# **opentext**<sup>™</sup>

# OpenText Cloud Developer Tools for VS Code

## **User Guide**

This guide describes how to use the OpenText Cloud Developer Tools VS Code extension pack for developing and deploying applications that consume the OpenText Cloud Platform APIs.

## This documentation has been created for software version OpenText Cloud Developer Tools for VS Code 23.1.5.

It is also valid for subsequent software releases unless OpenText has made newer documentation available with the product, on an OpenText website, or by any other means.

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### **1** Introduction

This user guide provides instructions for pro-code developers on how to use the OpenText Cloud Developer Tools for VS Code 23.1.5 to build applications that consume the IM (Information Management) APIs from the OpenText Cloud Platform.

It covers the topics of connecting to a developer organization in the OpenText Cloud Platform, creating an application project with its different models (application configuration artifacts), and deploying this application to the different OpenText Cloud Platform APIs through the integrated ALM (Application Lifecycle Management) deployment functionality.

We recommend that you always use the link to this user guide from the OpenText Cloud Developer Tools **Help and Feedback** section in VS Code (see Fig. 1.1), so that you are certain to have the up-to-date user guide which corresponds with the OpenText Cloud Developer Tools for VS Code version you have installed in your Visual Studio Code IDE.



In addition to this user guide, the **Help and Feedback** section also contains the OpenText Cloud Developer tutorial (see Fig. 1.2), which guides you through a detailed journey on how to build an application with the OpenText Cloud Developer Tools for VS Code. It is highly recommended you follow this tutorial as a way of getting started, as not only does it provide you with a thorough understanding of the use of the Cloud Developer functionality in VS Code, but it also explains where to find key developer documentation, and how to consume the IM APIs of the OpenText Cloud Platform.

Fig. 1.2:



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### 2 Overview

Installing the OpenText Cloud Developer Tools VS Code extension pack adds the OpenText Cloud Developer functionality to the Visual Studio Code IDE, referred to as VS Code from here on out.

The OpenText Cloud Developer functionality is available in VS Code from three different locations:

- The OpenText Cloud Developer Tools view in the VS Code Activity Bar
- The Explorer view in the VS Code Activity Bar
- The VS Code Command Palette

In this chapter we go over these three locations and describe the Cloud Developer capabilities they provide.

### 2.1 OpenText Cloud Developer Tools view

In VS Code, you can switch between different views through the Activity Bar (see Fig. 2.1).

∢	File	Edit	Selection	View	Go	Run	Terminal	Help
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Ŕ	>							
₿	ב י							
o	t I							

When the OpenText Cloud Developer Tools VS Code extension pack is installed, you can access the OpenText Cloud Developer Tools view from the Activity Bar (see Fig 2.2).

Fig. 2.2:



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The OpenText Cloud Developer Tools view is divided into three sections:

• Profiles:

This is where the developer can configure authentication profiles to allow connecting and deploying to multiple developer organizations in the OpenText Developer Platform.

• Models:

This is where the developer can configure the OpenText project and, once configured, explore the different models that exist in the project.

Help and Feedback:

This is where the developer can directly access the OpenText Cloud Developer Tools VS Code extension pack's user guide, the Cloud Developer tutorial (explains how to get started with developing applications for the OpenText Cloud Platform), and where they can report an issue or suggest a new feature.

### 2.2 Explorer view

In the standard VS Code Explorer view, installing the OpenText Cloud Developer Tools VS Code extension pack adds two menu entries to the contextual menu of the VS Code workspace root folder (see Fig. 2.3).

Fig. 2.3:



- Clicking the **OpenText: Project Properties** menu entry opens the OpenText Cloud application project properties screen, allowing you to edit the project and application properties.
- Clicking the OpenText: Deploy to Default Tenant menu entry deploys your OpenText Cloud application project to the configured default tenant in the default authentication profile, see <u>Setting</u> <u>up organization profiles</u>, for details.

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### 2.3 Command Palette

The VS Code Command Palette (available by pressing **Ctrl+Shift+P** or **F1**, depending on your system) allows you to access all the functionality of VS Code. So, the functionality that has been added to VS Code by the OpenText Cloud Developer Tools VS Code extension pack is also directly available from the Command Palette (see Fig. 2.4), i.e.: as the different commands.

Since the Command Palette allows filtering commands, typing "**opentext**" in the filter box ensures you see all available OpenText Cloud Developer Tools related commands.





The commands from the Command Palette that allow creating new models are described further in the <u>Creating models</u> chapter of this user guide.

You now have an understanding of the different locations in VS Code where you can access the features of the OpenText Cloud Developer Tools extension pack. The following chapters in this user guide describe how to use those features.

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### 3 Setting up organization profiles

This chapter describes how to set up VS Code OpenText Cloud API organization profiles. More specifically, it details how to create a profile to your OpenText Cloud Platform organization(s) and tenants, so that it is possible to use these profiles to authenticate and deploy your application project to the OpenText Cloud Platform.

### 3.1 Adding organization profiles

When working with the OpenText Cloud APIs you can work with multiple organizations. You may, for example, have an organization in different regions. Adding an organization profile allows you to connect to these different organizations.

Adding a profile is done by using **New Organization Profile** from the contextual menu of the **Profiles** section (see Fig. 3.1.1).

Fig. 3.1.1:

OPENTEXT CLOUD DEVELOPER TOOLS	
✓ PROFILES	<u> ម</u> ខ 🖶
	New Organization Profile
	New Organization Provine

Using this option opens the authentication profile configuration screen (see Fig. 3.1.2). By default, only the Region is prefilled.

Fig. 3 1.2:

*new-profile-183457b8c99*
* Profile Name
* Organization Name
* Organization ID
* Public Client ID
* Region
na-1-dev 🗸

The different authentication profile properties on the **OpenText Authentication Profile** configuration screen are:

- Profile Name: the name of the authentication profile
- **Organization Name:** the name of the developer organization
- Organization ID: the (unique) ID of the developer organization
- Public Client ID: the public client ID of the developer organization
- **Region:** the region in which the organization is located. Possible options are na-1-dev, na-1, eu-1 and ca. This field is defaulted to na-1-dev. The region can be found by looking at the url that is used to open the Developer Console (see Fig. 3.1.3).

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Fig. 3.1.3:

ot Console - Ap	ops   Developer   Ope 🗙	+				
$\leftrightarrow \   \rightarrow \   G$	ana-1-dev.apps.opentext.com/console/apps					

Organization name, Organization ID and Public Client ID are provided when creating an organization in **developer.opentext.com**, and they can also be retrieved through the organization Console in your **developer.opentext.com** subscription.

To save the profile configuration, select Save from the File menu, or press Ctrl+S on your keyboard.

To test the configured organization profile, click **Connect** from the **OpenText Authentication Profile** form (see Fig. 3.1.4).

Fig. 3.1.4:

DpenText na-1-dev					
* Profile Name					
OpenText na-1-dev					
* Organization Name					
OpenText					
* Organization ID					
and the first state of the annual state of					
* Public Client ID					
Accessed - Treating - Mark Science, 7 (1)					
* Region					
na-1-dev 🗸					
Authentication					
Click Connect to authenticate with the organization					
Connect					

To change an existing organization profile, use the **Edit Profile** context menu option of the specific profile (see Fig. 3.1.5).

To delete an organization profile, use the **Delete profile** context menu option of the specific profile. Note that in case you have multiple organization profiles that it is not possible to delete a profile that is marked as default. A default profile can only be deleted when it is the only existing profile (see Fig. 3.1.5).

Fig. 3.1.5:

OPENTEXT CLOUD DEVELOPER TOOLS		
✓ PROFILES		
> 🖪 OpenText na-1-dev (Default)		
	Edit Profile	
	Delete Profile	
	Add Tenant	

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The first organization profile that is added is set as the default profile. In case multiple organization profiles are available then one of these can be set as the default profile for deployment. Use the **Set Profile as Default** context menu option of the specific profile (see Fig. 3.1.6).

Fig. 3.1.6: OPENTEXT CLOUD DEVELOPER TOOLS .... V PROFILES DenText eu-1 Edit Profile Delete Profile Set Profile as Default Add Tenant

### 3.2 Adding tenants to a profile

An organization can have multiple tenants. When no specific tenants are added to the organization authentication profile then, when deploying your project, the application is deployed to all tenants in that organization. It is possible to add specific tenants and mark one of these tenants as the default tenant to deploy to. This way it is possible to deploy to a specific tenant only.

To add a specific tenant to an organization profile, use the **Add Tenant** context menu option of the specific profile (see Fig. 3.2.1). In the top middle of the VS Code UI input fields are shown, use these to enter the **Tenant Name** and **Tenant ID** (see Fig. 3.2.2 and see Fig. 3.2.3).

Fig. 3.2.1:







To change an existing tenant, use the **Edit Tenant** context menu option of the specific tenant (see Fig. 3.2.3).

To delete a tenant, use the **Delete Tenant** context menu option of the specific tenant (see Fig. 3.2.3).

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Fig. 3.2.3:



The first tenant that is added to an organization profile is set as the default tenant. In case multiple tenants are available then one of these can be set as the default tenant for deployment. Use the **Set Tenant as Default** context menu option of the specific tenant (see Fig. 3.2.4).





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### 4 Setting up a project

This chapter describes how to set up an OpenText Cloud application project. Setting up (i.e.: configuring) a new project is essential, as it enables the OpenText Cloud Developer modeling capabilities within the context of the current VS Code workspace folder. Without a project configuration, you are not able to create models for your OpenText Cloud application project.

Setting up a project is done via the **Set Up Project** button under the **Models** section of the **OpenText Cloud Developer Tools** view (see Fig. 4.1). Note that this button is only available when a project has not yet been set up. When clicked, the **OpenText Project Properties** configuration form opens (see Fig. 4.2).

Fig. 4.1:



Fig. 4.2:

* Project name	* Application display name	* Application name
my_application		
* Application version	* Application vendor	
1.0		
* Application description		

The different project properties on the **OpenText Project Properties** configuration screen are:

- **Project name:** the name of the application project; a default value is automatically filled using the VS Code workspace folder name (this can be different from the application name itself)
- Application display name: the user-friendly name (i.e.: label) of the application
- **Application name:** the unique (technical) name of the application; a default value is automatically filled using the (previously entered) application display name
- Application description: the description of the application
- Application version: the version label of the application, defaulted to "1.0"
- Application vendor: the name of the owner/vendor of the application

To save the project configuration, select **Save** from the **File** menu, or press **Ctrl+S** on your keyboard.

Once a project has been set up for the VS Code workspace (folder), the **Models** section shows the model tree instead of the **Set Up Project** button. The model tree allows exploring and editing the models that exist within the project (see Fig. 4.3).

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Fig. 4.3:

$\sim M$	✓ MODELS					
>	⊞	Decision Tables				
>	⊞	Groups				
>	⊞	Namespaces				
>	⊞	Permissions				
>	⊞	Traits				
>	⊞	Types				
>	⊞	Workflows				

When a project has been set up, you can always view or modify the OpenText project properties from the **Model Explorer** by choosing **Project Properties** from the contextual menu (see Fig. 4.4) and in the VS Code **Explorer** view by choosing **OpenText: Project Properties** from the contextual menu of your VS Code workspace (root) folder (see Fig. 4.5) or any of its subfolders, or by opening the **.otproject** file (see Fig. 4.6):

Fig. 4.4:



Fig. 4.5:



#### Fig. 4.6:



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### 5 Creating models

This chapter describes how to create models. Models are the configuration artifacts that define your application itself. Deploying an application effectively amounts to deploying the different models to their respective IM API endpoints in the OpenText Cloud Platform.

For each type of model, the OpenText Cloud Developer Tools provide a bespoke editor or modeler. To create a new model and launch the corresponding modeler, there are three methods:

Through the button (see Fig. 5.1.1) or the New Model menu entry of the [...] menu (see Fig. 5.1.2) of the Model Explorer (Models section of the OpenText Cloud Developer Tools view).

Fig. 5.1.1:

∨M	IODI	els 🕂	U	ð	
	⊞	Decision Tables			
	⊞	Groups			
	⊞	Namespaces			
	⊞	Permissions			
	⊞	Traits			
	⊞	l Types			
	⊞	Workflows			
-					

 Fig. 5.1.2:

 ✓ MODELS

 ▷ 
 ⊞
 Decision Tables

 ▷ 
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 Decision Tables

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 ⊞
 Decision Tables

 ⊞
 Bill
 Mamespaces

 ⊞
 Traits

 ⊞
 Types

 ⊞
 Workflows

This allows you to select the type of model you want to create (see Fig. 5.1.3). You are asked to provide a model name when clicking the chosen model type.





2. Through the **Command Palette** (see Fig. 5.2). You are asked to provide a model name when choosing one of the commands. Note that you can either use the **OpenText: New Model** command (which behaves the same way as the previously explained method) or any of the commands for direct creation of specific types of models.

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#### Fig. 5.2:

>opentext new	
OpenText: New ACL	<b>@</b>
OpenText: New Decision Table	
OpenText: New Group	
OpenText: New Model	
OpenText: New Namespace	
OpenText: New Trait	
OpenText: New Type	
OpenText: New UI Artifact	
OpenText: New Workflow	

Note that it is only allowed to create models in a model folder (the **otresources** folder that was automatically generated when setting up the project, or one of its subfolders). This means that for the above two methods, you need to save the model inside the **otresources** folder.

3. From the **Explorer** view, through the **OpenText: New Model** menu entry (see Fig. 5.3.1) from the contextual menu on a model folder (i.e.: the **otresources** folder or one of its subfolders).

EXPLORER		
V MY_APPLICATIO	N	
> otresources		
≣ .otproject	New File New Folder Reveal in File Explorer	Shift+Alt+R
	Open in Integrated Terr	ninal
	Find in Folder	Shift+Alt+F
	Cut	Ctrl+X
	Сору	Ctrl+C
	Copy Path	Shift+Alt+C
	Copy Relative Path	Ctrl+K Ctrl+Shift+C
	Rename	F2
	Delete	Delete
	OpenText: New Model	
	OpenText: Project Prope	erties
	OpenText: Deploy to De	efault Tenant

Fig. 5.3.1:

This allows you to select the type of model you want to create (see Fig. 5.3.2). You are asked to provide a model name when clicking the chosen model type.



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The remainder of this chapter describes the different modelers and how to use them to create the corresponding models.

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### 5.1 Creating a namespace

A namespace allows grouping the different types, traits, and workflows together (e.g.: within the context of an application). For more information on namespaces, you can refer to the <u>Define a</u> <u>namespace, trait and "FILE" document type</u> section in the Content Metadata Service (CMS) product documentation or the <u>Namespace</u> resource documentation in the Content Metadata Service API reference.

You can create a namespace via any of the three <u>model creation methods</u>. This opens the namespace modeler (see Fig. 5.4).

Fig. 5.4:

* Display name	* Name	
My Namespace	my_namespace	
* Prefix		
Description		

The different model properties on the namespace modeler screen are:

- **Display name:** the user-friendly name (i.e.: label) of the namespace; this does not have to be unique, and a default value is automatically filled using the model name you initially chose
- Name: the (technical) name of the namespace; this has to be unique (within your developer tenant), and a default value is automatically filled using the display name
- **Prefix:** the prefix representing the namespace (used in system naming of traits and types that are within that namespace); this has to be unique (within your developer tenant)
- Description: the description of the namespace

To save the namespace model, select Save from the File menu, or press Ctrl+S on your keyboard.

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### 5.2 Creating a trait definition

A trait definition allows grouping several attributes into one more complex multi-attribute property. Trait instances can be dynamically added to a type instance as part of the business process when using the application, but they can also be made mandatory as a required trait in a type definition, so that they must always be added when creating a new type instance. For more information on traits (definitions and instances), you can refer to the <u>Define a namespace, trait and "FILE" document type</u> and <u>Create instances using custom type with trait</u> sections in the Content Metadata Service (CMS) product documentation or the <u>Trait</u> resource documentation in the Content Metadata Service API reference.

You can create a trait (i.e.: a trait definition) via any of the three <u>model creation methods</u>. This opens the trait modeler (see Fig. 5.5).

Namespace	~	* Display name My Trait		* Name my_trait			
Description							
Attributes Indexes							
* Display name * Nan	ne * Data type	Default value	Size Repe Re	qu Unique Read Sear	+ Sorta		
	There are currently to attributes to display.						

Fig. 5.5:

The different model properties on the trait definition modeler screen are:

- **Namespace:** the namespace to which the trait belongs; the namespace dropdown list is populated with the namespaces that exist within the project, and you can opt not to select any namespace
- **Display name:** the user-friendly name (i.e.: label) of the trait; this does not have to be unique, and a default value is automatically filled using the model name you initially chose
- **Name:** the (technical) name of the trait; this has to be unique (within your developer tenant), and a default value is automatically filled using the display name
- Description: the description of the trait

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- Attributes: the attributes list defines the different attribute definitions of the trait definition; to add an attribute definition to a trait definition, you need to use the **II** on the top right of the attributes list; each attribute definition (see Fig. 5.6) has the following properties:
  - **Display name:** the user-friendly name of the attribute; this does not have to be unique, but it is recommended (to avoid confusion)
  - **Name:** the technical name of the attribute; this has to be unique within a trait definition, and it gets automatically populated for your convenience based on the display name you fill
  - **Data type:** the data type of the attribute; this is a pick list (bigint, boolean, date, double, integer, string and uuid)
  - **Default value:** the default value for the attribute (i.e.: the value that gets automatically assigned to the attribute when creating a new instance of the trait); whether it is possible to assign a default value and how to assign it depends on the chosen data type
  - Size: the size property only applies to the string data type and can thus only be chosen when picking the string data type; it represents the maximum length constraint for the string attribute
  - Repeating: whether or not the attribute is multi-valued (can have multiple values)
  - Unique: whether or not the attribute needs to be unique across all instances of the trait
  - o Required: whether or not the attribute must be filled upon creation
  - o Read-only: whether or not the attribute can be modified after creation
  - **Searchable:** whether or not the attribute can be filtered against when performing a search
  - o Sortable: whether or not the attribute can be used to sort a search result

#### Fig. 5.6:

Attributes Indexes											
Attributes											+
* Display name	* Name	* Data type	Default value	Size	Repeating	Required	Unique	Read-only	Searchable	Sortable	
		v									Î

- Indexes: for performance and/or unique constraints reasons, it is possible to create indexes for certain attributes or a combination of attributes; the indexes list defines the different index definitions of the trait definition; to add an index definition to a trait definition, you need to use the 
   on the top right of the indexes list; each index definition (see Fig. 5.7) has the following properties:
  - Name: the name of the index
  - Columns: the different columns (i.e.: attributes) to which the index applies
  - Unique: whether or not a unique constraint needs to be enforced

#### Fig. 5.7:

Attributes	Indexes				
Indexes					+
* Name		* Columns	Unique		
		I	· •	Î	

To save the trait definition model, select Save from the File menu, or press Ctrl+S on your keyboard.

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### 5.3 Creating a type definition

A type definition is the main component for building your application's (custom) data model. A type definition has its own attributes and required traits (i.e.: traits that are always added to the type instance upon creation). A type definition can be of four categories: **object** (i.e.: object with metadata, but no content), **file** (i.e.: document with metadata and content), **folder** (i.e.: container for subfolders, objects and files) or **relation** (i.e.: relates/links type instances with each other). Type definitions also allow for inheritance within the same category (i.e.: base type). For more information on types (definitions and instances), you can refer to the <u>Define a namespace</u>, trait and "FILE" document type and <u>Create instances using custom type with trait</u> sections in the Content Metadata Service (CMS) product documentation or the <u>Type</u> resource documentation in the Content Metadata Service API reference.

You can create a type (i.e.: a type definition) via any of the three <u>model creation methods</u>. This opens the type modeler (see Fig. 5.8).

Namespace	* Display name		* Name							
×	Му Туре		my_type							
* Category	Parent									
×		~								
Description										
Attributes Required traits Indexes										
Attributes										
* Display name * Name	* Data type	Default value	Size	Repeating	Required	Unique	Read-only	Searchable	Sortable	
		There are currently no a	attributes to dis	play.						

Fig. 5.8:

The different model properties on the type definition modeler screen are:

- **Namespace:** the namespace to which the type belongs; the namespace dropdown list is populated with the namespaces that exist within the project, and you can opt not to select any namespace
- **Display name:** the user-friendly name (i.e.: label) of the type; this does not have to be unique, and a default value is automatically filled using the file name you initially chose
- **Name:** the (technical) name of the type; this has to be unique (within your developer tenant), and a default value is automatically filled using the display name
- Category: the type category to which the type belongs; this can be object, file, folder or relation
- **Parent:** the parent type for the type, if it is a subtype of another; the parent dropdown list is populated with the types of the same category that exist within the project
- **Description:** the description of the type

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- Attributes: the attributes list defines the different attribute definitions of the type definition; to add an attribute definition to a type definition, you need to use the on the top right of the attributes list; each attribute definition (see Fig. 5.9) has the following properties:
  - **Display name:** the user-friendly name of the attribute; this does not have to be unique, but this is recommended (to avoid confusion)
  - **Name:** the technical name of the attribute; this has to be unique within a type definition, and it gets automatically populated for your convenience based on the display name you fill
  - **Data type:** the data type of the attribute; this is a pick list (bigint, boolean, date, double, integer, string and uuid)
  - **Default value:** the default value for the attribute (i.e.: the value that gets automatically assigned to the attribute when creating a new instance of the type); whether it is possible to assign a default value and how to assign it depends on the chosen data type
  - **Size:** the size property only applies to the string data type and can thus only be chosen when picking the string data type; it represents the maximum length constraint for the string attribute
  - o Repeating: whether or not the attribute is multi-valued (can have multiple values)
  - o Unique: whether or not the attribute needs to be unique across all instances of the type
  - o Required: whether or not the attribute must be filled upon creation
  - o Read-only: whether or not the attribute can be modified after creation
  - Searchable: whether or not the attribute can be filtered against when performing a search
  - o Sortable: whether or not the attribute can be used to sort a search result

#### Fig. 5.9:

Attributes Required t	raits Indexes										
Attributes											+
* Display name	* Name	* Data type	Default value	Size	Repeating	Required	Unique	Read-only	Searchable	Sortable	
		~									Î

- **Required traits:** the required traits list defines the different mandatory traits for the type definition; each required trait definition (see Fig. 5.10) has the following properties:
  - Instance name: the name of the required trait instance; this must be unique across the type definition's required traits
  - **Trait name:** the selected trait definition for the required trait instance; the trait name dropdown list is populated with the trait definitions that exist within the project

#### Fig. 5.10:

Attributes	Required traits	Indexes				
Required trai	its					+
<ul> <li>Instance nar</li> </ul>	me		* Trait name		Delete	
				×	Î	

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- Indexes: for performance and/or unique constraints reasons, it is possible to create indexes for certain attributes or a combination of attributes; the indexes list defines the different index definitions of the type definition; to add an index definition to a type definition, you need to use the 
   In on the top right of the indexes list; each index definition (see Fig. 5.11) has the following properties:
  - Name: the name of the index
  - o Columns: the different columns (i.e.: attributes) to which the index applies
  - Unique: whether or not a unique constraint needs to be enforced

#### Fig. 5.11:

Attributes Required tr	ts Indexes			
Indexes				+
* Name		* Columns	Unique	
			× 🗖	Î

For type definitions of category **relation** (where the **Category** property is **relation**) an additional **Relation** tab is displayed (see Fig 5.12) to allow filling the different relation specific properties:

- **Source display name:** a user-friendly name for the relation source type (typically the meaning of the source type in the relation)
- **Source type:** the type definition for the source type
- **Target display name:** a user-friendly name for the relation target type (typically the meaning of the target type in the relation)
- Target type: the type definition for the target type
- Cardinality: the relation cardinality (can by "One to one", "One to many" or "Many to many")
- Integrity type: what to do upon deletion of relation source or target

Relation	Attributes	Required traits	Indexes	
* Source displa	ay name		* Source type	
				~
* Target display	y name		* Target type	
				~
* Cardinality				
		~		
* Integrity type				
				~

To save the type definition model, select **Save** from the **File** menu, or press **Ctrl+S** on your keyboard.

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### 5.4 Creating a workflow definition

A workflow definition represents an executable process model from which process instances are created. The executable process model is stored as BPMN 2.0 encoded JSON. For more information on Workflow Service process models and process instances, you can refer to the <u>Workflow Service</u> product documentation or the <u>Workflow Modeler product documentation</u> or the <u>Workflow Service API reference</u>.

You can create a workflow (i.e.: a workflow definition) via any of the three <u>model creation methods</u>. This opens the workflow modeler (see Fig. 5.13).



Fig. 5.13:

For an exhaustive user guide of the workflow modeler, please refer to the <u>Workflow Modeler product</u> <u>documentation</u>.

To save the workflow model, select Save from the File menu, or press Ctrl+S on your keyboard.

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### 5.5 Creating a decision table definition

A decision table definition represents a set of defined business rules organized in an easy-tounderstand tabular view. The stored decision table definition is compliant with the DMN (Decision Model and Notation) specification. For more information on Decision Service and the Decision Table Modeler, you can refer to the <u>Decision Service product documentation</u>, the <u>Decision Table Modeler</u> <u>product documentation</u> or the <u>Decision Service API reference</u>.

You can create a decision table via any of the three <u>model creation methods</u>. This opens the decision table modeler (see Fig. 5.14).

Fig. 5.14:

* Namespac	e	* Displa	ay name	Name
		∽ My D	ecision Table	my_decision_table
Hit policy				
First		~		
Description				
Enter des	cription			
			•	
+	New Input ~ none		New Output ~ none	
Rules	Operator	Value	Value	

For an exhaustive user guide of the decision table modeler, please refer to the <u>Decision Table</u> <u>Modeler product documentation</u>.

To save the decision table model, select Save from the File menu, or press Ctrl+S on your keyboard.

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### 5.6 Creating a group

A (user) group can be used in the context of security (e.g.: as an accessor in an ACL), but also to represent a group of users that have a certain role for the application you are building. Groups can be nested (i.e.: one group can contain one or more other groups).

Adding users to a group is only possible once the group has been deployed (i.e.: this is a runtime and not a design-time activity). It can be done through the <u>Admin Center</u>, which can be opened from the Console view for your developer organization on **developer.opentext.com**. More specifically, you have to add users to the (subscription) groups that have been created inside of the application subscriptions. As there can be multiple application subscriptions in your organization (even multiple subscriptions in one tenant), you need to make sure that you add the users within the context of a specific subscription to the deployed application. This allows using multiple instances/subscriptions of the same application within the same organization or even tenant, each with a different set of users.

You can create a group via any of the three <u>model creation methods</u>. This opens the group modeler (see Fig. 5.15).

* Group name		
my_group		
Description		
Groups		Q
Group name	Description	
	There are currently no records to display	

Fig. 5.15:

The different model properties on the group modeler screen are:

- Group name: the name of the group; this has to be unique (within your subscription)
- Description: the description of the group
- **Groups:** the list of groups contained within the group (you can look up and select any group existing in the project); the list of contained groups shows the **Group name** and **Description** properties of the contained/nested groups

To save the group model, select Save from the File menu, or press Ctrl+S on your keyboard.

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### 5.7 Creating an ACL

An ACL (Access Control List) determines the security for the object (type instance) it is applied to. Users are granted the appropriate authorization on the object, based on the group (cf. <u>Creating a group</u>) or alias ('owner' or 'everyone') permissions defined in the ACL. A user's authorization corresponds with the highest accessor permission in the ACL that matches the user.

It is not possible to add an individual user to an ACL as the ACL modeler is not directly connected to the user management system. Directly including a user in an ACL is also not recommended as it would not allow for easy portability (across environments) or changes in the users database.

You can create an ACL via any of the three <u>model creation methods</u>. This opens the ACL modeler (see Fig. 5.16).

ig. 0. 10.			
* Name			
my_acl			
Description			
Permissions			Q
Identity alias	Group name	Permission level	
Owner		Full control	· Î

Fig. 5.16:

The different model properties on the ACL modeler screen are:

- Name: the name of the ACL; this has to be unique (within your subscription)
- **Description:** the description of the ACL
- **Permissions:** the list of permission definitions that define the permissions granted by the ACL; to add a permission definition to the ACL, you need to use the **Q** on the top right of the permissions list; each permission definition (see Fig. 5.16) has the following properties:
  - Identity alias: the first part of the accessor identity; it defines whether the permission definition refers to the owner of the object, a specific user group or all users in the system; possible values are "Owner", "Group" or "Everyone"
  - **Group name:** the second part of the accessor identity; when the identity alias is "Group", it defines the group name
  - Permission level: the permission level that is granted to the accessor identity; possible values are "Read", "Write", "Full control" or "Custom"; the "Custom" permission level (see Fig. 5.17) allows for a more granular definition of the permission level (beyond "Read", "Write" and "Full control")

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#### Fig. 5.17:

Edit permissions							
Permission level							
Browse	rite	itrol					
Read content	2 3	II cor					
Modify		Ŀ					
Attributes							
Relate							
Lock							
Create version							
Add/move items							
Change location							
Delete content							
Edit permissions							
Change owner							
Cancel Add select	ed						

Note that by default (when creating a new ACL) the owner of the object is granted "Full control" permissions. This can be modified if required.

To save the ACL model, select Save from the File menu, or press Ctrl+S on your keyboard.

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### 6 Deploying a project

This chapter describes how to deploy a project (i.e.: the application with its models) to the IM API endpoints in the OpenText Cloud Platform. To be able to deploy a project, you must have <u>set up an</u> organization profile.

Deploying a project can be done via the **More Actions** menu (see Fig. 6.1) or the workspace (root) folder's contextual menu (see Fig. 6.2) in the **Explorer** view, or via the **Deploy to Default Tenant** command in the **Command Palette** (see Fig. 6.3), or via the **More Actions** menu of the model explorer in the **OpenText Cloud Developer Tools** view (see Fig 6.4).

Fig. 6.1:

EXPLORER	 • • • • •		
<ul> <li>✓ MY_APPLICATION</li> <li>&gt; otresources</li> <li>Ξ .otproject</li> </ul>	L∓ C4 O ₪		OpenText: Project Properties OpenText: Deploy to Default Tenant

Fig. 6.2:



#### Fig. 6.3:



Fig. 6.4:



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When deploying your application for the first time, the **Output** view automatically opens and displays the **OT Deployment** output. It contains the tenant ID and (application) API key data. These need to be kept securely, as they are to be used in your project code to authenticate/communicate with the OpenText Cloud Platform APIs in context of your application.

Once deployed, an application corresponding with your project can be found in the Console view of your developer organization on **developer.opentext.com**.

Using the **Deploy to Default Tenant** option deploys your project to the default tenant in the default organization. In case an organization profile does not have any tenants configured for it, then deployment of the project is done to all tenants in corresponding organization.

To deploy your project to another organization or tenant mark that as default before triggering deployment.

In case you somehow lost the API key data for your application in a specific tenant then you can recreate this from the Developer Console.

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### 7 Using the ocp command line interface

This chapter describes the OpenText Cloud Platform command line interface, or in short ocp cli. This cli is the companion tool for the OpenText Cloud Developer Tools for VS Code. The main purpose of this tool is to automate the deployment related tasks of application development for the OpenText Developer Cloud, but it can also be used to manage the organization profiles for deployments.

Below information is a summary of the functionality provided by the ocp cli. For a complete and extensive overview of all options and functionality see the NPM page of the cli at <a href="https://www.npmjs.com/package/@opentext/ocp">https://www.npmjs.com/package/@opentext/ocp</a>

### 7.1 Installing the ocp cli

The OpenText Cloud Platform cli is available in the NPM nodejs package manager registry and can be installed with npm as follows

npm install -g @opentext/ocp

This makes the latest version of the ocp cli available to be used on the command line.

To get usage and help information use

ocp --help

To show the usage information for a specific action use

ocp <action> --help

### 7.2 Profile management

The ocp cli and the OpenText Cloud Developer Tools for VS Code share the same profile configuration file. This means that both tools can be used to manage the developer profiles.

To list the configured profiles use

ocp list-profiles

This shows the profiles and some of their properties, like Name, Organization id and whether it is the default profile.

Profiles available in configur	ration file: C:\Users\jpluimer\	.ot2\profiles.json	
Name Proje	ect Org Name	Org ID	Default
BT_CONFIDENTIAL	JOPL	and the second second	YES
Devx1	Devx1		
OpenText eu-1	OpenText		
OpenText na-1-dev	OpenText		
OpenText-na-1	OpenText	the second second second	and the second second

The default organization profile is used by the cli in case no specific profile is specified when an action is requested.

To create a new organization profiles use

ocp update-profile

This action can be used to add a new organization profile or update an existing one.

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To add a specific tenant to an organization profile use

ocp add-tenant

To validate that a profile is correct and can be used to authenticate the authenticate action can be used. To authenticate by using a specific organization profile use

ocp authenticate --profile QA

When the profile option is omitted then the default organization profile will be used to authenticate.

Two types of profiles are supported for authentication. There is the public client type and the confidential client type of profile.

#### **Public client authentication**

When using an organization profile with public client then the ocp cli and the OpenText Cloud Developer Tools for VS Code trigger an authentication flow in the browser, requesting the developer to log in. This means that authenticating via a public client always needs developer involvement at some point, as they need to login at the identity provider. A profile is considered to use a public client in case only the client\_id is configured and the client-secret is omitted.

#### **Confidential client authentication**

The other option of authentication is done by using the confidential client and secret. This option does not involve user interaction but is done completely standalone between the ocp cli and the OpenText Developer Cloud. Because this option does not need user involvement it is a good option for usage in a CI/CD pipeline, to run automated tests. A profile is considered to use a confidential client in case both the client\_id and client\_secret are configured for the profile.

For a full list of profile management examples see

https://www.npmjs.com/package/@opentext/ocp#profile-usage-examples

#### 7.3 Command line deployments

The OpenText Cloud Developer Tools for VS Code allow developers to deploy their projects to the OpenText Cloud Platform. The ocp cli can be used to deploy these same projects from the command line.

To deploy the project available in the current folder, via the default organization profile, to the default configured tenant, use

ocp deploy

The folder where the cli is executed must contain the .otproject file. The workspace option can be used to specify another folder for containing the application project to be deployed

ocp deploy --workspace ./my projects/contract approval

While deploying the application project the deployment service will create an application definition, if that doesn't exist yet, in the Developer Console. With that application definition also API key data, app credentials, are created and returned to the client. This API key data is displayed as output. To save these app credentials to a file use

ocp deploy --app credentials output <file path>

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This will add the following properties to the given file:

- APPLICATION ID=<Unique application ID>
- PUBLIC CLIENT ID=<application public client secret>
- CLIENT ID=< application confidential client ID>
- CLIENT SECRET=< application confidential client secret>

Note, the app credentials only are created when the application definition does not exist in Developer Console.

The cli will first create a temporary package of the project and then upload this package to the OpenText Developer Cloud. It is possible to not upload the package directly but save it to a local file instead, such that it can be stored in a repository and made available for later use. To create a local package, use the target option

ocp deploy --target contract\_approval.ot2p

This generates a deployable package without deploying. The package is saved in the current folder and always has an .ot2p file extension.

To deploy an earlier created package, use the source option

ocp deploy --source contract approval.ot2p

### 7.4 Considerations when using ocp in a CI/CD pipeline

One part of application development is running automated tests from a CI/CD pipeline, in for example Jenkins or Gitlab. This allows the developer to automatically run a predefined set of tests to validate that the changes done to the application don't break functionality.

When developing an application that uses one or more OpenText Cloud Platform services, before running the actual tests, the application model definitions as part of the application must be deployed into the tenant against which the automated tests are run. This normally is one of the steps in a CI/CD pipeline.

A CI/CD pipeline typically runs without user interaction. This means that the pipeline step that deploys the application via the ocp cli best uses the confidential client approach.

There are a couple of different ways to pass the profile information to the ocp cli:

- via the .ot2/profiles.json file in the user's home directory,
- via a specifically specified configuration file in the config\_file option,
- via a set of options directly passed when calling the ocp cli,
- via environment variables.

Depending on your needs, use any of the above options in your ocp deploy pipeline step.

Example: passing a local configuration file, instead of using the default ~/.ot2/profiles.json file and using the workspace option to specify the application project location

```
ocp deploy --config_file ./projects/profiles/qa_profiles.json
--workspace ./projects/contract_approval --app_credentials_output
./ca app creds.properties
```

Example: where no predefined profile is used but all information is passed directly from the command line

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ocp deploy --org\_id 6dd45f25-e88b-453b-9eab-a1eb157da9a1 --client\_id Z7JFAKE363a67joplga56g8IhaDrX1 --client\_secret fk195kf94lkdd9 --region na-1-dev --app\_credentials\_output ./ca\_app\_creds.properties --tenant\_id a52460e6-ce3a-47c1-9bbc-6bb595a7adaa

See <u>https://www.npmjs.com/package/@opentext/ocp#environment-variables</u> for a list of available environment variables that can be used.

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