status for an app with App credentials
Enter name and email ID of the tenant. An email is triggered to IoT admin, and the provisioning request needs to be acknowledged by either accepting or rejecting.	Pending Approval
Provisioning request accepted by the IoT admin	Acceptance Received
Application provisioned to IoT admin	Provisioned
Provisioning request rejected by IoT admin	Rejected

You can also remove the customers from an application. To remove a customer, select the customer that you want to remove and click "Remove from customer". In the confirmation dialog, click "Yes". The customer will now be removed from the application.

If a self-hosted application has App credentials, then the following is applicable:

- An admin user is entitled to respond to the email regarding acceptance of terms and conditions, but a normal user will not have the rights to respond to the same.

Result

The application has been provided to a dedicated customer.

13.5 Offer applications in the Industrial IoT Store

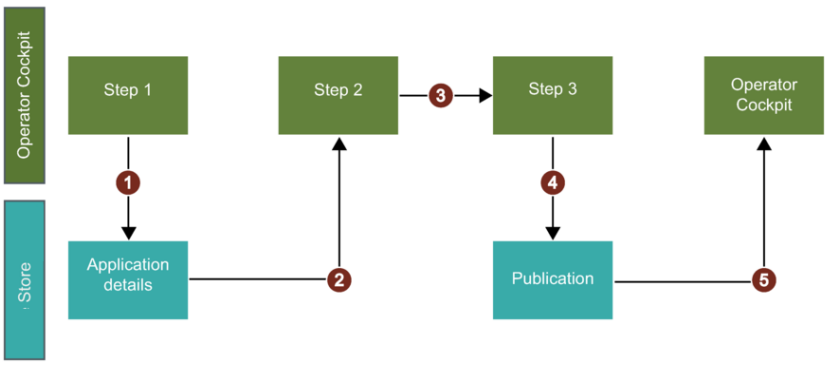
Introduction to publishing

In order to offer your application in the Industrial IoT Store, you have to start the publishing sequence in the "Applications Details" window. The sequence is divided into 3 steps.

Region deviation

"Offer applications in the Industrial IoT Store" is not applicable for region China 1.

The following graphic depicts the publishing process into the Industrial IoT Store:



① Publishing sequence of step 1: Transfer all application details to the Industrial IoT Store
② Operator receives an e-mail with the preview of product in the Store
③ Operator has to acknowledge the provided product data
④ Operator has to provide the Product ID to publish the application
⑤ Operator will receive a message in Operator Cockpit that the application has been successfully published

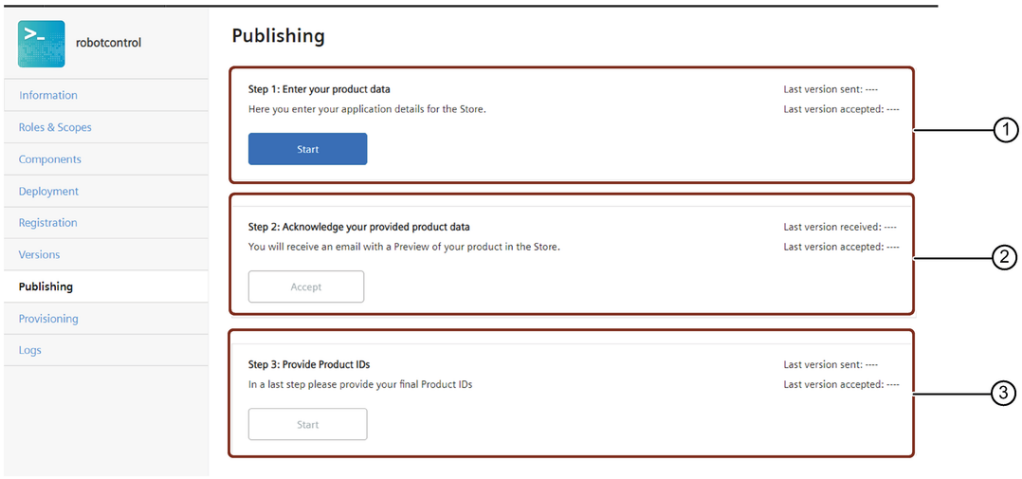
Within step 1, you have to enter your application details for the Industrial IoT Store. The publishing sequence of step 1 guides you through the following individual steps:

- Basic Information

- Pricing
- Advertising Data
- Preview

"Publishing" user interface

The "Publishing" screen allows the user to publish their applications. To view this section for a CF application, select an application from "My Applications" window and navigate to "Publishing" tab.

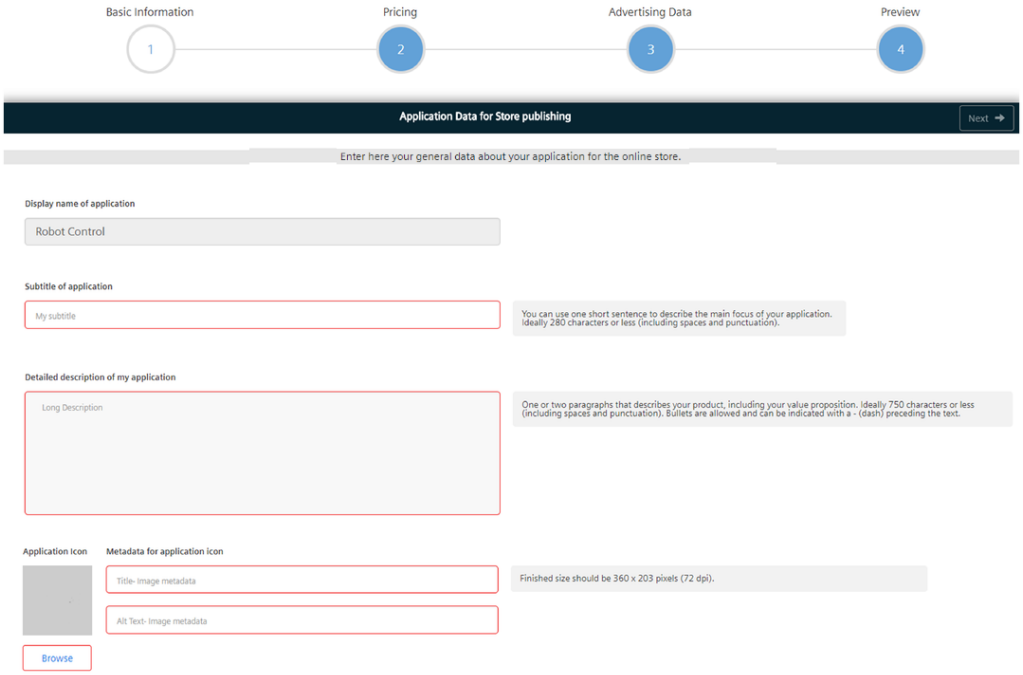


① Step 1: Enter the product data for the Industrial IoT Store
② Step 2: Accept the preview of the Industrial IoT Store
③ Step 3: Provide your Product ID

Basic Information" user interface

"Basic Information" screen

The following graphic shows the "Basic Information" screen:



Application name

Every application needs to have its unique application name. The name of the application is important to make sure that potential customers have a clear understanding of your application offering. Please adhere to the following guidelines for naming the application:

- Use a unique identification for the product name
- Write the first letter of each word as capitalized
- Use the name of the brand or manufacturer
- Do not use descriptive data or overstatement
- Use 155 characters or less
- Do not use elevated signs
- The display name must not contain any of the following designations:
    - Siemens
- Insights Hub
    - Mind
- Do not use special characters such as ©, ®, ™, ∞.

Description

The application description is a short preview of the functionalities. It provides the relevant and specific app information, features and highlights. Within your description, the primary selling

points should be short, clear and concise. You can enter a short and a long description. Please adhere to the following guidelines for the description content:

- Avoid unnecessary capitalization.
- Avoid unnecessary punctuation marks.
- Do not include redirect information.
- Check the spelling and grammar.
- Write only necessary and useful information.
- Use 280 characters or less (including spaces and punctuation) for the short description.
- Use 750 characters or less (including spaces and punctuation) for the long description:
    - Bullets are allowed and can be indicated with a "-" (dash) preceding the text.
- The description should not contain any of the following designations:
    - Siemens
- Insights Hub
    - Mind

Application icon

The application icon is the first way to communicate the benefits of your application. Within Insights Hub, your application needs an icon for creating the Launchpad tile. The icon must comply the following specifications:

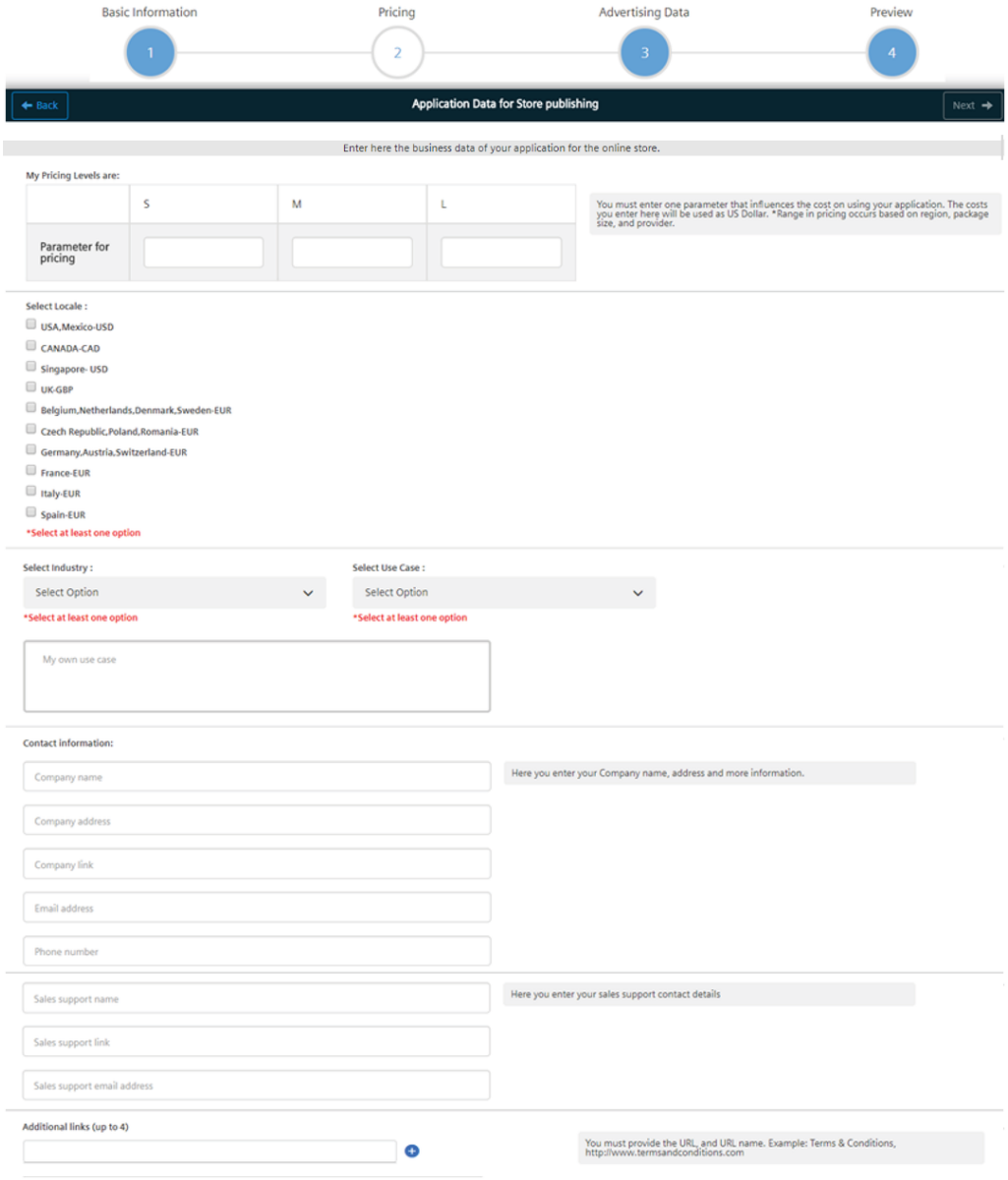
- The ideal size of an icon is 360px x 203px.
- It is mandatory to keep the images at 72dpi.
- The maximum file size for an image is 5 MB.
- You can use the image file formats .jpeg or .png.
- Never use the specific Siemens color petrol.
- The icon must not contain any of the following designations:
    - Siemens
- Insights Hub
    - Mind
- You can also enter a title and an alternate text for the image

"Pricing" user interface

Within the "Pricing" step, you should enter your pricing information for the Industrial IoT Store. The following list shows the possible entries and related requirements:

"Pricing" screen

The following graphic shows the "Pricing" screen:



Pricing levels

The pricing of your applications must be based on the following structure:

- Monthly pricing
- Annual pricing

The applications can be offered in 3 different sizes of packages:

- Small

- Medium
- Large

Language and countries

- Please select the locale from the country list in which your application shall be available in.
- Select the Industry and Use case from the drop down list.
- For a better SEO inside the Industrial IoT Store, we advise that you insert the meta data for both market and use case.

Additional information

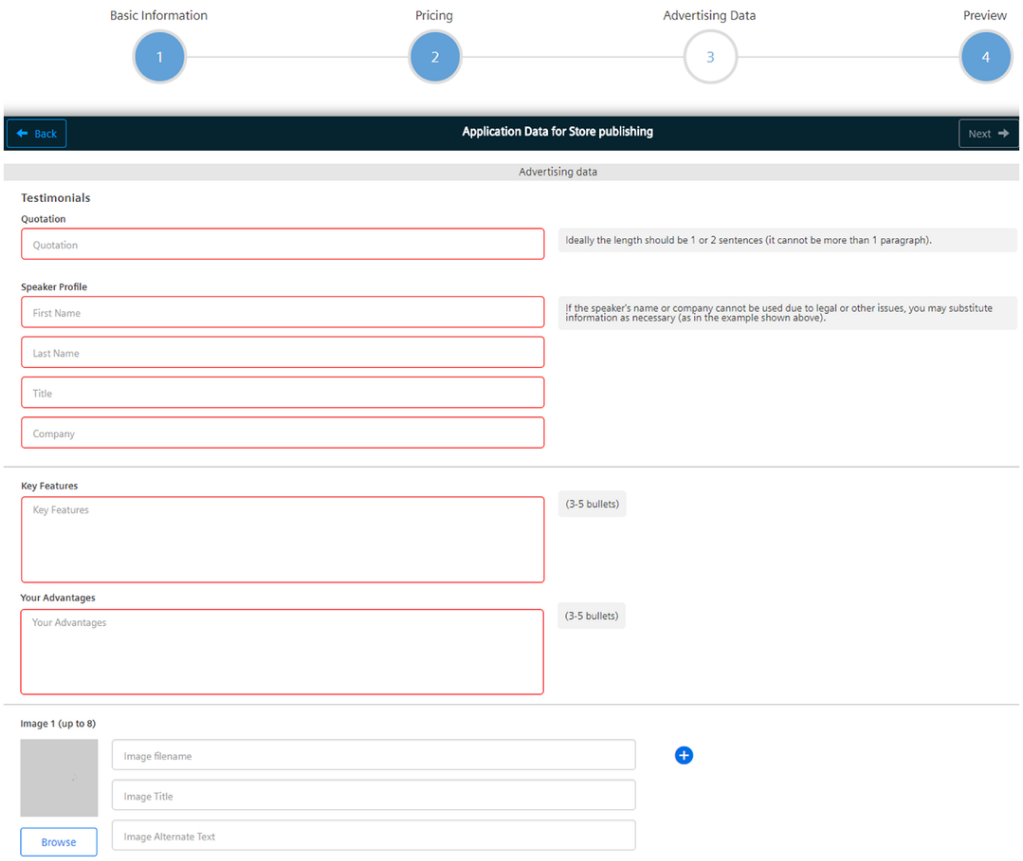
- Please insert your valid contact information.
- Please also include a link for Terms & Conditions.

"Advertising data" user interface

Within the "Advertising Data" step you have to enter your advertising data for the Industrial IoT Store. The following list shows the possible entries and related requirements:

"Advertising Data" screen

The following image shows the "Advertising Data" screen:



Testimonials

- Write 1 or 2 sentences for the Quotation
- It cannot be more than 1 paragraph.

Speaker Profile

If the speaker's name or company cannot be used due to legal or other issues, you may substitute information as necessary (e.g. Senior Business System Analyst, Leading Renewable Energy Provider).

Key Features and advantages

The application description is a short preview of the functionalities. It provides the relevant and specific app information, features and highlights. Within your description, the primary selling points should be short, clear and concise. Please adhere to the following guidelines for the description content:

- Avoid unnecessary capitalization.
- Avoid unnecessary punctuation marks.

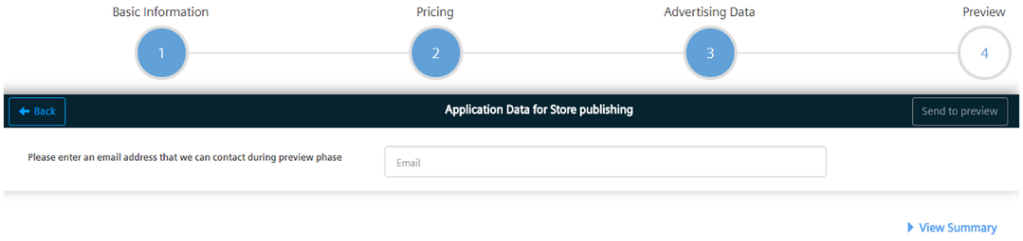
- Do not include redirect information.
- Check the spelling and grammar.
- Write only necessary and useful information.
- Bullets are allowed and can be indicated with a “-“ (dash) preceding the text.
- Use 3-5 bullets for the Key Features section.
- Use 3-5 bullets for the Advantages section.
- The description should not contain any of the following designations:
    - Siemens
- Insights Hub
    - Mind

Images

1. You can add one image in the description text within the following specifications:
    - The image size should be 600px x 337px.
    - It is mandatory to keep the images at 72dpi.
    - You can use the image file formats .jpeg or .png.
2. You can also add 8 images within a carousel slider with the following specifications:
    - The image size should be 1280px x 720px.
    - It is mandatory to keep the images at 72dpi.
    - You can use the image file formats .jpeg or .png.

"Preview" user interface

Enter a valid e-mail address for updates during the "Preview" phase, as shown below:



Publishing Step 2: Acknowledge product data

Within step 2, you will receive an e-mail with the preview of your application in the Industrial IoT Store. In order to get to step 3 Publishing, you will need to acknowledge your provided product data.

Publishing Step 3: Provide Product IDs

Within Step 3 you have to provide your final Product ID. You can create your own Product ID.

Siemens Business Units

If you are a Siemens Business Unit, you have to enter the SKU.

Using Insights Hub Monitor plugin 14

14.1 Receive Insights Hub Monitor plugin from developer

Receive Insights Hub Monitor plugin from developer

Insights Hub Monitor is a component that enables you to analyze, visualize and monitor your assets. You can get access to Insights Hub Monitor by purchasing the IoT Value Plan or the Industrial IoT Capability packages.

A Insights Hub Monitor plugin is a web application that can be developed using any web application frameworks and libraries. The plugin should be developed like any other Insights Hub application and deployed to Insights Hub by using Developer Cockpit.

This chapter provides information on the usage of Insights Hub Monitor plugin from Operator Cockpit.

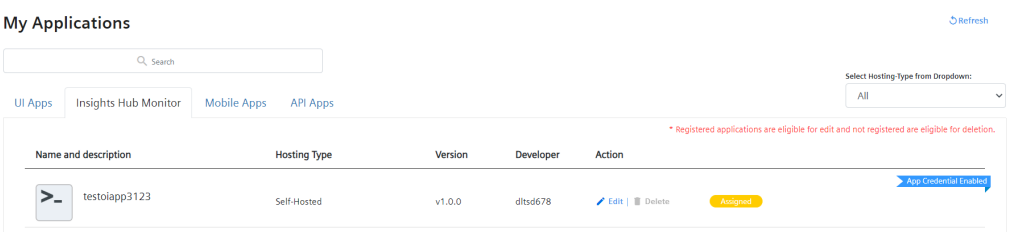
Receive Insights Hub Monitor plugin

After the developer assigns the Insights Hub Monitor plugin to an operator from Developer Cockpit, the following steps should be followed to accept the Insights Hub Monitor plugin:

For subscribers of Basic Capability packages, the developer directly assigns the Insights Hub Monitor plugin.

1. Click "Inbox" on the main navigation.

2. Click "Applications" and click "Accept". The status of the plugin changes to "Pending".
This initiates a handshake to the developer tenant to grant access to this plugin. Once the developer grants access from Developer Cockpit, this plugin is moved to the "My Applications" window under "Insights Hub Monitor Plugin" tab. You can now deploy and register this plugin for further usage.



To deploy and register Insights Hub Monitor plugin, refer to Deploy and register Insights Hub Monitor plugin.

14.2 Deploy and register Insights Hub Monitor plugin

Deploy and register Insights Hub Monitor plugin

To use a Insights Hub Monitor plugin, it is required to first deploy the plugin and register it.

1. Click on the "Apps" icon and select "Insights Hub Monitor Plugin" . Select the Insights Hub Monitor plugin that you want to deploy. The "Application Details" menu opens.

2. Click "Deployment" and choose either "Auto deployment" or "Deployment via CF CLI". Click "Start deployment". In case of manual deployment, proceed with the on screen instructions to deploy the plugin.
The deployment steps for OI plugin remains same as that for CF Download and deploy Cloud Foundry (CF) applications apps. For more description, refer to Download and deploy Cloud Foundry (CF) applications.

Deployment of applications is applicable only for CF hosted applications.

3.After the successful deployment, click the "Registration" tab.
4.Enter the app name and the description for the application and click "Register". The plugin is registered successfully.

After the Insights Hub Monitor plugin is registered, the plugin will not be visible on Launchpad. Instead, it will be available as a tab in the "Explore" section or as a tile in the "Assets" tab of "Explore" section in Insights Hub Monitor.

For steps to use Insights Hub Monitor plugin from Insights Hub Monitor, refer to the chapter Using Insights Hub Monitor plugin in Insights Hub Monitor.

14.3 Using Insights Hub Monitor plugin in Insights Hub Monitor

Using Insights Hub Monitor plugin in Insights Hub Monitor

After deploying and registering the Insights Hub Monitor plugin by following the steps described in chapter Deploy and register Insights Hub Monitor plugin, you must access Insights Hub

Monitor application from Launchpad to use the plugin.

Using Insights Hub Monitor plugin in Insights Hub Monitor

To use the Insights Hub Monitor plugin that is deployed and registered from Operator Cockpit, proceed with the following steps:

1. After successful deployment and registration of OI plugin from Operator Cockpit, open "Settings" application from Launchpad

2. Assign the roles for the required user to be able to access the plugin and save the changes. For more information on assigning roles to a user, refer the "Settings" documentation.

3. Open Insights Hub Monitor from Launchpad.

4. Select "Assets" in the "Explore" section. The plugin that was deployed and registered using Operator Cockpit is displayed in the tiles section.
or
Select the Plugin in the "Explore" section.

5. Click on the plugin to view the details. You can navigate to other assets or plugins (if available) by entering the asset id and plugin id.

14.4 Upgrade or downgrade Insights Hub Monitor plugin

Upgrade or downgrade Insights Hub Monitor plugin

The following section describes the procedure to upgrade an Insights Hub Monitor plugin to a new version without downtime. This procedure is advantageous since the user will be able to access the plugin even during the upgrade.
The plugin can also be upgraded by using the procedure that involves downtime. This procedure remains the same as that for the Cloud Foundry apps. For information on upgrading procedure with downtime, refer to Upgrade a CF application (with downtime).

Upgrade Insights Hub Monitor plugin to a new version

To upgrade Insights Hub Monitor plugin to a new version (without downtime), proceed with the following steps:

1. In the "My Applications" screen, select "Insights Hub Monitor Plugin" and choose the OI plugin that you want to upgrade to a new version.

2. Click "Deployment" tab and deploy the plugin. For information on deploying the plugin, refer to Deploy or undeploy CF applications.

3. Click the "Versions" tab and click "Register to Test".

4. To confirm the update, click "Confirm Update". In the confirmation dialog box, click "Yes". After confirming the update, you can view the status of each stage of the update in the "Versions" screen. After the upgrade is completed successfully, the status of the application is changed to "Deployed".

- Two versions of the same Insights Hub Monitor plugin cannot be used simultaneously.
- If more than two versions of the same plugin are available, then auto-deployment will be enabled only for any two versions of the plugin, and will be disabled for the other versions.

Downgrade Insights Hub Monitor plugin

In order to re-activate the previous version of a plugin, follow the steps below:

1. In the "My Applications" screen, select "Insights Hub Monitor Plugin" tab. Select the application for which you want to activate the previous version.

2. Click the "Versions" tab and click "Register to Test", and click "Confirm Reactivate".

3. In the confirmation dialog box, click "Yes".

14.5 Limitations of Insights Hub Monitor plugin

Limitations of Insights Hub Monitor plugin

The limitations of Insights Hub Monitor plugin remains the same as that for version upgrade. Refer the chapter Limitations of minor version upgrade.

Enable native Mobile Apps 15

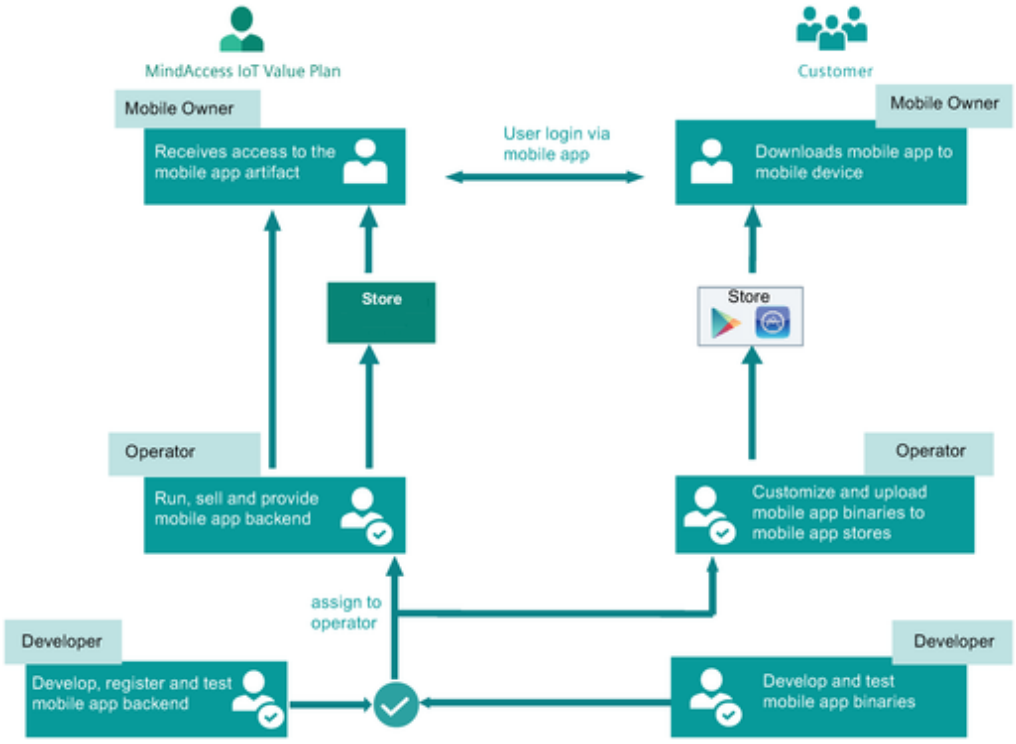
15.1 Introduction to Mobile App enablement

Introduction to Mobile App enablement

Native mobile applications are installed on mobile devices and can be used to access Industrial IoT APIs. The native mobile applications are developed outside Insights Hub and are uploaded to the respective mobile application stores, by the developers or operators.
The externally developed native mobile apps need to have a registered artifact in the Insights Hub application lifecycle. With the artifact type "Mobile" you can enable native mobile applications to access certain Industrial IoT APIs.
The artifact type "Mobile" can have the following "Hosting Type":

- CF-Hosted
- Self-Hosted
- None: Mobile app with no infrastructure

The following graphic depicts the workflow of mobile type applications:



In the following chapters, the artifact "Mobile" is mentioned as "mobile apps".

For more information on mobile applications, refer:

- How to connect to via native mobile
- How to publish a native mobile application for Android
- How to publish a native mobile application for iOS

Prerequisite

The prerequisite for supporting Mobile App is as follows:

- Supported platforms: Android and iOS

Receive mobile app from developers

Similar to the CF and self-hosted applications, the mobile app can be received by using "Inbox".

1. Click "Inbox" in the main navigation area.

2. Click "Accept" for the mobile app that you choose to deploy.
A handshake is initiated to the developer to grant access to this application. After the developer provides access, this application will be moved from "Inbox" to "Mobile Apps" tab with the status as "Assigned". This application can now be downloaded and deployed.

For information to download and deploy the mobile app, refer "Download and deploy a mobile app (CF hosted)".

15.2 Download and deploy a mobile app (CF hosted)

Download and deploy a mobile app (CF hosted)

The "Deployment" screen allows the user to deploy the mobile app for further use. The mobile app can either be deployed manually or automatically. The process for deploying mobile app is similar to that for a UI app.

It is only possible to deploy and undeploy a mobile app with "Hosting Type" as "CF-Hosted". The self-hosted mobile apps and the apps with no infrastructure (None) cannot be deployed.

Prerequisite

The mobile app has already been assigned to the operator.

Deploy a mobile app

To deploy a mobile app, proceed with the following steps:

1. In the "My Applications" window, click "Mobile Apps" tab and select the mobile app in the "Assigned" state that needs to be deployed.

2. In the "Deployment" tab, select the type of deployment and proceed with the on-screen instructions. For more information, refer to the chapter "Deploy or undeploy CF applications". After the deployment process is successfully completed, the status of the application changes from "Assigned" to "Deployed" (with a warning symbol).

3. In case of auto-deployment, the status of each of the deployment steps can also be viewed.

Undeploy a mobile app

To undeploy the mobile app, proceed with the following steps:

1. In the "My Applications" screen, click "Mobile Apps" tab and select the mobile app that you want to undeploy.

2. If there are any customers provisioned for the application, de-provision the customers in the "Provisioning" tab.
Select the customer and click "Remove from customer".

3. If the application is registered, deregister the application in the "Registration" tab.

4. Click the "Deployment" tab and click "Undeploy".
The mobile app will be undeployed successfully.

15.3 Register or deregister a mobile app

Register or deregister a mobile app

The "Registration" screen allows the user to register or deregister the mobile app. In addition to this, it is also possible to edit the application details. This section describes the procedure to register the mobile app.

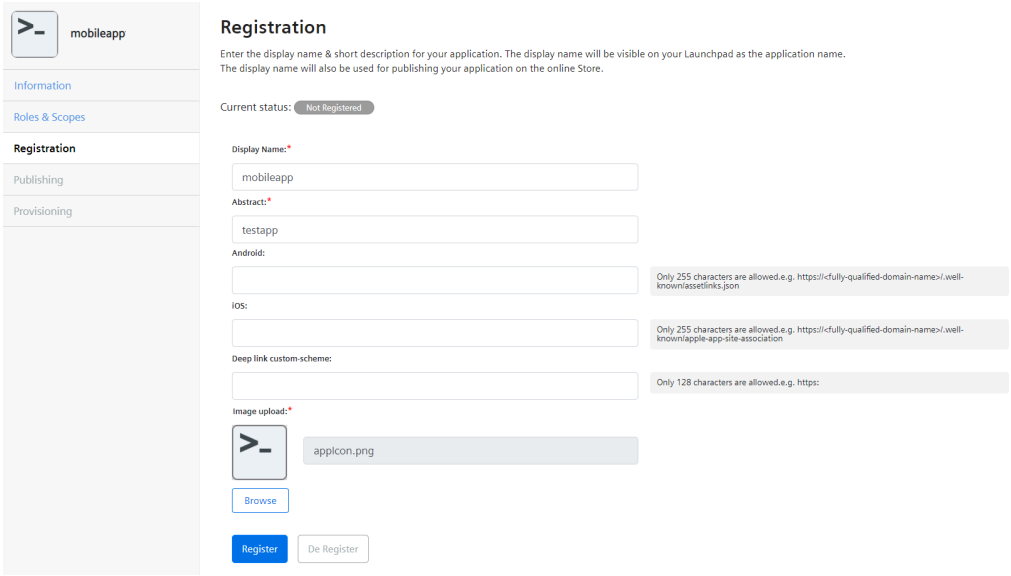
Prerequisite

- The mobile app must be deployed.
- All the dependent API applications must be registered and provisioned.

Register a mobile app

1. In the "My Applications" window, click the "Mobile Apps" tab and select the mobile app that is in the "Deployed" state (with warning symbol) that needs to be registered.

2. Click the "Registration" tab. Enter the details in the fields and click "Register".
Custom-scheme links along with the Android App links and iOS are also supported. These links are defined while developing the application in Developer Cockpit. If required, these links can be edited in Operator Cockpit. For information on app links and universal links, refer to "Android App Links and Universal Links".
If the mobile application is hosted on CF, then the "Registration" screen is as below:



In both CF and self-hosted type of mobile applications, the status of the registration process can also be viewed.

If you are trying to register a new version of an already existing application, then you need to first deregister the existing version of that application. A warning message is displayed on the "Deployment" window for the same.

After the registration is successful, the current status of the application changes to "Registered". If the application has a requirement for "App Credentials", then the credentials will be displayed in the "Registration" tab. The credentials will be displayed only once and therefore it is recommended to save them for future use. For more information on "App Credentials", refer to the chapter "View Application Credentials".

3.You can assign roles for the application by using "Settings" application. For more information, refer to the Settings documentation.
4.To provision the mobile app to a customer, refer to the chapter "Provide applications to customer".
5.To publish the application to Industrial IoT Store, refer to the chapter "Offer applications in the Industrial IoT Store".

Deregister a mobile app

To deregister a mobile app of hosting types CF, self-hosted or None, proceed with the following steps:

1. In the "My Applications" window, click on the "Mobile Apps" tab. Then, click on an application that you want to deregister.

2. If there are any customers provisioned for that application, then you need to de-provision them.
To de-provision, click on the "Provisioning" tab and select the customer and click "Remove from customer".

3. Click on the "Registration" tab in the side navigation and click "De-register".
The status of deregistration process can also be viewed in the screen.

15.4 Upgrade or downgrade a mobile app to a different version

Upgrade or downgrade a mobile app to a different version

The following section describes the procedure to upgrade a mobile application to a new version. This process does not involve downtime and therefore the customers will be able to access the application even during the upgrade.
The following procedure is similar to the version upgrade for UI applications. For more information, refer to the chapter "Upgrade or downgrade an application to a different version".

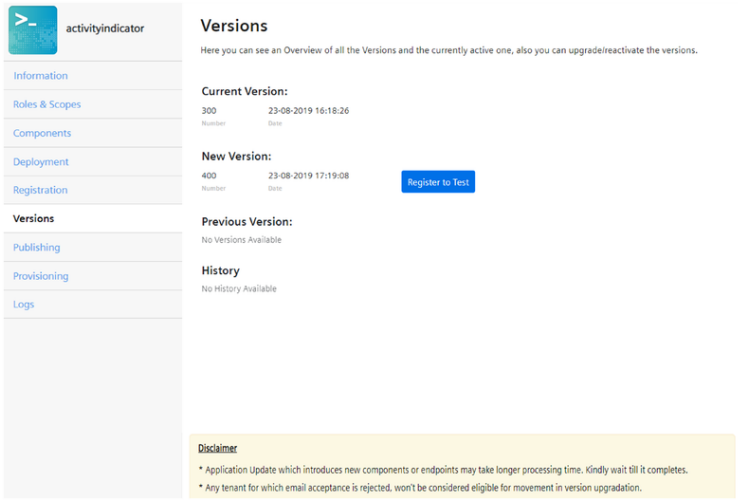
Upgrade a mobile app

To upgrade a mobile app to a new version (without downtime), proceed with the following steps:

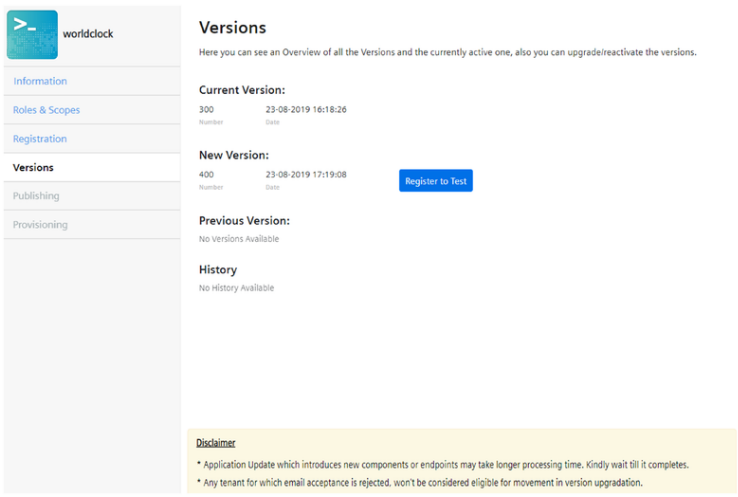
1. In the "My Applications" screen, select "Mobile Apps" and choose the new version of an existing application (the application with "Upgrade" label).

2. Click "Deployment" tab and deploy the application. For information on deploying the application, refer to "Deploy or undeploy CF applications".

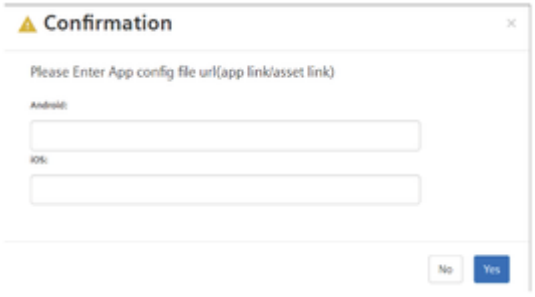
3. In the "Versions" tab, click "Register to Test".
In case a mobile application is hosted on CF, the "Versions" screen is as below:



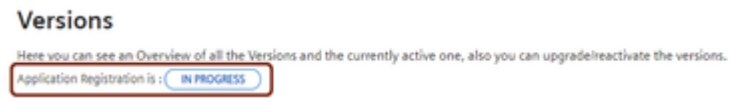
In case of a mobile application with "Hosting Type" as self-hosted or "None", then the "Versions" screen is as below:



4. In the confirmation dialog box, enter the app config file URL and click "Yes". For information on app links and universal links, refer to "Android App Links and Universal Links".

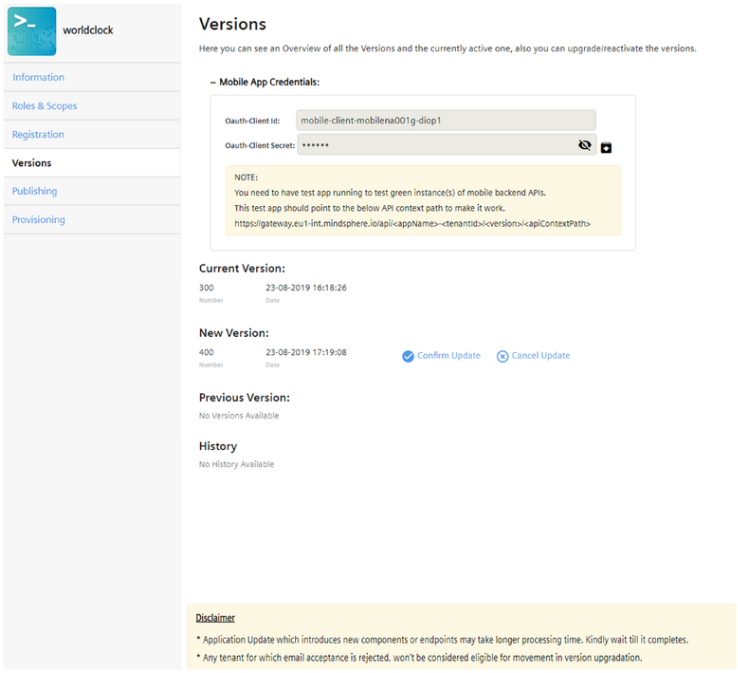


The status of this registration process can be viewed in the "Versions" screen.

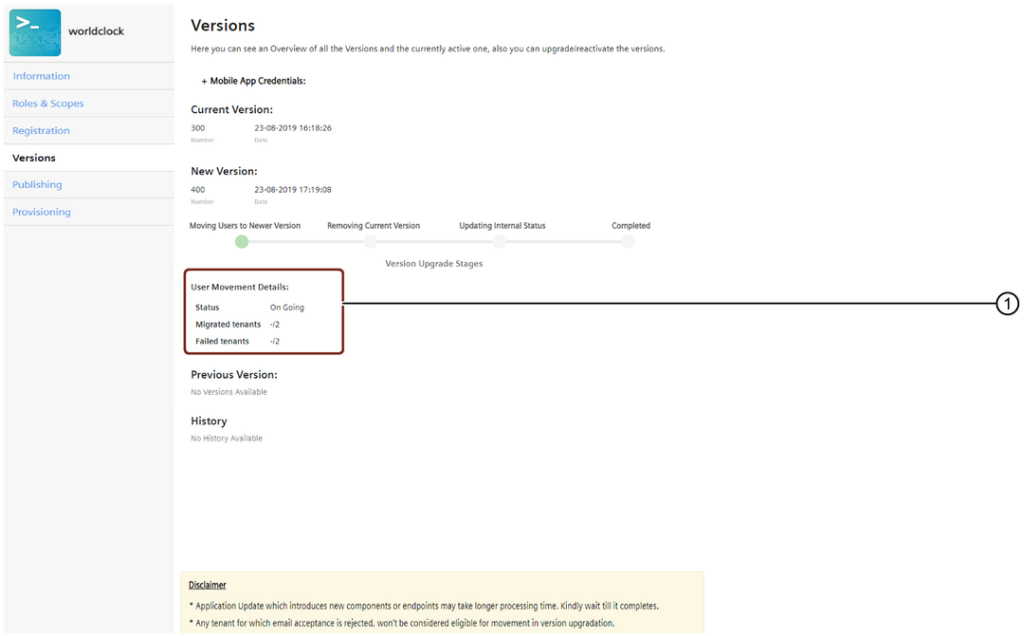


5. If the mobile app (CF or self-hosted) has a requirement for "App Credentials", then the credentials are displayed in the "Versions" screen after the "Register to Test" operation is successfully completed.

The mobile app credentials will be displayed only once in the "Versions" screen and therefore you can download the credentials for future use.
For more information on app credentials, refer to View "Application Credentials".



6. To confirm the update, click "Confirm Update".
After confirming the update, you can view the status of each stage of the update in the "Versions" screen.



① Gives information of user movement

After the upgrade is completed successfully, the status of the application is changed to "Deployed".

15.5 Mobile app without infrastructure

Mobile app without infrastructure

The mobile apps can be in any of the following types:

- CF hosted mobile app
- Self-hosted mobile app
- Mobile app with no infrastructure

For mobile app with no infrastructure, the following processes are similar to that of a self-hosted mobile app

- Registration: For more information, refer "Register or deregister a mobile app".
- Versioning: For more information, refer "Upgrade or downgrade a mobile app to a different version".
- Provisioning and Publishing": For more information, refer "Provisioning and Publishing mobile apps"

15.6 Provisioning and Publishing mobile apps

Provisioning and Publishing mobile apps

The procedure for provisioning and publishing a mobile app is similar to that of a UI application. For more information, refer the following chapters:

- For steps to provision a mobile app, refer "Provide applications to customer".
- For steps to publish a mobile app, refer "Offer applications in the Industrial IoT Store".

Enable API applications 16

16.1 Introduction to API app

Introduction to API app

Insights Hub's integrated lifecycle management of APIs is a fully managed service that makes it easy for developers and operators to create, manage, secure, and operate services (APIs) to build reliable and complex IoT solutions. Developers can design, create and run multiple major versions and revisions of a service (API). For each service, custom scopes can be defined to protect the endpoints and group them as roles. Insights Hub supports the full lifecycle of a service from implementation to operation as part of the app lifecycle and simplifies solution development.
Developers can create a standard UI, Insights Hub Monitor plugin, mobile and API applications. The created API applications can be made dependent of standard UI or Insights Hub Monitor or mobile applications.
The API applications can be made dependent of one or more UI or Insights Hub Monitor plugin or mobile applications. Using these API applications, standard UI application or Insights Hub Monitor or mobile application can call the Industrial IoT APIs.

It is possible to make only one revision of an API application dependent of UI or Insights Hub Monitor or mobile applications at a time.

The API applications can have the following "Hosting Type":

- CF hosted
- Self-hosted

Receive API app from developers

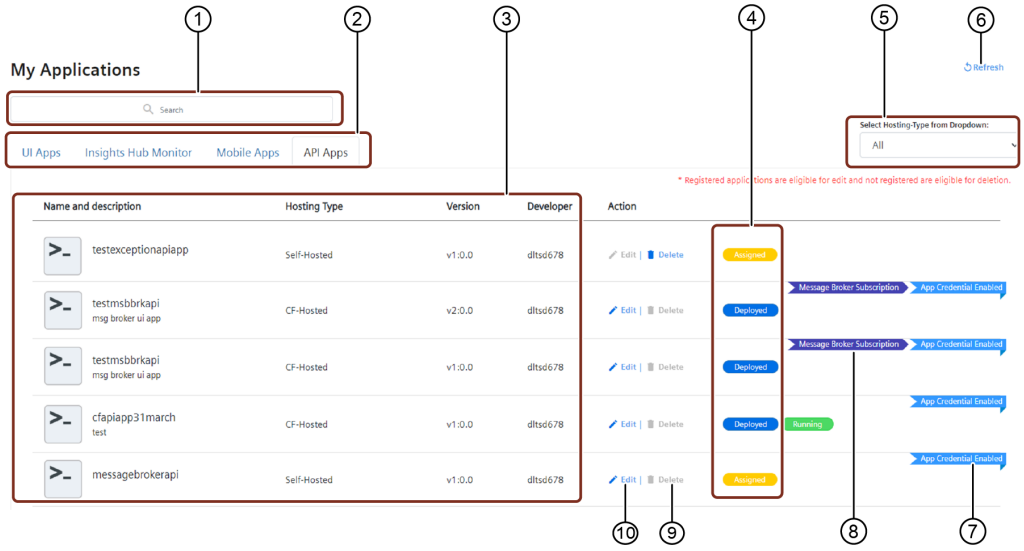
Similar to the UI and mobile applications, the API app can be received using "Inbox".

1. Click "Inbox" in the main navigation area.

2. Click "Accept" for the API app that you choose to deploy.
A handshake is initiated to the developer to grant access to this application. After the developer provides access, this application will be moved from "Inbox" to "API Apps" tab with the status as

"Assigned". This application can now be downloaded and deployed. For information to download and deploy the API app, refer "Download and deploy an API app".

The following screen shows the list of the API applications:



① Search field

② Tabs for UI, Insights Hub Monitor Plugin, Mobile Apps and API Apps

③ Application information and description for CF and self-hosted apps

④ Provisioning and Health status of the application

```
Provisioning status: Assigned, Deployed and Published

Health status: Running and Stopped
```

⑤ Filter drop-down to select Hosting-Type

⑥ Refreshes the productive status of the application

⑦ App Credentials Enabled label

⑧ Message Broker Subscription enabled label

⑨ Delete the application

⑩ Edit the application details

An API application has to have application credentials enabled in order to get the "Message Broker Subscription".

16.2 Download and deploy an API app

Download and deploy an API app

The "Deployment" screen allows the user to deploy the API app for further use. The API app can either be deployed manually or automatically. The process for deploying API app is similar to that for an UI app.

- It is only possible to deploy and undeploy an API app with "Hosting Type" as "CF-Hosted".
- Any number of major versions of API applications can be deployed at a time.

Prerequisite

The API app has to be assigned to the operator.

Deploy a CF hosted API app

To deploy an API app, proceed with the following steps:

1. In the "My Applications" window, click "API Apps" tab and select the API app in the "Assigned" state that needs to be deployed.

2. In the "Deployment" tab, select the type of deployment and proceed with the on-screen instructions. For more information, refer to the chapter "Deploy or undeploy CF applications". After the deployment process is successfully completed, the status of the application changes from "Assigned" to "Deployed" (with a warning symbol).

3. In case of auto-deployment, the status of each of the deployment steps can also be viewed.

Undeploy an API app

To undeploy the API app, proceed with the following steps:

1. In the "My Applications" screen, click "API Apps" tab and select the API app that you want to undeploy.

2. If the application is registered, deregister the application in the "Registration" tab.

3. Click the "Deployment" tab and click "Undeploy".
The API app will be undeployed successfully.

16.3 Register or Deregister an API app

Register or Deregister an API app

The "Registration" screen allows the user to register or deregister the API app. This section describes the procedure to register the API app.

Prerequisite

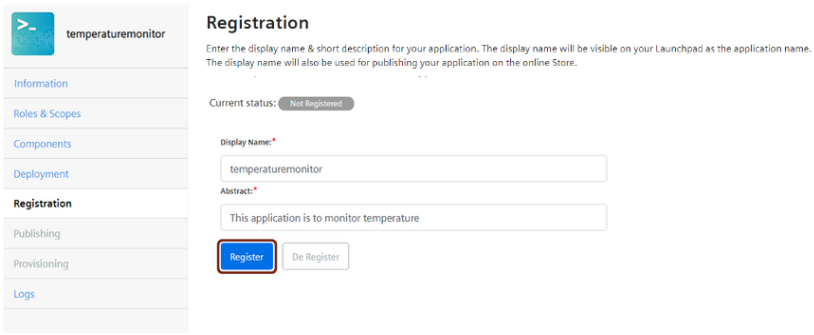
The API app has to be deployed.

Register an API app

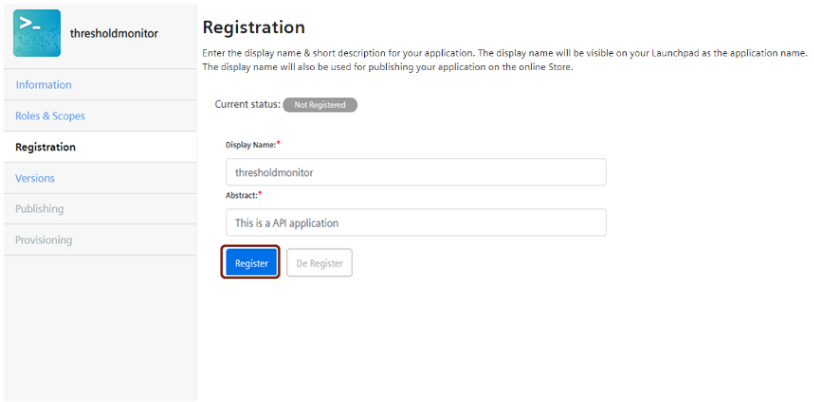
The procedure to register an API application is similar for CF and self-hosted applications.

1. In the "My Applications" window, click the "API Apps" tab and select the API app that is in the "Deployed" state (with warning symbol) that needs to be registered.

2. Click the "Registration" tab. Enter the details in the fields and click "Register".
If the API application is hosted in CF, then the "Registration" screen is as below:



If the API application is self hosted, then the "Registration" screen is as below:



In both CF and self-hosted type applications, the status of the registration process can be viewed.

- It is possible to register only one revision of an API version at a time.
- It is possible to register any number of major versions of an API application at a time.

After the registration is successful, the current status of the application changes to "Registered".
3.You can assign roles for the application using "Settings" documentation. For more information, refer to the "Settings" documentation.

Deregister an API app

The procedure to deregister an API application is similar for CF and self-hosted applications.

If the API applications are deregistered without de-registering the dependent applications, the performance of the dependent applications can be affected.

To deregister an API application, proceed with the following steps:

1. In the "My Applications" window, click on the "API Apps" tab. Then, click on the application that you want to deregister .

2. Click on the "Registration" tab in the side navigation and click "De-register ".
The status of deregistration process can also be viewed in the screen.

16.4 Upgrade or downgrade an API app

Upgrade or downgrade an API app

The following section describes the procedure to upgrade an API application to a new revision of the same major version. It is only possible to use a single revision for an application at a time. Two revisions of the same application cannot be used simultaneously. You can upgrade or downgrade to any revision of an API application.
For example, the application "machinecontrol" has different revisions: "machinecontrol v1.1.0", "machinecontrol v1.2.0", "machinecontrol v1.3.0".
Consider that the revision "machinecontrol v1.2.0" is in use, you can upgrade or downgrade the application to "machinecontrol v1.1.0" or "machinecontrol v1.3.0".
Revision upgrade or downgrade of an API application is possible in two ways:

1. Upgrade an API application with downtime.

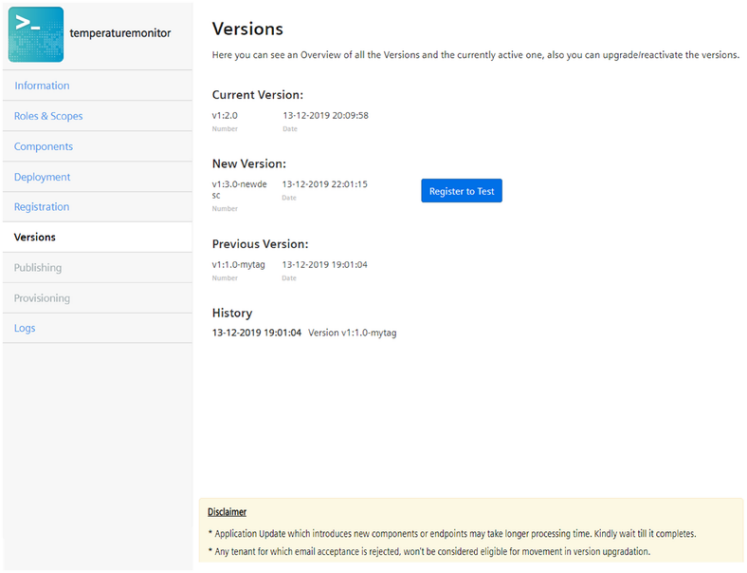
2. Upgrade an API application without downtime.

Upgrade or downgrade for an API application is only possible between the revisions of the same major versions. Major version applications will be handled independently apps.

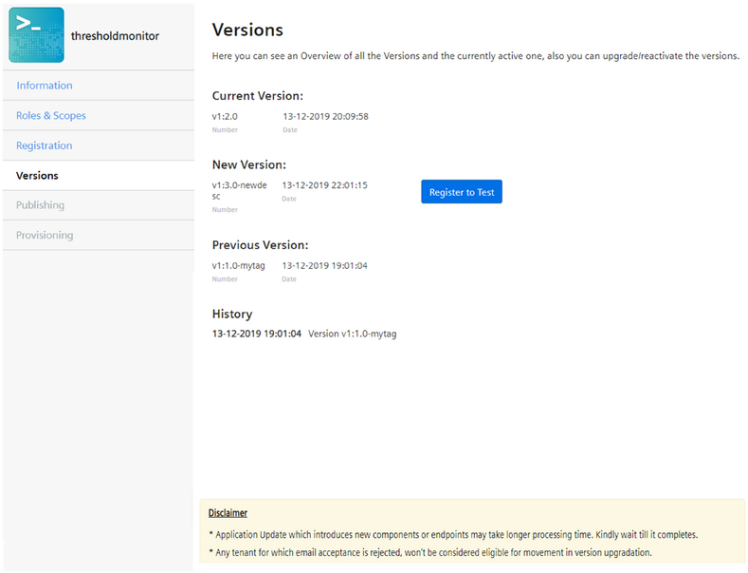
Versions screen

The following screen is used to update an application to a new revision. The screen shows all the available versions of an application and also the version that is currently in use.

If the application is CF hosted, then the "Versions" screen is as below:



If the application is self-hosted, then the "Versions" screen is as below:



Upgrade an API application with downtime

The procedure to upgrade or downgrade an API application is similar for CF and self-hosted applications.

To upgrade an application, proceed with the following steps:

1. In the "My Applications" screen, select the application that you want to upgrade.

2. Click the "Registration" tab and click "De-Register". In the confirmation dialog, choose "Yes (Deregister and undeploy)" and click "Continue".

For more information on deregistering an application. For information to deregister the application, refer to to "Register or deregister an API app".

3. In the "My Applications" screen, select the new revision of the same application that you want to upgrade.

Before deploying a new revision of an application, ensure the following:

- Delete the components in the previous revision of the application.
- During manual deployment, append "-green" to all the components in the new revision of the application.
- Before proceeding with the downtime revision upgrade for CF hosted applications, make sure that only one revision of an application is deployed in Cloud Foundry during deployment.

4.For CF hosted application, click the "Deployment" tab and proceed with manual or auto deployment. For more information, refer to "Download and deploy an API app".
5.Click the "Registration" tab and register the application. For more information on registering an application, refer to "Register or deregister an API app".
The application is upgraded to the new version.
6.Click the "Provisioning" tab and add the customers who were de-provisioned in the previous version. For more information on provisioning an application, refer to "Provisioning an API application".

Upgrade an API application without downtime

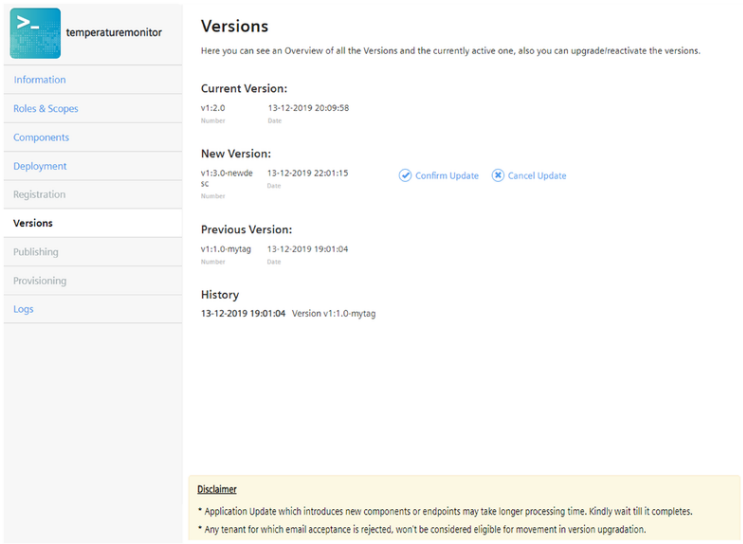
The procedure to upgrade or downgrade an API application is similar for CF and self-hosted applications.
To upgrade an application, proceed with the following steps:

1. In the "My Applications" screen, select the new revision of an application available for upgrade.

2. For CF hosted application, click "Deployment" tab and deploy the application. For information on deploying the application, refer to the chapter "Download and deploy an API app".

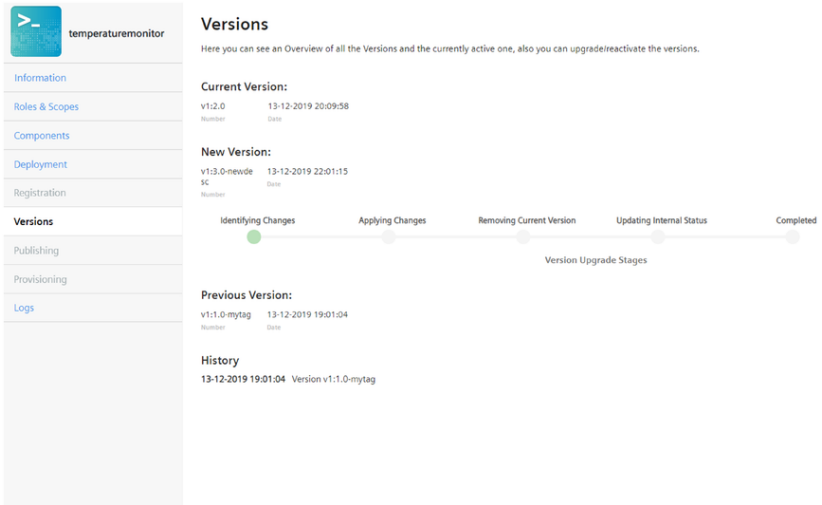
3. Click the "Versions" tab and click "Register to Test".
A new revision of an application needs to be tested before it is made available. Once you ensure that the application revision is working fine, you can start using the new revision of the application.
The status of the registration can also be viewed in the "Versions" screen.

4. To confirm the update, click "Confirm Update". In the confirmation dialog, click "Yes" to proceed.
If you do not wish to proceed with the upgrade, click "Cancel Update" after which you will be able to view the deregistration stages.



For downgrading an application, click the "Confirm Reactivate" button available next to the previous revisions.

After confirming the update, you can view the status of each stage of the update in the "Versions" screen.



16.5 Provisioning an API application

Provisioning an API application

The procedure for provisioning an API application is similar to that of an UI application. For more information, refer to
Provide applications to customer.

- At this moment, provisioining of an API application is restricted to Developer and Operator tenants only.
- Provisioning of API application builds the trust between subscriber tenant and host tenant. The endpoints of an API application access is based on the mappings provided through dependent UI applications (refer Scope mapping from Developer Cockpit). This would enable the subscriber tenants to access endpoints of the API applications as intended by the functionality of the Standard application.
- Before provisioning the API application to the tenant hosting the standard UI application, ensure the standard UI application has custom app credentials enabled.
- A customer is entitled to respond to the email regarding acceptance of terms and conditions, the provisioning of an API application is completed only after the customer accepts the email.

16.6 Application Credentials for API applications

Application Credentials for API applications

Application Credentials (app credentials) is required when an application requires interaction with APIs of other services in Insights Hub. This ensures secured interaction with the APIs. This is also useful when an application needs to perform frequent data processing on one or more subscribed tenants.
The procedure to view and work with app credentials for an API application is similar to that of an UI application, fo more information, refer to "View Application Credentials".

- Currently, the api applications are provided with only read/ write permission.
- Fetch the tokens using only the major versions of an API application

16.7 Limitations of API applications

Limitations of API applications

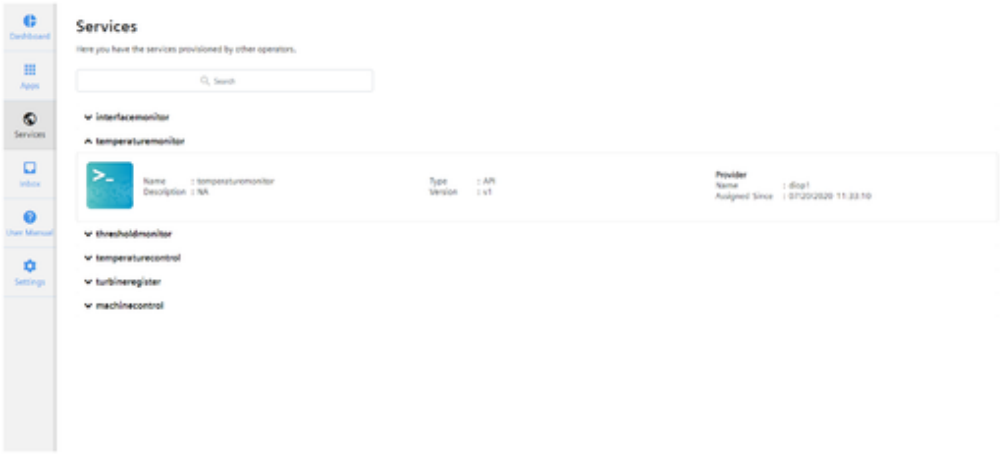
The API applications do not support the following features:

- Publishing of an API application.
- API application cannot be used as a dependency for another API application.

View "Services" 17

View "Services"

The "Services" screen displays all the API applications provisioned by other operators, which are used as external dependencies to UI applications hosted on your own operator tenant. The following screen displays the list and details of all the API applications provisioned.
Using these provisioned API applications, you can the access the endpoints of these API applications. To access the endpoints of provisioned API application advanced token exchange is required. For more information on using advanced token exchange, refer to the section "Accessing Industrial IoT /Token APIs" in Accessing Industrial IoT or external APIs during Local Development.



User Interface "Logs"

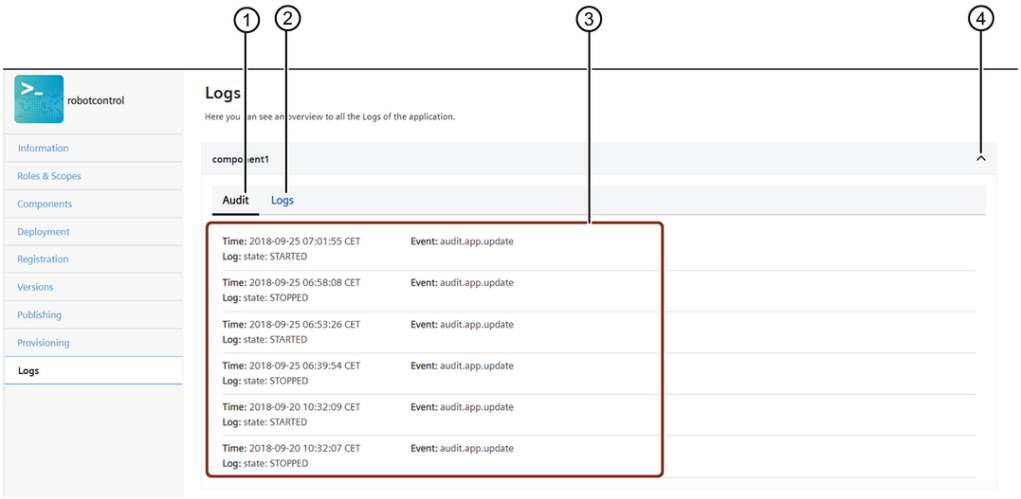
18

"Logs" user interface

The "Logs" screen displays the audit information and the recent CF logs for the selected component of a specific application.
To view the log files of an application, select the application from "My Applications" and select "Logs".

"Logs" screen

The following screen displays the audit and log details for an application. This is applicable for Mobile apps as well.



① Opens the tab of the latest audits

② Opens the tab with the latest logs:

- You can download the latest log files

③ Shows the following audit details:

- Time
- Log
- Event

④ Open or hides the audit and log details

Subscribe and unsubscribe to notifications 19

Subscribe and unsubscribe to notifications

The "Settings" screen allows you to subscribe to receive notifications for various events.
You can receive notifications related to various event changes by subscribing your email ID. Once you subscribe to any event, you will receive a confirmation email about the subscription. All the notifications related to your applications can be viewed in "Notifications" screen. For more information, refer to "Notifications" in "Operator Cockpit".
You can subscribe to any or all of the following event changes:

- **Subscription**: To receive notifications whenever a new customer tries to contact you via Industrial IoT Store.
- **Assigned**: To receive notifications whenever a developer assigns a new application to you.
- **Granted**: To receive notifications whenever a developer has acknowledged to handover the application.
- **Deployment & Cloud Foundry**: To receive notifications related to "Deployment", "Failure during deployment", and "Wrong space name".

The following sections describe the steps to subscribe or unsubscribe to notifications.

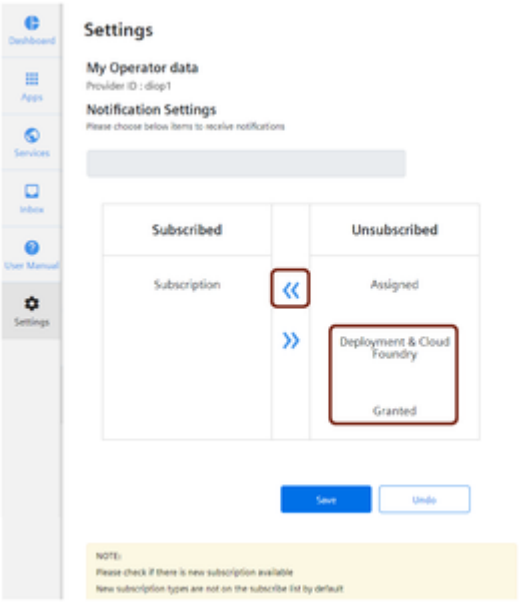
Subscribe to notifications

Subscribe for event change notifications only:
To receive notifications for different event changes, proceed with the following steps:

1. Click on the "Settings" icon on the start screen.

2. Select the event changes from the "Unsubscribed" column for which you want to receive notifications. For example, select the "Assigned" and "Granted" events. Click on the left

navigation button to move them under the "Subscribed" column.



3. Ensure that the selected event changes are now present under the "Subscribed" column, and click "Save".

Subscribe for notifications related to Notification Interest:

To receive notifications related to "Notification Interest", proceed with the following steps:

1. Click on the "Settings" icon on the start screen.

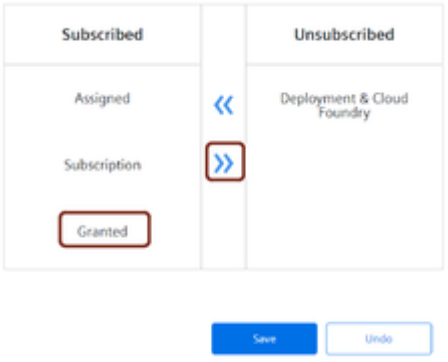
2. Select "Subscription" from the "Unsubscribed" column. Use the left navigation button to move it under the "Subscribed" column, and click "Save".

Unsubscribe from Notifications

To stop receiving notifications for different event changes, proceed with the following steps:

1. Click on the "Settings" icon on the start screen.

2. Select the event changes for which you want to stop receiving notifications. For example, "Granted". Use the right navigation button to move it under the "Unsubscribed" column, and click "Save".



FAQs "Operator Cockpit" 20

"Operator Cockpit" FAQs

Auto-deployment

1. What are the consequences if there exists an unwanted "manifest.yml" file within the appbinary?
For example, if manifest.yml file exists inside application.war/WEB-INF in appbinary, then the application will be automatically removed from the operator's CF space and cannot be used anymore.

2. Can the "routes" attribute be used in conjuction with "manifest" attributes?
No, "routes" attribute should not be used in conjunction with host, hosts, domain, domains and no-hostname. If used in conjuction, an error will result.

3. Can I push an application without specifying any route related CLI options or app "manifest" flags?
No. It is always recommended to push an application by specifying route related options. If the route is not specified, then the CF CLI attempts to generate a route based on the app name which might cause collisions. You can also use random-route attribute to generate a unique route name and avoid collisions.

4. What are the pre-conditions to have "Auto deployment" as an available option for deployment?
For auto deployment to be enabled, the following conditions must be satisfied:

- Make sure that your application contains the manifest file.
- Validation of the following parameters in the manifest file:

Parameters in manifest.yml	Auto deployment option
buildpack or buildpacks is not available	Disabled
path is not available	Disabled
memory is not available	Disabled
domain is available	Disabled (since domain parameter is deprecated)

Parameters in manifest.yml	Auto deployment option
domains is available	Disabled (since domains parameter is deprecated)
host is available	Disabled (since host parameter is deprecated)
hosts is available	Disabled (since hosts parameter is deprecated)
random-route is not available or set to false	Disabled
Procfile in the given path is available for the applications other than binary_buildpack	Disabled

- For more information on the development files that disable auto deployment, refer Preparation Checklist.

5.Can we use fixed "route" in app manifest file?
It is not recommended to use fixed "route" since it might cause route collisions following which auto-deployment will fail.
In such cases, you need to use manual deployment with an unoccupied route or change the route configuration as "--random-route".
6.Can I use any random format for manifest?
No. Operator Cockpit does not support manifest of random formats. For correct format of manifest, see the below table:

Parameters checklist	Check type	Checked values	Implication (when failed)
name	DataType/Value	String/Non-Empty	Upload Failure
memory	DataType/Value	String/Non-Empty	Disable Auto-Deployment
buildpack	DataType/Value	String/Non-Empty	Disable Auto-Deployment
path	DataType/Value	String/Non-Empty	Disable Auto-Deployment
domain	DataType	String	Upload Failure
host	DataType	String	Upload Failure
env	Value	key-value pair(key being String, and value being Object)	Upload Failure
services	DataType	`List<String>`	Upload Failure

Ensure the memory and disk_quota parameters are entered in proper integer values. For example, enter the memory and disk_quota values as show below:

- memory: 1024M
- disk_quota: 1024M

!!! Note If `buildpack` parameter is used while uploading from Developer Cockpit, then key will be modified to `buildpacks` in the manifest file after it is handed over to Operator Cockpit.

7.Does auto-deployment in Operator Cockpit support `buildpacks` parameter in the manifest file of an application to provide information regarding the framework and runtime support for an application?

Yes, Auto-deployment supports both `buildpacks` or `buildpack` in application manifest file. However, since `buildpack` is deprecated, it is recommended to use `buildpacks`. The multi-buildpack will not work with system buildpack. Use the URLs instead. If there are multiple buildpacks in the manifest, ensure you have enough disk quota. if not,specify the disk quota in the manifest file. For more information, refer attributes.

8.Can the path attribute in manifest start with slash (/)?

No. If the path attribute in manifest starts with slash(/), then auto-deployment of an application will not work as desired. For auto-deployment to be successful, remove the slash(/) from path attribute in manifest and restart the process.

9.Why is it important to set the header size of the request to Industrial IoT APIs to 16kb as per the Gateway Restrictions while developing an application?

By default, the header size of any HTTP request is set to 8kb, if the technical token size increases beyond this limit the applications stops and the request to Industrial IoT API fails with "400 Bad Request response". To avoid this error, set the server_max_http_header_size: 16384 in the application configuration.

10.How to access the endpoints of provisioned API applications from the standard UI application using Advanced Token Exchange (ATE)?

To access the endpoints of provisioned API application using Advanced Token Exchange (ATE), refer to "Accessing Industrial IoT APIs from self-hosted Applications".

11.How to integrate the API application with a standard UI application hosted in the same tenant?

To integrate an API application with a standard UI application hosted in the same tenant, refer to "Integrating API application to the UI application".

12.How much time is required for the custom space created in Cloud Foundry to appear in the space location of the Information tab?

It takes 24 hours time for the custom space created in Cloud Foundry to appear in the space location of the Information tab

13.Does auto-deployment process create a new space with the same name as appname?

Yes. By default, auto deployment process creates a new space with the same name as the appname irrespective of selecting the space from the "Space Location" of the "Information" tab.