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SAP Intelligent RPA Installation Guide

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1 Installing SAP Intelligent Robotic Process Automation

SAP Intelligent Robotic Process Automation is a hybrid solution made of three components:

- Desktop Studio for designing the automation processes.
- Cloud Factory for orchestrating the automation.
- Desktop Agent for executing the automation.

Two types of installation are available for SAP Intelligent Robotic Process Automation.

- A complete installation of the three SAP Intelligent Robotic Process Automation components for a full use of the product: development, orchestration, and execution of automation projects. Install and configure these three components to fully enjoy SAP Intelligent Robotic Process Automation's powerful capabilities.
- A partial installation for run-time machines where the automation projects are executed on Desktop Agents. For this installation, only refer to the installation of the on-premise Desktop Agent.

This Installation Guide contains the following:

- A registration to SAP Intelligent Robotic Process Automation Factory.
- A combined setup of the Agent (default) and the Studio and SDK (optional) installations.
- A procedure to update your SAP Intelligent RPA landscape (Desktop Agent and Studio).

Related Information

[SAP Intelligent Robotic Process Automation Factory Configuration \[page 4\]](#)

[On-premise Components Setup \[page 36\]](#)

[Updating your SAP Intelligent RPA 1.0 Landscape \(Desktop Agent and Studio\) \[page 65\]](#)

2 SAP Intelligent Robotic Process Automation Factory Configuration

SAP Intelligent RPA is available via the SAP Business Technology Platform (BTP). You must create and configure an SAP Intelligent RPA tenant in the SAP BTP to get access to the SAP Intelligent Robotic Process Automation Factory.

Once you have created and configured an SAP Intelligent Robotic Process Automation Factory tenant, declare your Desktop Agents in an environment. For more information, see [Add Agents to an Environment](#).

2.1 Automatically Subscribing to SAP Intelligent RPA in SAP Business Technology Platform (BTP)

To access SAP Intelligent Robotic Process Automation Factory, you first need to create your SAP Intelligent RPA subaccount in the SAP BTP cockpit.

Context

You can automatically create your subaccount using the booster. This tool eases the creation of your subaccount and your subscription to SAP Intelligent RPA.

Once you have launched it, the booster automatically performs the following steps:

- Creating Subaccount
- Enabling Cloud Foundry
- Assigning Service Quotas
- Creating Space
- Subscribing to SaaS Applications
- Adding Cloud Foundry Users
- Creating Service Instances
- Creating Role Collection
- Assigning Role Collection

Procedure

1. Navigate to your global account.

You need to have a SAP BTP global account on Cloud Foundry. Once you have signed your commercial contract with SAP, you will receive access information and credentials for your global account.

You can find complete information about global accounts in [Setting Up a Global Account](#) in the SAP BTP official documentation.

⚠ Caution

In the SAP BTP official documentation, only refer to the **Cloud Foundry** environment to set up your global account.

2. You need to have a Cloud Foundry subaccount in the SAP BTP.

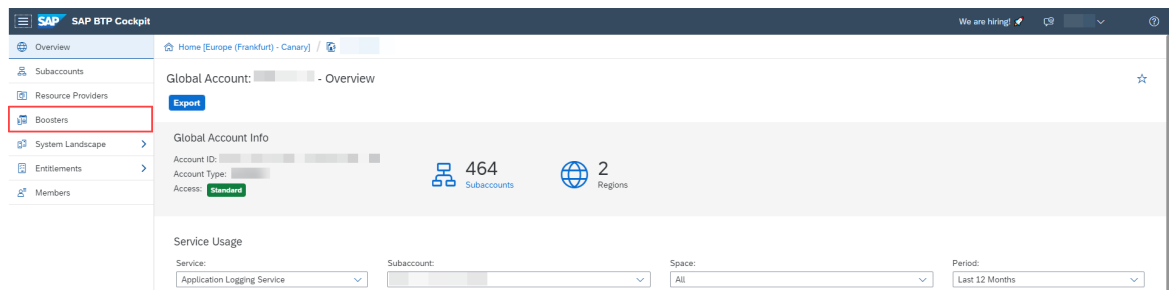
You can find information about subaccounts in [Create Subaccounts Using the Cockpit](#) in the SAP BTP official documentation.

ℹ Note

You must select a region during the creation of your subaccount. Please note that the performance of SAP Intelligent RPA (response time, latency) can be optimized by selecting a region close to your users. For more information, see the page about [Regions](#) in the SAP BTP documentation.

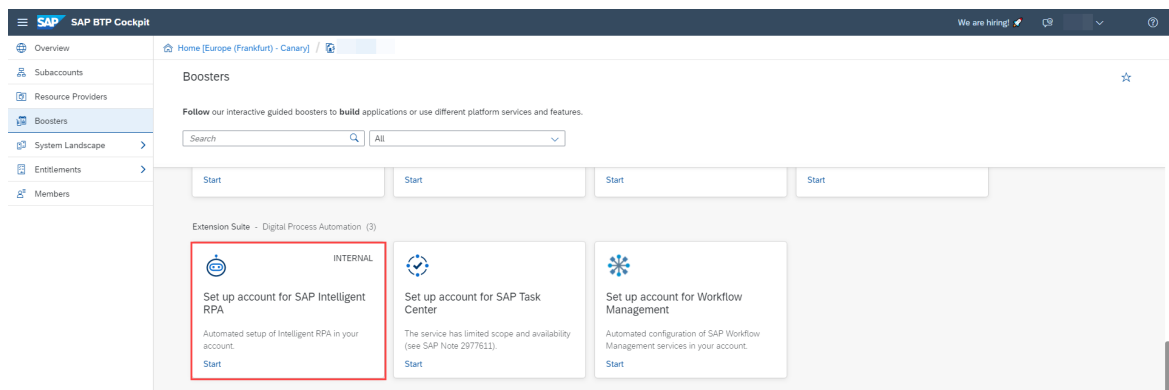
If you are in Europe, you must select the *eu10* region.

3. Click *Boosters* on the left-hand side panel.



The *Boosters* panel opens.

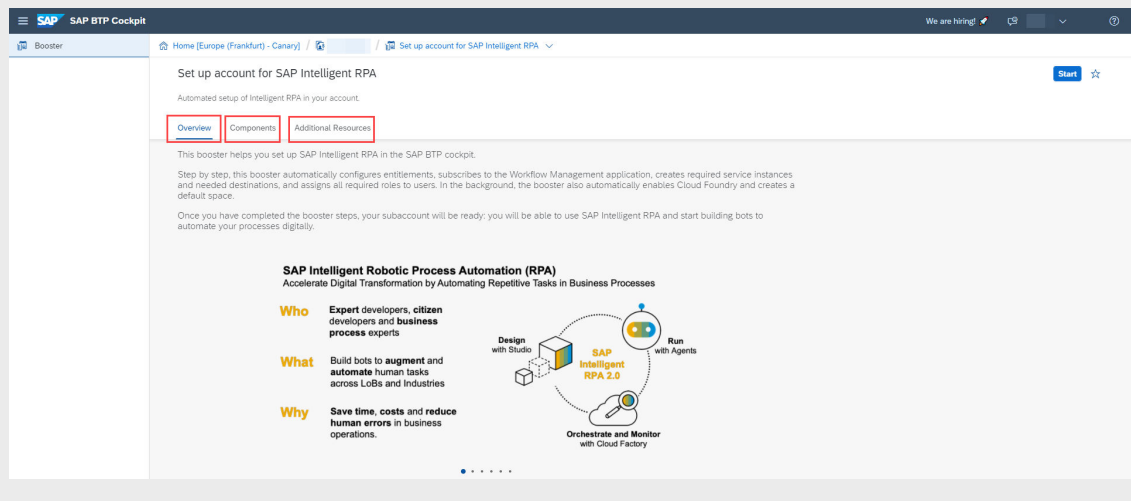
4. Find and select the *Set up account for SAP Intelligent RPA* tile.



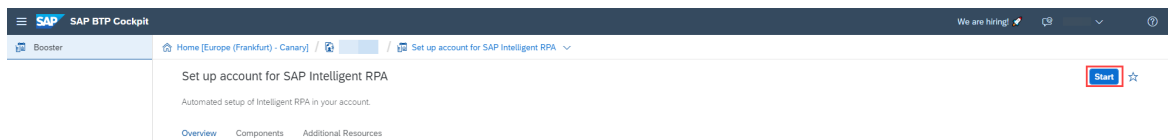
Note

On the panel that opens, you can see three tabs:

- The *Overview* tab, which provides information about the booster and SAP Intelligent RPA.
- The *Components* tab, which provides information about all the different components that can be part of your booster. In this case, *Intelligent Robotic Process Automation Service* and *SAP Intelligent Robotic Process Automation Subscription* are mandatory components.
- The *Additional Resources* tab, which provides information about the concepts and components mentioned in this booster.



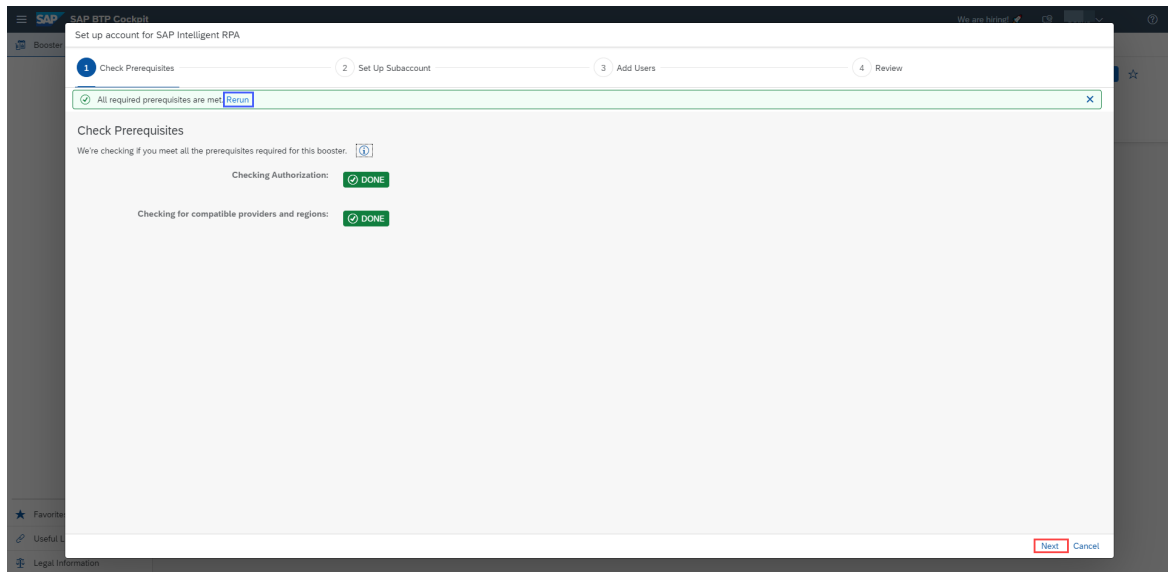
5. Click the *Start* button.



6. The *Check Prerequisites* panel opens. Click *Next*.

Note

The booster checks if you have the necessary authorizations, enough quotas and if the providers and regions are compatible. If there is any issue, click the tile to view what is wrong. You can solve the issue and click *Rerun* to perform the check again.

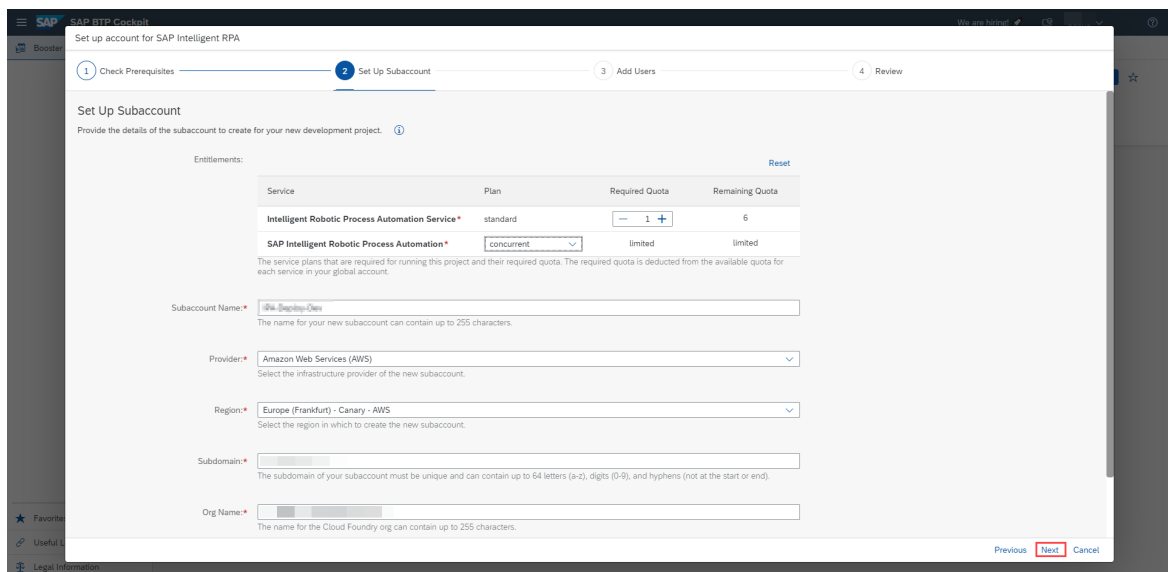


7. **Note**

The *Set Up Subaccount* panel opens.

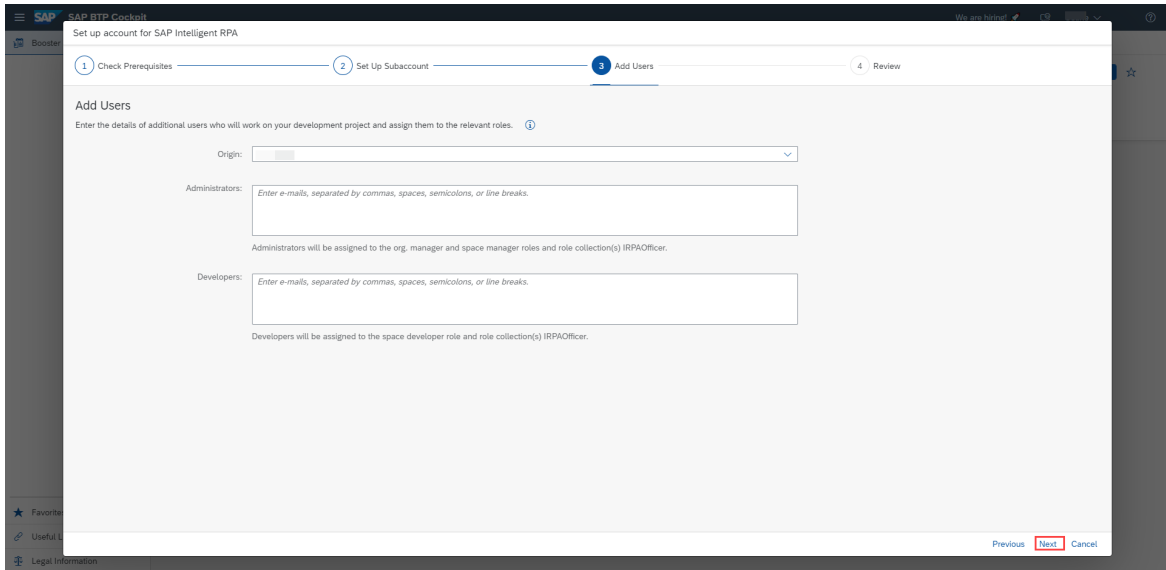
This tab provides details of the subaccount to create. You can modify the content of the pre-filled fields.

Click *Next*.



8. The *Add Users* panel opens. Click *Next*.

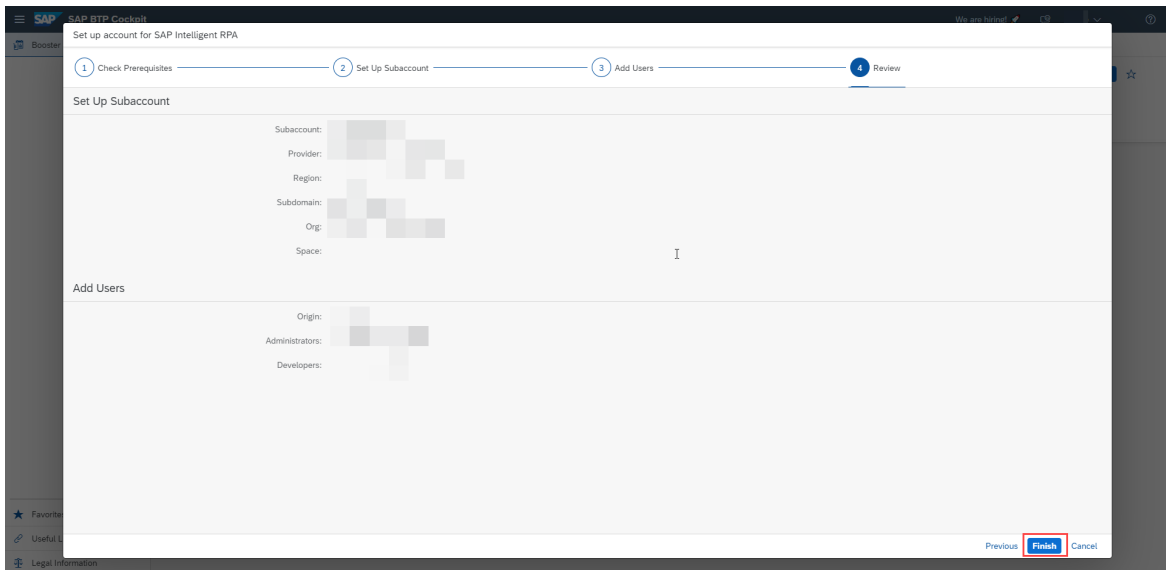
You can enter the details of additional users who will work on your development project and assign them to the relevant rules.



Note

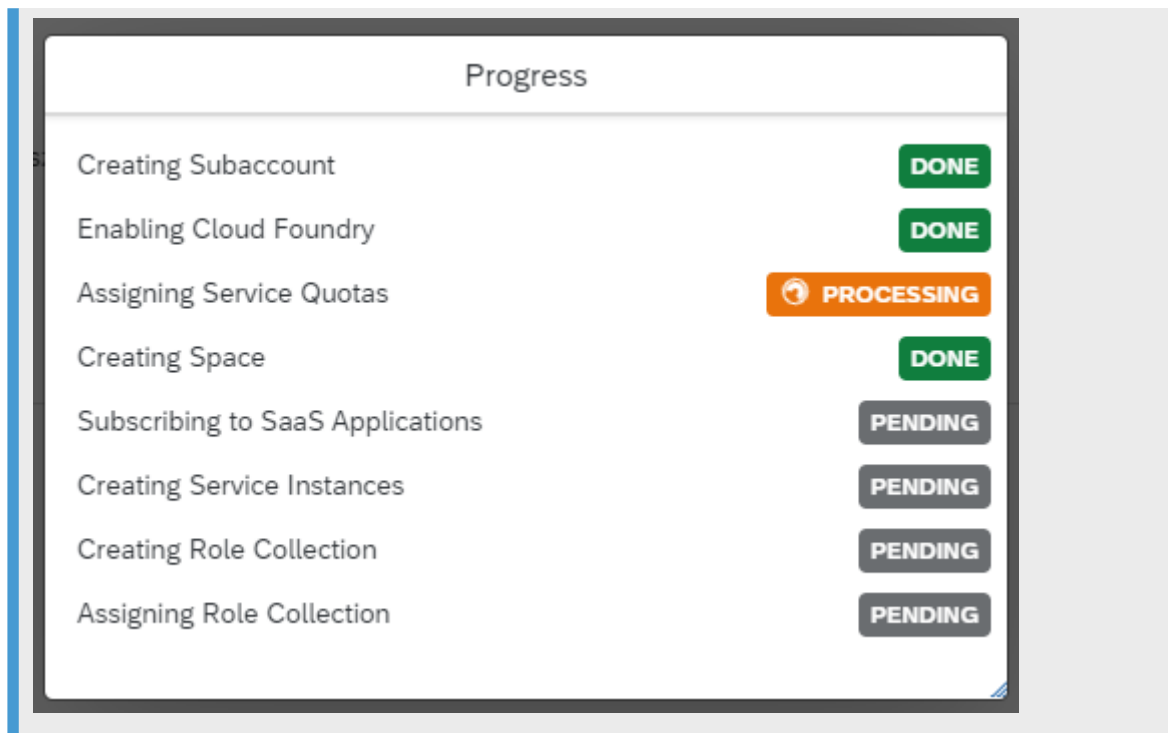
The *Origin* field is not visible for users who are subscribing to Feature Set B.

- The *Review* panel opens. Review your setup and click *Finish*.



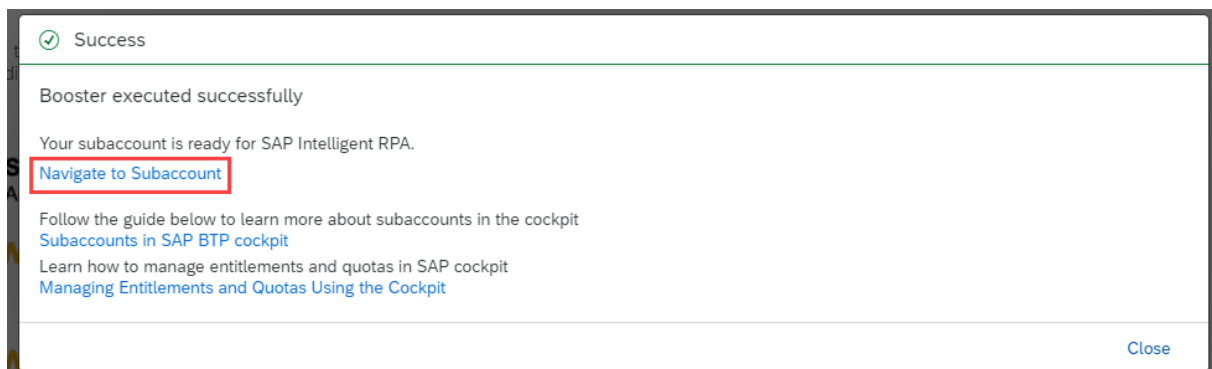
Note

A popup appears and shows the progress of the booster that is setting up your subaccount. The setup usually takes one to two minutes to be completed. If a step fails, you can view what you need to do to solve this problem.




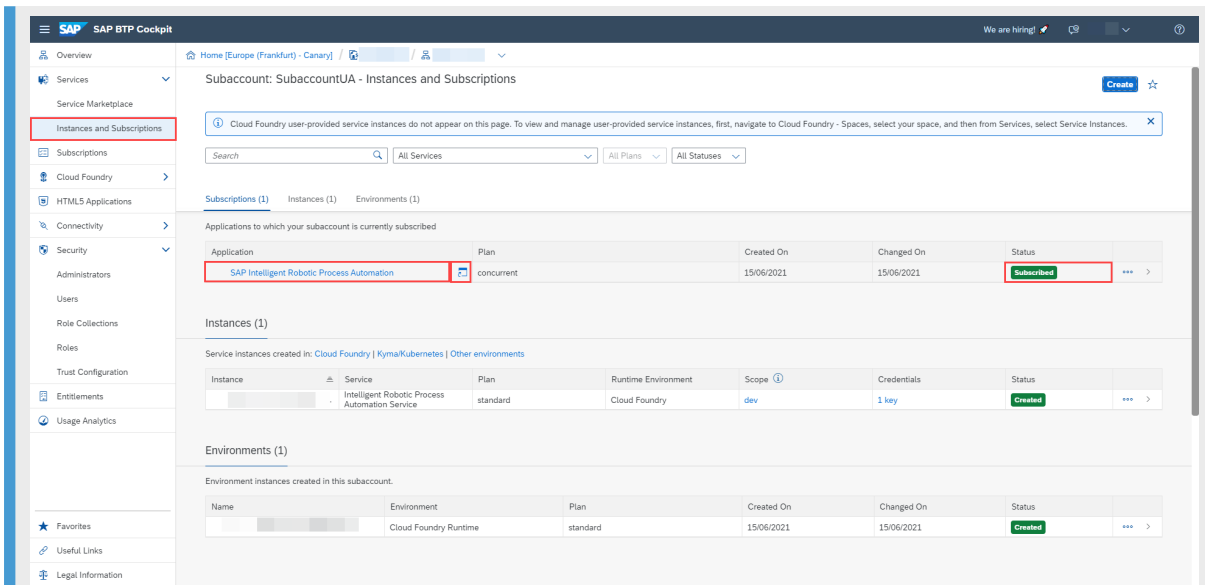
Results

When the booster is executed successfully, navigate to your subaccount by clicking the *Navigate to Subaccount* link.

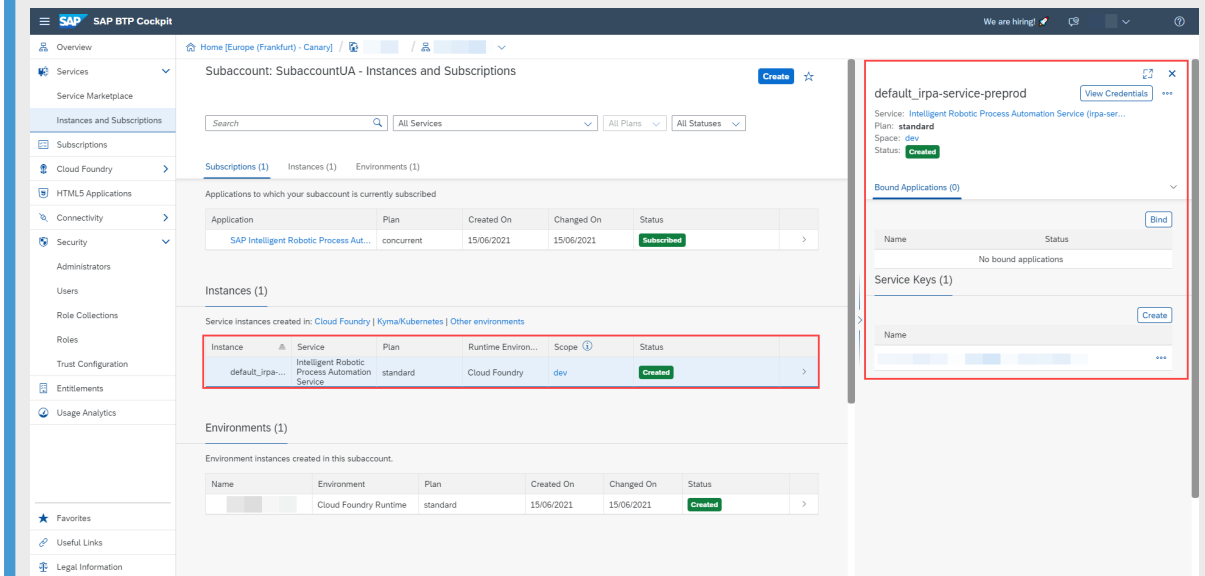


Note

If you click *Instances and Subscriptions* on the left-hand side panel, you can see that you have successfully subscribed to SAP Intelligent Robotic Process Automation and which plan you have acquired. If you click on the  icon, you can log onto the Cloud Factory and start working on your project.



You can also see the service instances that have been created under *Instances*. If you select a service instance, you can see the service key that has been generated from it on the right-hand side panel.



If you click *Role Collections* on the left-hand side panel, you can see your role collections and the users assigned to them.

2.2 Manually Subscribing to SAP Intelligent RPA in SAP Business Technology Platform (BTP)

To access SAP Intelligent Robotic Process Automation Factory, you first need to create your SAP Intelligent RPA subaccount in the SAP BTP cockpit.

Prerequisites

To know which feature set you're using in your SAP BTP global account, check the [Feature Set Overview](#) in the SAP BTP documentation.

[Subscribing to SAP Intelligent RPA \[Feature Set A\] \[page 11\]](#)

[Subscribing to SAP Intelligent RPA \[Feature Set B\] \[page 19\]](#)

2.2.1 Subscribing to SAP Intelligent RPA [Feature Set A]

Procedure

1. You need to have a SAP BTP global account on Cloud Foundry. Once you've signed your commercial contract with SAP, you'll receive access information and credentials for your global account.

You can find complete information about global accounts in [Setting Up a Global Account](#) in the SAP BTP official documentation.

⚠ Caution

In the SAP BTP official documentation, only refer to the **Cloud Foundry** environment to set up your global account.

2. You need to have a Cloud Foundry subaccount in the SAP BTP.

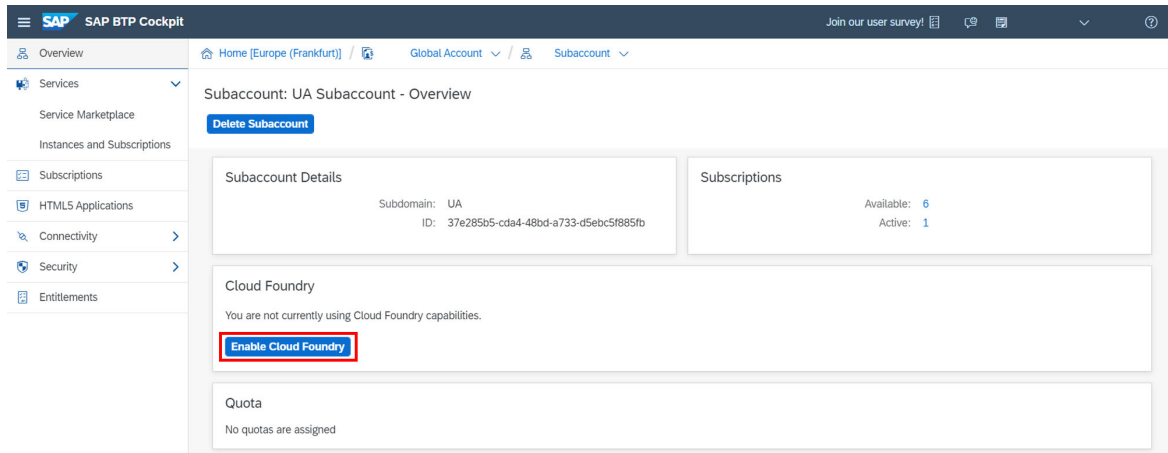
You can find information about subaccounts in [Create Subaccounts Using the Cockpit](#) in the SAP BTP official documentation.

ℹ Note

You must select a region during the creation of your subaccount. Please note that the performance of SAP Intelligent RPA (response time, latency) can be optimized by selecting a region close to your users. For more information, see the page about [Regions](#) in the SAP BTP documentation.

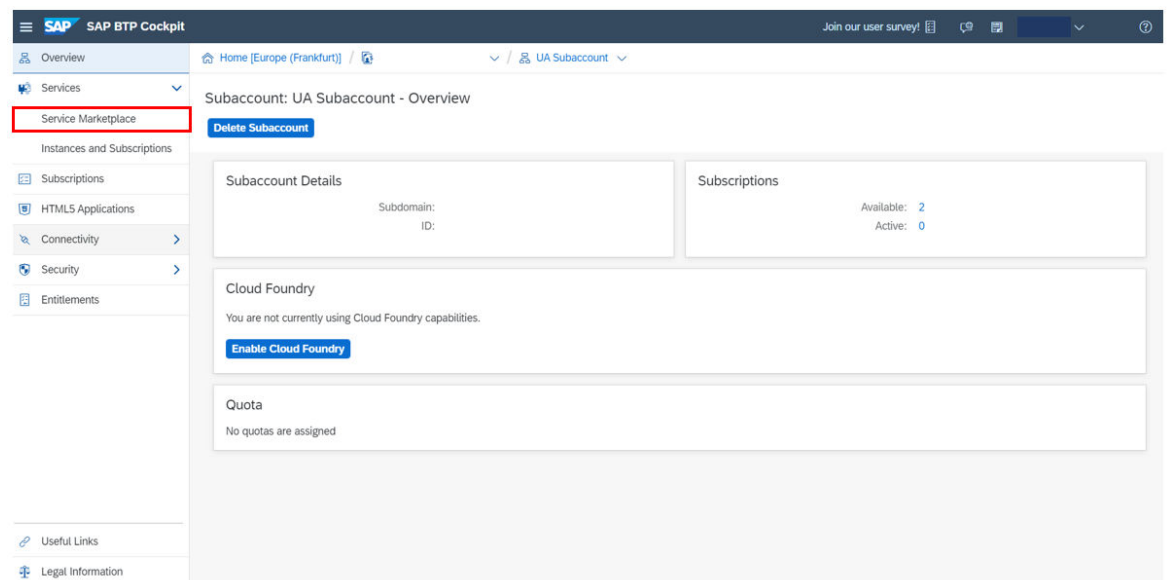
If you are in Europe, you must select the [eu10](#) region.

3. In your subaccount, click [Enable Cloud Foundry](#).

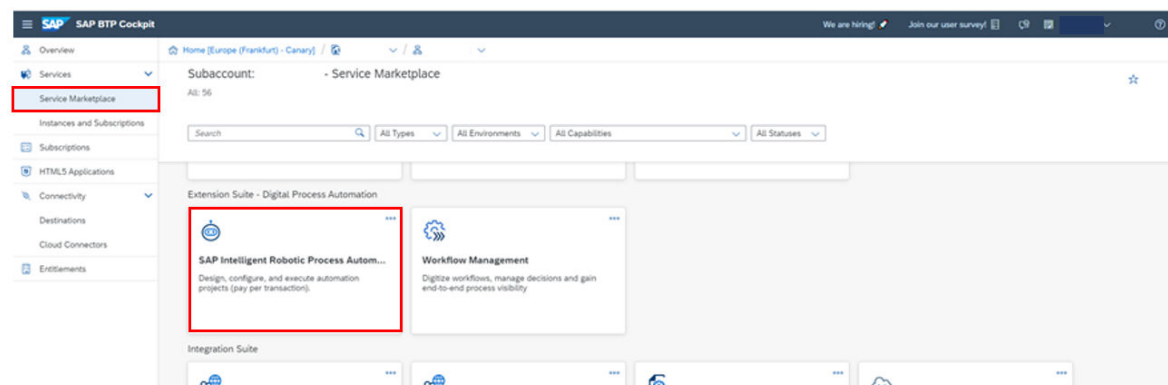


Enter a name for your organization, and click *Create*. As a best practice, enter the name in lower case.

4. In the navigation area of your subaccount, click *Service Marketplace* under *Services* to show the applications that are available to you.



5. Click the SAP Intelligent RPA tile to enter its overview page.



Note

If you don't see any SAP Intelligent RPA tile in the *Subscriptions* of your subaccount, it means that you haven't been granted with an entitlement. Entitlement should be granted once you've signed your commercial contract with SAP, so in this case, raise a [BCP Ticket](#) on component *CA-ML-IPA* to ask for information about the entitlement of your global account.

- Click the **...** icon in the **concurrent** field.

The screenshot shows the SAP BTP Cockpit interface. The left sidebar contains navigation options like Overview, Services, Service Marketplace, and Subscriptions. The main content area displays the 'SAP Intelligent Robotic Process Automation' application page. Under the 'Application Plans' section, there is a table with the following data:

Plan	Description	Availability	Active
default	SAP Intelligent Robotic Process Automation lets you automate enterprise business processes. Design process... More	1	...
concurrent	SAP Intelligent Robotic Process Automation lets you automate enterprise business processes. Design process... More	1

- Click the *Create* button.

This screenshot is similar to the previous one, but the 'Create' button in the 'Active' column of the 'concurrent' plan row is highlighted with a red box.

- Select the **concurrent** plan and click *Create*.

New Instance or Subscription

1
Basic Info

Enter basic info for your instance or subscription.

Service: * ⓘ
SAP Intelligent Robotic Process Automation

ⓘ Some services are not shown because Cloud Foundry is not enabled. [Enable Cloud Foundry](#)

Plan: *

concurrent	Subscription
concurrent	Subscription
default	Subscription

Create Cancel

ⓘ Note

Please ignore if you see *concurrent-attended* and *concurrent-unattended* tiles in your subscription screen. Use only *concurrent* tile to subscribe to SAP Intelligent RPA.

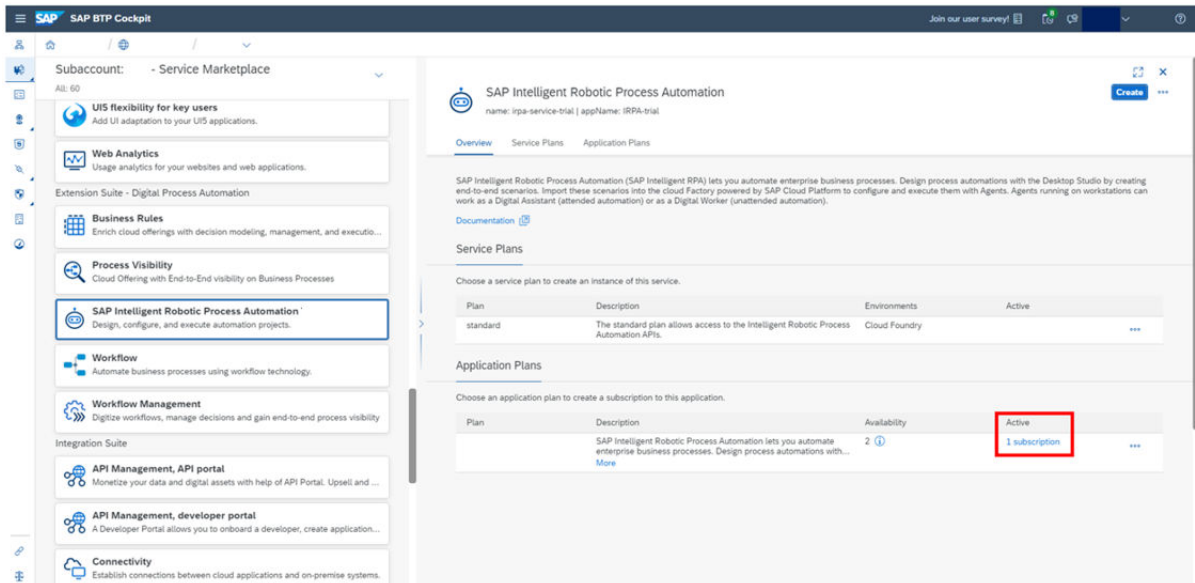
ⓘ Note

SAP Intelligent RPA is now priced on concurrent executions for attended and unattended modes.

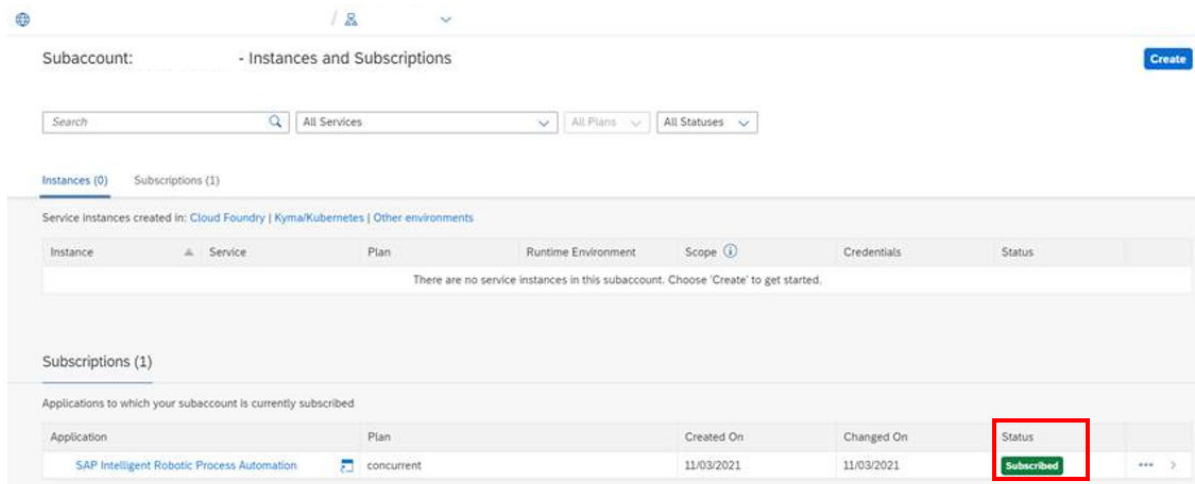
- **n** unattended Units means that you can execute n unattended bots in parallel.
- **p** attended Units means that you can execute p *10 attended bots in parallel.

Results

Once your SAP Intelligent RPA subaccount is created and the subscription is completed, you can see that your subscription is active. Click [1 subscription](#) under *Active*.



You can see that the *Subscribed* button is enabled.



In the *Entitlements* of the *SAP Business Technology Platform Cockpit*, you can manage the quotas allocation to a subaccount.

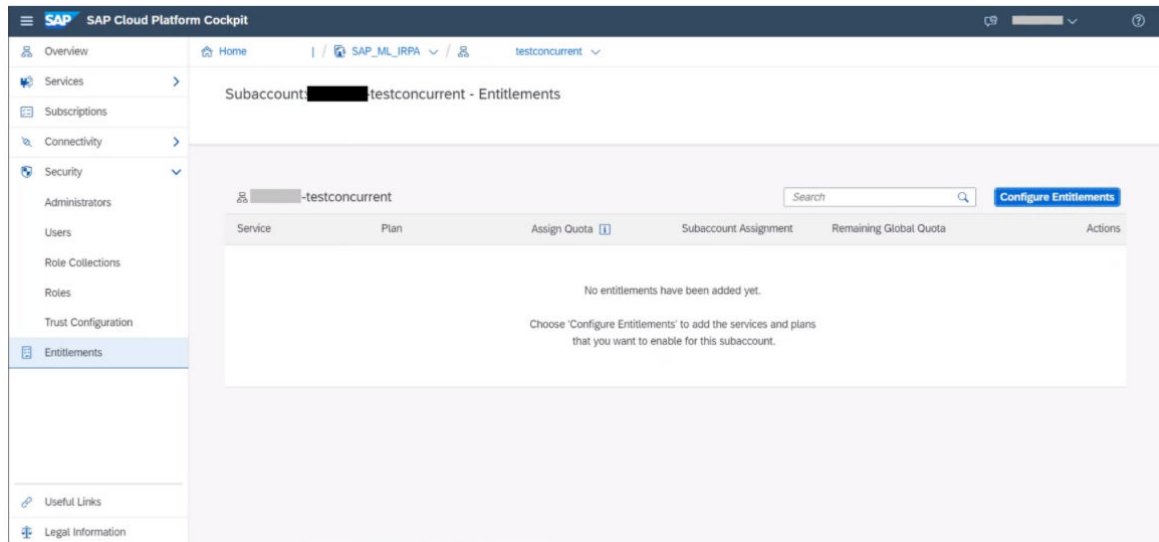
Next Steps

Quota Allocation

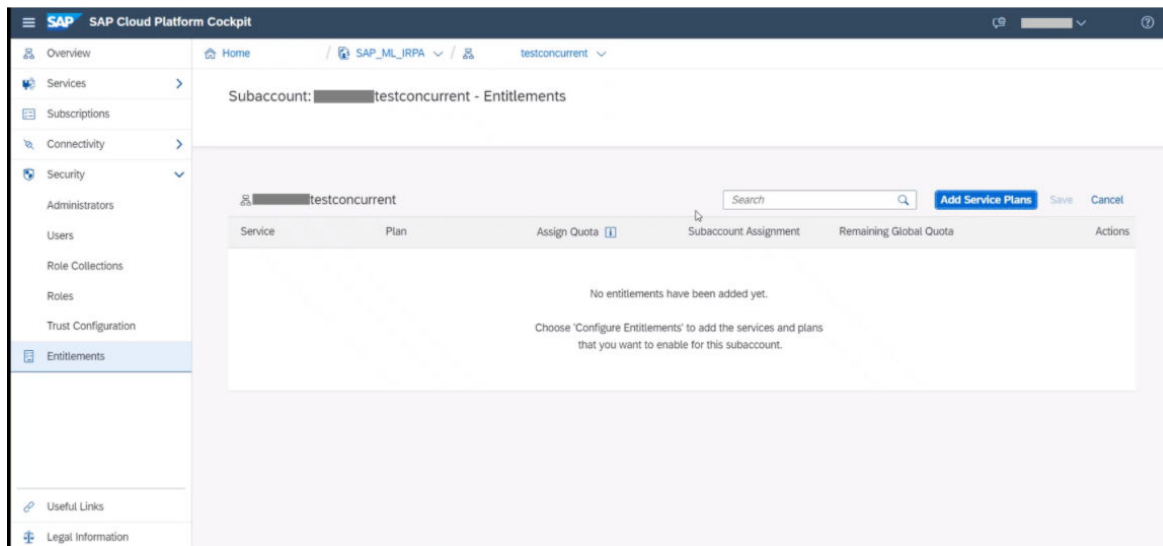
A quota represents the numeric quantity that defines the maximum allowed consumption of a resource. In other words, how much of a service plan you're entitled to use. The quotas are allocated based on the license type.

To add services and plans to a subaccount, follow the below procedure.

1. Click *Entitlements*  in the BTP Cockpit left-hand panel. The **Entitlements** screen displays.

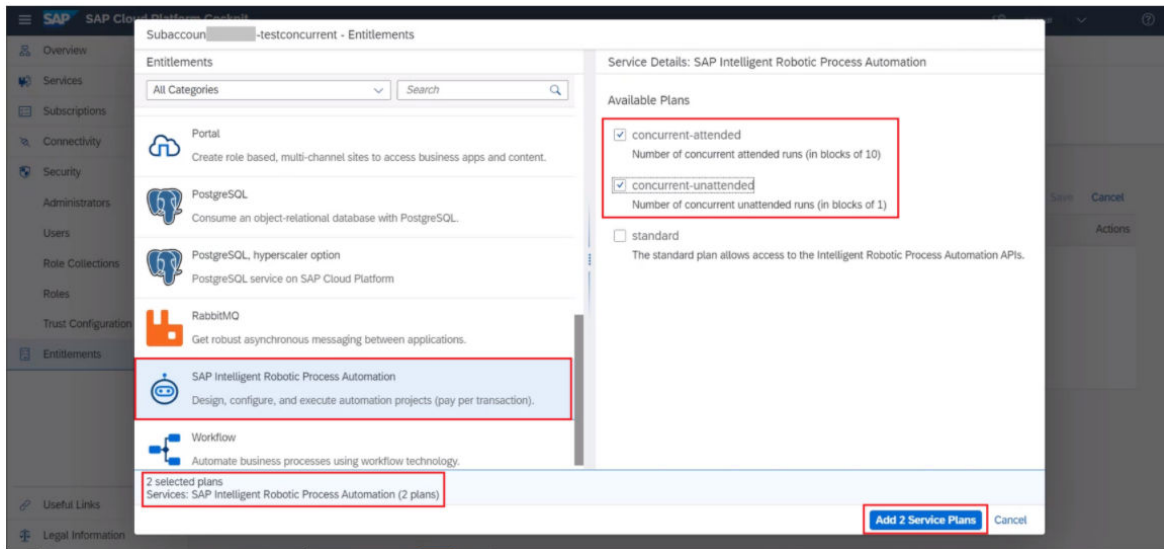


2. Click *Configure Entitlements*.



The **Add Service Plans** button is enabled.

3. Click *Add Service Plans*. The entitlement category list is displayed.
4. Find and select the *SAP Intelligent Robotic Process Automation* category. All available plans list is displayed.
5. Select the required plans and then click *Add Service Plans*.



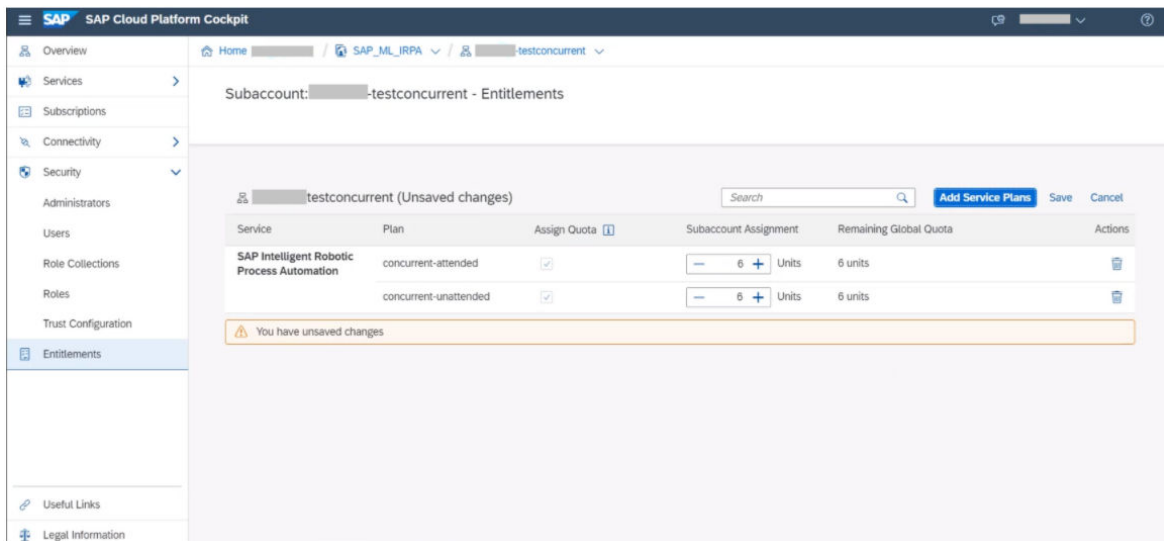
Note

The two plans are provided according to your purchased SKU.

- Attended (bots are triggered by a bot developer).
- Unattended (bots are fully autonomous).

You can select one of the plans or both plans according to your needs.

The services and plans are added to the subaccount.



Note

If you have only one sub account, it is recommended to allocate all the units available in Global Quota.

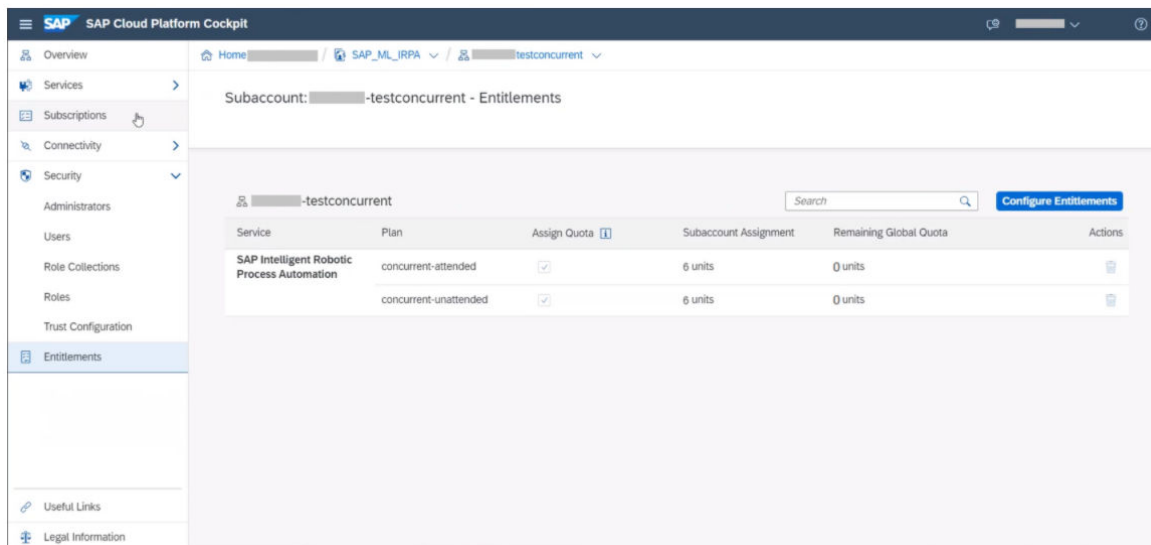
- 1 unattended Unit means that you can execute 1 unattended BOT in parallel.
- 1 attended Unit means that you can execute 10 attended BOT in parallel.

If you have multiple sub accounts, you can allocate quota units to your sub-accounts based on your requirement.

Note

If you have a Cloud Platform Enterprise Agreement (CPEA), untick the box under *Assign Quota* to have unlimited quota.

6. Click *Save*.

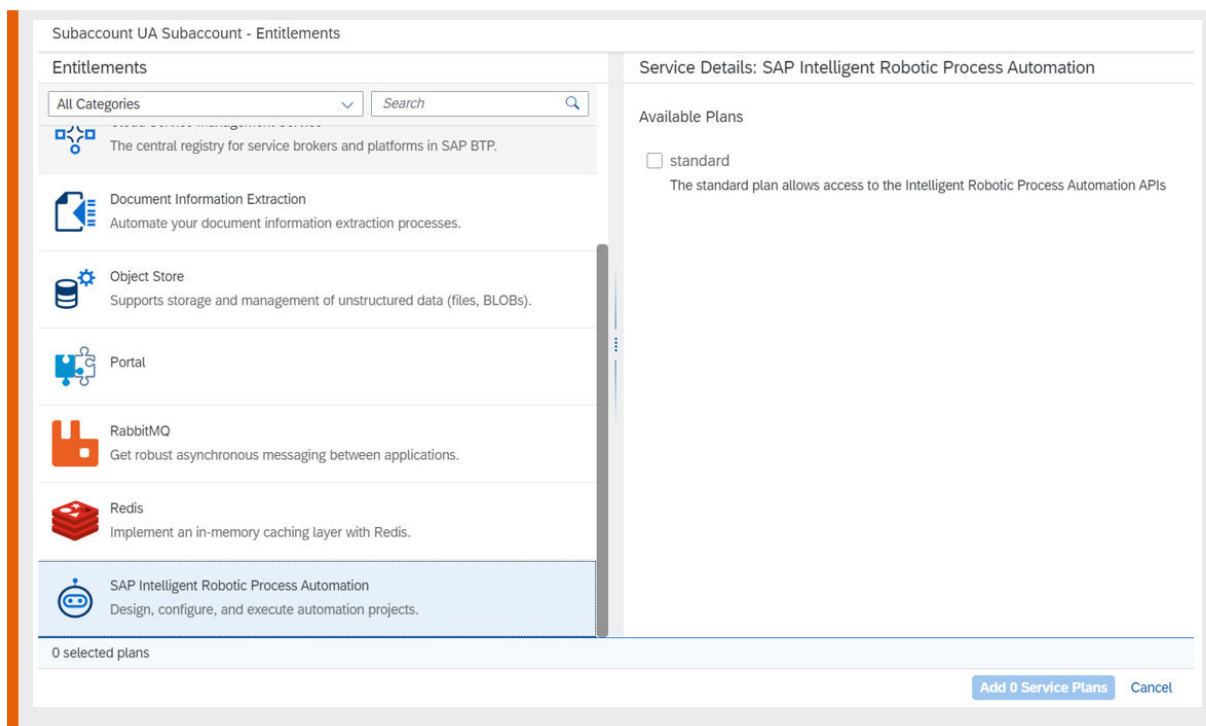


You can manage authorizations and trust configurations to finalize the subscription. For more details, refer to the [Custom Scripting](#) section.

For more details about configure entitlements and quotas, refer to the following related topics [Managing Entitlements and Quotas Using the Cockpit](#)

Caution

For customers with contracts closed before January 25th, 2021, you can still use the standard plan instead of the concurrent plan.



Related Information

[Authorization and Trust Management \[page 24\]](#)

2.2.2 Subscribing to SAP Intelligent RPA [Feature Set B]

Procedure

1. You need to have a SAP BTP global account on Cloud Foundry. Once you've signed your commercial contract with SAP, you'll receive access information and credentials for your global account.
You can find complete information about global accounts in [Setting Up a Global Account](#) in the SAP BTP official documentation.

Caution

In the SAP BTP official documentation, only refer to the **Cloud Foundry** environment to set up your global account.

2. You need to have a Cloud Foundry subaccount in the SAP BTP.
You can find information about subaccounts in [Create Subaccounts Using the Cockpit](#) in the SAP BTP official documentation.

Note

You must select a region during the creation of your subaccount. Please note that the performance of SAP Intelligent RPA (response time, latency) can be optimized by selecting a region close to your users. For more information, see the page about [Regions](#) in the SAP BTP documentation.

If you are in Europe, you must select the *eu10* region.

3. Click **Entitlements** in the BTP Cockpit left-hand panel. The **Entitlements** screen displays.

The screenshot shows the SAP BTP Cockpit interface. The left-hand navigation menu has 'Entitlements' highlighted with a red box. The main content area displays the 'Subaccount: User subaccount' page. It shows details for the subaccount, including the Org Name 'IPA-CPEA_user-account', Org ID, and API Endpoint. Below this, there is a table for 'Entitlements' with columns for Service, Service Plan, and Quota Assignment.

Service	Service Plan	Quota Assignment
Cloud Service Management Service	service-operator-access	1
Master Data Integration (Orchestration)	Standard	1
SAP Cloud Identity Services	application	1

4. Click **Configure Entitlements**.

The screenshot shows the 'Configure Entitlements' screen in the SAP BTP Cockpit. The 'Configure Entitlements' button is highlighted with a red box. Below it is a table showing the current entitlements for the subaccount.

Service	Plan	Assign Quota	Subaccount Assignment	Remaining Global Quota	Actions
Cloud Identity Services	application	<input type="checkbox"/>	1 shared units	1 shared units	
Master Data Integration (Orchestration)	standard (Subscription)	<input type="checkbox"/>	1 shared units	1 shared units	

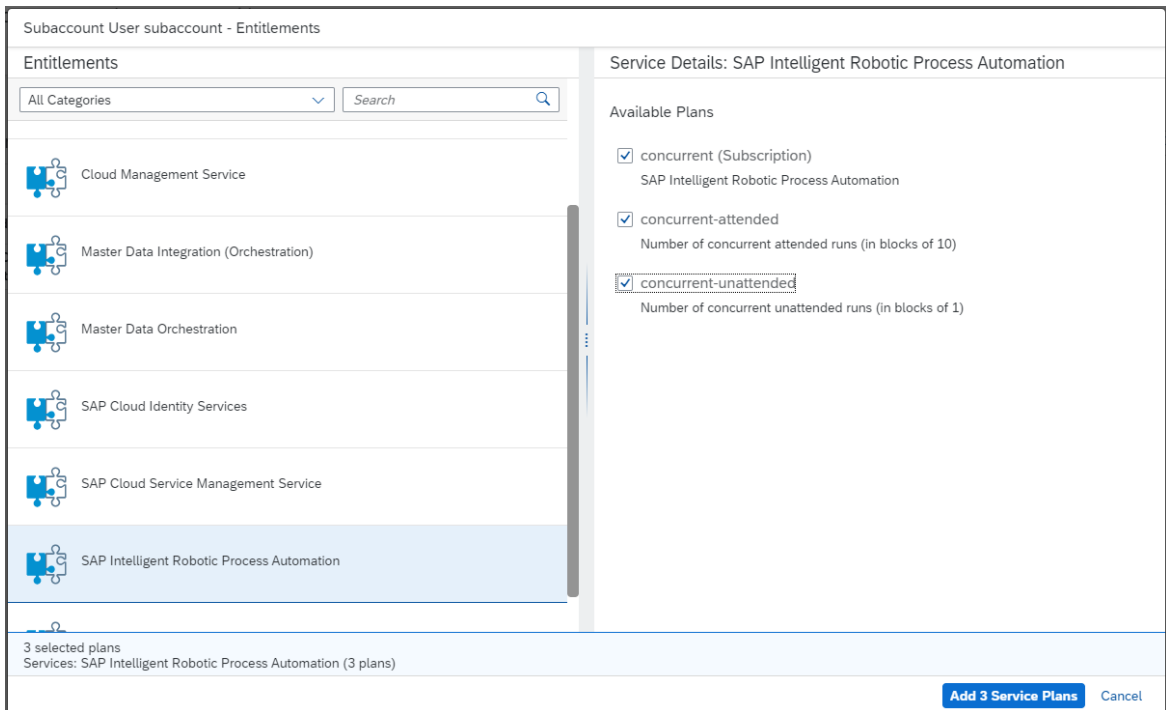
The **Add Service Plans** button is enabled.

5. Click **Add Service Plans**. The entitlement category list is displayed.

The screenshot shows the 'Add Service Plans' screen in the SAP BTP Cockpit. The 'Add Service Plans' button is highlighted with a red box. Below it is a table showing the current entitlements for the subaccount, with checkboxes in the 'Assign Quota' column.

Service	Plan	Assign Quota	Subaccount Assignment	Remaining Global Quota	Actions
Cloud Identity Services	application	<input type="checkbox"/>	1 shared units	1 shared units	
Master Data Integration (Orchestration)	standard (Subscription)	<input type="checkbox"/>	1 shared units	1 shared units	

6. Find and select the **SAP Intelligent Robotic Process Automation** tile.
7. Select the **concurrent (Subscription)**, **concurrent-attended** and **concurrent-unattended** plans and then click **Add 3 Service Plans**.

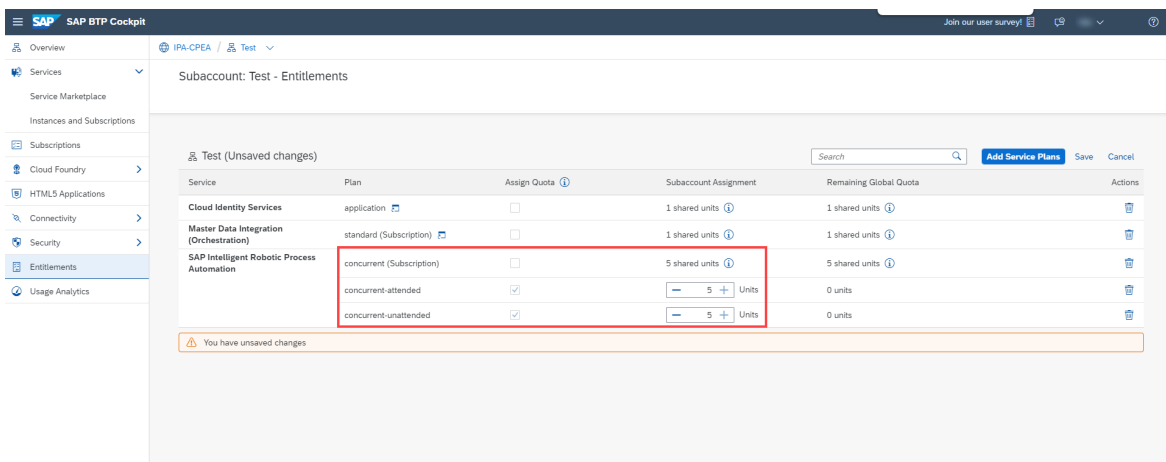


Note

The two plans are provided according to your purchased SKU.

- Attended (bots are triggered by a bot developer).
- Unattended (bots are fully autonomous).

The services and plans are added to the subaccount.



Note

If you have only one sub account, it is recommended to allocate all the units available in Global Quota.

- 1 unattended Unit means that you can execute 1 unattended BOT in parallel.
- 1 attended Unit means that you can execute 10 attended BOT in parallel.

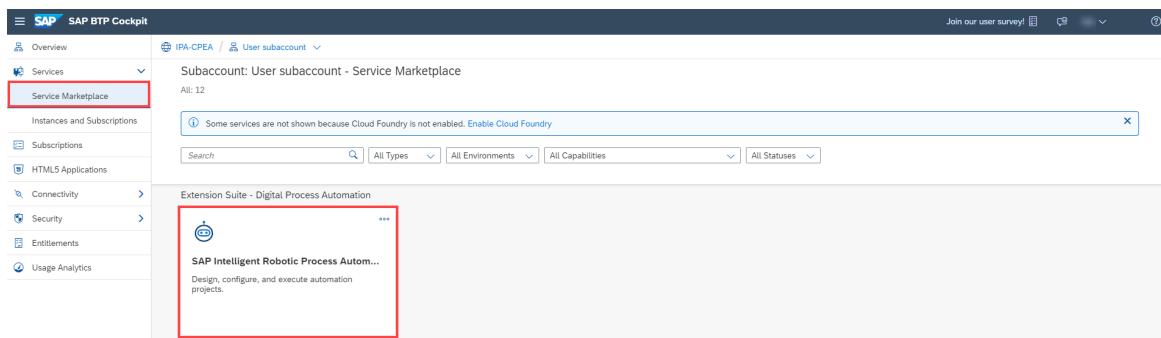
If you have multiple sub accounts, you can allocate quota units to your sub-accounts based on your requirement.

- Click [Save](#).
- In the BTP Cockpit left-hand panel, click [Service Marketplace](#) under [Services](#) to show the applications that are available to you.

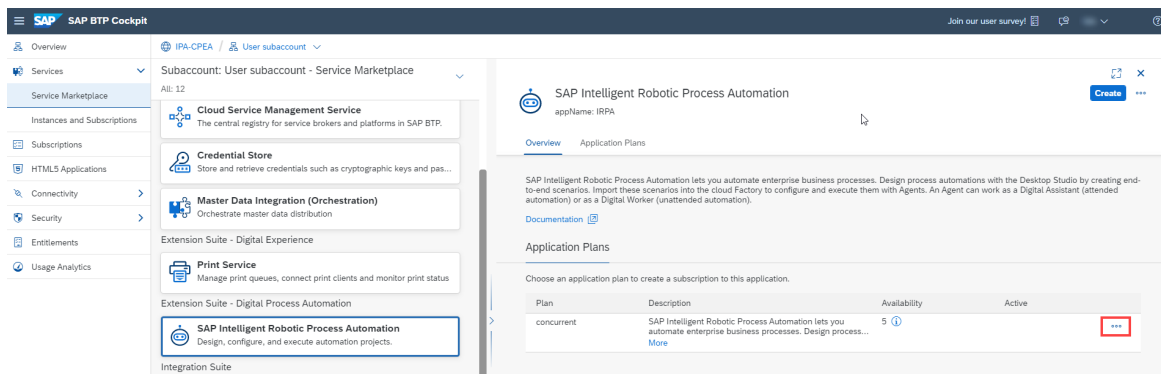
Note

If you don't see any SAP Intelligent RPA tile in the [Subscriptions](#) of your subaccount, it means that you haven't been granted with an entitlement. Entitlement should be granted once you've signed your commercial contract with SAP, so in this case, raise a [BCP Ticket](#) on component [CA-ML-IPA](#) to ask for information about the entitlement of your global account.

- Click the SAP Intelligent RPA tile to enter its overview page.



- Click the *** icon in the **concurrent** field.



- Click the [Create](#) button.
- Select the **concurrent** plan and click [Create](#).

New Instance or Subscription

1
Basic Info

Enter basic info for your instance or subscription.

Service: * ⓘ
SAP Intelligent Robotic Process Automation

ⓘ Some services are not shown because Cloud Foundry is not enabled. [Enable Cloud Foundry](#)

Plan: *
concurrent

Create Cancel

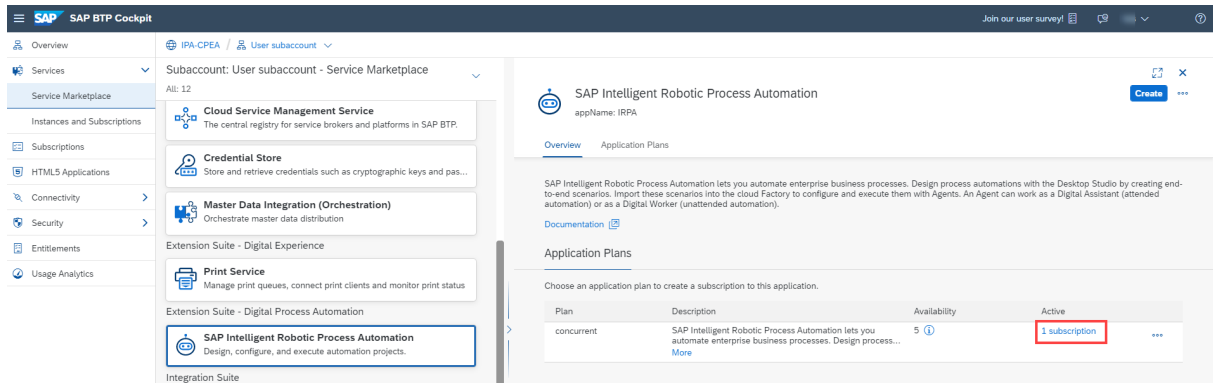
ⓘ Note

SAP Intelligent RPA is now priced on concurrent executions for attended and unattended modes.

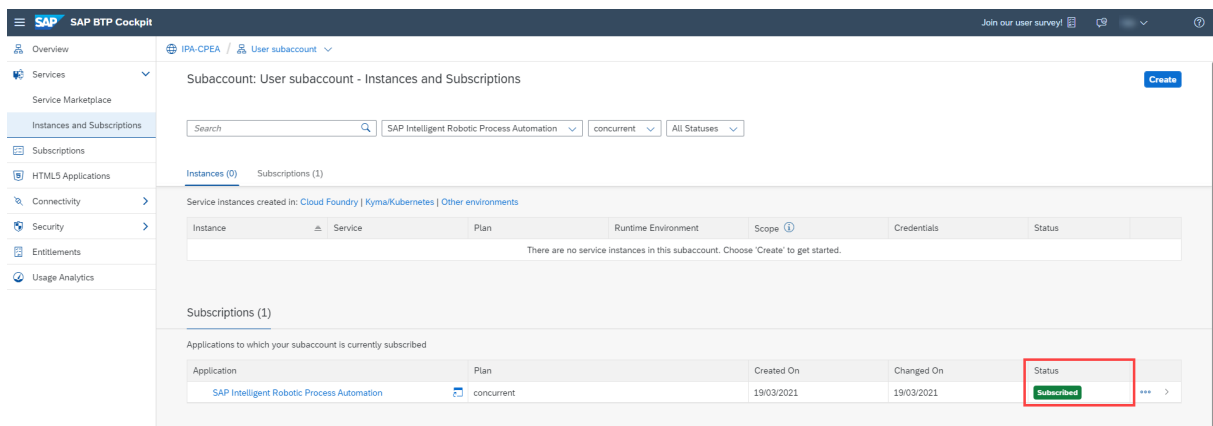
- **n** unattended Units means that you can execute n unattended bots in parallel.
- **p** attended Units means that you can execute p *10 attended bots in parallel.

Results

Once your SAP Intelligent RPA subaccount is created and the subscription is completed, you can see that your subscription is active. Click [1 subscription](#) under *Active*.



You can see that the *Subscribed* button is enabled.



Related Information

[Authorization and Trust Management \[page 24\]](#)

2.3 Authorization and Trust Management

In SAP Business Technology Platform (BTP), your SAP Intelligent Robotic Process Automation subaccount gets its users from identity providers.

As an administrator, you allow users to access their subaccount by making sure that there is a dedicated trust relationship between the identity providers and the respective subaccounts.

You can choose between the SAP BTP default identity provider, that is SAP ID Service, or a custom SAML 2.0 identity provider.

Default Identity Provider

The default identity provider is SAP ID Service. It is part of SAP BTP. The trust relationship is already established.

SAP ID Service enables the registration of SAP S-User IDs or SAP BTP Register Users. It provides an access to SAP Intelligent Robotic Process Automation Factory and the SAP BTP Cockpit.

Custom Trust Configuration

To set up secure authentication and single sign-on for your users, it's recommended to add a custom trust configuration. A custom trust configuration can for example help you to comply with the security policy of your company in term of identification. SAP BTP supports SAML 2.0 identity providers.

You can establish a custom trust configuration using SAP BTP Identity Authentication service. SAP BTP Identity Authentication provides you with simple and secure cloud-based access to business processes. For more information about SAP BTP Identity Authentication service, refer to the SAP BTP [documentation](#). You can also use any SAML 2.0 identity provider.

If you want to use SAP BTP Identity Authentication service, or your own custom SAML 2.0 identity provider, you must configure it and establish trust between your SAP BTP subaccount and the identity provider.

For more information, see [Authorization and Trust Management Overview](#) in the SAP BTP Administration guide.

Related Information

[Establishing Default Trust Configuration with SAP ID Service \[page 25\]](#)

[Custom Trust Configuration \[page 26\]](#)

2.3.1 Establishing Default Trust Configuration with SAP ID Service

The default identity provider of SAP Business Technology Platform (BTP) is SAP ID Service.

Trust to SAP ID service in your SAP Intelligent Robotic Process Automation subaccount is pre-configured in the Cloud Foundry environment of SAP BTP by default, so you can start using it without further configuration.

You can thus proceed directly to the management of the role collections.

Caution

If you do not intend to use SAP ID service, you must establish trust to your custom SAML 2.0 identity provider. For more information, see [Custom Trust Configuration \[page 26\]](#).

Related Information

[Role Collections \[page 29\]](#)

2.3.2 Custom Trust Configuration

If you do not intend to use SAP ID service, you must establish trust to your custom SAML 2.0 identity provider.

You can establish a trust configuration using SAP BTP Identity Authentication service, or any SAML 2.0 identity provider.

To do so, you need to establish trust on both sides, that is, in your SAP Intelligent Robotic Process Automation subaccount, and in your SAML 2.0 identity provider.

It is a standard procedure for the SAP BTP, so you can find complete and detailed information in the [Authorization and Trust Management in the Cloud Foundry Environment](#) section of the SAP BTP security guide.

Establishing Trust with an SAML 2.0 Identity Provider in your SAP Intelligent Robotic Process Automation Subaccount

Depending on the identity provider you choose, do one of the following:

Using SAP BTP Identity Authentication Service

Prerequisites

- You have already created a SAP Intelligent Robotic Process Automation subaccount.
- You have downloaded a SAML 2.0 metadata file from the SAP BTP Identity Authentication service using the URL `https://<Identity_Authentication_tenant>.accounts.ondemand.com/saml2/metadata`.

Procedure

1. Go to your SAP Intelligent Robotic Process Automation subaccount and select **Security > Trust Configuration** in the SAP BTP cockpit.
2. Choose **New Trust Configuration**.
3. Enter a name and a description that make it clear that the trust configuration refers to the identity provider.
4. To get the relevant metadata, go to `https://<Identity_Authentication_tenant>.accounts.ondemand.com/saml2/metadata`.
5. Copy the SAML 2.0 metadata and paste it into the **Metadata** field.
6. To validate the metadata, choose **Parse**. This will fill the **Subject** and **Issuer** fields with the relevant data from your SAML 2.0 identity provider.
The name of the new trust configuration now shows the value `<Identity_Authentication_tenant>.accounts.ondemand.com`. It represents the identity provider SAP BTP Identity Authentication service.
This also fills the fields for the single sign-on URLs and the single logout URLs.

7. Save your changes.

Using Any SAML 2.0 Identity Provider

Prerequisites

- You have already created a SAP Intelligent Robotic Process Automation subaccount.
- You have downloaded a SAML 2.0 metadata file from your SAML 2.0 identity provider using the relevant URL.

Procedure

1. Go to your SAP Intelligent Robotic Process Automation subaccount and select **Security > Trust Configuration** in the SAP BTP cockpit.
2. Choose **New Trust Configuration**.
3. Enter a name and a description that make it clear that the trust configuration refers to the identity provider.
4. To get the relevant metadata, go to the metadata of your identity provider.
5. Copy the SAML 2.0 metadata and paste it into the **Metadata** field.
6. To validate the metadata, choose **Parse**. This will fill the **Subject** and **Issuer** fields with the relevant data from your SAML 2.0 identity provider.
The name of the new trust configuration now shows the value of your custom identity provider.
This also fills the fields for the single sign-on URLs and the single logout URLs.
7. Save your changes.

Registering your SAP Intelligent Robotic Process Automation Subaccount in the SAML 2.0 Identity Provider

To establish trust between an identity provider and your SAP Intelligent Robotic Process Automation subaccount, you must register your SAP Intelligent Robotic Process Automation subaccount by providing the SAML details for web-based authentication in the identity provider itself.

Depending on the identity provider you choose, do one of the following:

Using SAP BTP Identity Authentication Service

Context

The identity provider you use here is the SAP BTP Identity Authentication service. As an administrator, you must configure trust on both sides, in your SAP Intelligent Robotic Process Automation subaccount, and in the SAP BTP Identity Authentication Service. The trust configuration on the side of the SAP BTP Identity Authentication service must contain the following items:

- Metadata for web-based authentication or the relevant configuration information. If available, the metadata contains the configuration information, including the signing certificate and the required URLs.
- Use e-mail as the unique name ID attribute and map the user attribute Groups to the assertion attribute Groups (case-sensitive). This assertion attribute is required for the assignment of roles. This makes sure that there is a trust relationship between the SAP BTP Identity Authentication service and your SAP Intelligent Robotic Process Automation subaccount.

To establish trust from a tenant of SAP BTP Identity Authentication service to your SAP Intelligent Robotic Process Automation subaccount, assign a metadata file and define attribute details. The SAML 2.0 assertion includes these attributes.

Procedure

1. Open the administration console of the SAP BTP Identity Authentication service.
`https://<Identity_Authentication_service>/admin`
`https://<tenant_name>.accounts.ondemand.com/admin`
2. To go to the service provider configuration, choose **Applications & Resources** > **Applications** in the menu or the *Applications* tile.

Note

In the administration console, you find the service providers in *Applications*.

3. To add a new SAML service provider, create a new application by using the **+ Add** button.
4. Choose a name for the application that clearly identifies it as your new service provider. Save your changes. Seeing this name, users know which application they currently access after authentication.
5. Choose *SAML 2.0 Configuration* and import the relevant metadata XML file. Save your changes.

Note

Use the metadata XML file of your SAP Intelligent Robotic Process Automation subaccount. The subdomain name is identical to the tenant name.

If the contents of the metadata XML file are valid, the parsing process extracts the information required to populate the remaining fields of the SAML configuration. It provides the name, the URLs of the assertion consumer service and single logout endpoints, and the signing certificate.

6. Choose *Name ID Attribute* and select *E-Mail* as a unique attribute. Save your changes.
7. Choose *Assertion Attributes*, use **+Add** to add a multi-value user attribute, and enter **Groups** (case-sensitive) as assertion attribute name for the *Groups* user attribute. Save your changes.

Using Any SAML 2.0 Identity Provider

Context

As an administrator, you must configure trust on both sides, in your SAP Intelligent Robotic Process Automation subaccount, and in the SAML 2.0 identity provider. The trust configuration on the SAML 2.0 identity provider must contain the following items:

- Metadata for web-based authentication or the relevant configuration information. If available, the metadata contains the configuration information, including the signing certificate and the required URLs.
- Use e-mail as the unique name ID attribute and map the user attribute Groups to the assertion attribute Groups (case-sensitive). This assertion attribute is required for the assignment of roles. This makes sure that there is a trust relationship between your SAML 2.0 identity provider and your SAP Intelligent Robotic Process Automation subaccount.

You use the administration console of your SAML 2.0 identity provider to register your SAP Intelligent Robotic Process Automation subaccount.

To establish trust from a tenant of your identity provider to your SAP Intelligent Robotic Process Automation subaccount, assign a metadata file and define attribute details. The SAML 2.0 assertion includes these attributes.

Procedure

1. Open the administration console of your SAML 2.0 identity provider.
2. Go to the configuration of your SAML 2.0 identity provider.
3. Add a new SAML service provider as described in the documentation of your identity provider.
4. (If applicable) Choose a name for your identity provider that clearly identifies it as your new service provider. Save your changes.
Seeing this name, users know which application they currently access after authentication.
5. Choose the SAML 2.0 configuration and import the relevant metadata XML file. Save your changes.

Note

Use the metadata XML file of your SAP Intelligent Robotic Process Automation subaccount. The subdomain name is identical to the tenant name.

Take care that the fields of the SAML configuration are filled. The metadata provides information, such as the name, the URLs of the assertion consumer service and single logout endpoints, and the signing certificate.

6. Choose or create the name ID attribute and select E-mail as a unique attribute. Save your changes.
7. Choose or create a user attribute and enter **Groups** (case-sensitive) as assertion attribute name for the **Groups** user attribute. Save your changes.

2.3.3 Role Collections

Role collections are sets of authorizations that are suitable for distinct user groups.

SAP Intelligent Robotic Process Automation uses the authorization concept provided by the [SAP Business Technology Platform](#) and Cloud Foundry. Therefore, the recommendations and guidelines for authorizations as described in the [SAP Business Technology Platform Security Guide](#) also apply to SAP Intelligent Robotic Process Automation.

Related Information

[User Roles in SAP Intelligent Robotic Process Automation \[page 29\]](#)

[Configuring Role Collections \[page 30\]](#)

[Assigning Role Collections \[page 31\]](#)

2.3.3.1 User Roles in SAP Intelligent Robotic Process Automation

Different roles are available in SAP Intelligent Robotic Process Automation.

By assigning roles to SAP Intelligent Robotic Process Automation users, you can grant them access to specific applications, data sources, or environments (development, test, or production).

According to their roles, users manage the application, along with its cloud and on-premise resources.

→ Tip

This section refers to several specific concepts of SAP Intelligent Robotic Process Automation such as agent groups, environment or jobs. To have a clear understanding of the roles, see the definitions of those concepts in the SAP Intelligent Robotic Process Automation [Glossary](#).

For more information about the user roles in SAP Intelligent Robotic Process Automation, see: [Authorizations](#).

2.3.3.2 Configuring Role Collections

Role collections group together the different role templates that can be applied to the SAP Intelligent Robotic Process Automation users.

Context

As an administrator, you first need to create and set up your first role collections before assigning any users.

Procedure

1. Open the SAP BTP cockpit.
2. Go to your SAP Intelligent Robotic Process Automation subaccount and select **► Security ► Role Collections ►**.
3. Click the symbol **+** to create a new role collection.
4. Enter the name and the description of your role collection. Click **Create**.
5. Select the role collection you just created and click **Edit**.
6. Click the field under **Role Name**, on the left-hand side. The pop-up screen **Select: Role** opens.
7. SAP BTP prompts you to make the following mandatory entries:

- **Role Name**

The roles come with the role templates of SAP Intelligent Robotic Process Automation.

→ Tip

If the fields in the popup are disabled, and you can't configure any role collection, this usually means that you didn't subscribe to your SAP Intelligent Robotic Process Automation subaccount. For more information, see [Manually Subscribing to SAP Intelligent RPA in SAP Business Technology Platform \(BTP\) \[page 11\]](#).

- **Role Template**

Select one or several of the following pre-defined roles in SAP Intelligent Robotic Process Automation:

- IRPAOfficer

- IRPAProjectMember
- IRPAParticipant
- IRPAAgentUser
- IRPASupervisor
- IRPASystemManager
- IRPAPersonalDataAccess
- Document_Information_Extraction_UI_Templates_Admin

For more information on annotating document templates, see [Process Documents Using Templates](#) and [Standard Roles](#).

ⓘ Note

IRPASupervisor, IRPASystemManager and IRPAPersonalDataAccess are now obsolete roles. You should avoid using them. For more information, see: [Obsolete roles](#).

- *Application Identifier*

Since the application security descriptor contains the role template, it's necessary to choose the one specific to SAP Intelligent Robotic Process Automation.

→ Tip

To easily recognize the dedicated identifier for SAP Intelligent Robotic Process Automation, look for the one with `uaa-ipa` in the URL.

8. Click [Add](#).
9. Save your changes.

Related Information

[User Roles in SAP Intelligent Robotic Process Automation \[page 29\]](#)

2.3.3.3 Assigning Role Collections

You configured role templates in role collections, and now want to assign these role collections to your users.

You are using one or both of the following trust configurations:

- Default trust configuration (SAP ID service)
- Custom trust configuration (SAP BTP Identity Authentication service or any SAML 2.0 identity provider)

How you assign users to their authorizations depends on the type of trust configuration, and on whether or not you prefer to maintain the authorizations of individual users rather in the identity provider or in SAP Business Technology Platform (BTP). The following options are available:

- Directly assign role collections to users.

- Map role collections to user groups defined in your identity provider. You initially maintain the mapping between user groups and role collections once in SAP BTP and maintain group memberships of users in the identity provider.

Directly Assigning Role Collections to Users

You want to directly assign a role collection to a user. You can use this option for default and custom trust configurations.

Prerequisites

You have created role collections containing authorizations in the form of roles.

Procedure

1. Open the SAP BTP cockpit.
2. Go to your SAP Intelligent Robotic Process Automation subaccount and select **Security > Trust Configuration**.
3. Choose the trust configuration for the identity provider of the user, for example SAP ID.
4. Enter the user's name, for example john.doe@example.com.

Note

If you are using a custom trust configuration, enter the user name according to the name ID format configured in the identity provider. If you are using SAP ID Service, enter the e-mail address.

5. To see the role collections that are currently assigned to this user, choose **Show Assignments**.
6. To assign a role collection, choose **Assign Role Collection**. Select the name of the role collection you want to assign.
7. Click **Assign Role Collection** to save your changes.
You have assigned a role collection to a user.

Mapping Role Collections to User Groups

You want to assign a role collection to a user group provided by an SAML 2.0 identity provider that has a custom trust configuration in SAP BTP. In this case, the assignment is a mapping of a user group to a role collection. Your identity provider provides the user groups using the SAML assertion attribute called `Groups`. Each value of the attribute is mapped to a role collection as described in this procedure.

Prerequisites

- You have configured your custom SAML 2.0 identity provider and established trust in your SAP Intelligent Robotic Process Automation subaccount.

Remember

The name of the trust configuration is different from `SAP ID Service`. The name of a custom trust configuration to SAP BTP Identity Authentication service could be as follows:

```
https://Identity_Authentication_tenant>.accounts.ondemand.com
```


- You have configured the identity provider so that it conveys the user's group memberships in the *Groups* assertion attribute.
- You have created role collections containing authorizations in the form of roles.

Context

The SAML 2.0 identity provider provides the users, who can belong to user groups. It's efficient to map user groups to role collections. The role collection as a reusable element contains the authorizations that are necessary for this user group. This saves time when you want to add a new user. Simply add the user to the respective user group or groups, and the user automatically gets all the authorizations that are included in the role collections.

For this reason, the assignment is a mapping of user groups to role collections.

Procedure

1. Open the SAP BTP cockpit.
2. Go to your SAP Intelligent Robotic Process Automation subaccount and select **Security > Role Collections**.
3. Select a role collection.
4. In the role collection overview page, choose the *Edit* button.
5. Under *User Groups*, select an identity provider.
6. Enter the name of the user group.

→ Tip

You must use the exact name of the user group as provided by the identity provider.

🔗 Example

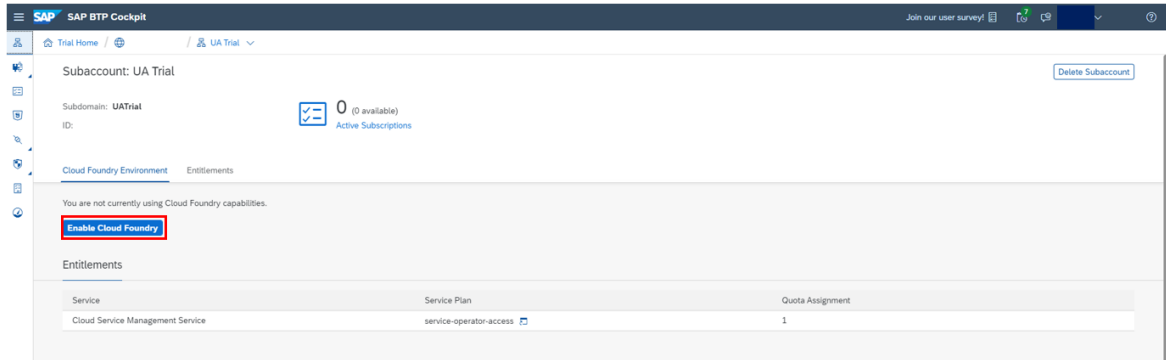
In the SAP BTP Identity Services - Identity Authentication, you find the user groups in the administration console of your SAP BTP Identity Services - Identity Authentication tenant under **Users & Authorizations > User Groups**. Open the administration console using `https://<tenant_id>.accounts.ondemand.com/admin`.

7. Save your changes.

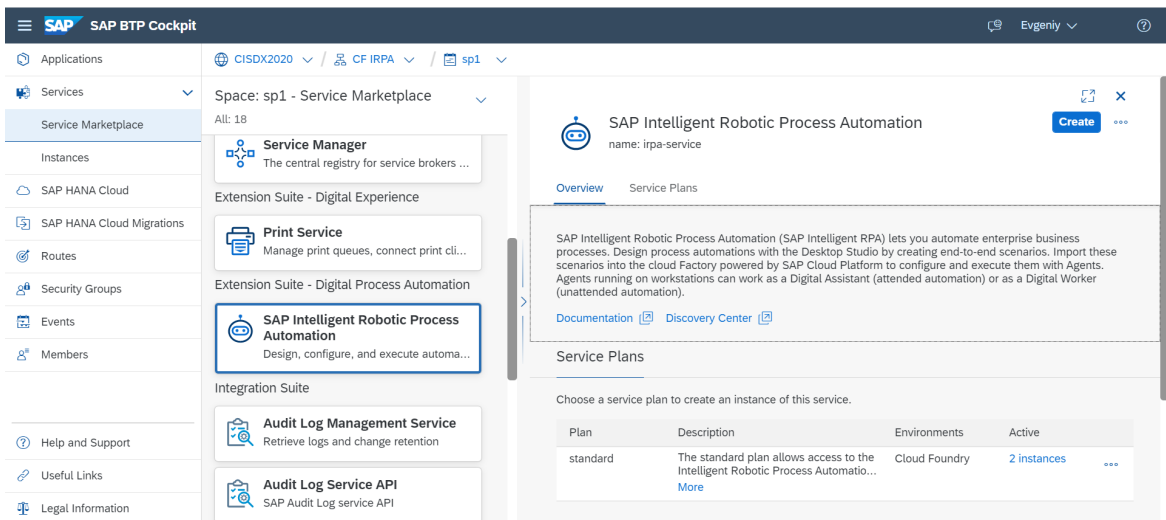
2.4 Create a Service Key

To access SAP Intelligent RPA APIs, you need to get a service key from the Service Instance in the SAP BTP Cockpit. If you have administrator rights of the global account, proceed as follow:

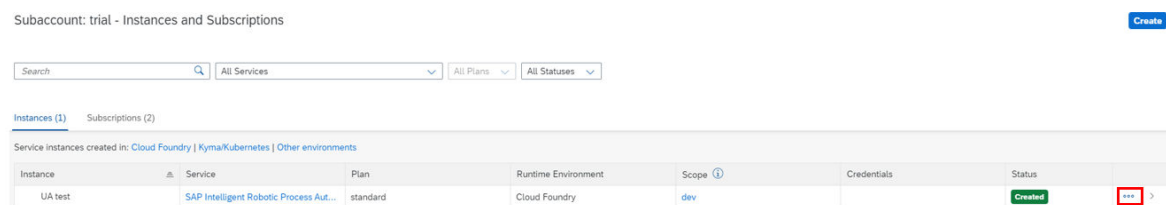
1. When you create your SAP Intelligent RPA subaccount in the SAP BTP cockpit, make sure you enable Cloud Foundry.



- In the navigation area of your subaccount, go to the [Spaces](#) tab to access the spaces of the Cloud Foundry organization and create a new space.
- Click the newly created space, and select **Services** > [Service Marketplace](#) to display all the available services.
- Click the SAP Intelligent Robotic Process Automation Service and click the [Create](#) button to create a new instance of the service.



- Optional:** If users further need to access and create other service keys, they need to be members of the space with a [Space Developer](#) role.
- In the [Create](#) window, you're prompted to choose a service plan: select the standard predefined plan. Do not specify any optional parameters or assign any applications. At the end of the creation process, you enter a name for the service instance of your choice and confirm the creation. For more information on the creation of service instances, see [Creating Service Instances in Cloud Foundry](#).
- Click the Actions menu of the service instance for which you want to create a service key.



8. Choose [Create Service Key](#).
9. In the [New Service Key](#) wizard, choose a name for your service key and provide configuration parameters either by uploading a JSON file or by configuring them in-line.

New Service Key

Service key name: *

Configure service key parameters

Upload a JSON file:

Specify the parameters in JSON format: Clear

1	
---	--

The service key contains the API URL and the credentials under the property `uaa` (under `ur1`) that allow you to obtain a JWT token, with the help of which you can access the SAP Intelligent RPA API.

ⓘ Note

You need to add `/oauth/token` to the end of the URL provided in the service keys to obtain an access token for Postman.

3 On-premise Components Setup

The combined setup groups the installation of the different on-premise components of SAP Intelligent Robotic Process Automation.

Installation of the Desktop Agent is enabled by default. Install the Desktop Agent for runtime machines where the automation projects are executed.

Go to the [SAP Software Downloads](#) page to download the on-premise components of SAP Intelligent Robotic Process Automation.

⚠ Caution

Check out the [migration topic \[page 65\]](#) if you want to upgrade your SAP Intelligent Robotic Process Automation on-premise components.

3.1 Technical Prerequisites and System Requirements

📘 Note

Prior to installing the SAP Intelligent Robotic Process Automation on-premise components:

- You need administrator rights.
- Make sure the following elements are installed on your machine:
 - Microsoft Edge
 - Microsoft.NET framework 4.7.2
 - [Microsoft Visual C++ 2013 Redistributable Package x86 available on Microsoft website](#) .
 - Remote Tools For Visual Studio 2022 (only for the Desktop Studio, not required for Agent). For more information, see [Installing Remote Tools For Visual Studio 2022 \[page 54\]](#).

📘 Note

The dependency on Microsoft Internet Explorer 11 has been replaced with a dependency on the Microsoft Edge web browser. To launch the Desktop Agent on Microsoft Edge, the WebView2 runtime component is required.

Supported Operating Systems

System Type	Version	Desktop Studio	Desktop Agent (Agent 2.0.X and Agent 3.x)	Cloud Factory / Cloud Studio
Server	Windows Server 2016 x64 (*)	Supported	Supported (1)	See the supported browsers
	Windows Server 2019 x64	Not supported	Supported (1)	See the supported browsers
	Windows Server 2022 x64	Not supported	Supported	See the supported browsers
Client	Windows Desktop/Client 10 x86	Supported	Supported	See the supported browsers
	Windows Desktop/Client 10 x64 (*)	Supported	Supported	See the supported browsers
	Windows Desktop/Client 11 x64	Not supported	Supported (2)	See the supported browsers

(*) Reference Platform

(1) See the SAP Note [3107785](#) for multi-user limitations.

(2) Agent 2.x requires specific components that might no longer be available on Windows 11. Support is limited to the available components.

Supported Browsers

Category	Web Browser	Version	Cloud Factory	Cloud Studio	Captured Web Applications	Browser Extension	Store
Chromium-based browsers (*)	Google Chrome	94 and greater	Supported	Supported	Supported (4)	Supported	Supported
	Microsoft Edge (1)	94 and greater	Supported	Supported	Supported (4)	Supported	Supported
Others	Microsoft Internet Explorer 11 (2)		Not supported (3)	Not supported (3)	Supported	Supported	Not supported (3)
	Mozilla Firefox	88 and greater	Supported	Not supported	Limited support (4) (5)	Limited support (5)	Supported

Category	Web Browser	Version	Cloud Factory	Cloud Studio	Captured Web Applications	Browser Extension	Store
	Safari (macOS)	14 and greater	Supported	Not supported	Not supported	Not available	Supported

(*) Reference platforms

(1) Starting with the version 2.0.18 of the Desktop Agent, Microsoft Edge is used to log into the Cloud Factory. In the future version of the Desktop Agent, Microsoft Edge is also used for the rendering of the Desktop Agent. In such a configuration, the Edge 'WebView2' component is mandatory: if not already installed on your machine, please install Edge WebView2 from the [Microsoft website](#) .

(2) Internet Explorer 11 is no longer supported by Microsoft. Support of IE11 is only for capturing and executing legacy third-party applications.

(3) Rendering of the Cloud Factory or the Cloud Studio doesn't work: we recommend using a supported browser instead.

(4) Capture or execution is not supported for non-Windows OS.

(5) Only for the Desktop Studio. Use of Chromium-based browsers instead is highly recommended.

Supported Technology Interfaces

Category	Technology or Software	Cloud Studio	Cloud Studio Recorder	Desktop Agent	Desktop Studio	Additional Information
SAP	SAP GUI for Windows (*)	Supported	Supported	Supported	Supported	Version 7.40 and greater.
	SAP GUI for HTML	Supported	Supported	Supported	Not supported	
	SAP BAPI	Supported (1)	Not applicable	Supported	Not supported	
	SAP S/4HANA / SAPUI5	Supported	Supported	Supported	Supported	On-premise edition 1809 or greater.
	SAP Ariba	Supported	Future release (Roadmap)	Supported	Not supported (3)	
	SAP SuccessFactors	Supported	Future release (Roadmap)	Supported	Not supported	

Category	Technology or Software	Cloud Studio	Cloud Studio Recorder	Desktop Agent	Desktop Studio	Additional Information
Desktop-based applications	UIAutomation	Supported	Supported	Supported	Supported	For all Windows-based applications with UIAutomation support. UIAutomation gives a significant subset but it is restricted to user interface.
	Surface Automation / OCR	Supported	Not supported	Supported	Supported	Recommended if the application you want to automate can't be automated using any of the other technology connectors previously described.
	WIN	Not supported	Not supported	Supported	Supported	For 32-bit executable without sandboxing. WIN driver gives full access to a Windows Application.
	JAVA / SWG	Future release (Roadmap)	Not supported	Supported	Supported	Swing (JRE/JDK 8).
	Terminal / HLLAPI	Future release (Roadmap)	Not supported	Supported	Supported	Requires a third-party (HLLAPI) software installed. (2)
Web-based applications	WEB	Supported	Supported (1) (2) with Agent 2.0.21 with Edge	Supported	Supported	Requires browser extension installed and enabled.
	WebService	Supported (1)	Not applicable	Supported	Supported	Requires custom script.
Office integration	Excel	Supported (1)	Not applicable	Supported	Supported (1)	Version 2013, 2016, 2019. Requires the on-premise software installation.
	Outlook	Supported (1)	Not applicable	Supported	Supported (1)	
	PowerPoint	Supported (1)	Not applicable	Supported	Not available	
	Word	Supported (1)	Not applicable	Supported	Supported (1)	

Category	Technology or Software	Cloud Studio	Cloud Studio Recorder	Desktop Agent	Desktop Studio	Additional Information
File integration	PDF	Supported (1)	Not applicable	Supported	Supported (1)	Doesn't require third-party software installation.
	Document Information Extraction (with or without Template)	Supported (1) (4)	Not applicable	Powered by Cloud Service	Not supported	SAP Cloud Service: doesn't require third-party software installation.

(*) SAP GUI for Windows applications can be automated in SAP Intelligent RPA using the SAP GUI connector (for manual capture) and the recorder. Both rely on SAP scripting which depends on the version of SAP GUI for Windows client.

We recommend using SAP GUI for Windows 7.40 and above. Please also take into account the SAP GUI for Windows releases as mentioned in the following note to understand the maintenance strategy and deadlines: [147519](#).

Check the [SAP GUI Scripting API documentation](#) to find the SAP Scripting requirements. You also need to take into account that:

- Applications may change from one release to the next. This means scripts for a transaction may work in one release, but not in the other if the application changed.
- Some applications are using controls or logic which are not compatible with scripting (see the limitations in the following note: [587202](#)).

(1) Through activities or custom script

(2) IBM Personal Communications 14.x is fully supported

(3) Without custom type or framework. May require further tests

(4) With built-in Artifact support

Minimum Requirements

Component	Requirement Category	Minimum Requirement
Desktop Agent	Hardware	Screen resolution: 1366x768
		CPU: Dual Core @ 2 Ghz
		Memory: 4GB (at least 1GB of free memory depending on the project/ package)
		Disk space: 1 GB of free space

Component	Requirement Category	Minimum Requirement
	Software components	<p>Microsoft .NET framework 4.7</p> <hr/> <p>Internet Connection to SAP Business Technology Platform (Public Cloud)</p> <hr/> <p>For Desktop Agent 2: Microsoft Internet Explorer 11</p> <hr/> <p>For Desktop Agent 3: Microsoft Edge 94 (1)</p>
Cloud Studio	Hardware	<p>Screen resolution: 1920x1080</p> <hr/> <p>CPU: Dual Core @ 2 Ghz</p> <hr/> <p>Memory: 8GB (at least 2GB of free memory depending on the project/package)</p> <hr/> <p>Disk space: 1 GB of free space</p>
	Software components	<p>Microsoft .NET framework 4.7</p> <hr/> <p>Supported Browser and Browser Extensions</p> <hr/> <p>Internet Connection to SAP Business Technology Platform (Public Cloud)</p> <hr/> <p>Microsoft Visual C++ 2013 Redistributable Package x86</p>
Desktop Studio	Hardware	<p>Screen resolution: 1920x1080</p> <hr/> <p>CPU: Dual Core @ 2 Ghz</p> <hr/> <p>Memory: 8GB (at least 2GB of free memory depending on the project/package)</p> <hr/> <p>Disk space: 1 GB of free space</p>
	Software components	<p>Microsoft .NET framework 4.7</p> <hr/> <p>Remote Tools Visual Studio 2019 for remote debugging</p> <hr/> <p>Java JRE 8 (*)</p> <hr/> <p>NodeJS (*)</p>

Component	Requirement Category	Minimum Requirement
		Three-way Diff Tool through command line
		Supported Browser
		Internet Connection to SAP Business Technology Platform (Public Cloud)
		Microsoft Visual C++ 2013 Redistributable Package x86
SAP Intelligent Robotic Process Automation Factory	Hardware	Screen resolution: 1600x900
	Software components	Supported Browser
		Internet Connection to SAP Business Technology Platform (Public Cloud)

(*) included in the setup

(1) Starting with the version 2.0.18 of the Desktop Agent, Microsoft Edge is used to log into the Cloud Factory. In the future version of the Desktop Agent, Microsoft Edge will also be used for the rendering of the Desktop Agent. In such a configuration, the Edge 'WebView2' component is mandatory: if not already installed on your machine, please install Edge WebView2 from the [Microsoft website](#) .

About WebSockets protocol

WebSockets provide a persistent connection between Desktop Agent and Cloud Factory that both parties use to start sending data at any time. The Desktop Agent establishes a WebSocket connection (WebSocket handshake) to the Cloud Factory. When running behind a proxy or a firewall, make sure that the WebSockets protocol is properly supported and not blocked. Microsoft Visual C++ 2013 Redistributable Package x86 available on the

3.2 Installing SAP Intelligent RPA On-Premise Components

Prerequisites

Installing SAP Intelligent RPA on-premise components automatically installs the web browser extension for Google Chrome and Microsoft Edge. To prevent issues during the installation, please close all the Chrome tabs open on your machine.

📘 Note

To run projects with BAPI activities, your IT administrator must install a Windows component on your PC. If you have administrator access, please install [Microsoft Visual C++ 2010 Redistributable Package x86](#) on your machine. If you do not have this access, please ask your administrator to install the component.

Context

The setup program is provided in the form of an industry standard Windows MSI installer. You can download it from the SAP Software Center.

Procedure

1. Launch the MSI file execution.
2. Select *Next* to begin the installation process.

📘 Note

You can stop the installation process at any time by clicking *Cancel*.

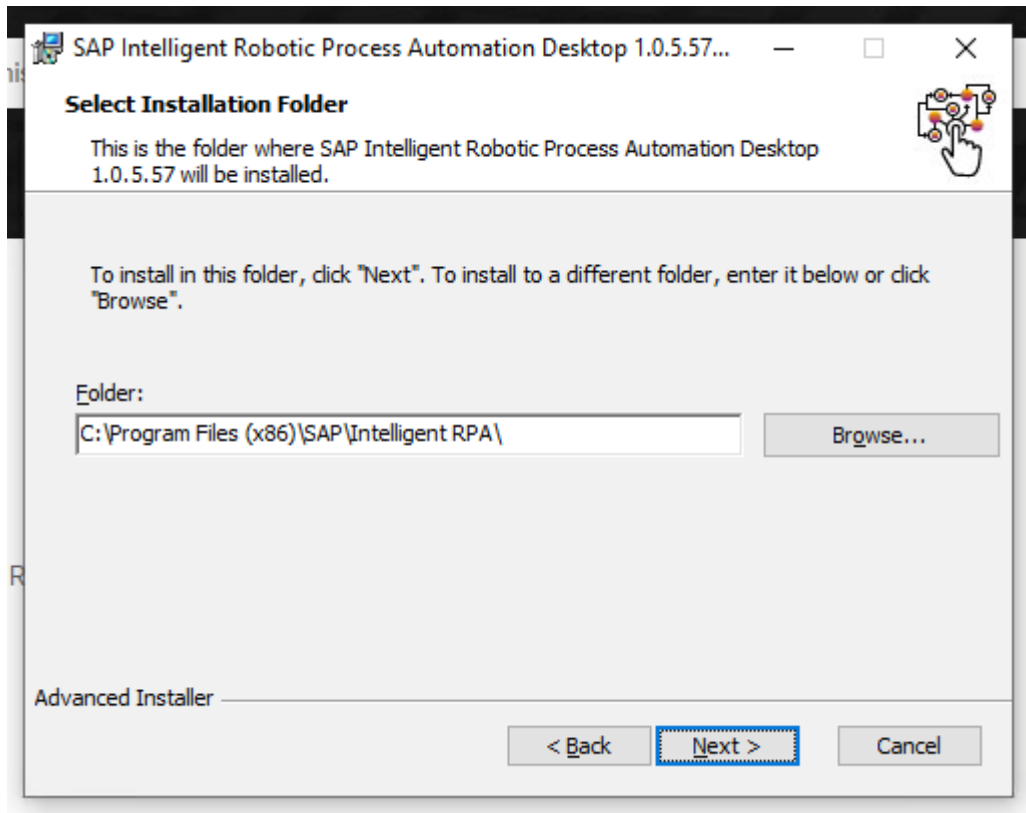
3. Select the component you want to install.

You can choose to install the components according to your needs:

- The Desktop Agent installation is enabled by default. Install the Desktop Agent for run-time machines where the automation projects are executed.
- Select the installation of the optional components Desktop Studio and SDK to achieve a complete setup. It enables a full use of SAP Intelligent Robotic Process Automation: development, orchestration and execution of automation projects.

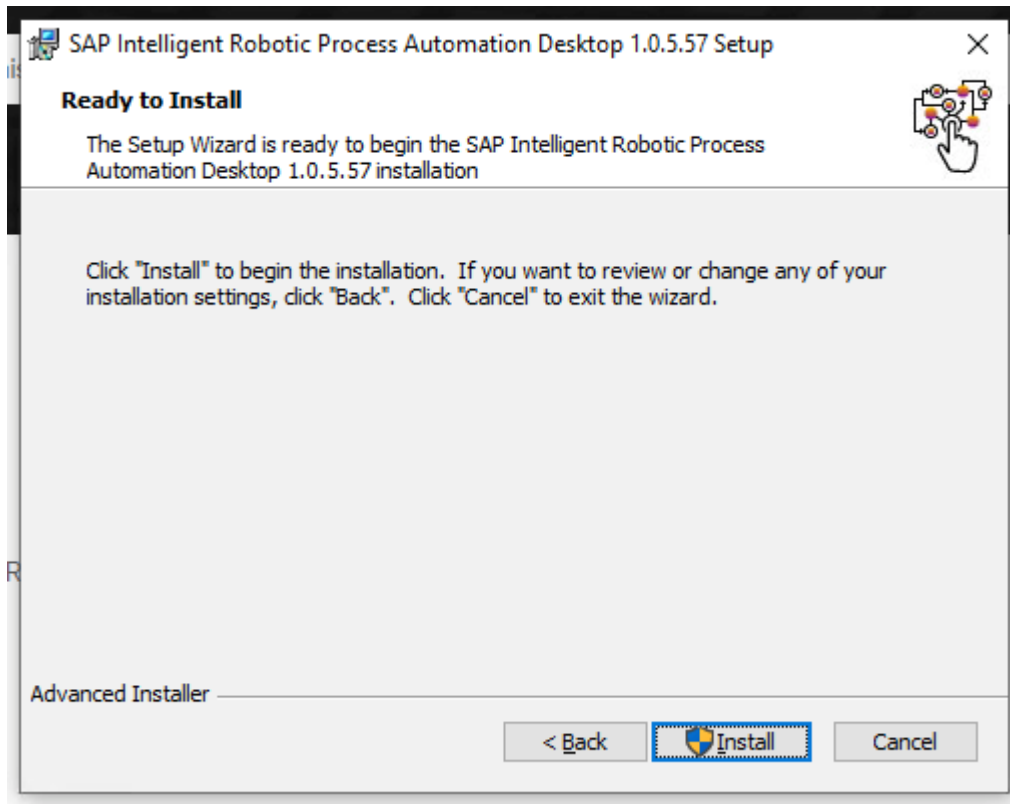
Click *Next*

4. **Optional:** Choose *Browse* to change the destination of the installation folder.



5. Select *Install* to start the installation.

The installation process may take a few seconds to complete. An authorization request to bring change to the computer might appear.



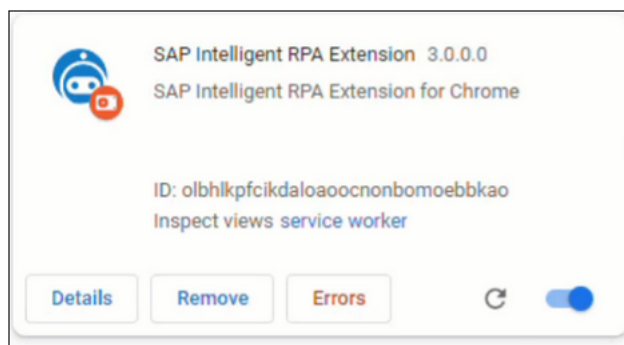
6. Select *Next* to finalize the installation.
7. Once the installation has been successfully completed, select the checkbox to launch SAP Intelligent Robotic Process Automation Desktop and click *Finish*. The *Desktop Agent Tenant Registration* window pops up: you now need to register the Desktop Agent to finalize the installation. For more information, see [Desktop Agent Tenant Registration \[page 46\]](#).

Note

Microsoft Edge is also used for the rendering of the Desktop Agent. In such a configuration, the Edge 'WebView2' component is mandatory: if not already installed on your machine, please install Edge WebView2 from the [Microsoft website](#) .

Make sure you install the version Microsoft Evergreen Bootstrapper for the browser to receive Microsoft updates.

8. Activate the extension after installation.



[Desktop Agent Tenant Registration \[page 46\]](#)

Registration of a Desktop Agent tenant is required to use SAP Intelligent Robotic Process Automation.

[Manifest V2 \(mV2\) Extension Updates \[page 48\]](#)

3.2.1 Desktop Agent Tenant Registration

Registration of a Desktop Agent tenant is required to use SAP Intelligent Robotic Process Automation.

Context

Once you've completed the installation steps of the SAP Intelligent Robotic Process Automation setup wizard, you need to register your agent and connect it to an SAP Intelligent RPA tenant in order to execute automations.

Procedure

1. When the *Desktop Agent Tenant Registration* window pops up, enter:
 - the name of your tenant in the *Name* field.
 - the tenant URL you want to connect to and that you copy from the *Agents* tab in the Factory and paste in the *Domain* field.

Desktop Agent Tenant Registration

Enter the name and the URL of your tenant to register your agent.

Name

Domain

Save
Cancel

- On the SAP Intelligent Robotic Process Automation Factory homepage, go to the [Agents](#) tab and then click on the [Register New Agent](#) button on the right-hand side of the screen.

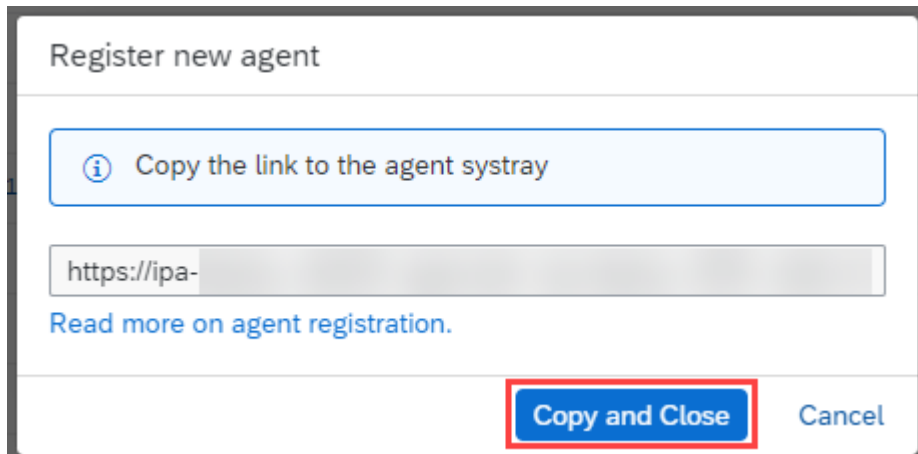
Home
Projects
Packages
Agents
Environments
Monitoring
Store
Configuration

Agents

Register new agent...

Login <input style="width: 90%; border: none;" type="text" value="Search..."/>	Machine <input style="width: 90%; border: none;" type="text" value="Search..."/>	Status <input style="width: 90%; border: none;" type="text" value="Select..."/>
Package <input style="width: 90%; border: none;" type="text" value="Search..."/>	Environment <input style="width: 90%; border: none;" type="text" value="Search..."/>	Attributes <input style="width: 90%; border: none;" type="text" value="Search..."/>

- When the pop-up opens, select [Copy and Close](#).



4. Then paste the URL into the *Domain* field on your *Desktop Agent Tenant Registration* window.
5. Select *Save*.
6. Log in to your SAP Intelligent Robotic Process Automation Factory tenant with your user name or e-mail and password.

Next Steps

Before you can deploy agents, you need to declare them in an agent group. Do the following:

1. Open SAP Intelligent RPA Factory, go to the *Agents* tab and click *Agent groups*.
2. **Optional:** If you don't already have an agent group, click *New agent group*. Enter a name for (max. 256 characters), choose the type of agent group (**machine** or **login**) and click *Create*.
3. In the *Agent groups* tab, select the agent group in which you want to declare the agent, and create a new node by clicking the + (*Add node*) in the panel on the left.
4. Enter a name and a label for the node. Click *Create*.

For more information, see [Create an Agent Group](#).

Related Information

[Desktop Agent Tenant Registration via the Command Line \[page 52\]](#)

3.2.2 Manifest V2 (mV2) Extension Updates

Starting 2306, the manifest V2 (mV2) extension becomes decommissioned and the Agent2.0 Installer installs the manifest V3 (mV3) extension by default.

The Agent2.0 Installer is now enhanced to install only the mV3 extension. You don't see any dialog screen in the installer to choose between the extensions (mV2, mV3, or both). The mV2 extension is released with a tag **Deprecated** in the description of the extension.

The extension gets added and removed along with the installer. If you want to upgrade to the mV3 extension, it is recommended to install the latest installer by uninstalling the old version. This way, you don't have to remove the mV2 extension manually. However, you can still remove the mv2 extension manually if you want to use only the mV3 extension without upgrading the agent.

After installation, if the mV2 extension:

- Doesn't already exist in the browser, the mv3 extension becomes active once you click on the 'enable extension' popup.
- Already exists in the browser, the mv2 extension isn't removed by the installer. You can then decide whether to activate the mV2 or mV3 extension.

3.3 Installation via the Command Line

You can use this method if you want to deploy agents automatically.

When launching the installation of the Desktop package, you can set the install type by means of certain options.

- Open "Windows PowerShell" run as Administrator.
- Type the following commands:
 - `$params = '/i', <Path to desktop.msi>, '/quiet', '/passive', '/qb-', '/L*V', <path to save your installation log ADDLOCAL=ALL>`
 - `$p = Start-Process 'msiexec.exe' -ArgumentList $params -NoNewWindow -Wait -PassThru`

where:

- Path to desktop.msi: Path where the .msi has been stored in local system.
- path to save your installation log: Path to the local machine to save the installation log.

For example, the following command launches the installation of the package:

- `$params = '/i', "C:\SAPDevelop\INT_RPA_AGENT00P_48-80004525.msi", "WEB_EXTENSION=WEBV3", '/quiet', '/passive', '/qb-', '/L*V', "C:\SAPDevelop\SAPDesktop_install_3.log ADDLOCAL=ALL"`
- `$p = Start-Process 'msiexec.exe' -ArgumentList $params -NoNewWindow -Wait -PassThru`

No User Interaction and Silent Mode

To launch the full installation of "Desktop" solution with no user interaction (only display of progress bar) and with the full verbose mode enabled and the prompted restart if is required:

```
msiexec.exe /i "C:\SAPDevelop\IRPA\SAPDesktop_1.0.2.110.msi" /passive /L*V!  
"C:\SAPDevelop\IRPA\SAPDesktop_install.log" /promptrestart ADDLOCAL=ALL
```

To deploy the Desktop Agent component in silent mode (no UI) with the full verbose mode enabled and with forced restart, use:

```
msiexec.exe /i "C:\SAPDevelop\IRPA\SAPDesktop_1.0.2.110.msi" /quiet /qn /L*V!  
"C:\SAPDevelop\IRPA\SAPDesktop_install.log" /forcerestart
```

⚠ Caution

The above command line must be run on a console with administrator privileges to force a restart. All unsaved user work will be lost.

For further information on the msixec.exe tool's command-line options and on Windows Installer technology, please see: <https://docs.microsoft.com/fr-fr/windows/win32/msi/command-line-options> 🖱

[Display Options \[page 50\]](#)

[Restart Options \[page 50\]](#)

[Logging Options \[page 51\]](#)

[Desktop Agent Tenant Registration via the Command Line \[page 52\]](#)

3.3.1 Display Options

The user interface level of the installation can be configured according to the target environment. For example, a package distributed to clients should have a full UI, while a package deployed through Group Policy should have no user interface. Msixec.exe sets the UI level of the installation with these options:

msixec.exe /i <path_to_package> [/quiet][/passive][/q{n|b|r|f}] where:

- /quiet means quiet mode (with no user interaction)
- /passive means unattended mode (only a progress bar is displayed)
- /q is used to set the UI level as follows:
 - n - no UI
 - n+ - no UI except for a modal dialog box displayed at the end
 - b - basic UI
 - b+ - basic UI with a modal dialog box displayed at the end. The modal box is not displayed if the user cancels the installation. Use qb+! or qb!+ to hide the *Cancel* button.
 - r - reduced UI
 - f - full UI

For example, to install the package with no user interaction (only a progress bar is displayed to show the user that installation is in progress, but no prompts or error messages are displayed):

```
msixec.exe /i "C:\SAPDevelop\IRPA\SAPDesktop_1.0.2.110.msi" /passive
```

3.3.2 Restart Options

Sometimes installation overwrites files that are in use, or needs to reboot the machine in order to finish. The reboot policy used by the installation can be set by means of the following options:

```
msixec.exe /i <path_to_package> [/norestart][/promptrestart][/forcerestart]
```

- /norestart - the machine will not be restarted after the installation is complete

- /promptrestart - the user will be prompted if a reboot is required
- /forcerestart - the machine will be restarted after the installation is complete

For instance, the following prevents restart of the machine after completion of the installation:

```
msiexec.exe /i "C:\SAPDevelop\IRPA\SAPDesktop_1.0.2.110.msi" /norestart
```

3.3.3 Logging Options

When debugging an installation package you can use multiple logging parameters in order to create a log. This log will contain different information for each parameter you use:

```
msiexec.exe [/i][/x] <path_to_package> [/L{i|w|e|a|r|u|c|m|o|p|v|x+!|*}][/log]
```

<path_to_log> where:

- /L - enable logging:
 - i - include status messages
 - w - include non-fatal warnings
 - e - include all error messages
 - a - mention when an action is started
 - r - include action-specific records
 - u - include user requests
 - c - include the initial UI parameters
 - m - include out-of-memory or fatal exit information
 - o - include out-of-disk-space messages
 - p - include terminal properties
 - v - verbose output
 - x - include extra debugging information
 - + - append to an existing log file
 - ! - flush each line to the log
 - * - log all information, except for v and x options
- /log is equivalent to /I*

For example, use the following to activate full verbose mode:

```
msiexec.exe /i "C:\SAPDevelop\IRPA\SAPDesktop_1.0.2.110.msi" /L*V!  
"C:\SAPDevelop\IRPA\SAPDesktop_install.log"
```

Caution

With this mode, the LOG file generated will be large (around 18 MB).

3.3.4 Desktop Agent Tenant Registration via the Command Line

As well as installing the Desktop Agent and Desktop Studio software via the command line, you can also register Desktop Agent tenants by this method, using `ctxtrun.exe`.

The parameters used with `ctxtrun.exe` are:

- `tenantURL` (mandatory) - specifies the domain tenant.
- `tenantName` (optional) - gives the tenant a name.
- `nocheck` (optional) - specifies that no health check should be performed. By default, a health check is performed.

Example

```
ctxtrun.exe -tenantURL irpa-training23.app.irpa.cfapps.eu10.hana.ondemand.com
```

This creates a default `.json` file in the Tenants folder, for example: `C:\ProgramData\SAP\Intelligent RPA\Tenants`.

The process exits with code 0 if everything is ok, with code 1 if it fails.

Example: with no health check

```
ctxtrun.exe -tenantURL irpa-training23.app.irpa.cfapps.eu10.hana.ondemand.com  
-nocheck
```

The process exits with code 0 if everything is ok, with code 1 if it fails.

Example

```
ctxtrun.exe -tenantURL irpa-training23.app.irpa.cfapps.eu10.hana.ondemand.com  
-tenantname myname
```

This creates a default `.json` file in the Tenants folder, where:

- `tenantName` is `myName`.
- `tenantDomain` is `irpa-training23.app.irpa.cfapps.eu10.hana.ondemand.com`.

The process exits with code 0 if everything is ok, with code 1 if it fails.

Example: as before but with no health check

```
ctxtrun.exe -tenantURL irpa-training23.app.irpa.cfapps.eu10.hana.ondemand.com  
-tenantname myname -nocheck
```

Error Cases

If the health check is not ok, the process exits with code 1.

If creation of the tenant `.json` file fails, the process exits with code 1 and a log entry is created on Windows event viewer.

3.4 Mandatory Requirements for Desktop Studio

Congratulations, you have successfully installed the on-premise components of SAP Intelligent Robotic Process Automation. You must perform a few additional steps to finalize the installation before starting to use the SAP Intelligent Robotic Process Automation Desktop Studio.

Note

Before finalizing the installation of SAP Intelligent Robotic Process Automation, make sure that you already installed [Microsoft Visual C++ 2013 Redistributable Package x86](#) on your machine.

Related Information

[Installing Remote Tools For Visual Studio 2022 \[page 54\]](#)

[Installing a Source Code Compare Tool \[page 54\]](#)

[Configuring Web Browsers \[page 57\]](#)

[Quick Installation Check-Up \[page 63\]](#)

3.4.1 Installing Remote Tools For Visual Studio 2022

Procedure

1. Go to the [Microsoft website](#) and expand the Tools for Visual Studio 2022 section. Select Download next to **Remote Tools for Visual Studio 2019** at the bottom of the section.
2. Double-click on the saved executable file to start the installation process.
3. Click *Continue* and accept the terms to continue with the installation.
4. After the installation progress dialog, click *Close* to exit the setup wizard.

3.4.2 Installing a Source Code Compare Tool

Context

To enable the advanced phases of development using the SAP Intelligent Robotic Process Automation Desktop Studio, the installation of a Diff and Merge tool is highly recommended.

Indeed, such tools like KDiff3 or Beyond Compare allow you to merge the generated code from workflows and the code added manually to the scripts.

As an example of source code compare tool, here is the procedure to install KDiff3.

Procedure

1. Go to <http://kdiff3.sourceforge.net/> to download the latest KDiff3 version.
2. Double-click the saved executable file to start the installation process.
3. Click *Next* and accept the license terms to continue with the installation.
4. Change the default destination folder if necessary and click *Next*.
5. Click the icons in the tree to change the way features will be installed and click *Next*.
6. Click *Install* to begin the installation.
7. After the installation progress dialog, click *Finish* to exit the setup wizard.

3.4.2.1 Installation of KDiff3 merger tool in the Desktop Studio

Prerequisites

Install KDiff3 on your computer

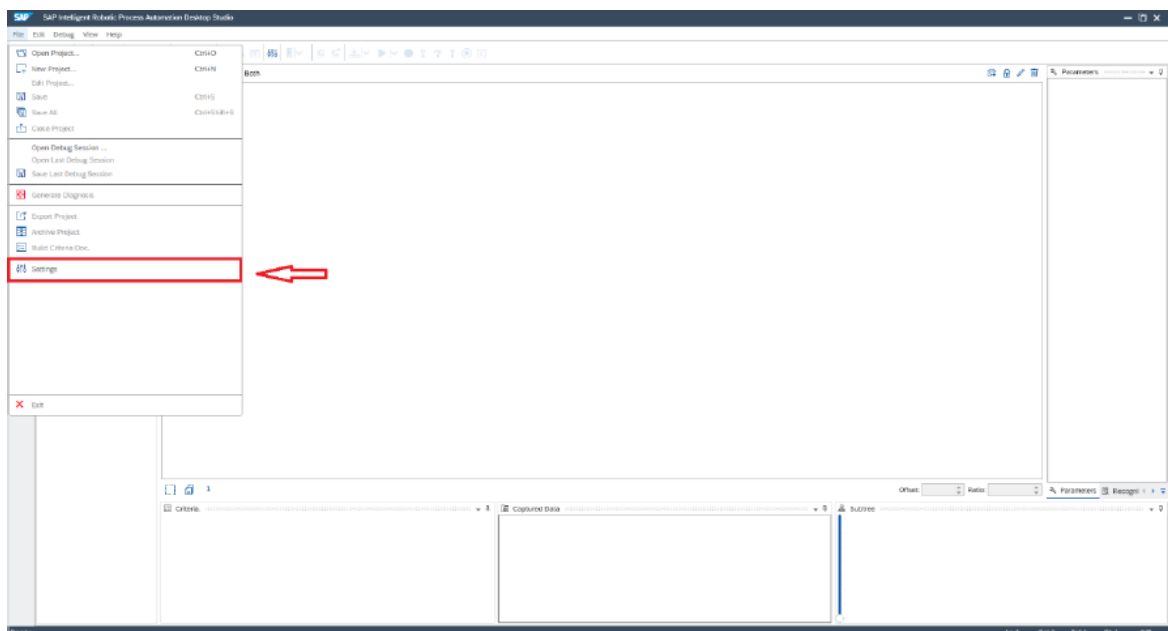
To install KDiff3 on your computer, refer to the following link [Installing a Source Code Compare Tool \[page 54\]](#).

Context

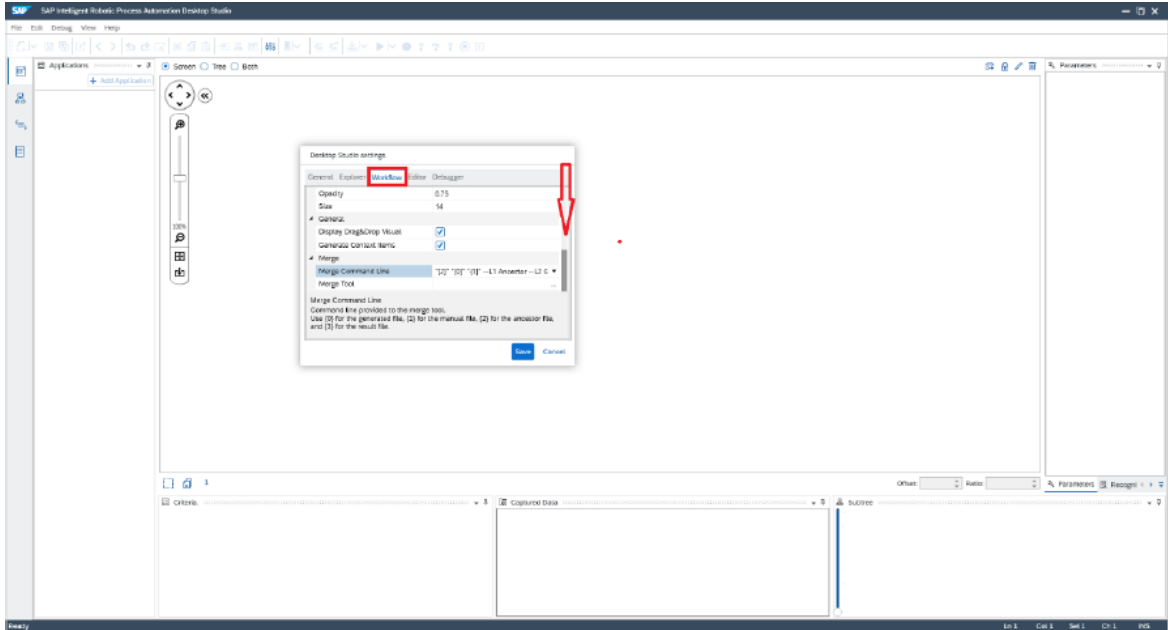
Add KDiff3 to the Desktop Studio

Procedure

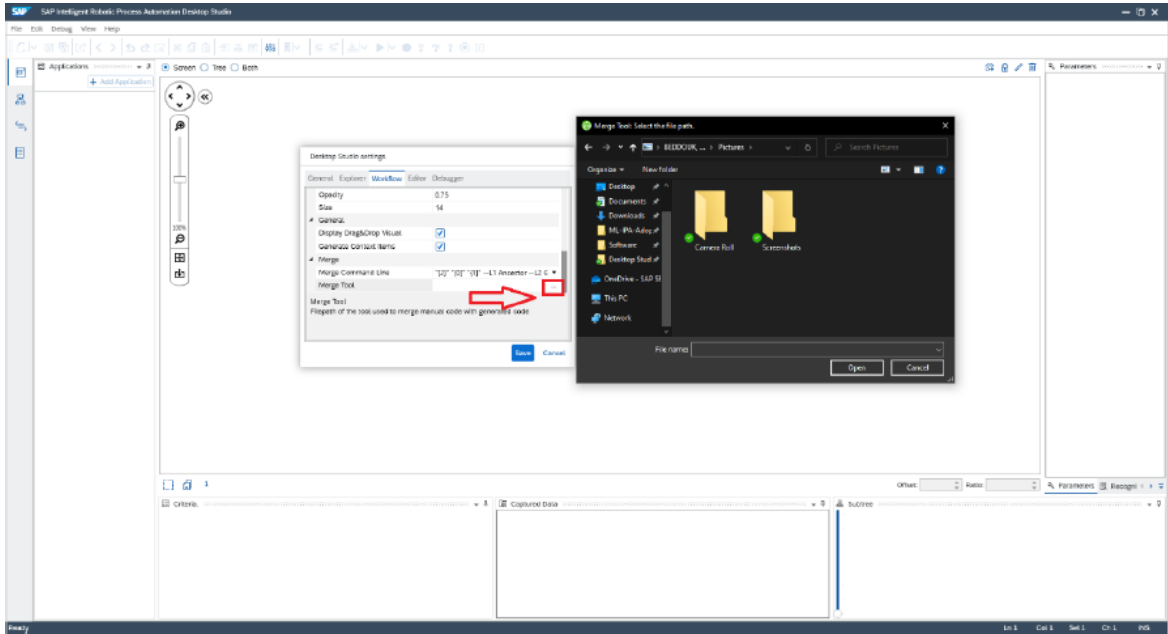
1. In the Desktop Studio, navigate to File and then click *Settings*. The Desktop Studio settings screen is displayed.



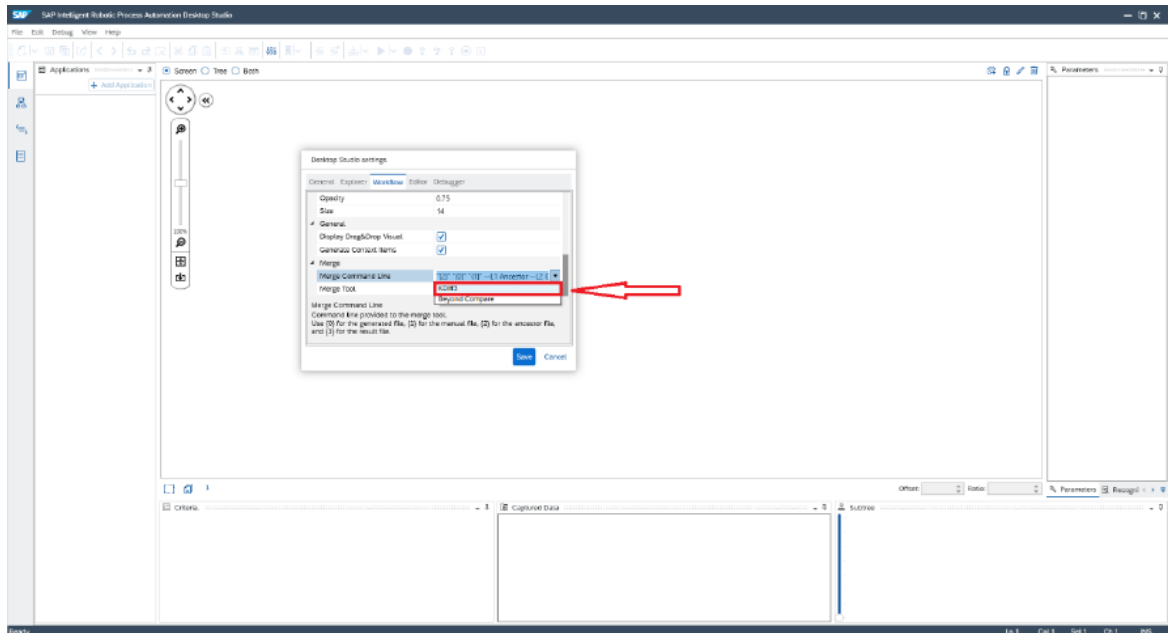
2. In the Desktop Studio settings screen, select the *Workflow* tab and scroll down to the bottom.



3. Click the *three dots* button to open the Windows explorer.



4. Navigate to the following path: "C:\Program Files\KDiff3\kdiff3.exe".
5. Select *KDiff3* for the Merge Command Line.



6. Click the [Save](#) button and restart the Desktop Studio.

3.4.3 Configuring Web Browsers

Google Chrome

The Desktop Agent installation automatically installs the web browser extension for Chrome. You then need to enable that extension:

1. Open Google Chrome.
2. Click the three dots at the top right of your browser.
3. Select **More Tools** > **Extensions**.
4. Click the toggle button to activate the SAP Intelligent RPA Extension.
5. Optional: if you need to access html files locally, click **Details** on the SAP Intelligent RPA tile. Then enable the option "Allow access to file URLs".

Note

The **SAP Intelligent RPA Extension** is not accessible publicly in the Chrome store.

There are three versions of the same connector. The latest releases have more fixes and improvements and work only from the product version 2.0.3.97/patch 14, or from version 2.0.5.

Use one of the following links depending on your product version:

- [From version 2.0.5](#)
- [From version 2.0.3.97](#)

- [Before version 2.0.3.97](#) .

Note

As a best practice, whenever you install or update the browser extension for Chrome, you must:

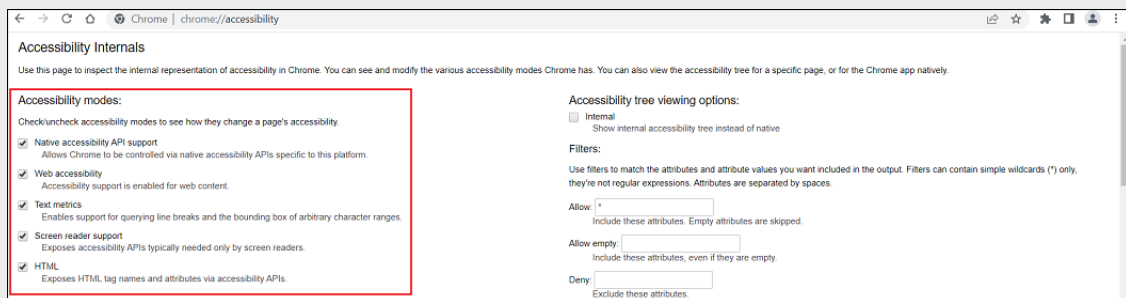
- Close or refresh all the browser windows.
- Close the Cloud Studio.

Note

When you try to capture a web page in Google Chrome using the UI Automation, it does not capture the content of the page. Therefore, you must modify the accessibility modes in Chrome to enable accessibility support for web content.

To enable the accessibility modes, perform the following steps:

1. Open Chrome and navigate to “chrome://accessibility”.
2. Check all the checkboxes under Accessibility modes.



3. Reboot Chrome.

Note

As a best practice, you must not remove the V3 extension manually from the Chrome browser and install Agent 3.

If you manually remove the V3 extension from the chrome browser before installing a new version of Agent 3, the result is an erroneous state where Agent 3 is installed, but the V3 extension is not installed.

To reinstall the V3 extension on the Chrome browser, refer to the following steps:

1. Uninstall the Chrome browser.
2. Reinstall the Chrome browser.
3. Install Agent 3. This adds the V3 extension to the Chrome browser.

Note

To run an automation in unattended mode, make sure you perform the following steps to run the browser extension in the background:

1. Open Chrome and navigate to “chrome://settings”.
2. Select “System”.
3. Enable “Continue running background apps when Google Chrome is closed”.

Note

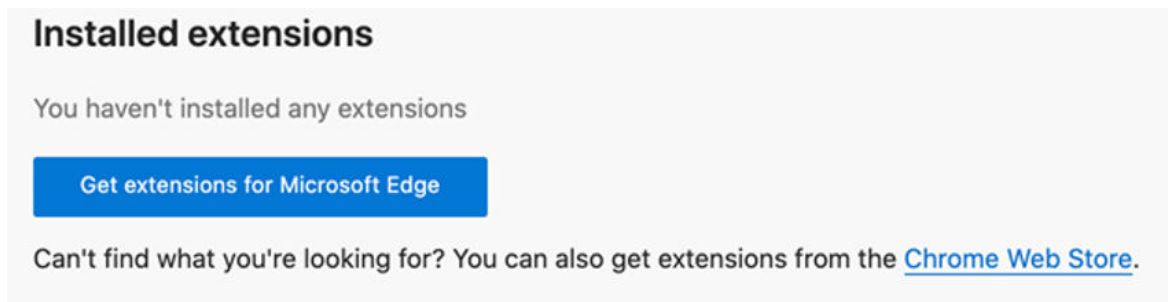
Our mutation observer is now improved to detect webpage unloads in the Chrome browser, eliminating the need for UNLOAD event listeners.

The MutationObserver is an interface that provides the ability to watch for changes being made to the DOM tree.

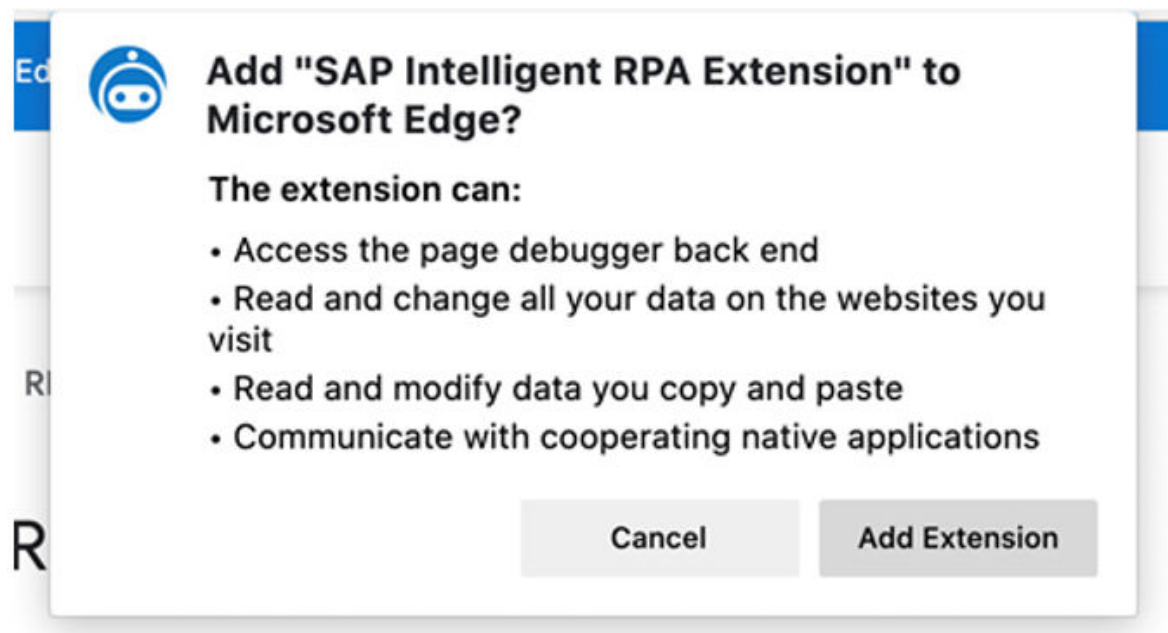
Microsoft Edge

Installing the Desktop Agent automatically includes the installation of the web browser extension for Microsoft Edge. You then need to enable that extension:

1. Ensure you have the chromium-based Microsoft Edge version (version 86+).
2. Go to [Extensions](#) and enable the third-party store. Developer mode is not required. For more information see [Microsoft Edge \(Chromium\) Developer Tools overview](#).
3. Click [Chrome Web Store](#).



4. Search for SAP Intelligent RPA or click [SAP Intelligent RPA Extension](#).
5. Install the extension by selecting [Add to Chrome](#).
6. Open Microsoft Edge. The following pop-up window appears:



7. Click [Add Extension](#).

You have now installed the SAP Intelligent RPA extension to Microsoft Edge.

Note

To run an automation in unattended mode, make sure you perform the following steps to run the browser extension in the background:

1. Open Edge and navigate to “edge://settings”.
2. Select “System and performance”.
3. Enable “Continue running background extensions and apps when Microsoft Edge”.

Note

Our mutation observer is now improved to detect webpage unloads in the Edge browser, eliminating the need for UNLOAD event listeners.

Internet Explorer

Installing the Desktop Agent automatically includes the installation of the web browser extension for Internet Explorer. You then need to enable that extension.

Note

Only Agent 2 supports Internet Explorer (IE), and moreover, you must check the System Requirements page for the status of IE support because Microsoft no longer supports IE.

1. Open Internet Explorer.
2. Select **Tools** > **Manage add-ons** > **Enable the add-on CxWebBho3 Class**

You must then configure the Internet Explorer settings.

1. Open Internet Explorer.
2. Select **Tools** > **Internet Options** > **Advanced**
 1. In the **Browsing** section, ensure that the following setting option is enabled:
 - **Enable third-party browser extensions***
 2. In the **Security** section, ensure that the following setting options are enabled:
 - **Allow active content from CDs to run on My Computer***
 - **Allow active content to run in files on My Computers***
 - **Use TLS 1.2**
3. Click **Apply**.

You must then enable **Active Scripting** in the **Security Settings - Local Intranet Zone**.

1. Select **Tools** > **Internet Options** > **Security**
2. Click **Internet** > **Custom level...**
3. Ensure that the **Active scripting** under **Settings** > **Scripting** is enabled.

4. Click *OK* to apply the changes and exit the *Security Settings - Local Intranet Zone*.
5. Click *Apply* and *OK* to exit the *Internet Options*
6. Close the Internet Explorer.

→ Tip

Do not forget to close the Internet Explorer after enabling the extension. Otherwise, the content in the Credentials store pop-up will be disabled.

3.4.3.1 Web Browser Extension Updates

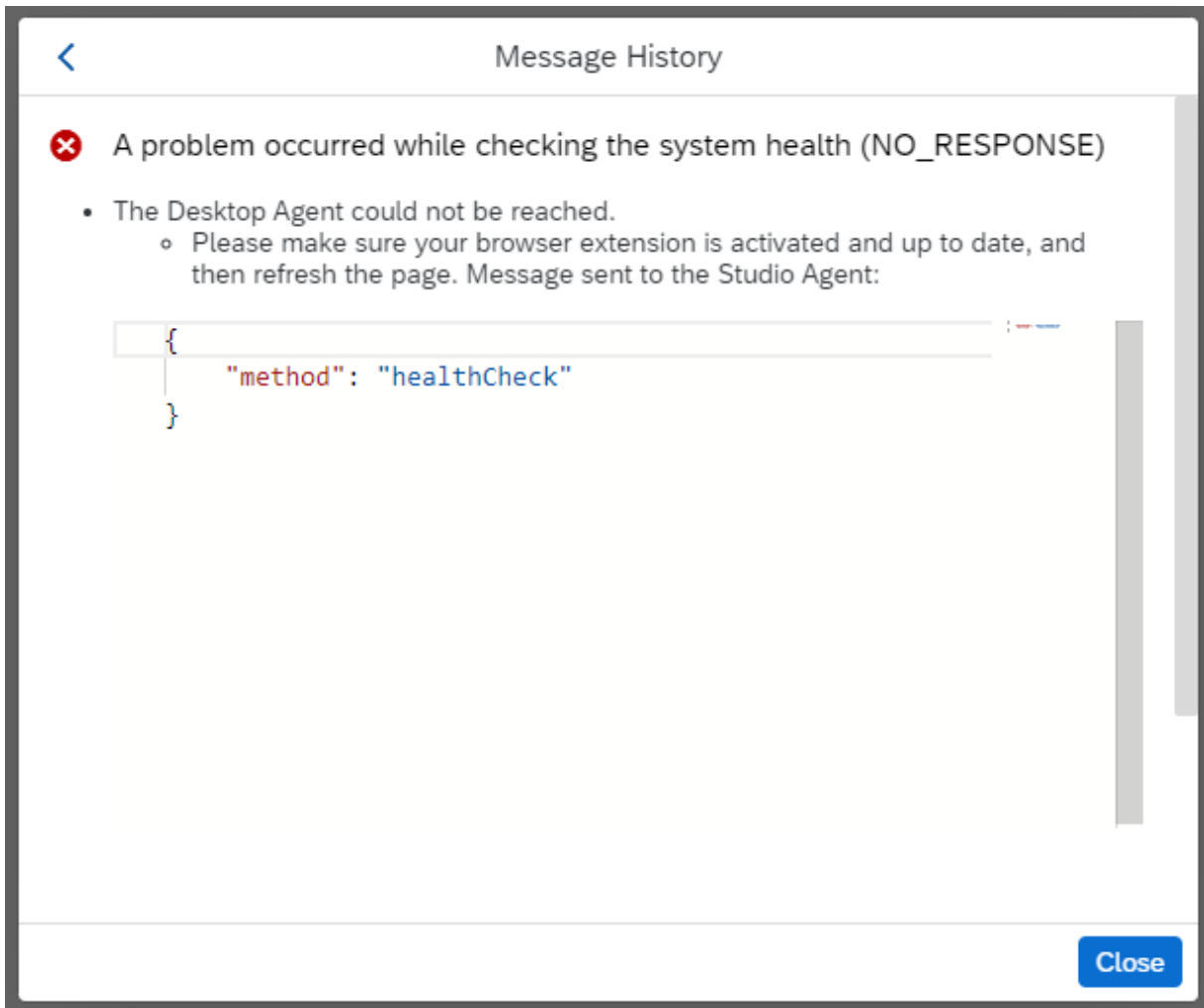
If you've been redirected to this page from the SAP Intelligent RPA application, it means that your browser extension has been updated to a new [version](#). You must:

- refresh your tabs to continue working in the Cloud Studio.
- refresh the target application that's being automated.

When a new version of SAP Intelligent RPA is released, an update of the browser extension to the latest version is automatically done in the Chrome or Edge Store.

Every time your browser extension has been updated, you must refresh your tabs.

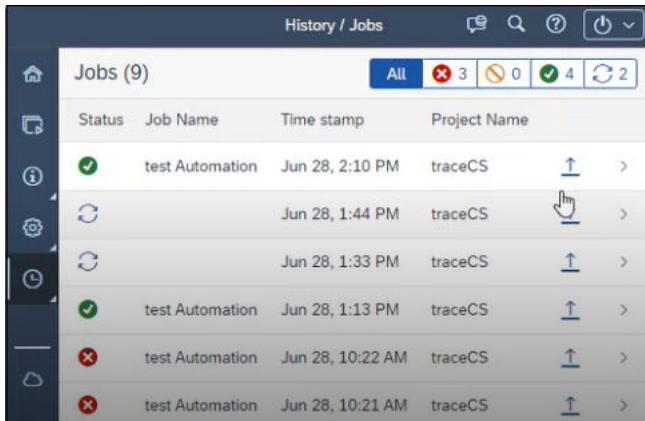
If you don't refresh the Cloud Studio tab, you'll have a timeout error with the following message:



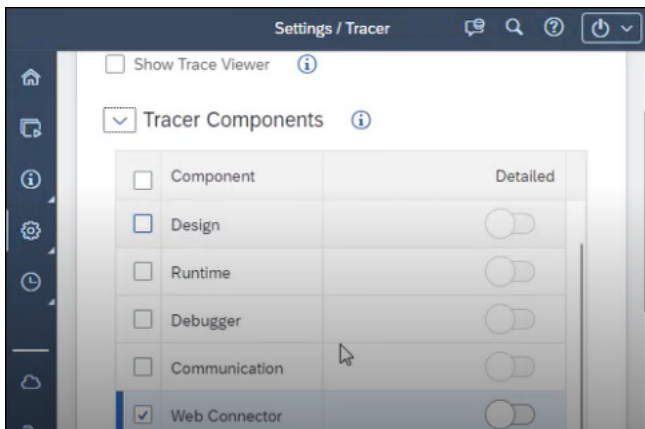
If you don't refresh the target application that's being automated, it won't appear in the list of screens to capture.

3.4.3.2 Web Browser Extension Traces

You can export the logs generated from the browser extensions to the Cloud Factory by clicking the upload () button.



For browser extension tracing, you must select the *WEB Connector* component from the list of components in the *Tracer*.



Related Information

- [Manage Traces](#)
- [Manage Traces](#)
- [Trace Collector](#)
- [Manage Traces](#)

3.4.4 Quick Installation Check-Up

This check-up is a quick procedure for validating that the installation is complete.

1. Start Desktop Studio
 - The Desktop Studio application can be launched by clicking *Start*, **▶ All Programs ▶ SAP Intelligent RPA ▶ Desktop Studio ▶**.
2. Configure diff and merge tool

- Open the Desktop Studio Settings dialog box via **File > Settings**.
- Open the Workflow Settings panel by clicking the *Workflow* tab.
- In the *Merge* section, configure your diff and merge tool.

Indicate properly the appropriate command line and full pathname (including the executable name) according to your diff and merge tool.

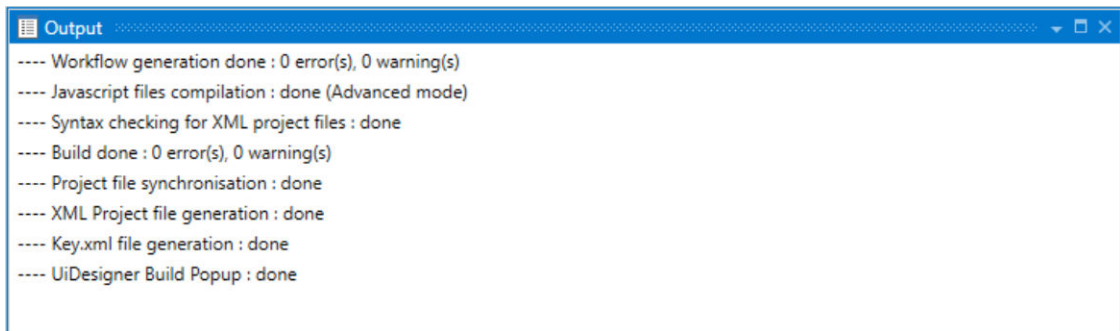
If you use the KDiff3 tool, select KDiff from the *Merge command line* field's dropdown list. This will immediately setup the correct command line for standard use of the KDiff3 tool.

3. Create a new project

- Create a new project using **File > New Project**.
- Type the project name (for example, myFirstProject), type a title and client name.
- Click *OK*.

4. Build the project

- Build the project using **Debug > Build**.
- Check the output panel. It should include: "Build done : 0 error(s), 0 warning(s)".



If that is not the case, check the Property Files on your machine to see if Node.js and SAP JVM have been properly installed.

5. Launch Desktop Agent in debug mode

Launch Desktop Agent in debug mode via **Debug > Debug (F5)**.

The Desktop Studio debugger should appear:

If that is not the case, check that Desktop Agent has been properly installed.

6. Stop and close the Desktop Studio debugger.

3.5 Set Up and Update Desktop Agent 3

For documentation on how to set up and update desktop agent 3, refer to the desktop agent user guide.

For Documentation on how to set up and update desktop agent 3, refer to .

4 Updating your SAP Intelligent RPA 1.0 Landscape (Desktop Agent and Studio)

Context

Your Desktop Agents are currently deployed with an old version and you would like to update to a newest version. Existing packages hosted in the Factory have been uploaded with the old version.

The Factory will apply the following rules:

The packages generated from the Desktop Studio embed the SDK version used for the compilation. That's why the packages generated using an old version of the Desktop Studio are usually not compatible with newer versions of the Desktop Agent. Make sure that the version of the Desktop Studio in which the package has been compiled is the **same version (or higher)** than the Desktop Agent version on which the package will be executed.

→ Tip

To find out in which version of the Desktop Studio a package has been created, proceed as follows:

1. On the *Packages* tab, click the three points icon **⋮** on the right of the package.
2. Select *Information* to open the *Package Information* window. The versions of the Desktop Studio and the SDK are displayed in the *Project Information* section.

Right-click the Desktop Agent icon in the system tray and select *About...* to find out the version of the Desktop Agent.

Please check the [SAP Intelligent RPA 1.0 Compatibility Matrix \[page 66\]](#) for specific rules on combining Agents and Packages.

Before installing and deploying the latest version of Desktop Agents on a large scale, please do the following:

Procedure

1. Install the latest version of the on-premise components (Agent + Studio) on a developer workstation. See [On-premise Components Setup \[page 36\]](#) for more information.
2. Open the project, compile and perform local testing. Once the tests are successful, you can export the new package version.
3. Import the new package to the Factory
4. Add it to a test environment
5. Perform the tests. Once the tests are successful, you can now deploy to production.

6. Desktop Agents will retrieve the latest version of the package.

Results

Existing Desktop Agents with old versions can now be updated to the latest version.

4.1 SAP Intelligent RPA 1.0 Compatibility Matrix

Cloud Factory is updated automatically on a regular basis. Existing packages exported by Desktop Studio and imported in Cloud Factory will continue to be distributed to Desktop Agents without further human intervention.

However, once a new version of on-premise components is available for download, we recommended that you follow the pattern explained in the [update \[page 65\]](#) page to avoid potential inconsistencies in your landscape deployment. Latest version of on-premise components includes fixes and improvements.

The table below lists the compatibility rules between a Desktop Agent and the Desktop Studio Package imported in Cloud Factory.

Agent Version	Desktop Studio Package Version Imported in Cloud Factory	
	1.0.5 to 2.0.34	2.0.35
1.0.5 / 1912 to 2.0.34 / 2302	Supported	Supported
2.0.35 / 2303	Supported	Supported

- **Supported:** Agent and package share the same version and are designed to work seamlessly. Usually, when the package version is greater than the Agent version, the Agent is also able to work with this package. To avoid potential inconsistencies in your landscape deployment it is recommended to follow the pattern explained in [Updating your SAP Intelligent RPA 1.0 Landscape \(Desktop Agent and Studio\) \[page 65\]](#).
- Other cases: The Agent may not work with a different package version and the Factory will not distribute.

5 SAP Intelligent RPA 2.0 Compatibility Matrix

SAP Intelligent RPA Cloud Factory, Cloud Studio and Cloud SDK packages are updated automatically on a regular basis.

Once a new version of the Desktop Agent is available for download, we also recommend that you upgrade your landscape with the latest version available to maintain compatibility between your projects and agents.

Note

End of mainstream maintenance: On June 30 2024, mainstream maintenance ends for desktop agent 2 on SAP Build Process Automation. For more information, see [3440715](#) and [Best Practices when Migrating from Desktop Agent 2 to Desktop Agent 3](#).

Indeed at runtime your project interacts with an agent through SDK activities that come from cloud packages. But the SDK package version you use may contain activities that have been developed after the agent you are using and may not be supported by the agent. For more information, see [Manage Compatibility of Projects with Agents](#).

The table below lists the compatibility rules between a Desktop Agent and the SDK versions used in the Cloud Studio.

Desktop Agent Version	Cloud SDK Version	
	1.5 / 2011 to 1.48 / 2403A	1.49 / 2403B
2.0.47 (Agent 2) and 3.27.46 (Agent 3) / 2403B	Supported	Supported
2.0.47 (Agent 2) and 3.26.54 (Agent 3) / 2403A	Supported	Supported
2.0.6 / 2011 to 2.0.29 / 2209	Supported	Supported
2.0.0 / 2005 to 2.0.5 / 2010	-	-
1.0.5 / 1903 to 1.0.9 / 2004	-	-

Related Information



[Version History](#)

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