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# Provisioning Genesys Multicloud CX Hybrid Integrations

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## Contents

- [1 Supported Services](#)
- [2 About Provisioning](#)
- [3 Genesys Cloud CX Provisioning Steps](#)
- [4 Genesys Multicloud CX On Premises: Transaction object for hybrid integrations](#)
- [5 Opening Your Network](#)

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This article describes the essential provisioning steps to enable a hybrid integration between Genesys Engage on-premises deployments and Genesys Cloud CX services. This enables you to access many of the great Genesys Cloud CX Services in your On-Premises deployments.

## Supported Services

The following Genesys Cloud CX services are supported and have supplementary documentation:

- Genesys Predictive Engagement (formerly Predictive Engagement)
  - Genesys Predictive Engagement for Workspace Desktop Edition (formerly Predictive Engagement). Refer to Integrating Genesys Predictive Engagement into Genesys Engage on-premises for more information on integrating Genesys Predictive Engagement into Genesys Engage on-premises.
  - Agent Pacing Service

## About Provisioning

Before proceeding with the information in this article you should consult with the Genesys Professional Services team that you are working with to obtain the information needed to complete the provisioning.

To support the different authentication mechanisms in Genesys Cloud CX Integration, you must create a transaction object in Genesys Multicloud CX Configuration Server. Genesys Engage on-premises Services, Components, and UIs will use this information to authenticate with the Genesys Cloud CX Common Services and UIs.

Use Genesys Administrator Extension to manually create all of the Genesys Cloud CX Common Service-related configuration information in Configuration Server at the Tenant level.

After you purchase a common cloud service, a Genesys Cloud CX Organization is created for you and you will receive a welcome email to activate your admin accounts with Genesys Cloud CX.

A **Genesys Cloud CX organization** has been created for you to support your hybrid integration. This organization has been provisioned with the following:

- The base functionality required for your Common Cloud integration.
- An **Admin console** that you may use to configure your Common Cloud integration.
- A user with the **Genesys Cloud CX Admin** role, which includes default admin permissions as well as Single Sign-On and any integration-specific permissions.
- A default **AI Agent** role (if required by your integration) that provides agent access to AI services, such as Genesys Predictive Engagement.

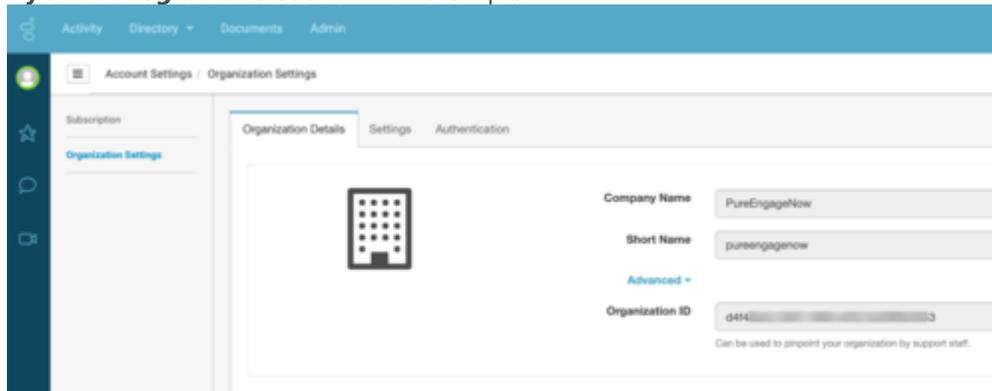
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As an administrator, you may access your Genesys Cloud CX organization by logging in at <https://login.mypurecloud.com> (or a region specific login URL; The Genesys Cloud CX welcome email directs you to the appropriate application URL for your region) with the credentials you set when you activate your Genesys Cloud CX account from the welcome email you received.

Upon activation of your Genesys Cloud CX account, perform the steps in the Genesys Cloud CX Provisioning Steps section below using the Genesys Cloud CX Admin UI or the Genesys Cloud CX API.

With the credentials provided in the Welcome email, you can log in to the **Genesys Cloud CX Admin UI** for your region to perform the provisioning steps described in the next section.

1. In the **Genesys Cloud CX Admin UI**, select **Account Settings**.
2. Open **Organization Settings**.
3. In the **Organization Details** tab, open **Advanced**.
4. Copy the Company Name, Short Name, and Organization ID — you will need these values to complete your account configuration in the **Genesys Multicloud CX On Premises: Transaction object for hybrid integrations** section. For example:



The following diagram provides an overview of how Genesys Multicloud CX utilizes Genesys Cloud CX services such as Genesys Predictive Engagement:  
500px

## Genesys Cloud CX Provisioning Steps

For *each* Genesys Cloud CX Organization that is created for each of your tenants (for environments with multiple Genesys Multicloud CX tenants), perform the following steps using the Genesys Cloud CX Admin UI or the Genesys Cloud CX API.

1. For each Genesys Multicloud CX Service that uses a common service you must create an OAuth client to allow for better control and monitoring of the components using the Genesys Cloud CX Services and for different rate limiting per client. (This does not mean that if you have  $n$  number of components on premises that are associated with one another, they cannot share a given client id.)

Genesys recommends that you consult architecture before performing this step.

Login to your Genesys Cloud CX Region, then follow these steps:

- a. Create a Client Credential OAuth Client that is to be based on the specific services you are using, such as the Pacing Service. It is required to create the Genesys Cloud CX Genesys Multicloud CX Identity

Provider (IDP). In your Genesys Cloud CX Region, create a Client Credential Grant. Open **Integrations**, select **OAuth**, and enter **PureEngage Client Credentials** as the App name in the **Client Details** tab. Select the **Client Credentials** grant type.

Client Details Roles

**App Name**  
PureEngage Client Credentials

**Description**  
OAuth client for service-to-service authentication

**Token Duration (seconds):** the number of seconds, between 5mins and 48hrs, until tokens created with this client expire.  
86400

**Grant Types**

- Client Credentials
- Code Authorization
- Token Implicit Grant (Browser)
- SAML2 Bearer

In the **Roles** tab, assign the **Admin** role and set the division as **Home**.

Name	Type	Description	Divisions	Assigned
admin	Default	Organization Administrator		<input type="checkbox"/>

As necessary, for each on-premises service, like the "Agent Pacing Service" (**ewt**), create OAuth Client Credentials grants:

- Using the UI, follow these steps,

Client Details Roles

**App Name**  
PureEngage Client Credentials

**Description**  
OAuth client for service-to-service authentication

**Token Duration (seconds):** the number of seconds, between 5mins and 48hrs, until tokens created with this client expire.  
86400

**Grant Types**

- Client Credentials
- Code Authorization
- Token Implicit Grant (Browser)
- SAML2 Bearer

- Or using the API, reference these endpoints.
- Copy the client ID and Secret for later use.

For more information about Permissions for Genesys Predictive Engagement, see the Predictive Engagement permissions overview.

- b. Create a SAML2 Bearer OAuth Client for the client, such as Genesys Multicloud CX Workspace Desktop Edition, that needs to send a SAMLResponse to exchange for a Genesys Cloud CX Access Token:
  - i. In **Genesys Cloud CX Admin**, select **Integrations>OAuth**, then click **Add Client**.
  - ii. Name the Client and select **SAML2 Bearer** as the **Grant Type**.
  - iii. Enter the Authorized redirect URI, for example: `https://apps.mypurecloud.com`

The screenshot shows the 'Add Client' form in the Genesys Cloud CX Admin interface. The form is titled 'Client Details' and includes the following fields and options:

- App Name:** PureEngage SAML2 Bearer
- Description:** OAuth client for user authentication
- Token duration (seconds):** 96400
- Grant types:**
  - Client Credentials
  - Code Authorization
  - Token Implicit Grant (Browser)
  - SAML2 Bearer
- Authorized redirect URIs (one per line):** `https://apps.inindca.com`
- Scope:** `identity-providers:readonly journey oauth`

- iv. Next, select **Authorized Applications** and include the scope(s) in the authorization.

The screenshot shows the 'Authorize a client' form in the Genesys Cloud CX Admin interface. The form is titled 'Authorize a client' and includes the following fields and options:

- App Name:** PureEngage SAML2 Bearer
- Scope:** `identity-providers:readonly journey oauth`

- v. Copy the client ID and Secret for later use.
2. Create your SAML Certificate (public key) and private key. You can perform this task with open source tools or with the tools preferred by your IT department for security purposes. Whichever tools you use, you must produce both private and public keys in the form of a PEM file. For example:

```
openssl req -new -x509 -days 3652 -nodes -out cert.pem -keyout key.pem
```

Save the cert.pem (public key) and key.pem (private key) for use in the creation of the Transaction object described in the next section.

3. Create a Genesys Multicloud CX Identity Provider (IDP). You can use the Identity Provider API via the Genesys Cloud CX Developer Tools, SDKs, or Platform APIs.  
Sample Request:

```
PUT https://api.{{environment}}/api/v2/identityproviders/pureengage
```

```
{
  "name": "Genesys Multicloud CX",
  "autoProvisionUsers": true,
  "certificate": "Content of the cert.pem file without the ---BEGIN CERTIFICATE- and ---
  END CERTIFICATE--- text blocks",
}
```

---

```
"issuerURI": "https://www.genesys.com/pureengage",
"ssoTargetURI": "http://example.com/target",
"disabled": false
}
```

**issuerURI:** the URI set when you created the SAML certificate in Step 2 (above).

**ssoTargetURI:** the http redirect URL which should resolve to your Genesys Cloud CX domain. Example: `https://app.mypurecloud.com` (domain varies according to your region).

**Troubleshooting:**

- Ensure that the IDP is set with `"autoProvisionUsers" = "true"`
  - Ensure an exact match with the `saml/issuer` option of the Transaction object described in the Genesys Multicloud CX configuration.
  - Ensure that you don't have multiple issuers with the same URI.
4. By default, Genesys Predictive Engagement permissions are included in the **Admin** and **AI Agent** roles (which includes all necessary permissions for using Genesys Predictive Engagement). As auto-provisioned users are created with the **employee** role, which does not include Genesys Predictive Engagement permissions. You must grant the Predictive Engagement permissions to the employee role. You may grant Genesys Predictive Engagement permissions to additional roles as needed. Copy these role names for the **Genesys Multicloud CX On Premises: Transaction object for hybrid integrations** steps below.
  5. (Optional as needed) Create additional **Admin** accounts by adding people to your organization and assigning them to the **Admin** role.

## Genesys Multicloud CX On Premises: Transaction object for hybrid integrations

A transaction object is needed for Genesys components to authenticate with Genesys Cloud CX.

1. Create a transaction object (and alias) of type **list** named **hybrid\_integration** in the **Transaction** folder of the **Environment** tenant.
  - Tenant characteristics:
    - **Single tenant deployment:** If your Genesys Multicloud CX deployment is *not* multi-tenant, the transaction object should be in the **Transaction** folder in the **Environment** or **Resources** structure.
    - **Multi-tenant deployment:** If your Genesys Multicloud CX deployment is multi-tenant, there must be a separate transaction object under *each* of the tenant structures. The transaction objects represent the connectivity to the different Genesys Cloud CX Orgs representing these different tenants. You *cannot* place a transaction object in the Environment structure and share it across tenants because you need a separate Genesys Cloud CX Org for each tenant.  
**WARNING:** If you are running Workspace Desktop Edition 8.5.133.02, you must ensure that the agents of a Tenant do *not* have READ access on the 'hybrid\_integration' Transaction objects of the *other* tenants.
2. Create the following Object options in the **general** section:
  - **organization\_sname:** The Genesys Cloud CX organization short name for this tenant.
  - **organization\_id:** The Genesys Cloud CX organization id for this tenant.

- 
- **default\_agent\_role\_name**: The default Genesys Cloud CX agent role name for an **AI Agent**. This will always be **employee**.
  - **default\_admin\_role\_name**: The default Genesys Cloud CX admin role name. This is **admin**.
  - **base\_auth\_url**: The base auth URL that can be used for any Genesys Cloud CX service; for example: **base\_auth\_url** should be `https://[region_host]/oauth/token` (for example: `"https://login.mypurecloud.com/oauth/token"`). `[region_host]` is the authentication-based FQDN for the region; the regions are listed on this page.
  - **base\_service\_url**: The base URL that can be used for any Genesys Cloud CX service; for example: **base\_service\_url** should be `https://[region_host]/api/`. `[region_host]` should be the API-based FQDN for the region; the regions are listed on this page. The rest of the URL is Genesys Cloud CX service and version specific; for example: `...v2/conversations`. The **base\_service\_url** and the service specific portion is combined in your component code.
  - **organization\_domain\_suffix**: Create this option in the Annex of the "hybrid\_integration" transaction object. If the username of the agent in the Genesys Multicloud CX system is not defined as an email address, this option is appended to the Genesys Cloud CX organization short name for this tenant (**organization\_sname**) to generate a username with valid email format. A valid value is a string representing a valid DNS top-domain. The default value is **com**.
3. Use the two PEM files that you created in the Genesys Cloud CX Provisioning section to perform the following steps. This example show you how to do it in an open source tool; check with your IT department to determine the best tool to use to meet your security requirements.
- Encode `cert.pem` into a base64 string (`cert.pem.b64`) using this command:  

```
openssl base64 -in cert.pem -out cert.pem.b64
```
  - Encrypt the `key.pem` using a password that you specify  

```
openssl rsa -in key.pem -out key.pem.enc -aes256
```
  - Encode the resulting content into a base64 string (`=>'key.pem.enc.b64'`) using this command:  

```
openssl base64 -in key.pem.enc -out key.pem.enc.b64
```
4. Create the following Object options in the **saml** section:
- **issuer**: The SAML IDP URI that you created in the Genesys Cloud CX Provisioning steps above (for example: `https://www.genesys.com/pureengage`).
  - **certificate**: The content of the public key of the SAML certificate encoded in base64; for example: `cert.pem.b64` created in step 3.
  - **pkey**: The content of the encrypted private key of the SAML related certificate encoded in base64; for example: `key.pem.enc.b64` created in step 3.
  - **password**: The password to decrypt the private key that you specified in step 3.
  - **expire\_time**: The expiration time (in hours) for the access token. The default is 24 hours. This might be overridden on the server side.
5. For each Genesys Multicloud CX service that uses a Genesys Cloud CX common service (specified at step#1) you must create a dedicated section in the Transaction object:
- Create the following Object options in the **saml\_auth** section for the OAuth client for SAML Authentication from the client (such as Workspace Desktop Edition) that you created in step 1b of the Genesys Cloud CX Provisioning section of type SAML2 Bearer:
    - **client\_id**: The SAML2 Bearer client ID created in step 1b of the Genesys Cloud CX Provisioning section.
-

- 
- **password:** The SAML2 Bearer client secret created in step 1b of the Genesys Cloud CX Provisioning section.
  - For the Agent Pacing Service, create the following Object options in the **ewt** section for the pacing engine to connect to Genesys Cloud CX:
    - **client\_id:** The Client Credential Grant Client ID that you created in step 1c of the Genesys Cloud CX Provisioning section.
    - **password:** The Client Credential Grant Client secret that you created in step 1c of the Genesys Cloud CX Provisioning section.

## Opening Your Network

You must modify the permissions on our network to permit the Genesys Multicloud CX Components and UIs to access Genesys Cloud CX Common APIs over your network and into the Internet. To do this, you must create a set of new firewall rules for the Genesys Cloud CX Authentication and Common Services URLs.